Final Site-Wide Soil
Remedial Investigation
Kaiser Trentwood Facility
Spokane Valley, Washington

Volume I

Prepared for
Kaiser Aluminum
Washington, LLC

May 2012
2644-114

HARTCROWSER

www.hartcrowser.com

HARTCROWSER

Final Site-Wide Soil
Remedial Investigation
Kaiser Trentwood Facility
Spokane Valley, Washington

Volume I

Prepared for
Kaiser Aluminum Washington, LLC

May 2012
2644-114

Prepared by
Hart Crowser, Inc.

William B. Abercrombie

William B. Abercrombie
Principal

Ross Stainsby, LHG, PMP
Associate

1700 Westlake Avenue North, Suite 200
Seattle, Washington 98109-6212
Fax 206.328.5581
Tel 206.324.9530

CONTENTS

Page

VOLUME I

CONTENTS (Continued) Page

CONTENTS (Continued) <u>Page</u>

CONTENTS (Continued) Page

CONTENTS (Continued) <u>Page</u>

CONTENTS (Continued) Page

CONTENTS (Continued) <u>Page</u>

CONTENTS (Continued) Page

CONTENTS Page

TABLES

FIGURES

1.0 INTRODUCTION

This Site-Wide Soil Remedial Investigation (RI) report describes current conditions and additional field investigations completed to supplement historical investigations and existing knowledge about environmental conditions at the Kaiser Trentwood Facility (Facility) located in Spokane Valley, Washington (Figure 1-1). The RI was conducted in accordance with the Phase II RI Work Plan submitted to Kaiser Aluminum Washington, LLC (Kaiser) and the Washington State Department of Ecology (Ecology) in November 2007 (Hart Crowser 2007). The Phase II RI Work Plan and subsequent field activities were conducted pursuant to the requirements outlined in Task V of Exhibit B to Agreed Order No. DE 2692 with Ecology (August 16, 2005).

In addition, a portion of this work, such as the transfer lines investigations, was conducted in accordance with the Phase I RI Work Plan, as designated by Ecology.

1.1 PURPOSE

This Site-Wide Soil RI represents a continuation of soil and groundwater investigations that have been ongoing for over 25 years at the Facility. Extensive investigative work and cleanups have been conducted at various locations throughout the Facility. Kaiser initially conducted these investigations voluntarily with input from Ecology, and then under Agreed Order No. DE2692, as areas of concern were identified at the Facility. The primary purpose of the Site-Wide Soil RI is to provide sufficient information, in combination with existing characterization data, to allow for evaluation of cleanup alternatives and selection of a cleanup action for the various areas at the Facility. Being typically an iterative process, additional investigation may be appropriate at certain areas of the Facility in the future.

This document presents an interpretation of the soil data collected at the Facility with limited reference to groundwater data within specific areas of the Facility. For more detailed information on groundwater quality at the Facility refer to the companion Site-Wide Groundwater RI report (Hart Crowser 2012).

Kaiser completed the Phase II RI Work Plan in November 2007 (Hart Crowser 2007). Relevant information obtained during initial investigations, the Phase I RI, and specific remedial or interim actions were presented in the Phase II RI Work Plan and summarized in this report, as appropriate.

Data obtained during the implementation of the Phase II RI Work Plan, in conjunction with initial investigations, the Phase I data, and ongoing groundwater monitoring, will be used by Kaiser and Ecology to define, as practicable, the nature and extent of contamination at the Facility and to develop a cleanup action, as warranted.

1.2 REPORT ORGANIZATION

This Site-Wide Soil RI report has been developed in accordance with WAC 173-340-350 and consists of nine sections and three appendices presented in two volumes. Eight general areas of the Facility are discussed in Sections 2 through 9. Each of these sections presents a discussion of the background, Phase II investigation (as defined by the Work Plan), previous investigations, and summary of the concerns identified in each general area. Proposed areas to be evaluated for the Feasibility Study (FS) are presented for each specific location within the general area. References for each section are presented at the end of their respective section. Tables and figures are numbered by section and are presented at the end of their respective section.

This Site-Wide Soil RI sections presented in Volume I include the following:

- **1.0 INTRODUCTION** describes the project background, Facility description, objectives, and report organization.

- **2.0 OIL RECLAMATION BUILDING AREA** addresses work completed around the Oil Reclamation Building (ORB) including recent Spill Prevention, Control, and Countermeasure (SPCC) upgrades; Man-Made Depressions; G1, G2 (including the investigative and cleanup work associated with the 1992 oily emulsion spill), and G3 Wastewater Transfer Lines; and work completed in the vicinity of the 1980 Fuel Oil Spill.

- **3.0 RAIL CAR UNLOADING AREA** presents the investigative work associated with the Rail Car Unloading (RCU) Building and the 100,000-Gallon Fuel Oil Tank.

- **4.0 COLD MILL/FINISHING AREA** addresses specific investigation and cleanup work conducted in six areas in and around the Cold Mill and Finishing Department located at the south end of the mill building. These areas include the Cold Mill Transfer Line, the Transformer Yard, the

Continuous Can Process Line (CCPL), the Chromium Transfer Line, the Cold Mill Electrical Grounding Pit (EGP), and the Former Coater Line Tank (i.e., MEK tank).

- **5.0 OIL HOUSE AREA** presents a summary of available information for six specific areas in and around the Oil House building. These areas include the Oil House Tank removal, the 500-Gallon Diesel Tanks, the 20,000-Gallon Leaded Gasoline Tank removal, the eight underground storage tank (UST) investigation, the Oil House Drum Storage and French Drain investigation, and the Tank Farm Kensol Spill.

- **6.0 WASTEWATER TREATMENT AREA** discusses available information and cleanup actions conducted on the Wastewater Treatment area including the Field-Constructed Tanks (FCTs), the former Hoffman Tank, and Hydrogen Sulfide Scrubber Building.

- **7.0 TRUCK SHOP AREA** presents a summary of previous investigations completed related to the Truck Shop Tank.

- **8.0 FORMER DISCHARGE RAVINES** presents a summary of the investigations and cleanup actions completed on the West and South Discharge Ravines.

- **9.0 REMELT/HOT LINE AREA** presents a summary of historical investigations in the Remelt/Hot Line area and summarizes investigation data.

These sections are supported by three appendices, which are presented in Volume II:

- **APPENDIX A** presents logs of explorations conducted at the Facility since December 2002.

- **APPENDIX B** presents the soil to groundwater preliminary screening level calculation tables.

- **APPENDIX C** presents the quality assurance/quality control (QA/QC) evaluation of the chemical data used in this report.

Work defined in the Phase II RI Work Plan for this Site-Wide Soil RI began early in July 2006 and was completed in October 2008.

Analytical results presented in this Site-Wide Soil RI are compared to the screening levels as discussed in Section 1.5 and indicated in Tables 1-1 and 1-2 for unsaturated and saturated soil conditions, respectively. The screening levels were developed under Ecology's guidance specifically for the Facility. The screening levels are based on current conservative values including Model Toxics Control Act (MTCA) Method B calculated cleanup levels and applicable state and federal regulatory criteria or standards (also known as Applicable or Relevant and Appropriate Requirements [ARARs]). The screening levels are designed to be conservative to help eliminate constituents from further consideration, as appropriate. Additional evaluation of detected constituents will be included in the Feasibility Study (FS) to be completed following Ecology's approval of the RI. Comparison to the screening levels does not represent an interpretation of final cleanup standards for the Facility. Final cleanup standards will be developed under the requirements of MTCA, including a public approval process and will be approved by Ecology.

1.3 LOCATION AND FACILITY DESCRIPTION

The Kaiser Trentwood Facility, which consists of about 512 acres of land, is located in the Spokane River Valley at East 15000 Euclid Avenue, Spokane Valley, Washington, about 10 miles east of downtown Spokane (Figure 1-2). Township/range coordinates for the site are Township 25 North, Range 44 East, Section 2 (South 1/2), Section 3 (Southeast 1/4), Section 10 (Northeast 1/4), and Section 11 (North 1/2).

The Kaiser Trentwood aluminum rolling mill was originally planned and constructed by the United Engineering and Foundry Company of Pittsburgh, Pennsylvania, acting "for and on the behalf of" the US Government's Defense Plant Corporation. The purpose of the Facility was to provide aluminum for the manufacture of fighter planes and bombers used in the World War II effort. The first construction machinery was at the site in April 1942, and the first aluminum ingot was cast from the mill on November 24, 1942. During the war, 75 percent of the aluminum was heat-treated, and 25 percent was annealed. The plant successfully supported the war effort, and at war's end, was temporarily shutdown (with weekly standby maintenance).

Kaiser Aluminum & Chemical Corporation first leased the government's surplus Trentwood Facility in 1946. Kaiser redesigned machinery throughout the plant to allow for manufacture of more diverse products. For example, the cold roll area was changed to produce soft alloys, which were used for transportation, building materials, and consumer goods. Flat sheet, coil sheet, coring sheet, and plate were the aluminum products initially produced at Trentwood, in two basic alloy types—soft (non-heat-treatable) and hard (heat-treatable). At the end of 3 years of operation, Kaiser purchased the facility from the federal government.

Post-World War II domestic and overseas demands for aluminum were above expected levels, and with the advent of the Korean War in the early 1950s, defense needs also increased. A booming economy resulted in Kaiser expanding its Trentwood Facility to keep up with the demand.

During the Korean War, Trentwood installed machinery for roll forming and added equipment for painting, slitting, and anodizing its products. In the late 1950s, Kaiser was developing a continuous heat-treat furnace that would significantly reduce the labor involved in the manual process.

The 1960s brought an important capital and process addition to the Kaiser Trentwood facility—coating coil to be used as the ends of beverage cans. Kaiser developed the industries first can stock finishing line.

The 1970s brought changes associated with passing of the Clean Air and Clean Water Acts. Induction and rotary barrel furnace emissions in the Remelt Department were controlled by new baghouses. An Industrial Wastewater Treatment (IWT) plant was constructed in 1972-1973, consisting of a cooker, oil/water separators, wastewater storage tanks, Hoffman Tank, lime neutralization system, a clarifier, drum filter, sludge bin, surge pond, and lagoon.

The 1980s and 1990s were a period of modernization and equipment upgrade at the Kaiser Trentwood mill, to keep pace with the changes in technology and customer needs. Since 2001, plant production operations have become more focused on the aircraft, transportation, and industrial markets. As part of this change, the beverage can body and lid stock were eliminated.

1.4 INVESTIGATIONS AND CLEANUP BACKGROUND

Kaiser has been evaluating soil and groundwater quality at the Facility since the late 1970s. Figure 1-3 presents the locations of the various explorations conducted on behalf of Kaiser over the years. The draft Groundwater Remedial Investigation/Feasibility Study (RI/FS) report issued in September 1996 was the first comprehensive report to describe site groundwater quality conditions (Hart Crowser 1996). Ecology reviewed the 1996 RI/FS and provided comments. Kaiser completed additional work to address agency comments and issued an updated groundwater RI/FS report in 2001. After Ecology reviewed this update and provided additional comments, Kaiser performed another round of groundwater investigations and reported the results in the July 2003

Groundwater RI/FS report update (Hart Crowser 2003). Since that time, Kaiser has continued to investigate groundwater quality at the Facility with a focus on the Casting (also called Remelt) and Hot Line areas where a groundwater PCB plume has been identified.

Investigation of specific historical release areas generally began in 1989 in the Oil House area. Area-specific investigations and cleanup actions have continued at the Facility as areas needing attention were identified. Each of the areas discussed in Sections 2 through 9 includes a brief description of the historical background associated with the subject investigation and/or cleanup.

1.5 DEVELOPMENT OF SOIL SCREENING LEVELS FOR THE PROTECTION OF GROUNDWATER

Contaminants in soil can pose potential risks to human health and the environment via three pathways—direct contact (dermal and ingestion), the vapor pathway for volatiles, and the soil to groundwater leaching pathway. The evaluation of the direct contact pathways conducted as part of this Site-Wide Soil RI is presented in the Ecological and Human Health Risk Assessments (Pioneer 2012). The potential vapor pathway for areas where volatiles have been detected is discussed in Sections 2 and 7 of this RI report. This section discusses the soil to groundwater pathway and the derivation of the soil screening levels used to identify areas that may pose a potential risk to groundwater due to the leaching of soil-bound constituents.

Soil screening levels are not cleanup standards and do not necessarily trigger the need for cleanup actions or define unacceptable concentrations of constituents in soil. They represent conservative concentrations to compare site constituent concentrations to identify areas and constituents that may require further attention. Generally where site constituent concentrations fall below the soil screening levels, no further action or study is warranted under MTCA.

The soil to groundwater screening levels developed and presented in this section for constituents detected are intended to evaluate the areas of the Facility with historical contamination that may require further study or investigation. As such, these numbers represent very conservative values for the applicable constituents present in soil. Application of the screening levels to the soil constituents detected at the various sites throughout the Trentwood Facility is provided in Sections 2 through 9. This section explains the methodologies and assumptions used in developing the soil to groundwater screening levels for the Facility.

1.5.1 Fixed Parameter 3-Phase Partitioning Model

MTCA regulations require that parties performing cleanup actions assess soil concentrations that will cause an exceedance of applicable groundwater cleanup levels due to the leaching of constituents from the soil. The MTCA regulations allow for the use of partitioning models, empirical demonstrations, or leaching tests to determine soil constituents that may cause an exceedance of groundwater cleanup levels. Partitioning models can be used to calculate soil concentrations for hazardous substances that pose a risk to groundwater from both unsaturated (above the groundwater table) and saturated (below the groundwater table) zone soil constituents. The various models approved for use under MTCA use chemical-specific data and site-specific data (for some models) to estimate the affinity a particular constituent would have for remaining bound to the soil under steady state conditions and to determine the threshold soil concentration for constituents that may cause an exceedance of the applicable groundwater cleanup levels. Partitioning models assume that the concentration of a constituent dissolved in the soil pore water is directly proportional to the concentration of that substance adsorbed to the soil at equilibrium conditions. This theory is conservative and may overstate potential risks as it assumes the contaminated soil and the groundwater are in direct contact, there is no contaminant attenuation in the soil or groundwater (saturated screening levels only), soil contaminants are uniformly distributed throughout the soil column (surface to groundwater), and maintain constant concentrations throughout the exposure period (EPA 1996).

To examine the soil to groundwater pathway for constituents at this Facility, soil screening levels were developed using the Fixed Parameter 3-Phase Partitioning Model per the procedures in MTCA (WAC 173-340-747). The 3-Phase Partitioning Model with fixed input parameters (Equations 1.1 and 1.2) may be used to establish a soil concentration for any constituent provided that toxicity and chemical parameter data are available for that substance. This conservative method provides default or fixed input parameters for the 3-Phase Partitioning Model that are intended to be protective under most circumstances and conditions. Site-specific data are not required for use of this model. This model can be used to calculate both unsaturated and saturated zone soil concentrations.

The Fixed Parameter 3-Phase Partitioning Model is described by the following equations:

$$C_s = C_w * (UCF) * DF * \left(K_d + \frac{(\Theta_w + \Theta_a * H_{cc})}{\rho_b} \right)$$ **Equation 1.1**

$$K_d = K_{OC} * f_{OC}$$ **Equation 1.2**

where:

- C_S = Soil screening level in mg/kg. Concentrations of constituents in soil below this screening level are assumed to not adversely affect groundwater;
- C_w = Groundwater screening level (SL) in ug/L developed for evaluation of the soil to groundwater pathway at the Kaiser site in this RI. The development of these SLs is detailed below;
- UCF = Unit Conversion Factor (1 mg/1,000 ug);
- DF = Dilution Factor (dimensionless). Default values used are 20 for unsaturated soil and 1 for saturated soil;
- K_d = Distribution Coefficient in L/kg. The distribution coefficient is the soil-water partitioning coefficient. It is the ratio of a chemical's soil adsorbed concentration (mg/kg) to the dissolved concentration (mg/L) at equilibrium. See Equation 1.2;
- Θ_w = Water-filled soil porosity in ml water/ml soil. Default values used are 0.30 ml water/ml soil for unsaturated soil and 0.43 ml water/ml soil for saturated soil;
- Θ_a = Air-filled soil porosity in ml air/ml soil. Default values used are 0.13 ml air/ml soil for unsaturated soil and zero for saturated soil;
- H_{cc} = Henry's law constant (dimensionless). Henry's law constant is the ratio of a chemical's concentration in the air to its concentration in water at equilibrium. The parameter is chemical-specific. These values were obtained mainly from Ecology’s Cleanup Level and Risk Calculation (CLARC) Information System (Ecology 2009). For all metals present, except mercury, a Henry’s constant of zero was used;
- ρ_b = Dry soil bulk density in kg/L. The default value used is 1.5 kg/L;
- K_{oc} = Soil organic carbon-water partitioning coefficient in ml/g. The soil organic carbon-water partitioning coefficient is the ratio of the mass of a chemical that is adsorbed in the soil per unit mass of organic carbon in the soil per the equilibrium chemical concentration in solution. K_{oc} is the distribution coefficient (K_d) normalized to the total organic carbon (TOC) content of the soil; and

- f_{oc} = Soil fraction of organic carbon. The default value used is 0.1 percent or 0.001 g/g for organic compounds and 100 percent for inorganic compounds (refer to below discussion pertaining to the use of the 100 percent f_{oc} value for metals).

Chemical-Specific Parameters

In the Fixed Parameter 3-Phase Partitioning Model (Equations 1.1 and 1.2), the values for the groundwater screening levels (C_w), the Henry's Constant (H_{cc}), and the partitioning coefficients (K_d and K_{oc}) are chemical-specific and will vary for each compound detected at Kaiser. The other parameters in Equations 1.1 and 1.2 are fixed by MTCA as detailed above and in WAC 173-340-747.

The groundwater SL (C_w) used in the Fixed Parameter 3-Phase Partitioning Model was calculated for the majority of compounds detected at Kaiser using the MTCA Method B standard formulas for carcinogenic and non-carcinogenic compounds (WAC 173-340-720). If a compound had both a carcinogenic and non-carcinogenic SL, the lower of the two values was used. The groundwater SL obtained from Method B was then compared to primary and secondary drinking water Maximum Contaminant Levels (MCLs) under the state and federal Safe Drinking Water provisions. If a primary or secondary MCL was available for a particular compound and that value was more stringent than the Method B SL, the MCL value was used for C_w in Equation 1.1.

The groundwater SLs developed in the Site-Wide Groundwater RI were not used in the 3-Phase Partitioning Model. The groundwater SLs presented in the Groundwater RI are based on the most stringent drinking water and surface water criteria in MTCA and with consideration of ARARs. The values are extremely low, especially for PCBs, various metals, and cPAHs. We evaluated the use to these very conservative values for the C_w in Equation 1.1. This resulted in extremely low soil screening levels for the protection of groundwater. We judged that it is it not productive to use such low screening levels for the soil at the Kaiser site.

In addition, the surface water cleanup level does not apply to groundwater until it reaches the point where it enters the surface waters. This point of compliance is generally at or near the surface water/groundwater interface. The groundwater cleanup levels at this point of compliance will need to be established at concentrations that are protective of human health and the aquatic environment at the point of compliance. This recognition is incorporated into the Groundwater RI by using surface water protection value as the screening level for PCBs, cPAHs, arsenic and manganese, and other COCs at the site, when appropriate.

The majority of the H_{cc}, K_d, and K_{oc} values used in Equations 1.1 and 1.2 were obtained from Ecology's CLARC Information System database (Ecology 2009). Several compounds did not have CLARC values for H_{cc}, K_d, and/or K_{oc}. In this event, several other resources were consulted for empirically derived values for these parameters. The soil to groundwater pathway screening level calculation tables are provided in Appendix B. References for chemical-specific parameters for each compound are provided in these tables.

For the metals present, with the exception of mercury, a Henry's constant of 0.0 was used as metals will not generally partition into the air. For the organic compounds, the MTCA default value for soil fraction of organic carbon of 0.1 percent or 0.001 g/g was used. As metals do not partition significantly into soil organic material, a f_{oc} value of 100 percent or 1 g/g was used for the metals detected at Kaiser.

Saturated and Unsaturated Soil to Groundwater Screening Levels

As chemical constituents migrate from the surface through the unsaturated soil zone, their concentrations will be attenuated by adsorption to the soil and by degradation. To account for attenuation in the unsaturated soil zone, the Fixed Parameter 3-Phase Partitioning Model adjusts the dilution factor in Equation 1.1. The dilution factor (DF) is adjusted from 20 for unsaturated to 1 for saturated zone soils. A dilution factor of 1 assumes that there is no attenuation of soil concentrations due to soil adsorption, degradation, or dilution with clean groundwater. This is a conservation assumption, which asserts that the concentration in a receptor well will be the same as the leachate concentration from some upgradient contaminated zone. The default dilution factor value of 20, specified by MTCA and used for unsaturated soils, is based on a 0.5-acre source area and represents the geometric mean of 300 sites modeled (Ecology 2001).

The Fixed Parameter 3-Phase Partitioning Model (Equation 1.1) additionally adjusts the following parameters in the transition from unsaturated to saturated soils: the water-filled soil porosity (Θ_w) is adjusted from 0.3 to 0.43; and the air-filled soil porosity (Θ_a) is adjusted from 0.13 to 0.0. The adjustments to the soil/water and soil/air porosity made for saturated soils accounts for increased water content and the complete evacuation of air in the soil pores. In general, the saturated soil screening levels will be one order of magnitude lower than the unsaturated soil screening levels; mainly due to the elimination of the dilution factor (DF) of 20 in Equation 1.1.

Compounds with No Fixed Parameter 3-Phase Screening Levels

Several compounds, or groups of similar compounds, were assigned screening levels from either 3-Phase Screening Levels for similar compounds or from the values in the MTCA Method A table. As detailed below, the reasons for this were the lack of available published information on a particular compound or the MTCA Method A table values were more stringent than the 3-Phase values.

Lead

Equation 1.1, described above, uses the groundwater SLs (C_w) to calculate the soil to groundwater screening levels. For the majority of compounds that were detected at Kaiser (with the exception of total petroleum hydrocarbons [TPH] as discussed below), a MTCA Method B groundwater cleanup level was calculated. The calculation of these Method B groundwater cleanup levels is discussed in detail in the Site-Wide Groundwater RI (Hart Crowser 2012).

For lead, there are no available cancer potency or reference dose factors to calculate Method B carcinogenic and non-carcinogenic groundwater SLs. Therefore, MTCA Method A defaults to the Safe Drinking Water Act "Treatment Technique" value of 15 ug/L as a groundwater SL for lead (Ecology 2001). Use of this value for C_w in Equation 1.1 yields an unsaturated soil screening level one order of magnitude higher that the Method A soil SL of 250 mg/kg. To provide a more conservative screening, the MTCA Method A value was used for lead. This SL of 250 mg/kg is based on preventing unacceptable blood levels of lead (Ecology 1991).

Polychlorinated Biphenyls (PCBs)

Soil testing at Kaiser conducted since the late 1980s has included analysis for the various Aroclors that were commonly used by industry prior to their banning in the United States in the 1970s. Aroclors are mixtures of different chlorinated biphenyls that were sold in the United States under the trade name Aroclor followed by a four digit number (e.g., Aroclor 1248). The first two digits refer to the number of carbon atoms in the biphenyl molecule and the second two digits refer to the mass percentage of chlorine in the PCB mixture. Therefore, Aroclor 1248 contains 12 carbon atoms and 48 percent chlorine by mass. The exception to this nomenclature is Aroclor 1016, which contains 12 carbon atoms and 42 percent chlorine by mass.

The testing methods used for Kaiser soil identify and report individual Aroclors and additionally sum all detected Aroclors in a sample to report a "Total PCB" value. Reliable toxicity data necessary to calculate Method B groundwater SLs as well as chemical parameter data such as K_{oc} values used in Equation 1.1 are lacking for most Aroclors but are available on CLARC for Total PCBs. Therefore, the soil to groundwater screening level calculated for Total PCBs was used. In comparing the limited toxicity and chemical parameter data available on CLARC for Aroclors, applying the Total PCB screening number provides the most stringent screening via the Fixed Parameter 3-Phase Partitioning Model.

Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)

There are seven PAHs that have been identified by the EPA as known or probable human carcinogens recognized as capable of eliciting cancer in humans. These include benzo(a)anthracene, benzo(b)fluoranthene, benzo-(k)fluoranthene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. In accordance with Ecology regulations (Ecology 2007), detected concentrations of these seven cPAHs were combined into one concentration using a toxic equivalency (TEQ) approach for the purpose of the soil to groundwater pathway screening.

Using this approach, each of the seven cPAHs was assigned a benzo(a)pyrene toxicity equivalence factor (TEF) value. TEFs are estimates of the toxicity of the different cPAHs relative to the toxicity of benzo(a)pyrene, which has been assigned a TEF value of 1. To derive the cPAH TEQ concentration used in the soil screening, the detected concentration of each of the seven cPAHs was multiplied by its assigned TEF value, and then each of these seven concentrations was added to derive a total cPAH TEQ concentration. Non-detected cPAHs were assigned a value of zero for the purpose of calculating the total cPAH TEQ concentration. It is these cPAH TEQ concentrations that were compared to the benzo(a)pyrene soil to groundwater screening levels for unsaturated and saturated soils. For the purposes of the overall screening as presented in Tables 1-1 and 1-2, the cPAH TEQ concentrations are compared to the soil to groundwater screening level determined for benzo(a)pyrene (BaP).

Total Petroleum Hydrocarbons Screening Levels

Based on the lack of toxicity and chemical parameter data, the Fixed Parameter 3-Phase Partitioning Model cannot be used to calculate screening levels for TPH compounds. The current MTCA regulation allows for the use of two approaches to analyze for TPH compounds: the “total” approach under Method A, and the “fractionated” approach under Methods B and C. The fractionated approach requires the use of the volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) methods to analyze for gasoline-range organics (GRO) and diesel-range organics (DRO)/heavy oils, respectively. These methods report the equivalent carbon ranges present in a sample rather than the specific

TPH compounds present (i.e., kerosene). As there are limited VPH and EPH data available from the investigations conducted at Kaiser, the total approach under Method A was selected to screen for TPH. The total approach currently defaults to two analytical methods; NWTPH-Gx for GRO, and NWTPH-Dx for DRO/heavy oil.

Under this approach, the following MTCA Method A screening levels were applied to both unsaturated and saturated soils: 100 mg/kg for gasoline mixtures (without benzene) and Stoddard solvent/mineral spirits, and 2,000 mg/kg for diesel- and heavy oil-range organics.

TPH Analysis and Screening Rules. TPH concentrations in soil have been evaluated at Kaiser for approximately 20 years. Through that time there have been many refinements to analytical techniques enabling more specific characterization of the TPH composition of soil samples. This has been particularly important for the various investigations at Kaiser as several different TPH-containing products were used across the Facility, ranging from gasoline to heavy oils. The composition of these TPH-containing products varies widely and is directly related to the associated toxicity and mobility of TPH compounds through the soil. Note that Castor Oil (identified by same analyses) is a vegetable (non-petroleum)-based oil. Castor oil is used as a releasing agent in the casting/remelt area. Other non-petroleum synthetic oils may have been used in hydraulic formulations at the site, which may have included Pydraul. Early formulations of Pydraul included a mixture of PCBs and phosphate esters. Castor oil is the only non-petroleum oil that has been individually identified and quantified in the methods described below.

The various methods used for TPH analysis over the years at Kaiser include the following:

- **EPA Method 418.1.** This infrared spectrophotometer method provides a single value of TPH. It does not provide information on the composition of the hydrocarbon mixture. This method was used during the initial site characterizations conducted in the late 1980s and early 1990s. At that time, it was the only petroleum hydrocarbon analysis accepted by the regulatory agencies.
- **EPA Method 8015.** This gas chromatograph/flame ionization detector (GC/FID) method reports the concentration of volatile and extractable hydrocarbons and can provide information on the composition of the hydrocarbon mixture.
- **Ecology Method NWTPH-HCID (Modified).** NWTPH-HCID (modified) is a GC/FID method that provides a qualitative and semi-quantitative analysis for hydrocarbon identification. The NWTPH-HCID method is used to identify

petroleum products containing components for C7 to above C37. Petroleum products applicable for this method include gasoline, mineral spirits, Stoddard solvent, kerosene, jet fuels, diesel, fuel oils, and heavy oils. Kensol and castor oil were added as reference standards to NWTPH-HCID because of past releases of both oils on the site. Castor oil was added as a reference standard in March 2005. In general, the NWTPH-HCID method is used to determine the presence and type of petroleum constituents present at a facility with finer quantitative analysis to be provided by NWTPH-Gx and NWTPH-Dx methods. The modified NWTPH-HCID method used for Kaiser soil provided a semi-quantitative analysis, which includes estimating the concentration of the various hydrocarbon components from a one point calibration. Comparative data collected during both the Phase I and Phase II investigations where samples for NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx analysis were collected demonstrate that the NWTPH-HCID modified method used for soil and groundwater analysis at Kaiser accurately quantifies petroleum concentrations in these two media at the Facility.

- **Ecology Method NWTPH-Gx.** This method provides a qualitative and quantitative method for volatile petroleum products. Petroleum compounds applicable for NWTPH-Gx include gasoline, naphtha, mineral spirits, Stoddard solvent, and other volatile components present.
- **Ecology Method NWTPH-Dx.** This method provides a qualitative and quantitative method for semivolatile petroleum products. Petroleum compounds applicable for NWTPH-Dx include kerosene, jet fuels, diesel, fuel oils, and heavy oils. Kensol and castor oil were added as reference standards to NWTPH-Dx because of past releases of both oils on the Facility.

The above methods, with the exception of EPA Method 418.1, are applicable for TPH compound identification by pattern matching ("fingerprinting"). Efforts were made in analyzing Kaiser soil data to identify individual TPH compounds to aid in identifying sources and in developing working conceptual site models. Sample TPH compounds are identified by comparison to one or more chromatograms of hydrocarbon standards, depending on the chromatographic pattern of the sample constituents. The following are typical carbon chain ranges for the specific petroleum compounds analyzed for at Kaiser:

- Gasoline - C7 through C12
- Mineral Spirits/Stoddard Solvents - C7 through C12
- Kerosene/Jet Fuel - C10 through C18
- Diesel/Fuel Oil - C12 through C24
- Kensol - C16 through C20
- Bunker C - C12 through C37
- Motor Oil - C24 through C37

Differentiation of individual TPH compounds via the above described methods (except EPA Method 418.1), relies heavily on the experience of the analyst for accurate identification. The following observations related to individual compound identification have been made by the TPH chemist who has performed the majority of the TPH analysis in the past:

- Stoddard solvent cannot generally be resolved from weathered gasoline if both are present in a sample. Therefore, GRO from a sample analyzed via NWTPH-HCID and NWTPH-Gx with both weathered gas and Stoddard present were reported as "gasoline."
- Kensol oil, carbon range C16 through C20 is a subset of DRO, which has a carbon range of C12 through C24. If both compounds are present, Kensol oil can be differentiated from diesel via NWTPH-HCID and NWTPH-Dx under certain conditions, though this has been rarely observed at Kaiser. Kensol will elute within the spread of the greater DRO carbon range. In the rare case that Kensol is identifiable within broader diesel chromatogram peaks, both compounds were reported for a single sample. If Kensol and diesel were present in a sample but Kensol could not be separated out, then the entire peak would be quantified as diesel. In general, detections of Kensol occurred without the presence of diesel. The duel detection occurred only once each using NWTPH-Dx and EPA 8015 methods and five times using NWTPH-HCID method.
- Kerosene/Jet Fuel, with a carbon range of C10 through C18 can overlap with gasoline, carbon range C7 through C12 and diesel, carbon range C12 through C24. If these values are reported separately for a single sample, it can underestimate the TPH concentration in soil as compared to screening levels. It was noted that kerosene and diesel were co-detected in 20 samples using the NWTPH-HCID method. Kerosene was not co-detected with gasoline in any samples.
- Castor oil can overlap with heavy oils. Quantification of castor oil began in March 2005. A unique pattern was observed not matching the petroleum reference standards. Castor oil was known to be used on the Site and a reference standard was provided from a pure castor oil sample, to identify and quantify the castor oil present in the soils. Prior to 2005, castor oil may have been quantified as heavy oil. It is also possible that if castor oil is comingled with heavy oil it may be quantified as heavy oil. In general, since 2005 when castor oil started being quantified as a unique hydrocarbon, detections of castor oil have been observed in soil without the presence of other petroleum hydrocarbons.
- Other synthetic oils (e.g. Pydraul with phosphate esters) can overlap with heavy oils. If these synthetic oils were present in mixtures with other heavy oils they would have likely been quantified as heavy oils. If synthetic oils were present not as a mixture, a unique pattern would have been observed

in the chromatogram and the chemist would have likely worked to identify the peak (as done with castor oil) to be able to quantify and identify the synthetic oil.

To screen for TPH across the Facility for the soil to groundwater pathway, it was desired to evaluate the data obtained from the various methods. To reconcile the various analytical methods used over the years and apply the screening levels consistently, the following decision rules/assumptions were applied to the TPH data:

- As the majority of detected TPH compounds at this site are in the diesel- and heavy oil-range based on Method 8015 data, a screening level of 2,000 mg/kg was applied to the EPA Method 418.1 total TPH values.
- Several samples were analyzed using both Methods NWTPH-Dx and NWTPH-HCID. To avoid double counting, the higher of the results from the two methods was counted toward the sampling statistics tallied in Tables 1-1 and 1-2.
- In the case where Kensol and diesel were co-detected in a sample, the values were summed to obtain a total DRO value to which a single screening level was applied.
- If kerosene and diesel were co-detected in a sample, the values were added to provide a total DRO value to which a single screening level was applied.

Other Compounds

The CLARC database and EPA sources did not contain toxicity or empirical chemical parameter data for 1-methylnaphthalene. Therefore, the screening value for 2-methylnaphthalene was used as a surrogate for 1-methylnaphthalene.

Five other compounds, phenanthrene, CFC-12 (Freon), 2-hexanone, hexanol, and dioctyl sebacate (DOS) do not have screening levels due to the lack of toxicity and empirical chemical parameter data. Of these five, only phenanthrene was detected in a significant percentage of samples.

1.5.2 Data Used in the Soil Screening

The soil data used in the soil to groundwater screening was collected between 1989 and 2008, and includes soil samples collected as part of historical release investigations and as part of the Phase I and Phase II RI, which concluded in October 2008. The soil samples from these investigations were collected from depths ranging from the surface to 150 feet below the ground surface. Up through 2008, over 1,900 soil samples have been collected and chemically analyzed at Kaiser. These chemical analyses have included testing of soil samples for one or more of the following:

- Total petroleum hydrocarbon (TPH) by various methods including:
  - EPA Method 418.1;
  - EPA Method 8015 modified;
  - Ecology Method NWTPH-HCID;
  - Ecology Method MWTPH-Gx;
  - Ecology Method NWTPH-Dx; and
  - Volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) by Ecology Methods NW-VPH and NW-EPH.
- Polychlorinated biphenyls (PCBs) by EPA Method 8082.
- Pesticides by EPA Method 8081A.
- Metals including arsenic, chromium, hexavalent chromium, barium, cadmium, lead, mercury, selenium, silver by EPA 6000/7000 Series.
- Extraction Procedure Toxicity (EP Tox) for metals prepared by EPA Method 1310B.
- Toxicity Characteristic Leaching Procedure (TCLP) for metals prepared by EPA Method 1311.
- Synthetic Precipitation Leaching Procedure (SPLP) for metals prepared by EPA Method 1312.
- Volatile Organic Compounds (VOCs) by EPA Method 8260B.
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8021B.
- Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C.
- Total Suspended Soils (TSS) by EPA Method 160.2, Total Organic Carbon (TOC) by EPA Method 415, and other Conventionals by EPA Method 9060.

The data used in the screening had two levels of quality assessment/quality control (QA/QC); one through the contract laboratory conducting the chemical analyses and one performed by Hart Crowser. Results of the QA/QC evaluations for data preceding the Phase I RI are presented in numerous individual reports that have been provided to Ecology over the years. Results of the soil data QA/QC evaluation for Phase I and Phase II RI data are presented in Appendix C. The data used in the screening met the QA/QC criteria established by Hart Crowser.

The soil data collected from Kaiser have been organized into a single database that enables sorting and organizing of the data according to particular attributes such as depth, analyte, or date collected.

To provide an accurate screening of soil data that is as representative of current conditions as possible (considering some of the data are nearly 20 years old), the following steps were taken with the database prior to screening:

- The database was updated to assess what samples were no longer in place due to numerous removal activities and capital improvement projects conducted over the years. Generally, only samples that are representative of currently in-place soil were carried through the screening process. Removing soil samples that represented soil that has been excavated and disposed of off site reduced the screening sample size to approximately 1,500 samples.
- Trip blanks and laboratory duplicates were not tallied in the statistical counts provided in Tables 1-1 and 1-2.
- To avoid double counting, samples with a field duplicate are only counted as one sample in the statistical counts provided in Tables 1-1 and 1-2. The higher of the detected concentrations of analytes in a sample or its field duplicate were used in the statistics.
- Non-detected analytes were not used in the statistics provided in Tables 1-1 and 1-2.

The final sample size analyzed and compared against the determined screening levels numbered approximately 1,500 soil samples collected from across the Kaiser Facility.

1.5.3 Application of Screening Levels to Site Soil Data

Following the sorting of data described above in Sections 1.5.1 and 1.5.2, the soil sample analytical results were compared to the unsaturated and saturated screening levels obtained from the 3-Phase Model and from Method A tables. Tables 1-1 and 1-2 summarize the results of the screening for unsaturated soils and saturated soils, respectively.

In general, the groundwater level is expected to reside a minimum of approximately 68 feet below the ground surface in most locations across the Facility. Groundwater levels are shallower in the areas closer to the river such as the Wastewater Treatment area. Unsaturated screening levels were applied to those samples assumed to be well removed from the groundwater table where the soils are never inundated with groundwater due to seasonal fluctuations. This includes surface samples, samples from test pits, base of excavation samples, and shallow samples collected from borings and during groundwater well installations. Samples at depths that are approaching the seasonal high groundwater level were analyzed to determine the correct screening level to apply. To do this, groundwater level data from all site wells were analyzed to determine the highest groundwater levels observed. The data set chosen for this evaluation was collected during the April 2007 groundwater monitoring as April groundwater levels have typically yielded the seasonal high levels.

In analyzing the data from wells across the Facility, three distinct groupings of groundwater elevation data were observed. Wells located on the plateau in the general vicinity of the mill had average seasonally high groundwater levels ranging from approximately 66 to 70 feet below ground surface. The arithmetic mean of depth to groundwater for this data set is 68 feet. Therefore, for soil data collected in the vicinity of the mill, the more stringent saturated soil screening levels were applied to soil samples collected below depths of 68 feet. This includes soil data collected from the Remelt, Cold Mill, Hot Line, Oil Reclamation Building, Oil House, Truck Shop, and Rail Car Unloading areas. In general, this applies to locations east of Evergreen Way on the west side of the Kaiser Facility.

The next groundwater elevation data grouping was identified in the Wastewater Treatment area and the Perimeter wells, which are located downgradient from the mill area. The average depths to groundwater for the Wastewater Treatment and Perimeter area wells from the April 2007 data set ranged from 53 to 58 feet. The arithmetic mean of depth to groundwater for this data set is 55 feet. Saturated soil screening levels were applied to soil samples collected below a depth of 55 feet from the Wastewater Treatment area and Perimeter wells.

The third distinct groundwater elevation data grouping was observed in wells in the vicinity of the West Discharge Ravine (WDR), which are in closest proximity to the Spokane River. The arithmetic mean of depth to groundwater for WDR area wells from the April 2007 data set is 33 feet. Saturated soil screening levels were applied to soil samples collected below a depth of 33 feet from wells in the WDR area.

Tables 1-1 and 1-2 provide a statistical compilation of the results of the comparisons of the site soil data to the unsaturated and saturated screening levels, respectively. Included in these tables are the detection frequency, minimum and maximum detections, and screening level exceedance frequency for a particular analyte. The following sections present a broader discussion of the soil screening results for each of the areas at the Kaiser Facility.

1.6 REFERENCES FOR SECTION 1.0

Environmental Protection Agency (EPA) 1996. Soil Screening Guidance: Technical Background Document, EPA/540/R-95/128. May 1996.

Hart Crowser 1996. Draft Groundwater Remedial Investigation/Feasibility Study, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-58. September 1996.

Hart Crowser 2003. Draft Groundwater Remedial Investigation/Feasibility Study Kaiser - Trentwood Facility. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-76. Modified July 2003.

Hart Crowser 2007. Sampling and Analysis Plan and Quality Assurance Project Plan - Kaiser Trentwood Facility. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-99. January 2007.

Hart Crowser 2012. Final Site-Wide Groundwater Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington, LLC by Hart Crowser, Inc. May 2012.

Pioneer 2012. Final Human Health and Ecological Risk Assessments, Kaiser Trentwood Facility, Spokane Valley, Washington. Pioneer Technologies Corporation. May 2012.

Washington State Department of Ecology (Ecology) 1991. Responsiveness Summary for the Amendments to the Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC. 1991.

Ecology 2001. Concise Explanatory Statement for the Amendments to the Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC. Publication No. 01-09-043. February 2001.

Ecology 2007. Model Toxics Control Act Statute and Regulation Chapter 173-340 WAC. November 2007. Publication No. 94-06.

Ecology 2009. Website. Cleanup Levels and Risk Calculations (CLARC) Online Database. https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 1.0.doc

Table 1-1 - Statistical Compilation of Analytical Results for Unsaturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
Metals												
Antimony	mg/kg	20/29	0.5	3.3	0.06	J	0.38	J	0.18	5.42		0/20
Arsenic (e)	mg/kg	102/107	2	2	0.7		60.7		6.81	0.0341		102/102
Barium	mg/kg	48/63	10	10	16.3		521		74.56	1650		0/48
Beryllium	mg/kg	3/9	0.5	0.54	0.19		0.52		0.35	63		0/3
Cadmium	mg/kg	47/111	0.26	1.4	0.018	T	3.8		0.49	0.7		10/47
Chromium (g)	mg/kg	198/201	2	2	1.8		5350		96.67	2000		1/198
Copper	mg/kg	9/9			12.3		79		24.92	260		0/9
Hexavalent Chromium	mg/kg	9/61	0.1	1	0.1		16		6.01	18		0/9
Lead	mg/kg	106/129	1	17	1.3		1400		47.79	250	(b)	4/106
Manganese	mg/kg	15/15			97.1	J	481		294.47	52.2		15/15
Mercury	mg/kg	23/72	0.01	0.5	0.001	T	0.54		0.07	2		0/23
Nickel	mg/kg	9/9			5		12		7.57	130		0/9
Selenium	mg/kg	7/72	0.28	10	0.2	J	0.4	J	0.31	5		0/7
Silver	mg/kg	35/72	0.02	2.1	0.024		4.9		0.27	14		0/35
Thallium	mg/kg	0/9	0.32	1.1						2		0/0
Zinc	mg/kg	9/9			22.6		71		42.59	5970		0/9
PCBs												
Aroclor 1016	ug/kg	0/441	5.1	1300								
Aroclor 1221	ug/kg	0/531	11	2500								
Aroclor 1232	ug/kg	0/531	5.1	1300								
Aroclor 1242	ug/kg	1/459	5.1	1300	16		16		16.00			
Aroclor 1242 (Aroclor 1016)	ug/kg	0/72	200	200								
Aroclor 1248	ug/kg	202/531	5.2	660	2.9	J	2900000		83936.13			
Aroclor 1254	ug/kg	50/531	5.1	1300	3.5	J	9600		1131.70			
Aroclor 1260	ug/kg	22/531	5.1	1300	2.4	J	1200		234.91			
Aroclor 1262	ug/kg	4/111	9.9	1300	19		520		186.75			
Aroclor 1268	ug/kg	2/113	9.9	1300	5.9	J	24		14.95			
Total PCBs	ug/kg	239/525	11	660	2.9	T	2900000		71203.44	270	(c)	148/239
Pesticides												
4,4'-DDD	ug/kg	0/3	5.7	10								
4,4'-DDE	ug/kg	0/3	5.7	10								
4,4'-DDT	ug/kg	0/3	5.7	10								
Aldrin	ug/kg	0/3	2.8	5.2								
Alpha-BHC	ug/kg	0/3	2.8	5.2								
Beta-BHC	ug/kg	0/3	2.8	5.2								
Chlordane	ug/kg	0/3	5.7	52								

Table 1-1 - Statistical Compilation of Analytical Results for Unsaturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
Delta-BHC	ug/kg	0/3	2.8	5.2								
Dieldrin	ug/kg	0/3	5.7	10								
Endosulfan I	ug/kg	0/3	2.8	5.2								
Endosulfan II	ug/kg	0/3	5.7	10								
Endosulfan Sulfate	ug/kg	0/3	5.7	10								
Endrin	ug/kg	0/3	5.7	10								
Endrin Aldehyde	ug/kg	0/2	5.7	5.8								
Endrin Ketone	ug/kg	0/3	5.7	10								
Gamma-BHC	ug/kg	0/3	2.8	5.2								
Heptachlor	ug/kg	0/3	2.8	5.2								
Heptachlor Epoxide	ug/kg	0/3	2.8	5.2								
Methoxychlor	ug/kg	0/3	28	52								
Toxaphene	ug/kg	0/3	57	100								
Semivolatiles												
1,2,4,5-Tetrachlorobenzene	ug/kg	0/14	500	500								
1,2,4-Trichlorobenzene	ug/kg	0/32	100	17000								
1,2-Dichlorobenzene	ug/kg	0/32	100	17000								
1,2-Diphenylhydrazine	ug/kg	0/1	4200	4200								
1,3-Dichlorobenzene	ug/kg	0/32	100	17000								
1,4-Dichlorobenzene	ug/kg	0/32	100	17000								
1-Methylnaphthalene	ug/kg	1/5	18	180	410	J	410	J	410.00	2190		0/1
2,2'Oxybis(1-chloropropane)	ug/kg	0/1	9900	9900								
2,3,4,6-Tetrachlorophenol	ug/kg	0/14	500	500								
2,4,5-Trichlorophenol	ug/kg	0/32	310	85000								
2,4,6-Tribromophenol	ug/kg	0/14	500	500								
2,4,6-Trichlorophenol	ug/kg	0/32	170	17000								
2,4-Dichlorophenol	ug/kg	0/32	170	17000								
2,4-Dimethylphenol	ug/kg	0/32	170	17000								
2,4-Dinitrophenol	ug/kg	0/32	500	85000								
2,4-Dinitrotoluene	ug/kg	0/18	170	17000								
2,6-Dichlorophenol	ug/kg	0/14	500	500								
2,6-Dinitrotoluene	ug/kg	0/18	170	17000								
2-Chloronaphthalene	ug/kg	0/32	100	17000								
2-Chlorophenol	ug/kg	0/32	170	17000								
2-Methyl-4,6-dinitrophenol	ug/kg	0/4	1900	35000								
2-Methylnaphthalene	ug/kg	34/78	2.6	17000	0.35	J	8400		388.86	2190		2/34
2-Methylphenol	ug/kg	0/32	100	17000								

Table 1-1 - Statistical Compilation of Analytical Results for Unsaturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
2-Nitroaniline	ug/kg	0/18	850	85000								
2-Nitrophenol	ug/kg	0/32	170	17000								
2-sec-Butyl-4,6-dinitrophenol	ug/kg	0/14	500	500								
3,3'-Dichlorobenzidine	ug/kg	0/18	340	42000								
3,4-Methylphenol (m,p-cresol)	ug/kg	0/15	100	9900								
3-Nitroaniline	ug/kg	0/18	850	85000								
4,6-Dinitro-2-methylphenol	ug/kg	0/14	850	85000								
4-Bromophenyl-Phenylether	ug/kg	0/32	100	17000								
4-Chloro-3-methylphenol	ug/kg	0/32	170	17000								
4-Chloroaniline	ug/kg	0/18	170	17000								
4-Chlorophenyl-phenylether	ug/kg	0/32	170	17000								
4-Methylphenol	ug/kg	0/17	170	17000								
4-Nitroaniline	ug/kg	0/18	850	85000								
4-Nitrophenol	ug/kg	0/32	500	85000								
Acenaphthene	ug/kg	27/102	2.6	17000	0.25	T	2200	J	164.67	98000		0/27
Acenaphthylene	ug/kg	8/102	2.6	17000	0.46	T	8300		1075.98			
Aniline	ug/kg	0/18	170	18000								
Anthracene	ug/kg	24/102	1.8	17000	0.26	J	3200	J	356.57	2200000		0/24
Benzidine	ug/kg	0/10	1700	170000								
Benzo(a)anthracene	ug/kg	31/102	1.8	17000	0.34	J	970		152.33	See BaP	(f)	0/31
Benzo(a)pyrene	ug/kg	25/102	1.9	17000	0.36	J	1100	J	158.14	233		6/25
Benzo(b)fluoranthene	ug/kg	25/102	2.6	17000	0.3	T	560		73.63	See BaP	(f)	0/25
Benzo(ghi)perylene	ug/kg	28/102	2.6	17000	0.6	J	840	J	140.39			
Benzo(k)fluoranthene	ug/kg	16/102	1.9	17000	0.34	T	500		74.62	See BaP	(f)	0/16
Benzoic Acid	ug/kg	0/18	850	85000								
Benzyl Alcohol	ug/kg	0/18	170	17000								
Bis(2-Chloroethoxy)Methane	ug/kg	0/32	100	17000								
Bis(2-Chloroethyl)Ether	ug/kg	0/32	170	17000								
Bis(2-chloroisopropyl)Ether	ug/kg	0/31	100	17000								
Bis(2-ethylhexyl)ether	ug/kg	0/14	100	100								
Bis(2-Ethylhexyl)Phthalate	ug/kg	3/18	170	17000	370		2900		1723.33	13000		0/3
Butylbenzylphthalate	ug/kg	0/32	170	17000								
Chrysene	ug/kg	38/102	2.6	17000	0.3	T	5100	J	300.19	See BaP	(f)	0/38
Dibenz(a,h)anthracene	ug/kg	21/102	2.6	17000	0.29	T	150		19.72	See BaP	(f)	0/21
Dibenzofuran	ug/kg	21/72	2.6	17000	0.26	J	2000	J	143.24	5090		0/21
Diethylphthalate	ug/kg	0/32	100	17000								
Dimethyl Phthalate	ug/kg	1/32	100	17000	390		390		390.00			

Table 1-1 - Statistical Compilation of Analytical Results for Unsaturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
Di-n-butylphthalate	ug/kg	1/32	100	17000	730		730		730.00	57000		0/1
Di-n-octylphthalate	ug/kg	1/32	170	17000	150	J	150	J	150.00	530000000		0/1
Fluoranthene	ug/kg	35/102	2.6	17000	0.44	J	5300	J	584.24	630000		0/35
Fluorene	ug/kg	30/102	2.6	17000	0.21	J	5200	J	441.72	100000		0/30
Hexachlorobenzene	ug/kg	0/32	100	17000								
Hexachlorobutadiene	ug/kg	0/32	170	17000								
Hexachlorocyclopentadiene	ug/kg	0/32	100	17000								
Hexachloroethane	ug/kg	0/32	100	17000								
Hexachloropropylene	ug/kg	0/14	500	500								
Indeno(1,2,3-cd)pyrene	ug/kg	28/102	1.9	17000	0.23	T	380	J	49.74	See BaP	(f)	0/28
Isophorone	ug/kg	0/18	170	17000								
Naphthalene	ug/kg	25/99	2.6	17000	0.4	T	1600		171.71	4490		0/25
Nitrobenzene	ug/kg	0/18	170	17000								
N-Nitrosodimethylamine	ug/kg	0/17	170	35000								
N-Nitroso-di-n-propylamine	ug/kg	0/18	170	17000								
N-Nitrosodiphenylamine	ug/kg	2/32	100	17000	440	J	600		520.00	536		1/2
Pentachlorobenzene	ug/kg	0/14	500	500								
Pentachlorophenol	ug/kg	0/32	180	85000								
Phenanthrene	ug/kg	39/102	1.8	17000	0.47	J	15000	J	941.10			
Phenol	ug/kg	1/32	170	9900	7000	J	7000	J	7000.00	22000		0/1
Pyrene	ug/kg	39/102	1.9	17000	0.41	T	5900	J	530.59	660000		0/39
TEQ Equivalent	ug/kg	42/42			0.0362		1193		119.62	See BaP	(f)	0/42
TPH-418.1												
Total Petroleum Hydrocarbons	mg/kg	68/98	1	110	2		34000		2809.75	2000	(b)	14/68
TPH-8015												
Bunker C	mg/kg	0/113	10	10								
Diesel (i)	mg/kg	80/193	5	29	5	J	69000		3000.40	2000	(b)	15/80
Gasoline	mg/kg	8/193	5	11	7		1700		264.36	100	(b)	3/8
Oil	mg/kg	19/137	10	10	8	J	2800		372.00	2000	(b)	1/19
Residual Range Organics	mg/kg	5/6	24	24	24		1400		426.00	2000	(b)	0/5
Stoddard Solvent	mg/kg	5/92	10	10	40		290		188.00	100	(b)	4/5
Unknown	mg/kg	22/137	10	10	4	J	2400		320.91			
TPH-Dx												
Diesel (i)	mg/kg	33/137	20	20	32	J	29000		3072.70	2000	(b)	10/33
Heavy Oil	mg/kg	29/129	50	100	120		20000		2114.48	2000	(b)	6/29
Oil	mg/kg	2/2			160		22000		11080.00	2000	(b)	1/2
Residual Range Organics	mg/kg	4/4			190		33000		13772.50	2000	(b)	3/4

Table 1-1 - Statistical Compilation of Analytical Results for Unsaturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
TPH-Gx												
Gasoline	mg/kg	2/99	5	5	140		340		240.00	100	(b)	2/2
Mineral spirits/Stoddard	mg/kg	3/99	5	5	330		700		463.33	100	(b)	3/3
TPH-HCID												
Bunker C	mg/kg	0/565	50	50								
Castor oil	mg/kg	25/161	100	100	140		14000		2292.40	2000	(b)	5/25
Diesel (i)	mg/kg	150/576	8.8	20	7.9	J	43000		1266.90	2000	(b)	20/150
Gasoline	mg/kg	3/576	8.8	20	4.5	J	8.4	J	6.20	100	(b)	0/3
Oil	mg/kg	193/565	50	100	43	J	170000		3010.20	2000	(b)	53/193
Residual Range Organics	mg/kg	11/11			5.3	J	72		27.15	2000	(b)	0/11
Stoddard Solvent	mg/kg	16/565	10	20	20	D	20	D	20.00	100	(b)	0/16
Volatiles												
1,1,1,2-Tetrachloroethane	ug/kg	0/80	3.7	250								
1,1,1-Trichloroethane	ug/kg	4/149	3.7	500	0.19	T	2100		864.30	1610		1/4
1,1,2,2-Tetrachloroethane	ug/kg	0/118	3.7	500								
1,1,2-Trichloroethane	ug/kg	0/118	3.7	500								
1,1-Dichloroethane	ug/kg	2/149	3.7	500	530		690		610.00	8730		0/2
1,1-Dichloroethene	ug/kg	0/118	3.7	500								
1,1-Dichloropropene	ug/kg	0/57	3.7	50								
1,1-Dichloropropylene	ug/kg	0/17	5.1	50								
1,2,3-Trichlorobenzene	ug/kg	0/74	15	200								
1,2,3-Trichloropropane	ug/kg	0/80	3.7	1500								
1,2,4-Trichlorobenzene	ug/kg	0/74	15	200								
1,2,4-Trimethylbenzene	ug/kg	29/74	15	190	0.086	T	30000		1609.61	31000		0/29
1,2-Dibromo-3-Chloropropane	ug/kg	0/74	15	200								
1,2-Dibromoethane(EDB)	ug/kg	0/74	5	200								
1,2-Dichlorobenzene	ug/kg	0/74	3.7	50								
1,2-Dichloroethane	ug/kg	0/118	3.7	500								
1,2-Dichloroethene (Total)	ug/kg	0/38	5	500								
1,2-Dichloropropane	ug/kg	0/118	3.7	500								
1,3,5-Trimethylbenzene	ug/kg	13/74	15	190	0.12	T	2200		252.73	8380		0/13
1,3-Dichlorobenzene	ug/kg	0/74	3.7	50								
1,3-Dichloropropane	ug/kg	0/74	3.7	50								
1,4-Dichlorobenzene	ug/kg	0/74	3.7	50								
2,2-Dichloropropane	ug/kg	0/74	3.7	50								
2-Butanone (MEK)	ug/kg	22/126	16	10000	2.8	T	670		39.45	20000		0/22
2-Chlorotoluene	ug/kg	5/74	12	200	71		580		266.20	2400		0/5

Table 1-1 - Statistical Compilation of Analytical Results for Unsaturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
2-Ethyl-1-hexanol	ug/kg	0/14	500	540								
2-Hexanone	ug/kg	5/92	15	5000	0.7	T	5.1	T	2.16			
4-Chlorotoluene	ug/kg	4/74	12	200	0.12	J	600		177.58	4180		0/4
4-Isopropyltoluene	ug/kg	7/54	15	190	0.13	JT	6600		1027.28			
4-Methyl-2-pentanone(MIBK)	ug/kg	0/92	15	5000								
Acetone	ug/kg	38/92	18	10000	4	JT	710		94.06	3210		0/38
Benzene	ug/kg	10/173	1	500	0.2	T	130		27.71	5		5/10
Bromobenzene	ug/kg	0/80	3.7	250								
Bromochloromethane	ug/kg	0/55	3.7	50								
Bromodichloromethane	ug/kg	0/118	3.7	500								
Bromoform	ug/kg	0/118	3.7	3000								
Bromomethane	ug/kg	4/118	3.7	5000	1.1	JT	2.1	JT	1.53	52		0/4
Carbon Disulfide	ug/kg	36/92	4.6	500	0.08	T	84		5.67	5600		0/36
Carbon Tetrachloride	ug/kg	0/118	3.7	500								
CFC-11	ug/kg	0/31	3.7	50								
CFC-12	ug/kg	3/31	3.7	47	0.43	JT	23	JT	8.00			
Chlorobenzene	ug/kg	0/118	3.7	500								
Chloroethane	ug/kg	0/118	3.7	500								
Chloroform	ug/kg	1/149	3.7	500	650		650		650.00	38		1/1
Chloromethane	ug/kg	6/118	3.8	5000	0.12	T	0.39	T	0.23	22		0/6
Cis-1,2-Dichloroethene	ug/kg	0/81	3.7	250								
Cis-1,3-Dichloropropene	ug/kg	0/118	3.7	500								
Dibromochloromethane	ug/kg	0/118	3.7	500								
Dibromomethane	ug/kg	0/80	3.7	250								
Dichlorodifluoromethane	ug/kg	1/35	4.9	50	1.3	J	1.3	J	1.30	47000		0/1
Ethylbenzene	ug/kg	22/173	1	500	0.17	JT	6800		541.19	5990		1/22
Hexachlorobutadiene	ug/kg	0/74	15	200								
Isopropylbenzene	ug/kg	6/74	12	190	0.61	T	840		203.79	7370		0/6
Isopropyltoluene	ug/kg	1/20	50	50	200	J	200	J	200.00			
m,p-Xylenes	ug/kg	30/61	4	47	0.15	JT	670		33.66	8520		0/30
m-Dichlorobenzene	ug/kg	0/6	50	50								
Methylene Chloride	ug/kg	9/118	7.6	3000	1.9	T	26	J	7.83	22		1/9
MTBE	ug/kg	0/3	100	100								
Naphthalene	ug/kg	8/74	15	190	1.6	J	1400	J	303.24	4490		0/8
N-Butylbenzene	ug/kg	12/74	15	1300	0.27	T	7500		821.11	19500		0/12
N-Propylbenzene	ug/kg	9/74	12	190	1.4	JT	6500		941.43	19500		0/9
o-Dichlorobenzene	ug/kg	0/6	50	50								

Table 1-1 - Statistical Compilation of Analytical Results for Unsaturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
o-Xylene	ug/kg	15/61	3.7	47	0.16	T	720	J	97.95	916		0/15
p-Dichlorobenzene	ug/kg	0/6	50	50								
Sec-Butylbenzene	ug/kg	9/74	15	190	0.76	T	6500		870.38	15800		0/9
Styrene	ug/kg	7/112	3.7	500	0.098	T	16	T	2.40	33		0/7
Tert-Butylbenzene	ug/kg	4/74	12	200	31	J	330		175.25	15600		0/4
Tetrachloroethene (e)	ug/kg	5/118	3.7	500	0.38	J	1.5	T	0.85	0.9		2/5
Toluene	ug/kg	24/173	1	1000	0.33	T	8000		708.80	4650		1/24
Total Organic Halides	ug/kg	2/31	4000	4000	14000	J	18000	J	16000.00			
Total Xylenes	ug/kg	16/112	1	500	26	J	35000		7530.88	14500		4/16
Trans-1,2-Dichloroethene	ug/kg	0/81	3.7	250								
Trans-1,3-Dichloropropene	ug/kg	0/118	3.7	500								
Trichloroethene (e)	ug/kg	3/118	3.7	500	0.24	T	0.43	T	0.31	3		0/3
Trichlorofluoromethane	ug/kg	0/43	4.9	50								
Vinyl Acetate	ug/kg	0/34	5	5000								
Vinyl Chloride	ug/kg	0/118	3.7	500								

Notes:

(a) Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

(b) Based on MTCA Method A (Ecology 2001).

(c) Total PCBs are calculated using the sum of detected analytes only.

(d) Total number of analysis represent only those with reporting limits that are at or below the screening criteria.

(e) Minimum reporting limit greater than screening level.

(f) Screening level for carcinogenic PAHs based on the benzo(a)pyrene toxicity equivalency methodology specified in WAC 173-340-708(8).

(g) Screening level for chromium based on chromium (III).

(h) The Method Detection Limit (MDL) is a statistically derived number based on the instrument's performance. The laboratory evaluates analytes to the MDL, but reports non-detects at the Reporting Limit (RL). The RL is determined by the laboratory and changes due to dry weight correction and dilutions.

(i) Values presented for diesel take into account results for kerosene/jet fuel and Kensol since these analytes are considered diesel-range petroleum hydrocarbons.

J Estimated concentration.

T Reported result below the associated RL but above the MDL.

Table 1-2 - Statistical Compilation of Analytical Results for Saturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
Metals												
Antimony	mg/kg	1/1			0.11	J	0.11	J	0.11	0.272		0/1
Arsenic (e)	mg/kg	26/28	2	2	1.3		11.7		6.73	0.0017		26/26
Barium	mg/kg	17/19	10	10	19		64.5		38.79	82.6		0/17
Cadmium (e)	mg/kg	7/28	1	1.2	0.025	J	0.083		0.05	0.0349		5/7
Chromium (g)	mg/kg	30/32	2	2	2.8		45		15.94	100		0/30
Hexavalent Chromium	mg/kg	0/4	0.1	1						0.926		0/0
Lead	mg/kg	23/30	1	21	3.7		29		9.98	250	(b)	0/23
Manganese	mg/kg	6/6			130	J	377		268.00	3		6/6
Mercury	mg/kg	1/19	0.013	0.5	0.003	T	0.003	T	0.00	0.105		0/1
Selenium (e)	mg/kg	0/19	0.4	10						0.264		0/0
Silver (e)	mg/kg	8/19	2	2.4	0.03		1.2		0.19	0.687		1/8
PCBs												
Aroclor 1016	ug/kg	0/166	5.3	500								
Aroclor 1221	ug/kg	0/188	11	500								
Aroclor 1232	ug/kg	0/188	5.3	500								
Aroclor 1242	ug/kg	25/172	5.3	500	3.2	J	1200		218.84			
Aroclor 1242 (Aroclor 1016)	ug/kg	0/16	200	200								
Aroclor 1248	ug/kg	28/188	8.5	200	2.7	J	600		140.16			
Aroclor 1254	ug/kg	3/188	5.3	200	5.3	J	37		17.43			
Aroclor 1260	ug/kg	0/188	5.3	200								
Aroclor 1262	ug/kg	0/61	100	200								
Aroclor 1268	ug/kg	0/61	100	200								
Total PCBs (e)	ug/kg	52/177	19	500	2.7	J	1200		181.09	14	(c)	30/52
Semivolatiles												
1,2,4,5-Tetrachlorobenzene	ug/kg	0/1	500	500								
1,2,4-Trichlorobenzene	ug/kg	0/4	100	340								
1,2-Dichlorobenzene	ug/kg	0/4	100	340								
1,3-Dichlorobenzene	ug/kg	0/4	100	340								
1,4-Dichlorobenzene	ug/kg	0/4	100	340								
2,3,4,6-Tetrachlorophenol	ug/kg	0/1	500	500								
2,4,5-Trichlorophenol	ug/kg	0/4	300	500								
2,4,6-Tribromophenol	ug/kg	0/1	500	500								
2,4,6-Trichlorophenol	ug/kg	0/4	300	500								
2,4-Dichlorophenol	ug/kg	0/4	300	500								
2,4-Dimethylphenol	ug/kg	0/4	300	500								
2,4-Dinitrophenol	ug/kg	0/4	500	2000								

Table 1-2 - Statistical Compilation of Analytical Results for Saturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
2,4-Dinitrotoluene	ug/kg	0/3	300	340								
2,6-Dichlorophenol	ug/kg	0/1	500	500								
2,6-Dinitrotoluene	ug/kg	0/3	300	340								
2-Chloronaphthalene	ug/kg	0/4	100	340								
2-Chlorophenol	ug/kg	0/4	300	500								
2-Methylnaphthalene	ug/kg	4/12	2.6	340	50	J	350		212.50	112		3/4
2-Methylphenol	ug/kg	0/4	100	340								
2-Nitroaniline	ug/kg	0/3	1900	2000								
2-Nitrophenol	ug/kg	0/4	300	500								
2-sec-Butyl-4,6-dinitrophenol	ug/kg	0/1	500	500								
3,3'-Dichlorobenzidine	ug/kg	0/3	1900	2000								
3,4-Methylphenol (m,p-cresol)	ug/kg	0/1	100	100								
3-Nitroaniline	ug/kg	0/3	1900	2000								
4,6-Dinitro-2-methylphenol	ug/kg	0/3	1900	2000								
4-Bromophenyl-Phenylether	ug/kg	0/4	100	1700								
4-Chloro-3-methylphenol	ug/kg	0/4	300	500								
4-Chloroaniline	ug/kg	0/3	300	340								
4-Chlorophenyl-phenylether	ug/kg	0/4	300	500								
4-Methylphenol	ug/kg	0/3	300	340								
4-Nitroaniline	ug/kg	0/3	1900	2000								
4-Nitrophenol	ug/kg	0/4	500	2000								
Acenaphthene	ug/kg	3/13	2.6	340	83		850		347.67	4980		0/3
Acenaphthylene	ug/kg	0/13	2.6	340								
Aniline	ug/kg	0/3	910	1000								
Anthracene	ug/kg	2/13	2.6	1700	49	J	51		50.00	112000		0/2
Benzo(a)anthracene	ug/kg	3/13	2.6	340	0.48	J	250		83.71	See BaP	(f)	
Benzo(a)pyrene	ug/kg	0/13	2.6	340						12		0/0
Benzo(b)fluoranthene	ug/kg	1/13	2.6	340	0.77	J	0.77	J	0.77	See BaP	(f)	
Benzo(ghi)perylene	ug/kg	1/13	2.6	340	0.73	T	0.73	T	0.73			
Benzo(k)fluoranthene	ug/kg	1/13	2.6	340	0.5	J	0.5	J	0.50	See BaP	(f)	
Benzoic Acid	ug/kg	0/3	1900	2000								
Benzyl Alcohol	ug/kg	0/3	300	340								
Bis(2-Chloroethoxy)Methane	ug/kg	0/4	100	340								
Bis(2-Chloroethyl)Ether	ug/kg	0/4	300	500								
Bis(2-chloroisopropyl)Ether	ug/kg	0/4	100	340								
Bis(2-ethylhexyl)ether	ug/kg	0/1	100	100								
Bis(2-Ethylhexyl)Phthalate	ug/kg	2/3	340	340	56	J	120	J	88.00	662		0/2

Table 1-2 - Statistical Compilation of Analytical Results for Saturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
Butylbenzylphthalate	ug/kg	0/4	300	500								
Chrysene	ug/kg	3/13	2.6	340	5.1		220		77.20			
Dibenz(a,h)anthracene	ug/kg	0/13	2.6	340						See BaP	(f)	
Dibenzofuran	ug/kg	3/12	2.6	340	62		780		313.00	257		1/3
Diethylphthalate	ug/kg	0/4	100	340								
Dimethyl Phthalate	ug/kg	0/4	100	340								
Di-n-butylphthalate	ug/kg	1/4	100	1700	19	J	19	J	19.00	3020		0/1
Di-n-octylphthalate	ug/kg	0/4	300	500						27000000		0/0
Fluoranthene	ug/kg	5/13	2.6	1700	8.4		160		50.08	31500		0/5
Fluorene	ug/kg	3/13	2.6	340	220		1700		746.67	5110		0/3
Hexachlorobenzene	ug/kg	0/4	100	1700								
Hexachlorobutadiene	ug/kg	0/4	300	500								
Hexachlorocyclopentadiene	ug/kg	0/4	100	340								
Hexachloroethane	ug/kg	0/4	100	340								
Hexachloropropylene	ug/kg	0/1	500	500								
Indeno(1,2,3-cd)pyrene	ug/kg	1/13	2.6	340	0.35	J	0.35	J	0.35			
Isophorone	ug/kg	0/3	300	340								
Naphthalene	ug/kg	2/13	2.6	340	34	J	430		232.00	238		1/2
Nitrobenzene	ug/kg	0/3	300	340								
N-Nitrosodimethylamine (e)	ug/kg	0/3	1900	2000								
N-Nitroso-di-n-propylamine	ug/kg	0/3	300	340								
N-Nitrosodiphenylamine	ug/kg	0/4	100	340						28		0/0
Pentachlorobenzene	ug/kg	0/1	500	500								
Pentachlorophenol	ug/kg	0/4	500	10000								
Phenanthrene	ug/kg	6/13	2.7	1700	0.36	J	3400		920.06			
Phenol	ug/kg	0/4	300	500						1520		0/0
Pyrene	ug/kg	5/13	2.6	340	17	J	200		84.20	32800		0/5
TEQ Equivalent	ug/kg	3/3			0.148		27.2		9.20	See BaP	(f)	1/3
TPH-418.1												
Total Petroleum Hydrocarbons	mg/kg	36/41	5	21	4.3		14000		3327.34	2000	(b)	17/36
TPH-8015												
Bunker C	mg/kg	0/89	10	10								
Diesel (i)	mg/kg	49/102	8.1	10	8	J	13000		3324.70	2000	(b)	24/49
Gasoline	mg/kg	2/102	7.6	10	19	J	40	J	29.50	100	(b)	0/2
Oil	mg/kg	1/89	10	10	250		250		250.00	2000	(b)	0/1
Residual Range Organics	mg/kg	11/13	19	25	5.3	J	3100		624.85	2000	(b)	2/11
Stoddard Solvent	mg/kg	28/83	10	10	6	J	3900		988.00	100	(b)	23/28

Table 1-2 - Statistical Compilation of Analytical Results for Saturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
Unknown	mg/kg	0/89	10	10								
TPH-Dx												
Diesel (i)	mg/kg	4/16	20	20	680		11600		5762.50	2000	(b)	2/4
Heavy Oil	mg/kg	1/18	50	100	1100		1100		1100.00	2000	(b)	0/1
TPH-Gx												
Gasoline	mg/kg	0/17	5	5						100	(b)	0/0
Mineral spirits/Stoddard	mg/kg	1/17	5	5	7100		7100		7100.00	100	(b)	1/1
TPH-HCID												
Bunker C	mg/kg	0/135	50	50								
Castor oil	mg/kg	6/63	100	100	250		1700		635.00	2000	(b)	0/6
Diesel (i)	mg/kg	17/139	8.2	20	8.8	J	10300		2358.50	2000	(b)	4/17
Gasoline	mg/kg	0/139	8.2	20						100	(b)	0/0
Oil	mg/kg	21/136	50	100	60		8800		1567.95	2000	(b)	4/21
Residual Range Organics	mg/kg	4/4			8.4	J	21	J	12.63	2000	(b)	0/4
Stoddard Solvent	mg/kg	4/136	10	20	14		250		84.75	100	(b)	1/4
Volatiles												
1,1,1,2-Tetrachloroethane	ug/kg	0/13	4.3	50								
1,1,1-Trichloroethane	ug/kg	0/24	4.3	500						85		0/0
1,1,2,2-Tetrachloroethane	ug/kg	0/15	4.3	51								
1,1,2-Trichloroethane	ug/kg	0/15	4.3	51								
1,1-Dichloroethane	ug/kg	0/24	4.3	500						543		0/0
1,1-Dichloroethene	ug/kg	0/15	4.3	51								
1,1-Dichloropropene	ug/kg	0/8	4.3	47								
1,1-Dichloropropylene	ug/kg	0/5	5.2	50								
1,2,3-Trichlorobenzene	ug/kg	0/13	17	190								
1,2,3-Trichloropropane	ug/kg	0/13	4.3	58								
1,2,4-Trichlorobenzene	ug/kg	0/13	17	190								
1,2,4-Trimethylbenzene	ug/kg	4/13	17	50	7.6	J	3300		968.65	1590		1/4
1,2-Dibromo-3-Chloropropane	ug/kg	0/13	17	190								
1,2-Dibromoethane(EDB)	ug/kg	0/13	5	190								
1,2-Dichlorobenzene	ug/kg	0/13	4.3	50								
1,2-Dichloroethane	ug/kg	0/15	4.3	51								
1,2-Dichloroethene (Total)	ug/kg	0/2	51	51								
1,2-Dichloropropane	ug/kg	0/15	4.3	51								
1,3,5-Trimethylbenzene	ug/kg	2/13	17	190	2.6	J	7.8	J	5.20	443		0/2
1,3-Dichlorobenzene	ug/kg	0/13	4.3	50								
1,3-Dichloropropane	ug/kg	0/13	4.3	50								

Table 1-2 - Statistical Compilation of Analytical Results for Saturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
1,4-Dichlorobenzene	ug/kg	0/13	4.3	50								
2,2-Dichloropropane	ug/kg	0/13	4.3	50								
2-Butanone (MEK)	ug/kg	0/22	17	5000						1400		0/0
2-Chlorotoluene	ug/kg	0/13	17	190						143		0/0
2-Ethyl-1-hexanol	ug/kg	0/2	510	510								
2-Hexanone	ug/kg	0/13	17	1900								
4-Chlorotoluene	ug/kg	0/13	17	190						250		0/0
4-Isopropyltoluene	ug/kg	4/11	17	26	2.2	J	210	J	57.23			
4-Methyl-2-pentanone(MIBK)	ug/kg	0/13	17	1900								
Acetone	ug/kg	4/13	17	1900	14	J	27		18.50	230		0/4
Benzene (e)	ug/kg	0/26	4.3	500						0.3		0/0
Bromobenzene	ug/kg	0/13	4.3	190								
Bromochloromethane	ug/kg	0/11	4.3	47								
Bromodichloromethane	ug/kg	0/15	4.3	51								
Bromoform	ug/kg	0/15	4.3	260								
Bromomethane (e)	ug/kg	0/15	4.3	510						3		0/0
Carbon Disulfide	ug/kg	7/13	5.2	51	2.8	J	12		7.23	266		0/7
Carbon Tetrachloride	ug/kg	0/15	4.3	51								
CFC-11	ug/kg	0/2	4.3	47								
CFC-12	ug/kg	0/2	4.3	47								
Chlorobenzene	ug/kg	0/15	4.3	51								
Chloroethane	ug/kg	0/15	4.3	51								
Chloroform (e)	ug/kg	0/24	4.3	500						2		0/0
Chloromethane (e)	ug/kg	0/15	4.3	510						1		0/0
cis-1,2-Dichloroethene	ug/kg	0/13	4.3	50								
Cis-1,3-Dichloropropene	ug/kg	0/15	4.3	51								
Dibromochloromethane	ug/kg	0/15	4.3	51								
Dibromomethane	ug/kg	0/13	4.3	50								
Dichlorodifluoromethane	ug/kg	0/11	5.2	50						551		0/0
Ethylbenzene	ug/kg	0/26	4.3	500						341		0/0
Hexachlorobutadiene	ug/kg	0/13	17	190								
Isopropylbenzene	ug/kg	2/13	17	50	5.1	J	240		122.55	405		0/2
Isopropyltoluene	ug/kg	0/2	50	50								
m,p-Xylenes	ug/kg	3/13	4.3	110	0.16	J	44	T	15.42	487		0/3
Methylene Chloride (e)	ug/kg	0/15	8.5	260						2		0/0
MTBE	ug/kg	0/1	100	100								
Naphthalene	ug/kg	2/13	17	190	2.7	J	27		14.85	238		0/2

Table 1-2 - Statistical Compilation of Analytical Results for Saturated Soil Samples

Analyte	Unit	Detection Frequency	Min RL (h)	Max RL (h)	Min Detect		Max Detect		Mean (detects only)	Screening Level (a)		Exceedance Frequency
N-Butylbenzene	ug/kg	5/13	17	50	1.2	J	930	J	218.34	988		0/5
N-Propylbenzene	ug/kg	4/13	17	50	0.83	J	560		168.21	988		0/4
o-Xylene	ug/kg	2/13	4.3	110	0.94	J	24	T	12.47	53		0/2
Sec-Butylbenzene	ug/kg	5/13	17	50	2.1	J	1300		284.44	796		1/5
Styrene (e)	ug/kg	0/15	4.3	51						2		0/0
Tert-Butylbenzene (e)	ug/kg	1/13	17	50	51	T	51	T	51.00	796		0/1
Tetrachloroethene	ug/kg	1/15	5.2	51	0.33	J	0.33	J	0.33	0.05		1/1
Toluene	ug/kg	5/26	4.3	500	1.4	J	50		11.54	273		0/5
Total Organic Halides	ug/kg	2/9	4000	4000	4000	J	6000	J	5000.00			
Total Xylenes	ug/kg	1/13	50	500	120		120		120.00	827		0/1
trans-1,2-Dichloroethene	ug/kg	0/13	4.3	50								
Trans-1,3-Dichloropropene	ug/kg	0/15	4.3	51								
Trichloroethene (e)	ug/kg	0/15	4.3	51						0.2		0/0
Trichlorofluoromethane	ug/kg	0/11	5.2	50								
Vinyl Acetate	ug/kg	0/2	510	510								
Vinyl Chloride	ug/kg	0/15	4.3	51								

Notes:

(a) Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

(b) Based on MTCA Method A (Ecology 2001).

(c) Total PCBs are calculated using the sum of detected analytes only.

(d) Total number of analysis represent only those with reporting limits that are at or below the screening criteria.

(e) Minimum reporting limit greater than screening level.

(f) Screening level for carcinogenic PAHs based on the benzo(a)pyrene toxicity equivalency methodology specified in WAC 173-340-708(8).

(g) Screening level for chromium based on chromium (III).

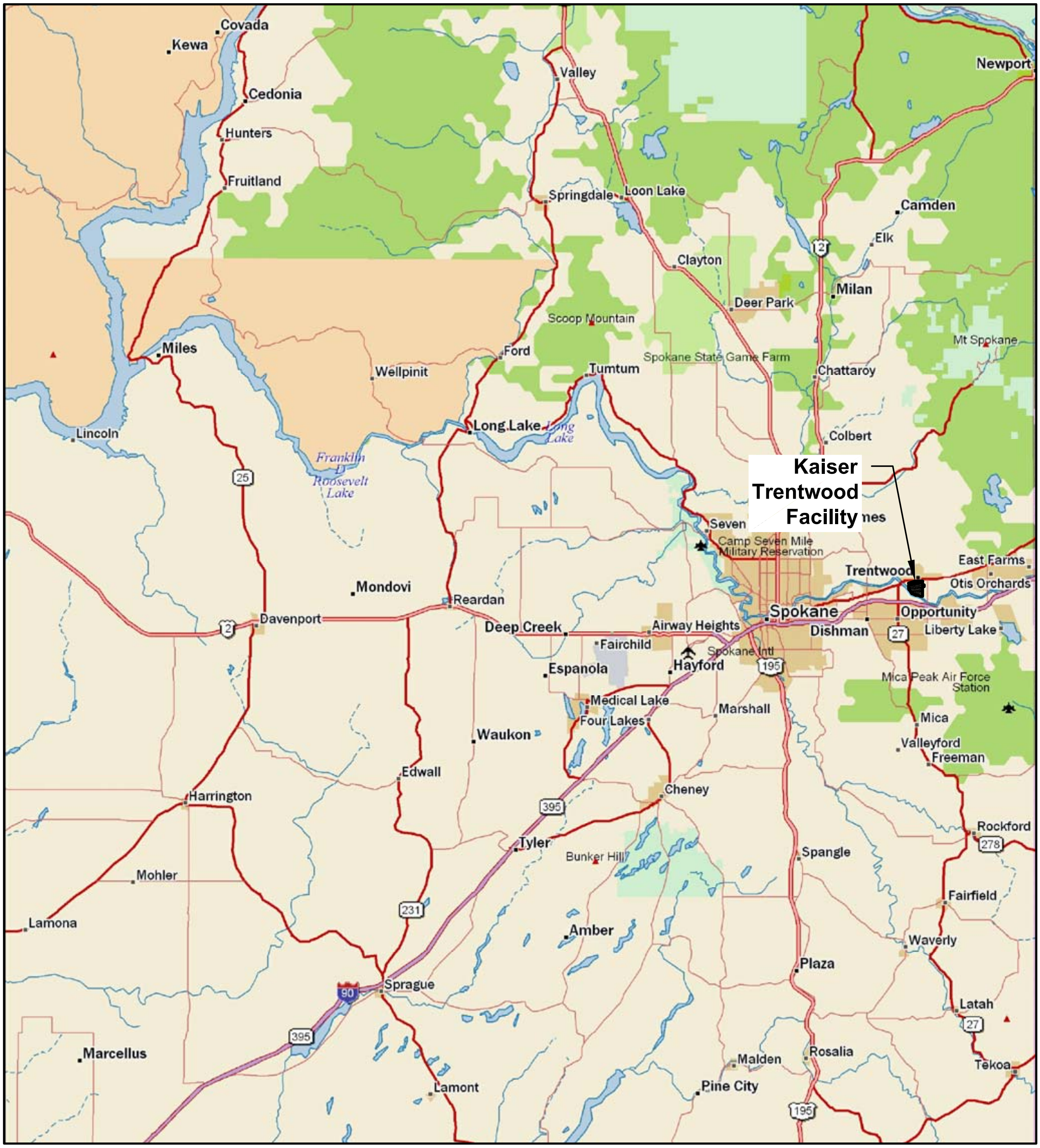
(h) The Method Detection Limit (MDL) is a statistically derived number based on the instrument's performance. The laboratory evaluates analytes to the MDL, but reports non-detects at the Reporting Limit (RL). The RL is determined by the laboratory and changes due to dry weight correction and dilutions.

(i) Values presented for diesel take into account results for kerosene/jet fuel and Kensol since these analytes are considered diesel-range petroleum hydrocarbons.

J Estimated concentration.

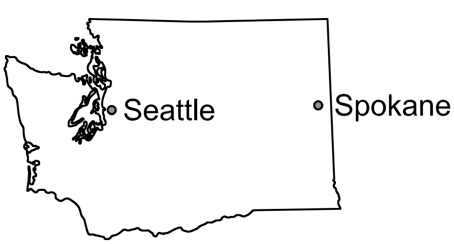
T Reported result below the associated RL but above the MDL.

Regional Map



Source: Base map prepared from DeLorme Topo 7.0, 2007.

EAL 03/20/09 2644114-071.DWG



WASHINGTON

N

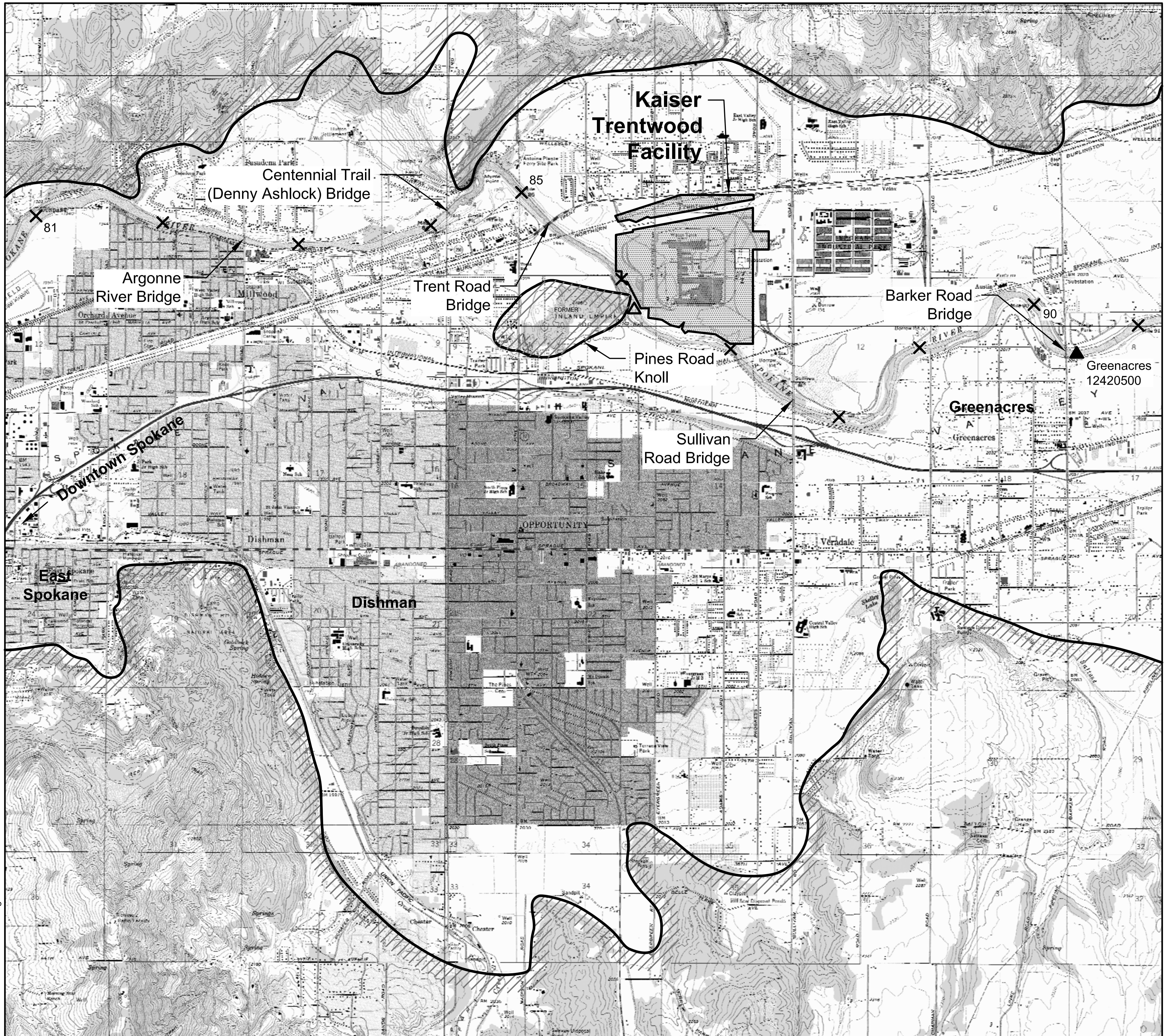
0 10 20
Scale in Miles

HARTCROWSER

2644-114 ***5/09***

Figure 1-1

Vicinity Map



Boundary of Spokane Valley - Rathdrum Prairie Aquifer

△ Kaiser River Gage

▲ USGS River Gage

✕ River Mile

N

0 4000 8000

Scale in Feet

Note:
Base map prepared from USGS 7.5 minute quadrangle maps of Spokane NE and Greenacres, Washington, dated 1986 and Freeman and Spokane SE, Washington, dated 1973.

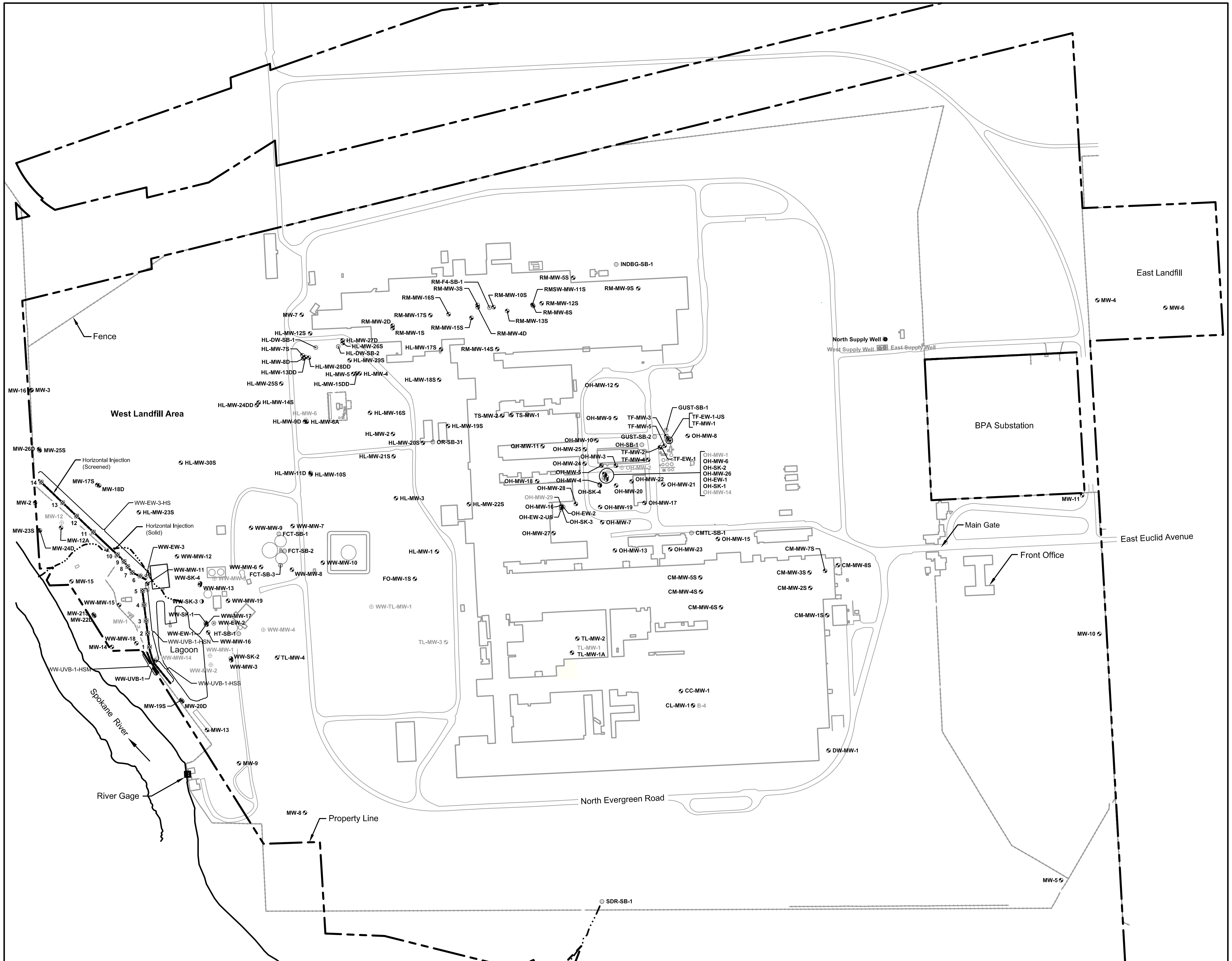
EAL 03/16/09 2644114-085.dwg

HARTCROWSER

2644-114 5/09

Figure 1-2

Site and Exploration Map



Exploration Location and Number

OH-EW-1 Extraction Well

OH-MW-4 Monitoring Well

WW-TL-MW-1 Abandoned Monitoring Well

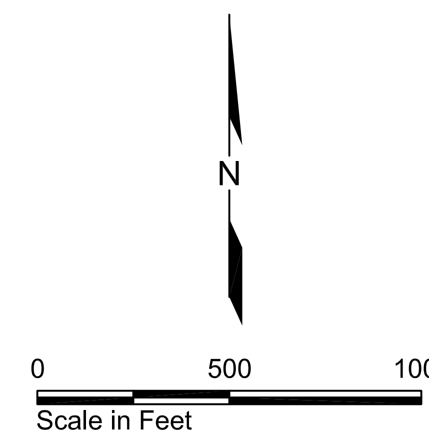
OH-SK-1 Skimming Well

TF-EW-1-US Groundwater Recirculation Well

North Supply Well Supply Well

East Supply Well Backup Supply Well

RM-F4-SB-1 Soil Boring



HARTCROWSER

2644-114 5/09

Figure 1-3

CONTENTS Page

CONTENTS (Continued)

Page

TABLES

CONTENTS (Continued)

Page

TABLES (Continued)

FIGURES

2.0 OIL RECLAMATION BUILDING AREA

2.1 INTRODUCTION

This section of the Site-Wide Soil RI addresses the Oil Reclamation Building (ORB) and nearby areas that have had releases in the past or have been otherwise investigated by Kaiser. In addition to the ORB itself and its Spill Prevention Control and Countermeasure (SPCC) implementation (Section 2.7), the areas discussed in this section include:

- The Man-Made Depressions located west of the ORB (Section 2.2);
- The G1 through G3 Transfer Lines that historically carried oily wastewater from the ORB to the Industrial Wastewater Treatment (IWT) plant (Sections 2.3 through 2.5);
- The 1992 Oil/Water Emulsion spill and a second release from the G2 Transfer Lines located south of the ORB (Section 2.4); and
- The 1980 Fuel Oil spill area located east of the 1,000,000-gallon tank along the west side of the Hot Line (Section 2.6).

2.1.1 Purpose

The objectives of the Phase II RI Work Plan (Hart Crowser 2007) were to identify data gaps in the investigations conducted along the Transfer Lines and ORB areas and to establish a sampling and analysis plan to address identified data gaps. The final goal of the Phase II RI Work Plan was to gather enough information to characterize the chemical quality of soil and groundwater, if warranted, beneath these areas and to help characterize the relative nature and extent of impacts related to the operation of the transfer lines and ORB area. This document presents the results of the Phase II work and previous work conducted in the ORB area.

2.1.2 Location

Figure 2-1 shows the general location of the ORB area. Detail of the ORB area and an Index Map of the areas discussed in this section are shown on Figure 2-2.

The Man-Made Depressions are discussed in Section 2.2 and details of their investigation area are as shown on Figures 2-3 through 2-5.

The G1 through G3 Transfer Lines represent three generations of wastewater transfer lines that have carried oily wastewater from the ORB to the IWT Plant. None of these lines are currently in operation. The G2 and G3 Transfer Lines also consisted of a second line that carried acidified water to the IWT Plant. The current transfer line (G4) is an above-ground, heat-traced piping system that was installed in 2005.

Significant historical investigation and cleanup activities have been conducted along the G2 (second generation) and G3 (third generation) Transfer Lines associated with leaks that were discovered in the past. The G1 (first generation) Transfer Line had not been investigated until late 2006 during the Phase I investigation of the G3 Transfer Line when a portion of the G1 Transfer Line was uncovered and pressure treated. Figure 2-6 presents the various segments of these transfer lines that are discussed in Sections 2.3 through 2.5.

The 1992 Oil/Water Emulsion spill area is located south of the ORB. The spill occurred in the G2 Transfer Lines and detail of the spill investigation area is presented on Figure 2-7. An additional release in the G2 Transfer Lines is discussed and details of the spill area are shown on Figure 2-8.

The 1980 Fuel Oil Spill occurred in a fuel oil line that carried fuel oil from the Field-Constructed Tanks located north of the IWT plant. The spill area location is shown on Figure 2-9. The 1980 Fuel Oil Spill is discussed in Section 2.6.

Activities in the ORB area are shown on Figures 2-10 and 2-11, as discussed in Section 2.7. In addition, Figures 2-12 and 2-13 present the as-built plan and cross section for SPCC upgrade activities conducted by Kaiser in the area around the ORB.

2.2 MAN-MADE DEPRESSIONS

2.2.1 Introduction

The Man-Made Depressions were formerly located on the west-central area of the Facility (Figure 2-2). The nature and historical uses of the depressions are unknown. However, significant historical investigation activities have been conducted in and around the depressions to identify potential impacts to soil and groundwater.

An aerial photograph study of the Facility conducted by Aerodata Corporation identified the three Man-Made Depressions. The three depressions included two larger depressions (East and West) and a smaller depression (Small Depression).

Their locations are presented on Figure 2-3. The depressions were identified in historical aerial photographs dated between the late 1940s through the late 1950s. The East and West Depressions were located approximately 100 and 250 feet west-northwest of the ORB, respectively. The Small Depression is located directly south of the East Depression. The depressions are currently filled with a sandy gravel material and surface expressions are not evident.

Initial assessment work was conducted in 1996 in conjunction with the ORB investigation as discussed in Section 2.7. Since the nature and historical uses of these depressions were unknown and the nature and extent of environmental impacts were not completely defined during the initial investigations, it was determined that further characterization during the Phase I RI was warranted. The Phase I work was conducted in 2006 to better define the extent of soil contamination in the area of the Man-Made Depressions.

2.2.2 Previous Investigations

This section presents a brief summary of previous investigations conducted in and around the depressions during the initial 1996 assessment and the Phase I RI. Soil analytical results are presented in Table 2-1 and groundwater analytical results are presented in Table 2-4.

Initial Subsurface Soil and Groundwater Investigations

As part of the 1996 subsurface soil investigation of the ORB and Man-Made Depressions, 10 test pits and 28 hollow-stem auger borings were completed. Borings (B-12 through B-15 and B-18 through B-27) were located in and around the depressions (Figure 2-3). Well HL-MW-6 was installed in 1996 but was later destroyed. In 1999, this former well was replaced by HL-MW-6A. The borings were completed to depths between 11.5 to 24 feet below ground surface, with the exception of borings B-25 and HL-MW-6, which were completed to depths of 79 and 78 feet, respectively. In 2003, as part of investigations related to the Remelt/Hot Line area of the Facility, an additional groundwater monitoring well (HL-MW-16S), was installed directly north of the depressions.

Five soil samples at depths ranging from 7 to 64 feet below grade were collected from the boring for well HL-MW-6 were analyzed for TPH. No TPH was detected in soil from this well boring.

Analytical results from soil borings B-13 indicate heavy oil-range petroleum hydrocarbons exceeding screening levels in the 2.5- to 4-foot sample at 3,200 mg/kg. Analytical results from soil borings B-14 indicate diesel- and heavy oil-range petroleum hydrocarbons exceeding screening levels in the 5- to 6.5-foot sample at 5,700 and 9,100 mg/kg, respectively. Analytical results from soil borings B-19 indicate petroleum hydrocarbons exceeding screening levels in the 2- to 4- and 5- to 6.5-foot sample in the diesel-range at 2,800 and 4,200 mg/kg, respectively, and in the heavy oil-range at 7,700 and 11,000 mg/kg, respectively. Analytical results from soil borings B-22 indicate diesel-range petroleum hydrocarbons exceeding screening levels in the 2.5- to 4-foot sample at 5,000 mg/kg. The B-22 soil sample analytical results collected between 2.5 feet and the total depth of the boring at 14 feet indicate heavy oil-range petroleum hydrocarbons at concentrations between 3,100 and 14,000 mg/kg. Analytical results from soil borings B-25 indicate diesel-range petroleum hydrocarbons exceeding screening levels in the 67.5- to 69-foot depth range at 4,900 mg/kg. The soil sample analytical results collected from boring B-25 between 2.5 feet and the total depth of the boring at 69 feet indicate heavy oil-range petroleum hydrocarbons at concentrations between 1,300 and 8,800 mg/kg.

Although petroleum hydrocarbons concentrations were observed to generally diminish with depth in the shallow borings, an increase in petroleum hydrocarbons concentrations was observed in the soil sample collected at 69 feet below ground surface from B-25, slightly above the water table (72 feet below ground surface), in the deep boring (Figure 2-3). This occurrence is typical of the smear zone identified in this area of the Facility.

Monitoring well HL-MW-16S was installed in October 2003 just north of the Man-Made Depressions (Figure 2-3). One soil sample plus a field duplicate were collected from this boring and submitted for analysis of PCBs and TPH (EPA Method 418.1 and NWTPH-HCID). The sample was collected at a depth of 76 to 77 feet below ground surface, within the smear zone area. PCBs were not detected in the soil sample (Table 2-2). The 418.1 analytical results indicate TPH at 3,300 mg/kg. The NWTPH-HCID results indicate diesel/fuel oil- and heavy oil-range concentrations below the screening levels at 1,500 and 1,800 mg/kg, respectively.

Phase I Remedial Investigation

The Phase I RI work conducted in the ORB area included further evaluation of the extent of soil contamination at the three Man-Made Depressions, a soil gas investigation, and continued groundwater monitoring. The investigation was conducted in March 2006 to quantify the horizontal extent of soil contamination associated with these two areas. Seven test pits were excavated in the vicinity of the Man-Made Depressions at the approximate locations shown on Figure 2-3. The test pits were designated 05ORTP-1 through 05ORTP-6, and 05ORTP-4A. In general, the test pits were located outside the suspected limits of the depressions to help define their extent. Exceptions were test pit 05ORTP-4A, located just inside the western edge of the East Depression and test pit 05ORTP-6, advanced within the Small Depression (Figure 2-3). Test pit 05ORTP-4 was excavated westward of 05ORTP-4A to help identify the margin of the East Depression. The test pits were completed to depths of 5 to 6.5 feet below ground surface. Test pit logs are provided in Appendix A.

Soil Sampling and Analytical Results

Soils observed in the test pits were primarily sandy Gravel with scattered cobbles. Test pit 05ORTP-1 contained fill in the upper 4 feet with scattered rubber and metal fragments present. At a depth of 5 feet below ground surface in test pit 05ORTP-4, the soil had field indications of TPH impacts. Test pit 05ORTP-4A, located within the East Depression, had scattered aluminum strips, wood, wire debris, and pit debris from the plant coil slitting areas observed at a depth of approximately 4 feet below ground surface. Brick and metal debris were observed in the upper 2 feet of test pit 05ORTP-6. Test pit 05ORTP-6 also had metal debris, wire, wood, cloth, and cable below a depth of 4 feet and field indications of TPH impacts were noted at a depth of 6 feet. Field observations of TPH impacts were also noted at a depth of approximately 5 feet in test pit 05ORTP-7.

One soil sample was collected from each of the test pits at depths of between 4.5 and 5.5 below ground surface. Soil samples from the test pits were submitted for analysis of TPH (NWTPH-HCID), PCBs, and total lead. In addition, selected soil samples were also submitted for analysis of diesel- and heavy oil-range TPH (NWTPH-Dx), gasoline-range TPH (NWTPH-Gx), PAHs, VOCs, volatile petroleum hydrocarbons (VPH, Ecology VPH Method), and extractable petroleum hydrocarbons (EPH, Ecology EPH Method).

Analytical results of the test pit soil samples (Table 2-3) indicate that heavy oil-range petroleum hydrocarbon concentrations exceeding screening levels in soil sample 05ORTP-6 at 4,400 mg/kg (NWTPH-HCID) and 5,000 mg/kg (NWTPH-Dx) (see Figures 2-4 and 2-5). TPH was not detected in the soil samples collected around the West Depression (test pits 05ORTP-1 through 05ORTP-3) helping to define the lateral limits of the TPH impacts observed in borings B-22 and B-25 in 1996.

Selected soil samples collected from test pits were also analyzed for lead, PCBs, PAHs, and VOCs. Analytical results from these samples indicate that lead was detected at concentrations exceeding screening levels in soil samples from 05ORTP-4 and 05ORTP-6 at 1,280 and 414 mg/kg, respectively (Table 2-3).

PCBs were non-detect or detected at estimated concentrations below screening levels.

The sample collected at a depth of 5 feet from 05ORTP-6 contained cPAHs at a concentration exceeding screening levels. The other test pit PAH concentrations were either non-detect or detected at concentrations below screening levels.

Minor concentrations of VOCs were detected in the samples analyzed. The detected concentrations were below the screening level except for one detection of 1,2,3-trimethylbenzene (34,000 ug/kg) in the duplicate sample for 05RTP-6. The original sample from this test pit did not exceed the soil screening level, which is 31,000 ug/kg.

Four soil samples were submitted for VPH and EPH analyses and each had detections for both petroleum fractions (Table 2-3). Total aliphatic hydrocarbons detections ranged from 26 to 1,400 mg/kg, with the highest detection in the sample and field duplicate from test pit 05ORTP-6. Detections of aromatic hydrocarbons ranged from 66 to 1,400 mg/kg, with the highest concentration in the soil sample collected from test pit 05ORTP-6. The soil sample and field duplicate from test pit 05ORTP-6 also had detections of ethylbenzene and total xylenes, with the highest concentrations detected at 2.4 and 10.4 mg/kg, respectively.

The EPH total aliphatic hydrocarbon detections ranged from 2,023 to 17,700 mg/kg and the EPH total aromatic concentrations detections ranged from 193 to 4,908 mg/kg. The highest concentrations were detected in either the soil sample or field duplicate sample collected from test pit 05ORTP-6.

Groundwater Sampling and Groundwater Sample Analytical Results

Groundwater samples from wells HL-MW-6/6A and HL-MW-16S located in the vicinity of the Man-Made Depressions have been sampled and analyzed periodically since their installation in 1996 and 2004, respectively. PCBs, TPH, and conventional parameters are the only constituents analyzed for in groundwater samples collected from these wells throughout their early monitoring history. Starting in 2005, metals, SVOCs, and VOCs were added to the analyte list only for groundwater samples collected from HL-MW-6/6A (Table 2-4).

TPH concentrations have been non-detect in the groundwater samples collected from these wells. Arsenic was detected in groundwater samples from HL-MW-6/6A at concentrations exceeding screening level. Other metals in samples from this well were non-detect or detected at concentrations below screening levels. PCB concentrations were detected only in groundwater samples collected from HL-MW-6/6A at concentrations ranging from 0.011 and 0.044 ug/L, above screening levels (Table 2-4). This well is located within the Remelt/Hot Line groundwater PCB plume area. See the Site-wide Groundwater RI (Hart Crowser 2012) for additional detail concerning this plume.

Analytical results between 2004 and 2008 show that neither TPH nor PCBs were detected in groundwater from HL-MW-16S, which is located north (cross-gradient) of the depressions (Figure 2-3 and Table 2-4).

Soil Gas Sampling and Soil Gas VOC Analytical Results

In addition, two soil gas samples were collected in 2006 as part of a limited soil gas survey conducted during the Phase I field efforts. One of these samples, OR-SG-2, was collected within the West Depression. Analytical results of this sample indicate that BTEX compounds as well as PCE were detected in soil gas within the depression (Table 2-5). While concentrations of benzene (13 ug/m^3), and PCE (2.6 ug/m^3) in this sample were above MTCA Method B air cleanup levels, the concentrations for ethylbenzene (2.6 ug/m^3), toluene (32 ug/m^3), and xylenes (2.4 to 9.2 ug/m^3) were below (Table 2-5). See the Site-Specific Human Health and Terrestrial Ecological Risk Assessment (Pioneer 2012) for additional discussion of soil gas risks in this area.

Additional information on these previous investigations is presented in the Phase II RI Work Plan submitted to Kaiser in 2007 (Hart Crowser 2007).

2.2.3 Proposed Phase II (RI) Work

The results of previous investigations and the Phase I work conducted within and around the Man-Made Depressions provided sufficient data to define the nature and horizontal extent of soil contamination. Therefore, the Phase II RI Work Plan (Hart Crowser 2007) did not propose any additional work in this area.

2.2.4 Summary of Current Conditions

Soil

Analytical results from borings B-13, B-14, and B-19 indicate TPH exceeding screening levels remain in soil within the near surface (up to 6.5 feet below ground surface). Analytical results from borings B-22 indicate TPH exceeding screening levels remain in soil within the near surface to a depth up to 14 feet below ground surface. Analytical results from boring B-25 indicate TPH exceeding screening levels remain in soil within the near surface to a depth up to 69 feet below ground surface with lower concentrations at approximately 28 feet below ground surface. Figures 2-4 and 2-5 present schematic cross sections showing TPH concentrations in soil.

While soil PCBs concentrations were below screening levels in all locations sampled, lead, cPAHs TEQs, and some VOCs are present in concentrations above screening levels within 6 feet from the surface in the East Depression and directly downgradient from it. In general, soil samples from the small depression had the most analyte detections and the highest concentrations of analytes based on the results of the Phase I test pit work.

Groundwater

Samples from the two wells in the vicinity of the Man-Made Depressions were sporadically sampled and analyzed for PCBs, TPH, PAHs, VOCs, and metals. PCBs and arsenic were detected at concentrations exceeding screening levels in HL-MW-6A. Other constituents analyzed for were non-detect or detected at concentrations below screening levels.

Soil Gas

The results of the soil gas sample collected within the West Depression show that VOC vapors are present in the soil gas from the West Depression. Based on the Human Health Risk Assessment (Pioneer 2012), these soil gas vapors do not pose an unacceptable risk to site workers.

The need for additional remedial actions in the Man-Made Depressions area will be evaluated in the FS.

2.3 G1 TRANSFER LINE

2.3.1 Introduction

The G1 through G3 Transfer Lines are three generations of underground wastewater transfer lines historically used to convey wastewater from the ORB to the IWT Plant. Use of each generation of the lines was discontinued when the next generation went on-line.

The G1 Transfer Line was the first generation of these transfer lines and was located on the west-central area of the Trentwood Facility (Figure 2-2). The G1 lines consisted of two separate 4-inch-diameter steel single wall lines exiting the ORB from the north and south ends of the building (Figure 2-6). Both lines joined west of the ORB to form a single line within one utility corridor. The G1 line traveled southwest toward the IWT Plant (Figure 2-6). According to Kaiser drawings, the top of the line was located approximately 4 feet below ground surface.

The G1 Transfer Line was the first underground transfer line used to transfer materials from the ORB to the IWT Plant. Although no detailed documentation is available on the activities associated with or the reason for abandonment of the G1 Transfer Line, it was replaced with the G2 Transfer Lines in the mid-1980s. Except for roadways and small paved areas surrounding some buildings, the majority of the path followed by the G1 Transfer Line consists of bare soil.

The G1 line was not investigated until late 2006 when a portion of the line was uncovered and pressure tested during activities related to the Phase I investigation of the G3 line. This investigation work was completed in accordance with a Work Plan for the G1 and G2 Transfer Lines that was approved by Ecology (Kaiser 2007). The following sections present previous investigations and the activities conducted along the G1 Transfer Line.

2.3.2 Previous Investigations

Prior to the Phase I RI, no assessments had been conducted along the G1 Transfer Line. Although present on historical Kaiser maps, the G1 Transfer Line was first encountered in an excavation on the northern end of the G3 Transfer Lines during the Phase I activities conducted in 2006. The G1 Transfer Line was uncovered, cut, and capped at the three locations. The pressure testing of the two sections of line resulting from the capping indicated that these two sections of the G1 Transfer Line (830 feet total) were sound with no leaks (Figure 2-6).

The two small sections of the G1 Transfer line exiting the ORB were also uncovered and evaluated in the vicinity where they merged into a single line. A release was identified resulting from a crack observed on the welded joint where both lines met. One soil sample (G-1) was collected from the pipe bedding material around the release point and at the approximate bottom of the pipe (Figure 2-6). The sample was analyzed for TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx), PCBs, PAHs, and VOCs.

Heavy oil (21,000 mg/kg), Kensol (3,000 mg/kg), and mineral spirits/Stoddard solvents (330 mg/kg) were detected at concentrations exceeding screening levels (Table 2-6). PCBs, cPAHs, and VOCs were non-detect or detected at concentrations below screening levels.

The remaining 430-foot section of G1 Transfer Line between Evergreen Way and the IWT Plant could not be located on May 2007 (Figure 2-6). Since construction drawings indicated this section of the G1 Transfer Line was located deeper (8 to 12 feet below ground surface) and any excavation in this area would undermine the IWT access road, the supports for the G4 line, and the waste management area retaining wall, Ecology and Kaiser agreed that no further investigations of the G1 Transfer Line would be conducted at that time.

2.3.3 Proposed Phase II (RI) Work

Based on the results of the pressure testing conducted on the G1 Transfer Line in 2006, approximately 830 feet of line was tested and was sound with no leaks (Kaiser 2006). In addition, the elevated petroleum constituents from releases of the line around the joint in the vicinity of the ORB have been identified and extensively studied as part of the ORB and Man-Made Depressions investigations.

This information indicates that the only area where no investigation has been conducted along the G1 Transfer Line is the remaining 430-foot section of line between Evergreen Way and the IWT Plant (Figure 2-6). Since excavation of the line in this area would undermine the integrity of several prominent site features including the IWT access road, supports for the G4 line, and the waste management area retaining wall, it was determined by Kaiser and Ecology that no additional investigations were warranted in the vicinity of the G1 Transfer Line, as discussed in the Phase II RI Work Plan (Hart Crowser 2007).

2.3.4 Summary of Current Conditions

Based on the results of the sample (G-1) collected at the intersection of both sections of the G1 Transfer Line exiting the ORB, petroleum hydrocarbons in the heavy oil-, Kensol-, and mineral spirits/Stoddard solvents-range were detected in the bedding around the pipes (approximately 4 feet below ground surface) at concentrations exceeding screening levels. In addition, low concentrations of PCBs (Aroclor 1254), non-carcinogenic and carcinogenic PAHs, and VOCs were also detected in this sample but at concentrations below screening levels.

These results are similar to the impacts observed in soil around the ORB presented in Section 2.7. The final remedy for this area will be determined in the feasibility study taking into account the results of the G1 soil samples and the soil and groundwater samples collected around the ORB.

2.4 G2 TRANSFER LINES

2.4.1 Introduction

The G2 Transfer Lines are located in the west-central area of the ORB (Figure 2-2). The G2 Transfer Lines consist of two buried single-walled fiber-cast pipes connecting the ORB and the IWT Plant. These pipes are connected to southwestern portion of the ORB, and are to the east and south of the 1,000,000-gallon oil storage tank (Figure 2-6). Except for roadways and small paved areas surrounding some buildings, the majority of the path along the G2 Transfer Lines consists of bare soil.

The G2 Transfer Lines were installed in the mid-1980s and were used to convey emulsified oily water and acidified No. 5 Cold Mill coolant water to the IWT Plant.

Two environmental related incidents have been identified during the operational history of the G2 Transfer Lines. The first incident occurred in 1992, when during the excavation of an unrelated trench a backhoe hit the G2 Transfer Lines resulting in an oil/water emulsion spill. The location of this spill is shown on Figure 2-2. The area where the spill occurred is located west of the Hot Line, about 410 feet south of the ORB. Kaiser took immediate action to investigate and cleanup the spill area and to reduce long-term environmental impacts from the spill.

The second incident occurred in October 1998 when a lack of output pumping flow from the G2 emulsion/oil line was noted. The lines were shut down and wastewater transfer operations (emulsion/oil and acidified water) were temporarily replaced with an overland hose. After this incident, investigation activities along the G2 Transfer Lines were initiated to identify potential releases. The G2 Transfer Lines were eventually replaced with the third generation of wastewater transfer lines (G3 Transfer Lines), which went on-line in 1999 (Section 2.5).

2.4.2 Previous Investigations

This section presents the remedial actions conducted along the G2 Transfer Lines after the 1992 spill as well as previous investigations and the results of work conducted during Phase I RI activities Soil analytical data are presented in Tables 2-7 through 2-10. Groundwater analytical data are presented in Table 2-11. Detailed information on these investigations is presented in the Phase II RI Work Plan (Hart Crowser 2007).

1992 Oil/Water Emulsion Spill

According to available information, one of the G2 Transfer Lines was ruptured by a backhoe while excavating a trench at 12:30 p.m. on April 22, 1992. The operation of the G2 Transfer Line was shutdown within minutes of the rupture and approximately 2,300 gallons of water and oil were removed from the trench in approximately 1 hour. The initial cleanup of the spill was complete by about 8:00 p.m. the same day.

The following day (April 23, 1992), further excavation removed additional impacted soil from an area approximately 30 by 136 feet and to depths between 10 and 18 feet below grade (Figure 2-7). After the initial removal of impacted soil, a product sample (from the liquids removed) and eight verification soil samples (T1 through T8) were collected from the side walls and bottom of the trench (Figure 2-7) and analyzed for TPH (EPA Method 8015 modified).

Analytical results from these samples indicate diesel/fuel oil-, heavy oil-, and unknown-range petroleum hydrocarbons were present in the removed emulsion and the excavation (Table 2-7). The TPH concentrations identified in these samples were below screening levels.

In May 1992, additional soils were excavated from the areas where samples T2 and T7 were collected (Figure 2-7). Two additional soil verification samples (T2-2 and T7-2) were collected from these areas (the location of these samples is unknown but assumed to be collected in the general vicinity of original samples T2 and T7) and analyzed for TPH (Table 2-7). The TPH concentrations detected in these samples were below screening levels.

Based on the soil verification sample analytical results, the lateral and vertical extent of petroleum-impacted soil was removed. Stockpiled soils were sampled and analyzed, and properly disposed of off site.

1998 Subsurface Soil Investigation

In October 1998, a loss of flow was identified in the G2 emulsion/oil transfer line. Inspection of the G2 Transfer Lines determined that the emulsion/oil line had pulled apart at a 45-degree elbow joint located southeast of the 1,000,000-gallon tank (Figure 2-2). The break occurred where the transfer line crossed underneath a railroad spur at a depth of approximately 4 feet below ground surface and near the southeast corner of the secondary containment berm for the 1,000,000-gallon fuel oil tank.

To determine the nature and extent from the oily emulsion release, an extensive investigation was conducted near the leaking elbow between November 1998 and January 1999 (Hart Crowser 2000). In total, 21 soil borings (WW-TL-SB-1 through WW-TL-SB-5, WW-TL-SB-7 through WW-TL-SB-20, WW-TL-SB-6-1, and WW-TL-SB-6-2) were advanced in the vicinity of the G2 Transfer Lines to depths between 14 to 22 feet below ground surface (Figure 2-8). Up to three soil samples from each boring were submitted for analysis of TPH (NWTPH-HCID).

Soil samples from borings WW-TL-SB2, WW-TL-SB5, WW-TL-SB6, WW-TL-SB7, WW-TL-SB9, WW-TL-SB10, WW-TL-SB14, WW-TL-SB15, WW-TL-SB16, and WW-TL-SB19 contained heavy oil-range petroleum hydrocarbons above screening levels at concentrations ranging from 2,300 to 20,000 mg/kg (Table 2-7).

Soil samples WW-TL-SB2, WW-TL-SB14, and WW-TL-SB19 contained petroleum hydrocarbons characterized as Kensol exceeding screening levels at concentrations ranging from 2,900 to 6,500 mg/kg. Stoddard/solvent was detected above the screening level (100 mg/kg) in soil sample WW-TL-SB2 at a concentration of 610 mg/kg.

To evaluate deeper soil and groundwater in this area, in January 1999, a deeper boring (WW-TL-MW-1) was advanced to a depth of 91.5 feet below ground surface and completed as a monitoring well. Groundwater was encountered at a depth of 73 feet at time of drilling. Five soil samples were collected between depths of 20 to 66.5 feet below ground surface and submitted for analysis of TPH (NWTPH-HCID) (Table 2-7). Petroleum hydrocarbon concentrations from these five samples were below screening levels.

These data indicate that TPH concentrations above screening levels from the oily emulsion release attenuated within the top 18 feet of soil and did not reach the water table. However, although petroleum contamination was not observed in unsaturated soils located just above the water table in boring WW-TL-MW-1 (Table 2-7), a petroleum smear zone was visually identified at the water table. This smear zone is likely associated with historical releases upgradient of the area, rather than the transfer line leak.

In October 1999 and after decommissioning WW-TL-MW-1, Kaiser excavated approximately 550 cubic yards of soil from an area approximately 40 by 85 feet in size and 18 feet deep (Figure 2-8). During the excavation, impacted soils were segregated from visibly “clean” soils and disposed of off site while clean soils were used to backfill the excavation.

Thirteen soil verification samples and a field duplicate were collected from the excavation bottom (TL-BS-1 through TL-BS-5) and side walls (TL-SW-1 through TL-SW-8) for analysis of TPH (NWTPH-HCID) (Table 2-9). Sample locations are shown on Figure 2-8. Heavy oil-range petroleum hydrocarbons exceeding screening levels were identified in samples TL-BS-2 and TL-BS-3 at 2,100 and 6,500 mg/kg, respectively. Further excavation in these areas was limited by the presence of a high pressure, 24-inch-diameter water supply main and the physical limitations of the excavation equipment. The other concentrations were below screening levels.

In addition, a composite sample (1-TL-Comp) was collected from stockpiled soils and submitted for TPH, volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) analyses. This sample was collected to facilitate assessment of potential human health risk and the mobility of the residual petroleum hydrocarbons. The majority of the constituents detected were aliphatics in the C-12 to C-34 range, a few aromatics, and no detectable BTEX compounds (Table 2-10). Soil represented by these data are no longer at the Kaiser site and have been removed from the site for proper disposal.

Monitoring Well Sampling and Analysis

Boring WW-TL-MW-1 was completed as a monitoring well and was sampled in March and June 1999. The March groundwater sample was analyzed for TPH (NWTPH-Dx). The June groundwater sample was analyzed for TPH (NWTPH-HCID). Diesel-range petroleum hydrocarbons were detected at an estimated concentration of 1.5 mg/L in the March 1999 groundwater sample, which is above the groundwater screening level of 0.5 mg/L. No petroleum hydrocarbons were detected in the June 1999 groundwater sample. Analytical results for these groundwater samples are presented in Table 2-11.

Spring 2007 Phase I Investigation

From April 30 to May 4, 2007, Kaiser conducted additional investigations on the remaining sections of the G2 Transfer Lines as part of the Phase I investigation. This work was completed in accordance with a Work Plan for the G2 and G1 Transfer Lines that was approved by Ecology (Kaiser 2007). The Phase I activities included cutting, capping, and removing sections of the lines, and excavation and inspection of the lines for integrity and leaks. The sections of the lines investigated during this effort are presented on Figure 2-6. Approximately 950 linear feet of the G2 Transfer Lines were excavated and removed in four major sections over the 5 days of work. The lines were cut and capped in those areas where they had to be left in-place such as beneath the railroad tracks and other major plant utilities to prevent undermining these structures and the supports of the above-ground G4 Transfer Line.

The only evidence of contamination observed along the remaining sections of the G2 Transfer Lines was in the vicinity of a manhole near the east end of the 1998 excavation (Figure 2-6). Coolant accumulated inside the manhole was pumped on May 2, 2007, and the concrete manhole was removed on May 3, 2007. Approximately 30 cubic yards of visually impacted soil were removed to a depth of 10 feet below grade in the vicinity of the manhole and stockpiled on visqueen near the southeast corner of the 1,000,000-gallon AST. After the excavation was complete, visibly clean soil from the excavation of the G2 Transfer Line was used to backfill the length of the excavation.

Two soil verification samples [G-2 (STA7+74 Bottom) and G-2 (STA7+74 Sidewall)], and a blind duplicate labeled G-4 (Stockpile) were collected from the manhole excavation and analyzed for TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx). The bottom sample and its duplicate were also analyzed for PCBs, SVOCs, and VOCs. Analytical results of these samples indicated that constituents were non-detect or detected at concentrations below screening levels (Table 2-12).

Sample G-2 (STA7+74 Bottom) with the highest detected TPH concentration, was also analyzed for EPH and VPH (Table 2-13). However, because the TPH and volatile constituent ranges were so low, very few EPH/VPA carbon ranges were detected and those that were at low concentrations. Note also that TPH and volatile fractions detected in the G2 Transfer Lines samples were below the screening levels (Tables 2-12 and 2-13).

Two additional soil verification samples were collected from a 45-degree elbow in the Transfer Lines [G-2 (STA4+80 Bottom) and another sample north of the elbow [G-2 (STA4+27 Bottom)]. Sample G-2 (STA4+27 Bottom) was analyzed for TPH (NWTPH-HCID) and sample G-2 (STA4+80 Bottom) was analyzed for TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx), PCBs, SVOCs, and VOCs. Soil sampling locations are shown on Figure 2-6.

No petroleum hydrocarbons were detected in either sample. However PCBs (as Aroclors 1254 and 1260), a few VOCs, and several PAHs were detected in sample STA4+80 Bottom at concentrations below screening levels.

2.4.3 Proposed Phase II (RI) Work

Available data have adequately characterized the nature and extent of releases from the G2 Transfer Lines and the response action conducted after the accidental 1992 spill. Based on the results of these investigations, no further work was proposed in the Phase II RI Work Plan (Hart Crowser 2007).

2.4.4 Summary of Current Conditions

Soil

Soil data collected during the 1992 investigation indicates that the contamination caused by the transfer line break was removed. The soil samples analyses confirm that the TPH concentrations in this area are below screening levels.

Data collected during the 1998 investigations and follow-up excavation activities indicate that the contamination caused by the line failure moved both downward and horizontally at various locations following more permeable layers in the soil. The horizontal extent of impacted soil was concentrated in an area approximately 60 feet long by 40 feet wide around the pipe line break, as determined from the boring soil analytical results (Table 2-7). The soil samples with the highest constituent concentrations were generally within the upper 18 feet, with concentrations typically decreasing significantly in the samples collected at depths ranging from 15 to 22 feet below ground surface. The highest concentrations detected were in the 5.5- to 7-foot sample from boring WW-TL-SB 2, located adjacent to the leak, with heavy oil-range petroleum hydrocarbons at 20,000 mg/kg, Kensol at 6,500 mg/kg, and Stoddard solvent at 610 mg/kg (Table 2-7).

The majority of this contamination was removed. The excavation appears to have been largely successful. The majority of the petroleum-contaminated soil with concentrations above the screening levels was removed to the extent possible within limitations of the adjacent high pressure water line and the capacity of the excavation equipment.

The G2 Transfer Lines work conducted for the Phase I RI in April/May 2007 indicates that most of the length of the G2 Transfer Line was intact and no leaks were identified. The only visibly petroleum-impacted soils were encountered near the manhole [sample location G-2 (STA7+74)]. These petroleum-impacted soils were successfully removed during excavation of the manhole to the extent possible within limitations of the adjacent 24-inch cooling water line and railroad tracks. Soil verification sample analytical results indicated that concentrations were below screening levels.

The need for additional remedial actions in the G2 Transfer line area will be evaluated in the FS.

Groundwater

TPH concentrations in groundwater samples were above the groundwater screening level in the first sample (March 1999) from monitoring well WW-TL-MW-1 and below in the next sample collected from this well (Table 2-11). These groundwater data indicate very few if any adverse impacts to localized groundwater in the area. Refer to Site-Wide Groundwater RI (Hart Crowser 2012) for additional information about groundwater quality.

2.5 G3 TRANSFER LINES

2.5.1 Introduction

The two G3 Transfer Lines are located in the west-central area of the Trentwood Facility and are the third generation of wastewater transfer lines connecting the ORB with the IWT (Figure 2-2). The two lines include an oily emulsion line and an acidified water line. The oily emulsion line consisted of a 4-inch-diameter inner transfer pipe encased in an outer 8-inch-diameter secondary containment line. Similarly, the acidified water line was designed with a 3-inch-diameter inner transfer and 6-inch-diameter outer secondary containment pipe. The containment lines were fitted with leak detection sensors at a number of locations along the lines. Both lines and their secondary containment systems were constructed from a fiber-cast material. The acidified water line became inactive after the shutdown and removal of the No. 5 Cold Mill in 2002 and 2004, respectively. The location of the G3 Transfer Lines in relation to the ORB area is presented on Figure 2-2.

The G3 Transfer Lines were installed between late 1998 and early 1999, shortly after the G2 Transfer Lines were shutdown (Section 2.4). Soon after installation, leakage from the inner pipe into the outer containment pipe was noted in both lines, particularly with the oily emulsion line. As designed, this leakage triggered alarms in the pipes leak detection system. Numerous attempts were made to repair the lines; however, these attempts proved unsuccessful. Fluid entering the annular space within the containment pipe would typically overflow back to the ORB at the north end of the line.

Pressure tests conducted in 2004 on both lines confirmed a lack of integrity and the lines were taken out of service. Oily water was temporarily transported to the IWT by truck until the G4 Transfer Line was installed.

Although a variety of additional pressure testing and excavation activities were conducted, the G3 Transfer Lines were ultimately determined to be beyond repair and were taken out of service. The G3 Transfer Lines were replaced by a heat-traced above-ground transfer line (the G4 Transfer Line), which became operational in 2005.

2.5.2 Previous Investigations

The initial investigation of the G3 Transfer Lines involved two major activities; 1) pressure testing and excavation along the lines to identify potential release area, and 2) installing a new groundwater monitoring well (HL-MW-21S) and collecting a groundwater sample for chemical analysis. The limits of the excavation and the monitoring well location are shown on Figure 2-6. Additional excavation, removal, and sampling along the G3 were conducted during the Phase I RI in 2006.

The following sections present the results of those initial investigations and the Phase I RI activities. Soil analytical data are presented in Tables 2-14, 2-15, and 2-17 and groundwater analytical data are presented in Table 2-16. Additional information regarding these investigations is presented in the Phase II RI Work Plan (Hart Crowser 2007).

2004 and 2005 Initial Investigations

In April and May 2004, pressure leak detection tests were conducted on the emulsion/oil line and the acidified water line. The testing confirmed a lack of integrity on both the inner transfer and outer containment pipe on the emulsion/oil transfer line and the outer containment of the acidified water line. Based on the results of the pressure testing, Kaiser excavated a 450-foot section of the northern end of the G3 Transfer Lines route (Figure 2-6). A break in the emulsion/oil line was uncovered at a pipe elbow located approximately 100 feet southwest of the ORB. Another break in the outer containment of the acidified water line was noted about 600 feet southwest of the ORB. Two soil samples were collected at each of these locations. Soil samples TL-1 and TL-2 were collected at the line break closest to the ORB and soil samples TL-3 and TL-4 were collected adjacent to Evergreen Way at a 90-degree bend where the lines turned south (Figure 2-6).

These four soil samples were analyzed for a TPH (NWTPH-Dx), metals, PCBs, SVOCs, and VOCs. The soil sample analytical results are summarized in Table 2-14. Analytical results for TL-1, TL-2, and TL-3 indicate diesel-range petroleum hydrocarbons exceed screening levels at concentrations of 29,000, 12,000, and 4,100 mg/kg, respectively, and residual-range petroleum hydrocarbons exceed screening levels at concentrations of 33,000, 15,000, and 6,900 mg/kg, respectively. Arsenic was present in the samples at concentrations between 2.6

and 4.5 mg/kg, which are above the screening level. However, these results are within the expected natural background range for arsenic in soil within the Spokane Basin (Ecology 1994). The other analytical results were non-detect or detected at concentrations below screening levels.

A sample of the bedding material (OR-WWT-S-A) in the excavated trench 300 feet west of the oily emulsion line leak was collected to assess the lateral extent of impacts along the pipeline (Figure 2-6). This sample was analyzed for VOCs and TPH (NWTPH-HCID). VOCs were non-detect and petroleum hydrocarbons in the heavy oil-range (Bunker C) were detected at a concentration below the screening level (Table 2-14).

In 2005, a Kaiser subcontractor conducted helium/hydrogen testing along the now uncovered sections of the G3 Transfer Lines to confirm the leaks already identified and other potential ones. The lines were injected with a mixture of helium and hydrogen, and monitored for indications of a leak. Testing results identified a primary leak point in the emulsion oil line at a 45 degree bend in the line some 100 feet southwest of the ORB and adjacent to well HL-MW-21S. Additional leakage was detected at the 90 degree elbows between the second and fourth vaults (sample CS-6 location). No leaks were detected in either the oily emulsion or acidified water lines between the fourth vault and the IWT Plant; these areas are highlighted in yellow on Figure 2-6.

Subsurface Soil Sampling and Soil Quality Analytical Results

In January 2005, a soil boring (HL-MW-21S; Figure 2-6) was advanced near the location of soil samples TL-1 and TL-2 where the most highly impacted soils were identified (Hart Crowser 2005). The boring, advanced to assess the vertical extent of impacts, was drilled to a depth of 81 feet and later converted to a groundwater monitoring well. Soil samples were collected at depths of approximately 5, 10, 25, 50, 70, and 80 feet below ground surface, and select soil samples were analyzed for TPH (NWTPH-HCID and NWTPH-Gx), metals, PCBs, VOCs, and SVOCs.

Arsenic was detected in the 10- and 50-foot samples at 3.6 and 6.8 mg/kg, which exceed the screening level (Table 2-15). However, these concentrations are within the expected natural background concentration range for arsenic in Spokane Basin soil (Ecology 1994). Petroleum hydrocarbons quantified as heavy oil were only detected in the 70-foot sample at a concentration of 230 mg/kg (below screening level). The presence of petroleum hydrocarbons at this depth is indicative of the smear zone near the water table observed in other areas of the plant. However, this petroleum detection does not indicate the G3 Transfer Line as a source of petroleum identified in the smear zone. Other analytes, including PCBs, VOCs, and SVOCs were non-detect or detected at concentrations below screening levels.

Groundwater Sampling and Analysis and Groundwater Quality Analytical Results

After installation of HL-MW-21S, the well has routinely been sampled and analyzed since March 2005. At least ten additional rounds of groundwater sampling and analysis have occurred at this well since March 2005. Quarterly samples have typically been submitted for analysis of dissolved metals, PAHs or SVOCs, VOCs, and TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx) and selected samples have also been analyzed for nitrate, nitrite, and sulfide. Groundwater monitoring well HL-MW-21S analytical results for April and October 2008 are presented in Table 2-16.

The April and October analytical results of groundwater samples collected from HL-MW-21S indicate that constituent concentrations have been below groundwater screening levels with the exception of arsenic in both sampling rounds and manganese in the October 2008 sampling round. Arsenic was detected at 1.82 and 2.8 ug/L, which exceeds the screening level of 0.018 ug/L but is below the drinking water MCL of 10 ug/L. Manganese was detected at 31.3 and 225 ug/L, which exceeds the screening level of 50 ug/L, which is based on the secondary MCL (taste and odor). Refer to the Site-Wide Groundwater RI (Hart Crowser 2012) for additional information concerning groundwater quality.

Phase I Investigation

Subsequent investigation activities along the G3 Transfer Lines were conducted as part of the Phase I investigation between November 7 and 11, 2006. The Phase I work included further assessment of the lines along those areas not previously investigated, removal of the lines as appropriate, and additional sampling and analysis (Figure 2-6).

The G3 Transfer Lines were uncovered, removed, and residual liquid inside sections of the pipes were drained as the sections were removed. Soil impacted by these releases was immediately excavated and stockpiled for later off-site disposal. Fifteen soil verification samples (CS-1 through CS-13) were collected along the line to assess for potential leaks and two samples (G-3S and G-3N) were collected from the pipe bedding material to represent the assumed worst-case soil conditions (Figure 2-6). These soil samples were analyzed for TPH (NWTPH-HCID), and their analytical results are presented in Table 2-17.

The soil verification samples (CS-1 through CS-13) collected and analyzed from the G3 Transfer Line trench did not contain detectable petroleum hydrocarbons. Only one soil sample collected along the G3 Transfer Lines (G-3S; pipe bedding material) contained detectable concentrations of heavy oil-range petroleum hydrocarbons at 170 mg/kg (below screening level).

2.5.3 Proposed Phase II (RI) Work

Available soil data indicate that releases from the G3 Transfer Lines have had little impact on soil quality, except for sections of the lines located near the ORB and near the 90-degree elbows between the second and fourth vaults. However, since the area around the ORB has been extensively investigated, and the nature and extent of releases for the ORB have been adequately characterized (as discussed in Section 2.7), the data are sufficient to allow for development of a cleanup action.

In addition, soil verification samples collected during removal of the G3 Transfer Lines near the 90-degree elbow leak identified during the initial investigation (soil sample CS-6) indicate that impacted soil in this area was also effectively removed.

Groundwater results from well HL-MW-21, installed at the location of the highest soil contamination along the G3 Transfer Lines indicate no significant adverse impacts to groundwater in this area.

Based on this information, no additional work along the G3 Transfer Lines was proposed in the Phase II RI Work Plan (Hart Crowser 2007).

2.5.4 Summary of Current Conditions

Soil samples TL-1, TL-2, and TL-3 indicated the presence of diesel-range petroleum hydrocarbons exceeding the screening level at concentrations ranging from 4,100 to 29,000 mg/kg. Arsenic concentrations were detected in TL-1, TL-2, TL-3, HL-MW-21S-10′, and HL-MW-S1-50′ at concentrations between 2.6 to 6.8 mg/kg, which exceed the screening level of 0.03 mg/kg but are below the expected natural background concentration for arsenic in Spokane Basin soil (Ecology 1994). Other soil sample constituents were non-detect or detected at concentrations below their respective screening levels.

Based on the previous investigations conducted along the G3 Transfer Line, it appears that although near-surface soil are impacted with petroleum hydrocarbons from the pipe leak approximately 100 feet southwest of the ORB, the hydrocarbons did not migrate deep into the subsurface at this location.

Groundwater samples collected from this well over a period of 3 years do not show any significant impacts to groundwater. The latest (2008) data are presented in Table 2-16. Since this well was located at the location of the assumed worst-case near-surface soil results, these groundwater results confirm the conclusion that the released petroleum hydrocarbons did not migrate deep into the subsurface at this location.

The need for additional remedial actions in the G#3 Transfer Line area (i.e., sample TL-3 area) will be evaluated in the FS. Because of their close proximity to the ORB, the SL exceedances associated with soil samples TL-1 and TL-2 are addressed in conjunction with the evaluation of soil and groundwater data collected from the ORB area.

2.6 1980 FUEL OIL SPILL

2.6.1 Introduction

Several Kaiser Trentwood operations used fuel oil or Bunker C oil supplied from a pumping station located between the Field-Constructed Tanks (FCT) and the 1,000,000-gallon above-ground tank (Figure 2-2). A system of heat-traced and insulated underground pipelines carried the fuel to various locations throughout the plant. These systems also included a recirculation return line likely used to keep the oil warm, when heavy oil was used.

In late January/early February 1980, Kaiser became aware a potential release when a pressure drop was registered in the fuel oil delivery system used to supply the mill operations. Historical Kaiser drawings identify the fuel line experiencing the pressure drop as a 3-inch supply and 1.5-inch return fuel oil line running within and on top of the same utility corridor of a 24-inch cooling water main (Figure 2-2). This fuel oil supply system was used for plant operation as a backup for natural gas.

Following an initial assessment of the system, Kaiser, with oversight by Ecology, investigated potential leaks by excavating several places along the fuel line route between the bulk fuel storage tanks and the west side of the Hot Line (Figure 2-2). On February 11, 1980, a suspected leak point was identified and later confirmed on February 13, 1980. The release was reported to Ecology on February 14, 1980. According to Ecology's 1980 spill report (Ecology 1980), the release point was located approximately 300 feet west of the plant and 800 feet east of the FCT tank connections. The pipeline was buried between 5.5 to 6 feet below ground surface.

2.6.2 Previous Investigation/Remediation Activities

Subsequent to the release, Kaiser worked with Ecology to implement several measures to monitor potential migration of the spilled material and to prevent future occurrences. These included:

- Discontinuing the use of buried pipelines and beginning designs for replacement;
- Maintaining a surveillance program for the potential presence of oil on the river and an outlet spring (daylighting);
- Contracting with a hydrogeologist to assess the situation and consider the potential for recovery;
- Sampling and analyzing downgradient wells (MW-1, MW-2, and MW-3) for the potential presence of oil; and
- Providing a more accurate assessment of the amount of fuel released.

To achieve these objectives, Kaiser contracted with Sweet, Edwards & Associates, Inc. (SE&A) to perform a hydrogeologic evaluation of the fuel release (SE&A 1980). Prior to issuing a report, SE&A recommended, and Kaiser implemented a twice-weekly program for monitoring well sampling and analysis and visual surveillance of the river and spring. Kaiser also contracted an oil spill cleanup service and developed a contingency plan to capture and dispose of any oil that may appear in the river or the spring. The excavation that occurred in the vicinity of the leak indicated that the leak had spread to cover an area of at least 100 square feet at a depth of 18 feet.

By the time that SE&A's issued its report in early March 1980, samples analyzed from the monitoring wells showed no significant contamination, nor had oil been observed in the outlet spring or the Spokane River. Similarly, an April 24, 1980, a letter from Kaiser to Ecology also states that while the sampling/surveillance program had been continued, oil had not been detected in monitoring well samples nor had it been observed at the river at a time period contemporary to this release (Kaiser 1980).

Phase I Investigation

Additional investigation of the fuel oil spill area was conducted in 2006 as part of the Phase I investigation. The work was used to assess the current soil and groundwater quality conditions downgradient from the spill and included the installation and sampling and analysis of a groundwater monitoring well. The following sections discuss available information on the Phase I work. Analytical data are presented in Tables 2-18 (soil) and 2-19 (groundwater).

Subsurface Soil Assessment

In February 2006, monitoring well FO-MW-1S was installed in the vicinity of the 1980 fuel oil release. The well was installed approximately 10 feet south of the fuel oil pipe line and cooling water line and approximately 300 feet west of the mill building (Figures 2-2 and 2-9).

The boring was drilled to a depth of 90.9 feet below ground surface and ten soil samples, including one field duplicate, were collected from the boring. Soil samples were submitted for analysis of TPH (NWTPH-Dx). Select soil samples from the boring were also submitted for analysis of PAHs and VOCs.

Soil Quality Analytical Results. Analytical results for the soil samples collected indicate that diesel/fuel oil-range petroleum hydrocarbons were detected in the two deepest soil samples collected at 78 and 88 feet below grade and in the field duplicate collected at 10 feet below grade (Table 2-18). Diesel/fuel oil-range petroleum hydrocarbons concentrations in the deep samples ranged from 680 to 770 mg/kg. The field duplicate sample had an estimated concentration of 23 mg/kg. These petroleum hydrocarbon concentrations are below screening levels.

PAH concentrations were detected in the soil sample collected at 78 feet below ground surface and the duplicate (Table 2-18). These results are consistent with the higher TPH concentrations detected in this same sample. Significant method blank contamination occurred during the initial analysis of this sample, thus this sample was reanalyzed. However, it was past the sample's holding time so detections were flagged as estimated. Twelve non-carcinogenic and carcinogenic PAHs were detected during the initial and reanalysis of these samples. The total cPAH TEQ value compared to B(a)P in the original sample was 2.2 ug/kg and 4.1 ug/kg in the reanalysis sample. Both results were significantly below the cPAH screening level. The only other PAH identified was in the 8-foot soil sample where a low concentration of 2-methylnaphthalene was detected (Table 2-18).

Minor VOC concentrations of less than 100 ug/kg were detected in the three soil samples analyzed for VOCs. The highest VOC concentrations were detected at 78 feet below grade (Table 2-18). These VOC concentrations are well below screening levels.

The occurrence of TPH in the soil samples near the water table is indicative of a petroleum smear zone. Data from soil samples collected above the smear zone do not indicate a near-surface source area.

Groundwater Assessment

Groundwater samples were collected and analyzed seven times between April 2006 and October 2008 from well FO-MW-1S (Table 2-19). Samples were submitted for analysis of PAHs, VOCs, TPH (NWTPH-HCID, EPA Method 8015 modified, NWTPH-Gx, and NWTPH-Dx), and total suspended solids (TSS). Selected samples were also analyzed for nitrate, nitrite, and sulfide to provide information on seasonal variation in oxidation/reduction conditions in the area.

Groundwater Quality Analytical Results. Analytical results of the groundwater samples collected and analyzed from FO-MW-1S were non-detect or detected at concentrations below screening levels, except for one minor cPAH TEQ exceedance in groundwater from the April 2008 monitoring round.

2.6.3 Proposed Phase II (RI) Work

Although the 1980 documentation indicates the spill occurred along the fuel oil line about 300 feet west of the mill building and well FO-MW-1S was placed at this location, it does not appear that the well is within the spill impact area. Based on information from the 1980 spill reporting and 2006 Phase I investigation, additional investigation was proposed in the Phase II RI Work Plan (Hart Crowser 2007) to locate the area of the 1980 fuel oil spill. This included:

- Locating the fuel oil line with utility locating equipment in the vicinity of where the spill is thought to have occurred and use a backhoe to excavate at intervals along side the fuel oil line looking for indications of petroleum releases.

- Sample and analyze soil for TPH (NWTPH-Dx) if observations indicate an area with petroleum contamination. Select soil samples were to be analyzed for BTEX and PAHs (including naphthalene) based on field observations.

- Install one soil boring down to the water table if the location of the 1980 spill is discovered. Sample soil at 10-foot-depth intervals and analyze samples for TPH (NWTPH-Dx). Three soil samples were to be analyzed for BTEX and PAHs (including naphthalene).

- This boring may be completed as a monitoring well, if warranted, based on observations during drilling.

The following sections present the work conducted under the Phase II work and the results of the investigations.

2.6.4 Phase II RI Field Activities and Analytical Results

The Phase II RI investigation of the 1980 Fuel Oil Spill was conducted between August 12 and 22, 2008. After reviewing utility drawings provided by Kaiser, a Hart Crowser representative conducted a utility survey of fuel oil supply and return lines exiting the FCT. The survey was conducted using a MetroTech utility locating unit and followed the fuel oil line path depicted on the drawings. The survey identified a single 3-inch-diameter line approximately 5 feet deep in the vicinity of well FO-MW-1S (Figure 2-9). The line appeared to be directly on top of and within the same utility trench as the 24-inch water main.

After identifying the line, a test pit (FO-TP-1) was excavated to uncover the fuel oil line starting at approximately 250 feet west of the main plant building and 10 feet south of the traced line. The excavator exposed a clay tile pipe encasing the fuel oil supply line without exposing the 24-inch water main. On August 13, 2008, an excavator was used to uncover and remove the top half of the clay tile pipe east and west of well FO-MW-1S as shown on Figure 2-9. A 3-inch supply and a 1.5-inch return line (as presented in the utility drawings) were encased within the 8- to 10-inch-diameter clay pipe. Both lines were of welded steel construction and were surrounded with vermiculite (absorbent swelling clay). No evidence of a release was observed inside or outside the clay pipe.

On August 14, 2008, a third 1.5-inch steam line was also identified within the clay pipe and was presumably used to keep the oil warm. The survey unit was used again to trace these three lines. A discontinuity of the signal of the 3-inch supply line, suggesting a potential break, was identified near a concrete vault 82 feet east of FO-MW-1S (Figure 2-9). All sides of the 6- by 4-foot vault were exposed and the bottom appeared to extend below the clay pipe and was potentially in contact with the water main. No evidence of a release was observed around the vault during the excavation.

After discussing the findings with Ecology, it was agreed that installation of an additional groundwater monitoring well at the apparent leak area was not warranted. The existing monitoring well (FO-MW-1S) is located about 80 feet directly downgradient of the leak location and is sufficient to monitor groundwater conditions for the 1980 fuel oil spill. Ecology requested that Kaiser collect soil verification samples on either side of the vault and at an elevation lower that the fuel oil line.

On August 22, 2008, a Hart Crowser representative collected two soil samples and one field duplicate from the east (FO-SS-2) and west (FO-SS-1) sides of the vault below the base of the clay pipe (Figure 2-9). The samples were submitted for chemical analyses of TPH (NWTPH-Dx), BTEX, and PAHs.

Analytical results from these samples indicate that no TPH or BTEX compounds were detected in any of the samples collected and analyzed (Table 2-20). Numerous non-carcinogenic PAHs and cPAHs were detected at low concentrations in these samples. These concentrations were below screening levels.

2.6.5 Summary of Current Conditions

After the initial excavation of impacted soils conducted in 1980, additional investigations during Phase I and Phase II investigations indicated that the impacted soil had been removed and no additional leaks from this line were identified. Fuel oil was not detected in downgradient monitoring well samples, nor was observed at the river or spring at a time period contemporary to this release. TPH and PAHs at concentrations below screening levels at a depth of 78 feet below ground surface and consistent with the recorded smear zone present in this area of the site. Groundwater samples collected from this well during the Phase II activities also indicated that no TPH has been detected in this well to date and that only very low levels of PAHs and VOCs have been present sporadically in groundwater.

Based on this information, the cleanup of the 1980 Fuel Oil spill appears to be completed. Additional remedial action is not warranted based on the soil and groundwater data.

2.7 OIL RECLAMATION BUILDING

2.7.1 Introduction

The Oil Reclamation Building (ORB) is located in the west-central area of the Trentwood Facility, approximately 175 feet west of the plant (Figure 2-1). The ORB consists of a building originally constructed in 1942. In the early 1980s a major fire reportedly consumed the building. At that time the building was reconstructed. The building houses a partially buried concrete pit divided into nine sections/tanks. The top of the concrete pit is open inside the above-ground structure of the building. The building was originally surrounded by bare soil. In 2006 and 2008, as part of its Spill Prevention, Control, and Countermeasure (SPCC) upgrade, Kaiser surrounded the east, west, and south sides of the ORB with concrete secondary containment structures.

Historically, the function of the ORB was to collect, settle, and process oil and oily emulsion waste from the plant processes allowing for partial recycling of the oil, and for removal of a portion of the oils. Prior to 1973, the wastewater was discharged to the South and West Discharge Ravines (Refer to Section 8.0). In 1973, Kaiser constructed the IWT Plant and the function of the ORB changed to provide emulsion coolant storage/surge capacity and to filter solids prior to discharge to the IWT. In the early 1980s, as part of the building reconstruction, the ORB was replaced and a fiberglass coating was applied to the tanks to improve their integrity.

In 1984, the influent to the ORB was modified to include a new rolling coolant process for lubrication and cooling of the strip at the Cold Mill. As a result of these changes, the original No. 5 Cold Mill neat oil coolant was replaced. The new coolant was a water/oil mixture using a sulfuric acid treatment process to clean the coolant and remove metals such as aluminum. The acidic blow-down from this process was transferred to the IWT via the ORB. Also, the ORB provided additional surge capacity as needed upstream of the IWT.

Kaiser's historical records indicate the ORB pits would occasionally overflow directly onto surrounding soil. In 1999, several improvements were made to the IWT and ORB to reduce the likelihood of overflowing. These changes included the installation of level sensors and instrumentation connecting the ORB to the IWT distribution control system. The upgrades allowed the automated closing of influent valves to prevent overflow of the ORB tanks onto the surrounding soil. Also during these upgrades, the use of the original transfer lines transporting coolant (emulsion) from the plant's rolling mill basements was discontinued and new double walled lines were installed. Petroleum-contaminated soils were encountered during the installation of the new lines. The impacted soil was excavated and stockpiled on the site for later disposition.

In 2006, a new loading/unloading area was constructed on the south end of the ORB area (Figure 2-1). This area provides secondary containment for oily wastewater trucked to the ORB for processing. Except roadways, the loading pad, and small paved areas surrounding the building, the majority of the areas surrounding the ORB consisted of bare soil at that time.

Significant historical investigation and cleanup activities have been conducted around the ORB. The following sections present previous investigations and the activities conducted under the Phase I and II investigations of the ORB.

Following these sections, information concerning Kaiser's SPCC secondary containment upgrades around the ORB is discussed.

2.7.2 Previous Investigations

Kaiser began investigating the ORB area in conjunction with the nearby Man-Made Depressions (presented in Section 2.2) in 1996. The purpose of this initial investigation was to evaluate the nature and extent of potential contamination around the building. Further investigation activities occurred at the southern end of the ORB in 2004, 2005, and 2006 to support construction of a new loading/ unloading pad and during the Phase I activities.

1996 Subsurface Investigation

The 1996 initial subsurface investigation was conducted to evaluate the nature and extent of oily wastewater releases from the ORB (Hart Crowser 1997). In total, 96 soil samples were collected from 10 test pits (96ORTP-1 through 96ORTP-9 and TP-OR1) and 16 soil borings (B-1 through B-13, B-15 through B-17) advanced around the ORB (Figure 2-10). Test pit depths ranged from 3 to 8.5 feet below ground surface and the soil borings were completed to depths between 11.5 and 24 feet below ground surface.

The 96 soil samples collected from these borings and test pits were analyzed for TPH (NWTPH-HCID); nine soil samples were analyzed for PCBs; and three soil samples were analyzed for PAHs/SVOCs, metals, and VOCs.

Analytical results of these soil samples indicate that the majority of impacts were related to elevated concentrations Kensol-, kerosene-, diesel-, and heavy oil-range petroleum hydrocarbons in areas immediately surrounding the building, primarily to the south and west. Kensol concentrations were present from 8.7 to 970 mg/kg; kerosene/jet fuel between 22 and 3,500 mg/kg; diesel from 17 to 12,000 mg/kg; and heavy oil between 48 and 34,000 mg/kg (Table 2-21). As indicated in the table, several of these petroleum hydrocarbons exceed screening levels.

In addition, as discussed below, soil representative of these samples were subsequently removed, as indicated by note (d), during the SPCC upgrade work conducted by Kaiser.

PCBs, several PAHs, and several VOCs were detected in soil samples but at concentrations below screening levels. In addition arsenic (6.4 to 17 mg/kg) was detected at concentrations exceeding the screening level (Table 2-21). However, these concentrations are within the expected natural background concentration for arsenic in Spokane Basin soil (Ecology 1994).

2004/2005 ORB Loading/Unloading Pad Area Soil and Groundwater Investigation

Additional investigations of the ORB were conducted in 2004 and 2005 to provide information for the design and installation of a new loading and unloading pad at the southern end of the ORB and the Phase I RI. The investigation work included excavation and stockpiling of about 900 cubic yards of soil from around the location of the new ORB pad, collection of nine soil verification samples on the bottom and side walls of the excavation, installation of soil boring OR-SB-31, and installation and sampling and analysis of groundwater monitoring wells HL-MW-20S and HL-MW-19S (Hart Crowser 2005). The locations of the boring and monitoring wells are shown on Figures 2-10.

Soil

After soil excavation in the vicinity of the loading/unloading pad was completed to a depth of about 19 feet below ground surface, nine soil verification samples (S-1 through S-9) were collected from the bottom and side walls of the excavation in January 2005 (Figure 2-10). The nine soil verification samples were analyzed for TPH (NWTPH-HCID) and selected samples were analyzed for NWTPH-Gx, BTEX, PCBs, PAHs, and metals (Table 2-22).

TPH concentrations in these soil verification samples ranged from non-detect to 43,000 mg/kg quantified as diesel/fuel oil and non-detect to 170,000 mg/kg quantified as heavy oil. The higher concentration exceed screening levels. Sample S-8, with the highest TPH concentration, was located immediately adjacent to the foundation of the ORB. Impacted soil in this area of the pad could not easily be removed without jeopardizing the integrity of the building foundation and, therefore, was left in-place. Samples S-3 and S-8 had gasoline-range petroleum hydrocarbons detected at concentrations of 140 and 340 mg/kg, respectively, above screening levels.

One or more BTEX compounds were detected in two (S-7 and S-8) of the three samples analyzed for these constituents. These concentrations were below screening levels except for xylenes in sample S-7. Benzene was not detected in these soil samples.

Three excavation soil samples (S-1, S-7, and S-8) were also submitted for PCBs and PAHs analyses. No PCBs were detected. These three soil samples contained detectable concentrations of one or more PAH. However, again only sample S-8 had concentrations of cPAHs exceeding the screening level of 350 ug/kg B(a)P TEQ (525 ug/kg).

Sample S-8 was submitted for analysis of the metals. Cadmium was detected at a concentration of 1.8 mg/kg above its screening level and also slightly above the expected background range for cadmium in Spokane Basin soil of 0.1 to 0.7 mg/kg (Ecology 1994).

For additional details on the excavation activities refer to Figure 4-7 and associated discussions in the Phase II RI Work Plan (Hart Crowser 2007).

After the excavation was completed, Hart Crowser advanced three soil borings and converted two into groundwater monitoring wells (Figure 2-10). Soil boring OR-SB-31 was advanced on the southeast end of the ORB to a total depth of 81.5 feet below ground surface. Soil boring HL-MW-20S was advanced at the southwest end of the ORB to a total depth of 91 feet below ground surface and completed as a groundwater monitoring well. Soil boring HL-MW-19S was installed east of the ORB to a depth of 90 feet below ground surface and completed as a groundwater monitoring well. Selected soil samples from these borings/wells were analyzed for TPH (NWTPH-HCID) and PCBs. The shallowest and deepest soil samples from OR-SB-31 were also analyzed for VOCs, SVOCs, and metals (Table 2-23).

Analytical results of soil samples collected from HL-MW20S and OR-SB-31 indicate that heavy oil-range petroleum hydrocarbons were detected in all samples analyzed at concentrations ranging between 180 and 5,300 mg/kg (Table 2-23). The highest concentration in the soil was detected in the 80-foot-deep sample from OR-SB-31. This sample and samples S-2 and S-3 from HL-MW-20S collected at depths of 85 and 10 feet, respectively, exceed the screening level for heavy oil-range petroleum hydrocarbons. The other petroleum hydrocarbons in these samples were non-detect or detected at concentrations below screening levels. PCBs were not detected in any of the soil samples analyzed from these borings.

Two soil samples (S-1 and S-7) from OR-SB-31 were also analyzed for metals, SVOCs, and VOCs (Table 2-23). Except for silver in sample S-7, the analytical results for the other metals and VOCs are non-detect or detected at concentrations below screening levels. The silver concentration of 1.2 exceeds its screening level. Ecology's soil background document for the Spokane Basin soil (Ecology 1994) does not have a statistically valid background level for silver. The analytical results for SVOCs indicate a few detections in these two samples, including an exceedance of the screening level for N-Nitrosodiphenylamine in sample S-1 and an exceedance of the screening level for TEQ equivalents based on BaP in sample S-7. The remaining SVOCs were non-detect or detected at concentrations below screening levels.

Groundwater

Downgradient well HL-MW-20S and upgradient well HL-MW-19S have been sampled and analyzed periodically since 2005, while downgradient well HL-MW-2 has been regularly sampled and analyzed since 1991.

HL-MW-2. A groundwater sample was first collected in well HL-MW-2 in March 1991. Since that time, over 20 samples have been collected for analysis from this well. PCBs were not detected in samples from well HL-MW-2 through April 2006. However, in October 2006, PCBs were detected in this well at a concentration of 0.16 ug/L (Table 2-24).

Well HL-MW-2 was damaged in 2001 and could not be sampled again until it was repaired in 2006. Many of the groundwater samples collected from HL-MW-2 prior to 2001 had TPH detections, generally in the diesel/fuel oil- (0.8 to 61 mg/L) and heavy oil- (0.2 to 92 mg/L) ranges. However, after the well was repaired in 2006, TPH was not detected in this well until October 2008 when diesel- (5.5 mg/L) and heavy oil- (5.8 mg/L) range petroleum hydrocarbons were detected via NWTPH-Dx (5.9 and 6.3 mg/L, respectively, by NWTPH-HCID) (Table 2-25).

Groundwater samples from well HL-MW-2 submitted in April 2006 for PAH analysis had low estimated detections of four non-carcinogenic PAHs and no detections of cPAHs. In October 2006, nine non-carcinogenic PAHs were detected at low concentrations and two cPAHs were detected. The TEQ for this sample was 0.0023 ug/L based on B(a)P equivalents, which is below the screening level for cPAHs (0.0028 ug/L). Up until the Phase II RI investigation, PCBs had been occasionally analyzed for in samples from well HL-MW-2 and were only detected once in October 2006 where total PCBs were 0.16 ug/L (a mixture of Aroclors 1254 and 1260). See the discussion of Phase II results below for additional discussion of results from recent well sampling events. Volatile organics were not detected in either sample collected from this well in 2006.

HL-MW-19S and HL-MW-20S. Wells HL-MW-19S and HL-MW-20S were first sampled in March 2005 and the samples were submitted to the laboratory for TPH (NWTPH-HCID) and TSS analyses. Analytical results from this event indicate that groundwater from well HL-MW-20S contained 57 mg/L heavy oil-range petroleum hydrocarbons and 0.8 mg/L kerosene/jet fuel-range petroleum hydrocarbons (Table 2-24). Both petroleum fraction detections are above the screening level. Petroleum hydrocarbons were not detected in the groundwater sample from HL-MW-19S located east (upgradient) of the ORB during the March 2005 event.

Additional groundwater samples from these wells were collected in the remaining quarterly events in 2005 and through 2006 as part of the ongoing groundwater monitoring program. In July 2005, well HL-MW-20S had 0.34 foot of free phase product in the well casing and had the highest TPH concentrations detected in the well with detections of 8.7 mg/L kerosene/jet fuel and 520 mg/L heavy oil via NWTPH-Dx. Diesel- and heavy oil-range petroleum hydrocarbons were only detected in July 2006 at concentrations of 80 and 260 mg/L, respectively. TPH was not detected in well HL-MW-19S at that time.

Sporadic detections of non-carcinogenic PAHs and cPAHs were detected in HL-MW-19S and HL-MW-20S in October 2005 through June 2006 with TEQs between 0.0077 to 0.078 ug/L based on B(a)P equivalents in HL-MW-20S. The TEQs for HL-MW-19S were below screening levels, those for HL-MW-20S were above the screening level of 0.0028 ug/L. Other than acetone (4.6 to 6.2 ug/L; both wells) and 2-butanone (25 ug/L; HL-MW-20S), no other VOCs were detected in groundwater samples from these wells.

Soil Gas

In addition, two soil gas samples were collected in 2006 as part of a limited soil gas survey conducted during the Phase I field efforts. One of these samples, OR-SG-1, was collected directly west of the ORB south pad (Figure 2-10). Analytical results of this sample indicate that BTEX compounds as well as TCE and PCE were detected in soil gas by the ORB (Table 2-5). Chlorinated solvents including TCE and PCE may have been used historically in parts cleaners or for other maintenance activities across the Site. Currently, petroleum naphtha - based cleaners are used in the various parts cleaners at the Site and there are no known uses of chlorinated solvents.

See the Site-Specific Human Health and Terrestrial Ecological Risk Assessment (Pioneer 2012) for additional discussion of soil gas risks in this area.

2.7.3 Proposed Phase II (RI) Work

The results of previous investigations and the Phase I work conducted around the ORB provided sufficient data to define the nature and extent of soil contamination surrounding the ORB. Therefore, continued monitoring of well HL-MW-2 was the only activity proposed in the Phase II RI Work Plan (Hart Crowser 2007).

The work proposed consisted of monitoring of HL-MW-2 quarterly until at least four quarters of recent groundwater data were available. It was also proposed that suspended solid concentrations in this well would be closely monitored and the well would be redeveloped to remove fine-grained sediments, if warranted. No additional investigation activities were recommended in the ORB for the Phase II RI.

2.7.4 Phase II RI Field Activities and Analytical Results

Monitoring of HL-MW-2 was conducted concurrently with the Kaiser site-wide quarterly groundwater monitoring events. The well was sampled and the sample analyzed once during the last quarter of 07 (October 22) and three quarters of 2008 (January 24, April 22, and October 19).

Analytical Parameters

Per the Phase II RI Work Plan, the groundwater samples obtained from HL-MW-2 were analyzed for the TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx); VOCs; SVOCs; and PCBs.

Analytical results from the samples collected from this well during these events are presented in Table 2-25.

Groundwater Analytical Results

Analytical results of these samples indicate that VOCs were not detected in well HL-MW-2 in any of the six quarters sampled and analyzed, except of low detections of methylene chloride in the April 2008 event and toluene in the January and October 2008 events. These VOC detections are well below the groundwater screening levels. However, SVOCs, PCBs, and TPH were detected in at least one quarterly event. Concentrations of diesel- and heavy oil-range petroleum hydrocarbons above screening levels were detected only during the October 2008 quarterly sampling event. These TPH detections are above the screening levels. In addition, PCBs ranging between 0.019 and 1.39 ug/L were detected in three of the six sampling rounds. These detections of PCB are above the screening level for Total PCBs in groundwater.

Several non-carcinogenic PAHs and cPAHs were detected in groundwater samples from all six quarters. PAHs, including 2-methylnaphthalene, acenaphthylene, benzo(b)fluoranthene, benzo(g,h,I)perylene, chrysene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, and pyrene, were detected in at least one of the quarterly events (Table 2-25). The cPAH TEQ equivalents (0.004 to 0.028 ug/L) exceed the cPAH screening level based on B(a)P equivalents.

2.7.5 SPCC Upgrade Activities

In addition to the ORB loading/unloading area improvements discussed in Section 2.7.2, Kaiser completed major renovations to the ORB building in 2008. This included excavation along the east and west sides or the ORB down to a depth of about 15 feet and installation of a concrete-lined trench in the excavations to provide secondary containment should the tanks in the ORB overflow or leak.

Figure 2-12 presents a plan view of the ORB with the containment upgrades in place. It also shows the horizontal extent of excavation to remove soil for the construction of the concrete containment areas. Figure 2-13 shows the depth of excavation to allow for the secondary containment upgrade. Note that these soil excavations resulted in the removal of some of the soil that was previously sampled and analyzed during historical investigations. Samples that are representative of soil that was removed and disposed of off site during the 2008 SPCC upgrade are identified with a (d) footnote in Table 2-21.

2.7.6 Summary of Current Conditions

Available soil and groundwater data indicate that the area in the vicinity of the ORB has been impacted due to past releases from the ORB building. In general, the constituents that exceed screening levels are petroleum hydrocarbons and associated compounds, such as cPAHs. Free phase petroleum has been detected in well HL-MW-20S at the southwest corner of the ORB. However, groundwater data from well HL-MW-2 located downgradient of the ORB indicate that groundwater impacts while present in this well are localized.

Soil gas data collected from the ORB area does not pose a risk to site workers as presented in Pioneer (2012).

The need for additional remedial action in the vicinity of the ORB will be evaluated in the FS.

2.8 REFERENCES FOR SECTION 2.0

Hart Crowser 1997. Subsurface Investigation, Oil Reclamation Building (ORB), Kaiser Trentwood Works, Spokane, Washington, J-2644-63. June 25, 1997.

Hart Crowser 2000. Draft Results of Soil and Groundwater Investigation and Soil Removal Action, Wastewater Emulsion Transfer Line Leak Area and Drywell Spill Area. Trentwood Mill, J-2644-69. May 5, 2000.

Hart Crowser 2005. Kaiser Data Report - Hot Line, Oil Reclamation, and G3 Transfer Lines, Kaiser Trentwood Facility, Spokane, Washington, J-2644-87/89. June 1, 2005.

Hart Crowser 2007. Phase II Remedial Investigation Work Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-103. November 30, 2007.

Hart Crowser 2012. Final Site-Wide Groundwater Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington, LLC by Hart Crowser, Inc. May 2012.

Kaiser 1980. Letter to Department of Ecology responding to Ecology's letter of March 21, 1980, regarding the oil spill reported on February 14, 1980. April 24, 1980.

Kaiser 2006. Letter from Bud Leber (Kaiser) to Teresita Bala (Ecology) documenting the results of G1 Transfer Line Pressure Testing. November 14, 2006.

Kaiser 2007. G2 and G1 Transfer Lines Investigation Plan. April 2007.

Pioneer 2012. Final Human Health and Ecological Risk Assessments, Kaiser Trentwood Facility, Spokane Valley, Washington. Pioneer Technologies Corporation. May 2012.

Sweet, Edwards & Associates, Inc. (SE&A) 1980. Oil Spill Evaluation. Letter Report. March 17, 1980.

Washington State Department of Ecology (Ecology) 1980. Environmental Complaint Report Form and Spill Report Writeup. March 1980.

Ecology 1994. Natural Background Soil Metals Concentrations in Washington State, Washington State Department of Ecology Publication #94-115. October 1994.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 2 0.doc

Table 2-1 - Analytical Results for Soil Samples from Man-Made Depressions

			TPH in mg/kg							
Sample ID	Sampling Date	Depth in Feet	Gasoline	Stoddard/ Mineral spirits	Kensol	Kerosene/ Jet fuel	Diesel/ Fuel oil	Bunker C	Heavy oil	Unknown
Screening Level (a)			100	100	2000	2000	2000	2000	2000	
B-12/ S-1	10/10/96	2.5 to 4	10 U	10 U	10 U	13	170	50 U	950	10 U
B-12/ S-2	10/10/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-12/ S-3	10/10/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-12/ S-4	10/10/96	10 to 11.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-13/ S-1	10/10/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	3,200	10 U
B-13/ S-2	10/10/96	5 to 6.5	10 U	10 U	10 U	35	120	50 U	590	10 U
B-13/ S-3	10/10/96	7.5 to 9	10 U	10 U	10 U	9.3 J	55	50 U	330	10 U
B-13/ S-4	10/10/96	10 to 11.5	10 U	10 U	10 U	10 U	20	50 U	86	10 U
B-13/ S-5	10/10/96	12.5 to 14	10 U	10 U	10 U	10 U	29	50 U	140	10 U
B-13/ S-6	10/10/96	15 to 16.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-14/ S-2	10/31/96	5 to 6.5	10 U	10 U	10 U	1,300	5,700	50 U	9,100	10 U
B-14/ S-3	10/31/96	7.5 to 9	10 U	10 U	10 U	10 U	48	50 U	250	10 U
B-14/ S-4	10/31/96	10 to 11.5	10 U	10 U	10 U	10 U	44	50 U	170	10 U
B-14/ S-5	10/31/96	12.5 to 14	10 U	10 U	10 U	10 U	49	50 U	200	10 U
B-14/ S-6	10/31/96	15 to 16.5	10 U	10 U	10 U	10 U	27	50 U	110	10 U
B-14/ S-7	10/31/96	17.5 to 19	10 U	10 U	10 U	10 U	83	50 U	280	10 U
B-14/ S-8	10/31/96	22.5 to 24	10 U	10 U	10 U	10 U	20 U	50 U	46 J	10 U
B-15/ S-1	10/31/96	2.5 to 4	10 U	10 U	10 U	10 U	82	50 U	810	10 U
B-15/ S-2	10/31/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	570	10 U
B-15/ S-3	10/31/96	7.5 to 9	10 U	10 U	10 U	14	89	50 U	620	10 U
B-15/ S-5	10/31/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	43 J	10 U
B-18/ S-1	10/31/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-18/ S-2	10/31/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-18/ S-5	10/31/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-18/ S-6	10/31/96	17.5 to 19	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-19/ S-1	10/31/96	2.5 to 4	10 U	10 U	10 U	10 U	2,800	50 U	7,700	10 U
B-19/ S-2	10/31/96	5 to 6.5	10 U	10 U	10 U	10 U	4,200	50 U	11,000	10 U
B-19/ S-3	10/31/96	7.5 to 9	10 U	10 U	10 U	10 U	61	50 U	710	10 U
B-19/ S-4	10/31/96	10 to 11.5	10 U	10 U	10 U	10 U	20	50 U	120	10 U
B-19/ S-5	10/31/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	76	10 U
B-20/ S-1	10/31/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	670	10 U
B-20/ S-2	10/31/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	270	10 U
B-20/ S-3	10/31/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-20/ S-5	10/31/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U

Table 2-1 - Analytical Results for Soil Samples from Man-Made Depressions

			TPH in mg/kg								
Sample ID	Sampling Date	Depth in Feet	Gasoline	Stoddard/ Mineral spirits	Kensol	Kerosene/ Jet fuel	Diesel/ Fuel oil	Bunker C	Heavy oil	Unknown
Screening Level (a)			100	100	2000	2000	2000	2000	2000	
B-21/ S-1	11/1/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	140	10 U
B-21/ S-3	11/1/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-21/ S-4	11/1/96	10 to 11.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-22/ S-1	11/1/96	2.5 to 4	10 U	10 U	10 U	600	5,000	50 U	14,000	10 U
B-22/ S-2	11/1/96	5 to 6.5	10 U	10 U	10 U	10 U	1,000	50 U	7,300	10 U
B-22/ S-3	11/1/96	7.5 to 9	10 U	10 U	10 U	10 U	430	50 U	3,100	10 U
B-22/ S-4	11/1/96	10 to 11.5	10 U	10 U	10 U	10 U	1,800	50 U	9,200	10 U
B-22/ S-5	11/1/96	12.5 to 14	10 U	10 U	10 U	10 U	1,000	50 U	4,900	10 U
B-23/ S-2	11/1/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-23/ S-3	11/1/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-23/ S-4	11/1/96	10 to 11.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-24/ S-1	11/1/96	2.5 to 4	10 U	10 U	10 U	10 U	47	50 U	360	10 U
B-24/ S-2	11/1/96	5 to 6.5	10 U	10 U	10 U	10 U	88	50 U	700	10 U
B-24/ S-3	11/1/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	120	10 U
B-24/ S-4	11/1/96	10 to 11.5	10 U	10 U	10 U	10 U	20 U	50 U	78	10 U
B-25/ S-1	11/30/96	10 to 11.5	10 U	10 U	10 U	10 U	1,800	50 U	8,500	10 U
B-25/ S-4	11/30/96	17.5 to 19	10 U	10 U	10 U	10 U	1,100	50 U	6,000	10 U
B-25/ S-5	11/30/96	20 to 21.5	10 U	10 U	10 U	10 U	390	50 U	2,600	10 U
B-25/ S-7	11/30/96	27.5 to 29	10 U	10 U	10 U	10 U	180	50 U	1,300	10 U
B-25/ S-9	11/30/96	37.5 to 39	10 U	10 U	10 U	10 U	1,400	50 U	7,200	10 U
B-25/ S-11	11/30/96	47.5 to 49	10 U	10 U	10 U	10 U	1,100	50 U	4,500	10 U
B-25/ S-13	11/30/96	67.5 to 69	10 U	10 U	10 U	10 U	4,900	50 U	8,800	10 U
B-26/ S-1	11/25/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-26/ S-2	11/25/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-26/ S-3	11/25/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-26/ S-5	11/25/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-27/ S-1	11/25/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-27/ S-3	11/25/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-27/ S-5	11/25/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
HL-MW-6/ S-1	11/30/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
HL-MW-6/ S-2	11/30/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
HL-MW-6/ S-5	11/30/96	22.5 to 24	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
HL-MW-6/ S-7	11/30/96	42.5 to 44	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
HL-MW-6/ S-10	11/30/96	62.5 to 64	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U

U = Not detected at the reporting limit indicated.

Boxed value exceeds screening level.

(a) Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 2-2 - Analytical Results for Soil Samples from Man-Made Depressions Boring

	Screening Level (a)	HL-MW-16S/S-1	HL-MW-X S-1
Sample ID		HL-MW-16S/S-1	HL-MW-X S-1
Sampling Date		10/08/2003	10/08/2003
Depth in Feet		76 to 77	Dup of
Unsat/Sat		Sat	HL-MW-16S/S-1
Total Solids in %		94.6	94.9
PCBs in ug/kg			
Aroclor 1016		96 U	96 U
Aroclor 1221		200 U	200 U
Aroclor 1232		96 U	96 U
Aroclor 1242		96 U	96 U
Aroclor 1248		96 U	96 U
Aroclor 1254		96 U	96 U
Aroclor 1260		96 U	96 U
Total PCBs	14	200 U	200 U
NWTPH-HCID in mg/kg			
Gasoline	100	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U
Kensol	2000	20 U	20 U
Diesel/Fuel oil	2000	1,500	1,500
Bunker C		50 U	50 U
Kerosene/Jet fuel	2000	20 U	20 U
Heavy oil	2000	1,800	1,800

U = Not detected at the reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the saturated zone, only saturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 2-3 - Analytical Results for Soil Samples from Man-Made Depressions Test Pits

Sample ID	Screening	05ORTP-1	05ORTP-2	05ORTP-3	05ORTP-4
Sampling Date	Level (a)	3/16/2006	3/16/2006	3/16/2006	3/16/2006
Depth in Feet		5 to 5.5	4.5 to 5	5 to 5.5	5 to 5.5
Conventionals in %					
Moisture		10	12	10	9
Total Solids		90.3	86.3	94.7	87.1
Metals in mg/kg					
Lead	250	33.6	14	8.37	$\boxed{1,280}$
PCBs in ug/kg					
Aroclor 1016		10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U
Aroclor 1260		40 J	10 U	10 U	10 U
Total PCBs	270	40 J	20 U	20 U	20 U
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	210
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	1,100
Castor oil	2000	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000	20 U			310
Diesel/Fuel oil	2000	50 U			50 U
Heavy oil	2000	100 U			1,200
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100	5 U			5 U
Gasoline	100	5 U			5 U

Table 2-3 - Analytical Results for Soil Samples from Man-Made Depressions Test Pits

Sample ID	Screening	05ORTP-5	05ORTP-6	05ORTP-100	05ORTP-7
Sampling Date	Level (a)	3/16/2006	3/16/2006	3/16/2006	3/16/2006
Depth in Feet		5 to 5.5	5 to 5.5	Dup of 05ORTP-6	5 to 5.5
Conventionals in %					
Moisture		13	10	11	12
Total Solids		89.4	84.6	83.2	86.8
Metals in mg/kg					
Lead	250	15.5	414	599	14.5
PCBs in ug/kg					
Aroclor 1016		10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	14 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U
Aroclor 1248		10 U	13 U	16 U	10 U
Aroclor 1254		10 U	36 U	38 U	10 U
Aroclor 1260		10 U	42 J	54 J	10 U
Total PCBs	270	20 U	42 J	54 J	20 U
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 D	20 D	20 D
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	1,600	1,300	98
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	4,400	3,700	470
Castor oil	2000	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000		1,900	1,500	
Diesel/Fuel oil	2000		50 U	50 U	
Heavy oil	2000		5,000	4,300	
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100		360	310	
Gasoline	100		5 U	5 U	

Table 2-3 - Analytical Results for Soil Samples from Man-Made Depressions Test Pits

Sample ID	Screening	05ORTP-1	05ORTP-4	05ORTP-6	05ORTP-100
Sampling Date	Level (a)	3/16/2006	3/16/2006	3/16/2006	3/16/2006
Depth in Feet		5 to 5.5	5 to 5.5	5 to 5.5	Dup of 05ORTP-6
PAHs in ug/kg					
2-Methylnaphthalene	2190	1.5 J	6.8	8,400	8,000
Acenaphthene	98000	5 U	1.4 J	630	630
Acenaphthylene		1.6 J	5 U	150 U	150 U
Anthracene	2200000	6.1 U	22	1,300	1,300
Benzo(a)anthracene	See BaP (c)	3.4 J	26	970	950
Benzo(a)pyrene	233	5 U	5 U	440	470
Benzo(b)fluoranthene	See BaP (c)	4.9 J	15	560	600
Benzo(g,h,i)perylene		69	5.1	270	360
Benzo(k)fluoranthene	See BaP (c)	2.5 J	5 U	500	520
Chrysene	See BaP (c)	13	79	1,300	1,300
Dibenz(a,h)anthracene	See BaP (c)	1.9 J	1.1 J	66	85
Dibenzofuran	5090	5 U	2.5 J	780	790
Fluoranthene	630000	6.2	67	3,300	3,200
Fluorene	100000	5 U	10	2,300	2,300
Indeno(1,2,3-cd)pyrene	See BaP (c)	9.7	4.4 J	290	340
Naphthalene	4490	5 U	5 U	1,000	1,000
Phenanthrene		5 U	67	8,600	8,400
Pyrene	660000	7.7	26	2,600	2,500
TEQ Equivalent (b)	See BaP (c)	2.37	5.44	691.6	732.5
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		5.2 U	5.5 U	49 U	50 U
1,1,1-Trichloroethane	1610	5.2 U	5.5 U	49 U	50 U
1,1,2,2-Tetrachloroethane		5.2 U	5.5 U	49 U	50 U
1,1,2-Trichloroethane		5.2 U	5.5 U	49 U	50 U
1,1-Dichloroethane	8730	5.2 U	5.5 U	49 U	50 U
1,1-Dichloroethene		5.2 U	5.5 U	49 U	50 U
1,1-Dichloropropene		5.2 U	5.5 U	49 U	50 U
1,2,3-Trichlorobenzene		21 U	22 U	200 U	200 U
1,2,3-Trichloropropane		5.2 U	5.5 U	1,500 U	1,500 U
1,2,4-Trichlorobenzene		21 U	22 U	200 U	200 U
1,2,4-Trimethylbenzene	31000	21 U	22 U	30,000	34,000
1,2-Dibromo-3-Chloropropane		21 U	22 U	200 U	200 U
1,2-Dibromoethane(EDB)		21 U	22 U	200 U	200 U
1,2-Dichlorobenzene		5.2 U	5.5 U	49 U	12 J
1,2-Dichloroethane		5.2 U	5.5 U	49 U	50 U
1,2-Dichloropropane		5.2 U	5.5 U	49 U	50 U

Table 2-3 - Analytical Results for Soil Samples from Man-Made Depressions Test Pits

Sample ID	Screening	05ORTP-1	05ORTP-4	05ORTP-6	05ORTP-100
Sampling Date	Level (a)	3/16/2006	3/16/2006	3/16/2006	3/16/2006
Depth in Feet		5 to 5.5	5 to 5.5	5 to 5.5	Dup of 05ORTP-6
1,3,5-Trimethylbenzene	8380	21 U	22 U	650	770
1,3-Dichlorobenzene		5.2 U	5.5 U	49 U	50 U
1,3-Dichloropropane		5.2 U	5.5 U	49 U	50 U
1,4-Dichlorobenzene		5.2 U	5.5 U	49 U	50 U
2,2-Dichloropropane		5.2 U	5.5 U	49 U	50 U
2-Butanone (MEK)	20000	33	22 U	2,000 U	2,000 U
2-Chlorotoluene	2400	21 U	22 U	580	550
2-Hexanone		21 U	22 U	2,000 U	2,000 U
4-Chlorotoluene	4180	21 U	22 U	600	580
4-Isopropyltoluene		21 U	22 U	6,600	7,500
4-Methyl-2-Pentanone		21 U	22 U	2,000 U	2,000 U
Acetone	3210	220	70	360 J	440 J
Benzene	5	5.2 U	5.5 U	$\boxed{16}$ J	50 U
Bromobenzene		5.2 U	5.5 U	200 U	200 U
Bromochloromethane		5.2 U	5.5 U	49 U	50 U
Bromodichloromethane		5.2 U	5.5 U	49 U	50 U
Bromoform		5.2 U	5.5 U	49 U	50 U
Bromomethane	52	5.2 U	5.5 U	49 U	50 U
Carbon Disulfide	5600	5.2 U	5.5 U	84	91
Carbon Tetrachloride		5.2 U	5.5 U	49 U	50 U
Chlorobenzene		5.2 U	5.5 U	49 U	50 U
Chloroethane		5.2 U	5.5 U	49 U	50 U
Chloroform	38	5.2 U	5.5 U	49 U	50 U
Chloromethane	22	5.2 U	5.5 U	49 U	50 U
Cis-1,2-Dichloroethene		5.2 U	5.5 U	49 U	50 U
Cis-1,3-Dichloropropene		5.2 U	5.5 U	49 U	50 U
Dibromochloromethane		5.2 U	5.5 U	49 U	50 U
Dibromomethane		5.2 U	5.5 U	49 U	50 U
Dichlorodifluoromethane	47000	5.2 U	5.5 U	49 U	50 U
Ethylbenzene	5990	5.2 U	5.5 U	200 J	190 J
Hexachlorobutadiene		21 U	22 U	200 U	200 U
Isopropylbenzene	7370	21 U	22 U	840	860
Methylene Chloride	22	11 U	11 U	$\boxed{26}$ J	$\boxed{30}$ J
N-Butylbenzene	19500	21 U	22 U	7,500	7,700
N-Propylbenzene	19500	21 U	22 U	6,500	6,400
Naphthalene	4490	21 U	22 U	1,400 J	1,400 J
Sec-Butylbenzene	15800	21 U	22 U	6,500	6,500

Table 2-3 - Analytical Results for Soil Samples from Man-Made Depressions Test Pits

Sample ID	Screening	05ORTP-1	05ORTP-4	05ORTP-6	05ORTP-100
Sampling Date	Level (a)	3/16/2006	3/16/2006	3/16/2006	3/16/2006
Depth in Feet		5 to 5.5	5 to 5.5	5 to 5.5	Dup of 05ORTP-6
Styrene	33	5.2 U	5.5 U	49 U	50 U
Tert-Butylbenzene	15600	21 U	22 U	330	330
Tetrachloroethene	0.9	5.2 U	5.5 U	49 U	50 U
Toluene	4650	5.2 U	5.5 U	77 J	76 J
Trans-1,2-Dichloroethene		5.2 U	5.5 U	49 U	50 U
Trans-1,3-Dichloropropene		5.2 U	5.5 U	49 U	50 U
Trichloroethene (TCE)		5.2 U	5.5 U	49 U	50 U
Trichlorofluoromethane		5.2 U	5.5 U	49 U	50 U
Vinyl Chloride		5.2 U	5.5 U	49 U	50 U
m,p-Xylenes	8520	5.2 U	5.5 U	280 J	270 J
o-Xylene	916	5.2 U	5.5 U	720 J	720 J
VPH in mg/kg					
Aliphatic C5-C6		5.0 U	5.0 U	5.0 U	5.0 U
Aliphatic C6-C8		5.0 U	5.0 U	5.0 U	5.0 U
Aliphatic C8-C10		5.0 U	5.0 U	300	250
Aliphatic C10-C12		5.0 U	26	1,100	1,100
Total Aliphatics		5.0 U	26	1,400	1,400
Aromatic C8-C10		5.0 U	5.0 U	920	910
Aromatic C10-C12		5.0 U	21	300	290
Aromatic C12-C13		5.0 U	45	140	120
Total Aromatics		5.0 U	66	1,400	1,300
Methyl t-butyl ether		0.50 U	0.50 U	0.50 U	0.5 U
Benzene	5	0.02 U	0.025 U	0.024 U	0.024 U
Toluene	4650	0.50 U	0.50 U	0.50 U	0.5 U
Ethylbenzene	5990	0.50 U	0.50 U	2.2	2.4
m,p-Xylene		0.50 U	0.50 U	4.5	4.5
o-Xylene	916	0.50 U	0.50 U	5.9	5.9
EPH in mg/kg					
C8-C10 Aliphatics		11 U	12 U	1,800	1,700
C10-C12 Aliphatics		11 U	56	1,100	1,200
C12-C16 Aliphatics		33	380	1,800	2,000
C16-C21 Aliphatics		390	920	3,800	4,200
C21-C34 Aliphatics		1,600	2,700	7,800	8,600
Total Aliphatics		2,023	4,056	16,300	17,700
C8-C10 Aromatics		2.3	2.4 U	94	49
C10-C12 Aromatics		2.2 U	2.4 U	74	44
C12-C16 Aromatics		2.2 U	12	240	170

Table 2-3 - Analytical Results for Soil Samples from Man-Made Depressions Test Pits

Sample ID	Screening	05ORTP-1	05ORTP-4	05ORTP-6	05ORTP-100
Sampling Date	Level (a)	3/16/2006	3/16/2006	3/16/2006	3/16/2006
Depth in Feet		5 to 5.5	5 to 5.5	5 to 5.5	Dup of 05ORTP-6
C16-C21 Aromatics		41	360	1,900	1,500
C21-C34 Aromatics		150	840	2,600	2,100
Total Aromatics		193	1,212	4,908	3,863

U = Not detected at the reporting limit indicated.
D = Detected at or above the detection limit indicated. J = Estimated value.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6 12/19/96	HL-MW-6 3/23/99	HL-MW-6A 3/23/99	HL-MW-6A 9/21/99	HL-MW-6A 12/30/99
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen			8.1		8.1	15.2
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		2920		10 U	22	
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.022 U		0.02 U	0.019 U	
Aroclor 1221		0.054 U		0.05 U	0.048 U	
Aroclor 1232		0.054 U		0.05 U	0.048 U	
Aroclor 1242		0.022 U		0.02 U	0.019 U	
Aroclor 1248		0.022 U		0.02	0.024	
Aroclor 1254		0.022 U		0.02 U	0.019 U	
Aroclor 1260		0.022 U		0.02 U	0.019 U	
Total PCBs	0.000064	0.054 U		$\boxed{0.02}$	$\boxed{0.024}$	
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U			0.25 U	
Stoddard/Mineral spirits	0.8	0.2 U			0.25 U	
Kensol	0.5	0.4 U			0.25 U	
Kerosene/Jet fuel	0.5	0.4 U			0.25 U	
Diesel/Fuel oil	0.5	0.8 U			0.63 U	
Bunker C	0.5	2 U			0.63 U	
Heavy oil	0.5	2 U			0.63 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 3/31/2000	HL-MW-6A 6/26/2000	HL-MW-6A 10/04/2000	HL-MW-6A 12/27/2000	HL-MW-6A 4/16/2001
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen		11.4	6.8	8.3	6.6	7.9
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		5 U		1 U		
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016				0.02 U		
Aroclor 1221				0.02 U		
Aroclor 1232				0.02 U		
Aroclor 1242				0.045		
Aroclor 1248				0.02 U		
Aroclor 1254				0.02 U		
Aroclor 1260				0.02 U		
Total PCBs	0.000064			$\boxed{0.045}$		
NWTPH-HCID in mg/L						
Gasoline	0.8	0.25 U		0.25 U		
Stoddard/Mineral spirits	0.8	0.25 U		0.25 U		
Kensol	0.5	0.25 U		0.25 U		
Kerosene/Jet fuel	0.5	0.25 U		0.25 U		
Diesel/Fuel oil	0.5	0.63 U		0.63 U		
Bunker C	0.5	0.63 U		0.63 U		
Heavy oil	0.5	0.63 U		0.63 U		
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 4/18/2001	HL-MW-6A 6/19/2001	HL-MW-6A 8/28/2001	HL-MW-6A 9/12/2001	HL-MW-6A 12/05/2001
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen			7.4	8.1	8.1	9.2
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		1 U	5 U		5 U	1 J
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.02 U	0.019 U		0.0052 U	0.005 U
Aroclor 1221		0.02 U	0.038 U		0.0052 U	0.01 U
Aroclor 1232		0.02 U	0.019 U		0.0052 U	0.005 U
Aroclor 1242		0.045	0.019 U		0.026 J	0.023
Aroclor 1248		0.02 U	0.019 U		0.0052 U	0.005 U
Aroclor 1254		0.02 U	0.019 U		0.0052 U	0.005 U
Aroclor 1260		0.02 U	0.019 U		0.0052 U	0.005 U
Total PCBs	0.000064	$\boxed{0.045}$	0.038 U		$\boxed{0.026}$	$\boxed{0.023}$
NWTPH-HCID in mg/L						
Gasoline	0.8	0.25 U	0.25 U		0.25 U	0.25 U
Stoddard/Mineral spirits	0.8	0.25 U	0.25 U		0.25 U	0.25 U
Kensol	0.5	0.25 U	0.25 U		0.25 U	0.25 U
Kerosene/Jet fuel	0.5	0.25 U	0.25 U		0.25 U	0.25 U
Diesel/Fuel oil	0.5	0.63 U	0.63 U		0.63 U	0.63 U
Bunker C	0.5	0.63 U	0.63 U		0.63 U	0.63 U
Heavy oil	0.5	0.63 U	0.63 U		0.63 U	0.63 U
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 3/21/2002	HL-MW-6A 6/26/2002	HL-MW-6A 9/26/2002	HL-MW-6A 12/18/2002	HL-MW-06A 5/12/2003
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen		8.2	7.9	8.2	8.4	8.9
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		1	2	4	5	
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.005 U	0.005 U	0.0052 U	0.005 U	
Aroclor 1221		0.01 U	0.01 U	0.011 U	0.01 U	
Aroclor 1232		0.005 U	0.005 U	0.0052 U	0.005 U	
Aroclor 1242		0.024	0.037	0.023	0.033	
Aroclor 1248		0.005 U	0.005 U	0.0052 U	0.005 U	
Aroclor 1254		0.005 U	0.005 U	0.0052 U	0.005 U	
Aroclor 1260		0.005 U	0.005 U	0.0052 U	0.005 U	
Total PCBs	0.000064	0.024	0.037	0.023	0.033	
NWTPH-HCID in mg/L						
Gasoline	0.8	0.25 U	0.25 U	0.25 U		
Stoddard/Mineral spirits	0.8	0.25 U	0.25 U	0.25 U		
Kensol	0.5	0.25 U	0.25 U	0.25 U		
Kerosene/Jet fuel	0.5	0.25 U	0.25 U	0.25 U		
Diesel/Fuel oil	0.5	0.63 U	0.63 U	0.63 U		
Bunker C	0.5	0.63 U	0.63 U	0.63 U		
Heavy oil	0.5	0.63 U	0.63 U	0.63 U		
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 5/14/2003	HL-MW-6A 9/03/2003	HL-MW-6A 10/24/2003	HL-MW-6A 3/05/2004	HL-MW-6A 6/30/2004
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		4	3	5 U	1	2
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.033 U	0.012 U	0.005 U	0.005 U	0.005 U
Aroclor 1221		0.051 U	0.06 U	0.01 U	0.01 U	0.01 U
Aroclor 1232		0.085 U	0.044 U	0.005 U	0.005 U	0.005 U
Aroclor 1242		0.045 U	0.016 U	0.044	0.021	0.037 JP
Aroclor 1248		0.016 U	0.0079 U	0.005 U	0.005 U	0.005 U
Aroclor 1254		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Aroclor 1260		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total PCBs	0.000064	0.085 U	0.06 U	0.044	0.021	0.037 JP
NWTPH-HCID in mg/L						
Gasoline	0.8	0.25 U	0.2 U	0.2 U		
Stoddard/Mineral spirits	0.8	0.25 U	0.2 U	0.2 U		
Kensol	0.5	0.25 U	0.2 U	0.2 U		
Kerosene/Jet fuel	0.5	0.25 U	0.2 U	0.2 U		
Diesel/Fuel oil	0.5	0.63 U	0.5 U	0.5 U		
Bunker C	0.5	0.63 U	0.5 U	0.5 U		
Heavy oil	0.5	0.63 U	0.5 U	0.5 U		
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 10/26/2004	HL-MW-6A 7/27/2005	HL-MW-6A 10/26/2005	HL-MW-100 10/26/2005 Dup of HL-MW-6A	HL-MW-6A 1/25/2006
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen						
Nitrate as Nitrogen	10			1.6	1.6	
Nitrite as Nitrogen				0.1 U	0.1 U	
Total Organic Carbon						
Total Sulfide				2 U	2 U	
Total Suspended Solids		1 U	1 U			1 U
Dissolved Metals in ug/L						
Antimony	6		0.17	0.16		0.16
Arsenic	0.018		4.3	4.14		4.05
Barium			32	34.7		40.3
Cadmium	0.25		0.02 U	0.02 UJ		0.02 U
Chromium	50		1.7	1		1.06
Iron	300		20 U	20 U		20 U
Lead	0.54		0.06	0.02 U		0.02 UJ
Manganese	50		0.41	0.33		0.63
Mercury	0.012		0.23 U	0.2 U		0.2 U
Selenium	5		1 U	0.2 J		0.3 J
Silver	80		0.02 U	0.02 U		0.02 U
PCBs in ug/L						
Aroclor 1016		0.021 U	0.0048 U			0.005 U
Aroclor 1221		0.058 U	0.0096 U			0.01 U
Aroclor 1232		0.045 U	0.0048 U			0.005 U
Aroclor 1242		0.036	0.016			0.005 U
Aroclor 1248		0.0057 U	0.0048 U			0.005 U
Aroclor 1254		0.005 U	0.0048 U			0.005 U
Aroclor 1260		0.005 U	0.0048 U			0.005 U
Total PCBs	0.000064	0.036	0.016			0.01 U
NWTPH-HCID in mg/L						
Gasoline	0.8		0.2 U	0.2 U		0.2 U
Stoddard/Mineral spirits	0.8		0.2 U	0.2 U		0.2 U
Kensol	0.5		0.2 U	0.2 U		0.2 U
Kerosene/Jet fuel	0.5		0.2 U	0.2 U		0.2 U
Diesel/Fuel oil	0.5		0.5 U	0.5 U		0.5 U
Bunker C	0.5		0.5 U	0.5 U		0.5 U
Heavy oil	0.5		0.5 U	0.5 U		0.5 U
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5		0.2 U	0.2 U		0.2 U
Diesel/Fuel oil	0.5		0.2 U	0.2 U		0.2 U
Heavy oil	0.5		0.5 U	0.5 U		0.5 U
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8		0.1 U	0.1 U		0.1 U
Gasoline	0.8		0.1 U	0.1 U		0.1 U

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 4/19/2006	HL-MW-600A 4/19/2006 Dup of HL-MW-6A	HL-MW-6A 7/20/2006	HL-MW-6A 10/25/2006	HL-MW-600A 10/25/2006 Dup of HL-MW-6A
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen						
Nitrate as Nitrogen	10	1.7			1.6	
Nitrite as Nitrogen		0.2 U			0.1 U	
Total Organic Carbon						
Total Sulfide		0.05 U			0.05 U	
Total Suspended Solids		1 U		1	1 U	
Dissolved Metals in ug/L						
Antimony	6	0.14	0.16	0.17	0.16	0.15
Arsenic	0.018	4.14	4.15	4.5	4.66	4.8
Barium		36.8	38.4	34.8	34	33.6
Cadmium	0.25	0.035 UJ	0.045 UJ	0.02 U	0.02 U	0.02 U
Chromium	50	0.55	0.49	1.02	0.65	0.78
Iron	300	7.4 J	20 U	20 U	5.1 J	5.2 J
Lead	0.54	0.02 U	0.03	0.013 J	0.058	0.098
Manganese	50	0.14	0.12	0.19	0.16	0.19
Mercury	0.012	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Selenium	5	0.4 J	0.1 J	1 U	0.3 J	0.3 J
Silver	80	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U	0.02 U
PCBs in ug/L						
Aroclor 1016		0.0048 U		0.0048 U	0.0048 U	
Aroclor 1221		0.0096 U		0.0096 U	0.0096 U	
Aroclor 1232		0.0048 U		0.0048 U	0.0048 U	
Aroclor 1242		0.0048 U		0.02 J	0.011	
Aroclor 1248		0.0048 U		0.0048 U	0.0048 U	
Aroclor 1254		0.0048 U		0.0048 U	0.0048 U	
Aroclor 1260		0.0048 U		0.0048 U	0.0048 U	
Total PCBs	0.000064	0.0096 U		0.02 J	0.011	
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U		0.2 U	0.2 UJ	
Stoddard/Mineral spirits	0.8	0.2 U		0.2 U	0.2 UJ	
Kensol	0.5	0.2 U		0.2 U	0.2 U	
Kerosene/Jet fuel	0.5	0.2 U		0.2 U	0.2 U	
Diesel/Fuel oil	0.5	0.5 U		0.5 U	0.5 U	
Bunker C	0.5	0.5 U		0.5 U	0.5 U	
Heavy oil	0.5	0.5 U		0.5 U	0.5 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U		0.2 U	0.2 U	
Diesel/Fuel oil	0.5	0.2 U		0.2 U	0.2 U	
Heavy oil	0.5	0.5 U		0.5 U	0.5 U	
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U		0.1 U	0.1 U	
Gasoline	0.8	0.1 U		0.1 U	0.1 U	

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 2/01/2007	HL-MW-6A 4/15/2007	HL-MW-6A 7/25/2007	HL-MW-6A 10/25/2007	HL-MW-6A 1/25/2008
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		1 U	1 U	4	1	1
Dissolved Metals in ug/L						
Antimony	6		0.16			
Arsenic	0.018		4.15			
Barium			36.7			
Cadmium	0.25		0.035			
Chromium	50		0.8			
Iron	300		3.5 J			
Lead	0.54		0.014 J			
Manganese	50		0.46			
Mercury	0.012					
Selenium	5		0.6 J			
Silver	80		0.02 U			
PCBs in ug/L						
Aroclor 1016		0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.005 U
Aroclor 1221		0.0096 U	0.0096 U	0.0096 U	0.0096 U	0.0099 U
Aroclor 1232		0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.005 U
Aroclor 1242		0.013	0.027	0.017	0.027	0.04
Aroclor 1248		0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.005 U
Aroclor 1254		0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.005 U
Aroclor 1260		0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.005 U
Total PCBs	0.000064	0.013	0.027	0.017	0.027	0.04
NWTPH-HCID in mg/L						
Gasoline	0.8		0.2 UJ		0.2 U	
Stoddard/Mineral spirits	0.8		0.2 UJ		0.2 U	
Kensol	0.5		0.2 U		0.2 U	
Kerosene/Jet fuel	0.5		0.2 U		0.2 U	
Diesel/Fuel oil	0.5		0.5 U		0.5 U	
Bunker C	0.5		0.5 U		0.5 U	
Heavy oil	0.5		0.5 U		0.5 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5		0.2 UJ		0.2 U	
Diesel/Fuel oil	0.5		0.2 UJ		0.2 U	
Heavy oil	0.5		0.5 UJ		0.5 U	
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8		0.1 U		0.1 U	
Gasoline	0.8		0.1 U		0.1 U	

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 4/22/2008	HL-MW-6A 7/23/2008	HL-MW-6A 10/19/2008	HL-MW-16S 10/23/2003	HL-MW-16S 3/05/2004
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		1	4	1 U	5 U	1 U
Dissolved Metals in ug/L						
Antimony	6	0.168				
Arsenic	0.018	$\boxed{5.4}$				
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300	11.5 T				
Lead	0.54					
Manganese	50	0.3				
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Aroclor 1221		0.0099 U	0.0099 U	0.01 U	0.01 U	0.01 U
Aroclor 1232		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Aroclor 1242		0.019	0.039	0.043	0.005 U	0.005 U
Aroclor 1248		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Aroclor 1254		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Aroclor 1260		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Total PCBs	0.000064	$\boxed{0.019}$	$\boxed{0.039}$	$\boxed{0.043}$	0.01 U	0.01 U
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U		0.2 U	0.2 U	
Stoddard/Mineral spirits	0.8	0.2 U		0.2 U	0.2 U	
Kensol	0.5	0.2 U		0.2 U	0.2 U	
Kerosene/Jet fuel	0.5	0.2 U		0.2 U	0.2 U	
Diesel/Fuel oil	0.5	0.5 U		0.5 U	0.5 U	
Bunker C	0.5	0.5 U		0.5 U	0.5 U	
Heavy oil	0.5	0.5 U		0.5 U	0.5 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U		0.2 U		
Diesel/Fuel oil	0.5	0.2 U		0.2 U		
Heavy oil	0.5	0.5 U		0.5 U		
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U		0.1 U		
Gasoline	0.8	0.1 U		0.1 U		

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-16S 6/30/2004	HL-MW-16S 10/26/2004	HL-MW-16S 7/26/2005	HL-MW-16S 10/24/2005	HL-MW-16S 1/23/2006
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		2	1 U	6	1 U	2 U
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.005 U	0.005 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1221		0.01 U	0.01 U	0.0096 U	0.0097 U	0.0097 U
Aroclor 1232		0.005 U	0.005 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1242		0.005 U	0.005 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1248		0.005 U	0.005 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1254		0.005 U	0.005 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1260		0.005 U	0.005 U	0.0048 U	0.0049 U	0.0049 U
Total PCBs	0.000064	0.01 U	0.01 U	0.0096 U	0.0097 U	0.0097 U
NWTPH-HCID in mg/L						
Gasoline	0.8				0.2 U	
Stoddard/Mineral spirits	0.8				0.2 U	
Kensol	0.5				0.2 U	
Kerosene/Jet fuel	0.5				0.2 U	
Diesel/Fuel oil	0.5				0.5 U	
Bunker C	0.5				0.5 U	
Heavy oil	0.5				0.5 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-16S 4/22/2006	HL-MW-16S 7/20/2006	HL-MW-16S 10/26/2006	HL-MW-16S 1/31/2007	HL-MW-16S 4/16/2007
Conventionals in mg/L						
Dissolved Organic Carbon				0.9		
Dissolved Oxygen						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon				1		
Total Sulfide						
Total Suspended Solids		1 U	1 U	3	1	6
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.0049 U	0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1221		0.0097 U	0.0096 U	0.0096 U	0.0096 U	0.0096 U
Aroclor 1232		0.0049 U	0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1242		0.0049 U	0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1248		0.0049 U	0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1254		0.0049 U	0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1260		0.0049 U	0.0048 U	0.0048 U	0.0048 U	0.0048 U
Total PCBs	0.000064	0.0097 U	0.0096 U	0.0096 U	0.0096 U	0.0096 U
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U		0.2 U		0.2 U
Stoddard/Mineral spirits	0.8	0.2 U		0.2 U		0.2 U
Kensol	0.5	0.2 U		0.2 U		0.2 U
Kerosene/Jet fuel	0.5	0.2 U		0.2 U		0.2 U
Diesel/Fuel oil	0.5	0.5 U		0.5 U		0.5 U
Bunker C	0.5	0.5 U		0.5 U		0.5 U
Heavy oil	0.5	0.5 U		0.5 U		0.5 U
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-16S 7/25/2007	HL-MW-16S 10/25/2007	HL-MW-16S 1/24/2008	HL-MW-16S 4/22/2008	HL-MW-16S 7/23/2008
Conventionals in mg/L						
Dissolved Organic Carbon						
Dissolved Oxygen						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Organic Carbon						
Total Sulfide						
Total Suspended Solids		1 U	1 U	1 U	2	4 U
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.0048 U	0.0048 U	0.005 U	0.005 U	0.005 U
Aroclor 1221		0.0096 U	0.0096 U	0.01 U	0.021 U	0.01 U
Aroclor 1232		0.0048 U	0.0048 U	0.005 U	0.005 U	0.0067 U
Aroclor 1242		0.0048 U	0.0048 U	0.005 U	0.005 U	0.005 U
Aroclor 1248		0.0048 U	0.0048 U	0.005 U	0.005 U	0.005 U
Aroclor 1254		0.0048 U	0.0048 U	0.005 U	0.0053 U	0.005 U
Aroclor 1260		0.0048 U	0.0048 U	0.005 U	0.005 U	0.005 U
Total PCBs	0.000064	0.0096 U	0.0096 U	0.01 U	0.021 U	0.01 U
NWTPH-HCID in mg/L						
Gasoline	0.8		0.2 U		0.2 U	
Stoddard/Mineral spirits	0.8		0.2 U		0.2 U	
Kensol	0.5		0.2 U		0.2 U	
Kerosene/Jet fuel	0.5		0.2 U		0.2 U	
Diesel/Fuel oil	0.5		0.5 U		0.5 U	
Bunker C	0.5		0.5 U		0.5 U	
Heavy oil	0.5		0.5 U		0.5 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-16S 10/21/2008
Conventionals in mg/L		
Dissolved Organic Carbon		
Dissolved Oxygen		
Nitrate as Nitrogen	10	
Nitrite as Nitrogen		
Total Organic Carbon		
Total Sulfide		
Total Suspended Solids		8
Dissolved Metals in ug/L		
Antimony	6	
Arsenic	0.018	
Barium		
Cadmium	0.25	
Chromium	50	
Iron	300	
Lead	0.54	
Manganese	50	
Mercury	0.012	
Selenium	5	
Silver	80	
PCBs in ug/L		
Aroclor 1016		0.005 U
Aroclor 1221		0.0099 U
Aroclor 1232		0.005 U
Aroclor 1242		0.0079 U
Aroclor 1248		0.005 U
Aroclor 1254		0.005 U
Aroclor 1260		0.005 U
Total PCBs	0.000064	0.0099 U
NWTPH-HCID in mg/L		
Gasoline	0.8	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U
Kensol	0.5	0.2 U
Kerosene/Jet fuel	0.5	0.2 U
Diesel/Fuel oil	0.5	0.5 U
Bunker C	0.5	0.5 U
Heavy oil	0.5	0.5 U
NWTPH-Dx in mg/L		
Kerosene/Jet fuel	0.5	
Diesel/Fuel oil	0.5	
Heavy oil	0.5	
NWTPH-Gx in mg/L		
Mineral spirits/Stoddard	0.8	
Gasoline	0.8	

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

\ Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 3/05/2004	HL-MW-6A 7/27/2005	HL-MW-6A 10/26/2005	HL-MW-6A 1/25/2006	HL-MW-6A 4/19/2006
Semivolatiles in ug/L						
1,2,4-Trichlorobenzene	35		0.2 U	0.2 U	0.21 U	0.2 U
1,2-Dichlorobenzene	420		0.2 U	0.2 U	0.21 U	0.2 U
1,3-Dichlorobenzene	320		0.2 U	0.2 U	0.21 U	0.2 U
1,4-Dichlorobenzene	1.8		0.2 U	0.2 U	0.21 U	0.2 U
2,4,5-Trichlorophenol	800		0.49 U	0.48 U	0.51 U	0.48 U
2,4,6-Trichlorophenol	1.4		0.49 U	0.48 U	0.51 U	0.48 U
2,4-Dichlorophenol	24		0.49 U	0.48 U	0.51 U	0.48 U
2,4-Dimethylphenol	160		2 U	2 U	2.1 U	2 U
2,4-Dinitrophenol	32		3.9 U	3.9 U	4.1 U	3.9 U
2,4-Dinitrotoluene	0.11		0.2 U	0.2 U	0.21 U	0.2 U
2,6-Dinitrotoluene	16		0.2 U	0.2 U	0.21 U	0.2 U
2-Chloronaphthalene			0.2 U	0.2 U	0.21 U	0.2 U
2-Chlorophenol	40		0.49 U	0.48 U	0.51 U	0.48 U
2-Methylnaphthalene			0.2 U	0.2 U	0.21 U	0.2 U
2-Methylphenol			0.49 U	0.48 U	0.51 U	0.48 U
2-Nitroaniline			0.2 U	0.2 U	0.21 U	0.2 U
2-Nitrophenol			0.49 U	0.48 U	0.51 U	0.48 U
3,3'-Dichlorobenzidine	0.021		2 U	2 U	2.1 U	2 R
3-Nitroaniline			0.97 U	0.96 U	1.1 U	0.96 U
4,6-Dinitro-2-methyphenol			2 U	2 U	2.1 U	2 U
4-Bromophenyl-Phenylether			0.2 U	0.2 U	0.21 U	0.2 U
4-Chloro-3-methylphenol			0.49 U	0.48 U	0.51 U	0.48 U
4-Chloroaniline			0.2 U	0.2 U	0.21 U	0.2 R
4-Chlorophenyl-phenylether			0.2 U	0.2 U	0.21 U	0.2 U
4-Methylphenol			0.49 U	0.48 U	0.51 U	0.48 U
4-Nitroaniline			0.97 U	0.96 U	1.1 U	0.96 U
4-Nitrophenol			2 U	2 U	2.1 U	2 U
Acenaphthene	640		0.2 U	0.2 U	0.21 U	0.2 U
Acenaphthylene			0.2 U	0.2 U	0.21 U	0.2 U
Anthracene	4800		0.2 U	0.2 U	0.21 U	0.2 U
Benzo(a)anthracene	See BaP (c)		0.2 U	0.2 U	0.21 U	0.2 U
Benzo(a)pyrene	0.0028		0.2 U	0.2 U	0.21 U	0.2 U
Benzo(b)fluoranthene	See BaP (c)		0.2 U	0.2 U	0.21 U	0.2 U
Benzo(g,h,i)perylene			0.2 U	0.2 U	0.21 U	0.2 U
Benzo(k)fluoranthene	See BaP (c)		0.2 U	0.2 U	0.21 U	0.2 U
Benzoic Acid	64000		4.9 U	4.8 U	5.1 U	4.8 U
Benzyl Alcohol	2400		4.9 U	4.8 U	5.1 U	4.8 U
Bis(2-Chloroethoxy)Methane			0.2 U	0.2 U	0.21 U	0.2 U
Bis(2-Chloroethyl)Ether	0.03		0.2 U	0.2 U	0.21 U	0.2 U
Bis(2-Ethylhexyl)Phthalate	1.2		2 U	2 U	2.1 U	2 U
Bis(2-chloroisopropyl) Ether	320		0.2 U	0.2 U	0.21 U	0.2 U
Butylbenzylphthalate	1300		0.2 U	0.2 U	0.21 U	0.2 U
Chrysene	See BaP (c)		0.2 U	0.2 U	0.21 U	0.2 U
Di-N-Butylphthalate			0.2 U	0.2 U	0.21 U	0.2 U
Di-n-octyl Phthalate	320		0.2 U	0.2 U	0.21 U	0.2 U
Dibenz(a,h)anthracene	0.0028		0.2 U	0.2 U	0.21 U	0.2 U
Dibenzofuran	32		0.2 U	0.2 U	0.21 U	0.2 U
Diethylphthalate			0.2 U	0.2 U	0.21 U	0.2 U
Dimethyl Phthalate	16000		0.2 U	0.2 U	0.21 U	0.2 U
Fluoranthene	90		0.2 U	0.2 U	0.21 U	0.2 U
Fluorene	640		0.2 U	0.2 U	0.21 U	0.2 U
Hexachlorobenzene	0.00028		0.2 U	0.2 U	0.21 U	0.2 U
Hexachlorobutadiene	0.44		0.2 U	0.2 U	0.21 U	0.2 U

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

\ Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 3/05/2004	HL-MW-6A 7/27/2005	HL-MW-6A 10/26/2005	HL-MW-6A 1/25/2006	HL-MW-6A 4/19/2006
Hexachlorocyclopentadiene	40		0.97 U	0.96 U	1.1 U	0.96 U
Hexachloroethane	1.4		0.2 U	0.2 U	0.21 U	0.2 U
Indeno(1,2,3-cd)pyrene	See BaP (c)		0.2 U	0.2 U	0.21 U	0.2 U
Isophorone	8.4		0.2 U	0.2 U	0.21 U	0.2 U
N-Nitroso-di-n-propylamine	0.005		0.2 U	0.2 U	0.21 U	0.2 U
N-Nitrosodiphenylamine	3.3		0.2 U	0.2 U	0.21 U	0.2 U
Naphthalene	160		0.2 U	0.2 U	0.21 U	0.2 U
Nitrobenzene	4		0.2 U	0.2 U	0.21 U	0.2 U
Pentachlorophenol	0.27		0.97 U	0.96 U	1.1 U	0.96 U
Phenanthrene			0.2 U	0.2 U	0.21 U	0.2 U
Phenol	4800		0.49 U	0.48 U	0.51 U	0.48 U
Pyrene	480		0.2 U	0.2 U	0.21 U	0.2 U
TEQ Equivalent (b)	See BaP (c)		0.2 U	0.2 U	0.21 U	0.2 U
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U		0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U		0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U		0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U		0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U		0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U		0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U		0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U		2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U		0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U		2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U		2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U		2 U	2 U	2 U
1,2-Dibromoethane(EDB)		2 U		2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U		0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U		0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U		0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U		2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U		0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U		0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U		0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U		0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U		20 U	20 U	20 U
2-Chlorotoluene		2 U		2 U	2 U	2 U
2-Hexanone		20 U		20 U	20 U	20 U
4-Chlorotoluene		2 U		2 U	2 U	2 U
4-Isopropyltoluene		2 U		2 U	2 U	2 U
4-Methyl-2-Pentanone		20 U		20 U	20 U	20 U
Acetone	800	20 U		20 U	20 U	20 U
Benzene	0.8	0.5 U		0.5 U	0.5 U	0.5 U
Bromobenzene		2 U		2 U	2 U	2 U
Bromochloromethane		0.5 U		0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U		0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U		0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U		0.5 U	0.5 U	0.5 U
Freon 11		0.5 U		0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U		0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U		0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U		0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U		0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U		0.5 U	0.5 U	0.5 U

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

\ Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 3/05/2004	HL-MW-6A 7/27/2005	HL-MW-6A 10/26/2005	HL-MW-6A 1/25/2006	HL-MW-6A 4/19/2006
Chloroform	5.7	0.5 U		0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U		0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U		0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U		0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U		2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U		0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U		0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U		0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U		2 U	2 U	2 U
Methylene Chloride	4.6	2 U		2 U	2 U	2 U
N-Butylbenzene		2 U		2 U	2 U	2 U
N-Propylbenzene		2 U		2 U	2 U	2 U
Naphthalene	160	2 U		2 U	2 U	2 U
Sec-Butylbenzene		2 U		2 U	2 U	2 U
Styrene	1.5	0.5 U		0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U		2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U		0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U		0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U		0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U		0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U		0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U		0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U		0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U		0.5 U	0.5 U	0.5 U
p-Cymene						

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID / Sampling Date	Screening Level (a)	HL-MW-6A 7/20/2006	HL-MW-600A 7/20/2006 Dup of HL-MW-6A	HL-MW-6A 10/25/2006	HL-MW-600A 10/25/2006 Dup of HL-MW-6A	HL-MW-6A 4/15/2007
Semivolatiles in ug/L						
1,2,4-Trichlorobenzene	35					
1,2-Dichlorobenzene	420					
1,3-Dichlorobenzene	320					
1,4-Dichlorobenzene	1.8					
2,4,5-Trichlorophenol	800					
2,4,6-Trichlorophenol	1.4					
2,4-Dichlorophenol	24					
2,4-Dimethylphenol	160					
2,4-Dinitrophenol	32					
2,4-Dinitrotoluene	0.11					
2,6-Dinitrotoluene	16					
2-Chloronaphthalene						
2-Chlorophenol	40					
2-Methylnaphthalene		0.02 U	0.02 U	0.02 U		0.02 U
2-Methylphenol						
2-Nitroaniline						
2-Nitrophenol						
3,3'-Dichlorobenzidine	0.021					
3-Nitroaniline						
4,6-Dinitro-2-methyphenol						
4-Bromophenyl-Phenylether						
4-Chloro-3-methylphenol						
4-Chloroaniline						
4-Chlorophenyl-phenylether						
4-Methylphenol						
4-Nitroaniline						
4-Nitrophenol						
Acenaphthene	640	0.02 U	0.02 U	0.02 U		0.02 U
Acenaphthylene		0.02 U	0.02 U	0.02 U		0.02 U
Anthracene	4800	0.02 U	0.02 U	0.02 U		0.02 U
Benzo(a)anthracene	See BaP (c)	0.02 U	0.02 U	0.02 U		0.02 U
Benzo(a)pyrene	0.0028	0.02 U	0.02 U	0.02 U		0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.02 U	0.02 U	0.02 U		0.02 U
Benzo(g,h,i)perylene		0.02 U	0.02 U	0.02 U		0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.02 U	0.02 U	0.02 U		0.02 U
Benzoic Acid	64000					
Benzyl Alcohol	2400					
Bis(2-Chloroethoxy)Methane						
Bis(2-Chloroethyl)Ether	0.03					
Bis(2-Ethylhexyl)Phthalate	1.2					
Bis(2-chloroisopropyl) Ether	320					
Butylbenzylphthalate	1300					
Chrysene	See BaP (c)	0.02 U	0.02 U	0.02 U		0.02 U
Di-N-Butylphthalate						
Di-n-octyl Phthalate	320					
Dibenz(a,h)anthracene	0.0028	0.02 U	0.02 U	0.02 U		0.02 U
Dibenzofuran	32	0.02 U	0.02 U	0.02 U		0.02 U
Diethylphthalate						
Dimethyl Phthalate	16000					
Fluoranthene	90	0.02 U	0.02 U	0.02 U		0.02 U
Fluorene	640	0.02 U	0.02 U	0.02 U		0.02 U
Hexachlorobenzene	0.00028					
Hexachlorobutadiene	0.44					

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 7/20/2006	HL-MW-600A 7/20/2006 Dup of HL-MW-6A	HL-MW-6A 10/25/2006	HL-MW-600A 10/25/2006 Dup of HL-MW-6A	HL-MW-6A 4/15/2007
Hexachlorocyclopentadiene	40					
Hexachloroethane	1.4					
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U	0.02 U	0.02 U		0.02 U
Isophorone	8.4					
N-Nitroso-di-n-propylamine	0.005					
N-Nitrosodiphenylamine	3.3					
Naphthalene	160	0.02 U	0.02 U	0.02 U		0.02 U
Nitrobenzene	4					
Pentachlorophenol	0.27					
Phenanthrene		0.02 U	0.02 U	0.02 U		0.02 U
Phenol	4800					
Pyrene	480	0.02 U	0.02 U	0.02 U		0.02 U
TEQ Equivalent (b)	See BaP (c)	0.02 U	0.02 U	0.02 U		0.02 U
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	2 U	2 U	2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID	Screening	HL-MW-6A	HL-MW-600A	HL-MW-6A	HL-MW-600A	HL-MW-6A
Sampling Date	Level (a)	7/20/2006	7/20/2006	10/25/2006	10/25/2006	4/15/2007
			Dup of HL-MW-6A		Dup of HL-MW-6A	
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.14 J	0.13 J	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene						

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 10/25/2007	HL-MW-6A 4/22/2008	HL-MW-6A 10/19/2008
Semivolatiles in ug/L				
1,2,4-Trichlorobenzene	35			
1,2-Dichlorobenzene	420			
1,3-Dichlorobenzene	320			
1,4-Dichlorobenzene	1.8			
2,4,5-Trichlorophenol	800			
2,4,6-Trichlorophenol	1.4			
2,4-Dichlorophenol	24			
2,4-Dimethylphenol	160			
2,4-Dinitrophenol	32			
2,4-Dinitrotoluene	0.11			
2,6-Dinitrotoluene	16			
2-Chloronaphthalene				
2-Chlorophenol	40			
2-Methylnaphthalene		0.019 U	0.019 U	0.019 U
2-Methylphenol				
2-Nitroaniline				
2-Nitrophenol				
3,3'-Dichlorobenzidine	0.021			
3-Nitroaniline				
4,6-Dinitro-2-methyphenol				
4-Bromophenyl-Phenylether				
4-Chloro-3-methylphenol				
4-Chloroaniline				
4-Chlorophenyl-phenylether				
4-Methylphenol				
4-Nitroaniline				
4-Nitrophenol				
Acenaphthene	640	0.019 U	0.019 U	0.019 U
Acenaphthylene		0.019 U	0.019 U	0.019 U
Anthracene	4800	0.019 U	0.019 U	0.019 U
Benzo(a)anthracene	See BaP (c)	0.019 U	0.019 U	0.019 U
Benzo(a)pyrene	0.0028	0.019 U	0.019 U	0.019 U
Benzo(b)fluoranthene	See BaP (c)	0.019 U	0.019 U	0.019 U
Benzo(g,h,i)perylene		0.019 U	0.019 U	0.019 U
Benzo(k)fluoranthene	See BaP (c)	0.019 U	0.019 U	0.019 U
Benzoic Acid	64000			
Benzyl Alcohol	2400			
Bis(2-Chloroethoxy)Methane				
Bis(2-Chloroethyl)Ether	0.03			
Bis(2-Ethylhexyl)Phthalate	1.2			
Bis(2-chloroisopropyl) Ether	320			
Butylbenzylphthalate	1300			
Chrysene	See BaP (c)	0.019 U	0.019 U	0.019 U
Di-N-Butylphthalate				
Di-n-octyl Phthalate	320			
Dibenz(a,h)anthracene	0.0028	0.019 U	0.019 U	0.019 U
Dibenzofuran	32	0.019 U	0.019 U	0.019 U
Diethylphthalate				
Dimethyl Phthalate	16000			
Fluoranthene	90	0.019 U	0.019 U	0.019 U
Fluorene	640	0.019 U	0.019 U	0.019 U
Hexachlorobenzene	0.00028			
Hexachlorobutadiene	0.44			

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 10/25/2007	HL-MW-6A 4/22/2008	HL-MW-6A 10/19/2008
Hexachlorocyclopentadiene	40			
Hexachloroethane	1.4			
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.019 U	0.019 U	0.019 U
Isophorone	8.4			
N-Nitroso-di-n-propylamine	0.005			
N-Nitrosodiphenylamine	3.3			
Naphthalene	160	0.019 U	0.0071 T	0.019 U
Nitrobenzene	4			
Pentachlorophenol	0.27			
Phenanthrene		0.019 U	0.019 U	0.019 U
Phenol	4800			
Pyrene	480	0.019 U	0.019 U	0.019 U
TEQ Equivalent (b)	See BaP (c)	0.019 U	0.019 U	0.019 U
Volatiles in ug/L				
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 UJ
1,2-Dibromoethane(EDB)		2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	
4-Methyl-2-Pentanone		20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.13 T
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U

Table 2-4 - Analytical Results for Groundwater Samples from Man-Made Depressions

Sample ID Sampling Date	Screening Level (a)	HL-MW-6A 10/25/2007	HL-MW-6A 4/22/2008	HL-MW-6A 10/19/2008
Chloroform	5.7	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 UJ
Sec-Butylbenzene		2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.29 T	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U
p-Cymene				2 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
Blank indicates sample not analyzed for specific analyte.
Boxed value exceeds screening level.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).

(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-5 - Analytical Results for ORB/Man-Made Depression Area Soil Gas Samples

Sample ID	OR-SG-1	OR-SG-2
Sampling Date	3/15/2006	3/15/2006
Volatiles in µg/m^3		
Vinyl Chloride	1.3 U	1.3 U
Chloroethane	1.3 U	1.3 U
1,1-Dichloroethene	1.3 U	1.3 U
trans-1,2-Dichloroethene	1.3 U	1.3 U
1,1-Dichloroethane	1.3 U	1.3 U
Methyl tert-Butyl Ether	1.3 U	1.3 U
cis-1,2-Dichloroethene	1.3 U	1.3 U
1,2-Dichloroethane	1.3 U	1.3 U
1,1,1-Trichloroethane	1.3 U	1.3 U
Benzene	6.3	13
Trichloroethene	1.8	1.3 U
1,1,2-Trichloroethane	1.3 U	1.3 U
Toluene	42	32
Tetrachloroethene	3.5	2.6
Ethylbenzene	14	2.6
m,p-Xylenes	32	9.2
Styrene	1.3 U	1.3 U
o-Xylene	16	2.4
1,1,2,2-Tetrachloroethane	1.3 U	1.3 U
Volatiles in ppbV		
Vinyl Chloride	0.49 U	0.49 U
Chloroethane	0.48 U	0.48 U
1,1-Dichloroethene	0.32 U	0.32 U
trans-1,2-Dichloroethene	0.32 U	0.32 U
1,1-Dichloroethane	0.31 U	0.31 U
Methyl tert-Butyl Ether	0.35 U	0.35 U
cis-1,2-Dichloroethene	0.32 U	0.32 U
1,2-Dichloroethane	0.31 U	0.31 U
1,1,1-Trichloroethane	0.23 U	0.23 U
Benzene	2.0	4.0
Trichloroethene	0.33	0.23 U
1,1,2-Trichloroethane	0.23 U	0.23 U
Toluene	11	8.6
Tetrachloroethene	0.52	0.39
Ethylbenzene	3.2	0.6
m,p-Xylenes	7.3	2.1
Styrene	0.3 U	0.3 U
o-Xylene	3.8	0.56
1,1,2,2-Tetrachloroethane	0.18 U	0.18 U

U = Not detected at the reporting limit indicated.
ppbV = part per billion by Volume
Note: Sample OR-SG-1 collected adjacent to ORB and sample OR-SG-2 collected in West Man-Made Depression.

Table 2-6 - Analytical Results for G1 Transfer Line Soil Sample

Sample ID Sampling Date Sample Depth	Screening Level (a)	Location #1 (G-1) 11/07/2006 (b)
Moisture in %		14
NWTPH HCID in mg/kg		
Gasoline	100	20 U
Stoddard/Mineral spirits	100	20 D
Kensol	2000	$\boxed{2800}$
Kerosene/Jet fuel	2000	20 U
Diesel/Fuel Oil #2	2000	50 U
Bunker C		50 U
Heavy oil	2000	$\boxed{21000}$
NWTPH-Dx in mg/kg		
Diesel/Fuel Oil #2	2000	20 U
Heavy oil	2000	$\boxed{20000}$
Kensol	2000	$\boxed{3000}$
Kerosene/Jet fuel	2000	20 U
NWTPH-G in mg/kg		
Gasoline	100	5 U
Mineral spirits/Stoddard	100	$\boxed{330}$

Table 2-6 - Analytical Results for G1 Transfer Line Soil Sample

Sample ID Sampling Date Sample Depth	Screening Level (a)	Location #1 (G-1) 11/07/2006 (b)
Conventionals in %		
Total Organic Carbon		8.36
Total Solids		84.8
PCBs in ug/kg		
Aroclor 1016		100 U
Aroclor 1221		200 U
Aroclor 1232		100 U
Aroclor 1242		100 U
Aroclor 1248		100 U
Aroclor 1254		130
Aroclor 1260		100 U
Total PCBs	270	130
Semivolatiles in ug/kg		
2-Methylnaphthalene	2190	300
Acenaphthene	98000	46
Acenaphthylene		14 U
Anthracene	2200000	82
Benzo(a)anthracene	See BaP (d)	32 J
Benzo(a)pyrene	233	50 U
Benzo(b)fluoranthene	See BaP (d)	50 U
Benzo(g,h,i)perylene		19 J
Benzo(k)fluoranthene	See BaP (d)	50 U
Chrysene	See BaP (d)	46 J
Dibenz(a,h)anthracene	See BaP (d)	50 U
Dibenzofuran	5090	110
Fluoranthene	630000	56
Fluorene	100000	270
Indeno(1,2,3-cd)pyrene	See BaP (d)	21 J
Naphthalene	4490	200
Phenanthrene		640
Pyrene	660000	94
TEQ Equivalent (c)	See BaP (d)	5.76
Volatiles in ug/kg		
1,1,1,2-Tetrachloroethane		47 U
1,1,1-Trichloroethane	1610	47 U
1,1,2,2-Tetrachloroethane		47 U
1,1,2-Trichloroethane		47 U
1,1-Dichloroethane	8730	47 U
1,1-Dichloroethene		47 U
1,1-Dichloropropene		47 U
1,2,3-Trichlorobenzene		190 U
1,2,3-Trichloropropane		47 U
1,2,4-Trichlorobenzene		190 U
1,2,4-Trimethylbenzene	31000	7800
1,2-Dibromo-3-Chloropropane		190 U
1,2-Dibromoethane(EDB)		190 U
1,2-Dichlorobenzene		47 U
1,2-Dichloroethane		47 U
1,2-Dichloropropane		47 U
1,3,5-Trimethylbenzene	8380	2200

Table 2-6 - Analytical Results for G1 Transfer Line Soil Sample

Sample ID Sampling Date Sample Depth	Screening Level (a)	Location #1 (G-1) 11/07/2006 (b)
1,3-Dichlorobenzene		47 U
1,3-Dichloropropane		47 U
1,4-Dichlorobenzene		47 U
2,2-Dichloropropane		47 U
2-Butanone (MEK)	20000	1900 U
2-Chlorotoluene	2400	190 U
2-Hexanone		1900 U
4-Chlorotoluene	4180	190 U
4-Methyl-2-Pentanone		1900 U
Acetone	3210	1900 U
Benzene	5	47 U
Bromobenzene		190 U
Bromochloromethane		47 U
Bromodichloromethane		47 U
Bromoform		47 U
Bromomethane	52	47 U
CFC 11		47 U
CFC 12		47 U
Carbon Disulfide	5600	47 U
Carbon Tetrachloride		47 U
Chlorobenzene		47 U
Chloroethane		47 U
Chloroform	38	47 U
Chloromethane	22	47 U
Cis-1,2-Dichloroethene		47 U
Cis-1,3-Dichloropropene		47 U
Dibromochloromethane		47 U
Dibromomethane		47 U
Ethylbenzene	5990	120
Hexachlorobutadiene		190 U
Isopropylbenzene	7370	240
Methylene Chloride	22	190 U
N-Butylbenzene	19500	1300 U
N-Propylbenzene	19500	860
Naphthalene	4490	750
P-Isopropyltoluene		550
Sec-Butylbenzene	15800	430
Styrene	33	47 U
Tert-Butylbenzene	15600	31 J
Tetrachloroethene	0.9	47 U
Toluene	4650	32 J
Trans-1,2-Dichloroethene		47 U
Trans-1,3-Dichloropropene		47 U
Trichloroethene (TCE)		47 U
Vinyl Chloride		47 U
m,p-Xylenes	8520	670
o-Xylene	916	710

Table 2-6 - Analytical Results for G1 Transfer Line Soil Sample

Sample ID	Screening	Location #1 (G-1)
Sampling Date	Level (a)	11/07/2006
Sample Depth		(b)

D = Detected at or above the reporting limit indicated.
J = Estimated value.
U = Not detected at the reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Grab sample was collected from pipe bedding material. Approximate sample depth was 3 to 8 feet.
(c) Screening level for carcinogenic PAHs based on the benzo(a)pyrene (BaP) toxicity equivalency methodology specified in WAC 173-340-708(8).
(d) Calculated total carcinogenic PAH equivalent for (BaP) per procedures in WAC173-340-708(8).

Table 2-7 - Analytical Results for Soil Verification Samples from 1992 Oil/Water Emulsion Spill Excavation

Sample ID	Screening	T1	T2 (b)	T2-2	T3	T4	T5	T6	T7 (b)	T7-2	T8
Sampling Date	Level (a)	4/24/92	4/24/92	5/06/92	4/24/92	4/24/92	4/24/92	4/24/92	4/24/92	5/06/92	4/24/92
Depth in Feet		10 to 18	2 to 2.5		2 to 2.5	10 to 18	2 to 2.5	10 to 18	1.5 to 2.0		10 to 18
TPH (EPA 8015mod) in mg/kg											
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel Oil	2000	10 U	18	10 U	60	10 U	10 U	10 U	43	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heavy Oil	2000	140	110	10 U	110	39	21	10 U	270	59	31
Unknown		10 U	13	10 U	10 U	4 J	10 U	10 U	21	10 U	10 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Soil representative of these sample results were overexcavated.

Table 2-8 - Analytical Results for Soil Samples from G2 Transfer Lines 1998 Break Area Borings

Station	Screening	WW-TL-SB1	WW-TL-SB2	WW-TL-SB2	WW-TL-SB2	WW-TL-SB3	WW-TL-SB4	WW-TL-SB4
Sampling Date	Level (a)	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98	11/12/98
Depth in Feet		8 to 9	5.5 to 7 (b)	13 to 14.5 (b)	18 to 19.5	3 to 4.5 (b)	5.5 to 6.5 (b)	18 to 18.75
NWTPH-HCID in mg/kg								
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	6,500	2,900	10 U	10 U	10 U	10 U
Kerosene	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	610	96	10 U	10 U	10 U	10 U
Diesel/Fuel Oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	50 U	20,000	19,000	130	50 U	140	100
Unknown		10 U	10 U	10 U	10 U	10 U	10 U	10 U

Station	Screening	WW-TL-SB5	WW-TL-SB5	WW-TL-SB6-1	WW-TL-SB6-2	WW-TL-SB7	WW-TL-SB7	WW-TL-SB8
Sampling Date	Level (a)	11/12/98	11/12/98	11/13/98	11/13/98	11/13/98	11/13/98	11/13/98
Depth in Feet		13 to 14 (b)	18 to 19.25	10.5 to 12 (b)	15.5 to 17 (b)	15.5 to 16.25 (b)	18 to 19.5	5.5 to 7 (b)
NWTPH-HCID in mg/kg								
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	720	10 U	1,300	72	340	10 U	10 U
Kerosene	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel Oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	7,700	370	9,200	2,300	3,700	580	50 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U	10 U

Table 2-8 - Analytical Results for Soil Samples from G2 Transfer Lines 1998 Break Area Borings

Station	Screening	WW-TL-SB8	WW-TL-SB8	WW-TL-SB9	WW-TL-SB9	WW-TL-SB10	WW-TL-SB10	WW-TL-SB11
Sampling Date	Level (a)	11/13/98	11/13/98	11/14/98	11/14/98	11/14/98	11/14/98	11/18/98
Depth in Feet		15.5 to 17 (b)	20.5 to 22	8 to 8.5 (b)	18 to 18.75	13 to 14.5 (b)	20.5 to 22	15.5 to 17 (b)
NWTPH-HCID in mg/kg								
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	98	10 U	620	10 U	340	10 U	10 U
Kerosene	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	55	10 U	10 U	10 U	10 U
Diesel/Fuel Oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	1,600	150	$\boxed{9,500}$	490	$\boxed{5,000}$	50 U	50 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U	10 U

Station	Screening	WW-TL-SB12	WW-TL-SB13	WW-TL-SB14	WW-TL-SB14	WW-TL-SB14	WW-TL-SB15	WW-TL-SB15
Sampling Date	Level (a)	11/18/98	11/18/98	11/19/98	11/19/98	11/19/98	11/19/98	11/19/98
Depth in Feet		13 to 14.5	13 to 13.9	3 to 4.5 (b)	10.5 to 11.5 (b)	15.5 to 17 (b)	15.5 to 16.5 (b)	20.5 to 21.3
NWTPH-HCID in mg/kg								
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	$\boxed{4,100}$	55	250	15
Kerosene	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	250	10 U	10 U	10 U
Diesel/Fuel Oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	50 U	50 U	50 U	$\boxed{15,000}$	1,800	$\boxed{3,600}$	560
Unknown		10 U	10 U	10 U	10 U	10 U	10 U	10 U

Table 2-8 - Analytical Results for Soil Samples from G2 Transfer Lines 1998 Break Area Borings

Station	Screening	WW-TL-SB16	WW-TL-SB16	WW-TL-SB17	WW-TL-SB18	WW-TL-SB19	WW-TL-SB19	WW-TL-SB19
Sampling Date	Level (a)	11/19/98	11/19/98	11/19/98	11/19/98	11/20/98	11/20/98	11/20/98
Depth in Feet		13 to 14.5 (b)	18 to 18.75	13 to 14	13 to 13.75	13 to 14.5 (b)	18 to 19.5	8 to 9.5 (b)
NWTPH-HCID in mg/kg								
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	730	10 U	10 U	10 U	$\boxed{2,600}$	10 U	10 U
Kerosene	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	110	10 U	10 U
Diesel/Fuel Oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	$\boxed{6,800}$	280	50 U	50 U	$\boxed{18,000}$	870	50 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U	10 U

Station	Screening	WW-TL-SB20	WW-TL-MW-1	WW-TL-MW-1	WW-TL-MW-1	WW-TL-MW-1	WW-TL-MW-1
Sampling Date	Level (a)	11/20/98	1/12/99	1/12/99	1/13/99	1/13/99	1/13/99
Depth in Feet		13 to 14.5 (b)	20 to 21.5	25 to 26.5	45 to 46.5	55 to 56.5	65 to 66.5
NWTPH-HCID in mg/kg							
Gasoline	100	10 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	10 U	31	20	20 U	24	20 U
Kerosene	2000	10 U	20 U	20 U	20 U	20 U	20 U
Stoddard Solvent	100	10 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel Oil	2000	20 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	180	790	1,000	130	450	100 U
Unknown		10 U	20 U	20 U	20 U	20 U	20 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Soil representative of these analytical results were removed during subsequent excavations.

Table 2-9 - Analytical Results for Soil Verification Samples from G2 Transfer Lines 1998 Break Area Excavation

Sample ID Sampling Date	Screening Level (a)	TL-BS-1 10/08/2000	TL-BS-2 10/08/2000	TL-BS-3 10/08/2000	TL-BS-4 10/08/2000	TL-BS-5 10/08/2000	TL-SW-1 10/08/2000	TL-SW-2 10/08/2000
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	32	190	620	33	20 U	20 U	20 U
Kerosene	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard Solvent	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel Oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	460	$\boxed{2,100}$	$\boxed{6,500}$	840	520	100 U	100 U
Unknown (RRO)		20 U	20 U	20 U	20 U	20 U	20 U	20 U

Sample ID Sampling Date	Screening Level (a)	TL-SW-3 10/08/2000	TL-SW-4 10/08/2000	TL-SW-5 10/08/2000	TL-SW-6 10/08/2000	TL-SW-7 10/08/2000	TL-SW-8 10/08/2000
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene	2000	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard Solvent	100	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel Oil	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	100 U	100 U	100 U	100 U	100 U	140
Unknown (RRO)		20 U	20 U	20 U	20 U	20 U	20 U

U = Not detected at the reporting limit indicated.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 2-10 - VPH/EPH Analytical Results for G2 Transfer Lines 1998 Break Excavation Soil Stockpile Sample

Sample ID	1-TL-COMP	
Sampling Date	2/9/1998	
VPH in mg/kg		
EC 5-6 Aliphatics	1.2	U
EC >6-8 Aliphatics	0.8	U
EC > 8-10 Aliphatics	2.4	U
EC > 8-10 Aromatics	1.3	
MTBE	0.4	U
Benzene	0.4	U
Toluene	0.4	U
Ethylbenzene	0.4	U
m- & p-Xylenes	0.8	U
o-Xylene	0.4	U
EPH in mg/kg		
C8-C10 Aliphatics	2.1	U
C10-C12 Aliphatics	15	
C12-C16 Aliphatics	1200	
C16-C21 Aliphatics	2300	
C21-C34 Aliphatics	5100	
C10-C12 Aromatics	2.1	U
C12-C16 Aromatics	14	
C16-C21 Aromatics	230	
C21-C34 Aromatics	550	

U = Not detected at reporting limit indicated.

Table 2-11 - Analytical Results for Groundwater Samples from G2 Transfer Lines Break Area Monitoring Well

Station Sampling Date	Screening Level (a)	WW-TL-MW-1 3/25/1999	WW-TL-MW-1 6/9/1999
NWTPH-Dx in mg/L			
Diesel/Fuel Oil	0.5	$\boxed{1.5}$ J	
Heavy Oil	0.5	0.5 U	
Kerosene	0.5	0.2 U	
NWTPH-HCID in mg/L			
Gasoline	0.8		0.25 U
Kensol	0.5		0.25 U
Kerosene	0.5		0.25 U
Stoddard Solvent	0.8		0.25 U
Diesel/Fuel Oil	0.5		0.63 U
Bunker C	0.5		0.63 U
Heavy Oil	0.5		0.63 U

J = Estimated value.
U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte.
Boxed value exceeds screening level.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).

Table 2-12 - Analytical Results for Soil Samples from G2 Transfer Lines, April-May 2007

Sample ID Sampling Date	Screening Level (a)	G-2 (STA4+27 Bottom) 5/01/2007	G-2 (STA4+80 Bottom) 5/01/2007	G-2 (STA7+74 Side Wall) 5/03/2007	G-2 (STA7+74 Bottom) 5/03/2007	G-4 (Stockpile) 5/09/2007 Dup of G-2 (STA7+74 Bottom)
Conventionals in %						
Moisture		4.9	4		5.4	8.3
Total Organic Carbon			0.41	0.86	0.38	
Total Solids			96.8		94.4	93.2
PCBs (SW8082) in ug/kg						
Aroclor 1016			5.2 U		5.2 U	5.4 U
Aroclor 1221			11 U		11 U	11 U
Aroclor 1232			5.2 U		5.2 U	5.4 U
Aroclor 1242			5.2 U		5.2 U	5.4 U
Aroclor 1248			5.2 U		5.2 U	5.4 U
Aroclor 1254			5.2 U		5.2 U	5.4 U
Aroclor 1260			3.3 J		5.2 U	2.3 J
Total PCBs	270		3.3 J		11 U	2.3 J
Semivolatiles (8270SIM) in ug/kg						
2-Methylnaphthalene	2190		8.7		10	46
Acenaphthene	98000		6.7		0.39 J	1.7 J
Acenaphthylene			3.3		1 J	6.9
Anthracene	2200000		19		1.5 J	11
Benzo(a)anthracene	See BaP (c)		77		2.4 J	24
Benzo(a)pyrene	233		78		2.3 J	44
Benzo(b)fluoranthene	See BaP (c)		100		5.7	90
Benzo(g,h,i)perylene			42		4	97
Benzo(k)fluoranthene	See BaP (c)		37		1.5 J	26
Chrysene	See BaP (c)		85		3.2	34
Dibenz(a,h)anthracene	See BaP (c)		12		0.61 J	17
Dibenzofuran	5090		3.6		2.1 J	13
Fluoranthene	630000		140		5	49
Fluorene	100000		5.9		2 J	2.2 J
Indeno(1,2,3-cd)pyrene	See BaP (c)		51		2.6 J	74
Naphthalene	4490		8.3		17	44
Phenanthrene			88		6.2	41
Pyrene	660000		140		7.1	53
TEQ Equivalent (b)	See BaP (c)		106.55		3.613 J	67.44

Table 2-12 - Analytical Results for Soil Samples from G2 Transfer Lines, April-May 2007

Sample ID / Sampling Date	Screening Level (a)	G-2 (STA4+27 Bottom) 5/01/2007	G-2 (STA4+80 Bottom) 5/01/2007	G-2 (STA7+74 Side Wall) 5/03/2007	G-2 (STA7+74 Bottom) 5/03/2007	G-4 (Stockpile) 5/09/2007 Dup of G-2 (STA7+74 Bottom)
Volatiles (SW8260B) in ug/kg						
1,1,1,2-Tetrachloroethane			4.6 U		5 U	4.5 U
1,1,1-Trichloroethane	1610		4.6 U		5 U	4.5 U
1,1,2,2-Tetrachloroethane			4.6 U		5 U	4.5 U
1,1,2-Trichloroethane			4.6 U		5 U	4.5 U
1,1-Dichloroethane	8730		4.6 U		5 U	4.5 U
1,1-Dichloroethene			4.6 U		5 U	4.5 U
1,1-Dichloropropene			4.6 U		5 U	4.5 U
1,2,3-Trichlorobenzene			19 U		20 U	18 U
1,2,3-Trichloropropane			4.6 U		5 U	4.5 U
1,2,4-Trichlorobenzene			19 U		20 U	18 U
1,2,4-Trimethylbenzene	31000		0.16 J		20 U	0.097 J
1,2-Dibromo-3-Chloropropane			19 U		20 U	18 U
1,2-Dibromoethane(EDB)			19 U		20 U	18 U
1,2-Dichlorobenzene			4.6 U		5 U	4.5 U
1,2-Dichloroethane			4.6 U		5 U	4.5 U
1,2-Dichloropropane			4.6 U		5 U	4.5 U
1,3,5-Trimethylbenzene	8380		19 U		20 U	18 U
1,3-Dichlorobenzene			4.6 U		5 U	4.5 U
1,3-Dichloropropane			4.6 U		5 U	4.5 U
1,4-Dichlorobenzene			4.6 U		5 U	4.5 U
2,2-Dichloropropane			4.6 U		5 U	4.5 U
2-Butanone (MEK)	20000		19 U		20 U	3 J
2-Chlorotoluene	2400		19 U		20 U	18 U
2-Hexanone			19 U		20 U	18 U
4-Chlorotoluene	4180		19 U		20 U	18 U
4-Isopropyltoluene			19 U		20 U	18 U
4-Methyl-2-Pentanone			19 U		20 U	18 U
Acetone	3210		20 U		65 J	47 J
Benzene	5		4.6 U		5 U	4.7
Bromobenzene			4.6 U		5 U	4.5 U
Bromochloromethane			4.6 U		5 U	4.5 U
Bromodichloromethane			4.6 U		5 U	4.5 U
Bromoform			4.6 U		5 U	4.5 U
Bromomethane	52		4.6 U		5 U	4.5 U
CFC 11			4.6 U		5 U	4.5 U
CFC 12			4.6 U		5 U	4.5 U
Carbon Disulfide	5600		0.42 J		0.71 J	0.38 J

Table 2-12 - Analytical Results for Soil Samples from G2 Transfer Lines, April-May 2007

Sample ID Sampling Date	Screening Level (a)	G-2 (STA4+27 Bottom) 5/01/2007	G-2 (STA4+80 Bottom) 5/01/2007	G-2 (STA7+74 Side Wall) 5/03/2007	G-2 (STA7+74 Bottom) 5/03/2007	G-4 (Stockpile) 5/09/2007 Dup of G-2 (STA7+74 Bottom)
Carbon Tetrachloride			4.6 U		5 U	4.5 U
Chlorobenzene			4.6 U		5 U	4.5 U
Chloroethane			4.6 U		5 U	4.5 U
Chloroform	38		4.6 U		5 U	4.5 U
Chloromethane	22		4.6 U		5 U	4.5 U
Cis-1,2-Dichloroethene			4.6 U		5 U	4.5 U
Cis-1,3-Dichloropropene			4.6 U		5 U	4.5 U
Dibromochloromethane			4.6 U		5 U	4.5 U
Dibromomethane			4.6 U		5 U	4.5 U
Ethylbenzene	5990		4.6 U		5 U	4.5 U
Hexachlorobutadiene			19 U		20 U	18 U
Isopropylbenzene	7370		19 U		20 U	18 U
Methylene Chloride	22		10 U		10 U	10 U
N-Butylbenzene	19500		19 U		20 U	18 U
N-Propylbenzene	19500		19 U		20 U	18 U
Naphthalene	4490		19 U		20 U	18 U
Sec-Butylbenzene	15800		19 U		20 U	18 U
Styrene	33		0.11 J		5 U	4.5 U
Tert-Butylbenzene	15600		19 U		20 U	18 U
Tetrachloroethene	0.9		4.6 U		5 U	4.5 U
Toluene	4650		5 U		5 U	1.6 J
Trans-1,2-Dichloroethene			4.6 U		5 U	4.5 U
Trans-1,3-Dichloropropene			4.6 U		5 U	4.5 U
Trichloroethene (TCE)			4.6 U		5 U	4.5 U
Vinyl Chloride			4.6 U		5 U	4.5 U
m,p-Xylenes	8520		0.24 J		0.32 J	0.32 J
o-Xylene	916		4.6 U		5 U	4.5 U

Table 2-12 - Analytical Results for Soil Samples from G2 Transfer Lines, April-May 2007

Sample ID Sampling Date	Screening Level (a)	G-2 (STA4+27 Bottom) 5/01/2007	G-2 (STA4+80 Bottom) 5/01/2007	G-2 (STA7+74 Side Wall) 5/03/2007	G-2 (STA7+74 Bottom) 5/03/2007	G-4 (Stockpile) 5/09/2007 Dup of G-2 (STA7+74 Bottom)
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U		20 U	
Stoddard Solvent	100	20 U	20 U		20 U	
Kensol	2000	20 U	20 U		20 U	
Kerosene	2000	20 U	20 U		20 U	
Diesel/Fuel Oil	2000	50 U	50 U		190	
Bunker C		50 U	50 U		50 U	
Heavy Oil	2000	270	100 U		330	
NWTPH-Dx in mg/kg						
Diesel/Fuel Oil	2000		20 U		200	
Heavy Oil	2000		50 U		360	
Kensol	2000		20 U		20 U	
Kerosene	2000		20 U		20 U	
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100		5 U		5 U	
Gasoline	100		5 U		5 U	

U = Not detected at the reporting limit indicated.
J = Estimated value.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-13 - VPH/EPH Analytical Results for Soil Sample from G2 Transfer Lines, April-May 2007

Sample ID	G-2 (STA7+74 Bottom)
Sampling Date	5/03/2007
Moisture in %	4
VPH in mg/kg	
C5-C6 Aliphatics	5 U
C6-C8 Aliphatics	5 U
C8-C10 Aliphatics	5 U
C10-C12 Aliphatics	5 U
Total Aliphatics	5 U
C8-C10 Aromatics	5 U
C10-C12 Aromatics	5 U
C12-C13 Aromatics	10
Total Aromatics	10
Methyl t-butyl ether	0.5 U
Benzene	0.02 U
Ethylbenzene	0.5 U
Toluene	0.5 U
m,p-Xylene	0.5 U
o-Xylene	0.5 U
EPH in mg/kg	
C8-C10 Aliphatics	2.1 U
C10-C12 Aliphatics	2.2
C12-C16 Aliphatics	18
C16-C21 Aliphatics	74
C21-C34 Aliphatics	270
C8-C10 Aromatics	2.1 U
C10-C12 Aromatics	2.1 U
C12-C16 Aromatics	2.1 U
C16-C21 Aromatics	41
C21-C34 Aromatics	67

J = Estimated value.
U = Not detected at the reporting limit indicated.

Table 2-14 - Analytical Results for Soil Samples from G3 Transfer Lines Area Excavation

Sample ID Sampling Date	Screening Level (a)	TL-1 5/27/2004	TL-2 5/27/2004	TL-3 5/27/2004	TL-4 5/27/2004	OR-WWT-S-A 1/27/2005
Conventionals						
pH		5.07	4.61	7.56	8.3	
Metals in mg/kg						
Arsenic	0.03	3.7	2.6	4.1	4.5	
Barium	1650	27.9	77.3	53.7	195	
Cadmium	0.7	0.8 U	0.9 U	0.9 U	0.9 U	
Chromium	2000	8.2	8.5	7.1	16.9	
Lead	250	17 U	17 U	17 U	24	
Mercury	2	0.01 U	0.01 U	0.02	0.03	
Selenium	5	2.1 U	2.1 U	2.2 U	2.2 U	
Silver	14	1.7 U	1.7 U	1.7 U	1.8 U	
PCBs in ug/kg						
Aroclor 1016		77 U	87 U	79 U	80 U	
Aroclor 1221		160 U	180 U	160 U	160 U	
Aroclor 1232		77 U	87 U	79 U	80 U	
Aroclor 1242		77 U	87 U	79 U	80 U	
Aroclor 1248		77 U	87 U	79 U	80 U	
Aroclor 1254		77 U	87 U	79 U	80 U	
Aroclor 1260		77 U	87 U	79 U	80 U	
Total PCBs	270	160 U	180 U	160 U	160 U	
Semivolatiles in ug/kg						
1,2,4-Trichlorobenzene		5.8 U	5.8 U	5.8 U	5.8 U	
1,2-Dichlorobenzene		5.8 U	5.8 U	5.8 U	5.8 U	
1,3-Dichlorobenzene		5.8 U	5.8 U	5.8 U	5.8 U	
1,4-Dichlorobenzene		5.8 U	5.8 U	5.8 U	5.8 U	
2,4,5-Trichlorophenol		5.8 U	5.8 U	5.8 U	5.8 U	
2,4,6-Trichlorophenol		5.8 U	5.8 U	5.8 U	5.8 U	
2,4-Dichlorophenol		5.8 U	5.8 U	5.8 U	5.8 U	
2,4-Dimethylphenol		5.8 U	5.8 U	5.8 U	5.8 U	
2,4-Dinitrophenol		35 U	35 U	35 U	35 U	
2,4-Dinitrotoluene		5.8 U	5.8 U	5.8 U	5.8 U	
2,6-Dinitrotoluene		5.8 U	5.8 U	5.8 U	5.8 U	
2-Chloronaphthalene		5.8 U	5.8 U	5.8 U	5.8 U	
2-Chlorophenol		5.8 U	5.8 U	5.8 U	5.8 U	
2-Methylnaphthalene	2190	5.8 U	5.8 U	5.8 U	5.8 U	
2-Methylphenol		5.8 U	5.8 U	5.8 U	5.8 U	
2-Nitroaniline		35 U	35 U	35 U	35 U	
2-Nitrophenol		5.8 U	5.8 U	5.8 U	5.8 U	
3,3'-Dichlorobenzidine		35 U	35 U	35 U	35 U	
3-Nitroaniline		35 U	35 U	35 U	35 U	
4,6-Dinitro-2-methyphenol		35 U	35 U	35 U	35 U	
4-Bromophenyl-Phenylether		5.8 U	5.8 U	5.8 U	5.8 U	
4-Chloro-3-methylphenol		5.8 U	5.8 U	5.8 U	5.8 U	
4-Chloroaniline		5.8 U	5.8 U	5.8 U	5.8 U	
4-Chlorophenyl-phenylether		5.8 U	5.8 U	5.8 U	5.8 U	
4-Methylphenol		5.8 U	5.8 U	5.8 U	5.8 U	
4-Nitroaniline		35 U	35 U	35 U	35 U	
4-Nitrophenol		35 U	35 U	35 U	35 U	
Acenaphthene	98000	5.8 U	5.8 U	5.8 U	5.8 U	
Acenaphthylene		5.8 U	5.8 U	5.8 U	5.8 U	
Aniline		18 U	18 U	18 U	18 U	

Table 2-14 - Analytical Results for Soil Samples from G3 Transfer Lines Area Excavation

Sample ID Sampling Date	Screening Level (a)	TL-1 5/27/2004	TL-2 5/27/2004	TL-3 5/27/2004	TL-4 5/27/2004	OR-WWT-S-A 1/27/2005
Anthracene	2200000	5.8 U	5.8 U	5.8 U	5.8 U	
Benzo(a)anthracene	See BaP (c)	5.8 U	5.8 U	5.8 U	5.8 U	
Benzo(a)pyrene	233	5.8 U	5.8 U	5.8 U	5.8 U	
Benzo(b)fluoranthene	See BaP (c)	5.8 U	5.8 U	5.8 U	5.8 U	
Benzo(g,h,i)perylene		5.8 U	5.8 U	5.8 U	5.8 U	
Benzo(k)fluoranthene	See BaP (c)	5.8 U	5.8 U	5.8 U	5.8 U	
Benzoic Acid		35 U	35 U	35 U	35 U	
Benzyl Alcohol		5.8 U	5.8 U	5.8 U	5.8 U	
Bis(2-Chloroethoxy)Methane		5.8 U	5.8 U	5.8 U	5.8 U	
Bis(2-Chloroethyl)Ether		5.8 U	5.8 U	5.8 U	5.8 U	
Bis(2-Ethylhexyl)Phthalate	13000	5.8 U	5.8 U	5.8	5.8 U	
Bis(2-chloroisopropyl) Ether		5.8 U	5.8 U	5.8 U	5.8 U	
Butylbenzylphthalate		5.8 U	5.8 U	5.8 U	5.8 U	
Chrysene	See BaP (c)	5.8 U	5.8 U	5.8 U	5.8 U	
Di-N-Butylphthalate	57000	5.8 U	5.8 U	5.8 U	5.8 U	
Di-n-octyl Phthalate		5.8 U	5.8 U	5.8 U	5.8 U	
Dibenz(a,h)anthracene	See BaP (c)	5.8 U	5.8 U	5.8 U	5.8 U	
Dibenzofuran	5090	5.8 U	5.8 U	5.8 U	5.8 U	
Diethylphthalate		5.8 U	5.8 U	5.8 U	5.8 U	
Dimethyl Phthalate		5.8 U	5.8 U	5.8	5.8 U	
Fluoranthene	630000	5.8 U	5.8 U	5.8 U	5.8 U	
Fluorene	100000	5.8 U	5.8 U	5.8 U	5.8 U	
Hexachlorobenzene		5.8 U	5.8 U	5.8 U	5.8 U	
Hexachlorobutadiene		5.8 U	5.8 U	5.8 U	5.8 U	
Hexachlorocyclopentadiene		5.8 U	5.8 U	5.8 U	5.8 U	
Hexachloroethane		5.8 U	5.8 U	5.8 U	5.8 U	
Indeno(1,2,3-cd)pyrene	See BaP (c)	5.8 U	5.8 U	5.8 U	5.8 U	
Isophorone		5.8 U	5.8 U	5.8 U	5.8 U	
N-Nitroso-di-n-propylamine		5.8 U	5.8 U	5.8 U	5.8 U	
N-Nitrosodimethylamine		35 U	35 U	35 U	35 U	
N-Nitrosodiphenylamine	536	5.8 U	5.8 U	5.8 U	5.8 U	
Naphthalene	4490	5.8 U	5.8 U	5.8 U	5.8 U	
Nitrobenzene		5.8 U	5.8 U	5.8 U	5.8 U	
Pentachlorophenol		35 U	35 U	35 U	35 U	
Phenanthrene		5.8 U	5.8 U	5.8 U	5.8 U	
Phenol	22000	5.8 U	5.8 U	5.8 U	5.8 U	
Pyrene	660000	5.8 U	5.8 U	5.8 U	5.8 U	
TEQ Equivalent (b)	See BaP (c)	5.8 U	5.8 U	5.8 U	5.8 U	

Table 2-14 - Analytical Results for Soil Samples from G3 Transfer Lines Area Excavation

Sample ID Sampling Date	Screening Level (a)	TL-1 5/27/2004	TL-2 5/27/2004	TL-3 5/27/2004	TL-4 5/27/2004	OR-WWT-S-A 1/27/2005
Volatiles in ug/kg						
1,1,1,2-Tetrachloroethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,1,1-Trichloroethane	1610	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,1,2,2-Tetrachloroethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,1,2-Trichloroethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,1-Dichloroethane	8730	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,1-Dichloroethene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,1-Dichloropropene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2,3-Trichlorobenzene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2,3-Trichloropropane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2,4-Trichlorobenzene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2,4-Trimethylbenzene	31000	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2-Dibromo-3-Chloropropane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2-Dibromoethane(EDB)		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2-Dichlorobenzene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2-Dichloroethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,2-Dichloropropane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,3,5-Trimethylbenzene	8380	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,3-Dichlorobenzene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,3-Dichloropropane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
1,4-Dichlorobenzene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
2,2-Dichloropropane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
2-Butanone (MEK)	20000	5.25 U	5.25 U	5.25 U	5.25 U	
2-Chlorotoluene	2400	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
2-Hexanone		5.25 U	5.25 U	5.25 U	5.25 U	
4-Chlorotoluene	4180	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
4-Isopropyltoluene		5.25 U	5.25 U	5.25 U	5.25 U	
4-Methyl-2-Pentanone		5.25 U	5.25 U	5.25 U	5.25 U	
Acetone	3210	5.25 U	5.25	5.25 U	5.25 U	
Benzene	5	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Bromobenzene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Bromochloromethane		5.25 U	5.25 U	5.25 U	5.25 U	
Bromodichloromethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Bromoform		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Bromomethane	52	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Carbon Disulfide	5600	5.25 U	5.25 U	5.25 U	5.25 U	
Carbon Tetrachloride		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Chlorobenzene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Chloroethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Chloroform	38	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Chloromethane	22	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Cis-1,2-Dichloroethene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Cis-1,3-Dichloropropene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Dibromochloromethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Dibromomethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Dichlorodifluoromethane	47000	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Ethylbenzene	5990	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Hexachlorobutadiene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Isopropylbenzene	7370	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Isopropyltoluene						5.25 U
Methylene Chloride	22	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U

Table 2-14 - Analytical Results for Soil Samples from G3 Transfer Lines Area Excavation

Sample ID Sampling Date	Screening Level (a)	TL-1 5/27/2004	TL-2 5/27/2004	TL-3 5/27/2004	TL-4 5/27/2004	OR-WWT-S-A 1/27/2005
MTBE						5.25 U
N-Butylbenzene	19500	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
N-Propylbenzene	19500	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Naphthalene	4490	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Sec-Butylbenzene	15800	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Styrene	33	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Tert-Butylbenzene	15600	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Tetrachloroethene	0.9	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Toluene	4650	5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Trans-1,2-Dichloroethene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Trans-1,3-Dichloropropene		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Trichloroethene (TCE)		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Trichlorofluoromethane		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
Vinyl Chloride		5.25 U	5.25 U	5.25 U	5.25 U	5.25 U
m,p-Xylenes	8520	5.25 U	5.25 U	5.25 U	5.25 U	
o-Xylene	916	5.25 U	5.25 U	5.25 U	5.25 U	
Total Xylenes	14500					5.25 U
TPH in mg/kg						
Diesel Range Organics (DRO)	2000	29,000	12,000	4,100	43	
Residual Range Organics (RR	2000	33,000	15,000	6,900	190	
NWTPH-HCID in mg/kg						
Gasoline	100					20 U
Kensol	2000					20 U
Kerosene/Jet fuel	2000					20 U
Stoddard/Mineral spirits	100					20 U
Diesel/Fuel oil/Creosote	2000					50 U
Bunker C						50 U
Oil	2000					280

U = Not detected at the reporting limit indicated.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.

(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-15 - Analytical Results for Soil Samples from G3 Transfer Lines Area Boring

Sample ID	Screening	HL-MW-21S-5'	HL-MW-21S-10'	HL-MW-21S-25'	HL-MW-21S-50'	HL-MW-21S-70'	HL-MW-21S-80'
Sampling Date	Level (a)	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005
Depth in Feet		4 to 6	9 to 11	25 to 26	50 to 51	70 to 71	80 to 81
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat
Metals in ug/kg							
Arsenic	0.0341/0.0017		3.6		6.8	2 U	
Barium	1650/82.6		10 U		10 U	10 U	
Cadmium	0.7/0.0349		1 U		1 U	1 U	
Chromium	2000/100		2 U		2 U	2 U	
Lead	250/250		3.1		3	1 U	
Mercury	2/0.105		0.5 U		0.5 U	0.5 U	
Selenium	5/0.264		10 U		10 U	10 U	
Silver	14/0.687		2 U		2 U	2 U	
PCBs in ug/kg							
Aroclor 1221			200 U		200 U	200 U	
Aroclor 1232			200 U		200 U	200 U	
Aroclor 1242			200 U		200 U	200 U	
Aroclor 1248			200 U		200 U	200 U	
Aroclor 1254			200 U		200 U	200 U	
Aroclor 1260			200 U		200 U	200 U	
Volatiles in ug/kg							
1,1,1,2-Tetrachloroethane			50 U		50 U	50 U	
1,1,1-Trichloroethane	1610/85		50 U		50 U	50 U	
1,1,2,2-Tetrachloroethane			50 U		50 U	50 U	
1,1,2-Trichloroethane			50 U		50 U	50 U	
1,1-Dichloroethane	8730/543		50 U		50 U	50 U	
1,1-Dichloroethene			50 U		50 U	50 U	
1,1-Dichloropropylene			50 U		50 U	50 U	
1,2,3-Trichlorobenzene			50 U		50 U	50 U	
1,2,3-Trichloropropane			50 U		50 U	50 U	
1,2,4-Trichlorobenzene			50 U		50 U	50 U	
1,2,4-Trimethylbenzene	31000/1590		50 U		50 U	50 U	
1,2-Dibromo-3-Chloropropane			50 U		50 U	50 U	
1,2-Dibromoethane(EDB)			5 U		5 U	5 U	
1,2-Dichlorobenzene			50 U		50 U	50 U	
1,2-Dichloroethane			20 U		20 U	20 U	
1,2-Dichloropropane			50 U		50 U	50 U	
1,3,5-Trimethylbenzene	8380/443		50 U		50 U	50 U	
1,3-Dichlorobenzene			50 U		50 U	50 U	
1,3-Dichloropropane			50 U		50 U	50 U	

Table 2-15 - Analytical Results for Soil Samples from G3 Transfer Lines Area Boring

Sample ID	Screening	HL-MW-21S-5'	HL-MW-21S-10'	HL-MW-21S-25'	HL-MW-21S-50'	HL-MW-21S-70'	HL-MW-21S-80'
Sampling Date	Level (a)	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005
Depth in Feet		4 to 6	9 to 11	25 to 26	50 to 51	70 to 71	80 to 81
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat
1,4-Dichlorobenzene			50 U		50 U	50 U	
2,2-Dichloropropane			50 U		50 U	50 U	
2-Chlorotoluene	2400/143		50 U		50 U	50 U	
4-Chlorotoluene	4180/250		50 U		50 U	50 U	
Benzene	5/0.3		50 U		50 U	50 U	
Bromobenzene			50 U		50 U	50 U	
Bromodichloromethane			50 U		50 U	50 U	
Bromoform			50 U		50 U	50 U	
Bromomethane	52/3		50 U		50 U	50 U	
Carbon Tetrachloride			50 U		50 U	50 U	
Chlorobenzene			50 U		50 U	50 U	
Chloroethane			50 U		50 U	50 U	
Chloroform	38/2		50 U		50 U	50 U	
Chloromethane	22/1		50 U		50 U	50 U	
Cis-1,2-Dichloroethene			50 U		50 U	50 U	
Cis-1,3-Dichloropropene			50 U		50 U	50 U	
Dibromochloromethane			20 U		20 U	20 U	
Dibromomethane			50 U		50 U	50 U	
Dichlorodifluoromethane	47000/551		50 U		50 U	50 U	
Ethylbenzene	5990/341		50 U		50 U	50 U	
Hexachloro-1,3-butadiene			50 U		50 U	50 U	
Isopropylbenzene	7370/405		50 U		50 U	50 U	
Isopropyltoluene			50 U		50 U	50 U	
MTBE			100 U		100 U	100 U	
Methylene Chloride	22/2		20 U		20 U	20 U	
N-Butylbenzene	19500/988		50 U		50 U	50 U	
N-Propylbenzene	19500/988		50 U		50 U	50 U	
Naphthalene	4490/238		50 U		50 U	50 U	
Sec-Butylbenzene	15800/796		50 U		50 U	50 U	
Styrene	33/2		50 U		50 U	50 U	
Tert-Butylbenzene	15600/796		50 U		50 U	50 U	
Tetrachloroethene	0.9/0.05		50 U		50 U	50 U	
Toluene	4650/273		50 U		50 U	50 U	
Total Xylenes	14500/827		50 U		50 U	50 U	
Trans-1,2-Dichloroethene			50 U		50 U	50 U	
Trans-1,3-Dichloropropene			50 U		50 U	50 U	

Table 2-15 - Analytical Results for Soil Samples from G3 Transfer Lines Area Boring

Sample ID	Screening	HL-MW-21S-5'	HL-MW-21S-10'	HL-MW-21S-25'	HL-MW-21S-50'	HL-MW-21S-70'	HL-MW-21S-80'
Sampling Date	Level (a)	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005
Depth in Feet		4 to 6	9 to 11	25 to 26	50 to 51	70 to 71	80 to 81
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat
Trichloroethene (TCE)			20 U		20 U	20 U	
Trichlorofluoromethane			50 U		50 U	50 U	
Vinyl Chloride			50 U		50 U	50 U	
Semivolatiles in ug/kg							
1,2,4,5-Tetrachlorobenzene			500 U		500 U		
1,2,4-Trichlorobenzene			100 U		100 U		
1,2-Dichlorobenzene			100 U		100 U		
1,3-Dichlorobenzene			100 U		100 U		
1,4-Dichlorobenzene			100 U		100 U		
2,3,4,6-Tetrachlorophenol			500 U		500 U		
2,4,5-Trichlorophenol			500 U		500 U		
2,4,6-Tribromophenol			500 U		500 U		
2,4,6-Trichlorophenol			500 U		500 U		
2,4-Dichlorophenol			500 U		500 U		
2,4-Dimethylphenol			500 U		500 U		
2,4-Dinitrophenol			500 U		500 U		
2,6-Dichlorophenol			500 U		500 U		
2-Chloronaphthalene			100 U		100 U		
2-Chlorophenol			500 U		500 U		
2-Methylphenol			100 U		100 U		
2-Nitrophenol			500 U		500 U		
2-sec-Butyl-4,6-dinitrophenol			500 U		500 U		
3,4-Methylphenol (m,p-cresol)			100 U		100 U		
4-Bromophenyl-phenylether			100 U		100 U		
4-Chloro-3-methylphenol			500 U		500 U		
4-Chlorophenyl-phenylether			500 U		500 U		
4-Nitrophenol			500 U		500 U		
Acenaphthene	98000/4980		100 U		100 U		
Acenaphthylene			100 U		100 U		
Anthracene	2.2E+06/112000		100 U		100 U		
Benzo(a)anthracene	See BaP (c)		100 U		100 U		
Benzo(a)pyrene	233/12		100 U		100 U		
Benzo(b)fluoranthene	See BaP (c)		100 U		100 U		
Benzo(ghi)perylene			100 U		100 U		
Benzo(k)fluoranthene	See BaP (c)		100 U		100 U		
Bis(2-chloroethoxy)methane			100 U		100 U		

Table 2-15 - Analytical Results for Soil Samples from G3 Transfer Lines Area Boring

Sample ID	Screening	HL-MW-21S-5'	HL-MW-21S-10'	HL-MW-21S-25'	HL-MW-21S-50'	HL-MW-21S-70'	HL-MW-21S-80'
Sampling Date	Level (a)	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005
Depth in Feet		4 to 6	9 to 11	25 to 26	50 to 51	70 to 71	80 to 81
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat
Bis(2-chloroethyl)ether			500 U		500 U		
Bis(2-chloroisopropyl)ether			100 U		100 U		
Bis(2-ethylhexyl)ether			100 U		100 U		
Butylbenzylphthalate			500 U		500 U		
Chrysene	See BaP (c)		100 U		100 U		
Di-n-butylphthalate	57000/3020		100 U		100 U		
Di-n-octylphthalate	5.3E+08/2.7E+07		500 U		500 U		
Dibenz(a,h)anthracene	See BaP (c)		100 U		100 U		
Diethylphthalate			100 U		100 U		
Dimethyl Phthalate			100 U		100 U		
Fluoranthene	630000/31500		100 U		100 U		
Fluorene	100000/5110		100 U		100 U		
Hexachlorobenzene			100 U		100 U		
Hexachlorobutadiene			500 U		500 U		
Hexachlorocyclopentadiene			100 U		100 U		
Hexachloroethane			100 U		100 U		
Hexachloropropylene			500 U		500 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)		100 U		100 U		
N-Nitrosodiphenylamine	536/28		100 U		100 U		
Naphthalene	4490/238		100 U		100 U		
Pentachlorobenzene			500 U		500 U		
Pentachlorophenol			500 U		500 U		
Phenanthrene			100 U		100 U		
Phenol	22000/1520		500 U		500 U		
Pyrene	660000/32800		100 U		100 U		
TEQ Equivalent (b)	See BaP (c)		100 U		100 U		
NWTPH-HCID in mg/kg							
Bunker C	2000	50 U	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	100 U	100 U	100 U	100 U	230	100 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U	20 U	20 U

Table 2-15 - Analytical Results for Soil Samples from G3 Transfer Lines Area Boring

Sample ID	Screening	HL-MW-21S-5'	HL-MW-21S-10'	HL-MW-21S-25'	HL-MW-21S-50'	HL-MW-21S-70'	HL-MW-21S-80'
Sampling Date	Level (a)	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005	1/28/2005
Depth in Feet		4 to 6	9 to 11	25 to 26	50 to 51	70 to 71	80 to 81
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat
NWTPH-G in mg/kg							
Gasoline	100		5 U		5 U	5 U	
Mineral spirits/Stoddard	100		5 U		5 U	5 U	

U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-16 - Analytical Results for Groundwater Samples from G3 Transfer Lines Area

Sample ID Sampling Date	Screening Level (a)	HL-MW-21S 4/22/2008	HL-MW-21S 10/19/2008
Dissolved Metals in ug/L			
Antimony	6	0.227	0.261
Arsenic	0.018	$\boxed{1.82}$	$\boxed{2.8}$
Iron	300	26.7	54.3
Manganese	50	31.3	$\boxed{225}$
Semivolatiles in ug/L			
2-Methylnaphthalene		0.0034 T	0.0035 T
Acenaphthene	640	0.019 U	0.019 U
Acenaphthylene		0.019 U	0.019 U
Anthracene	4800	0.019 U	0.019 U
Benzo(a)anthracene	See BaP (c)	0.019 U	0.019 U
Benzo(a)pyrene	0.0028	0.019 U	0.019 U
Benzo(b)fluoranthene	See BaP (c)	0.019 U	0.019 U
Benzo(g,h,i)perylene		0.019 U	0.019 U
Benzo(k)fluoranthene	See BaP (c)	0.019 U	0.019 U
Chrysene	See BaP (c)	0.019 U	0.019 U
Dibenz(a,h)anthracene	See BaP (c)	0.019 U	0.019 U
Dibenzofuran	32	0.019 U	0.019 U
Fluoranthene	90	0.019 U	0.019 U
Fluorene	640	0.0063 T	0.01 T
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.019 U	0.019 U
Naphthalene	160	0.032	0.078
Phenanthrene		0.0094 T	0.019 U
Pyrene	480	0.019 U	0.019 U
TEQ Equivalent (b)	See BaP (c)	0.019 U	0.019 U
Volatiles in ug/L			
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U
1,2-Dibromo-3-Chloropropan	0.031	2 U	2 UJ
1,2-Dibromoethane(EDB)		2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U
2-Chlorotoluene		2 U	2 U
2-Hexanone		20 U	20 U
4-Chlorotoluene		2 U	2 U

Table 2-16 - Analytical Results for Groundwater Samples from G3 Transfer Lines Area

Sample ID Sampling Date	Screening Level (a)	HL-MW-21S 4/22/2008	HL-MW-21S 10/19/2008
4-Isopropyltoluene		2 U	
4-Methyl-2-Pentanone		20 U	20 U
Acetone	800	20 U	20 U
Benzene	0.8	0.5 U	0.5 U
Bromobenzene		2 U	2 U
Bromochloromethane		0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U
Methylene Chloride	4.6	2 U	2 U
N-Butylbenzene		2 U	2 U
N-Propylbenzene		2 U	2 U
Naphthalene	160	2 U	2 UJ
Sec-Butylbenzene		2 U	2 U
Styrene	1.5	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U
p-Cymene			2 U
NWTPH-HCID in mg/L			
Gasoline	0.8	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U
Kensol	0.5	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U
NWTPH-Dx in mg/L			
Kerosene/Jet fuel	0.5	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U

Table 2-16 - Analytical Results for Groundwater Samples from G3 Transfer Lines Area

Sample ID Sampling Date	Screening Level (a)	HL-MW-21S 4/22/2008	HL-MW-21S 10/19/2008
Heavy oil	0.5	0.5 U	0.5 U
NWTPH-G in mg/L			
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).

b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-17 - Analytical Results for Soil Verification Samples from G3 Transfer Lines Area

Sample ID Sampling Date	Screening Level (a)	CS-1 11/07/2006	CS-2 11/07/2006	CS-3 11/08/2006	CS-4 11/08/2006	CS-5 11/08/2006	CS-6 11/08/2006	CS-7 11/09/2006
Moisture in %		7.2	3.4	12	2.9	4	3.1	5.2
NWTPH HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel Oil #2	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	100 U

Sample ID Sampling Date	Screening Level (a)	CS-8 11/13/2006	CS-9 11/13/2006	CS-10 11/13/2006	CS-11 11/13/2006	CS-12 11/13/2006	CS-13 11/13/2006 Dup
Moisture in %		5.9	3.2	4.5	5.4	7.4	12
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel Oil #2	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U

Table 2-17 - Analytical Results for Soil Verification Samples from G3 Transfer Lines Area

Sample ID Sampling Date	Screening Level (a)	G-1 CS 11/09/2006	G-3N 11/06/2006	G-3S 11/07/2006
Moisture in %		9.4	5.6	4.3
NWTPH HCID in mg/kg				
Gasoline	100	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U
Diesel/Fuel Oil #2	2000	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	170

U = Not detected at detection limit indicated.
Blank indicates no screening level established.
(a) Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 2-18 - Analytical Results for Soil Samples from 1980 Fuel Oil Spill Area Boring

	Screening Level (a)					
Sample ID	Screening	FO-MW-1S-S1	FO-MW-1S-S10	FO-MW-1S-S2	FO-MW-1S-S3	FO-MW-1S-S4
Sampling Date	Level (a)	2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Depth in Feet		8 to 10	8 to 10	18 to 20.4	28 to 30	38 to 41.25
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat
			Dup of FO-MW-1S-S1			
Moisture in %		7	5	6	4	4
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	23 J	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U

Sample ID	Screening	FO-MW-1S-S5	FO-MW-1S-S6	FO-MW-1S-S7	FO-MW-1S-S8	FO-MW-1S-S9
Sampling Date	Level (a)	2/22/2006	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Depth in Feet		48 to 50	58 to 60.25	68 to 70	78 to 81.5	88 to 90.9
Unsat/Sat		Unsat	Unsat	Sat	Sat	Sat
Moisture in %		3	5	6	6	8
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	770	680
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U

Table 2-18 - Analytical Results for Soil Samples from 1980 Fuel Oil Spill Area Boring

Sample ID	Screening	FO-MW-1S S-1	FO-MW-1S S-10	FO-MW-1S S-5	FO-MW-1S S-8
Sampling Date	Level (a)	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Depth in Feet		8 to 10	8 to 10	48 to 50	78 to 81.5
Unsat/Sat		Unsat	Unsat Dup of FO-MW-1S S-1	Unsat	Sat
Total Solids in %		98.3	97.8 J	96.8	97.6
PAHs in µg/kg					
2-Methylnaphthalene	2190/112	0.35 J	0.56 J	2.6 U	350
Acenaphthene	98000/4980	2.6 U	5 UJ	2.6 U	83
Acenaphthylene		2.6 U	0.34 J	2.6 U	21 U
Anthracene	2.2E+06/112000	2.6 U	5 UJ	2.6 U	51
Benzo(a)anthracene	See BaP (c)	2.6 U	0.44 J	2.6 U	0.66 J
Benzo(a)pyrene	233/12	2.6 U	0.5 J	2.6 U	2.6 U
Benzo(b)fluoranthene	See BaP (c)	2.6 U	0.85 J	2.6 U	0.77 J
Benzo(g,h,i)perylene		2.6 U	5 UJ	2.6 U	2.6 U
Benzo(k)fluoranthene	See BaP (c)	2.6 U	0.61 J	2.6 U	0.5 J
Chrysene	See BaP (c)	2.6 U	0.73 J	2.6 U	5.1
Dibenz(a,h)anthracene	See BaP (c)	2.6 U	0.56 J	2.6 U	2.6 U
Dibenzofuran	5090/257	2.6 U	0.2 J	2.6 U	62
Fluoranthene	630000/31500	2.6 U	0.96 J	2.6 U	8.4
Fluorene	100000/5110	2.6 U	5 UJ	2.6 U	220
Indeno(1,2,3-cd)pyrene	See BaP (c)	2.6 U	0.75 J	2.6 U	2.6 U
Naphthalene	4490/238	2.6 U	5 UJ	2.6 U	52 U
Phenanthrene		2.6 U	0.66 J	2.6 U	440
Pyrene	660000/32800	2.6 U	0.91 J	2.6 U	19
TEQ Equivalent (b)	See BaP (c)	2.6 U	0.8283 J	2.6 U	0.244 J
Volatiles in µg/kg					
1,1,1,2-Tetrachloroethane		5.4 U		6.3 U	6 U
1,1,1-Trichloroethane	1610/85	5.4 U		6.3 U	6 U
1,1,2,2-Tetrachloroethane		5.4 U		6.3 U	6 U
1,1,2-Trichloroethane		5.4 U		6.3 U	6 U
1,1-Dichloroethane	8730/543	5.4 U		6.3 U	6 U
1,1-Dichloroethene		5.4 U		6.3 U	6 U
1,1-Dichloropropene		5.4 U		6.3 U	6 U
1,2,3-Trichlorobenzene		22 U		25 U	24 U
1,2,3-Trichloropropane		5.4 U		6.3 U	6 U
1,2,4-Trichlorobenzene		22 U		25 U	24 U
1,2,4-Trimethylbenzene	31000/1590	22 U		25 U	77
1,2-Dibromo-3-Chloropropane		22 U		25 U	24 U
1,2-Dibromoethane(EDB)		22 U		25 U	24 U
1,2-Dichlorobenzene		5.4 U		6.3 U	6 U
1,2-Dichloroethane		5.4 U		6.3 U	6 U
1,2-Dichloropropane		5.4 U		6.3 U	6 U
1,3,5-Trimethylbenzene	8380/443	22 U		25 U	7.8 J
1,3-Dichlorobenzene		5.4 U		6.3 U	6 U
1,3-Dichloropropane		5.4 U		6.3 U	6 U
1,4-Dichlorobenzene		5.4 U		6.3 U	6 U
2,2-Dichloropropane		5.4 U		6.3 U	6 U
2-Butanone (MEK)	20000/1400	22 U		25 U	24 U
2-Chlorotoluene	2400/143	22 U		25 U	24 U
2-Hexanone		22 U		25 U	24 U
4-Chlorotoluene	4180/250	22 U		25 U	24 U
4-Isopropyltoluene		22 U		25 U	2.2 J
4-Methyl-2-Pentanone		22 U		25 U	24 U
Acetone	3210/230	22 U		25 U	14 J
Benzene	5/0.3	5.4 U		6.3 U	6 U
Bromobenzene		5.4 U		6.3 U	6 U
Bromochloromethane		5.4 U		6.3 U	6 U

Table 2-18 - Analytical Results for Soil Samples from 1980 Fuel Oil Spill Area Boring

Sample ID	Screening	FO-MW-1S S-1	FO-MW-1S S-10	FO-MW-1S S-5	FO-MW-1S S-8
Sampling Date	Level (a)	2/22/2006	2/22/2006	2/22/2006	2/22/2006
Depth in Feet		8 to 10	8 to 10	48 to 50	78 to 81.5
Unsat/Sat		Unsat	Unsat Dup of FO-MW-1S S-1	Unsat	Sat
Bromodichloromethane		5.4 U		6.3 U	6 U
Bromoform		5.4 U		6.3 U	6 U
Bromomethane	52/3	5.4 U		6.3 U	6 U
Carbon Disulfide	5600/266	4.5 J		3.9 J	12
Carbon Tetrachloride		5.4 U		6.3 U	6 U
Chlorobenzene		5.4 U		6.3 U	6 U
Chloroethane		5.4 U		6.3 U	6 U
Chloroform	38/2	5.4 U		6.3 U	6 U
Chloromethane	22/1	5.4 U		6.3 U	6 U
Cis-1,2-Dichloroethene		5.4 U		6.3 U	6 U
Cis-1,3-Dichloropropene		5.4 U		6.3 U	6 U
Dibromochloromethane		5.4 U		6.3 U	6 U
Dibromomethane		5.4 U		6.3 U	6 U
Dichlorodifluoromethane	47000/551	5.4 U		6.3 U	6 U
Ethylbenzene	5990/341	5.4 U		6.3 U	6 U
Hexachlorobutadiene		22 U		25 U	24 U
Isopropylbenzene	7370/405	22 U		25 U	5.1 J
Methylene Chloride	22/2	11 U		13 U	12 U
N-Butylbenzene	19500/988	22 U		25 U	36
N-Propylbenzene	19500/988	22 U		25 U	14 J
Naphthalene	4490/238	22 U		25 U	27
Sec-Butylbenzene	15800/796	22 U		25 U	39
Styrene	33/2	5.4 U		6.3 U	6 U
Tert-Butylbenzene	15600/796	22 U		25 U	24 U
Tetrachloroethene	0.9/0.05	5.4 U		6.3 U	6 U
Toluene	4650/273	5.4 U		6.3 U	1.4 J
Trans-1,2-Dichloroethene		5.4 U		6.3 U	6 U
Trans-1,3-Dichloropropene		5.4 U		6.3 U	6 U
Trichloroethene (TCE)		5.4 U		6.3 U	6 U
Trichlorofluoromethane		5.4 U		6.3 U	6 U
Vinyl Chloride		5.4 U		6.3 U	6 U
m,p-Xylenes	8520/487	5.4 U		6.3 U	2.1 J
o-Xylene	916/53	5.4 U		6.3 U	0.94 J

U = Not detected at the reporting limit indicated.
J = Estimated value.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-19 - Analytical Results for 1980 Fuel Oll Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	FO-MW-1S 4/20/2006	FO-MW-1S 7/21/2006	FO-MW-1S 10/25/2006	FO-MW-1S 4/17/2007
Conventionals in mg/L					
Nitrate as Nitrogen	10	1		1.1	
Nitrite as Nitrogen		0.2 U		0.1 U	
Total Sulfide		0.05 U		0.05 U	
Total Suspended Solids		5 U	2	5 U	5
PCBs in ug/L					
Aroclor 1016					
Aroclor 1221					
Aroclor 1232					
Aroclor 1242					
Aroclor 1248					
Aroclor 1254					
Aroclor 1260					
Total PCBs	0.000064				
PAHs in ug/L					
2-Methylnaphthalene	2190	0.02 U	0.062	0.02 U	0.02 U
Acenaphthene	640	0.02 U	0.11	0.02 U	0.02 U
Acenaphthylene		0.02 U	0.02 U	0.02 U	0.02 U
Anthracene	4800	0.02 U	0.0071 J	0.02 U	0.02 U
Benzo(a)anthracene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(a)pyrene	0.0028	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(g,h,i)perylene		0.02 U	0.02 U	0.02 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Chrysene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Dibenz(a,h)anthracene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Dibenzofuran	32	0.02 U	0.1	0.02 U	0.02 U
Fluoranthene	90	0.02 U	0.02 U	0.02 U	0.02 U
Fluorene	640	0.02 U	0.21	0.02 U	0.02 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Naphthalene	160	0.02 U	0.15	0.029	0.02 U
Phenanthrene		0.02 U	0.097	0.02 U	0.02 U
Pyrene	480	0.02 U	0.02 U	0.02 U	0.02 U
TEQ Equivalent (b)	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Volatiles in ug/L					
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	1.5 J	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U

Table 2-19 - Analytical Results for 1980 Fuel OIl Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	FO-MW-1S 4/20/2006	FO-MW-1S 7/21/2006	FO-MW-1S 10/25/2006	FO-MW-1S 4/17/2007
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)	20000	20 U	20 U	20 U	20 U
2-Chlorotoluene	2400	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U
4-Chlorotoluene	4180	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	2 U	2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	0.35 J	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U
N-Butylbenzene	19500	2 U	0.31 J	2 U	2 U
N-Propylbenzene	19500	2 U	0.4 J	2 U	2 U
Naphthalene	160	2 U	0.44 J	2 U	2 U
Sec-Butylbenzene	15800	2 U	0.56 J	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene	15600	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene					
NWTPH-HCID in mg/L					
Gasoline	0.8	0.2 U	0.2 U	0.2 UJ	0.2 U

Table 2-19 - Analytical Results for 1980 Fuel OIl Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	FO-MW-1S 4/20/2006	FO-MW-1S 7/21/2006	FO-MW-1S 10/25/2006	FO-MW-1S 4/17/2007
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 UJ	0.2 U
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Dx in mg/L					
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-G in mg/L					
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U	0.1 U

Table 2-19 - Analytical Results for 1980 Fuel Oll Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	FO-MW-1S 10/26/2007	FO-MW-1S 4/20/2008	FO-MW-1S 10/19/2008
Conventionals in mg/L				
Nitrate as Nitrogen	10			
Nitrite as Nitrogen				
Total Sulfide				
Total Suspended Solids		684	28	54
PCBs in ug/L				
Aroclor 1016		0.0048 U		
Aroclor 1221		0.0096 U		
Aroclor 1232		0.0048 U		
Aroclor 1242		0.0048 U		
Aroclor 1248		0.0062 U		
Aroclor 1254		0.0048 U		
Aroclor 1260		0.0048 U		
Total PCBs	0.000064	0.0096 U		
PAHs in ug/L				
2-Methylnaphthalene	2190		0.0036 T	0.0032 T
Acenaphthene	640		0.02 U	0.019 U
Acenaphthylene			0.0061 T	0.019 U
Anthracene	4800		0.0046 T	0.019 U
Benzo(a)anthracene	See BaP (c)		0.02 U	0.019 U
Benzo(a)pyrene	0.0028		0.0049 T	0.019 U
Benzo(b)fluoranthene	See BaP (c)		0.0067 T	0.019 U
Benzo(g,h,i)perylene			0.11	0.019 U
Benzo(k)fluoranthene	See BaP (c)		0.0025 T	0.019 U
Chrysene	See BaP (c)		0.02 U	0.019 U
Dibenz(a,h)anthracene	See BaP (c)		0.0066 T	0.019 U
Dibenzofuran	32		0.02 U	0.019 U
Fluoranthene	90		0.02 U	0.019 U
Fluorene	640		0.0053 T	0.019 U
Indeno(1,2,3-cd)pyrene	See BaP (c)		0.071	0.019 U
Naphthalene	160		0.12	0.046
Phenanthrene			0.0088 T	0.019 U
Pyrene	480		0.02 U	0.019 U
TEQ Equivalent (b)	See BaP (c)		0.0136 J	0.019 U
Volatiles in ug/L				
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	0.67 JT	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 UJ
1,2-Dibromoethane(EDB)		2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U

Table 2-19 - Analytical Results for 1980 Fuel OIl Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	FO-MW-1S 10/26/2007	FO-MW-1S 4/20/2008	FO-MW-1S 10/19/2008
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U
2-Butanone (MEK)	20000	20 U	20 U	20 U
2-Chlorotoluene	2400	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U
4-Chlorotoluene	4180	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	
4-Methyl-2-Pentanone		20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 UJ
Bromomethane	11	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	6.7	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.06 T
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		0.22 JT	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U
N-Butylbenzene	19500	2 U	2 U	2 U
N-Propylbenzene	19500	0.18 JT	2 U	2 U
Naphthalene	160	2 U	2 U	2 U
Sec-Butylbenzene	15800	0.71 JT	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene	15600	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.17 T
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.07 T
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U
p-Cymene				2 U
NWTPH-HCID in mg/L				
Gasoline	0.8	0.2 U	0.2 U	0.2 U

Table 2-19 - Analytical Results for 1980 Fuel OIl Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	FO-MW-1S 10/26/2007	FO-MW-1S 4/20/2008	FO-MW-1S 10/19/2008
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U
Kensol	0.5	0.4	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U
NWTPH-Dx in mg/L				
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U	0.2 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U
NWTPH-G in mg/L				
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.

(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-20 - Analytical Results for Soil Samples from 1980 Fuel Oil Spill Area

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	FO-SS-1 8/22/2008 3 (est.)	FO-SS-2 8/22/2008 3 (est.)	FO-SS-3 8/22/2008 3 (est.) Dup of FO-SS-2
NWTPH-Dx in mg/kg				
Kensol	2000	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U

Non-detect results are reported on a wet weight basis.

Table 2-20 - Analytical Results for Soil Samples from 1980 Fuel Oil Spill Area

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	FO-SS-1 8/22/2008 3 (est.)	FO-SS-2 8/22/2008 3 (est.)	FO-SS-3 8/22/2008 3 (est.) Dup of FO-SS-2
Total Solids in %		93.8	92.2	91.9
Semivolatiles(SIM) in µg/kg				
2-Methylnaphthalene	2190	7.9	7.1	11
Acenaphthene	98000	0.6 T	0.82 T	0.29 T
Acenaphthylene		0.46 T	0.46 T	0.47 T
Anthracene	2200000	1.2 T	2.1 T	1 T
Benzo(a)anthracene	See BaP (c)	11	12	5 U
Benzo(a)pyrene	233	10	14	5 U
Benzo(b)fluoranthene	See BaP (c)	18	21	8
Benzo(g,h,i)perylene		9.2	12	5
Benzo(k)fluoranthene	See BaP (c)	5.2	7.1	5 U
Chrysene	See BaP (c)	15	16	6.1
Dibenz(a,h)anthracene	See BaP (c)	4.9 U	4.9 U	5 U
Dibenzofuran	5090	2.2 T	2.2 T	3 T
Fluoranthene	630000	17	20	6.2
Fluorene	100000	0.78 T	0.87 T	0.75 T
Indeno(1,2,3-cd)pyrene	See BaP (c)	9.1	12	5 U
Naphthalene	4490	5.2	4.9 U	6
Phenanthrene		11	12	9.5
Pyrene	660000	19	22	6.3
TEQ Equivalent (b)	See BaP (c)	14.73	19.62	4.36
BTEX in µg/kg				
Benzene	5		5.6 U	5.3 U
Ethylbenzene	5990		5.6 U	5.3 U
Toluene	4650		5.6 U	5.3 U
m,p-Xylenes	8520		5.6 U	5.3 U
o-Xylene	916		5.6 U	5.3 U

U = Not detected at the detection limit indicated.
T = Value is between the MDL and MRL.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-21 - Analytical Results for Soil Samples from ORB Borings and Test Pits

Sample ID	Sampling Date	Depth in Feet	TPH in mg/kg Gasoline	Stoddard/ Mineral spirits	Kensol	Kerosene/ Jet fuel	Diesel/ Fuel oil	Bunker C	Heavy oil	Unknown
Screening Level (a)			100	100	2000	2000	2000		2000	
96ORTP1-S1 (d)	4/18/96	0 to 1	10 U	10 U	190	10 U	120	50 U	1,900	10 U
96ORTP1-S2 (d)	4/18/96	2 to 4	10 U	10 U	410	10 U	1,700	50 U	11,000	10 U
96ORTP1-S3 (d)	4/18/96	5 to 6	10 U	10 U	10 U	10 U	27	50 U	160	10 U
96ORTP2-S1	4/18/96	0 to 2	10 U	10 U	44	10 U	110	50 U	660	10 U
96ORTP2-S2	4/18/96	2 to 4	10 U	10 U	9.9 J	10 U	20 U	50 U	67	10 U
96ORTP2-S3	4/18/96	5 to 6	10 U	10 U	35	10 U	20 U	50 U	140	10 U
96ORTP3-S1	4/18/96	0.25 to 1.8	10 U	10 U	14	10 U	20 U	50 U	200	10 U
96ORTP3-S2	4/18/96	1.8 to 3.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
96ORTP3-S3	4/18/96	4 to 5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
96ORTP4-S1	4/18/96	1 to 2	10 U	10 U	10 U	10 U	20 U	50 U	48 J	10 U
96ORTP4-S2	4/18/96	2 to 4	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
96ORTP4-S3	4/18/96	4 to 5.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
96ORTP5-S1	4/18/96	1 to 1.8	10 U	10 U	970	46	120	50 U	1,200	10 U
96ORTP5-S2	4/18/96	2 to 4	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
96ORTP5-S3	4/18/96	4 to 6	10 U	10 U	76	10 U	20 U	50 U	95	10 U
96ORTP6-S1 (d)	4/18/96	2 to 4	10 U	10 U	8.7 J	10 U	20 U	50 U	460	10 U
96ORTP6-S2 (d)	4/18/96	4 to 6	10 U	10 U	10 U	10 U	20 U	50 U	63	10 U
96ORTP7-S1 (d)	4/18/96	1 to 3	10 U	10 U	10 U	10 U	20 U	50 U	590	10 U
96ORTP7-S2 (d)	4/18/96	5 to 6	10 UJ	10 UJ	10 UJ	170 J	4,700 J	50 UJ	17,000 J	10 UJ
96ORTP8-S1 (d)	4/18/96	1 to 3	10 U	10 U	10 U	10 U	20 U	50 U	1,200	10 U
96ORTP8-S2 (d)	4/18/96	5 to 6	10 U	10 U	10 U	80	230	50 U	1,200	10 U
96ORTP9-S1	4/18/96	0 to 2	10 U	10 U	37	10 U	20 U	50 U	490	10 U
TP-OR1-S1 (d)	10/8/96	2 to 3	10 U	10 U	10 U	10 U	20 U	50 U	360	10 U
TP-OR1-S2 (d)	10/8/96	6 to 7	10 U	10 U	10 U	480	1,900	50 U	8,200	10 U
B-1/ S-1 (d)	10/9/96	2.5 to 4	10 U	10 U	10 U	58	160	50 U	1,000	10 U
B-1/ S-2 (d)	10/9/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	66	10 U
B-1/ S-3 (d)	10/9/96	7.5 to 9	10 UJ	10 UJ	10 UJ	780 J	1,600 J	50 U	6,400 J	10 UJ
B-1/ S-4	10/9/96	10 to 11.5	10 U	10 U	10 U	200	1,200	50 U	3,500	10 U
B-1/ S-7	10/9/96	17.5 to 19	10 U	10 U	10 U	10 U	20 U	50 U	93	10 U
B-2/ S-1 (d)	10/9/96	2.5 to 4	10 UJ	10 UJ	10 UJ	1,200 J	2,800 J	50 UJ	14,000 J	10 UJ
B-2/ S-2 (d)	10/9/96	5 to 6.5	10 UJ	10 UJ	10 UJ	1,700 J	4,600 J	50 UJ	16,000 J	10 UJ
B-2/ S-3 (d)	10/9/96	7.5 to 9	10 UJ	10 UJ	10 UJ	3,300 J	6,500 J	50 UJ	18,000 J	10 UJ
B-2/ S-4 (d)	10/9/96	10 to 11.5	10 UJ	10 UJ	10 UJ	1,700 J	4,400 J	50 UJ	15,000 J	10 UJ
B-2/ S-5 (d)	10/9/96	12.5 to 14	10 UJ	10 UJ	10 UJ	3,500 J	6,200 J	50 UJ	21,000 J	10 UJ
B-2/ S-6 (d)	10/9/96	15 to 16.5	10 U	10 U	10 U	440	1,200	50 U	9,500	10 U
B-2/ S-7	10/9/96	17.5 to 19	10 U	10 U	10 U	10 U	530	50 U	6,100	10 U

Table 2-21 - Analytical Results for Soil Samples from ORB Borings and Test Pits

Sample ID	Sampling Date	Depth in Feet	TPH in mg/kg Gasoline	Stoddard/ Mineral spirits	Kensol	Kerosene/ Jet fuel	Diesel/ Fuel oil	Bunker C	Heavy oil	Unknown
Screening Level (a)			100	100	2000	2000	2000		2000	
B-3/ S-1 (d)	10/8/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	88	10 U
B-3/ S-2 (d)	10/8/96	5 to 6.5	10 U	10 U	10 U	10 U	17 J	50 U	100	10 U
B-3/ S-3 (d)	10/8/96	7.5 to 9	10 UJ	10 UJ	10 UJ	2,700 J	12,000 J	50 UJ	34,000 J	10 UJ
B-3/ S-4 (d)	10/8/96	10 to 11.5	10 U	10 U	10 U	22	69	50 U	650	10 U
B-3/ S-5 (d)	10/8/96	12.5 to 14	10 U	10 U	10 U	10 U	50	50 U	280	10 U
B-3/ S-6 (d)	10/8/96	15 to 16.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-3/ S-7	10/8/96	17.5 to 19	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-4/ S-1	10/8/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	110	10 U
B-4/ S-2	10/8/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	85	10 U
B-4/ S-3	10/8/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	65	10 U
B-4/ S-4	10/8/96	10 to 11.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-4/ S-5	10/8/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-4/ S-6	10/8/96	15 to 16.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-4/ S-7	10/8/96	17.5 to 19	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-5/ S-1	10/10/96	2.5 to 4	10 U	10 U	10 U	10 U	47	50 U	690	10 U
B-5/ S-2	10/10/96	5 to 6.5	10 U	10 U	10 U	10 U	21	50 U	300	10 U
B-5/ S-3	10/10/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	320	10 U
B-5/ S-4	10/10/96	10 to 11.5	10 U	10 U	10 U	10 U	20 U	50 U	270	10 U
B-5/ S-6	10/10/96	15 to 16.5	10 U	10 U	10 U	10 U	20 U	50 U	160	10 U
B-5/ S-7	10/10/96	17.5 to 19	10 U	10 U	10 U	10 U	20 U	50 U	110	10 U
B-6/ S-1 (d)	10/9/96	7.5 to 9	10 UJ	10 UJ	10 UJ	930 J	2,200 J	50 UJ	9,000 J	10 UJ
B-6/ S-2 (d)	10/9/96	10 to 11.5	10 UJ	10 UJ	10 UJ	1,200 J	3,100 J	50 UJ	12,000 J	10 UJ
B-6/ S-3 (d)	10/9/96	12.5 to 14	10 U	10 U	10 U	91	370	50 U	4,400	10 U
B-6/ S-4	10/9/96	15 to 16.5	10 U	10 U	10 U	10 U	250	50 U	3,000	10 U
B-6/ S-5	10/9/96	17.5 to 19	10 U	10 U	10 U	10 U	20 U	50 U	690	10 U
B-6/ S-6	10/9/96	22.5 to 24	10 U	10 U	10 U	10 U	20 U	50 U	98	10 U
B-7/ S-1	10/9/96	2.5 to 4	10 UJ	10 UJ	10 UJ	840 J	2,500 J	50 UJ	9,200 J	10 UJ
B-7/ S-2	10/9/96	5 to 6.5	10 UJ	10 UJ	10 UJ	810 J	2,500 J	50 UJ	9,000 J	10 UJ
B-7/ S-3	10/9/96	7.5 to 9	10 UJ	10 UJ	10 UJ	580 J	2,100 J	50 UJ	9,500 J	10 UJ
B-7/ S-4	10/9/96	10 to 11.5	10 U	10 U	10 U	310	850	50 U	4,000	10 U
B-7/ S-5	10/9/96	12.5 to 14	10 U	10 U	10 U	140	500	50 U	2,100	10 U
B-7/ S-6	10/9/96	15 to 16.5	10 U	10 U	10 U	10 U	20 U	50 U	100	10 U
B-8/ S-1	10/9/96	2.5 to 4	10 U	10 U	10 U	220	700	50 U	2,100	10 U
B-8/ S-2	10/9/96	5 to 6.5	10 U	10 U	10 U	210	640	50 U	2,500	10 U
B-8/ S-4	10/9/96	10 to 11.5	10 U	10 U	10 U	230	670	50 U	4,000	10 U
B-8/ S-5	10/9/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	110	10 U

Table 2-21 - Analytical Results for Soil Samples from ORB Borings and Test Pits

			TPH in mg/kg							
Sample ID	Sampling Date	Depth in Feet	Gasoline	Stoddard/ Mineral spirits	Kensol	Kerosene/ Jet fuel	Diesel/ Fuel oil	Bunker C	Heavy oil	Unknown
Screening Level (a)			100	100	2000	2000	2000		2000	
B-8/ S-6	10/9/96	15 to 16.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-9/ S-1	10/9/96	2.5 to 4	10 U	10 U	10 U	270	1,200	50 U	7,800	10 U
B-9/ S-2	10/9/96	5 to 6.5	10 U	10 U	10 U	20 U	47	50 U	47 J	10 U
B-9/ S-3	10/9/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-9/ S-4	10/9/96	10 to 11.5	10 U	10 U	10 U	22	90	50 U	140	10 U
B-9/ S-5	10/9/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-9/ S-6	10/9/96	15 to 16.5	10 U	10 U	10 U	10 U	32	50 U	150	10 U
B-10/ S-1	10/10/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	840	10 U
B-10/ S-2	10/10/96	5 to 6.5	10 U	10 U	10 U	490	1,200	50 U	3,800	10 U
B-10/ S-3	10/10/96	7.5 to 9	10 U	10 U	10 U	10 U	29	50 U	170	10 U
B-10/ S-4	10/10/96	10 to 11.5	10 U	10 U	10 U	10 U	20 U	50 U	590	10 U
B-10/ S-5	10/10/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-10/ S-7	10/10/96	17.5 to 19	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-11/ S-2	10/10/96	5 to 6.5	10 U	10 U	10 U	10 U	27	50 U	140	10 U
B-11/ S-3	10/10/96	7.5 to 9	10 U	10 U	10 U	10 U	16 J	50 U	50	10 U
B-11/ S-4	10/10/96	10 to 11.5	10 U	10 U	10 U	22	100	50 U	220	10 U
B-11/ S-5	10/10/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-16/ S-1	10/31/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	75	10 U
B-16/ S-2	10/31/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-16/ S-3	10/31/96	7.5 to 9	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-16/ S-5	10/31/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-16/ S-7	10/31/96	17.5 to 19	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-17/ S-1	10/31/96	2.5 to 4	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-17/ S-2	10/31/96	5 to 6.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-17/ S-4	10/31/96	10 to 11.5	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U
B-17/ S-5	10/31/96	12.5 to 14	10 U	10 U	10 U	10 U	20 U	50 U	50 U	10 U

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP1-S2(d)	96ORTP1-S3(d)	96ORTP2-S1	96ORTP3-S2
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96	4/18/96
Depth in Feet		2 to 4	5 to 6	0 to 2	1.8 to 3.5
Total Metals in mg/kg					
Arsenic	0.03	$\boxed{17}$			
Barium	1650	53			
Cadmium	0.7	0.7			
Chromium	2000	13			
Lead	250	13			
Mercury	2	0.11 U			
Selenium	5	0.59 U			
Silver	14	0.29 U			
TCLP Metals in mg/L					
Arsenic		0.05 U			
Barium		0.62 U			
Cadmium		0.005 U			
Chromium		0.01 U			
Lead		0.03 U			
Mercury		0.0002 U			
Selenium		0.05 U			
Silver		0.005 U			
Pesticides/PCBs in mg/kg					
4,4'-DDD		0.0057 U			
4,4'-DDE		0.0057 U			
4,4'-DDT		0.0057 U			
Aldrin		0.0028 U			
Aroclor 1016		0.057 U		0.038 U	0.042 U
Aroclor 1221		0.057 U		0.038 U	0.042 U
Aroclor 1232		0.057 U		0.038 U	0.042 U
Aroclor 1242		0.057 U		0.038 U	0.042 U
Aroclor 1248		0.31		0.038 U	0.042 U
Aroclor 1254		0.057 U		0.038 U	0.042 U
Aroclor 1260		0.057 U		0.038 U	0.042 U
Total PCBs	270	0.31		0.038 U	0.042 U
Chlordane		0.0057 U			
Delta-BHC		0.0028 U			
Dieldrin		0.0057 U			
Endosulfan I		0.0028 U			
Endosulfan II		0.0057 U			
Endosulfan Sulfate		0.0057 U			
Endrin		0.0057 U			
Endrin Aldehyde		0.0057 U			
Endrin Ketone		0.0057 U			
Heptachlor		0.0028 U			
Heptachlor Epoxide		0.0028 U			
Methoxychlor		0.028 U			
Toxaphene		0.057 U			
Alpha-BHC		0.0028 U			
Beta-BHC		0.0028 U			
Gamma-BHC		0.0028 U			

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP1-S2(d)	96ORTP1-S3(d)	96ORTP2-S1	96ORTP3-S2
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96	4/18/96
Depth in Feet		2 to 4	5 to 6	0 to 2	1.8 to 3.5
Semivolatiles in mg/kg					
1,2,4-Trichlorobenzene		0.95 U			
1,2-Dichlorobenzene		0.95 U			
1,3-Dichlorobenzene		0.95 U			
1,4-Dichlorobenzene		0.95 U			
2,4,5-Trichlorophenol		4.7 U			
2,4,6-Trichlorophenol		0.95 U			
2,4-Dichlorophenol		0.95 U			
2,4-Dimethylphenol		0.95 U			
2,4-Dinitrophenol		4.7 U			
2,4-Dinitrotoluene		0.95 U			
2,6-Dinitrotoluene		0.95 U			
2-Chloronaphthalene		0.95 U			
2-Chlorophenol		0.95 U			
2-Methylnaphthalene	2190	0.36 J			
2-Methylphenol		0.95 U			
2-Nitroaniline		4.7 U			
2-Nitrophenol		0.95 U			
3,3'-Dichlorobenzidine		1.9 U			
3-Nitroaniline		4.7 U			
4,6-Dinitro-2-methyphenol		4.7 U			
4-Bromophenyl-Phenylether		0.95 U			
4-Chloro-3-methylphenol		0.95 U			
4-Chloroaniline		0.95 U			
4-Chlorophenyl-phenylether		0.95 U			
4-Methylphenol		0.95 U			
4-Nitroaniline		4.7 U			
4-Nitrophenol		4.7 U			
Acenaphthene	98000	0.95 U			
Acenaphthylene		0.95 U			
Aniline		4.7 U			
Anthracene	2200000	0.95 U			
Benzidine		9.5 U			
Benzo(a)anthracene	See BaP (c)	0.95 U			
Benzo(a)pyrene	233	0.95 U			
Benzo(b)fluoranthene	See BaP (c)	0.95 U			
Benzo(g,h,i)perylene		0.95 U			
Benzo(k)fluoranthene	See BaP (c)	0.95 U			
Benzoic Acid		4.7 U			
Benzyl Alcohol		0.95 U			
Bis(2-Chloroethoxy)Methane		0.95 U			
Bis(2-Chloroethyl)Ether		0.95 U			
Bis(2-Ethylhexyl)Phthalate	13000	0.68 U			
Bis(2-chloroisopropyl) Ether		0.95 U			
Butylbenzylphthalate		0.95 U			
Chrysene	See BaP (c)	0.95 U			
Di-N-Butylphthalate	57000	0.95 U			
Di-n-octyl Phthalate		0.95 U			
Dibenz(a,h)anthracene	See BaP (c)	0.95 U			
Dibenzofuran	5090	0.95 U			

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP1-S2(d)		96ORTP1-S3(d)		96ORTP2-S1	96ORTP3-S2
Sampling Date	Level (a)	4/18/96		4/18/96		4/18/96	4/18/96
Depth in Feet		2 to 4		5 to 6		0 to 2	1.8 to 3.5
Diethylphthalate		0.95	U				
Dimethyl Phthalate		0.95	U				
Fluoranthene	630000	0.95	U				
Fluorene	100000	0.21	J				
Hexachlorobenzene		0.95	U				
Hexachlorobutadiene		0.95	U				
Hexachlorocyclopentadiene		4.7	U				
Hexachloroethane		0.95	U				
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.95	U				
Isophorone		0.95	U				
N-Nitroso-di-n-propylamine		0.95	U				
N-Nitrosodimethylamine		0.95	U				
N-Nitrosodiphenylamine	536	0.95	U				
Naphthalene	4490	0.08	J				
Nitrobenzene		0.95	U				
Pentachlorophenol		4.7	U				
Phenanthrene		0.57	J				
Phenol	22000	0.95	U				
Pyrene	660000	0.95	U				
TEQ Equivalent (a)	See BaP (c)	0.95	U				
Volatiles in mg/kg							
1,1,1-Trichloroethane	1610	0.057	U	0.058	U		
1,1,2,2-Tetrachloroethane		0.057	U	0.058	U		
1,1,2-Trichloroethane		0.057	U	0.058	U		
1,1-Dichloroethane	8730	0.057	U	0.058	U		
1,1-Dichloroethene		0.057	U	0.058	U		
1,2-Dichloroethane		0.057	U	0.058	U		
1,2-Dichloroethene (Total)		0.057	U	0.058	U		
1,2-Dichloropropane		0.057	U	0.058	U		
2-Butanone (MEK)	20000	0.57	U	0.58	U		
2-Hexanone		0.57	U	0.58	U		
4-Methyl-2-Pentanone		0.57	U	0.58	U		
Acetone	3210	0.71		0.58	U		
Benzene	5	0.057	U	0.058	U		
Bromodichloromethane		0.057	U	0.058	U		
Bromoform		0.28	U	0.29	U		
Bromomethane	52	0.57	U	0.58	U		
Carbon Disulfide	5600	0.057	U	0.058	U		
Carbon Tetrachloride		0.057	U	0.058	U		
Chlorobenzene		0.057	U	0.058	U		
Chloroethane		0.057	U	0.058	U		
Chloroform	38	0.057	U	0.058	U		
Chloromethane	22	0.57	U	0.58	U		
Cis-1,3-Dichloropropene		0.057	U	0.058	U		
Dibromochloromethane		0.057	U	0.058	U		
Ethylbenzene	5990	0.066		0.058	U		
Methylene Chloride	22	0.28	U	0.29	U		
Styrene	33	0.057	U	0.058	U		
Tetrachloroethene	0.9	0.057	U	0.058	U		
Toluene	4650	0.14		0.058	U		

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP1-S2(d)	96ORTP1-S3(d)	96ORTP2-S1	96ORTP3-S2
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96	4/18/96
Depth in Feet		2 to 4	5 to 6	0 to 2	1.8 to 3.5
Total Xylenes	14500	0.33	0.058 U		
Trans-1,3-Dichloropropene		0.057 U	0.058 U		
Trichloroethene (TCE)		0.057 U	0.058 U		
Vinyl Acetate		0.57 U	0.58 U		
Vinyl Chloride		0.057 U	0.058 U		

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP4-S1	96ORTP4-S2	96ORTP5-S2	96ORTP7-S1(d)
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96	4/18/96
Depth in Feet		1 to 2	2 to 4	2 to 4	1 to 3
Total Metals in mg/kg					
Arsenic	0.03			$\boxed{6.4}$	
Barium	1650			84	
Cadmium	0.7			0.3 U	
Chromium	2000			9.8	
Lead	250			9.5	
Mercury	2			0.11 U	
Selenium	5			0.61 U	
Silver	14			0.3 U	
TCLP Metals in mg/L					
Arsenic	0.0341			0.05 U	
Barium	1650			0.83 U	
Cadmium	0.7			0.005 U	
Chromium				0.01 U	
Lead	250			0.03 U	
Mercury	2			0.0002 U	
Selenium	5			0.05 U	
Silver	14			0.005 U	
Pesticides/PCBs in mg/kg					
4,4'-DDD				0.0058 U	
4,4'-DDE				0.0058 U	
4,4'-DDT				0.0058 U	
Aldrin				0.0029 U	
Aroclor 1016		0.037 U	0.039 U	0.058 U	0.038 U
Aroclor 1221		0.037 U	0.039 U	0.058 U	0.038 U
Aroclor 1232		0.037 U	0.039 U	0.058 U	0.038 U
Aroclor 1242		0.037 U	0.039 U	0.058 U	0.038 U
Aroclor 1248		0.037 U	0.039 U	0.058 U	0.038 U
Aroclor 1254		0.037 U	0.039 U	0.058 U	0.057
Aroclor 1260		0.037 U	0.039 U	0.058 U	0.038 U
Total PCBs	270	0.037 U	0.039 U	0.058 U	0.057
Chlordane				0.0058 U	
Delta-BHC				0.0029 U	
Dieldrin				0.0058 U	
Endosulfan I				0.0029 U	
Endosulfan II				0.0058 U	
Endosulfan Sulfate				0.0058 U	
Endrin				0.0058 U	
Endrin Aldehyde				0.0058 U	
Endrin Ketone				0.0058 U	
Heptachlor				0.0029 U	
Heptachlor Epoxide				0.0029 U	
Methoxychlor				0.029 U	
Toxaphene				0.058 U	
Alpha-BHC				0.0029 U	
Beta-BHC				0.0029 U	
Gamma-BHC				0.0029 U	

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID Sampling Date Depth in Feet	Screening Level (a)	96ORTP4-S1 4/18/96 1 to 2	96ORTP4-S2 4/18/96 2 to 4	96ORTP5-S2 4/18/96 2 to 4	96ORTP7-S1(d) 4/18/96 1 to 3
Semivolatiles in mg/kg					
1,2,4-Trichlorobenzene				0.19 U	
1,2-Dichlorobenzene				0.19 U	
1,3-Dichlorobenzene				0.19 U	
1,4-Dichlorobenzene				0.19 U	
2,4,5-Trichlorophenol				0.97 U	
2,4,6-Trichlorophenol				0.19 U	
2,4-Dichlorophenol				0.19 U	
2,4-Dimethylphenol				0.19 U	
2,4-Dinitrophenol				0.97 U	
2,4-Dinitrotoluene				0.19 U	
2,6-Dinitrotoluene				0.19 U	
2-Chloronaphthalene				0.19 U	
2-Chlorophenol				0.19 U	
2-Methylnaphthalene	2190			0.19 U	
2-Methylphenol				0.19 U	
2-Nitroaniline				0.97 U	
2-Nitrophenol				0.19 U	
3,3'-Dichlorobenzidine				0.39 U	
3-Nitroaniline				0.97 U	
4,6-Dinitro-2-methyphenol				0.97 U	
4-Bromophenyl-Phenylether				0.19 U	
4-Chloro-3-methylphenol				0.19 U	
4-Chloroaniline				0.19 U	
4-Chlorophenyl-phenylether				0.19 U	
4-Methylphenol				0.19 U	
4-Nitroaniline				0.97 U	
4-Nitrophenol				0.97 U	
Acenaphthene	98000			0.19 U	
Acenaphthylene				0.19 U	
Aniline				0.97 U	
Anthracene	2200000			0.19 U	
Benzidine				1.9 U	
Benzo(a)anthracene	See BaP (c)			0.19 U	
Benzo(a)pyrene	233			0.19 U	
Benzo(b)fluoranthene	See BaP (c)			0.19 U	
Benzo(g,h,i)perylene				0.19 U	
Benzo(k)fluoranthene	See BaP (c)			0.19 U	
Benzoic Acid				0.97 U	
Benzyl Alcohol				0.19 U	
Bis(2-Chloroethoxy)Methane				0.19 U	
Bis(2-Chloroethyl)Ether				0.19 U	
Bis(2-Ethylhexyl)Phthalate	13000			0.19 U	
Bis(2-chloroisopropyl) Ether				0.19 U	
Butylbenzylphthalate				0.19 U	
Chrysene	See BaP (c)			0.19 U	
Di-N-Butylphthalate	57000			0.19 U	
Di-n-octyl Phthalate				0.19 U	
Dibenz(a,h)anthracene	See BaP (c)			0.19 U	
Dibenzofuran	5090			0.19 U	

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP4-S1	96ORTP4-S2	96ORTP5-S2	96ORTP7-S1(d)
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96	4/18/96
Depth in Feet		1 to 2	2 to 4	2 to 4	1 to 3
Diethylphthalate				0.19 U	
Dimethyl Phthalate				0.19 U	
Fluoranthene	630000			0.19 U	
Fluorene	100000			0.19 U	
Hexachlorobenzene				0.19 U	
Hexachlorobutadiene				0.19 U	
Hexachlorocyclopentadiene				0.97 U	
Hexachloroethane				0.19 U	
Indeno(1,2,3-cd)pyrene	See BaP (c)			0.19 U	
Isophorone				0.19 U	
N-Nitroso-di-n-propylamine				0.19 U	
N-Nitrosodimethylamine				0.19 U	
N-Nitrosodiphenylamine	536			0.19 U	
Naphthalene	4490			0.19 U	
Nitrobenzene				0.19 U	
Pentachlorophenol				0.97 U	
Phenanthrene				0.19 U	
Phenol	22000			0.19 U	
Pyrene	660000			0.19 U	
TEQ Equivalent (a)	See BaP (c)			0.19 U	
Volatiles in mg/kg					
1,1,1-Trichloroethane	1610			0.058 U	0.057 U
1,1,2,2-Tetrachloroethane				0.058 U	0.057 U
1,1,2-Trichloroethane				0.058 U	0.057 U
1,1-Dichloroethane	8730			0.058 U	0.057 U
1,1-Dichloroethene				0.058 U	0.057 U
1,2-Dichloroethane				0.058 U	0.057 U
1,2-Dichloroethene (Total)				0.058 U	0.057 U
1,2-Dichloropropane				0.058 U	0.057 U
2-Butanone (MEK)	20000			0.58 U	0.57 U
2-Hexanone				0.58 U	0.57 U
4-Methyl-2-Pentanone				0.58 U	0.57 U
Acetone	3210			0.58 U	0.57 U
Benzene	5			0.058 U	0.057 U
Bromodichloromethane				0.058 U	0.057 U
Bromoform				0.29 U	0.28 U
Bromomethane	52			0.58 U	0.57 U
Carbon Disulfide	5600			0.058 U	0.057 U
Carbon Tetrachloride				0.058 U	0.057 U
Chlorobenzene				0.058 U	0.057 U
Chloroethane				0.058 U	0.057 U
Chloroform	38			0.058 U	0.057 U
Chloromethane	22			0.58 U	0.57 U
Cis-1,3-Dichloropropene				0.058 U	0.057 U
Dibromochloromethane				0.058 U	0.057 U
Ethylbenzene	5990			0.058 U	0.057 U
Methylene Chloride	22			0.29 U	0.28 U
Styrene	33			0.058 U	0.057 U
Tetrachloroethene	0.9			0.058 U	0.057 U
Toluene	4650			0.058 U	0.057 U

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP4-S1	96ORTP4-S2	96ORTP5-S2	96ORTP7-S1(d)
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96	4/18/96
Depth in Feet		1 to 2	2 to 4	2 to 4	1 to 3
Total Xylenes	14500			0.058 U	0.06
Trans-1,3-Dichloropropene				0.058 U	0.057 U
Trichloroethene (TCE)				0.058 U	0.057 U
Vinyl Acetate				0.58 U	0.57 U
Vinyl Chloride				0.058 U	0.057 U

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP7-S2(d)	96ORTP8-S1(d)	96ORTP8-S2(d)
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96
Depth in Feet		5 to 6	1 to 3	5 to 6
Total Metals in mg/kg				
Arsenic	0.03	$\boxed{9}$		
Barium	1650	66		
Cadmium	0.7	0.44		
Chromium	2000	10		
Lead	250	51		
Mercury	2	0.12 U		
Selenium	5	0.62 U		
Silver	14	0.29 U		
TCLP Metals in mg/L				
Arsenic	0.0341	0.05 U		
Barium	1650	0.93 U		
Cadmium	0.7	0.005 U		
Chromium		0.01 U		
Lead	250	0.03 U		
Mercury	2	0.0002 U		
Selenium	5	0.05 U		
Silver	14	0.005 U		
Pesticides/PCBs in mg/kg				
4,4'-DDD		0.012 U		
4,4'-DDE		0.012 U		
4,4'-DDT		0.012 U		
Aldrin		0.0058 U		
Aroclor 1016		0.058 U		0.038 U
Aroclor 1221		0.058 U		0.038 U
Aroclor 1232		0.058 U		0.038 U
Aroclor 1242		0.058 U		0.038 U
Aroclor 1248		0.19		0.038 U
Aroclor 1254		0.058 U		0.038 U
Aroclor 1260		0.058 U		0.038 U
Total PCBs	270	0.19		0.038 U
Chlordane		0.012 U		
Delta-BHC		0.0058 U		
Dieldrin		0.012 U		
Endosulfan I		0.0058 U		
Endosulfan II		0.012 U		
Endosulfan Sulfate		0.012 U		
Endrin		0.012 U		
Endrin Aldehyde		0.012 U		
Endrin Ketone		0.012 U		
Heptachlor		0.0058 U		
Heptachlor Epoxide		0.0058 U		
Methoxychlor		0.058 U		
Toxaphene		0.12 U		
Alpha-BHC		0.0058 U		
Beta-BHC		0.0058 U		
Gamma-BHC		0.0058 U		

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP7-S2(d)	96ORTP8-S1(d)	96ORTP8-S2(d)
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96
Depth in Feet		5 to 6	1 to 3	5 to 6
Semivolatiles in mg/kg				
1,2,4-Trichlorobenzene		1.9 U		
1,2-Dichlorobenzene		1.9 U		
1,3-Dichlorobenzene		1.9 U		
1,4-Dichlorobenzene		1.9 U		
2,4,5-Trichlorophenol		9.7 U		
2,4,6-Trichlorophenol		1.9 U		
2,4-Dichlorophenol		1.9 U		
2,4-Dimethylphenol		1.9 U		
2,4-Dinitrophenol		9.7 U		
2,4-Dinitrotoluene		1.9 U		
2,6-Dinitrotoluene		1.9 U		
2-Chloronaphthalene		1.9 U		
2-Chlorophenol		1.9 U		
2-Methylnaphthalene	2190	1.9 U		
2-Methylphenol		1.9 U		
2-Nitroaniline		9.7 U		
2-Nitrophenol		1.9 U		
3,3'-Dichlorobenzidine		3.9 U		
3-Nitroaniline		9.7 U		
4,6-Dinitro-2-methyphenol		9.7 U		
4-Bromophenyl-Phenylether		1.9 U		
4-Chloro-3-methylphenol		1.9 U		
4-Chloroaniline		1.9 U		
4-Chlorophenyl-phenylether		1.9 U		
4-Methylphenol		1.9 U		
4-Nitroaniline		9.7 U		
4-Nitrophenol		9.7 U		
Acenaphthene	98000	1.9 U		
Acenaphthylene		1.9 U		
Aniline		9.7 U		
Anthracene	2200000	1.9 U		
Benzidine		19 U		
Benzo(a)anthracene	See BaP (c)	1.9 U		
Benzo(a)pyrene	233	1.9 U		
Benzo(b)fluoranthene	See BaP (c)	1.9 U		
Benzo(g,h,i)perylene		1.9 U		
Benzo(k)fluoranthene	See BaP (c)	1.9 U		
Benzoic Acid		9.7 U		
Benzyl Alcohol		1.9 U		
Bis(2-Chloroethoxy)Methane		1.9 U		
Bis(2-Chloroethyl)Ether		1.9 U		
Bis(2-Ethylhexyl)Phthalate	13000	1.9 U		
Bis(2-chloroisopropyl) Ether		1.9 U		
Butylbenzylphthalate		1.9 U		
Chrysene	See BaP (c)	1.9 U		
Di-N-Butylphthalate	57000	1.9 U		
Di-n-octyl Phthalate		1.9 U		
Dibenz(a,h)anthracene	See BaP (c)	1.9 U		
Dibenzofuran	5090	1.9 U		

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP7-S2(d)	96ORTP8-S1(d)	96ORTP8-S2(d)
Sampling Date	Level (a)	4/18/96	4/18/96	4/18/96
Depth in Feet		5 to 6	1 to 3	5 to 6
Diethylphthalate		1.9 U		
Dimethyl Phthalate		1.9 U		
Fluoranthene	630000	1.9 U		
Fluorene	100000	1.9 U		
Hexachlorobenzene		1.9 U		
Hexachlorobutadiene		1.9 U		
Hexachlorocyclopentadiene		9.7 U		
Hexachloroethane		1.9 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)	1.9 U		
Isophorone		1.9 U		
N-Nitroso-di-n-propylamine		1.9 U		
N-Nitrosodimethylamine		1.9 U		
N-Nitrosodiphenylamine	536	1.9 U		
Naphthalene	4490	1.9 U		
Nitrobenzene		1.9 U		
Pentachlorophenol		9.7 U		
Phenanthrene		1.9 U		
Phenol	22000	1.9 U		
Pyrene	660000	1.9 U		
TEQ Equivalent (a)	See BaP (c)	1.9 U		
Volatiles in mg/kg				
1,1,1-Trichloroethane	1610	0.058 UJ	0.057 U	0.057 U
1,1,2,2-Tetrachloroethane		0.058 UJ	0.057 U	0.057 U
1,1,2-Trichloroethane		0.058 UJ	0.057 U	0.057 U
1,1-Dichloroethane	8730	0.058 UJ	0.057 U	0.057 U
1,1-Dichloroethene		0.058 UJ	0.057 U	0.057 U
1,2-Dichloroethane		0.058 UJ	0.057 U	0.057 U
1,2-Dichloroethene (Total)		0.058 UJ	0.057 U	0.057 U
1,2-Dichloropropane		0.058 UJ	0.057 U	0.057 U
2-Butanone (MEK)	20000	0.58 UJ	0.57 U	0.57 U
2-Hexanone		0.58 UJ	0.57 U	0.57 U
4-Methyl-2-Pentanone		0.58 UJ	0.57 U	0.57 U
Acetone	3210	0.58 UJ	0.57 U	0.57 U
Benzene	5	0.058 UJ	0.057 U	0.057 U
Bromodichloromethane		0.058 UJ	0.057 U	0.057 U
Bromoform		0.29 UJ	0.28 U	0.29 U
Bromomethane	52	0.58 UJ	0.57 U	0.57 U
Carbon Disulfide	5600	0.058 UJ	0.057 U	0.057 U
Carbon Tetrachloride		0.058 UJ	0.057 U	0.057 U
Chlorobenzene		0.058 UJ	0.057 U	0.057 U
Chloroethane		0.058 UJ	0.057 U	0.057 U
Chloroform	38	0.058 UJ	0.057 U	0.057 U
Chloromethane	22	0.58 UJ	0.57 U	0.57 U
Cis-1,3-Dichloropropene		0.058 UJ	0.057 U	0.057 U
Dibromochloromethane		0.058 UJ	0.057 U	0.057 U
Ethylbenzene	5990	0.058 UJ	0.057 U	0.057 U
Methylene Chloride	22	0.29 UJ	0.28 U	0.29 U
Styrene	33	0.058 UJ	0.057 U	0.057 U
Tetrachloroethene	0.9	0.058 UJ	0.057 U	0.057 U
Toluene	4650	0.06 J	0.057 U	0.057 U

Table 2-22 - Analytical Results for the Soil Verification Samples from ORB Excavation

Sample ID	Screening	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9
Depth in Feet	Level (a)	19	19	18	15	15	10	9	7	3
Sampling Date		1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005	1/12/2005
NWTPH-Gx in mg/kg										
Mineral spirits/Stoddard	100			5.0 U					5.0 U	
Gasoline	100			140					340	
BTEX in ug/kg										
Benzene	5	20 U						20 U	20 U	
Toluene	4650	50 U						3,800	1,200	
Ethylbenzene	5990	50 U						6,800	1,200	
Xylenes	14500	50 U						35,000	6,000	
NWTPH-HCID in mg/kg										
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 D	20 D	20 D	20 U	20 U	20 D	20 D
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	6,800	4,000	5,000	50 U	3,500	43,000	3,200
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	3,600	100 U	15,000	9,900	12,000	100 U	7,000	170,000	16,000
PCBs in mg/kg										
Aroclor 1221		0.20 U						0.20 U	0.20 U	
Aroclor 1232		0.20 U						0.20 U	0.20 U	
Aroclor 1242		0.20 U						0.20 U	0.20 U	
Aroclor 1248		0.20 U						0.20 U	0.20 U	
Aroclor 1254		0.20 U						0.20 U	0.20 U	
Aroclor 1260		0.20 U						0.20 U	0.20 U	
Total PCBs	270	0.20 U						0.20 U	0.20 U	

Table 2-22 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	S-1	S-7	S-8
Depth in Feet	Level (a)	19	9	7
Sampling Date		1/12/2005	1/12/2005	1/12/2005
Metals in mg/kg				
Arsenic	0.03			2.0 U
Barium	1650			10 U
Cadmium	0.7			$\boxed{1.8}$
Chromium	2000			2.0 U
Lead	250			52
Mercury	2			0.5 U
Selenium	5			10 U
Silver	14			1.0 U
PAHs in ug/kg				
Acenaphthene	98000	100 U	270	590
Acenaphthylene		100 U	100 U	100 U
Anthracene	2200000	100 U	390	100 U
Benzo(a)anthracene	See BaP (c)	100 U	100 U	940
Benzo(a)pyrene	233	100 U	100 U	350
Benzo(b)fluoranthene	See BaP (c)	100 U	100 U	100 U
Benzo(ghi)perylene		100 U	200	470
Benzo(k)fluoranthene	See BaP (c)	100 U	100 U	470
Chrysene	See BaP (c)	100 U	140	350
Dibenzo(a,h)anthracene	See BaP (c)	100 U	150	100 U
Fluoranthene	630000	100 U	120	350
Fluorene	100000	100 U	360	1900
Indeno(1,2,3-cd)pyrene	See BaP (c)	100 U	100 U	100 U
Naphthalene	4490	100 U	180	1600
Phenanthrene		100 U	100 U	2400
Pyrene	660000	120	100 U	820
TEQ Equivalent (b)	See BaP (c)	100 U	16.4	494.5

U = Not detected at the reporting limit indicated.
D = Detected at or above the reporting limit.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-23 - Analytical Results for the Soil Samples from ORB Area Boring/Monitoring Wells

Sample ID	Screening	OR-SB-31/S-1	OR-SB-31/S-2	OR-SB-31/S-3	OR-SB-31/S-4	OR-SB-31/S-5	OR-SB-31/S-6	OR-SB-31/S-7
Depth in Feet	Level (a)	10 to 11.5	15 to 15.6	20 to 20.7	35 to 35.4	55 to 56.3	70 to 70.4	80 to 81.5
Sampling Date		1/3/2005	1/3/2005	1/3/2005	1/3/2005	1/3/2005	1/3/2005	1/3/2005
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Sat	Sat
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 D	20 D	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	350
Diesel/Fuel oil	2000	430	170	170	120	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	1200	560	570	350	230	260	$\boxed{5300}$
PCBs in ug/kg								
Aroclor 1221		200 U	200 U	200 U			200 U	
Aroclor 1232		200 U	200 U	200 U			200 U	
Aroclor 1242		200 U	200 U	200 U			200 U	
Aroclor 1248		200 U	200 U	200 U			200 U	
Aroclor 1254		200 U	200 U	200 U			200 U	
Aroclor 1260		200 U	200 U	200 U			200 U	
Total PCBs	270/14	200 U	200 U	200 U			200 U	

Table 2-23 - Analytical Results for the Soil Samples from ORB Area Boring/Monitoring Wells

Sample ID	Screening	HL-MW-19S/S-1	HL-MW-19S/S-2	HL-MW-20S/S-1	HL-MW-20S/S-2	HL-MW-20S/S-3
Depth in Feet	Level (a)	75 to 76.5	85 to 85.4	75 to 75.8	85 to 86.3	10 to 11
Sampling Date		1/3/2005	1/3/2005	1/5/2005	1/5/2005	1/5/2005
Unsat/Sat		Sat	Sat	Sat	Sat	Unsat
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 D
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	350	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	1000
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	270	180	190	3800	2600
PCBs in ug/kg						
Aroclor 1221		200 U			200 U	200 U
Aroclor 1232		200 U			200 U	200 U
Aroclor 1242		200 U			200 U	200 U
Aroclor 1248		200 U			200 U	200 U
Aroclor 1254		200 U			200 U	200 U
Aroclor 1260		200 U			200 U	200 U
Total PCBs	270/14	200 U			200 U	200 U

Table 2-21 - Analytical Results for the Soil Samples from the Oil Reclamation Building

Sample ID	Screening	96ORTP7-S2(d)		96ORTP8-S1(d)		96ORTP8-S2(d)	
Sampling Date	Level (a)	4/18/96		4/18/96		4/18/96	
Depth in Feet		5 to 6		1 to 3		5 to 6	
Total Xylenes	14500	0.11	J	0.057	U	0.057	U
Trans-1,3-Dichloropropene		0.058	UJ	0.057	U	0.057	U
Trichloroethene (TCE)		0.058	UJ	0.057	U	0.057	U
Vinyl Acetate		0.58	UJ	0.57	U	0.57	U
Vinyl Chloride		0.058	UJ	0.057	U	0.057	U

U = Not detected at reporting limit indicated.
J = Estimated value.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).
(d) Soil representative of these analytical results were removed during the SPCC upgrade.

Table 2-23 - Analytical Results for the Soil Samples from ORB Area Boring/Monitoring Wells

Sample ID	Screening	OR-SB-31/S-1		OR-SB-31/S-7	
Depth in Feet	Level (a)	10 to 11.5		80 to 81.5	
Sampling Date		1/3/2005		1/3/2005	
Unsat/Sat		Unsat		Sat	
Metals in mg/kg					
Arsenic	0.0341/0.0017	2	U	2	U
Barium	1650/82.6	10	U	10	U
Cadmium	0.7/0.0349	1	U	1	U
Chromium	2000/100	3.9		2	U
Lead	250/250	1	U	3.7	
Mercury	2/0.105	0.5	U	0.5	U
Selenium	5/0.264	10	U	10	U
Silver	14/0.687	2		1.2	
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		50	U	50	U
1,1,1-Trichloroethane	1610/85	50	U	50	U
1,1,2,2-Tetrachloroethane		50	U	50	U
1,1,2-Trichloroethane		50	U	50	U
1,1-Dichloroethane	8730/543	50	U	50	U
1,1-Dichloroethene		50	U	50	U
1,1-Dichloropropylene		50	U	50	U
1,2,3-Trichlorobenzene		50	U	50	U
1,2,3-Trichloropropane		50	U	50	U
1,2,4-Trichlorobenzene		50	U	50	U
1,2,4-Trimethylbenzene	31000/1590	2600		490	
1,2-Dibromo-3-Chloropropane		50	U	50	U
1,2-Dibromoethane(EDB)		5	U	5	U
1,2-Dichlorobenzene		50	U	50	U
1,2-Dichloroethane		20	U	20	U
1,2-Dichloropropane		50	U	50	U
1,3,5-Trimethylbenzene	8380/443	50	U	50	U
1,3-Dichlorobenzene		50	U	50	U
1,3-Dichloropropane		50	U	50	U
1,4-Dichlorobenzene		50	U	50	U
2,2-Dichloropropane		50	U	50	U
2-Chlorotoluene	2400/143	240		50	U
4-Chlorotoluene	4180/250	110		50	U
Benzene	5/0.3	50	U	50	U
Bromobenzene		50	U	50	U
Bromodichloromethane		50	U	50	U
Bromoform		50	U	50	U
Bromomethane	52/3	50	U	50	U
Carbon Tetrachloride		50	U	50	U
Chlorobenzene		50	U	50	U
Chloroethane		50	U	50	U
Chloroform	38/2	50	U	50	U
Chloromethane	22/1	50	U	50	U
Cis-1,2-Dichloroethene		50	U	50	U
Cis-1,3-Dichloropropene		50	U	50	U
Dibromochloromethane		20	U	20	U
Dibromomethane		50	U	50	U

Table 2-23 - Analytical Results for the Soil Samples from ORB Area Boring/Monitoring Wells

Sample ID	Screening	OR-SB-31/S-1	OR-SB-31/S-7
Depth in Feet	Level (a)	10 to 11.5	80 to 81.5
Sampling Date		1/3/2005	1/3/2005
Unsat/Sat		Unsat	Sat
Dichlorodifluoromethane	47000/551	50 U	50 U
Ethylbenzene	5990/341	110	50 U
Hexachloro-1,3-butadiene		50 U	50 U
Isopropylbenzene	7370/405	130	50 U
Isopropyltoluene		50 U	50 U
Methylene Chloride	22/2	20 U	20 U
Naphthalene	4490/238	50 U	50 U
N-Butylbenzene	19500/988	460	120
N-Propylbenzene	19500/988	430	98
Sec-Butylbenzene	15800/796	310	76
Styrene	33/2	50 U	50 U
Tert-Butylbenzene	15600/796	50	50 U
Tetrachloroethene	0.9/0.05	50 U	50 U
Toluene	4650/273	150	50
Total Xylenes	14500/827	660	120
Trans-1,2-Dichloroethene		50 U	50 U
Trans-1,3-Dichloropropene		50 U	50 U
Trichloroethene (TCE)		20 U	20 U
Trichlorofluoromethane		50 U	50 U
Vinyl Chloride		50 U	50 U
Semivolatiles in ug/kg			
1,2,4,5-Tetrachlorobenzene		500 U	500 U
1,2,4-Trichlorobenzene		100 U	100 U
1,2-Dichlorobenzene		100 U	100 U
1,3-Dichlorobenzene		100 U	100 U
1,4-Dichlorobenzene		100 U	100 U
2,3,4,6-Tetrachlorophenol		500 U	500 U
2,4,5-Trichlorophenol		500 U	500 U
2,4,6-Tribromophenol		500 U	500 U
2,4,6-Trichlorophenol		500 U	500 U
2,4-Dichlorophenol		500 U	500 U
2,4-Dimethylphenol		500 U	500 U
2,4-Dinitrophenol		500 U	500 U
2,6-Dichlorophenol		500 U	500 U
2-Chloronaphthalene		100 U	100 U
2-Chlorophenol		500 U	500 U
2-Methylphenol		100 U	100 U

Table 2-23 - Analytical Results for the Soil Samples from ORB Area Boring/Monitoring Wells

Sample ID	Screening	OR-SB-31/S-1	OR-SB-31/S-7
Depth in Feet	Level (a)	10 to 11.5	80 to 81.5
Sampling Date		1/3/2005	1/3/2005
Unsat/Sat		Unsat	Sat
2-Nitrophenol		500 U	500 U
2-sec-Butyl-4,6-dinitrophenol		500 U	500 U
3,4-Methylphenol (m,p-cresol)		100 U	100 U
4-Bromophenyl-phenylether		100 U	100 U
4-Chloro-3-methylphenol		500 U	500 U
4-Chlorophenyl-phenylether		500 U	500 U
4-Nitrophenol		500 U	500 U
Acenaphthene	98000/4980	100 U	100 U
Acenaphthylene		100 U	100 U
Anthracene	2.2E+06/112000	100 U	100 U
Benzo(a)anthracene	See BaP (c)	140	250
Benzo(a)pyrene	233/12	100 U	100 U
Benzo(b)fluoranthene	See BaP (c)	100 U	100 U
Benzo(ghi)perylene		100 U	100 U
Benzo(k)fluoranthene	See BaP (c)	100 U	100 U
Bis(2-Chloroethoxy)Methane		100 U	100 U
Bis(2-Chloroethyl)Ether		500 U	500 U
Bis(2-chloroisopropyl)Ether		100 U	100 U
Bis(2-ethylhexyl)ether		100 U	100 U
Butylbenzylphthalate		500 U	500 U
Chrysene	See BaP (c)	120	220
Dibenz(a,h)anthracene	See BaP (c)	100 U	100 U
Diethylphthalate		100 U	100 U
Dimethyl Phthalate		100 U	100 U
Di-n-butylphthalate	57000/3020	100 U	100 U
Di-n-octylphthalate	5.3E+08/27000000	500 U	500 U
Fluoranthene	630000/31500	100 U	160
Fluorene	100000/5110	100 U	100 U
Hexachlorobenzene		100 U	100 U
Hexachlorobutadiene		500 U	500 U
Hexachlorocyclopentadiene		100 U	100 U
Hexachloroethane		100 U	100 U
Hexachloropropylene		500 U	500 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	100 U	100 U
Naphthalene	4490/238	100 U	100 U
N-Nitrosodiphenylamine	536/28	$\boxed{600}$	100 U
Pentachlorobenzene		500 U	500 U
Pentachlorophenol		500 U	500 U
Phenanthrene		140	130
Phenol	22000/1520	500 U	500 U
Pyrene	660000/32800	100 U	200
TEQ Equivalent (b)	See BaP (c)	15.2	$\boxed{27.2}$

Table 2-23 - Analytical Results for the Soil Samples from ORB Area Boring/Monitoring Wells

Sample ID	Screening	OR-SB-31/S-1	OR-SB-31/S-7
Depth in Feet	Level (a)	10 to 11.5	80 to 81.5
Sampling Date		1/3/2005	1/3/2005
Unsat/Sat		Unsat	Sat

U = Not detected at the reporting limit indicated.
D = Detected at or above the reporting limit indicated.
J = Estimated value.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-2 3/10/91	HL-MW-2 6/26/91	HL-MW-2 9/21/91	HL-MW-2 5/13/92	HL-MW-2 10/26/93
Conventionals in mg/L						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Sulfide						
Total Suspended Solids				47	16	24
Dissolved Metals in ug/L						
Antimony	6	7	18			
Arsenic	0.018	5 U	5 U			
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300		96			
Lead	0.54					
Manganese	50		84			
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016				0.02 U	0.02 U	0.022 UJ
Aroclor 1221				0.05 U	0.05 U	0.055 UJ
Aroclor 1232				0.05 U	0.05 U	0.055 UJ
Aroclor 1242				0.02 U	0.02 U	0.022 UJ
Aroclor 1248				0.02 U	0.02 U	0.022 UJ
Aroclor 1254				0.02 U	0.02 U	0.022 UJ
Aroclor 1260				0.02 U	0.02 U	0.022 UJ
Total PCBs	0.000064			0.05 U	0.05 U	0.055 UJ
TPH (EPA418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5	1.5				
NWTPH-HCID in mg/L						
Gasoline	0.8		1 U	0.1 U	1 U	0.2 U
Stoddard/Mineral spirits	0.8		1 U	0.1 U	1 U	0.2 U
Kensol	0.5		1 U	0.1 U	1 U	2.5
Kerosene/Jet fuel	0.5				0.2 J	0.65
Diesel/Fuel oil	0.5				0.8 J	0.8 U
Bunker C	0.5				1 U	2 U
Heavy oil	0.5				1	4.7
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5		1 U	0.1 U		
Heavy oil	0.5		1 U	0.2		
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-2 4/27/94	HL-MW-2 4/29/94	HL-MW-2 12/18/97	HL-MW-2 2/20/98	HL-MW-2 5/07/98
Conventionals in mg/L						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Sulfide						
Total Suspended Solids		10 U				
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016		0.021 UJ				
Aroclor 1221		0.052 UJ				
Aroclor 1232		0.052 UJ				
Aroclor 1242		0.021 UJ				
Aroclor 1248		0.021 UJ				
Aroclor 1254		0.021 UJ				
Aroclor 1260		0.021 UJ				
Total PCBs	0.000064	0.052 UJ				
TPH (EPA418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5					
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.4 U	0.4 U
Kensol	0.5	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Kerosene/Jet fuel	0.5	0.4 U	0.4 U	0.4 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.8 U	0.8 U	13	0.8 U	0.8 U
Bunker C	0.5	2 U	2 U	2 U	2 U	2 U
Heavy oil	0.5	2 U	2 U	34	4.7	2 U
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-2 9/21/98	HL-MW-2 12/17/98	HL-MW-2 9/21/99	HL-MW-2 3/30/2000	HL-MW-2 10/02/2000
Conventionals in mg/L						
Nitrate as Nitrogen	10					
Nitrite as Nitrogen						
Total Sulfide						
Total Suspended Solids						
Dissolved Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Barium						
Cadmium	0.25					
Chromium	50					
Iron	300					
Lead	0.54					
Manganese	50					
Mercury	0.012					
Selenium	5					
Silver	80					
PCBs in ug/L						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs	0.000064					
TPH (EPA418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5					
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U
Stoddard/Mineral spirits	0.8	0.4 U	0.4 U	0.25 U	0.25 U	0.25 U
Kensol	0.5	0.4 U	0.4 U	0.25 U	0.25 U	0.25 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.25 U	0.25 U	0.25 U
Diesel/Fuel oil	0.5	61	41	0.8	0.63 U	1
Bunker C	0.5	2 U	2 U	0.63 U	0.63 U	0.63 U
Heavy oil	0.5	92	62	8	0.63 U	11
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					
Heavy oil	0.5					
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8					
Gasoline	0.8					

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-2 4/21/2006	HL-MW-2 10/27/2006	HL-MW-19S 3/24/2005	HL-MW-19S 7/29/2005	HL-MW-19S 10/27/2005
Conventionals in mg/L						
Nitrate as Nitrogen	10					1.5
Nitrite as Nitrogen						0.1 U
Total Sulfide						2 U
Total Suspended Solids		1 U	95	2490	8	
Dissolved Metals in ug/L						
Antimony	6				0.072 J	0.17
Arsenic	0.018				$\boxed{3.6}$	$\boxed{3.1}$
Barium					34.8	37.2
Cadmium	0.25				0.02 U	0.098 UJ
Chromium	50				0.89	0.56
Iron	300				20 UJ	20 U
Lead	0.54				0.047 U	0.02 J
Manganese	50				0.4 U	0.09
Mercury	0.012				0.2 U	0.2 U
Selenium	5				1 U	0.3 J
Silver	80				0.02 U	0.02 U
PCBs in ug/L						
Aroclor 1016		0.0049 U	0.012 U		0.0049 U	
Aroclor 1221		0.0097 U	0.0096 U		0.0097 U	
Aroclor 1232		0.0049 U	0.035 U		0.0049 U	
Aroclor 1242		0.0049 U	0.025 U		0.0049 U	
Aroclor 1248		0.0049 U	0.031 U		0.0049 U	
Aroclor 1254		0.0049 U	0.065		0.0049 U	
Aroclor 1260		0.0049 U	0.095 JP		0.0049 U	
Total PCBs	0.000064	0.0097 U	$\boxed{0.16}$ JP		0.0097 U	
TPH (EPA418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5					
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U	0.2 U		0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U		0.2 U	0.2 U
Heavy oil	0.5	0.5 U	0.5 U		0.5 U	0.5 U
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U		0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U		0.1 U	0.1 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID	Screening	HL-MW-19S	HL-MW-19S	HL-MW-190S	HL-MW-19S	HL-MW-19S
Sampling Date	Level (a)	1/25/2006	4/18/2006	4/18/2006 Dup of HL-MW-19S	7/19/2006	10/23/2006
Conventionals in mg/L						
Nitrate as Nitrogen	10		2.8			1.5
Nitrite as Nitrogen			0.2 U			0.1 U
Total Sulfide			0.05 U			0.05 U
Total Suspended Solids						
Dissolved Metals in ug/L						
Antimony	6	0.16	0.16		0.16	0.16
Arsenic	0.018	2.66	2.98		3.3	3.41
Barium		57.4	42.9		41.1	48
Cadmium	0.25	0.06	0.067 U		0.02 U	0.02 U
Chromium	50	1.64	1.17		0.77	0.88
Iron	300	20 U	20 U		20 U	8.8 J
Lead	0.54	0.01 J	0.01 J		0.085	0.119
Manganese	50	0.12	0.06		0.11	0.24
Mercury	0.012	0.2 U	0.2 U		0.2 U	0.2 U
Selenium	5	1.2	0.6 J		1 U	0.3 J
Silver	80	0.02 U	0.02 UJ		0.005 J	0.02 U
PCBs in ug/L						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs	0.000064					
TPH (EPA418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5					
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
						0.02 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-20S 3/24/2005	HL-MW-30 3/24/2005 Dup of HL-MW-20S	HL-MW-20S 7/27/2005	HL-MW-20S 10/27/2005
Conventionals in mg/L					
Nitrate as Nitrogen	10				0.1
Nitrite as Nitrogen					0.1 U
Total Sulfide					2 U
Total Suspended Solids		121			
Dissolved Metals in ug/L					
Antimony	6			0.55	0.27
Arsenic	0.018			$\boxed{2.3}$	$\boxed{1.8}$
Barium				47.2	50.4
Cadmium	0.25			0.02 U	0.122
Chromium	50			0.8	0.26
Iron	300			60.5	189
Lead	0.54			0.06	0.05
Manganese	50			$\boxed{306}$	$\boxed{316}$
Mercury	0.012			0.23 U	0.2 U
Selenium	5			1 U	0.2 J
Silver	80			0.02 U	0.02 U
PCBs in ug/L					
Aroclor 1016					
Aroclor 1221					
Aroclor 1232					
Aroclor 1242					
Aroclor 1248					
Aroclor 1254					
Aroclor 1260					
Total PCBs	0.000064				
TPH (EPA418.1) in mg/L					
Total Petroleum Hydrocarbons	0.5				
NWTPH-HCID in mg/L					
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	$\boxed{0.8}$	$\boxed{1}$	$\boxed{7.5}$	$\boxed{8.7}$
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	$\boxed{57}$	$\boxed{69}$	$\boxed{440}$	$\boxed{160}$
NWTPH-Dx in mg/L					
Kerosene/Jet fuel	0.5			$\boxed{8.7}$	$\boxed{8.1}$
Diesel/Fuel oil	0.5			0.2 U	0.2 U
Heavy oil	0.5			$\boxed{520}$	$\boxed{150}$
NWTPH-Gx in mg/L					
Mineral spirits/Stoddard	0.8			0.1 U	0.1 U
Gasoline	0.8			0.1 U	0.1 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-20S 4/18/2006	HL-MW-20S 7/20/2006	HL-MW-20S 10/23/2006
Conventionals in mg/L				
Nitrate as Nitrogen	10	0.9		0.046 J
Nitrite as Nitrogen		0.2 U		0.1 U
Total Sulfide		0.05 U		0.041 J
Total Suspended Solids				
Dissolved Metals in ug/L				
Antimony	6	0.4	0.27	0.24
Arsenic	0.018	1.72	5.2	1.83
Barium		49.4	55.9	59.2
Cadmium	0.25	0.071 U	0.02 U	0.02 U
Chromium	50	0.33 J	0.32 U	0.65
Iron	300	5.5 J	124	210
Lead	0.54	0.04	0.066	0.075
Manganese	50	99.5	184	284
Mercury	0.012	0.2 U	0.2 U	0.2 U
Selenium	5	0.5 J	1 U	1 U
Silver	80	0.02 UJ	0.02 UJ	0.02 U
PCBs in ug/L				
Aroclor 1016				
Aroclor 1221				
Aroclor 1232				
Aroclor 1242				
Aroclor 1248				
Aroclor 1254				
Aroclor 1260				
Total PCBs	0.000064			
TPH (EPA418.1) in mg/L				
Total Petroleum Hydrocarbons	0.5			
NWTPH-HCID in mg/L				
Gasoline	0.8	0.2 U	0.2 U	0.2 UJ
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 UJ
Kensol	0.5	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	83	0.5 D
Bunker C	0.5	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	250	0.5 D
NWTPH-Dx in mg/L				
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	80	14
Heavy oil	0.5	0.5 U	260	26
NWTPH-Gx in mg/L				
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U
				1 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-2 3/10/91	HL-MW-2 6/26/91	HL-MW-2 5/13/92	HL-MW-2 4/21/2006	HL-MW-2 10/27/2006
Semivolatiles in ug/L						
1,2,4-Trichlorobenzene	35					
1,2-Dichlorobenzene	420					
1,3-Dichlorobenzene	320					
1,4-Dichlorobenzene	1.8					
2,4,5-Trichlorophenol	800					
2,4,6-Trichlorophenol	1.4					
2,4-Dichlorophenol	24					
2,4-Dimethylphenol	160					
2,4-Dinitrophenol	32					
2,4-Dinitrotoluene	0.11					
2,6-Dinitrotoluene	16					
2-Chloronaphthalene						
2-Chlorophenol	40					
2-Methylnaphthalene					0.017 J	0.016 J
2-Methylphenol						
2-Nitroaniline						
2-Nitrophenol						
3,3'-Dichlorobenzidine	0.021					
3-Nitroaniline						
4,6-Dinitro-2-methyphenol						
4-Bromophenyl-Phenylether						
4-Chloro-3-methylphenol						
4-Chloroaniline						
4-Chlorophenyl-phenylether						
4-Methylphenol						
4-Nitroaniline						
4-Nitrophenol						
Acenaphthene	640				0.0031 J	0.0062 J
Acenaphthylene					0.02 U	0.028
Anthracene	4800				0.0028 J	0.046 U
Benzo(a)anthracene	See BaP (c)				0.02 U	0.02 U
Benzo(a)pyrene	0.0028				0.02 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)				0.02 U	0.02 U
Benzo(g,h,i)perylene					0.02 U	0.007 J
Benzo(k)fluoranthene	See BaP (c)				0.02 U	0.02 U
Benzoic Acid	64000					
Benzyl Alcohol	2400					
Bis(2-Chloroethoxy)Methane						
Bis(2-Chloroethyl)Ether	0.03					
Bis(2-Ethylhexyl)Phthalate	1.2					
Bis(2-chloroisopropyl) Ether	320					
Butylbenzylphthalate	1300					
Chrysene	See BaP (c)				0.02 U	0.11
Di-N-Butylphthalate						
Di-n-octyl Phthalate	320					
Dibenz(a,h)anthracene	See BaP (c)				0.02 U	0.02 U
Dibenzofuran	32				0.02 U	0.012 J
Diethylphthalate						
Dimethyl Phthalate	16000					
Fluoranthene	90				0.02 U	0.064
Fluorene	640				0.016 J	0.054
Hexachlorobenzene	0.00028					

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-2 3/10/91	HL-MW-2 6/26/91	HL-MW-2 5/13/92	HL-MW-2 4/21/2006	HL-MW-2 10/27/2006
Hexachlorobutadiene	0.44					
Hexachlorocyclopentadiene	40					
Hexachloroethane	1.4					
Indeno(1,2,3-cd)pyrene	See BaP (c)				0.02 U	0.012 J
Isophorone	8.4					
N-Nitroso-di-n-propylamine	0.005					
N-Nitrosodiphenylamine	3.3					
Naphthalene	160				0.02 U	0.076
Nitrobenzene	4					
Pentachlorophenol	0.27					
Phenanthrene					0.02 U	0.052 U
Phenol	4800					
Pyrene	480				0.02 U	0.064
TEQ Equivalent (b)	See BaP (c)				0.02 U	0.0023
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7				0.5 U	0.5 U
1,1,1-Trichloroethane	200				0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17				0.5 U	0.5 U
1,1,2-Trichloroethane	0.59				0.5 U	0.5 U
1,1-Dichloroethane	1600				0.5 U	0.5 U
1,1-Dichloroethene					0.5 U	0.5 U
1,1-Dichloropropene					0.5 U	0.5 U
1,2,3-Trichlorobenzene					2 U	2 U
1,2,3-Trichloropropane	0.0063				0.5 U	0.5 U
1,2,4-Trichlorobenzene	35				2 U	2 U
1,2,4-Trimethylbenzene	400				2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031				2 U	2 U
1,2-Dibromoethane(EDB)					2 U	2 U
1,2-Dichlorobenzene	420				0.5 U	0.5 U
1,2-Dichloroethane					0.5 U	0.5 U
1,2-Dichloropropane	0.5				0.5 U	0.5 U
1,3,5-Trimethylbenzene	400				2 U	2 U
1,3-Dichlorobenzene	320				0.5 U	0.5 U
1,3-Dichloropropane					0.5 U	0.5 U
1,4-Dichlorobenzene	1.8				0.5 U	0.5 U
2,2-Dichloropropane					0.5 U	0.5 U
2-Butanone (MEK)					20 U	20 U
2-Chlorotoluene					2 U	2 U
2-Hexanone					20 U	20 U
4-Chlorotoluene					2 U	2 U
4-Isopropyltoluene					2 U	2 U
4-Methyl-2-Pentanone					20 U	20 U
Acetone	800				20 U	20 U
Benzene	0.8	0.5 U	1 U	0.001 U	0.5 U	0.5 U
Bromobenzene					2 U	2 U
Bromochloromethane					0.5 U	0.5 U
Bromodichloromethane	0.27				0.5 U	0.5 U
Bromoform	4.3				0.5 U	0.5 U
Bromomethane	11				0.5 U	0.5 U
Carbon Disulfide	800				0.5 U	0.5 U
Carbon Tetrachloride	0.23				0.5 U	0.5 U
Chlorobenzene	100				0.5 U	0.5 U
Chloroethane					0.5 U	0.5 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-2 3/10/91	HL-MW-2 6/26/91	HL-MW-2 5/13/92	HL-MW-2 4/21/2006	HL-MW-2 10/27/2006
Chloroform	5.7				0.5 U	0.5 U
Chloromethane	3.4				0.5 U	0.5 U
Cis-1,2-Dichloroethene					0.5 U	0.5 U
Cis-1,3-Dichloropropene					0.5 U	0.5 U
Dibromochloromethane	0.4				0.5 U	0.5 U
Dibromomethane					0.5 U	0.5 U
Dichlorodifluoromethane					0.5 U	0.5 U
Ethylbenzene	530	0.5 U	1 U	0.001 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44				2 U	2 U
Isopropylbenzene					2 U	2 U
Methylene Chloride	4.6				2 U	2 U
N-Butylbenzene					2 U	2 U
N-Propylbenzene					2 U	2 U
Naphthalene	160				2 U	2 U
Sec-Butylbenzene					2 U	2 U
Styrene	1.5				0.5 U	0.5 U
Tert-Butylbenzene					2 U	2 U
Tetrachloroethene	0.081				0.5 U	0.5 U
Toluene	640	0.5 U	1 U	0.001 U	0.5 U	0.5 U
Total Xylenes	1000	0.5 U	1 U	0.001 U		
Trans-1,2-Dichloroethene					0.5 U	0.5 U
Trans-1,3-Dichloropropene					0.5 U	0.5 U
Trichloroethene (TCE)	0.49				0.5 U	0.5 U
Trichlorofluoromethane					0.5 U	0.5 U
Vinyl Chloride	0.025				0.5 U	0.5 U
m,p-Xylenes	16000				0.5 U	0.5 U
o-Xylene	16000				0.5 U	0.5 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-19S 7/29/2005	HL-MW-19S 10/27/2005	HL-MW-19S 1/25/2006	HL-MW-19S 4/18/2006	HL-MW-190S 4/18/2006 Dup of HL-MW-19S
Semivolatiles in ug/L						
1,2,4-Trichlorobenzene	35	0.21 U		0.2 U		
1,2-Dichlorobenzene	420	0.21 U		0.2 U		
1,3-Dichlorobenzene	320	0.21 U		0.2 U		
1,4-Dichlorobenzene	1.8	0.21 U		0.2 U		
2,4,5-Trichlorophenol	800	0.52 U		0.48 U		
2,4,6-Trichlorophenol	1.4	0.52 U		0.48 U		
2,4-Dichlorophenol	24	0.52 U		0.48 U		
2,4-Dimethylphenol	160	2.1 U		2 U		
2,4-Dinitrophenol	32	4.1 U		3.9 U		
2,4-Dinitrotoluene	0.11	0.21 U		0.2 U		
2,6-Dinitrotoluene	16	0.21 U		0.2 U		
2-Chloronaphthalene		0.21 U		0.2 U		
2-Chlorophenol	40	0.52 U		0.48 U		
2-Methylnaphthalene		0.21 U	0.0048 J	0.2 U	0.0031 J	0.0031 J
2-Methylphenol		0.52 U		0.48 U		
2-Nitroaniline		0.21 U		0.2 U		
2-Nitrophenol		0.52 U		0.48 U		
3,3'-Dichlorobenzidine	0.021	2.1 U		2 U		
3-Nitroaniline		1.1 U		0.96 U		
4,6-Dinitro-2-methyphenol		2.1 U		2 U		
4-Bromophenyl-Phenylether		0.21 U		0.2 U		
4-Chloro-3-methylphenol		0.52 U		0.48 U		
4-Chloroaniline		0.21 U		0.2 U		
4-Chlorophenyl-phenylether		0.21 U		0.2 U		
4-Methylphenol		0.52 U		0.48 U		
4-Nitroaniline		1.1 U		0.96 U		
4-Nitrophenol		2.1 U		2 U		
Acenaphthene	640	0.21 UJ	0.02 U	0.2 U	0.02 U	0.02 U
Acenaphthylene		0.21 U	0.02 U	0.2 U	0.0026 J	0.0039 J
Anthracene	4800	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Benzo(a)anthracene	See BaP (c)	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Benzo(a)pyrene	0.0028	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Benzo(g,h,i)perylene		0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Benzoic Acid	64000	5.2 U		4.8 U		
Benzyl Alcohol	2400	5.2 U		4.8 U		
Bis(2-Chloroethoxy)Methane		0.21 U		0.2 U		
Bis(2-Chloroethyl)Ether	0.03	0.21 U		0.2 U		
Bis(2-Ethylhexyl)Phthalate	1.2	2.1 U		0.52 J		
Bis(2-chloroisopropyl) Ether	320	0.21 U		0.2 U		
Butylbenzylphthalate	1300	0.21 U		0.2 U		
Chrysene	See BaP (c)	0.21 U	0.02 U	0.2 U	0.0015 J	0.002 J
Di-N-Butylphthalate		0.21 U		0.2 U		
Di-n-octyl Phthalate	320	0.21 U		0.2 U		
Dibenz(a,h)anthracene	See BaP (c)	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Dibenzofuran	32	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Diethylphthalate		0.21 U		0.2 U		
Dimethyl Phthalate	16000	0.21 U		0.2 U		
Fluoranthene	90	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Fluorene	640	0.21 U	0.02 U	0.2 U	0.0045 J	0.0041 J
Hexachlorobenzene	0.00028	0.21 U		0.2 U		

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-19S 7/29/2005	HL-MW-19S 10/27/2005	HL-MW-19S 1/25/2006	HL-MW-19S 4/18/2006	HL-MW-190S 4/18/2006 Dup of HL-MW-19S
Hexachlorobutadiene	0.44	0.21 U		0.2 U		
Hexachlorocyclopentadiene	40	1.1 U		0.96 U		
Hexachloroethane	1.4	0.21 U		0.2 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
Isophorone	8.4	0.21 U		0.2 U		
N-Nitroso-di-n-propylamine	0.005	0.21 U		0.2 U		
N-Nitrosodiphenylamine	3.3	0.21 U		0.2 U		
Naphthalene	160	0.21 U	0.027 U	0.2 U	0.082	0.062
Nitrobenzene	4	0.21 U		0.2 U		
Pentachlorophenol	0.27	1.1 U		0.96 U		
Phenanthrene		0.21 U	0.0056 J	0.029 J	0.02 U	0.02 U
Phenol	4800	0.52 U		0.48 U		
Pyrene	480	0.21 U	0.02 U	0.2 U	0.02 U	0.02 U
TEQ Equivalent (b)	See BaP (c)	0.21 U	0.02 U	0.2 U	0.000015	0.00002 J
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 U	
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	
2-Butanone (MEK)		20 U	20 U	20 U	20 U	
2-Chlorotoluene		2 U	2 U	2 U	2 U	
2-Hexanone		20 U	20 U	20 U	20 U	
4-Chlorotoluene		2 U	2 U	2 U	2 U	
4-Isopropyltoluene		2 U	2 U	2 U	2 U	
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	
Acetone	800	20 U	20 U	20 U	6.2 J	
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	
Bromobenzene		2 U	2 U	2 U	2 U	
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-19S 7/29/2005	HL-MW-19S 10/27/2005	HL-MW-19S 1/25/2006	HL-MW-19S 4/18/2006	HL-MW-190S 4/18/2006 Dup of HL-MW-19S
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	
Dichlorodifluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	
Isopropylbenzene		2 U	2 U	2 U	2 U	
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	
N-Butylbenzene		2 U	2 U	2 U	2 U	
N-Propylbenzene		2 U	2 U	2 U	2 U	
Naphthalene	160	2 U	2 U	2 U	2 U	
Sec-Butylbenzene		2 U	2 U	2 U	2 U	
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	
Tert-Butylbenzene		2 U	2 U	2 U	2 U	
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	
Toluene	640	0.5 U	0.5 U	0.5 U	0.5 U	
Total Xylenes	1000					
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	
Trichlorofluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-19S 7/19/2006	HL-MW-19S 10/23/2006	HL-MW-20S 7/27/2005	HL-MW-20S 10/27/2005	HL-MW-20S 4/18/2006
Semivolatiles in ug/L						
1,2,4-Trichlorobenzene	35			2 UJ		
1,2-Dichlorobenzene	420			2 UJ		
1,3-Dichlorobenzene	320			2 UJ		
1,4-Dichlorobenzene	1.8			2 UJ		
2,4,5-Trichlorophenol	800			4.8 U		
2,4,6-Trichlorophenol	1.4			4.8 U		
2,4-Dichlorophenol	24			4.8 U		
2,4-Dimethylphenol	160			11 J		
2,4-Dinitrophenol	32			39 U		
2,4-Dinitrotoluene	0.11			2 UJ		
2,6-Dinitrotoluene	16			2 UJ		
2-Chloronaphthalene				2 UJ		
2-Chlorophenol	40			4.8 U		
2-Methylnaphthalene		0.02 U	0.02 U	2 UJ	0.2 U	0.0033 J
2-Methylphenol				4.8 U		
2-Nitroaniline				2 UJ		
2-Nitrophenol				4.8 U		
3,3'-Dichlorobenzidine	0.021			2000 UJ		
3-Nitroaniline				9.6 UJ		
4,6-Dinitro-2-methyphenol				20 U		
4-Bromophenyl-Phenylether				2 UJ		
4-Chloro-3-methylphenol				4.8 U		
4-Chloroaniline				2 UJ		
4-Chlorophenyl-phenylether				2 UJ		
4-Methylphenol				10		
4-Nitroaniline				9.6 UJ		
4-Nitrophenol				20 U		
Acenaphthene	640	0.02 U	0.02 U	2 UJ	0.2 U	0.0055 J
Acenaphthylene		0.02 U	0.02 U	2 UJ	0.2 U	0.02 U
Anthracene	4800	0.02 U	0.02 U	2 UJ	2.5	0.034 U
Benzo(a)anthracene	See BaP (c)	0.02 U	0.02 U	200 UJ	0.6	0.02 U
Benzo(a)pyrene	0.0028	0.02 U	0.02 U	200 UJ	0.2 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.02 U	0.02 U	200 UJ	0.2 U	0.02 U
Benzo(g,h,i)perylene		0.02 U	0.02 U	34 J	0.2 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.02 U	0.02 U	200 UJ	0.2 U	0.02 U
Benzoic Acid	64000			48 U		
Benzyl Alcohol	2400			48 U		
Bis(2-Chloroethoxy)Methane				2 UJ		
Bis(2-Chloroethyl)Ether	0.03			2 UJ		
Bis(2-Ethylhexyl)Phthalate	1.2			2000 UJ		
Bis(2-chloroisopropyl) Ether	320			2 UJ		
Butylbenzylphthalate	1300			200 UJ		
Chrysene	See BaP (c)	0.02 U	0.02 U	200 UJ	1.8	0.06
Di-N-Butylphthalate				2 UJ		
Di-n-octyl Phthalate	320			200 UJ		
Dibenz(a,h)anthracene	See BaP (c)	0.02 U	0.02 U	200 UJ	0.2 U	0.02 U
Dibenzofuran	32	0.02 U	0.02 U	2 UJ	0.31	0.037
Diethylphthalate				2 UJ		
Dimethyl Phthalate	16000			2 UJ		
Fluoranthene	90	0.02 U	0.02 U	2 UJ	2.6 U	0.031 U
Fluorene	640	0.02 U	0.0046 J	2 UJ	1.5	0.096
Hexachlorobenzene	0.00028			2 UJ		

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-19S 7/19/2006	HL-MW-19S 10/23/2006	HL-MW-20S 7/27/2005	HL-MW-20S 10/27/2005	HL-MW-20S 4/18/2006
Hexachlorobutadiene	0.44			2 UJ		
Hexachlorocyclopentadiene	40			9.6 UJ		
Hexachloroethane	1.4			2 UJ		
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U	0.02 U	29 J	0.2 U	0.02 U
Isophorone	8.4			2 UJ		
N-Nitroso-di-n-propylamine	0.005			2 UJ		
N-Nitrosodiphenylamine	3.3			2 UJ		
Naphthalene	160	0.032	0.049	2 UJ	0.2 U	0.016 J
Nitrobenzene	4			2 UJ		
Pentachlorophenol	0.27			9.6 U		
Phenanthrene		0.0054 J	0.0084 J	2 UJ	1.1	0.033 U
Phenol	4800			1.1 J		
Pyrene	480	0.02 U	0.02 U	20 J	3	0.077
TEQ Equivalent (b)	See BaP (c)	0.02 U	0.02 U	2.9 J	$\boxed{0.078}$	0.0006
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	25
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	2 U	2 UJ	2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	4.6 J	5.3 J	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-19S 7/19/2006	HL-MW-19S 10/23/2006	HL-MW-20S 7/27/2005	HL-MW-20S 10/27/2005	HL-MW-20S 4/18/2006
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Isopropylbenzene		2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 UJ	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total Xylenes	1000					
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-20S 7/20/2006	HL-MW-20S 10/23/2006
Semivolatiles in ug/L			
1,2,4-Trichlorobenzene	35		
1,2-Dichlorobenzene	420		
1,3-Dichlorobenzene	320		
1,4-Dichlorobenzene	1.8		
2,4,5-Trichlorophenol	800		
2,4,6-Trichlorophenol	1.4		
2,4-Dichlorophenol	24		
2,4-Dimethylphenol	160		
2,4-Dinitrophenol	32		
2,4-Dinitrotoluene	0.11		
2,6-Dinitrotoluene	16		
2-Chloronaphthalene			
2-Chlorophenol	40		
2-Methylnaphthalene		0.2 U	1 U
2-Methylphenol			
2-Nitroaniline			
2-Nitrophenol			
3,3'-Dichlorobenzidine	0.021		
3-Nitroaniline			
4,6-Dinitro-2-methyphenol			
4-Bromophenyl-Phenylether			
4-Chloro-3-methylphenol			
4-Chloroaniline			
4-Chlorophenyl-phenylether			
4-Methylphenol			
4-Nitroaniline			
4-Nitrophenol			
Acenaphthene	640	0.2 U	0.38 JD
Acenaphthylene		0.2 U	0.41 JD
Anthracene	4800	0.62 U	4 D
Benzo(a)anthracene	See BaP (c)	0.2 U	1 U
Benzo(a)pyrene	0.0028	0.2 U	1 U
Benzo(b)fluoranthene	See BaP (c)	0.2 U	1 U
Benzo(g,h,i)perylene		0.2 U	1 U
Benzo(k)fluoranthene	See BaP (c)	0.2 U	1 U
Benzoic Acid	64000		
Benzyl Alcohol	2400		
Bis(2-Chloroethoxy)Methane			
Bis(2-Chloroethyl)Ether	0.03		
Bis(2-Ethylhexyl)Phthalate	1.2		
Bis(2-chloroisopropyl) Ether	320		
Butylbenzylphthalate	1300		
Chrysene	See BaP (c)	0.77	5.9 D
Di-N-Butylphthalate			
Di-n-octyl Phthalate	320		
Dibenz(a,h)anthracene	See BaP (c)	0.2 U	1 U
Dibenzofuran	32	0.19 J	0.7 JD
Diethylphthalate			
Dimethyl Phthalate	16000		
Fluoranthene	90	0.52 U	1 U
Fluorene	640	0.5	2.4 D
Hexachlorobenzene	0.00028		

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-20S 7/20/2006	HL-MW-20S 10/23/2006
Hexachlorobutadiene	0.44		
Hexachlorocyclopentadiene	40		
Hexachloroethane	1.4		
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.2 U	1 U
Isophorone	8.4		
N-Nitroso-di-n-propylamine	0.005		
N-Nitrosodiphenylamine	3.3		
Naphthalene	160	0.2 U	1 U
Nitrobenzene	4		
Pentachlorophenol	0.27		
Phenanthrene		0.41 U	2.6 D
Phenol	4800		
Pyrene	480	1.4	7 D
TEQ Equivalent (b)	See BaP (c)	$\boxed{0.0077}$	$\boxed{0.059}$
Volatiles in ug/L			
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U
2-Chlorotoluene		2 U	2 U
2-Hexanone		20 U	20 U
4-Chlorotoluene		2 U	2 U
4-Isopropyltoluene		2 U	2 U
4-Methyl-2-Pentanone		20 U	20 U
Acetone	800	5.3 J	6.2 J
Benzene	0.8	0.5 U	0.5 U
Bromobenzene		2 U	2 U
Bromochloromethane		0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U

Table 2-24 - Analytical Results for ORB Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	HL-MW-20S 7/20/2006	HL-MW-20S 10/23/2006
Chloroform	5.7	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U
Dibromochloromethane	0.4	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U
Dichlorodifluoromethane		0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U
Isopropylbenzene		2 U	2 U
Methylene Chloride	4.6	2 U	2 U
N-Butylbenzene		2 U	2 U
N-Propylbenzene		2 U	2 U
Naphthalene	160	2 U	2 U
Sec-Butylbenzene		2 U	2 U
Styrene	1.5	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U
Total Xylenes	1000		
Trans-1,2-Dichloroethene		0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U
Trichlorofluoromethane		0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U

U = Not detected at reporting limit indicated.
J = Estimated value.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).

(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 2-25 - Analytical Results for Groundwater Samples from Monitoring Well HL-MW-2

Sample ID	Screening	HL-MW-2	HL-MW-2	HL-MW-2	HL-MW-2	HL-MW-2	HL-MW-2
Sampling Date	Level (a)	1/31/2007	4/16/2007	10/22/2007	1/24/2008	4/22/2008	10/19/2008
Total Suspended Solids in mg/L		2380	70	1420	2500	83	2020
PCBs in ug/L							
Aroclor 1016		0.0048 U	0.0049 U	0.0048 U	0.0062 UJ	0.0049 U	0.068 UJC
Aroclor 1221		0.0096 U	0.0098 U	0.0096 U	0.039 UJ	0.0097 U	0.4 UJC
Aroclor 1232		0.0048 U	0.0049 U	0.0048 U	0.0093 UJ	0.0049 U	0.15 UJC
Aroclor 1242		0.0048 U	0.0049 U	0.0048 U	0.017 UJ	0.0049 U	0.075 UJC
Aroclor 1248		0.0048 U	0.0049 U	0.042 U	0.019 UJ	0.0049 U	0.045 UJC
Aroclor 1254		0.051	0.0089	0.08 U	0.012 UJ	0.0049 U	0.048 UJC
Aroclor 1260		0.088	0.01	0.11 U	0.06 J	0.019 U	0.094 UJC
Total PCBs	0.000064	0.139	0.0189	0.11 U	0.06 J	0.019 U	0.4 UJC
PAHs in ug/L							
2-Methylnaphthalene		0.013 J	0.02 U	0.032 T	0.045 T	0.0042 T	0.027
Acenaphthene	640	0.0032 J	0.02 U	0.023 T	0.19 U	0.02 U	0.019 U
Acenaphthylene		0.007 J	0.02 U	0.098	0.19 U	0.014 T	0.077 U
Anthracene	4800	0.02 U	0.02 U	0.38 U	0.19 U	0.02 U	0.019 U
Benzo(a)anthracene	See BaP (c)	0.019 J	0.02 U	0.38 U	0.19 U	0.02 U	0.019 U
Benzo(a)pyrene	0.0028	0.017 J	0.02 U	0.038 U	0.19 U	0.017 T	0.019 U
Benzo(b)fluoranthene	See BaP (c)	0.024	0.02 U	0.2	0.19 U	0.024	0.019 U
Benzo(g,h,i)perylene		0.02 U	0.02 U	0.048	0.071 T	0.018 T	0.062
Benzo(k)fluoranthene	See BaP (c)	0.02 J	0.02 U	0.038 U	0.19 U	0.02 U	0.019 U
Chrysene	See BaP (c)	0.044	0.02 U	0.38 U	0.44	0.04 U	0.37 U
Dibenz(a,h)anthracene	See BaP (c)	0.02 U	0.02 U	0.019 JD	0.19 U	0.0031 T	0.019 U
Dibenzofuran	32	0.0068 J	0.02 U	0.028 JD	0.19 U	0.02 U	0.024
Fluoranthene	90	0.054	0.02	0.57	0.19 U	0.035	0.27 U
Fluorene	640	0.012 J	0.02 U	0.087	0.19 U	0.016 T	0.088
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U	0.02 U	0.057	0.19 U	0.013 T	0.077
Naphthalene	160	0.02 U	0.02 U	0.16	0.17 T	0.0056 T	0.041
Phenanthrene		0.042	0.02 U	0.38 U	0.19 U	0.02 U	0.019 U
Pyrene	480	0.074	0.031	0.49	0.19 U	0.045	0.39 U
TEQ Equivalent (b)	See BaP (c)	0.0237	0.02 U	0.0276	0.0044	0.021	0.0077
Volatiles in ug/L							
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 U	2 U	2 UJ
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U	20 U

Table 2-25 - Analytical Results for Groundwater Samples from Monitoring Well HL-MW-2

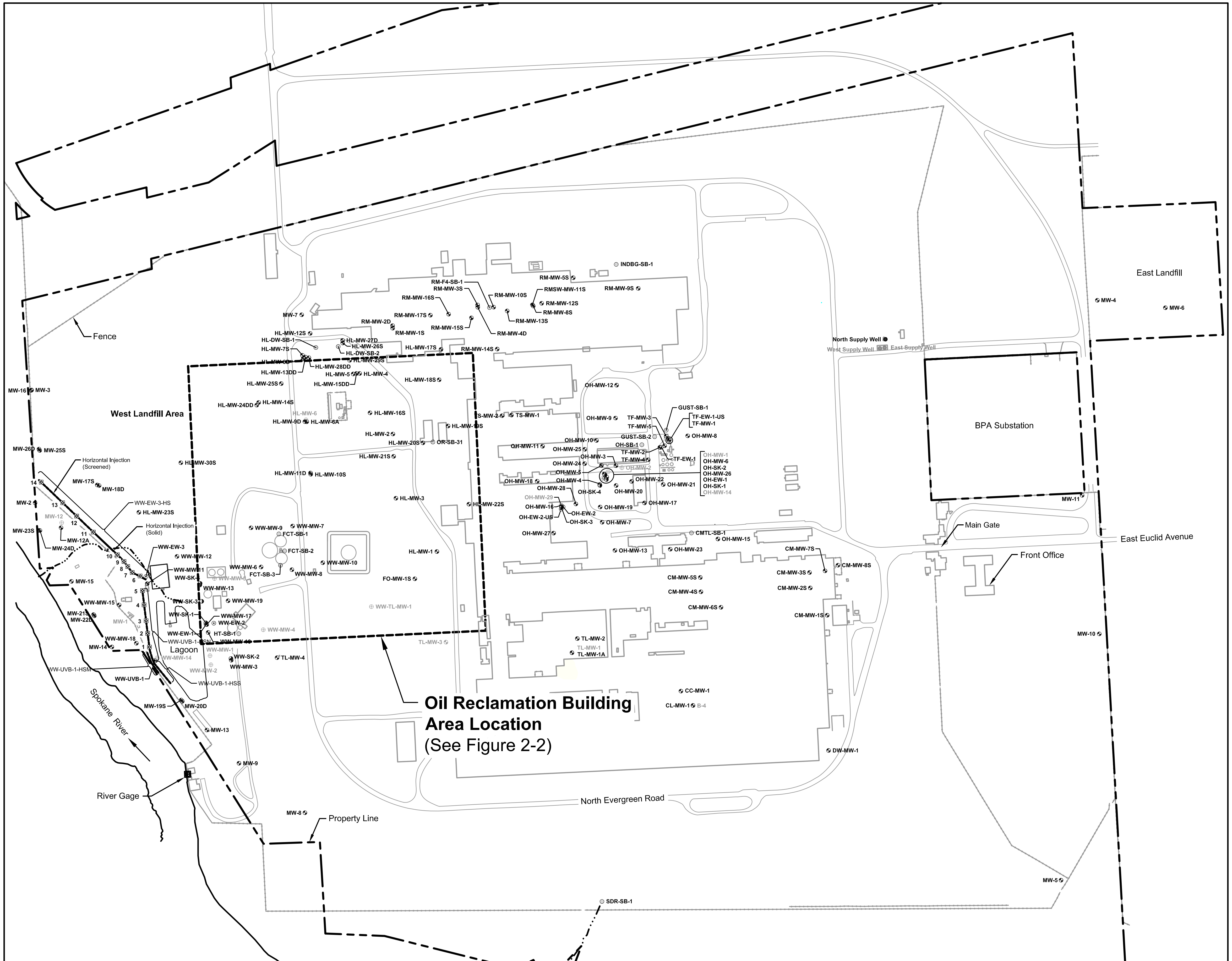
Sample ID Sampling Date	Screening Level (a)	HL-MW-2 1/31/2007	HL-MW-2 4/16/2007	HL-MW-2 10/22/2007	HL-MW-2 1/24/2008	HL-MW-2 4/22/2008	HL-MW-2 10/19/2008
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U	20 U
2-Propanol, 2-methyl-					20 U		
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene			2 U	2 U	2 U	2 U	
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Butane, 2-methoxy-2-methyl-					2 U		
Freon 11		0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U	2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diisopropyl Ether (Dot)					2 U		
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U	2 U
Methyl t-butyl ether					0.5 U		
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	0.28 T	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U	2 U	2 UJ
Propane, 2-Ethoxy-2-Methyl-					2 U		
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.5 U	0.31 T	0.5 U	0.32 T
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene		2 U					2 U
TPH-HCID in mg/L							
Gasoline	0.8		0.2 U	0.2 UJ		0.2 U	0.2 U
Stoddard/Mineral spirits	0.8		0.2 U	0.2 UJ		0.2 U	0.2 U
Kensol	0.5		0.2 U	0.2 U		0.2 U	0.2 U
Kerosene/Jet fuel	0.5		0.2 U	0.2 U		0.2 U	0.2 U
Diesel/Fuel oil	0.5		0.5 U	0.5 U		0.5 U	$\boxed{5.9}$

Table 2-25 - Analytical Results for Groundwater Samples from Monitoring Well HL-MW-2

Sample ID Sampling Date	Screening Level (a)	HL-MW-2 1/31/2007	HL-MW-2 4/16/2007	HL-MW-2 10/22/2007	HL-MW-2 1/24/2008	HL-MW-2 4/22/2008	HL-MW-2 10/19/2008
Bunker C	0.5		0.5 U	0.5 U		0.5 U	0.5 U
Heavy oil	0.5		0.5 U	0.5 U		0.5 U	6.3
TPH-Dx in mg/L							
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.5
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.8
TPH-Gx in mg/L							
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

U = Not detected at reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Oil Reclamation Building Area Location Map



Exploration Location and Number

- OH-EW-1 Extraction Well
- OH-MW-4 Monitoring Well
- WW-TL-MW-1 Abandoned Monitoring Well
- OH-SK-1 Skimming Well
- TF-EW-1-US Groundwater Recirculation Well
- North Supply Well Supply Well
- East Supply Well Backup Supply Well
- RM-F4-SB-1 Soil Boring

N

0 500 1000

Scale in Feet

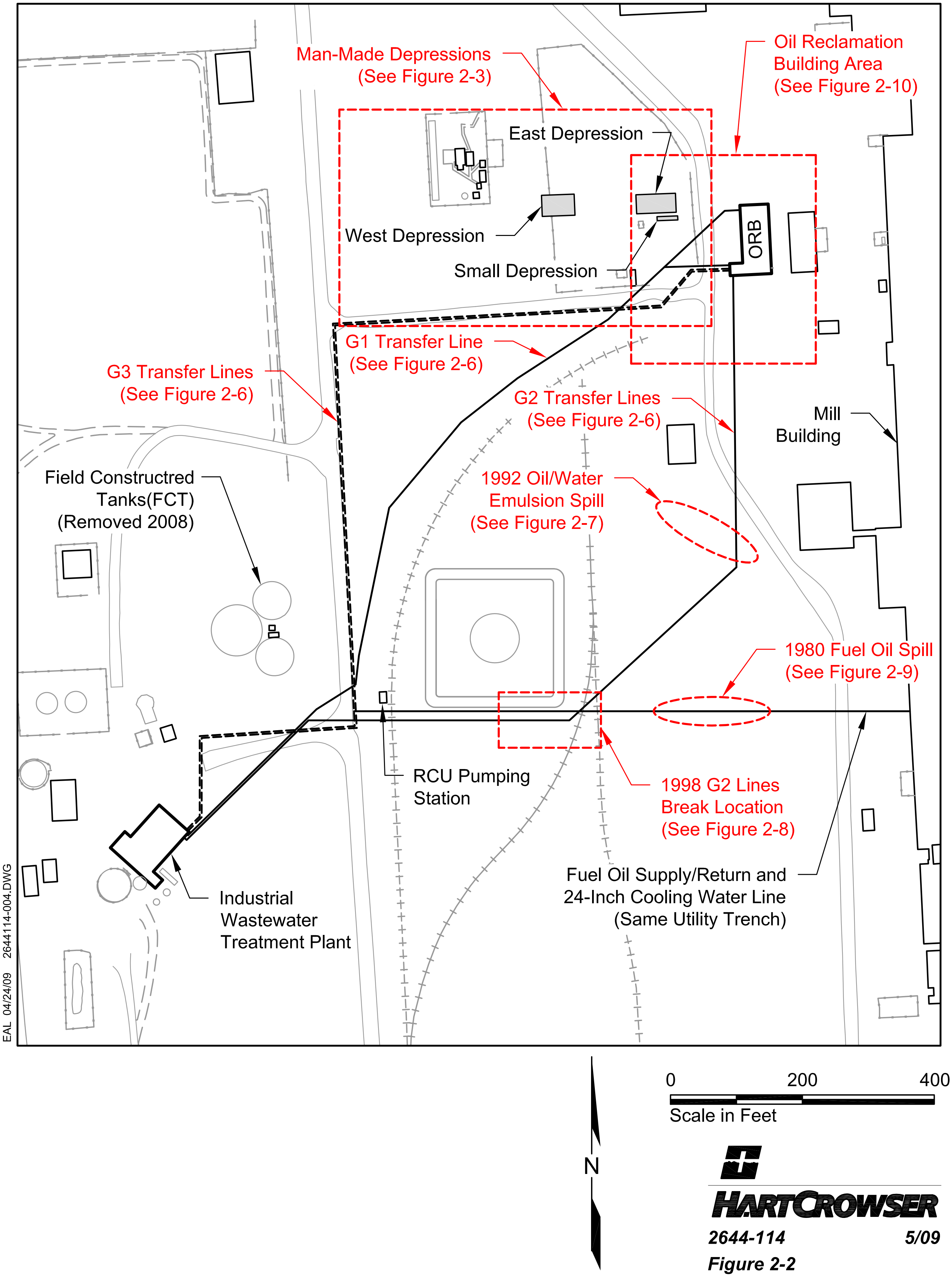
HARTCROWSER

2644-114 5/09

Figure 2-1

EAL 05/7/09 2644114-066.DWG

Oil Reclamation Building Area Index Map

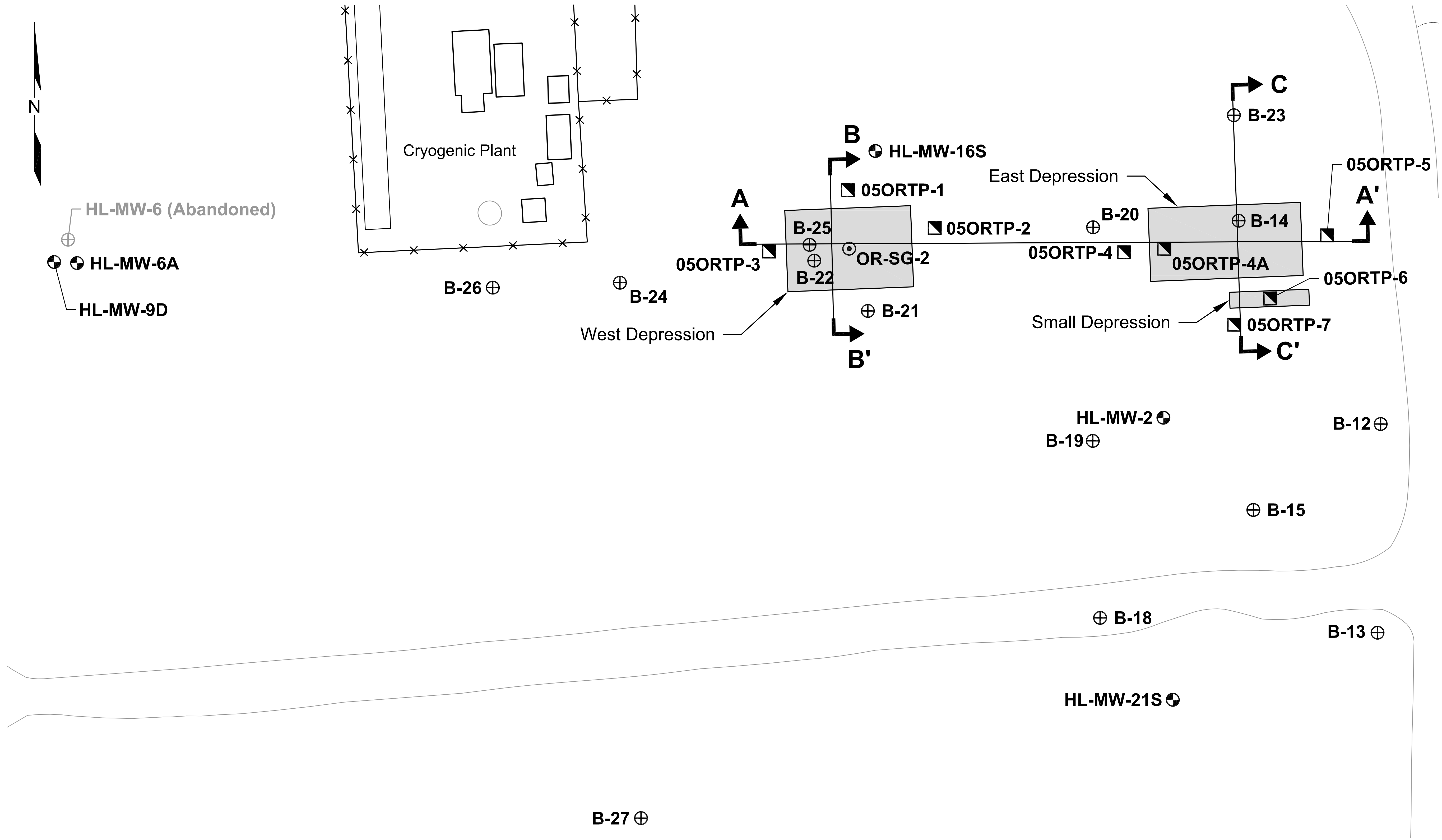


HARTCROWSER

2644-114 5/09

Figure 2-2

Site and Exploration Plan
Man-Made Depressions



Exploration Location and Number

OR-SG-2 Soil Gas Sample (Hart Crowser 2005)
05ORTP-1 Test Pit (Hart Crowser 2005)
HL-MW-6A Monitoring Well
B-12 Soil Boring (Hart Crowser 1996)

Estimated Location of Historical Man-Made Depression

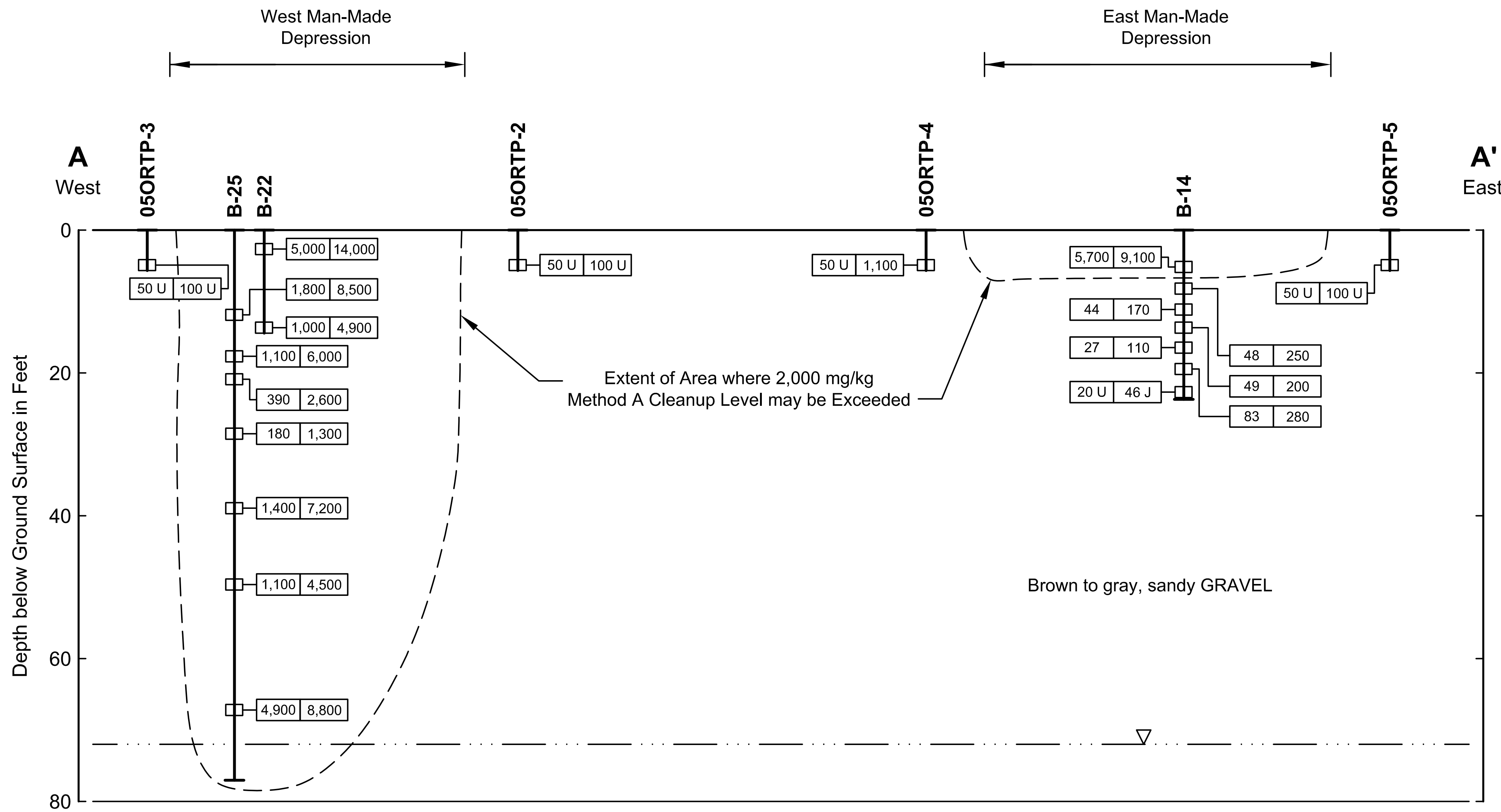
A A' Subsurface Cross Section Location and Designation (See Figures 2-4 and 2-5)

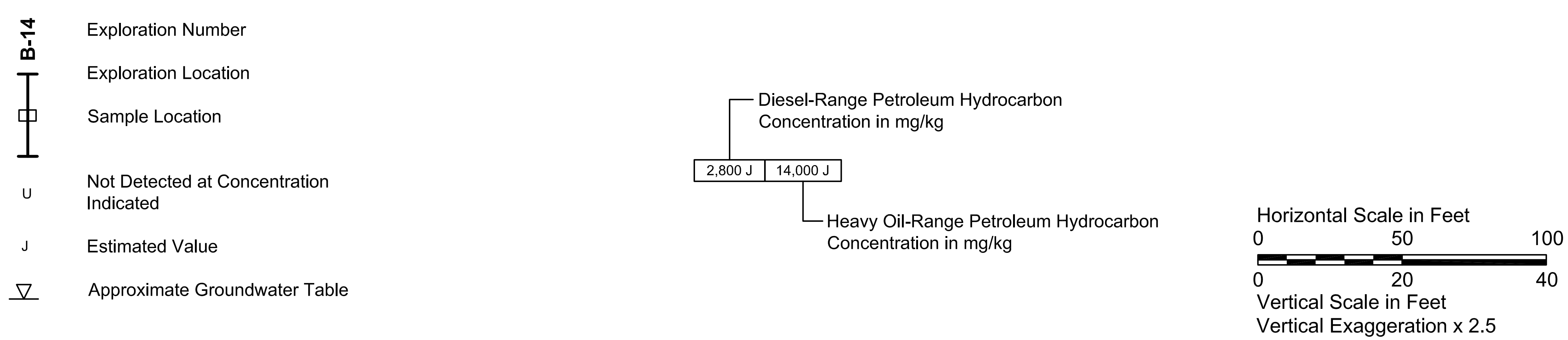
0 40 80
Scale in Feet

EAL 04/17/09 2644114-049.DWG

HARTCROWSER
2644-114 5/09
Figure 2-3

Schematic Cross Section A-A' Showing TPH Concentrations in Soil
Man-Made Depressions





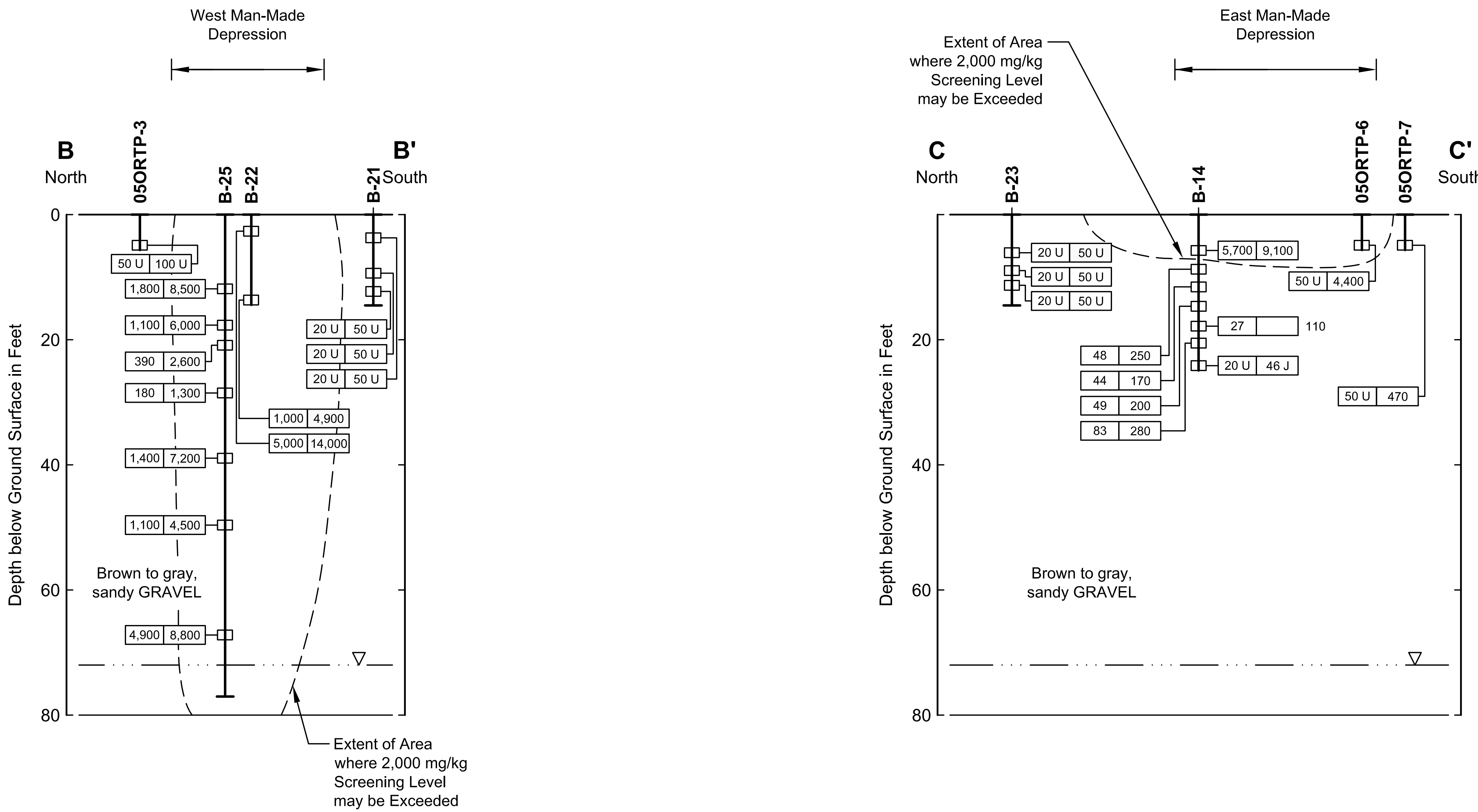
EAL 04/17/09 2644114-080.DWG

HARTCROWSER

2644-114 5/09

Figure 2-4

Schematic Cross Section B-B' and C-C' Showing TPH Concentrations in Soil
Man-Made Depressions



B-14 Exploration Number

Exploration Location

Sample Location

U Not Detected at Concentration Indicated

J Estimated Value

Approximate Groundwater Table

Diesel-Range Petroleum Hydrocarbon Concentration in mg/kg

2,800 J | 14,000 J

Heavy Oil-Range Petroleum Hydrocarbon Concentration in mg/kg

Horizontal Scale in Feet
0 50 100

0 20 40
Vertical Scale in Feet
Vertical Exaggeration x 2.5

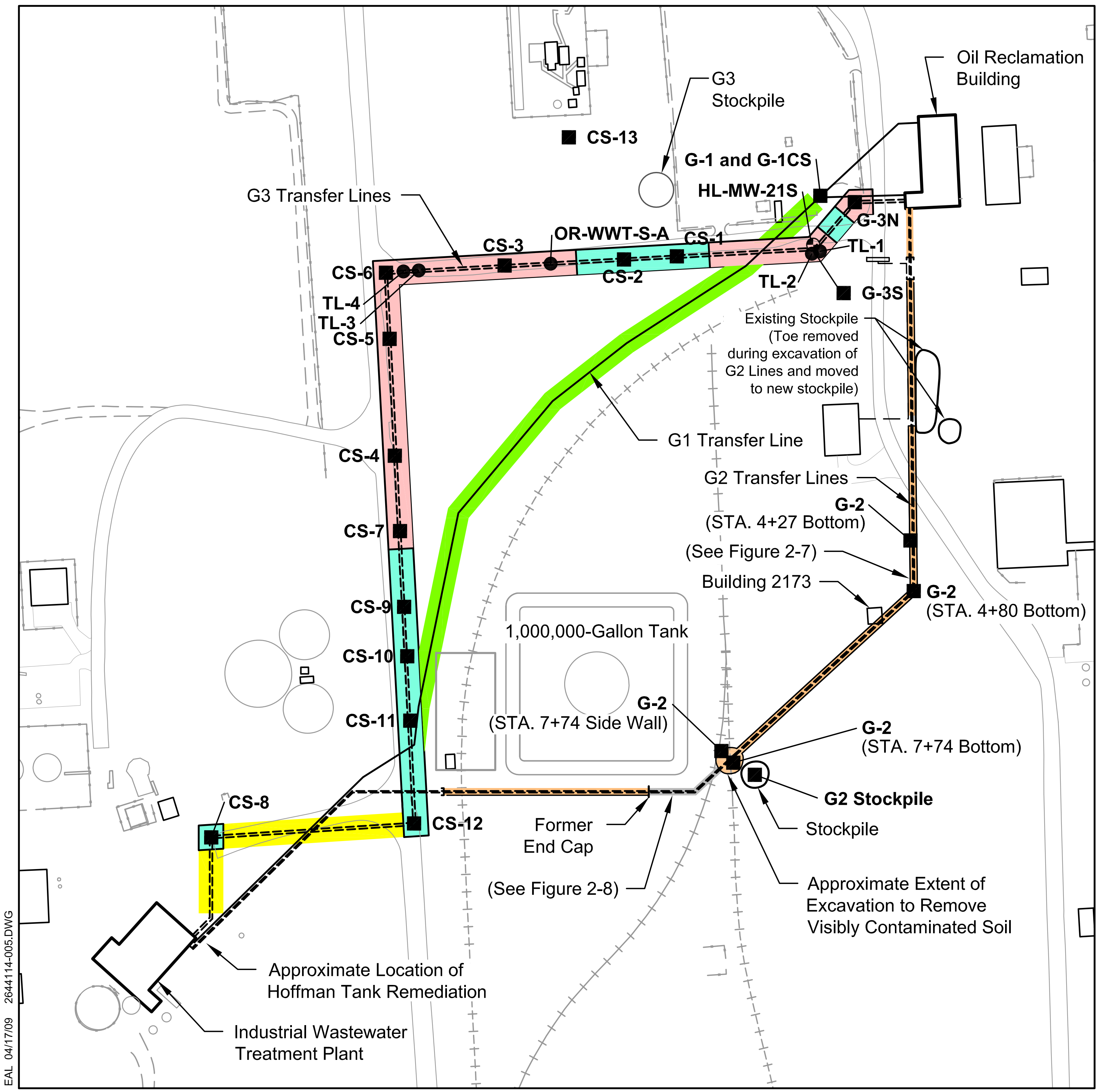
EAL 04/17/09 2644114-082.DWG

HARTCROWSER

2644-114 5/09

Figure 2-5

G1, G2, and G3 Transfer Lines and Exploration Map



This figure was originally produced in color. Reproduction in black and white may result in a loss of information.

Excavation Limits

- Previous Study (April/May 2004)
- Phase I Study (November 2006)
- G2 Lines Excavated and Removed (2007)
- G2 Lines Previously Removed (1998)

Soil Sample Location and Number

- TL-1 ● Previous Study (April/May 2004)
- CS-1 ■ Phase I Study (November 2006)

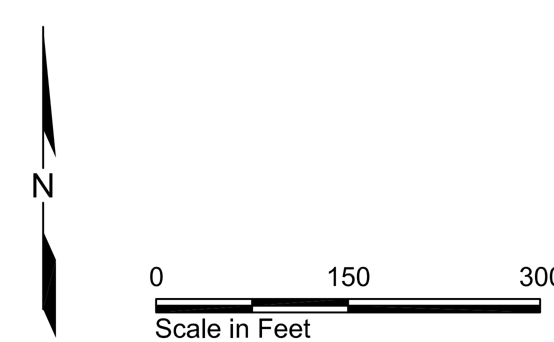
Pressure or Helium Test Segment

- G1 Line
- G3 Lines

HL-MW-21S Existing Monitoring Well Location and Number

] End Cap (Typical)

Note: G3 Stockpile comprised of soil from:
1. G1 Excavation Area
2. G3N Confirmation Area
3. Soil impacted with oil leakage from removal of G3 line



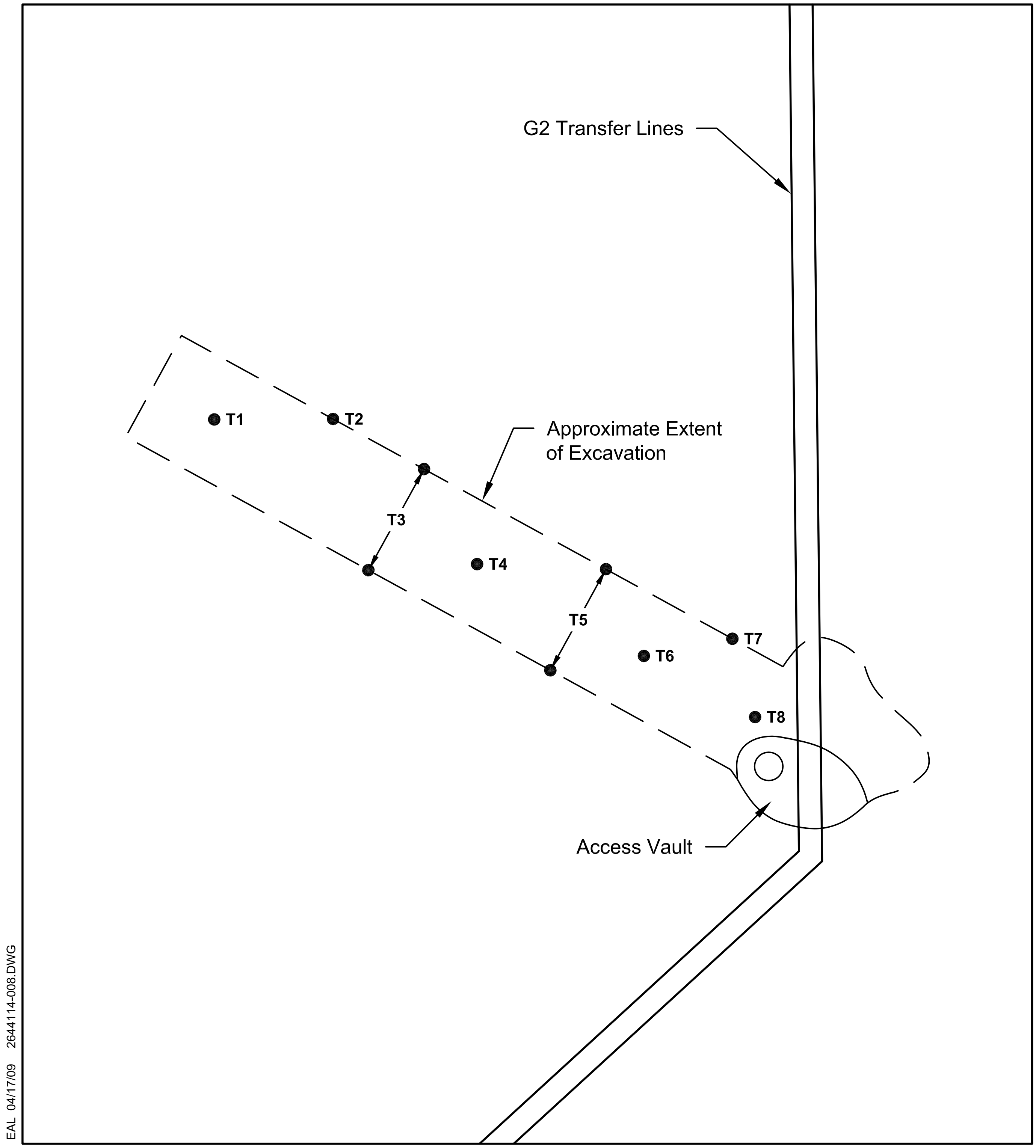
HARTCROWSER

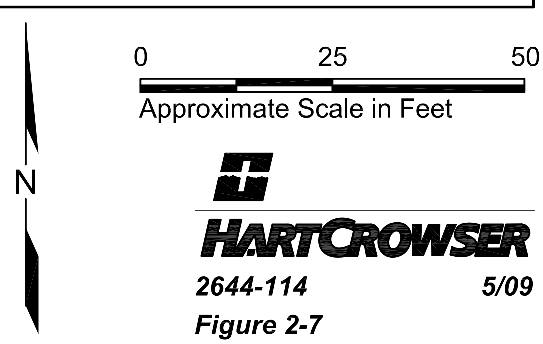
2644-114 5/09

Figure 2-6

Soil Sample Location Plan

1992 Oil/Water Emulsion Spill Trench Excavation





● **T1** Verification Soil Sample Location and Number

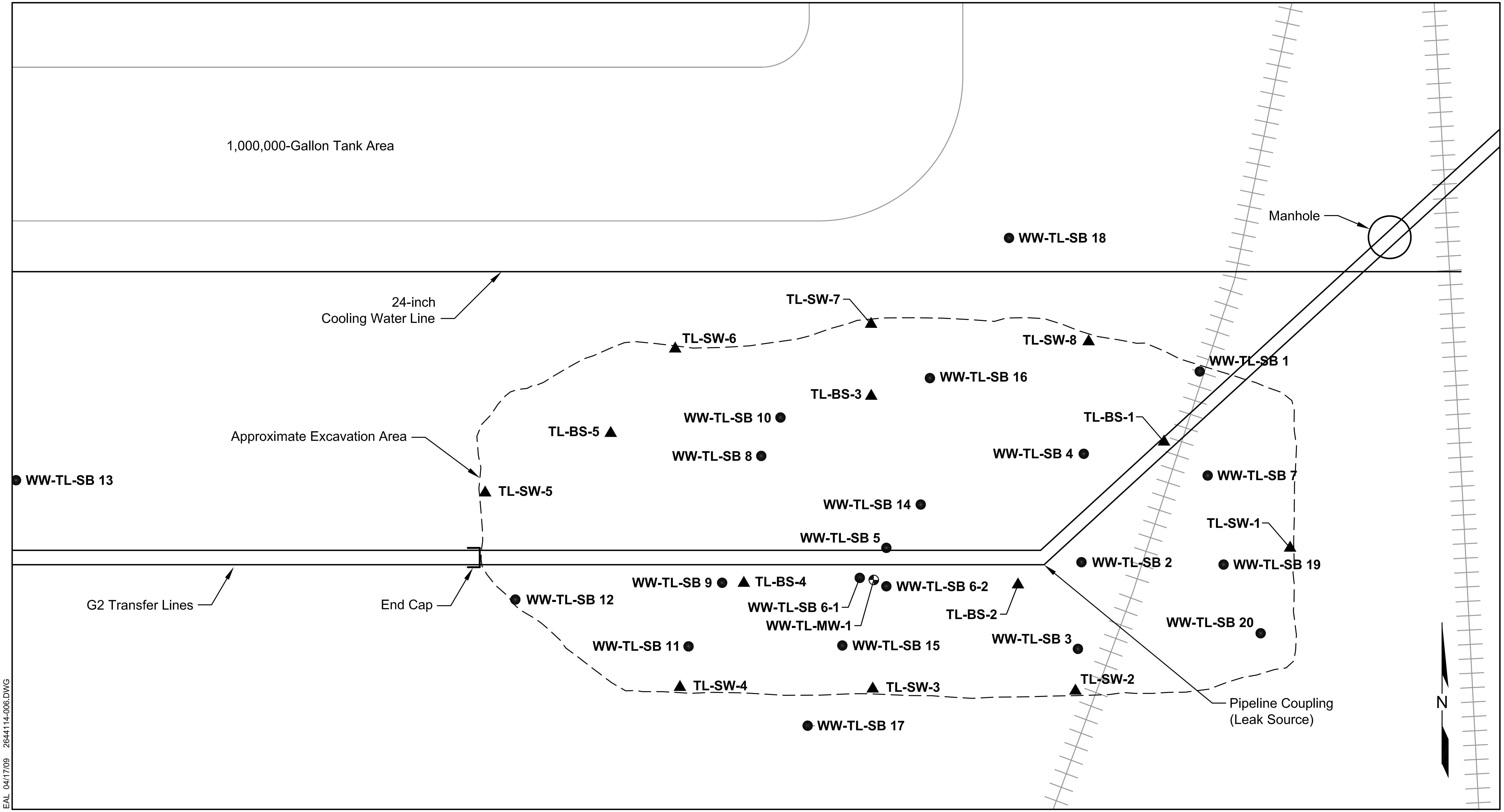
Note: Refer to Figures 2-2 and 2-6 for excavation location.

HARTCROWSER

2644-114 ***5/09***

Figure 2-7

Exploration and Sample Location Plan
G2 Transfer Lines 1998 Line Break



▲ TL-SW-1 Verification Soil Sampling Location and Number

● WW-TL-SB 11 Boring Location and Number

◐ WW-TL-MW-1 Monitoring Well Location and Number (Decommissioned)

Note: Refer to Figures 2-2 and 2-6 for excavation location.

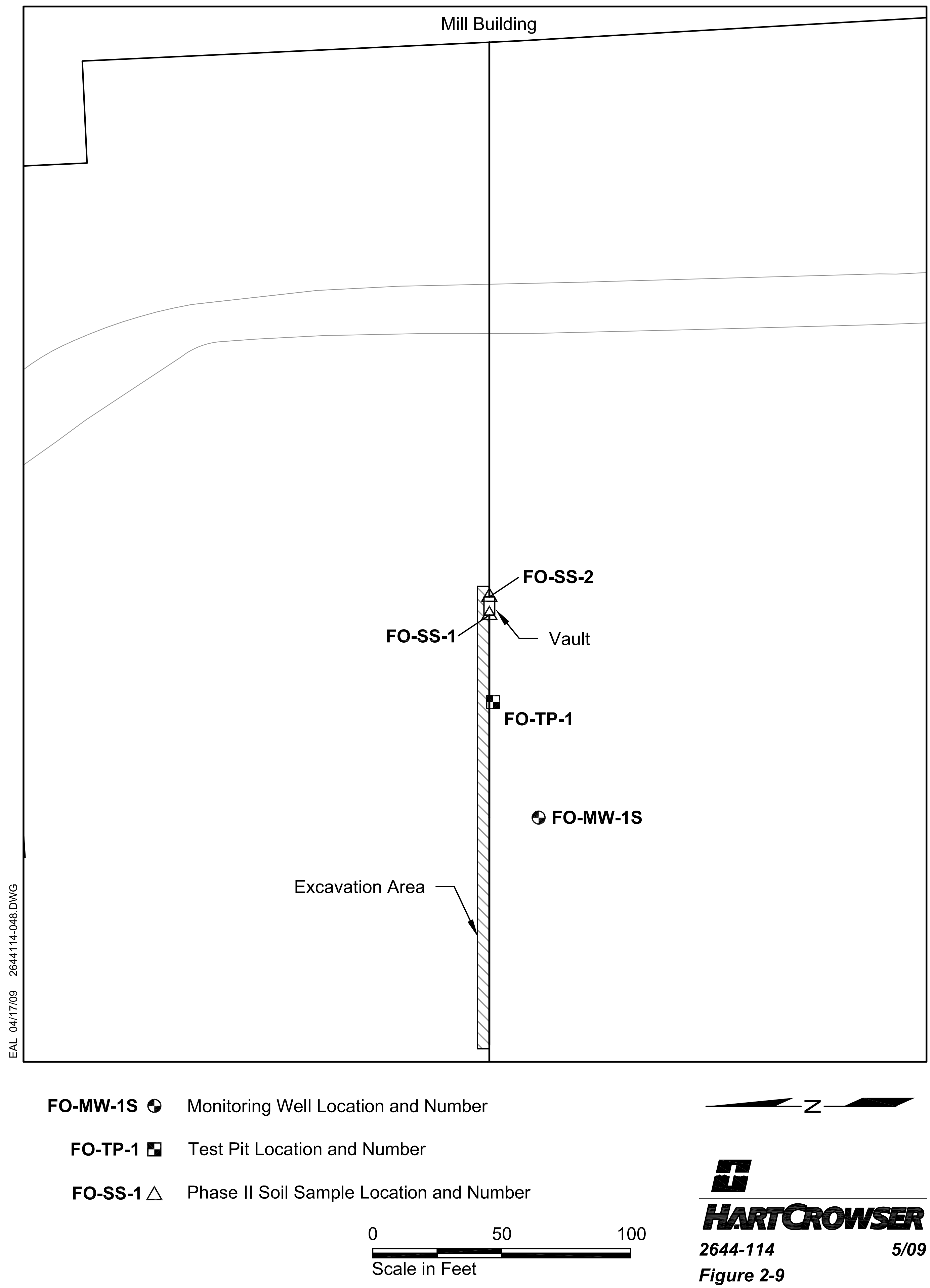
0 10 20
Scale in Feet

HARTCROWSER

2644-114 *5/09*

Figure 2-8

1980 Fuel Oil Spill Excavation

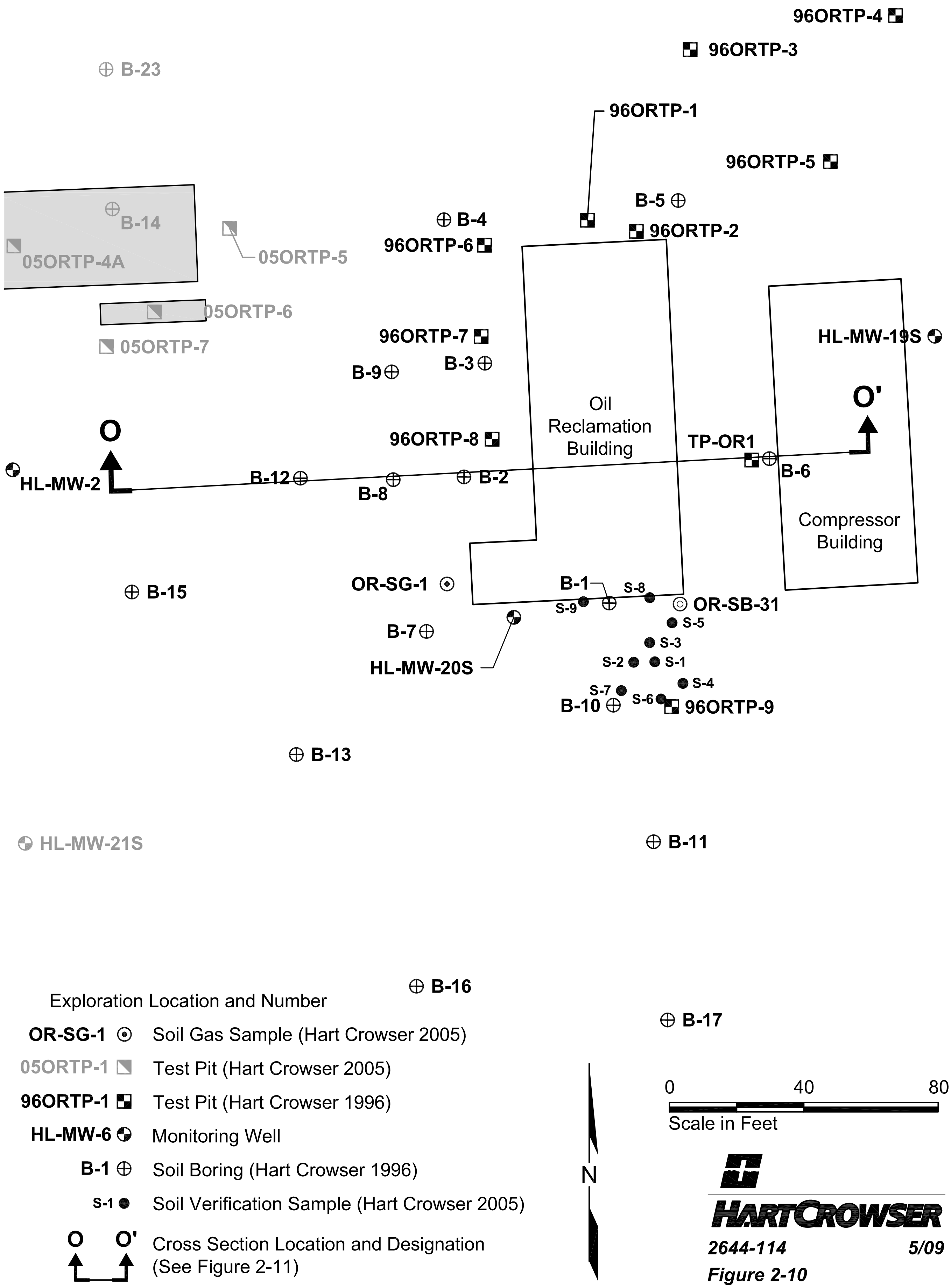


HARTCROWSER

2644-114 *5/09*

Figure 2-9

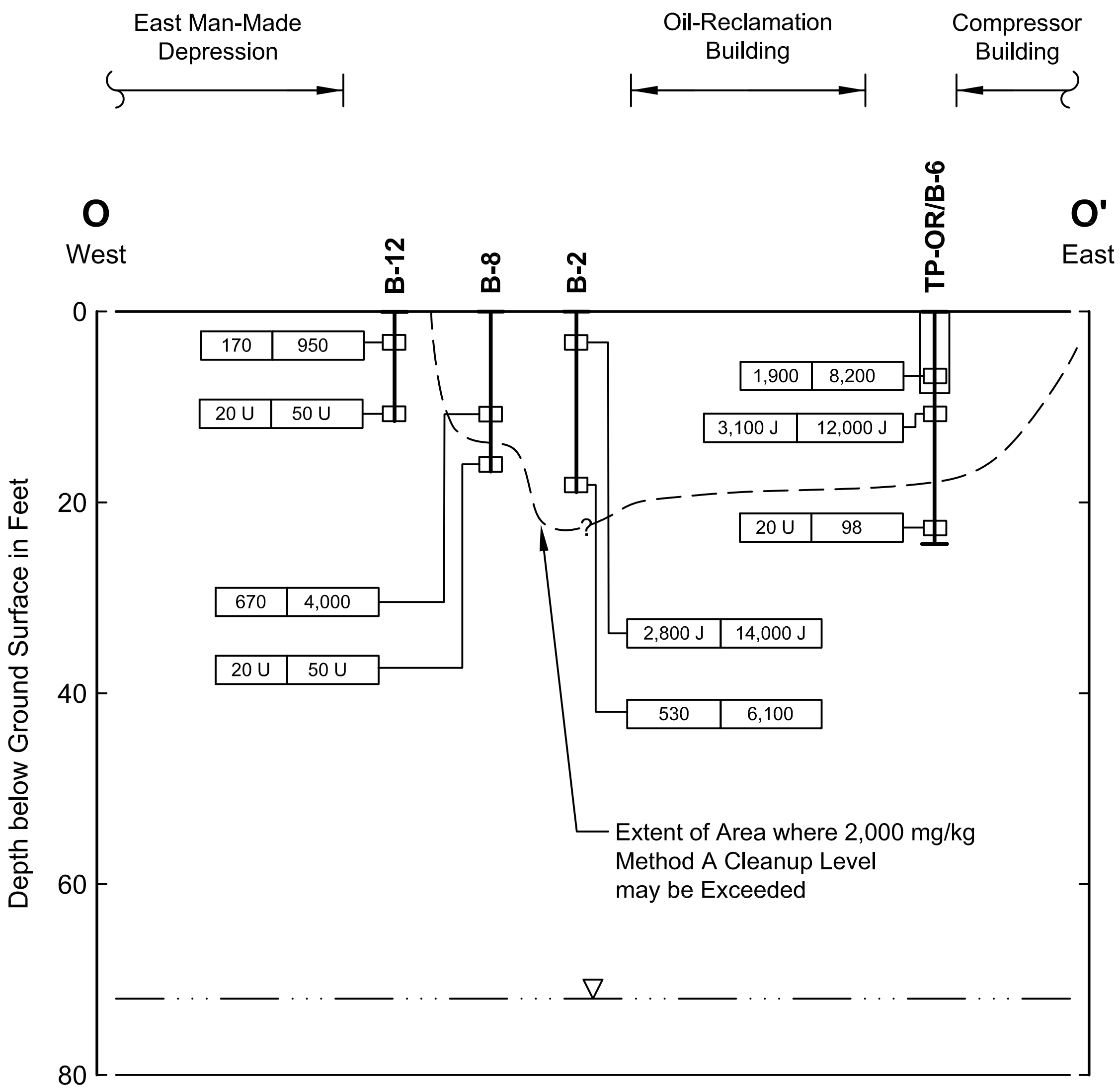
Site and Exploration Plan
Oil Reclamation Building



2644-114 *5/09*

Figure 2-10

Schematic Cross Section O-O' Showing TPH Concentrations in Soil
Oil Reclamation Building (ORB)



Note: Some soil sample locations were overexcavated during the 2008 SPCC upgrade around the ORB. See Table 2-21 for details.

B-2 — Exploration Number

Exploration Location

Sample Location

U — Not Detected at Concentration Indicated

J — Estimated Value

∇ — Approximate Groundwater Table

2,800 J — Diesel-Range Petroleum Hydrocarbon Concentration in mg/kg

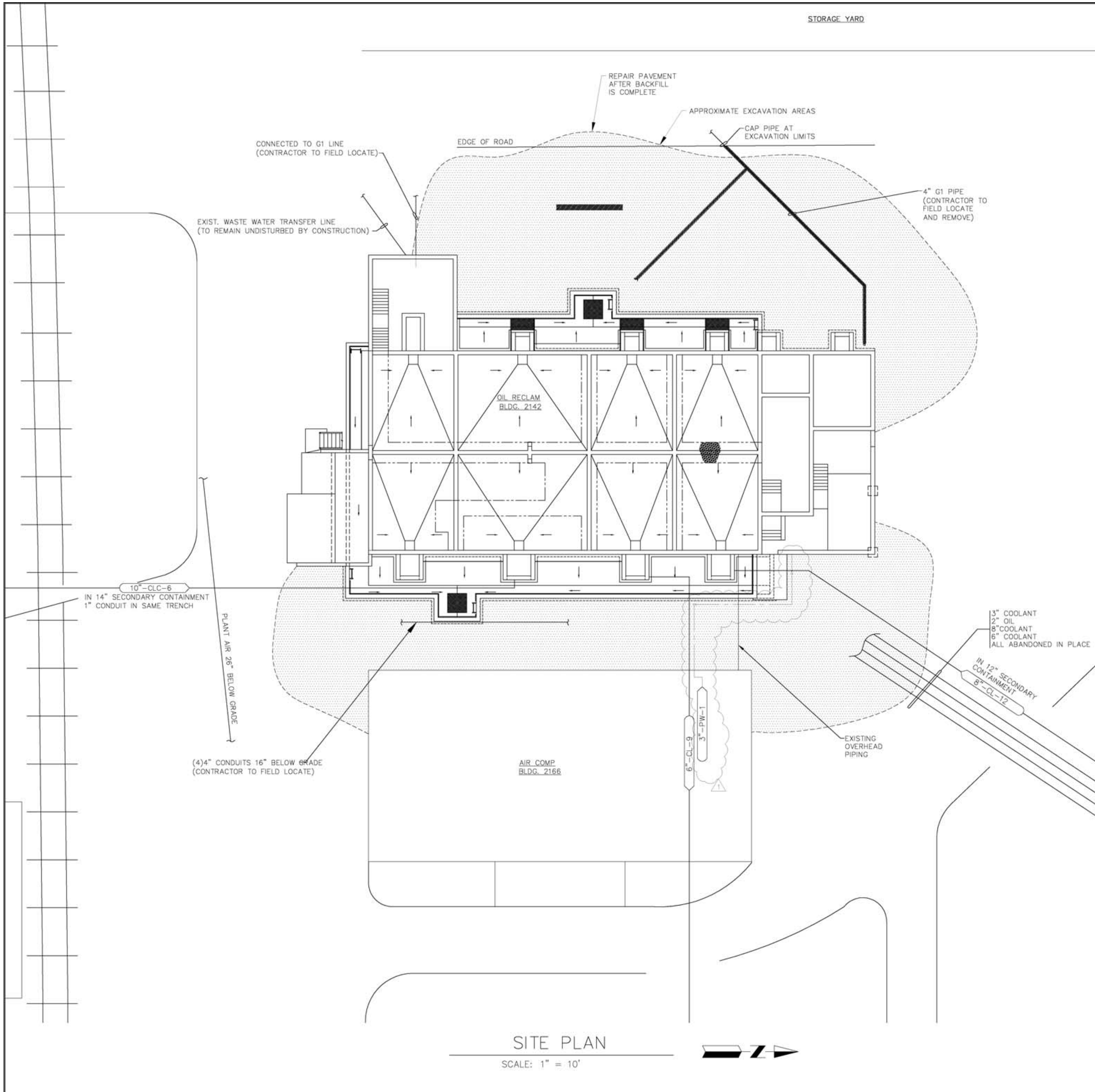
14,000 J — Heavy Oil-Range Petroleum Hydrocarbon Concentration in mg/kg

Horizontal Scale in Feet: 0 — 50 — 100

Vertical Scale in Feet: 0 — 20 — 40

Vertical Exaggeration x 2.5

EAL 04/24/09 2644114-081.DWG



BILL OF MATERIAL

SOURCE	ITEM	QTY.	EACH ITEM CONSISTING OF	DESCRIPTION

Oil Reclamation Building
SPCC Plan Upgrade
As-Built Plan

2644-114

Figure 2-12

At this reduces size, scale is approximately 1" = 20'

COFFMAN ENGINEERS

Job No.: 05017

CK.	BY	DATE	NO.	REVISIONS
CJP	LJB	02/20/09	1	AS-BUILT REVISIONS
LJB	MLC	10/23/06	0	ISSUE FOR CONSTRUCTION

INFORMATION CONFIDENTIAL

COMPUTER DRAWING

MACHINING INSTRUCTIONS

KAISER ALUMINUM

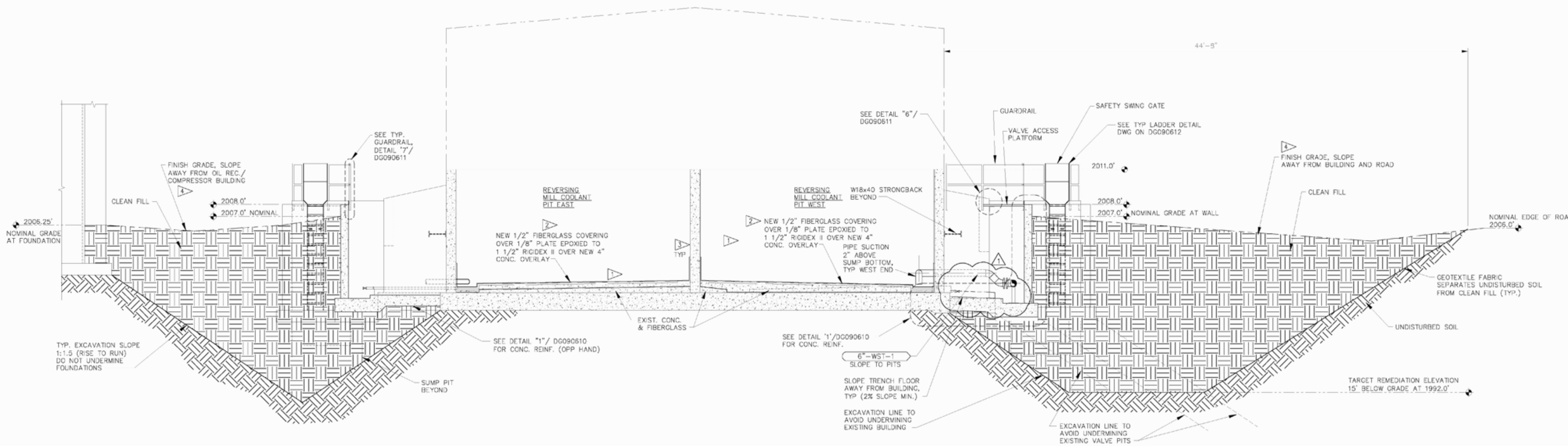
TRENTWOOD WORKS SPOKANE, WA

1. HOT LINE
2. OIL RECLAMATION BUILDING
3. SPCC PHASE V–SECONDARY CONTAINMENT
4. SITE PLAN

MLC/CEI 9/27/06	COFFMAN ENGINEERS, INC.
MJS/CEI 9/27/06	DG090602 – DG090617
2142	AS SHOWN
24"x36"	1=1
GM106103	END 001
DWG. NO. DG090603	REV. 1

SOURCE	ITEM	QTY.	EACH ITEM CONSISTING OF	DESCRIPTION

BILL OF MATERIAL



Oil Reclamation Building
SPCC Plan Upgrade
As-Built Cross Section

2644-114 Figure 2-13

SHEET NOTES:

1. USE ONLY HIGH SOLIDS EPOXY RESINS FOR FIBERGLASS BONDING.
2. TOTAL FIBERGLASS LAYER THICKNESS SHALL BE NO LESS THAN 1/2". LAYER SCHEDULE SHALL BE AS FOLLOWS
   FIRST: MIN (2) LAYERS CHOP FIBERGLASS MAT
   SECOND: (1) LAYER "ROVEN-WOVEN" MAT
   FINAL: MIN (2) LAYERS CHOP FIBERGLASS MAT
3. NEW FIBERGLASS LAYER TO TAPER UP TANK SIDE WALL MIN. 6". TAPER NEW FINISHED EDGE FLUSH TO EXIST. TANK SIDE WALL.
4. NOTE EXISTING ELEVATION AND DRAINAGE BEFORE CONSTRUCTION. RESTORE FINAL GRADE TO DRAIN TO SAME POINTS.

SECTION: 'C—C' DG090607
SCALE: 1/4"=1'-0"

At this reduced size, scale is approximately 1" = 10'

COFFMAN ENGINEERS
Job No.: 05017

CK.	BY	DATE	NO.	REVISIONS
CJP	LJB	02/20/09	1	AS-BUILT REVISIONS
LJB	MLC	10/23/06	0	ISSUE FOR CONSTRUCTION

INFORMATION CONFIDENTIAL

COMPUTER DRAWING

MACHINING INSTRUCTIONS

KAISER ALUMINUM
TRENTWOOD WORKS SPOKANE, WA

1. HOT LINE
2. OIL RECLAMATION BUILDING
3. SPCC PHASE V–SECONDARY CONTAINMENT
4. BUILDING SECTIONS

MLC/CEI (DRAWN BY)	9/27/06	COFFMAN ENGINEERS, INC. (VENDOR NAME)	
MJS/CEI (APPROVED – ENGINEER)	9/27/06		DG090602 – DG090617 (USE WITH DRAWING)
		2142 (BUILDING NO.) / AS SHOWN (SCALE)	END (CONT. ON SHT.) / 001 (SHT. NO.)
		24"x36" (MEDIA SIZE) / 1=1 (CAD FILE PLOT SCALE)	GM106109 (CAD FILE NAME) / DWG. NO. DG090609 / REV. 1

CONTENTS

Page

TABLES

FIGURES

3.0 RAIL CAR UNLOADING AREA

3.1 INTRODUCTION

The Rail Car Unloading (RCU) facility and the 100,000-Gallon Fuel Oil above-ground tank (AST) are combined to comprise the Rail Car Unloading (RCU) area (Figure 3-1). This area of the mill was historically used to unload fuel that arrived at the plant by rail car or truck. According to historical documents and utility maps, fuel oil was delivered and was distributed to storage areas and the plant through several underground pipelines. The RCU area has not been used for fuel management since the 1970s.

3.1.1 Purpose

The objectives of the Phase II RI Work Plan are to identify data gaps on the investigations conducted within the RCU area, along the fuel lines and surrounding areas, and to establish a sampling and analysis plan to address identified data gaps. The final goal of the Phase II Work Plan is to gather enough information to characterize the chemical quality of soil and groundwater beneath these areas and to help characterize the relative nature and extent of impacts related to the operation of the transfer lines and RCU area.

The presence of the former 100,000-gallon AST was not identified until after the development of the Work Plan. However, once the former tank was identified an investigation of the area around the former tank footprint and associated underground piping was instigated.

3.1.2 Location

The RCU area building and associated infrastructure are located south and west of the 1,000,000-gallon tank and east of Evergreen Way in the west-central area of the Trentwood Facility (Figure 3-2). Surface features in the RCU area include the former RCU Station (Pump House Building 2162), a rail line spur, several above-ground pipeline manifolds, and other ancillary equipment.

The former 100,000-gallon AST was located in the west-central area of the Trentwood Facility, approximately 186 feet north of the RCU Station Building (Figure 3-2). The existence of this tank was unknown to current Kaiser representatives until the Phase II work started in the RCU Area in 2008.

In addition to these fuel lines, other underground pipelines including the G1, G2, and G3 Wastewater Transfer Lines, other fuel lines, and underground utilities are also located within the vicinity but were not part of the RCU area investigation. The G1 through G3 Wastewater Transfer Lines are discussed in Section 2.0.

3.2 RAIL CAR UNLOADING AREA

3.2.1 Introduction

According to historical documents and utility maps, fuel oil was delivered in rail tank cars and was distributed to storage areas and the plant through several underground fuel pipelines. The locations of these pipelines are presented on Figure 3-2 and consist of:

- **South Fuel Lines.** Fuel lines (supply and return) and associated steam line exiting the south end of the RCU Station Building to the southern area of the plant;
- **East Fuel Lines.** Fuel lines (supply and return) exiting the east end of the RCU Station Building to the 1,000,000-gallon tank;
- **West Fuel Lines.** Fuel lines (supply and return) exiting the west end of the RCU Station Building to the pump house located between the three Field Constructed Tanks (FCTs) on the west side of Evergreen Way; and
- **North Fuel Line.** Fuel supply line exiting the north end of the RCU Station Building to the former 100,000-gallon fuel oil tank.

Currently, the pump house building, the East and West Fuel Lines, and the rail line spur remain in place; however, several of the RCU surface features were removed during the Phase II investigation work. These include (Figure 3-2):

- Sections of the North Fuel Line;
- Sections of the South Fuel Line and associated steam line;
- The South Fuel Line header valve; and
- The South Fuel Line cleanout.

The following sections provide a brief summary of previous investigation in the area and additional information regarding the Phase II work conducted in the RCU area.

3.2.2 Previous Investigations

An extensive subsurface investigation was conducted in the RCU area in 1996 to evaluate the nature and extent of potential petroleum hydrocarbon impacts to soil (Hart Crowser 1997b). Additional work was also conducted to evaluate the potential mobility of petroleum and petroleum constituents identified during this initial investigation (Hart Crowser 1997a).

In October and November 1996, 20 test pits (TP-1, TP-2, TP-2A, and TP-3 through TP-19) and three soil borings (RU-1 through RU-3) were completed to evaluate whether petroleum hydrocarbon releases had occurred in the RCU area. The test pits were excavated up to depths of approximately 9.5 feet below ground surface. Exploration locations are shown on Figure 3-2.

Based on the results of these previous investigations (Table 3-1), TPH-impacted soil was determined to generally be restricted to the upper few feet of soil (i.e., 5 feet or less). Soil sample analytical results for TPH from test pits TP-2, TP-2A, and TP-13 indicate diesel- and/or heavy oil-range petroleum hydrocarbon concentrations exceeding screening levels at approximately 0.5 to 1.5 feet below ground surface. Elevated petroleum hydrocarbon concentrations were also detected at concentrations exceeding screening levels between depths of 17 to 44 feet below ground surface in boring RU-1. Because higher petroleum hydrocarbon concentrations were observed deeper in this boring and groundwater in this area is located approximately 70 feet below the ground surface, it was assumed that the TPH was either migrating by lateral transport in the unsaturated zone from surface infiltration or that a release occurred from a below-ground structure, possibly the North Fuel Line (Figure 3-2). It was determined that the underground fuel lines should be investigated to assess whether there was a historical fuel release from them.

Prior to the Phase II RI work, concentrations of diesel and fuel oil exceeding screening levels had also been sporadically detected in groundwater samples collected from wells WW-MW-7 and WW-MW-8 between 1991 and 1994. In addition, diesel/fuel oil, Kensol, kerosene, and heavy oil had been detected at least once in groundwater samples collected from well WW-MW-10.

3.2.3 Proposed Phase II (RI) Work

Based on the findings of the previous investigation and to fill identified data gaps in the RCU area, the following actions were proposed in the Phase II RI Work Plan (Hart Crowser 2007b):

- **Test Pits.** Excavate and sample soils from three test pits to refine the lateral extent of the two hot spots identified from the 1996 soil investigation;

- **Fuel Lines Investigation.** Investigate the area around the underground fuel lines in the vicinity of boring RU-1 to assess whether this fuel line may have leaked; and

- **Groundwater Monitoring.** Sample and analyze groundwater from three groundwater monitoring wells (WW-MW-7, WW-MW-8, and WW-MW-9) located in the vicinity of the RCU area.

The following sections present the work conducted under the Phase II work and the results of the investigations.

3.2.4 Phase II RI Field Activities and Analytical Results

The Phase II soil investigation in the RCU area was conducted between April 1, and 5, 2008. The field work consisted of three main activities: 1) completion of test pits investigation; 2) investigation/removal of sections of the RCU underground pipelines; and 3) groundwater monitoring. In addition to the three main activities, the test pit investigation was expanded to include the excavation of the “Tar Pit area.” This is an area where historical releases of heavy oil (likely Bunker C) has weathered over time resulting in a residual tar-like material in the soil. In cooler weather, the material retains the consistency and appearance of asphalt. In the summer, the material resembles soft tar. Site observations indicate this material is relatively immobile due to its viscous nature. The Tar Pit area excavation was completed to aid in the subsurface investigation by allowing direct observation to determine the visible extent of contamination in an area south of the RCU Station Building (Figure 3-2).

The groundwater investigation work was conducted concurrently with the Kaiser site-wide quarterly groundwater sampling and analysis events. Although monitoring well WW-MW-8 is part of the regular sampling schedule, wells WW-MW-7 and WW-MW-9 were sampled twice in 2008 (April 24 and October 23) during the regular quarterly groundwater monitoring program events. Analytical results from the samples collected from these wells are presented in Table 3-2. The following sections present a summary of the field activities conducted during the Phase II investigation and a presentation of the analytical results.

Tar Pit Area

The area known as the former Tar Pit area is located south of the 1,000,000-Gallon Tank and east of the rail line traveling along the west side of the 1,000,000-Gallon Tank (Figure 3-2). The nature and historical uses of the Tar Pit area are unknown. Highly weathered free phase Bunker C-like product and impacted soil with heavy oil was excavated from the Tar Pit area between April 1 and 3, 2008. In addition, impacted soil with a lighter hydrocarbon fraction in the diesel-range was identified along the eastern limits of the excavation.

During the near-surface excavation the extent of petroleum hydrocarbon-affected soil was assessed. After the surface layer of free product was removed from the Tar Pit area, excavated subsurface soil was field screened for the presence of petroleum hydrocarbons using visual observations, photoionization detector (PID) readings in the head space of the sample, and sheen testing. Sheen testing consisted of placing an aliquot of soil in a container with a small amount of water and then looking for the presence of a petroleum sheen on the water. Soil staining was used as a visual indicator of impacted soil. After suspect soil was identified, the PID was used to measure headspace vapors volatilizing from lighter petroleum fractions and the sheen testing was used to indicate the presence of heavier, less volatile diesel- and heavy oil-range petroleum hydrocarbon fractions.

Free product and petroleum hydrocarbon-impacted soil were removed from an area approximately 35 feet wide and 135 feet long (Figure 3-2). Generally, excavation depths ranged between 0.5 and 2 feet below ground surface. However, a narrow band of deeper Bunker C-like impacted soil was observed in a long, narrow area . The excavation of impacted soil along this area extended between depths of 3 and 6 feet below ground surface as shown on Figure 3-2. In addition, another area with deeper Bunker C-like impacts was observed on the southwest corner of the excavation (Figure 3-2). This area was excavated to a depth of approximately 8 feet below ground surface.

To help in identifying the extent of contamination in this area, excavation of the most visibly impacted soil continued until field screening indicated the impacted soil had been removed or when physical limitations to further excavation were reached. The horizontal extent of the excavation was limited to the west by the presence of the rail line and to the north by the limits of the G2 Transfer Lines excavation conducted in June 2007. In contrast to the rest of the Tar Pit area, which had tar-like free phase Bunker C-like and heavy oil-impacted soil, soil impacted with lighter diesel-range petroleum hydrocarbon fractions was encountered along the eastern margins of the excavation. The excavation was halted on the eastern side when field observations indicated that the free phase

Bunker C-like impacted soil were removed. The area remains as an open excavation pending future decisions on site disposition.

Approximately 1,000 cubic yards of petroleum hydrocarbon-impacted soil were removed from the Tar Pit area and fuel line excavations and stockpiled to the southeast of the Tar Pit area excavation (Figure 3-2). The base of the stockpile was lined with a high-density polyethylene (HDPE) liner and covered with visqueen to prevent surface water infiltration.

One 5-point composite soil sample (RCU-SP) was collected from the fuel line and Tar Pit area stockpiles on April 5, 2008. A separate sample from this stockpile (FO-SP) was collected on April 23, 2008. The soil samples were submitted to CAS and AAL for chemical analyses of TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx), VOCs, PAHs, and PCBs.

CAS conducted the PCBs, PAHs, and VOC analyses, and AAL conducted the TPH analyses.

Analytical results of the samples collected from the stockpiles indicate that diesel- and heavy oil-range petroleum hydrocarbons, several PAHs, and a few VOCs were detected at concentrations above screening levels (Table 3-3). Based on these results, the stockpiles will be disposed of off site in a facility permitted to receive this type of contaminated soil.

Test Pits

To better define the extent of the hot spot areas identified in the 1996 investigation of the RCU, three test pits (RCU-TP-1, RCU-TP-3, and RCU-TP-FL) were excavated on April 4, 2008. The location of the test pits is presented on Figure 3-2. Table 3-4 presents the analytical results of the soil samples collected from the test pits. Test pit logs are included in Appendix A.

Number and Location of Test Pits. Two of the test pits (RCU-TP-1 and RCU-TP-3) were completed within the Tar Pit area excavation after the tar-like material and visibly impacted soil were removed. The third test pit (RCU-TP-FL) was completed along the footprint of the South Fuel Line excavation, as discussed below in the **Fuel Line Investigation** section. Test pit samples (RCU-TP-1 and RCU-TP-3) are representative of soil conditions that remain in-place following excavation of the Tar Pit area.

Both RCU-TP-1 and RCU-TP-3 were advanced to a depth of approximately 12 feet below ground surface. The final depth of these test pits was 2 feet deeper than the 10 feet proposed in the Phase II Work Plan since the Tar Pit area had already been excavated to 2 feet below grade throughout the area.

RCU-TP-1 was advanced directly west from the diesel-impacted area near the southeast corner of the Tar Pit area excavation (Figure 3-2). The test pit was located in this area to better define the lateral extent of impacted soil along the South Fuel Line.

RCU-TP-3 was advanced west of and near the center of the Tar Pit area excavation. The test pit was placed in this location to evaluate the extent of petroleum-impacted soil identified in the deepest areas of the Tar Pit area excavation.

Soils encountered in these two test pits consist mainly of sandy gravel.

Analytical Parameters. Four soil samples were collected from each test pit consisting of three side wall samples and one bottom (floor) sample. These soil samples from each test pit were submitted to AAL for chemical analyses of TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx).

In addition, the floor sample from each test pit was submitted to CAS for analysis of a comprehensive suite of chemical compounds, including VOCs, PAHs, and PCBs.

Test Pit Soil Sample Analytical Results. Analytical results of the side wall and excavation bottom soil samples collected from RCU-TP-1 and RCU-TP-3 were non-detect for TPH and PCBs. Other chemical constituents were either non-detect or detected at concentrations below screening levels (Table 3-4).

Soil SPLP Analysis and Analytical Results. During the 1996 investigation, synthetic precipitation leaching procedure (SPLP) testing was performed on a soil sample, RU-1 S-5, from the RCU area to assess the leaching potential of chemical constituents in the soil (Hart Crowser 1997a). This sample had diesel- and heavy oil-range concentrations of 4,600 and 540 mg/kg, respectively (Table 3-1). The leachate from the SPLP was analyzed for TPH (NWTPH-Dx) and PAHs. SPLP results for the sample are summarized in Table 3-5. The SPLP leachate estimated concentrations were 0.87 J and 0.68 J mg/L for diesel- and heavy oil-range petroleum hydrocarbons, respectively. No PAHs were detected in the SPLP leachate above the method reporting limits. These data indicate that diesel- and heavy oil-range concentrations detected in the RCU area are not likely to be very mobile in the soil.

After excavation activities were concluded within the Tar Pit area, residual petroleum hydrocarbon impacts to soil along the eastern limits of the excavation remained. Although most of the heavy oil hot spot identified in this area of the site in the Phase II Work Plan was excavated, petroleum odors and soil staining resembling diesel-range petroleum hydrocarbons were observed by field personnel.

The nature and extent of the diesel impacts along the eastern limits of the excavation have been fairly well characterized. A reasonable estimate of the lateral extent of petroleum hydrocarbon-impacted soil above 2,000 mg/kg is outline on Figure 3-2, while Figure 3-3 shows a cross section with the vertical depth of soil contamination shown based on site analytical data.

Fuel Line Investigation

Observations of the RCU area indicated a number of underground fuel lines associated with the former unloading system were potentially present. To check for potential leaks or impacts to soil, sections of the fuel lines were uncovered. When no obvious evidence of leaks was observed after excavation, or in areas where they could not be uncovered, sections of the lines were pressure tested to identify potential leaks. Steam lines, water mains, fire suppression water system lines, and other utilities either share or are located within the vicinity of the utility corridors used by the fuel lines.

Fuel Line Investigation Test Pit Soil Sample Analytical Results

Test pit RCU-TP-FL was advanced to a final depth of 5 feet below ground surface (Figure 3-2). Soils encountered within the fuel line investigation area consisted mostly of rail ballast and fill materials. Since the fuel lines ran along the toe of the rail line embankment, the test pit was not advanced to the proposed depth of 10 feet to prevent undermining the rail line foundation.

The analytical results for side wall sample RCU-TP-FL-SW-2 indicate diesel- and heavy oil-range petroleum hydrocarbons exceed the screening levels (Table 3-4). This sample was analyzed for TPH (NWTPH-HCID and NWTPH-Dx). The diesel-range petroleum hydrocarbon concentrations were 7,200 mg/kg by NWTPH-HCID and 7,400 mg/kg by NWTPH-Dx. The heavy oil-range petroleum hydrocarbon concentrations were 9,900 mg/kg by NWTPH-HCID and 9,700 mg/kg by NWTPH-Dx. The other analytical results indicate that constituents were non-detect or detected at concentrations below screening levels.

Fuel Line Excavation and Investigation

Prior to excavation, a Hart Crowser representative surveyed the RCU area fuel lines using utility locating equipment (MetroTech 310 Pipe and Cable locator) to identify their location and present configuration. The configuration of the lines to the extent known is presented on Figure 3-2.

Once located, a backhoe operated by a general contractor under contract with Kaiser and observed by Hart Crowser, was used to uncover the fuel lines and visually look for indications of leaks (e.g., broken lines, oily soil, etc.). As it is customary in Kaiser practices, once inactive fuel lines are uncovered during an investigation they are customarily removed. The sections of the fuel lines removed during the Phase II Fuel Line investigation include:

- Sections of the North Fuel Line to the 100,000-Gallon Tank; and
- Sections of the supply, return, and associated steam line of the South Fuel Lines.

In addition, infrastructure associated with the fuel lines was also removed. The East and West Fuel Lines were left in-place.

North Fuel Line

On April 1, 2008, during a utility survey conducted by a Hart Crowser representative to identify utilities prior to the test pit investigation, a pipe on the side wall of a depression was encountered approximately 410 feet north of the RCU Station Building (Figure 3-2). The pipe was traced to an above-ground pipe manifold located approximately 100 feet north of the RCU Station Building. It was ultimately discovered that this pipe supplied fuel to a former 100,000-gallon fuel storage tank that had been removed by Kaiser in the 1990s.

The investigation of the North Fuel Line that ensued included the original plans to investigate the hot spot area in addition to removal of sections of the line, pressure testing, and several attempts to locate a return line identified in historical plans of the facility. In this section, we present the efforts associated with the hot spot investigation. Additional detail on the North Fuel Line and the former 100,000-Gallon Tank are presented in Section 3.3.

Sections of the North Fuel Line were traced traveling from the north end of the RCU Station Building, through the hot spot area, and north toward the manifold identified north of the RCU as illustrated on Figure 3-2. According to available utility drawings, the line was 4 inches in diameter buried at a depth of approximately 4.5 feet below ground surface. This section of the North Fuel

Line was uncovered, assessed using field screening techniques, and removed on April 21, 2008. The removal was terminated approximately 60 feet north of the manifold in the vicinity of a power pole since it was determined that the integrity of the pole would be compromised if the line was excavated further to the north. The above-ground pipe manifold was also removed at that time.

Evidence of soil contamination was not observed in soil associated with the removal of the North Fuel Line. Therefore, no soil verification samples were collected for analysis.

South Fuel Line and Steam Line

Excavation of the South Fuel Lines started on April 1, 2008, with an underground utility survey. Two 4-inch-diameter fuel lines (supply and return) and a 4-inch-diameter steam line were identified during the survey. After tracing the path followed by the fuel and steam lines, they were uncovered on April 4, 2008, and inspected for potential breaks or leaks. The base of the pipes was estimated at a depth of approximately 3 feet below ground surface.

A 50-foot section of the South Fuel Lines and associated steam line were removed on April 4, 2008. The excavation started in a concrete vault located approximately 130 feet south of the RCU Station Building and continued to the north (Figure 3-2). The vault itself was left in-place but the associated valves and other internal pipe infrastructure were removed.

Soil visibly impacted with TPH was identified along the bottom and east side wall of the South Fuel Lines excavation using the screening methods presented in the Phase II RI Work Plan (Hart Crowser 2007b). Impacted soil, which was identified to a depth of approximately 1 foot below the base of the pipes (total depth of approximately 4 feet below ground surface), was excavated and stockpiled southeast of the Tar Pit area excavation. However, impacted soil identified along the east side wall of the fuel line excavation was left in-place so as not to undermine the foundation of the rail line.

An additional 40 feet of line, extending north from the north end of the April 4 excavation were removed on April 22, 2008. The removal of the RCU South Fuel Line was terminated at this point to prevent undermining the support structure for the G4 Transfer Line. The remaining section of the South Fuel Line located between the G4 Transfer Line support structures and the RCU Station Building was left in-place.

No additional soil verification soil samples other than the test pit samples discussed above were collected along the South Fuel Lines excavation. The extent of the South Fuel Lines excavations is presented on Figure 3-2.

Groundwater Monitoring Wells

Wells WW-MW-7, WW-MW-8, and WW-MW-9, located in or near the RCU area, were sampled and analyzed to evaluate potential groundwater impacts from the RCU area. The wells are located downgradient from the hot spots and fuel lines associated with the RCU area.

Well WW-MW-8 has typically been sampled biannually with the regular quarterly groundwater monitoring program since 1989 as part of the Wastewater Treatment area ongoing monitoring. Wells WW-MW-7 and WW-MW-9 had not been sampled since about 2000. As proposed in the Phase II RI Work Plan, these three wells were sampled twice in 2008 (April 24 and October 23) during the regular quarterly groundwater monitoring program events. These two events represent the seasonal highest and lowest groundwater elevation conditions within the aquifer.

Wells WW-MW-7 and WW-MW-9 were re-developed on April 24, 2008, prior to the first monitoring event. Re-development was conducted to remove fine-grain sediment that had accumulated within the well casing by natural processes since they were last sampled. Groundwater sampling and analysis were conducted in accordance with the procedures outlined in the agency-approved groundwater SAP/QAPP (Hart Crowser 2007a).

Analytical Parameters

The groundwater samples obtained from these wells were analyzed for TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx).

In addition, groundwater samples from WW-MW-7 and WW-MW-9 were also analyzed for VOCs, PAHs, and PCBs.

CAS conducted the PCBs, PAHs, and VOC analyses, and AAL conducted the TPH analyses. Groundwater analytical results are presented in Table 3-2.

Phase II Groundwater Analytical Results

Analytical results of the groundwater samples collected from the three wells indicate that gasoline-range petroleum hydrocarbons were not detected in any of the samples analyzed. Well WW-MW-9 did not contain detectable concentrations of petroleum hydrocarbons or PCBs during the 2008 groundwater sampling events. Wells WW-MW-7 and WW-MW-8 both had detections of diesel- and heavy oil-range petroleum hydrocarbons above the respective screening levels in the October 2008 event only. Several PAHs and several VOCs were detected in some of these wells at concentrations below screening levels (Table 3-2). Aroclor 1248 was detected at 0.0063 ug/L in the WW-MW-8 sample collected in October 2008, which exceeds the screening level for Total PCBs. This same well contained 7.9 mg/L of diesel-range petroleum hydrocarbons during that sampling event. It is likely that the low concentration of PCBs detected in this groundwater sample is associated with the petroleum also present in the sample. It is not likely to be indicative of PCBs dissolved in groundwater.

3.2.5 Summary of Current Conditions

RCU Area

Test pit and soil boring sample analytical results from the RCU area indicate detections of diesel- and heavy oil-range petroleum hydrocarbons exceeding screening levels. Specifically, near-surface soil from test pit TP-2 indicates a diesel-range petroleum hydrocarbon concentration of 3,600 mg/kg. Near-surface soil samples from TP-2 and TP-2A indicate heavy oil-range petroleum hydrocarbons exceeding screening levels at concentrations of 8,700 and 4,000 mg/kg, respectively. In addition, the near-surface sample from TP-13 indicate diesel- and heavy oil-range petroleum hydrocarbon concentrations of 2,700 and 8,100 mg/kg, respectively. Soil samples collected from soil boring RU-1 between the depth of 17.5 to 44 feet below ground surface indicate diesel-range petroleum hydrocarbons exceeding screening levels at concentrations between 2,500 and 8,100 mg/kg. Soil sample analytical results from TP2A-S1, TP9-S1, and TP13-S1 indicate arsenic concentrations of 6.6, 5.2, and 6 mg/kg, respectively. The screening level for arsenic is 0.03 mg/kg. Although arsenic is above screening levels, these detections in test pit soils are within expected background soil ranges for the Spokane Basin (Ecology 1994). The other analytical results indicate other metals were non-detect or detected at concentrations below screening levels.

The cPAH, benzo(a)pyrene, was detected at estimated concentrations of 520, 730, and 1,100 ug/kg in near-surface samples from TP-2A, TP-9, and TP-13, respectively. These concentrations, as well as the TEQ equivalent concentrations for cPAHs of 520, 781, and 1,193 ug/kg, respectively, exceed the screening level. Note the soil representative of TP-13 was excavated and stockpiled during excavation of the Tar Pit area.

Figure 3-3 schematically illustrates TPH detections in soil samples in a Cross Section R-R′ of the RCU area. The cross section location is shown on Figure 3-2.

The need for additional remedial action in this area will be evaluated during the FS.

Fuel Lines

Due to physical constraints encountered during the excavation (rail line, power pole, and G4 Transfer Lines supports), impacted soil with diesel- and heavy oil-range petroleum hydrocarbons at concentrations above screening levels were left in-place along the side walls of the sections of fuel line excavated north of the RCU Station Building. In addition, near-surface samples from TP-2A and TP-9 indicate arsenic and benzo(a)pyrene (and TEQ cPAHs) remain in soil above screening levels. The arsenic concentrations are within the range of background concentrations for the Spokane Basin (Ecology 1994). The need for additional remedial action in this area will be evaluated during the FS.

3.3 100,000-GALLON FUEL OIL TANK

3.3.1 Introduction

The former 100,000-Gallon Fuel Oil Tank was located in the west-central area of the Trentwood Facility, approximately 186 feet north of the RCU building (Figure 3-2). The existence of this tank was unknown to current Kaiser representatives until the Phase II work started in the RCU Area in 2008.

The presence of this tank was first suspected in April 2008 when the utility survey conducted for the RCU fuel line investigation was completed. During the survey, a fuel line (North Fuel Line) was identified traveling from the north end of the RCU building to the border of a depression present north of the RCU building (Figure 3-2). The end of the abandoned North Fuel Line was identified on the south side wall of the depression; however, no additional structures were known in this area of the site.

Review of historical drawings indicated that the North Fuel Line identified in the field was formerly connected to a “100,000-gallon Emergency Fuel Oil Storage Tank.” The tank is assumed to have been installed to store Bunker C and/or fuel oil arriving to the plant by rail car. However, it is unknown whether the tank ever contained any fuel.

Upon Kaiser's review of additional historical records, the tank and pump house were identified on historical aerial photographs between 1953 and 1997 (Kaiser 1938 – 1998). The tank and pump house were no longer present on the 1998 aerial photograph. Historical utility maps also indicate the tank was connected to a small pump house used to pump fuel oil to the conventional area of the Mill building through an unknown route.

3.3.2 Previous Investigations

Based mainly on historical aerial photographs of the Facility, the 100,000-Gallon Tank was removed at some point between September 1997 and June 1998. To Kaiser's knowledge, no records are available regarding the former tank's purpose, installation records, use, storage records, or its removal.

3.3.3 Proposed Phase II (RI) Work

Since the presence of the tank was unknown to current Kaiser personnel prior to the time when Phase II activities in the RCU Area were conducted in 2008, no work was proposed in this area in the Phase II RI Work Plan (Hart Crowser 2007).

3.3.4 Phase II RI Field Activities

Since only one pipe (supply line) was identified during the utility survey conducted by a Hart Crowser on April 1, 2008 (North Fuel Line), a second line (return line) was suspected to exist. The suspected line likely transferred fuel from the former 100,000-Gallon Tank to either a small pump house located on the north end of the depression or to the Mill building (Figure 3-2). During the survey, an attempt was made to find the "return" line by excavating the area around the concrete pad surrounding the pump house; however, the return line was not located.

As presented in Section 3.2, a section of the North Fuel Line (from the north end of the RCU Station Building toward the pipe manifold and power pole) and a manifold were excavated and removed on April 21, 2008 (Figure 3-2). The remainder of the North Fuel Line from the power pole north to the depression was pressure tested to determine whether it had leaked. Since the line passed the pressure testing and removal may have undermined the integrity of the power pole, this section of the North Fuel Line was left in-place. This excavated area remains as an open trench.

In addition, a second attempt to locate the return line from the 100,000-Gallon Tank to the pump house was conducted on April 22, 2008. During this effort, a trench around the east and northeast edge of the depression and toward the pump house was excavated to approximately 5 feet below ground surface (Figure 3-2). However, the suspected line was not located and the trench was left open.

Since the section of the North Fuel Line north of the manifold passed the pressure testing and no evidence of soil contamination was observed in soils in or around the depression, no soil verification samples were collected during the Phase II activities.

3.3.5 Summary of Current Conditions

Pressure testing of the section of the North Fuel Line to the location of the former 100,000-Gallon Tank (depression) indicated this section of the fuel line was sound with no leaks. In addition, no obvious evidence of releases was identified within the depression left over from the tank removal. Based on this information, it was determined that no additional investigations or future cleanup actions are warranted in the vicinity of the former 100,000-Gallon Tank.

3.4 REFERENCES FOR SECTION 3.0

Hart Crowser 1997a. Draft Report, Results of Synthetic Precipitation Leaching Procedure (SPLP) Testing for Selected Soil Samples, Rail Car Unloading (RCU) Area and Oil Reclamation Building (ORB), Kaiser Trentwood Works, Spokane, Washington. J-2644-60. February 20, 1997.

Hart Crowser 1997b. Subsurface Investigation, Rail Car Unloading (RCU) Area, Kaiser Trentwood Works, Spokane Washington. J-2644-60. February 25, 1997.

Hart Crowser 2007a. Sampling and Analysis Plan and Quality Assurance Project Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-99. January 10, 2007.

Hart Crowser 2007b. Phase II Remedial Investigation/Feasibility Study Work Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-103. November 30, 2007.

Kaiser 1938 - 1998. Historical Aerial Photographs Kaiser Aluminum Trentwood Facility, Spokane, Washington.

Washington State Department of Ecology (Ecology) 1994. Natural Background Soil Metals Concentrations in Washington State, Washington State Department of Ecology Publication #94-115. October 1994.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 3.0.doc

Table 3-1 - Analytical Results for Soil Samples from the RCU Area Borings and Test Pits

Sample ID	Screening	TP1-S1	TP2-S1	TP2-S2	TP2A-S1	TP3-S1	TP4-S1	TP5-S1 (d)	TP5-S2 (d)
Sampling Date	Level (a)	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth in Feet		2 to 3	0.5 to 1	4 to 4.5	0.5 to 1	2 to 2.5	1.5 to 2	2 to 3	7.5 to 8.5
NWTPH-HCID in mg/kg									
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	20 U	3,600	20 U	510	20 U	20 U	620	350
Bunker C	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	510	8,700	300	4,000	700	350	280	240
Unknown	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Sample ID	Screening	TP6-S1	TP7-S2	TP8-S2	TP9-S1	TP9-S2	TP10-S1	TP10-S2	TP12-S1
Sampling Date	Level (a)	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96	10/08/96
Depth in Feet		2 to 3	8.5 to 9.5	4 to 4.5	0.5 to 1	3.5 to 4.5	0.5 to 1	3.5 to 4	1 to 2
NWTPH-HCID in mg/kg									
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	20 U	33	20 U	20 U	20 U	410	20 U	20 U
Bunker C	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	45 J	73	50 U	500	50 U	1,600	50 U	280
Unknown	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Table 3-1 - Analytical Results for Soil Samples from the RCU Area Borings and Test Pits

Sample ID	Screening	TP13-S1 (d)	TP14-S1	TP14-S2	TP15-S2	TP16-S1	TP18-S1	TP19-S2	RU1-S2
Sampling Date	Level (a)	10/08/96	10/10/96	10/10/96	10/10/96	10/10/96	10/10/96	10/10/96	11/01/96
Depth in Feet		1 to 1.5	0.5 to 1	4 to 4.5	4 to 4.5	0.5 to 1	1 to 2	3 to 3.5	12.5 to 12.9
NWTPH-HCID in mg/kg									
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	2,900	20 U	20 U	20 U	20 U	20 U	20 U	360
Bunker C	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	8,100	50 U	50 U	50 U	50 U	50 U	67	170
Unknown	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Sample ID	Screening	RU1-S3	RU1-S4	RU1-S5	RU1-S7	RU1-S8	RU2-S1	RU2-S3	RU3-S1
Sampling Date	Level (a)	11/01/96	11/01/96	11/01/96	11/01/96	11/01/96	11/01/96	11/01/96	11/01/96
Depth in Feet		17.5 to 17.9	22.5 to 24	27.5 to 29	37.5 to 39	42.5 to 44	7.5 to 9	17.5 to 19	2.5 to 4
NWTPH-HCID in mg/kg									
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	2,700	8,100	4,600	2,000	2,500	150	20 U	68
Bunker C	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy Oil	2000	510	930	540	220	170	820	120	99
Unknown	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Table 3-1 - Analytical Results for Soil Samples from the RCU Area Borings and Test Pits

Sample ID	Screening	RU3-S2	RU3-S3
Sampling Date	Level (a)	11/01/96	11/01/96
Depth in Feet		5 to 6.5	7.5 to 9
NWTPH-HCID in mg/kg			
Gasoline	100	10 U	10 U
Kensol	2000	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U
Stoddard Solvent	100	10 U	10 U
Diesel/Fuel oil	2000	39	29
Bunker C	2000	50 U	50 U
Heavy Oil	2000	50 U	53
Unknown	2000	10 U	10 U

Table 3-1 - Analytical Results for Soil Samples from the RCU Area Borings and Test Pits

Sample ID	Screening	TP2A-S1		TP9-S1		TP13-S1		RU1-S2	
Sampling Date	Level (a)	10/08/96		10/08/96		10/08/96		11/01/96	
Depth in Feet		0.5 to 1		0.5 to 1		1 to 1.5		12.5 to 12.9	
Metals in mg/kg									
Arsenic	0.03	$\boxed{6.6}$		$\boxed{5.2}$		$\boxed{6}$			
Barium	1650	82		130		85			
Cadmium	0.7	0.28		0.28	U	0.28	U		
Chromium	2000	9.9		10		10			
Lead	250	13		29		11			
Mercury	2	0.11	U	0.5		0.18			
Selenium	5	0.28	U	0.29	U	0.28	U		
Silver	14	0.55	U	0.28	U	0.28	U		
PCBs in ug/kg									
Aroclor 1016		200	U	200	U	200	U		
Aroclor 1221		500	U	500	U	500	U		
Aroclor 1232		500	U	500	U	500	U		
Aroclor 1242		200	U	200	U	200	U		
Aroclor 1248		200	U	200	U	200	U		
Aroclor 1254		200	U	200	U	200	U		
Aroclor 1260		200	U	200	U	200	U		
Total PCBs	270	500	U	500	U	500	U		
PAHs in ug/kg									
1-Methylnaphthalene	2190	180	UJ	410	J	180	UJ		
2-Methylnaphthalene	2190	180	UJ	980	J	180	UJ		
Acenaphthene	98000	180	UJ	190	UJ	180	UJ		
Acenaphthylene		370	UJ	380	UJ	370	UJ		
Anthracene	2200000	98	J	120	J	1600	J		
Benzo(a)anthracene	See BaP (c)	37	UJ	210	J	37	UJ		
Benzo(a)pyrene	233	$\boxed{730}$	J	$\boxed{1100}$	J	$\boxed{520}$	J		
Benzo(b)fluoranthene	See BaP (c)	74	UJ	230	J	74	UJ		
Benzo(g,h,i)perylene		540	J	840	J	74	UJ		
Benzo(k)fluoranthene	See BaP (c)	310	UJ	300	UJ	400	UJ		
Chrysene	See BaP (c)	5100	J	1100	J	7700	UJ		
Dibenz(a,h)anthracene	See BaP (c)	74	UJ	76	UJ	180	UJ		
Fluoranthene	630000	970	J	3000	UJ	22000	UJ		
Fluorene	100000	37	UJ	38	UJ	1900	J		
Indeno(1,2,3-cd)pyrene	See BaP (c)	37	UJ	380	J	37	UJ		
Naphthalene	4490	180	UJ	190	UJ	180	UJ		
Phenanthrene		40	J	890	J	1400	J		
Pyrene	660000	5900	J	850	UJ	15000	J		
TEQ Equivalent (b)	See BaP (c)	$\boxed{781}$	J	$\boxed{1193}$	J	$\boxed{520}$	J		
Volatiles in ug/kg									
Benzene	5							50	U
Chlorobenzene								50	U
Ethylbenzene	5990							50	U
m-Dichlorobenzene								50	U
o-Dichlorobenzene								50	U
p-Dichlorobenzene								50	U
Toluene	4650							50	U
Total Xylenes	14500							50	U

Table 3-1 - Analytical Results for Soil Samples from the RCU Area Borings and Test Pits

Sample ID	Screening	RU1-S3	RU1-S4	RU1-S5	RU1-S7	RU1-S8
Sampling Date	Level (a)	11/01/96	11/01/96	11/01/96	11/01/96	11/01/96
Depth in Feet		17.5 to 17.9	22.5 to 24	27.5 to 29	37.5 to 39	42.5 to 44
PAHs in ug/kg						
1-Methylnaphthalene	2190			18 UJ		
2-Methylnaphthalene	2190			18 UJ		
Acenaphthene	98000			18 UJ		
Acenaphthylene				37 UJ		
Anthracene	2200000			1.8 UJ		
Benzo(a)anthracene	See BaP (c)			1.8 UJ		
Benzo(a)pyrene	233			16 J		
Benzo(b)fluoranthene	See BaP (c)			20 UJ		
Benzo(g,h,i)perylene				3.7 UJ		
Benzo(k)fluoranthene	See BaP (c)			10 UJ		
Chrysene	See BaP (c)			20 UJ		
Dibenz(a,h)anthracene	See BaP (c)			3.7 UJ		
Fluoranthene	630000			3.8 J		
Fluorene	100000			3.7 UJ		
Indeno(1,2,3-cd)pyrene	See BaP (c)			30 J		
Naphthalene	4490			18 UJ		
Phenanthrene				1.8 UJ		
Pyrene	660000			26 J		
TEQ Equivalent (b)	See BaP (c)			19 J		
Volatiles in ug/kg						
Benzene	5	50 U	50 U	50 U	50 U	50 U
Chlorobenzene		50 U	50 U	50 U	50 U	50 U
Ethylbenzene	5990	50 U	50 U	50 U	50 U	50 U
m-Dichlorobenzene		50 U	50 U	50 U	50 U	50 U
o-Dichlorobenzene		50 U	50 U	50 U	50 U	50 U
p-Dichlorobenzene		50 U	50 U	50 U	50 U	50 U
Toluene	4650	50 U	50 U	50 U	50 U	50 U
Total Xylenes	14500	50 U	50 U	50 U	50 U	50 U

U = Not detected at reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).
(d) Test pit overexcavated during subsequent field activities.

Table 3-2 - Groundwater Data Summary for Wells WW-MW-7, WW-MW-8, and WW-MW-9

Sample ID Sampling Date	Screening Level (a)	WW-MW-7 4/24/2008	WW-MW-7 10/23/2008	WW-MW-8 4/20/2006	WW-MW-8 10/28/2006	WW-MW-8 4/18/2007
PCBs in µg/L						
Aroclor 1016		0.0049 U	0.007 U			
Aroclor 1221		0.0097 U	0.02 U			
Aroclor 1232		0.0074 U	0.0097 U			
Aroclor 1242		0.0052 U	0.0098 U			
Aroclor 1248		0.0049 U	0.013 U			
Aroclor 1254		0.0049 U	0.0055 U			
Aroclor 1260		0.0049 U	0.005 UJ			
Total PCBs	0.000064	0.0097 U	0.02 UJ			
Semivolatiles in µg/L						
2-Methylnaphthalene		0.0046 T	0.038 U			
Acenaphthene	640	0.014 T	0.24 U			
Acenaphthylene		0.02 U	0.19 U			
Anthracene	4800	0.02 U	0.3 U			
Benzo(a)anthracene	See BaP (c)	0.02 U	0.038 U			
Benzo(a)pyrene	0.0028	0.02 U	0.038 U			
Benzo(b)fluoranthene	See BaP (c)	0.02 U	0.038 U			
Benzo(g,h,i)perylene		0.02 U	0.038 U			
Benzo(k)fluoranthene	See BaP (c)	0.02 U	0.038 U			
Chrysene	See BaP (c)	0.02 U	0.053 U			
Dibenz(a,h)anthracene	See BaP (c)	0.02 U	0.038 U			
Dibenzofuran	32	0.0097 T	0.038 U			
Fluoranthene	90	0.02 U	0.058 U			
Fluorene	640	0.013 T	0.038 U			
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.0026 T	0.038 U			
Naphthalene	160	0.02 U	0.29			
Phenanthrene		0.02 U	0.11 U			
Pyrene	480	0.028	0.24 U			
TEQ Equivalent (b)	See BaP (c)	0.00026 J	0.038 U			
Volatiles in µg/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U			
1,1,1-Trichloroethane	200	0.5 U	0.5 U			
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U			
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U			
1,1-Dichloroethane	1600	0.5 U	0.5 U			
1,1-Dichloroethene		0.5 U	0.5 U			
1,1-Dichloropropene		0.5 U	0.5 U			
1,2,3-Trichlorobenzene		2 U	2 U			
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U			
1,2,4-Trichlorobenzene	35	2 U	2 U			
1,2,4-Trimethylbenzene	400	2 U	2 U			
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U			
1,2-Dibromoethane(EDB)		2 U	2 U			
1,2-Dichlorobenzene	420	0.5 U	0.5 U			
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U			
1,2-Dichloropropane	0.5	0.5 U	0.5 U			
1,3,5-Trimethylbenzene	400	2 U	2 U			
1,3-Dichlorobenzene	320	0.5 U	0.5 U			
1,3-Dichloropropane		0.5 U	0.5 U			
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U			
2,2-Dichloropropane		0.5 U	0.5 U			
2-Butanone (MEK)		20 U	20 U			

Table 3-2 - Groundwater Data Summary for Wells WW-MW-7, WW-MW-8, and WW-MW-9

Sample ID Sampling Date	Screening Level (a)	WW-MW-7 4/24/2008	WW-MW-7 10/23/2008	WW-MW-8 4/20/2006	WW-MW-8 10/28/2006	WW-MW-8 4/18/2007
2-Chlorotoluene		2 U	2 U			
2-Hexanone		20 U	20 U			
4-Chlorotoluene		2 U	2 U			
4-Isopropyltoluene		2 U				
4-Methyl-2-Pentanone		20 U	20 U			
Acetone	800	20 U	20 U			
Benzene	0.8	0.5 U	0.5 U			
Bromobenzene		2 U	2 U			
Bromochloromethane		0.5 U	0.5 U			
Bromodichloromethane	0.27	0.5 U	0.5 U			
Bromoform	4.3	0.5 U	0.5 U			
Bromomethane	11	0.5 UJ	0.5 U			
Freon 11		0.5 U	0.5 U			
Freon 12	1600	0.5 U	0.5 U			
Carbon Disulfide	800	0.5 U	0.06 T			
Carbon Tetrachloride	0.23	0.5 U	0.5 U			
Chlorobenzene	100	0.5 U	0.5 U			
Chloroethane		0.5 U	0.5 U			
Chloroform	5.7	0.5 U	0.5 U			
Chloromethane	3.4	0.5 U	0.5 U			
Cis-1,2-Dichloroethene		0.5 U	0.5 U			
Cis-1,3-Dichloropropene		0.5 U	0.5 U			
Cumene(Isopropylbenzene)		2 U	2 U			
Dibromochloromethane	0.4	0.5 U	0.5 U			
Dibromomethane		0.5 U	0.5 U			
Ethylbenzene	530	0.5 U	0.5 U			
Hexachlorobutadiene	0.44	2 U	2 U			
Methylene Chloride	4.6	2 U	2 U			
N-Butylbenzene		2 U	2 U			
N-Propylbenzene		2 U	2 U			
Naphthalene	160	2 U	2 U			
Sec-Butylbenzene		0.04 T	0.06 T			
Styrene	1.5	0.5 U	0.5 U			
Tert-Butylbenzene		2 U	2 U			
Tetrachloroethene	0.081	0.5 U	0.5 U			
Toluene	640	0.42 T	0.23 T			
Trans-1,2-Dichloroethene		0.5 U	0.5 U			
Trans-1,3-Dichloropropene		0.5 U	0.5 U			
Trichloroethene (TCE)	0.49	0.5 U	0.5 U			
Vinyl Chloride	0.025	0.5 U	0.5 U			
m,p-Xylenes	16000	0.5 U	0.5 U			
o-Xylene	16000	0.5 U	0.5 U			
p-Cymene			2 U			

Table 3-2 - Groundwater Data Summary for Wells WW-MW-7, WW-MW-8, and WW-MW-9

Sample ID Sampling Date	Screening Level (a)	WW-MW-7 4/24/2008	WW-MW-7 10/23/2008	WW-MW-8 4/20/2006	WW-MW-8 10/28/2006	WW-MW-8 4/18/2007
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	33	0.5 U	0.5 D	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	4.5	0.5 U	0.5 D	0.5 U
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	27	0.2 U	33	0.2 U
Heavy oil	0.5	0.5 U	3.6	0.5 U	2.9	0.5 U
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Table 3-2 - Groundwater Data Summary for Wells WW-MW-7, WW-MW-8, and WW-MW-9

Sample ID Sampling Date	Screening Level (a)	WW-MW-8 10/23/2007	WW-MW-8 4/24/2008	WW-MW-8 10/23/2008	WW-MW-9 4/24/2008	WW-MW-9 10/22/2008
PCBs in µg/L						
Aroclor 1016			0.005 U	0.005 U	0.007 U	0.023 UJC
Aroclor 1221			0.01 U	0.0099 U	0.0097 U	0.11 UJC
Aroclor 1232			0.0068 U	0.005 U	0.0082 U	0.0064 UJC
Aroclor 1242			0.005 U	0.005 U	0.0079 U	0.0075 UJC
Aroclor 1248			0.005 U	0.0063	0.0053 U	0.0092 UJC
Aroclor 1254			0.005 U	0.005 U	0.0056 U	0.0041 UJC
Aroclor 1260			0.005 U	0.005 UJ	0.0049 U	0.0055 UJC
Total PCBs	0.000064		0.01 U	$\boxed{0.0063}$	0.0097 U	0.11 UJC
Semivolatiles in µg/L						
2-Methylnaphthalene			0.02 U	0.019 U	0.0049 T	0.02 U
Acenaphthene	640		0.13	0.69	0.012 T	0.02 U
Acenaphthylene			0.03 U	0.14 U	0.0039 T	0.02 U
Anthracene	4800		0.02 U	0.058 U	0.02 U	0.02 U
Benzo(a)anthracene	See BaP (c)		0.02 U	0.019 U	0.02 U	0.02 U
Benzo(a)pyrene	0.0028		0.02 U	0.019 U	0.02 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)		0.02 U	0.019 U	0.02 U	0.02 U
Benzo(g,h,i)perylene			0.02 U	0.0036 T	0.02 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)		0.02 U	0.019 U	0.02 U	0.02 U
Chrysene	See BaP (c)		0.02 U	0.019 U	0.02 U	0.02 U
Dibenz(a,h)anthracene	See BaP (c)		0.02 U	0.019 U	0.02 U	0.02 U
Dibenzofuran	32		0.1	0.52	0.0093 T	0.02 U
Fluoranthene	90		0.02 U	0.029	0.02 U	0.02 U
Fluorene	640		0.24	1.3	0.016 T	0.02 U
Indeno(1,2,3-cd)pyrene	See BaP (c)		0.02 U	0.019 U	0.02 U	0.02 U
Naphthalene	160		0.045 U	0.18	0.02 U	0.23
Phenanthrene			0.13	0.8	0.02 U	0.02 U
Pyrene	480		0.036	0.11	0.01 T	0.075 U
TEQ Equivalent (b)	See BaP (c)		0.02 U	0.019 U	0.02 U	0.02 U
Volatiles in µg/L						
1,1,1,2-Tetrachloroethane	1.7		0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200		0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17		0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59		0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600		0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene			0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene			0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene			2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063		0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35		2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400		2 U	0.07 T	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031		2 U	2 U	2 U	2 U
1,2-Dibromoethane(EDB)			2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420		0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38		0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5		0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400		2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320		0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane			0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8		0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane			0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)			20 U	20 U	20 U	20 U

Table 3-2 - Groundwater Data Summary for Wells WW-MW-7, WW-MW-8, and WW-MW-9

Sample ID Sampling Date	Screening Level (a)	WW-MW-8 10/23/2007	WW-MW-8 4/24/2008	WW-MW-8 10/23/2008	WW-MW-9 4/24/2008	WW-MW-9 10/22/2008
2-Chlorotoluene			2 U	2 U	2 U	2 U
2-Hexanone			20 U	20 U	20 U	20 U
4-Chlorotoluene			2 U	2 U	2 U	2 U
4-Isopropyltoluene			2 U		2 U	
4-Methyl-2-Pentanone			20 U	20 U	20 U	20 U
Acetone	800		20 U	20 U	20 U	20 U
Benzene	0.8		0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene			2 U	2 U	2 U	2 U
Bromochloromethane			0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27		0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3		0.5 U	0.5 U	0.5 U	0.5 UJ
Bromomethane	11		0.5 UJ	0.5 U	0.5 UJ	0.5 U
Freon 11			0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600		0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800		0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23		0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100		0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane			0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7		0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4		0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene			0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene			0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)			0.14 T	1.3 T	2 U	2 U
Dibromochloromethane	0.4		0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane			0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530		0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44		2 U	2 U	2 U	2 U
Methylene Chloride	4.6		2 U	2 U	2 U	2 U
N-Butylbenzene			2 U	0.13 T	2 U	2 U
N-Propylbenzene			0.1 T	1.4 T	2 U	2 U
Naphthalene	160		2 U	2 U	2 U	2 U
Sec-Butylbenzene			0.25 T	2.1	0.09 T	2 U
Styrene	1.5		0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene			2 U	0.08 T	2 U	2 U
Tetrachloroethene	0.081		0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640		0.07 T	0.5 U	0.5 U	0.05 T
Trans-1,2-Dichloroethene			0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene			0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49		0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025		0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000		0.5 U	0.09 T	0.5 U	0.5 U
o-Xylene	16000		0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene				2 U		2 U

Table 3-2 - Groundwater Data Summary for Wells WW-MW-7, WW-MW-8, and WW-MW-9

Sample ID Sampling Date	Screening Level (a)	WW-MW-8 10/23/2007	WW-MW-8 4/24/2008	WW-MW-8 10/23/2008	WW-MW-9 4/24/2008	WW-MW-9 10/22/2008
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kensol	0.5	0.32	0.24	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	8	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U	$\boxed{7.9}$	0.2 U	0.2 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
D = Detected at or above the reporting limit indicated.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 3-3 - Analytical Results for Soil Stockpile Samples-Rail Car Unloading Area

Sample ID / Sampling Date	Screening Level (a)	RCU-SP 4/05/2008	FO-SP 4/23/2008
Total Solids in %		76.8	84.2
PCBs in µg/kg			
Aroclor 1016		24 U	10 U
Aroclor 1221		48 U	20 U
Aroclor 1232		24 U	10 U
Aroclor 1242		24 U	10 U
Aroclor 1248		24 U	10 U
Aroclor 1254		24 U	10 U
Aroclor 1260		24 U	10 U
Total PCBs	270	48 U	20 U
Semivolatiles (SIM) in µg/kg			
2-Methylnaphthalene	2190	33000	15000
Acenaphthene	98000	2600	110
Acenaphthylene		1300 U	88 U
Anthracene	2200000	6400	430
Benzo(a)anthracene	See BaP (c)	4300	1100
Benzo(a)pyrene	233	5200	1300
Benzo(b)fluoranthene	See BaP (c)	1300 U	2000
Benzo(g,h,i)perylene		990 T	1400
Benzo(k)fluoranthene	See BaP (c)	1300 U	560
Chrysene	See BaP (c)	7300	1100
Dibenz(a,h)anthracene	See BaP (c)	1300 U	460
Dibenzofuran	5090	1600	1300
Fluoranthene	630000	2900	1100
Fluorene	100000	8000	160
Indeno(1,2,3-cd)pyrene	See BaP (c)	1300 U	1500
Naphthalene	4490	8000	4800
Phenanthrene		34000	4700
Pyrene	660000	23000	1100
TEQ Equivalent (b)	See BaP (c)	5703	1873
Volatiles in µg/kg			
1,1,1,2-Tetrachloroethane		70 U	6.7 UJ
1,1,1-Trichloroethane	1610	70 U	6.7 UJ
1,1,2,2-Tetrachloroethane		70 U	6.7 UJ
1,1,2-Trichloroethane		70 U	6.7 UJ
1,1-Dichloroethane	8730	70 U	6.7 UJ
1,1-Dichloroethene		70 U	6.7 UJ
1,1-Dichloropropene		70 U	6.7 UJ
1,2,3-Trichlorobenzene		280 U	27 UJ
1,2,3-Trichloropropane		70 U	6.7 UJ
1,2,4-Trichlorobenzene		280 U	27 UJ
1,2,4-Trimethylbenzene	31000	1000	0.36 JT
1,2-Dibromo-3-Chloropropane		280 U	27 UJ
1,2-Dibromoethane(EDB)		280 U	27 UJ
1,2-Dichlorobenzene		70 U	6.7 UJ
1,2-Dichloroethane(EDC)		70 U	6.7 UJ
1,2-Dichloropropane		70 U	6.7 UJ
1,3,5-Trimethylbenzene	8380	160 T	27 UJ
1,3-Dichlorobenzene		70 U	6.7 UJ

Table 3-3 - Analytical Results for Soil Stockpile Samples-Rail Car Unloading Area

Sample ID Sampling Date	Screening Level (a)	RCU-SP 4/05/2008	FO-SP 4/23/2008
1,3-Dichloropropane		70 U	6.7 UJ
1,4-Dichlorobenzene		70 U	6.7 UJ
2,2-Dichloropropane		70 U	6.7 UJ
2-Butanone (MEK)	20000	2800 U	4.8 JT
2-Chlorotoluene	2400	280 U	27 UJ
2-Hexanone		2800 U	27 UJ
4-Chlorotoluene	4180	280 U	27 UJ
4-Isopropyltoluene		150 T	27 UJ
4-Methyl-2-Pentanone		2800 U	27 UJ
Acetone	3210	2800 U	49 J
Benzene	5	70 U	2.1 JT
Bromobenzene		280 U	6.7 UJ
Bromochloromethane		70 U	6.7 UJ
Bromodichloromethane		70 U	6.7 UJ
Bromoform		70 U	6.7 UJ
Bromomethane	52	70 U	6.7 UJ
Freon 11		70 U	6.7 UJ
Freon 12		70 U	6.7 UJ
Carbon Disulfide	5600	70 U	0.41 JT
Carbon Tetrachloride		70 U	6.7 UJ
Chlorobenzene		70 U	6.7 UJ
Chloroethane		70 U	6.7 UJ
Chloroform	38	70 U	6.7 UJ
Chloromethane	22	70 U	6.7 UJ
Cis-1,2-Dichloroethene		70 U	6.7 UJ
Cis-1,3-Dichloropropene		70 U	6.7 UJ
Dibromochloromethane		70 U	6.7 UJ
Dibromomethane		70 U	6.7 UJ
Ethylbenzene	5990	82	0.57 JT
Hexachlorobutadiene		280 U	27 UJ
Isopropylbenzene(Cumene)		38 T	27 UJ
Methylene Chloride	22	35 T	14 UJ
N-Butylbenzene	19500	200 T	27 UJ
N-Propylbenzene	19500	78 T	27 UJ
Naphthalene	4490	9800	27 UJ
Sec-Butylbenzene	15800	46 T	27 UJ
Styrene	33	70 U	6.7 UJ
Tert-Butylbenzene	15600	280 U	27 UJ
Tetrachloroethene	0.9	29 T	0.99 JT
Toluene	4650	40 T	2.8 JT
Trans-1,2-Dichloroethene		70 U	6.7 UJ
Trans-1,3-Dichloropropene		70 U	6.7 UJ
Trichloroethene (TCE)		70 U	6.7 UJ
Vinyl Chloride		70 U	6.7 UJ
m,p-Xylenes	8520	110	2.3 JT
o-Xylene	916	73	0.64 JT

Table 3-3 - Analytical Results for Soil Stockpile Samples-Rail Car Unloading Area

Sample ID Sampling Date	Screening Level (a)	RCU-SP 4/05/2008	FO-SP 4/23/2008
TPH in mg/kg			
Diesel-Range Organics (DRO)	2000		920 C
Residual-Range Organics (RRO)	2000		930 C
NWTPH-HCID in mg/kg			
Gasoline	100	20 U	
Stoddard/Mineral spirits	100	20 U	
Kensol	2000	20 U	
Kerosene/Jet fuel	2000	20 U	
Diesel/Fuel oil	2000	$\boxed{6900}$	
Bunker C		50 U	
Heavy oil	2000	$\boxed{11000}$	
NWTPH-Dx in mg/kg			
Kensol	2000	20 U	
Kerosene/Jet fuel	2000	20 U	
Diesel/Fuel oil	2000	$\boxed{6700}$	
Heavy oil	2000	$\boxed{11000}$	
NWTPH-Gx in mg/kg			
Mineral spirits/Stoddard	100	5 U	
Gasoline	100	5 U	

C = The chromatographic pattern does not match the calibration standard.
U = Not detected at the reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 3-4 - Analytical Results for Soil Samples - Rail Car Unloading Area

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	RCU-TP-1-B-1 4/04/2008 10	RCU-TP-4-B-1 4/04/2008 10 Dup of RCU-TP-1-B-1	RCU-TP-1-SW-1 4/04/2008 2 to 3	RCU-TP-4-SW-1 4/04/2008 2 to 3 Dup of RCU-TP-1-SW-1	RCU-TP-1-SW-2 4/04/2008 5 to 6
% Moisture						
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg						
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U

Table 3-4 - Analytical Results for Soil Samples - Rail Car Unloading Area

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	RCU-TP-4-SW-2 4/04/2008 5 to 6 Dup of RCU-TP-1-SW-2	RCU-TP-1-SW-3 4/04/2008 9 to 10	RCU-TP-4-SW-3 4/04/2008 9 to 10 Dup of RCU-TP-1-SW-3	RCU-TP-3-B-1 4/04/2008 10	RCU-TP-3-SW-1 4/04/2008 2 to 3
% Moisture						
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg						
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U

Table 3-4 - Analytical Results for Soil Samples - Rail Car Unloading Area

Sample ID	Screening	RCU-TP-3-SW-2	RCU-TP-3-SW-3	RCU-TP-FL-B-1	RCU-TP-FL-SW-1	RCU-TP-FL-SW-2
Sampling Date	Level (a)	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Sample Depth in Feet		5 to 6	9 to 10	4	1 to 2	1 to 2
% Moisture					13	16
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	7200
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	1400	9900
NWTPH-Dx in mg/kg						
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	7400
Heavy oil	2000	50 U	50 U	50 U	1300	9700
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U

Non-detect TPH results are reported on a wet weight basis.

Table 3-4 - Analytical Results for Soil Samples - Rail Car Unloading Area

Sample ID	Screening Level (a)	RCU-TP-1-B-1		RCU-TP-4-B-1		RCU-TP-3-B-1	
Sampling Date		4/04/2008		4/04/2008		4/04/2008	
Sample Depth in Feet		10		10		10	
				Dup of RCU-TP-1-B-1			
Total Solids in %		96.9		96.6		96	
PCBs in µg/kg							
Aroclor 1016		10	U	9.5	U	10	U
Aroclor 1221		20	U	19	U	20	U
Aroclor 1232		10	U	9.5	U	10	U
Aroclor 1242		10	U	9.5	U	10	U
Aroclor 1248		10	U	9.5	U	10	U
Aroclor 1254		10	U	9.5	U	10	U
Aroclor 1260		10	U	9.5	U	10	U
Total PCBs	270	20	U	19	U	20	U
Semivolatiles in µg/kg							
2-Methylnaphthalene	2190	330	U	320	U	320	U
Acenaphthene	98000	330	U	320	U	320	U
Acenaphthylene		330	U	320	U	320	U
Anthracene	2200000	330	U	320	U	320	U
Benzo(a)anthracene	See BaP (c)	330	U	320	U	320	U
Benzo(a)pyrene	233	330	U	320	U	320	U
Benzo(b)fluoranthene	See BaP (c)	330	U	320	U	320	U
Benzo(g,h,i)perylene		330	U	320	U	320	U
Benzo(k)fluoranthene	See BaP (c)	330	U	320	U	320	U
Chrysene	See BaP (c)	330	U	320	U	320	U
Dibenz(a,h)anthracene	See BaP (c)	330	U	320	U	320	U
Dibenzofuran	5090	330	U	320	U	320	U
Fluoranthene	630000	16	T	320	U	320	U
Fluorene	100000	330	U	320	U	320	U
Indeno(1,2,3-cd)pyrene	See BaP (c)	330	U	320	U	320	U
Naphthalene	4490	330	U	320	U	320	U
Phenanthrene		330	U	320	U	320	U
Pyrene	660000	330	U	320	U	320	U
TEQ Equivalent (b)	See BaP (c)	330	U	320	U	320	U
Volatiles in µg/kg							
1,1,1,2-Tetrachloroethane		4.3	U	4.8	U	5.5	U
1,1,1-Trichloroethane	1610	0.19	T	4.8	U	5.5	U
1,1,2,2-Tetrachloroethane		4.3	U	4.8	U	5.5	U
1,1,2-Trichloroethane		4.3	U	4.8	U	5.5	U
1,1-Dichloroethane	8730	4.3	U	4.8	U	5.5	U
1,1-Dichloroethene		4.3	U	4.8	U	5.5	U
1,1-Dichloropropene		4.3	U	4.8	U	5.5	U
1,2,3-Trichlorobenzene		18	U	19	U	22	U
1,2,3-Trichloropropane		4.3	U	4.8	U	5.5	U
1,2,4-Trichlorobenzene		18	U	19	U	22	U
1,2,4-Trimethylbenzene	31000	0.086	T	19	U	22	U
1,2-Dibromo-3-Chloropropane		18	U	19	U	22	U
1,2-Dibromoethane(EDB)		18	U	19	U	22	U
1,2-Dichlorobenzene		4.3	U	4.8	U	5.5	U
1,2-Dichloroethane(EDC)		4.3	U	4.8	U	5.5	U
1,2-Dichloropropane		4.3	U	4.8	U	5.5	U
1,3,5-Trimethylbenzene	8380	18	U	19	U	22	U
1,3-Dichlorobenzene		4.3	U	4.8	U	5.5	U

Table 3-4 - Analytical Results for Soil Samples - Rail Car Unloading Area

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	RCU-TP-1-B-1 4/04/2008 10	RCU-TP-4-B-1 4/04/2008 10 Dup of RCU-TP-1-B-1	RCU-TP-3-B-1 4/04/2008 10
1,3-Dichloropropane		4.3 U	4.8 U	5.5 U
1,4-Dichlorobenzene		4.3 U	4.8 U	5.5 U
2,2-Dichloropropane		4.3 U	4.8 U	5.5 U
2-Butanone (MEK)	20000	18 U	19 U	3.9 T
2-Chlorotoluene	2400	18 U	19 U	22 U
2-Hexanone		18 U	19 U	22 U
4-Chlorotoluene	4180	18 U	19 U	22 U
4-Isopropyltoluene		18 U	19 U	22 U
4-Methyl-2-Pentanone		18 U	19 U	22 U
Acetone	3210	4.9 T	7 T	33
Benzene	5	4.3 U	4.8 U	5.5 U
Bromobenzene		4.3 U	4.8 U	5.5 U
Bromochloromethane		4.3 U	4.8 U	5.5 U
Bromodichloromethane		4.3 U	4.8 U	5.5 U
Bromoform		4.3 U	4.8 U	5.5 U
Bromomethane	52	4.3 U	4.8 U	5.5 U
Freon 11		4.3 U	4.8 U	5.5 U
Freon 12		4.3 U	4.8 U	5.5 U
Carbon Disulfide	5600	1.2 T	0.42 T	0.24 T
Carbon Tetrachloride		4.3 U	4.8 U	5.5 U
Chlorobenzene		4.3 U	4.8 U	5.5 U
Chloroethane		4.3 U	4.8 U	5.5 U
Chloroform	38	4.3 U	4.8 U	5.5 U
Chloromethane	22	4.3 U	4.8 U	5.5 U
Cis-1,2-Dichloroethene		4.3 U	4.8 U	5.5 U
Cis-1,3-Dichloropropene		4.3 U	4.8 U	5.5 U
Dibromochloromethane		4.3 U	4.8 U	5.5 U
Dibromomethane		4.3 U	4.8 U	5.5 U
Ethylbenzene	5990	0.45 T	0.24 T	0.35 T
Hexachlorobutadiene		18 U	19 U	22 U
Isopropylbenzene(Cumene)		18 U	19 U	22 U
Methylene Chloride	22	8.6 U	9.5 U	11 U
N-Butylbenzene	19500	18 U	19 U	22 U
N-Propylbenzene	19500	18 U	19 U	22 U
Naphthalene	4490	18 U	19 U	22 U
Sec-Butylbenzene	15800	18 U	19 U	22 U
Styrene	33	0.14 T	4.8 U	5.5 U
Tert-Butylbenzene	15600	18 U	19 U	22 U
Tetrachloroethene	0.9	1.5 T	0.65 T	1 T
Toluene	4650	3.4 T	1.8 T	2.4 T
Trans-1,2-Dichloroethene		4.3 U	4.8 U	5.5 U
Trans-1,3-Dichloropropene		4.3 U	4.8 U	5.5 U
Trichloroethene (TCE)		0.43 T	0.22 T	0.26 T
Vinyl Chloride		4.3 U	4.8 U	5.5 U
m,p-Xylenes	8520	1.4 T	0.69 T	1.1 T
o-Xylene	916	0.35 T	0.18 T	0.27 T

Table 3-4 - Analytical Results for Soil Samples - Rail Car Unloading Area

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	RCU-TP-FL-B-1 4/04/2008 4
Total Solids in %		92.9
PCBs in µg/kg		
Aroclor 1016		9.1 U
Aroclor 1221		19 U
Aroclor 1232		9.1 U
Aroclor 1242		9.1 U
Aroclor 1248		9.1 U
Aroclor 1254		9.1 U
Aroclor 1260		9.1 U
Total PCBs	270	19 U
Semivolatiles in µg/kg		
2-Methylnaphthalene	2190	330 U
Acenaphthene	98000	330 U
Acenaphthylene		330 U
Anthracene	2200000	340 U
Benzo(a)anthracene	See BaP (c)	330 U
Benzo(a)pyrene	233	330 U
Benzo(b)fluoranthene	See BaP (c)	330 U
Benzo(g,h,i)perylene		330 U
Benzo(k)fluoranthene	See BaP (c)	330 U
Chrysene	See BaP (c)	330 U
Dibenz(a,h)anthracene	See BaP (c)	330 U
Dibenzofuran	5090	330 U
Fluoranthene	630000	340 U
Fluorene	100000	330 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	330 U
Naphthalene	4490	330 U
Phenanthrene		340 U
Pyrene	660000	340 U
TEQ Equivalent (b)	See BaP (c)	330 U
Volatiles in µg/kg		
1,1,1,2-Tetrachloroethane		5.5 U
1,1,1-Trichloroethane	1610	5.5 U
1,1,2,2-Tetrachloroethane		5.5 U
1,1,2-Trichloroethane		5.5 U
1,1-Dichloroethane	8730	5.5 U
1,1-Dichloroethene		5.5 U
1,1-Dichloropropene		5.5 U
1,2,3-Trichlorobenzene		22 U
1,2,3-Trichloropropane		5.5 U
1,2,4-Trichlorobenzene		22 U
1,2,4-Trimethylbenzene	31000	0.35 T
1,2-Dibromo-3-Chloropropane		22 U
1,2-Dibromoethane(EDB)		22 U
1,2-Dichlorobenzene		5.5 U
1,2-Dichloroethane(EDC)		5.5 U
1,2-Dichloropropane		5.5 U
1,3,5-Trimethylbenzene	8380	0.13 T
1,3-Dichlorobenzene		5.5 U

Table 3-4 - Analytical Results for Soil Samples - Rail Car Unloading Area

Sample ID	Screening	RCU-TP-FL-B-1
Sampling Date	Level (a)	4/04/2008
Sample Depth in Feet		4
1,3-Dichloropropane		5.5 U
1,4-Dichlorobenzene		5.5 U
2,2-Dichloropropane		5.5 U
2-Butanone (MEK)	20000	4.4 T
2-Chlorotoluene	2400	22 U
2-Hexanone		22 U
4-Chlorotoluene	4180	22 U
4-Isopropyltoluene		22 U
4-Methyl-2-Pentanone		22 U
Acetone	3210	27
Benzene	5	1.1 T
Bromobenzene		5.5 U
Bromochloromethane		5.5 U
Bromodichloromethane		5.5 U
Bromoform		5.5 U
Bromomethane	52	5.5 U
Freon 11		5.5 U
Freon 12		5.5 U
Carbon Disulfide	5600	0.24 T
Carbon Tetrachloride		5.5 U
Chlorobenzene		5.5 U
Chloroethane		5.5 U
Chloroform	38	5.5 U
Chloromethane	22	5.5 U
Cis-1,2-Dichloroethene		5.5 U
Cis-1,3-Dichloropropene		5.5 U
Dibromochloromethane		5.5 U
Dibromomethane		5.5 U
Ethylbenzene	5990	0.77 T
Hexachlorobutadiene		22 U
Isopropylbenzene(Cumene)		22 U
Methylene Chloride	22	11 U
N-Butylbenzene	19500	22 U
N-Propylbenzene	19500	22 U
Naphthalene	4490	22 U
Sec-Butylbenzene	15800	22 U
Styrene	33	0.098 T
Tert-Butylbenzene	15600	22 U
Tetrachloroethene	0.9	0.84 T
Toluene	4650	4.1 T
Trans-1,2-Dichloroethene		5.5 U
Trans-1,3-Dichloropropene		5.5 U
Trichloroethene (TCE)		0.24 T
Vinyl Chloride		5.5 U
m,p-Xylenes	8520	1.8 T
o-Xylene	916	0.56 T

Table 3-4 - Analytical Results for Soil Samples - Rail Car Unloading Area

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	RCU-TP-1-B-1-RE 4/04/2008 10	RCU-TP-3-B-1-RE 4/04/2008 10	RCU-TP-4-B-1-RE 4/04/2008 10 Dup of RCU-TP-1-B-1-RE	RCU-TP-FL-B-1-RE 4/04/2008 4
Total Solids in %		95.9 J	96.3 J	96.5 J	93.2 J
Semivolatiles (SIM) in µg/kg					
2-Methylnaphthalene	2190	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Acenaphthene	98000	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Acenaphthylene		4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Anthracene	2200000	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Benzo(a)anthracene	See BaP (c)	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Benzo(a)pyrene	233	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Benzo(b)fluoranthene	See BaP (c)	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Benzo(g,h,i)perylene		4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Benzo(k)fluoranthene	See BaP (c)	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Chrysene	See BaP (c)	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Dibenz(a,h)anthracene	See BaP (c)	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Dibenzofuran	5090	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Fluoranthene	630000	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Fluorene	100000	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Indeno(1,2,3-cd)pyrene	See BaP (c)	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Naphthalene	4490	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Phenanthrene		4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
Pyrene	660000	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ
TEQ Equivalent (b)	See BaP (c)	4.6 UJ	4.9 UJ	4.7 UJ	5 UJ

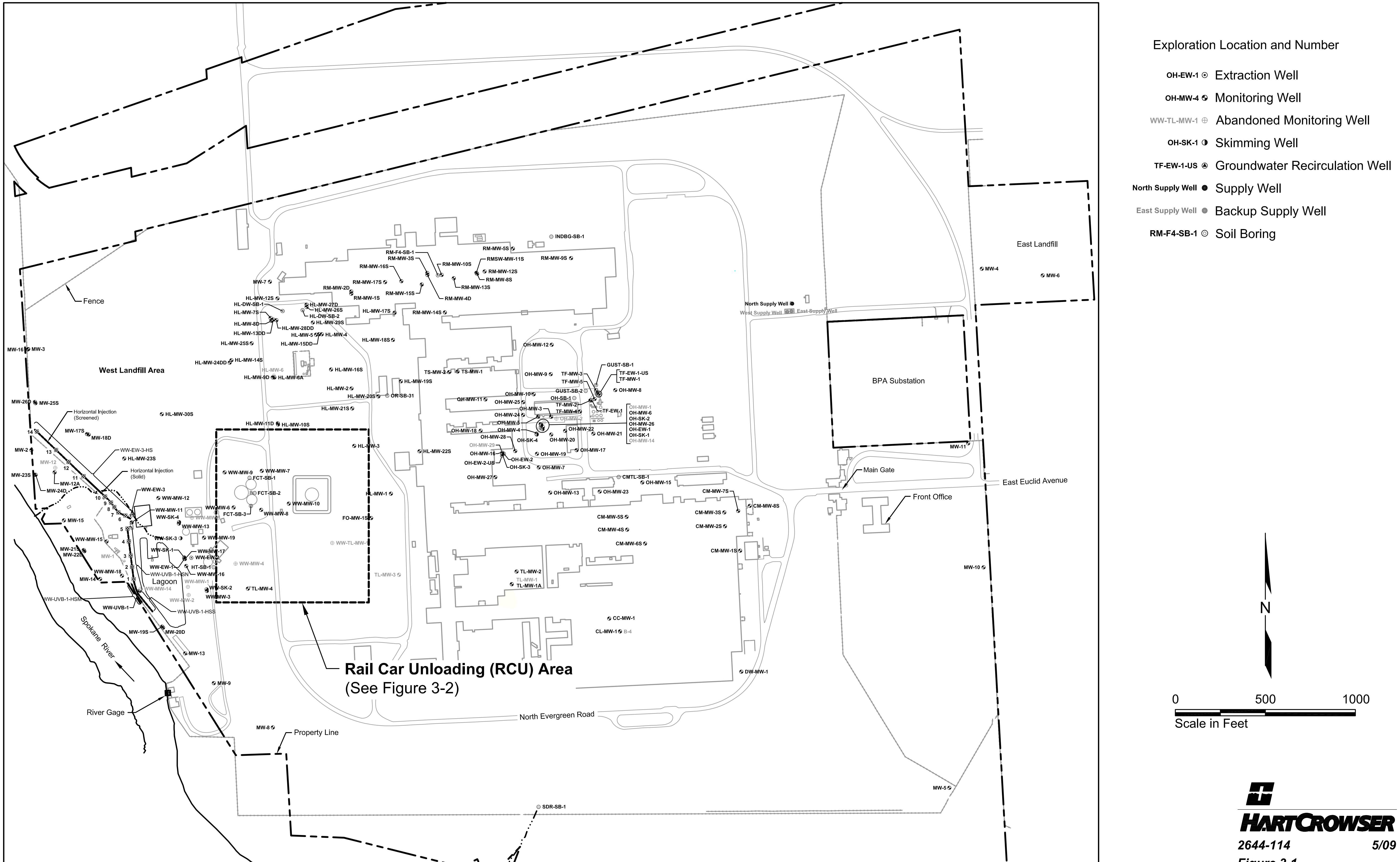
These samples were originally analyzed on 4/23/08 by Method SW 8270C and then reanalyzed by Method 8270 SIM on 6/21/08.
-RE at the end of the sample ID is used to represent the reanalysis.
U = Not detected at reporting limit indicated.
J = Estimated value.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 3-5 - Analytical Results for SPLP Testing of a Soil Sample from the RCU Area

Sample ID	RU1/S-5	
Sampling Date	11/1/1996	
Depth in Feet	27.5 to 29	
PAHs (EPA8310) in ug/L		
1-Methylnaphthalene	0.5	UJ
2-Methylnaphthalene	0.5	UJ
Acenaphthene	0.5	UJ
Acenaphthylene	1	UJ
Anthracene	0.05	UJ
Benzo(a)anthracene	0.05	UJ
Benzo(a)pyrene	0.05	UJ
Benzo(b)fluoranthene	0.1	UJ
Benzo(g,h,i)Perylene	0.1	UJ
Benzo(k)fluoranthene	0.05	UJ
Chrysene	0.05	UJ
Dibenz(a,h)anthracene	0.1	UJ
Fluoranthene	0.1	UJ
Fluorene	0.1	UJ
Indeno(1,2,3-cd)pyrene	0.05	UJ
Naphthalene	0.5	UJ
Phenanthrene	0.05	UJ
Pyrene	0.05	UJ
WTPH-D in mg/L		
Diesel	0.87	J
Oil	0.68	J

J = Estimated value.
U = Not detected at reporting limit indicated.

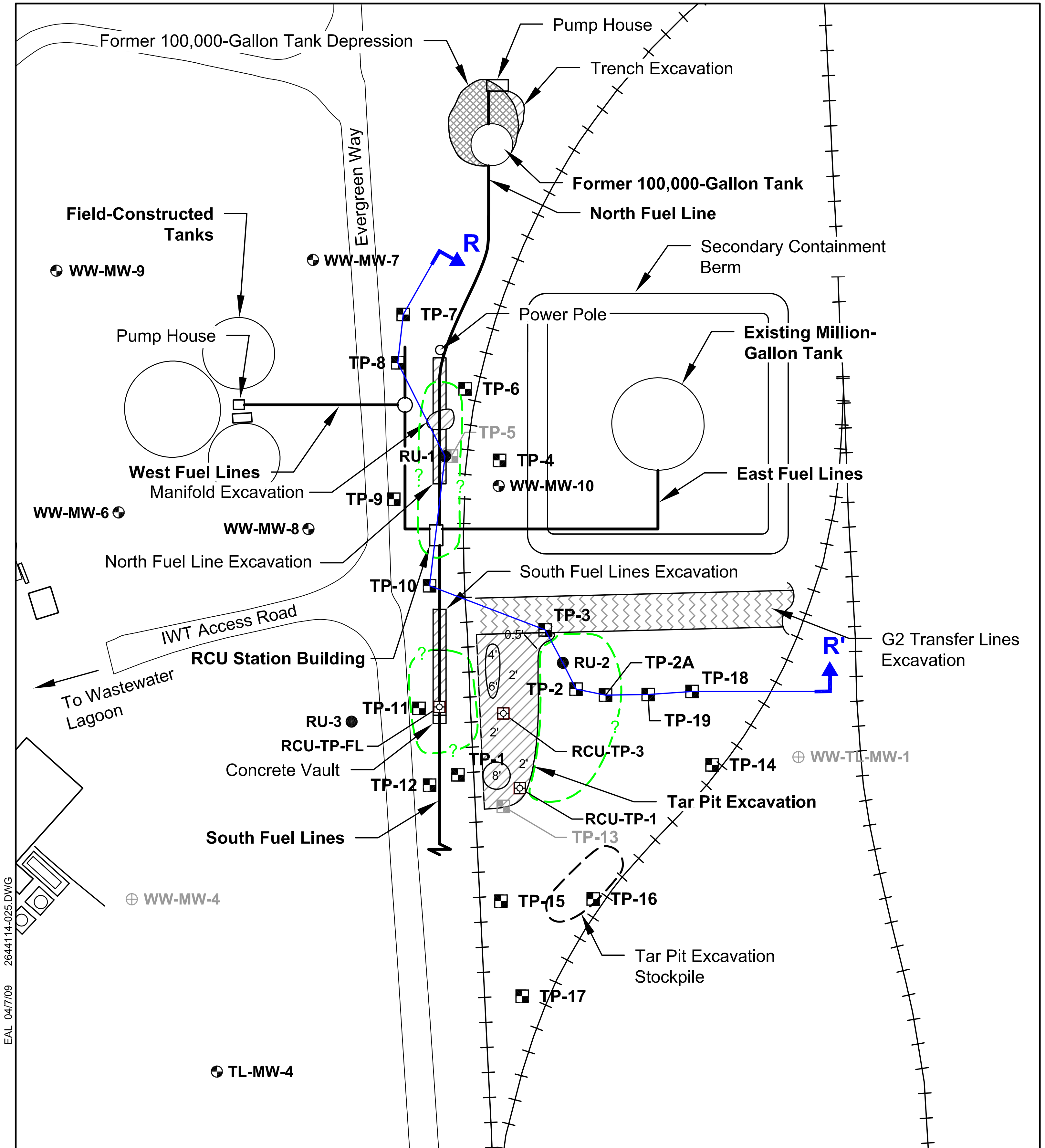
Rail Car Unloading (RCU) Area Location Map



EAL 05/7/09 2644114-099.DWG

HARTCROWSER
2644-114 5/09
Figure 3-1

Exploration Location Plan
Rail Car Unloading (RCU) Area



Exploration Location and Number

RCU-TP-1 Phase II RI Test Pit

WW-MW-8 Monitoring Well

RU-3 1996 Soil Boring

TP-12 1996 Test Pit (Shaded Test Pit Excavated)

2' Depth of Tar Pit Excavation in Feet

Approximate Lateral Extent of Soil with over 2,000 mg/kg Petroleum (Hot Spots)

Fuel Line

Existing Excavation

Phase I Excavation

Phase II Excavation

R R' Cross Section Location and Designation

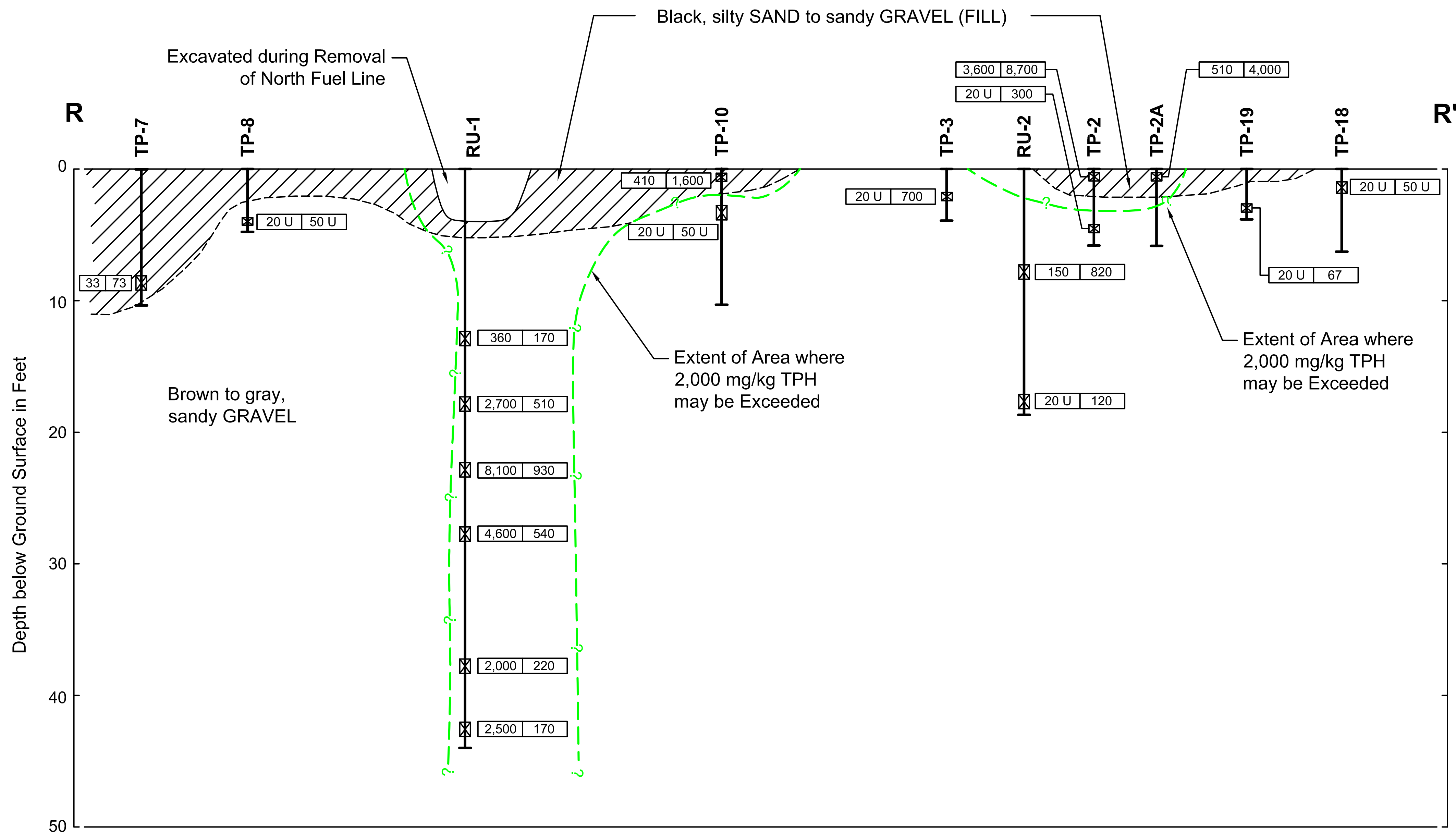
Notes:
1. Soil from TP-11 and TP-17 were not submitted for chemical analysis.
2. Soil representative of test pit TP-5 and TP-13 were removed during subsequent excavation.
3. Locations of features not shown on original site base map are approximate.
4. Samples RCU-SP and FO-SP were collected from tar pit excavation stockpile.

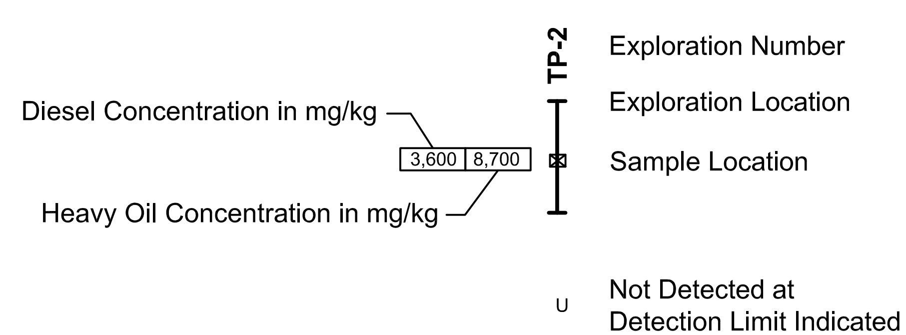
HARTCROWSER

2644-114 5/09

Figure 3-2

Schematic Cross Section R-R' Showing TPH Concentrations in Soil
Rail Car Unloading (RCU) Area





EAL 11/30/07 2644114-111.DWG

Note: Contacts between soil units are based upon interpolation between explorations and represent our interpretation of subsurface conditions based on currently available data.

Horizontal Scale in Feet
0 50 100
0 10 20
Vertical Scale in Feet
Vertical Exaggeration x 5

HARTCROWSER

2644-114 5/09

Figure 3-3

CONTENTS Page

CONTENTS (Continued)

Page

TABLES

CONTENTS

Page

FIGURES

4.0 COLD MILL/FINISHING AREA

4.1 INTRODUCTION

Significant historical characterization and remedial activities have been conducted in the Cold Mill/Finishing area. The majority of the work was completed in the early 1990s during major modifications to the Cold Mill/ Finishing area. As environmental issues were identified they were characterized and remediated to the extent practicable as independent actions. Ecology was kept informed during these remedial actions and final reports were submitted to the agency as they became available.

4.1.1 Purpose

The objectives of the Phase II RI Work Plan (Hart Crowser 2007b) were to identify data gaps associated with previous environmental investigations conducted at the Cold Mill/Finishing area and to establish a sampling and analysis plan to address such gaps. The primary goals of the Phase II RI program were to gather enough information to characterize the quality of subsurface soil and groundwater beneath these areas and to help characterize the relative nature and extent of impacts related to the operation of the mills. The results of the Phase II work and other previous investigations are presented herein.

4.1.2 Location

The Cold Mill/Finishing area is located on the southern portion of the Trentwood Plant Facility (Figure 4-1). Areas of the Cold Mill and Finishing areas investigated previously consist of the four cold mills (Nos. 1, 2, 3, and 5), the Cold Mill Transfer Lines (Figure 4-1), the Transformer Yard, the former Continuous Can Process Line (CCPL), the Chromium Transfer Line, the Cold Mill Electric Grounding Pit, and the former Coater Line Tank (Figure 4-2).

Initially, the Facility operated four cold mills, Nos. 1 through 4. The Nos. 1, 2, and 3 cold mills are located in a row on the northeast portion of the Facility. According to Kaiser records, the No. 4 cold mill was removed in 1994. The No. 5 Stand cold mill, installed in the 1960s and located in the northeast corner of the area, was removed in 2004.

The Cold Mill Transfer Lines were used to transport oily emulsions and coolant from the Cold Mills area to short-term accumulation tanks and eventually ended up being treated in the Industrial Wastewater Treatment (IWT) plant (Figure 4-1).

This area was investigated in 2004 and 2005 as an independent action and in 2006 as part of the Phase I investigation. The oily emulsion and coolant were sent to USTs located north of the Oil House via transfer lines running between the Cold Mill and Oil House. The Cold Mill Transfer Lines ran north-south outside the north side of the Cold Mill and eventually turned west toward the Oil House.

The Chromium Transfer Lines, investigated in 1990 and 1991, were located near one of the open courtyards toward the center of the Finishing Department as shown on Figure 4-2. This transfer line carried chromium-containing wastewater from the Cold Mill and Finishing departments to the IWT plant for treatment under Kaiser's NPDES permit.

The former Cold Mill Transformer Yard is located just east of the No. 5 Stand Cold Mill on the exterior northeast corner of the Cold Rolling Department (Figure 4-2). The yard consists of a fenced in gravel lot with nine concrete pads that supported transformers. The transformers were removed sometime after the Cold Mills were taken out of service. This area was investigated during the Phase I investigation in 2006.

The former CCPL and the Coater Line were located toward the south-central area of the Cold Rolling and Finishing Departments as shown on Figure 4-2. These areas were originally investigated in the late 1980s and early 1990s after the operations were taken out of service.

The electrical grounding pit, investigated in 2004, is located in the basement of the Cold Rolling Department between columns G8 and G9 (Figure 4-2). While conducting maintenance activities in the vicinity in 2004, about 6 inches of oily water were observed in the grounding pit. The source of this material was never identified.

4.2 COLD MILL TRANSFER LINE

4.2.1 Introduction

The Cold Mill Transfer Line consisted of a four-pipe cluster that ran from the main mill building (Column Gx28) to USTs north of the Oil House (Figure 4-1). The transfer line was designed with a containment system with high points that drained to four low points that had collection and inspection points. The low point locations are shown on Figure 4-3 and are identified as LP-1, LP-2, LP-3, and LP-4.

The Cold Mill Transfer Line was later truncated when the USTs were replaced with an above-ground tank farm. The subject transfer line was subsequently replaced by a double-contained set of transfer lines, and the old line was abandoned.

4.2.2 Previous Investigations

Phase I Investigation

This section summarizes the additional investigations conducted during Phase I to fill data gaps identified in the Cold Mill Transfer Line area.

Sampling and Analysis Program

The original approved Phase I RI Work Plan for the Cold Mill Transfer Line (Hart Crowser 2005) consisted of three elements: (1) locate and clean the transfer lines, (2) establish the integrity of the transfer lines, and (3) determine groundwater quality at a release point, if one is identified. The design of the transfer line presented difficulties in determining the integrity of the lines with pressure testing and an amended work plan was prepared and presented to Ecology for review (Kaiser 2006). Excavation and removal of the lines was not a viable option because of the proximity of active underground utilities to the transfer line. The amended work plan for the Cold Mill Transfer Line was approved by Ecology on April 11, 2006 (Ecology 2006), and consisted of the following elements: (1) excavate an observation trench parallel to and below the transfer lines containment system, (2) visually determine any release points and implement soil sampling and analysis during excavation of the trench based on observations, and (3) conduct soil sampling and analysis at the four low points along the transfer lines and any other location where there was evidence of a release based on field observations.

Soil Sampling and Analysis

The Cold Mill Transfer Line area was excavated and soil samples were collected on May 17 and 18, 2006. Figure 4-3 details the areas excavated in the Cold Mill Transfer Line area during Phase I field work. Hart Crowser field staff observed the conditions of the transfer line during excavation and screened adjacent soils for the presence of petroleum using visual and vapor screening techniques. No visual evidence of petroleum releases were observed, and no organic vapors were detected during PID screening of site soils.

Because no visible petroleum release points were identified during the excavation of this trench, only soil samples from the low points of the transfer lines were collected. The fourth low point (LP-4) located near the Cold Mill Building (Figure 4-3) could not be safely investigated using the backhoe because of underground utilities. This low point was investigated using a hollow-stem auger drill rig on January 3, 2007. Boring CMTL-SB-1 was installed to a depth of approximately 16 feet below ground surface. No field evidence of petroleum contamination was observed in soils obtained from the boring. Soil samples collected at depths of 5 to 6.5, 10 to 11.5, and 15 to 15.7 feet were submitted for chemical analysis. Test pit logs for low point LP-1 through LP-3 and the boring log for CMTL-SB-1 are included in Appendix A.

Soil samples from the first three low points (identified as CM-EX-S1, CM-EX-S2, and CM-EX-S3) were submitted for analysis of TPH (NWTPH-HCID; EPA Method 8015 modified, NWTPH-Dx, and NWTPH-Gx), PCBs, SVOCs, VOCs, and metals. Chemical analytical results are summarized in Table 4-1. Three samples from boring CMTL-SB-1 were analyzed for TPH (NWTPH-HCID) and PCBs, and results are summarized in Table 4-2.

Three additional soil samples (identified as CM-EX-TOC1, CM-EX-TOC2, and CM-EX-TOC3) were collected from excavation areas with no visible indications of petroleum contamination. These samples were submitted for total organic carbon (TOC) analysis to establish background TOC concentrations (Table 4-3). Two bulk soil samples were collected adjacent to the TOC samples and submitted for grain size analysis (Table 4-4) to obtain a better understanding of soil characteristics in the Cold Mill area.

Soil Quality Analytical Results

Arsenic was detected at concentrations ranging from 4.64 to 10.1 mg/kg in the samples analyzed and exceed the screening level. However, these arsenic detections are within the expected background range for Spokane Basin soils of 1.1 to 10.3 mg/kg and do not indicated a release from the transfer line (Ecology 1994). Petroleum hydrocarbons were not detected in the low point or soil boring samples except at the LP-1 low point located next to the Tank Farm at a depth of 9 feet below grade (Figure 4-3). This area was impacted by the January 1991 release of Kensol 51. A free phase product recovery system was tested in this area as described in Section 5.7.

No PCBs were detected in Cold Mill Transfer Line soil samples. The only VOC detected was acetone, which is a common laboratory solvent that was likely introduced into the samples at the analytical laboratory. It was detected at low concentrations in all three low point excavation samples but did not exceed the screening level. Very low concentrations of PAHs were also detected in the three low point samples. Detected PAH concentrations were below screening levels as shown in Table 4-1.

4.2.3 Proposed Phase II (RI) Work

Based on the Phase II RI Work Plan (Hart Crowser 2007b), no additional work was proposed for the Cold Mill Transfer Line during Phase II.

4.2.4 Summary of Current Conditions

Results of the previous Phase I investigation indicate that no significant petroleum releases occurred along the Cold Mill Transfer Line. One sample (CM-EX-S1) at a depth of 9 feet indicated Kensol at 2,100 mg/kg exceeding the screening level. Petroleum hydrocarbon contamination encountered at this location (LP-1) is the result of a 1991 Kensol spill at the Tank Farm. Additional investigation of this release was included as part of the current Phase II investigation for the Oil House area (see Section 5.7). No other environmental issues have been identified in the Cold Mill Transfer Line area.

No additional investigation activities are proposed for the Cold Mill transfer line area. Available investigation data from the Cold Mill Transfer Line area do not indicate a release requiring remedial action. Petroleum contamination associated with the Kensol spill at the Tank Farm was investigated further as part of the current Phase II program for the Oil House area. The need for additional remedial actions in the Cold Mill Transfer Line area will be evaluated in the FS under the Tank Farm Kensol Spill area.

4.3 TRANSFORMER YARD AREA

4.3.1 Introduction

Ecology requested that Kaiser investigate surface soil quality in the former Transformer Yard area located along the northeastern corner of the Cold Mill (Figure 4-2). This area formerly contained a number of electrical transformers, but now consists of a fenced area covered with gravel and nine concrete pads. Monitoring well CM-MW-8S was completed inside the fenced enclosure in October 2004 as an independent action to investigate groundwater conditions in the Cold Mill area. The Transformer Yard area was investigated during the Phase I investigation approved by Ecology.

4.3.2 Previous Investigations

Phase I Investigation

The former Transformer Yard area was assessed for potential releases of PCBs from transformers that were formerly located in this area. This investigation was conducted on May 24, 2006. Nine near-surface soil samples were collected at the locations shown on Figure 4-4. One sample was collected just off the southern end of each concrete pad. The area around the concrete transformer pads consists of gravel, which is underlain by silty, clay soil. Soil samples were collected in the top 6 inches of soil located below the gravel. Overlying gravel was removed with a shovel prior to sampling. Surface soil sampling data are included in Appendix A.

Soil samples from the Transformer Yard area were submitted for analysis of TPH (NWTPH-HCID, EPA Method 8015 modified) and PCBs. In addition, the percent solids and moisture content in each sample were determined. Transformer Yard area near-surface soil analytical results are presented in Table 4-6.

No PCBs or petroleum hydrocarbons were detected in the nine soil samples and one duplicate sample submitted for chemical analysis. No visual or olfactory evidence of contamination was observed within the Transformer Yard area.

4.3.3 Proposed Phase II (RI) Work

Based on the Phase II RI Work Plan (Hart Crowser 2007b), no additional work was proposed for the Transformer Yard area during Phase II.

4.3.4 Summary of Current Conditions

Soil contamination was not observed in the Transformer Yard area surface soils during previous investigations. Current groundwater conditions in monitoring well CM-MW-7S, located downgradient of the Transformer Yard, and well CM-MW-8S, located within the Transformer Yard, do not indicate releases of petroleum hydrocarbons or PCBs from the Transformer Yard area (Table 4-5). Minor detections of a few constituents in groundwater are below screening levels in this area.

No additional investigation activities are proposed for the Former Transformer Yard area at this time. Available data do not indicate a release from this area, and no remedial action is warranted.

4.4 CONTINUOUS CAN PROCESS LINE

4.4.1 Introduction

Equipment removal and cleanup work were conducted on the Continuous Can Process Line (CCPL) between November 1991 and October 1992. The CCPL area is located in the south-central portion of the Cold Mill/Finishing area (Figure 4-2). An investigation related to a lubricant release encountered southwest of the CCPL was also conducted during that time period. This lubricant (dioctyl sebacate) is called DOS and its approximate location is presented on Figure 4-2. The following sections present the results of these investigations.

4.4.2 Previous Investigations/Remediation Activities

In the fall of 1991, Kaiser shut down the CCPL to decommission and remove the equipment, tanks, and concrete associated with the line. Prior to removal, chromium staining and scale were noted on some of the process line equipment and on concrete floor surfaces surrounding the equipment (Hart Crowser 1992a).

In November and December of 1991, and prior to the decommissioning activities, Hart Crowser conducted an investigation where several soil borings were advanced and one monitoring well was installed to evaluate potential contamination in the area associated with the CCPL process (Hart Crowser 1992a). After the sampling and analysis event, removal of the CCPL equipment and infrastructure was conducted from December 1991 to February 1992, and impacted soil in the area was excavated. Also in February 1992, surface soil samples were collected from the excavation and from beneath three cored locations on the CCPL pit's floor. Concrete samples were also collected from the walls and floor of the pit at that time.

In a separate effort, additional subsurface soil, groundwater, and soil vapor samples were collected for analysis in July 1992 in an area southwest of the CCPL line after a release of DOS lubricant was encountered during excavation activities. The results from these sampling and analysis events are presented below.

1991 Initial CCPL Subsurface Investigation

During this investigation, three soil borings (CC-SB-1 through CC-SB-3) were advanced and sampled on November 27 and December 2, 1991 (Figure 4-5). In addition, monitoring well CC-MW-1 was installed at the location shown on Figure 4-5. The three soil borings were advanced to a depth of 26.5 feet below ground surface and soil samples were collected at 5-foot-depth intervals. Monitoring well CC-MW-1 was advanced to a depth of 92 feet below ground surface and soil samples were collected at 5-foot-depth intervals from the upper 26.5 feet and on 10-foot-depth intervals thereafter (Hart Crowser 1992a). Groundwater was encountered at approximately 76 feet below grade during drilling.

Subsurface Soil Sampling and Analysis

Subsurface soil samples collected from the borings and well were submitted for analysis of total and hexavalent chromium by EPA Methods 6010 and 7196, respectively.

Analytical results of the subsurface soil samples collected during the investigation had total chromium detections in all 29 soil samples, at concentrations below the screening level (Table 4-8). These detected total chromium concentrations are also within the expected background range for Spokane Basin soil of 4.5 to 20.3 mg/kg (Ecology 1994). Hexavalent chromium was detected in one of 29 soil samples (Sample CC-SB-1/S-4) at a concentration of 1.4 mg/kg, which is well below the screening level of 18 mg/kg.

Groundwater Sampling and Analysis

On December 6, 1991, groundwater monitoring well CC-MW-1 was purged and sampled. The groundwater sample was submitted for analysis of PCBs; metals (antimony, arsenic, chromium, iron, and manganese); total suspended solids (TSS) by EPA Method 160.3; TPH (EPA Method 8015 modified); and volatile aromatic compounds (BTEX) by EPA Method 8020.

Antimony (7.8 ug/L) and manganese (28 ug/L) were the only constituents detected during this sampling event (Table 4-9). The antimony concentration slightly exceeded the screening level of 6 ug/L, while the manganese was below the screening level of 50 ug/L. The groundwater conditions are discussed further in the Site-Wide Groundwater RI (Hart Crowser 2012).

Equipment and Tank Removal and Soil Excavation

Between December 20, 1991, and February 7, 1992, a subcontractor to Kaiser removed the CCPL equipment, tanks, and concrete floor blocks supporting the equipment (Hart Crowser 1992a). The work included removal of three ASTs and their associated concrete containment structure, removal of chromium-stained floor blocks and slab, excavating stained soil, and cleaning the concrete walls of the CCPL pit.

A sample of the chromium scale observed on the equipment was collected prior to the removal and analyzed to determine proper disposal. Analytical results for this scale sample indicated the presence of hexavalent chromium at a concentration of 840 mg/kg (Hart Crowser 1992a). Based on these results, approximately 733 tons of concrete, steel, floor blocks, and the stained soil excavated from the CCPL were designated as Dangerous Waste and taken to the Chemical Waste Management treatment, storage, and disposal (TSD) facility located in Arlington, Oregon, for disposal (Hart Crowser 1992a).

Soil Sampling and Analysis

After equipment removal and excavation activities were completed in February 1992, five-point composite surface soil samples (CCPL-C1 through CCPL-C13) were collected in each cell of the 13-cell sampling grid established within the excavation, as presented on Figure 4-5. The surface soil samples were submitted for analysis of total chromium by EPA Method 6010. In addition, the soil sample collected from Cell No. 4 (CCPL-C4) was submitted for analysis of VOCs; SVOCs; Pesticides/PCBs; Priority Pollutant (PP) metals; Total Phenolics; and fuel fingerprinting.

Table 4-10 presents the analytical results for the 13 surface soil samples collected from the grid. Total chromium concentrations detected ranged from 26 to 340 mg/kg, which were below the total chromium screening level of 2,000 mg/kg. Some of these chromium detections are above the expected backgrounds range for Spokane Basin soil of 4.5 to 20.3 mg/kg (Ecology 1994) indicating a release to underlying soil did occur but that concentrations were not high enough to pose a risk to underlying groundwater based on the conservative assumptions used to develop our screening levels (see Section 1) and the groundwater results.

Table 4-8 presents soil results for total and chromium VI from samples collected at the site. One out of 29 soil samples had a low-level detection of chromium VI indicating that chromium III is the predominant chromium species at this location. Thus, total chromium data are compared to SLs for chromium III in the CCPL area.

Analytical results for the remaining analyses conducted on the Cell No. 4 sample indicate that arsenic (9.2 mg/kg) and cadmium (1.8 mg/kg) exceeded their screening levels of 0.0341 and 0.7 mg/kg, respectively. The arsenic detection is within expected background for Spokane Basin soil (Ecology 1994). The cadmium detection is above the expected upper range for background soil in the Spokane Basin of 0.7 mg/kg. The other metals were non-detect or detected at concentrations below screening levels. Several SVOCs including PAHs and phthalates were also detected at concentrations ranging from 61J to 1,200 ug/kg in Cell No. 4 (Table 4-10). Benzo(a)pyrene was detected at a concentration of 340 ug/kg, above its screening level of 233 ug/kg. In addition, the estimated TEQ equivalent for this sample based on B(a)P is 489.9 ug/kg, which also exceeds the screening level.

In addition to the surface soil samples collected from the excavation, three surface soil samples (CCPL-PPBS-1 through CCPL-PPBS-3) were collected beneath the concrete floor of the CCPL pit and analyzed for total chromium by EPA Method 6010 (Figure 4-5). Total chromium concentrations detected in these samples ranged from 12 to 18 mg/kg, which is at or below the total chromium and hexavalent chromium screening levels (Table 4-10).

To evaluate the concentrations of chromium remaining in the surrounding concrete that was not removed, samples from the floors and walls of the CCPL pit were also collected and analyzed. This included collecting samples from seven locations as presented on Figure 4-5 that were analyzed for total chromium by EPA Method 6010. Total chromium concentrations in these samples ranged from 19 to 470 mg/kg (Table 4-11) and are below the screening level.

CCPL/DOS Remediation

A small exploration and independent cleanup action was conducted southwest of the CCPL excavation during the summer of 1992 (Figures 4-2 and 4-6). On July 24, 1992, a contractor working near the CCPL noticed strong odors and visible staining from a historical TPH release originating from an above-ground source (Hart Crowser 1992b). Kaiser personnel traced the source to a continuous oiling device (no longer in use) that used DOS as a lubricant. Soil, groundwater, and soil vapor samples were collected between August 12 and 18, 1992, from five soil borings (B-1 through B-5) advanced in the vicinity of the impacted area (Figure 4-6). The borings were advanced to define the horizontal and vertical extent of the impacted soil, to assess groundwater quality beneath the impacted area, and to assess potential soil vapor risks by 2-ethyl-1-hexanol; a breakdown product of DOS in soil (Hart Crowser 1992b).

Subsurface Soil Sampling and Analysis

Subsurface soil samples from the borings were collected at 2.5-foot-depth intervals on the upper 10 feet of each boring and at 5-foot-depth intervals thereafter (Hart Crowser 1992b). Soil boring B-1 was completed to a depth of 20 feet below grade, B-2 to a depth of 11.5 feet below grade, B-3 to a depth of 21.5 feet below grade, and B-4 was completed to a depth of 85 feet below grade. Groundwater at the time of drilling was encountered at approximately 79 feet below grade in boring B-4.

Twenty-three of the subsurface soil samples collected were selected for analysis of TPH (EPA Method 418.1), hexanol by GC/MS (EPA Method 8240), and DOS using a modified fuel hydrocarbon analysis (EPA Method 8015 modified).

Analytical results from the subsurface soil samples analyzed indicate that hexanol, at an estimated concentration of 1.1 mg/kg, was only detected in the 2.5-foot-depth sample collected from boring B-1 (Table 4-12). The TPH concentration of 3,200 mg/kg in soil sample B1/S1 exceeded the screening level of 2,000 mg/kg. Other concentrations were either non-detected or detected at concentrations below screening levels. DOS was only detected within 5 feet of the ground surface in B-1 (31 to 210 mg/kg) and within 4 feet from the ground surface in B-2 (17 mg/kg) and B-5 (20 mg/kg).

Groundwater Sampling and Analysis

Soil boring B-4 was completed as groundwater monitoring well CL-MW-1. A groundwater sample from the well was collected on August 19, 1992, and submitted for analysis of TPH (EPA Method 418.1), hexanol by GC/MS (EPA Method 8240), and DOS using a modified fuel hydrocarbon analysis (EPA Method 8015 modified).

None of the organic constituents analyzed for were detected in the groundwater sample collected from CL-MW-1 (Table 4-9).

Soil Vapor Sampling and Analysis

Soil boring B-1 was completed as a vapor extraction well (VE-1; Figure 4-6). One soil vapor sample was collected from this exploration and analyzed for hexanol (using gas chromatography) by National Loss Control Service Corporation (Hart Crowser 1992b). 2-ethyl-1-hexanol was detected at a concentration of 10.2 mg/m^3 in soil vapor collected from the boring (Table 4-13). It should be noted that 2-ethyl-1-hexanol is primarily a respiratory irritant and is not known to have significant toxic effects on humans.

Remedial Activities

Approximately 125 cubic yards of contaminated soil and 250 cubic yards of concrete were excavated from the impacted area between August 28 and 31, 1992, and properly disposed of off site (Hart Crowser 1992b). The excavation was approximately 50 by 60 feet with depths ranging from 8 to 15 feet below grade (Figure 4-6).

After the visibly stained soil and soil exhibiting odors were removed, six composite soil verification samples (CCPL-1 through CCPL-6) were collected from a sampling grid used within the excavation (Figure 4-6) and analyzed for TPH (EPA Method 418.1), hexanol (EPA Method 8240), and DOS (EPA Method 8015 modified). Analytical results for these samples indicate that DOS was the only constituent detected (Table 4-7). No screening level is available for DOS.

On October 23, 1992, the excavation was backfilled with clean imported soil.

4.4.3 Proposed Phase II (RI) Work

Based on the results of previous work, no additional investigation of these areas was proposed in the Phase II RI Work Plan (Hart Crowser 2007b).

4.4.4 Summary of Current Conditions

Based on available data, it appears that chromium-contaminated soil associated with the CCPL area was successfully removed following cleanup activities performed in late 1991 and early 1992. Post-cleanup sample analytical results indicate that total chromium concentrations in soil were well below screening levels. Chromium was not detected in groundwater sampled in well CC-MW-1 located in the CCPL area. Minor excedences of the screening levels for cadmium and cPAHs in one sample from the CCPL area (Cell 4) is not indicative of a pervasive zone of contamination. Nonetheless, the need for additional remedial actions in the CCPL area will be evaluated in the FS.

It also appears that cleanup activities successfully addressed the DOS release area. Following removal of the visibly stained soil and soil exhibiting odors in 1992, soil verification sample analytical results indicate that concentrations were below screening levels. No constituents of concern were identified in a groundwater sample collected in the DOS area from well CL-MW-1. No additional remedial action is warranted in this area.

4.5 CHROMIUM TRANSFER LINE

4.5.1 Introduction

The Chromium Transfer Line (Figure 4-2) conveyed chromium-containing wastewater from the Cold Rolling and Finishing Departments to the IWT until

1986, after the last process using chromium ceased operation (Hart Crowser 1990a). Previous investigation and remediation work at the Chromium Transfer Line was conducted from June 1990 through June 1991. Figures 4-7 and 4-8 present the approximate location of explorations and the extent of the excavation activities conducted along the Chromium Transfer Line and the inner courtyard. Tables 4-14 through 4-18 present analytical results of soil and groundwater samples collected in the Chromium Transfer Line area.

4.5.2 Previous Investigation/Remediation Activities

During the summer of 1990, Kaiser initiated the removal of a 400-foot section of the Chromium Transfer Line that was no longer in use and excavation of chromium-impacted soil from the vicinity of the former line.

The transfer line and soil removal process started with a subsurface investigation conducted in June 1990 to assess the quality of subsurface soils and groundwater in the vicinity of the transfer line (Hart Crowser 1990a). This investigation was followed by cleanup actions around the transfer line and the inner courtyard conducted between November 1990 and June 1991 (Hart Crowser 1991a). Cleanup activities consisted of the removal of the transfer line, the nearby storm drain, phosphate line, three concrete sumps (and associated sludge), a previously unknown UST, and the excavation and disposal of chromium-impacted soil identified during removal activities.

Soil verification samples were collected and analyzed from the excavated areas. The excavated areas were then backfilled to grade with imported material (Hart Crowser 1991a). The following sections present information and results regarding the removal and sampling and analysis activities conducted around the Chromium Transfer Line.

1990 Soil and Groundwater Investigation

From June 18 to 22, 1990, four monitoring wells (TL-MW-1 through TL-MW-4) and two soil borings (TL-SB-1 and TL-SB-2) were installed along the Chromium Transfer Line and within an area of the inner courtyard north of the line as presented on Figure 4-7. The wells were installed as part of a larger investigation to study not only the impacts of the Chromium Transfer Line but also the quality of soil and groundwater along the perimeter of the plant (Hart Crowser 1990a). In addition to the soil and groundwater samples from the wells and soil borings, surface soil samples were collected from the inner courtyard where the Chromium Transfer Line was located (Figure 4-8; Hart Crowser 1990b).

Groundwater monitoring well TL-MW-1 was installed along the transfer line, while well TL-MW-2 was installed in an area within the inner courtyard located north of the Heat Exchanger Pit and just west of a sump that was eventually removed (Figure 4-7). TL-MW-3 and TL-MW-4 were installed downgradient of the courtyard along the path the Chromium Transfer Line crossed between the main plant building and the IWT plant (Figures 4-1 and 4-7).

The soil borings, TL-SB-1 and TL-SB-2, were advanced within the inner courtyard north of the Chromium Transfer Line. The two soil borings were advanced to a depth of 30 feet below grade and soil samples were collected at 5-foot-depth intervals. Monitoring wells TL-MW-1 through TL-MW-4 were advanced to depths between 79 and 88 feet below grade. Soil samples from TL-MW-1 through TL-MW-3 were collected at 5-foot-depth intervals from the first 30 feet and on 20-foot-depth intervals thereafter. No soil samples were collected from well TL-MW-4. Groundwater was encountered between depths of 67 and 74 feet below grade during drilling of well TL-MW-4.

After well installation, surface sampling of the inner courtyard was conducted to evaluate surface soil quality (Figure 4-8). To accomplish this, the courtyard was divided into a grid of ten sub-areas and a five-point composite surface soil sample (CY-1A, CY-1B, and CY-2 through CY-10) was collected from each sub-area.

Analytical results obtained during the 1990 soil and groundwater investigation are presented below.

Soil Sampling and Analysis

Several subsurface soil samples from the monitoring wells and soil borings were selected for chemical analysis during this investigation. These include nine of the subsurface soil samples collected from the borings for the wells and ten of the soil samples collected from the two soil borings placed in the courtyard. The selected samples were submitted for total chromium analysis by EPA Method 6010. In addition, the ten soil samples collected from the soil borings were also submitted for analysis of total chromium and hexavalent chromium and TCLP analysis of total chromium.

Subsurface soil analytical results indicate that total chromium was detected in soil samples from TL-MW-1 through TL-MW-3 at concentrations below screening levels (Table 4-14).

Soil samples TL-SB-1/S-1, TL-SB-1/S-2, TL-SB-1/S-3, and TL-SB-2/S-2 analytical results indicate total chromium concentrations exceeding screening levels at concentrations of 4,000, 16,000, 2,500, and 2,400 mg/kg, respectively. These samples were collected at depths from 5 to 15 feet below ground surface. Soil represented by these samples were subsequently excavated and disposed of off site.

Total leachable (TCLP) concentrations for chromium ranged from 0.02 to 1.70 mg/L, with the highest concentration associated with sample TL-SB-1/S-2 collected at a depth of 9 to 11 feet below ground surface. These concentrations are below the state Dangerous Waste TCLP designation characteristic of 5 mg/L. These leachability data also show that chromium in the soil sample with the highest total and hexavalent chromium concentrations is only marginally leachable.

Hexavalent chromium slightly exceeding the screening level of 18 mg/kg was detected in soil sample TL-SB-1/S-2 and TL-SB-1/S-6 at concentrations of 29 and 24 mg/kg, respectively. Sample TL-SB-1/S-6 is a duplicate sample of TL-SB-1/S-5, which contained hexavalent chromium concentrations below the screening levels at 13 mg/kg. The soil representative of sample TL-SB-1/S-2 was subsequently excavated and disposed of off site. The deeper sample, TL-SB-1/S-6 (DUP), is located between depths of 24 and 26 feet below grade and is an isolated occurrence. Its accompanying sample (TL-SB-1/S-5) did not contain hexavalent chromium above the screening level.

Groundwater Sampling and Analysis

In August 1990, and after installation and development, groundwater monitoring wells TL-MW-2 through TL-MW-4 were purged and sampled. A groundwater sample from monitoring well TL-MW-1 was not collected because the groundwater elevation dropped below the screened interval at the time of sampling (Hart Crowser 1990a). The groundwater samples were submitted for dissolved metal analysis.

Analytical results of the groundwater samples indicate that antimony (7 to 10 ug/L) and arsenic (38 to 64 ug/L) were detected in groundwater at concentrations exceeding the screening levels of 6 and 0.018 ug/L during this sampling and analysis event (Table 4-15). Chromium was not detected in any of these initial groundwater samples.

Sumps, Sludge, Transfer Line, Storm Drain, and UST Removal and Impacted Soil Excavation

Based on the results of the 1990 investigation, the Chromium Transfer Line and associated infrastructure were removed between November 1990 and June

1991. During November and December 1990, a subcontractor to Hart Crowser started the removal of approximately 400 linear feet of the 6-inch-diameter PVC Chromium Transfer Line located within the inner courtyard (Figure 4-7). In addition, a 6-inch-diameter phosphate line lying within the same utility trench as the Chromium Transfer Line was also removed (Hart Crowser 1991a).

After the removal of the lines was completed, a Hart Crowser representative directed the excavation of chromium-impacted soils from the vicinity of the line using the distinctive green discoloration observed on the impacted soils as a visual guide (Hart Crowser 1991a). According to project records, chromium-impacted soils were observed along approximately 90 linear feet of the trench to the east of the heat exchanger pit. Chromium-stained soils were also observed on an L-shaped area extending north toward abandoned chromium process sumps and east along the wall of the plant located on the southern side of the courtyard (Figure 4-7). Although chromium-impacted soils were identified, high voltage electrical conduits and the building's foundation limited the southern extent of the excavation. The final excavation was approximately 10,250 square feet in area with depths ranging from 15 to 18 feet below grade (Hart Crowser 1991a).

During the Chromium Transfer Line removal, three abandoned concrete sumps and one previously unknown 10,000-gallon UST of unknown contents were also removed. The westernmost sump did not have a concrete base and was filled with chromium-stained sludge. Stained soil was observed 5 to 6 feet below the base of the wall, and the concrete walls of the two southern sumps were chromium stained. One sample of the sludge material (TL-4) was collected for disposal characterization purposes. After sampling, the sludge was removed and stockpiled; the two southern sumps were demolished; and the concrete and impacted soil were hauled to a temporary stockpile for later disposal (Hart Crowser 1991a). The third sump (north) had been previously demolished and backfilled. After notifying Ecology, the 10,000-gallon UST was inerted and removed.

In addition to the transfer and phosphate lines, the excavation encountered a storm drain line containing 2 to 9 inches of chromium-laden sludge and sediment (Hart Crowser 1991a). One sample of the sludge material (TL-3) was collected for disposal characterization purposes. After sampling the sludge, approximately 250 linear feet of the storm drain were removed, and the remainder of the drain line that could not be removed due to its location beneath structures was cleaned with a pipeline scraper "pig" (Hart Crowser 1991a). The sludge, sediment, and removed pipe were hauled to a stockpile area for later disposal.

In addition to the main excavation, an approximate 1-foot lift of surface soil was removed from an area just north of the excavation where elevated chromium concentrations were identified in 1990 (Figure 4-7; Hart Crowser 1991a).

Approximately 9,212 tons of chromium-impacted soil, pipe, and concrete debris were excavated/removed and disposed of at the Arlington TSD facility (Hart Crowser 1991a).

Excavation Verification Sampling and Analysis

After remedial activities were completed, 14 discrete and composite soil verification samples were collected for analysis as presented on Figure 4-7. Surface soil samples TL-1, TL-2, and TL-5 through TL-8 were collected along the transfer line trench and the southern limit of the excavation (Hart Crowser 1991a). Surface soil samples TL-9, T-10, and TL-15 represented the bottom of the excavation and samples TL-11 through TL-14 represented side wall conditions (Hart Crowser 1991a).

The surface soil samples were submitted for analysis of one or more of total chromium; hexavalent chromium; SVOCs; and VOCs (Table 4-16):

Discrete surface soil verification samples were below total chromium screening levels with the exception of TL-7, which had total chromium detected at a concentration of 5,350 mg/kg (Table 4-16). The total chromium concentration in composite sample TL-7 was collected from the maximum southern extent of the excavation and represents the maximum range of chromium concentrations left behind within the excavation due to constraints caused by the stability of the building's foundation (Hart Crowser 1991a).

Analytical results of the composite soil verification samples collected from the side walls and bottom of the excavation (TL-5 and TL-6 through TL-15) indicate that detectable total chromium concentrations were below the screening level (Hart Crowser 1991a). Sample TL-15, which had the highest total chromium concentration, was also analyzed for hexavalent chromium, which was detected at a concentration below its screening level. No VOCs and only one SVOC (di-n-butylphthalate in sample TL-10) were detected in these samples but at a concentration below its screening level. Note that sample analytical results presented in Table 4-16 represent soil quality for soils that remained in-place after cleanup activities were completed.

Final Soil Verification Samples in Courtyard

As presented earlier, ten composite surface soil samples (CY-1 through CY-10) were collected from the inner courtyard (Figure 4-8) during the 1990 investigation (Hart Crowser 1990b). Analytical results of these samples indicate that total chromium concentrations ranged from 15 to 2,400 mg/kg prior to excavation activities, and that hexavalent chromium was not detected in the samples (Table 4-17). The highest chromium detection was in grid CY-5. The chromium concentration (2,400 mg/kg) at this location slightly exceeded the total chromium screening level of 2,000 mg/kg. Grid CY-5 was overexcavated to a depth of approximately 1 foot to remove the area where 2,400 mg/kg chromium was previously detected and the soil was disposed of off site.

After remedial activities along the Chromium Transfer Line were completed and the excavation was backfilled and regraded, composite surface soil samples (Figure 4-8) were collected in April 1991 throughout the inner courtyard using the same sampling grid and sample nomenclature used in 1990 (Hart Crowser 1991a).

These samples were collected and analyzed to assess the remaining soil quality within the inner courtyard following remediation activities, including removal of the chromium-impacted soil representative of sampling CY-5.

Analytical results of these samples indicate that total chromium was detected in these samples at concentrations ranging from 9 to 220 mg/kg, and that hexavalent chromium was detected at the detection limit in only one of the ten samples analyzed (Table 4-17). The total and hexavalent chromium concentrations in the final soil verification samples were below their respective screening levels.

Groundwater Sampling and Analysis

As stated above, four groundwater monitoring wells (TL-MW-1 through TL-MW-4) were installed in 1990 within the Chromium Transfer Line area (Figure 4-7). After installation, it was noted that well TL-MW-1 was too shallow and would go dry seasonally; therefore, groundwater samples from this well were only collected during spring and fall groundwater sampling events. To correct this, TL-MW-1 was re-drilled deeper to account for seasonal groundwater level fluctuations and was re-named TL-MW-1A. In addition, well TL-MW-3 was damaged during recent construction activities in 2007/2008. Due to these circumstances, only three wells (TL-MW-1A, TL-MW-2, and TL-MW-4) are available for groundwater monitoring within the Chromium Transfer Line area.

In April 2008, groundwater samples were collected from the three monitoring wells (TL-MW-1A, TL-MW-2, and TL-MW-4). In addition, TL-MW-4 was also sampled in October 21, 2008. Analytical results of these groundwater samples indicate that chromium was present at concentrations between 0.057 and 13.9 ug/L, which are well below the screening level 50 ug/L (Table 4-18; Hart Crowser 2012).

For further discussion concerning the groundwater conditions in this area, please refer to the Site-Wide Groundwater RI (Hart Crowser 2012).

4.5.3 Proposed Phase II (RI) Work

Based on the earlier results as discussed above, no additional investigation was proposed for the Chromium Transfer Line area in the Phase II RI Work Plan (Hart Crowser 2007b).

4.5.4 Summary of Current Conditions

Based on available data, it appears that chromium-contaminated soil associated with the Chromium Transfer Line area was removed to the extent practicable following cleanup activities performed in 1991 and 1992. The only known exception to this is along the southeastern border (soil sample TL-7), where additional excavation was limited due to the presence of the Cold Mill building. Chromium was not detected above the screening level in the groundwater samples collected from area wells in 2008. The need for minor additional remedial action in this area will be evaluated during the FS.

4.6 COLD MILL ELECTRICAL GROUNDING PIT

4.6.1 Introduction

Equipment within the Cold Mill and Finishing Departments are grounded by the Cold Mill Electrical Grounding Pit (EGP). The EGP is located in the basement area of the Cold Rolling Department between Columns G-8 and G-9 (Figure 4-2). The grounding pit consists of an approximately 2.5-foot-diameter by 3-foot-deep circular manhole into which a grounding rod was driven to provide electrical grounding between plant equipment and the underlying soil.

The following section presents the results of previous investigation work conducted at the Cold Mill electrical grounding pit in 2004.

4.6.2 Previous Investigations

While performing maintenance activities in March 2004 in the basement adjacent to the No. 2 cold mill, Kaiser observed the presence of approximately 6 inches of oily water in the bottom of the electrical grounding pit. Kaiser personnel sampled and removed the approximately 6 inches of oily water (G-Pit B) in addition to some underlying soil/sludge (G-Pit-A) observed within the EGP. The liquid and soil/sludge were containerized by Kaiser personnel in a single drum for later disposal. Kaiser did not observe any additional liquid entering the pit at that time.

Samples of the liquid (sample G-Pit B) and soil/sludge (sample G-Pit A) were collected and analyzed for TPH (NWTPH-Dx), PCBs, SVOCs, VOCs, and metals. Table 4-19 presents the analytical results of the liquid and soil/sludge samples removed from the grounding pit during this investigation.

Based on the analytical results of sample G-Pit B, the liquid phase was identified as heavy oil. The sample also reportedly contained 37 mg/kg of lead, no PCBs, and no significant VOCs or PAHs were detected.

Analytical results of the soil/sludge sample (G-Pit-A) indicated the sample contained 90,000 mg/kg of diesel-range and 6,300 mg/kg of heavy oil-range petroleum hydrocarbons. Arsenic (6 mg/kg), barium (70.5 mg/kg), and lead (1,190 mg/kg) were also detected in the soil/sludge sample at concentrations above the screening levels for these constituents (Table 4-19). As with the oil sample, no PCBs or significant detections of VOCs or SVOCs were observed in the sediment/sludge.

This material has been properly disposed of at an appropriate facility.

4.6.3 Proposed Phase II (RI) Work

Since there is limited access into the basement and pit area, advancing explorations or removing additional impacted materials (if present) in this restricted space would be very difficult. The oily material in the pit did not contain significant VOC concentrations; and analytical results of groundwater samples from Cold Mill wells show infrequent low concentrations of TPH, VOCs, PAHs, and PCBs (Hart Crowser 2007), it was proposed in the Phase II RI Work Plan to continue sampling and analyzing the Cold Mill area groundwater monitoring wells (CM-MW-1S through CM-MW-8S) on a semi-annual basis.

4.6.4 Phase II RI Field Activities and Analytical Results

Sampling and analysis of Cold Mill wells CM-MW-4S through CM-MW-6S were conducted to evaluate potential groundwater impacts associated with the oily material encountered in the electrical grounding pit. These wells are located downgradient of the EGP. These wells were sampled biannually during quarterly sampling events in 2007 and 2008 (Table 4-5).

Each groundwater sample was analyzed for TPH (NWTPH-HCID); PCBs, VOCs, and PAHs in accordance with the Kaiser Trentwood Sampling and Analysis Plan (Hart Crowser 2007a):

Dissolved metals (including As, Fe, Mn, and Sb) were analyzed for on an annual basis.

Analytical results of these groundwater samples are presented in Table 4-5.

Groundwater Quality and Analytical Results

Analytical results of groundwater samples from these wells in 2007 and 2008 indicate PCBs, TPH, and VOCs were not detected in these groundwater samples.

Groundwater samples from these wells had low concentrations of dissolved metals and cPAHs at concentrations above screening levels (Table 4-5). Concentrations of dissolved arsenic (1.05 to 2.83 ug/L) and manganese (128 to 215 ug/L) above the screening levels were detected in wells CM-MW-4S through CM-MW-6S (Table 4-5). Concentrations of cPAHs above the screening levels were detected in well CM-MW-6S. With a few exceptions, detections above the screening levels were detected during quarters when groundwater levels were high (Table 4-5).

4.6.5 Summary of Current Conditions

The soil/sludge sample (G-Pit-A) collected from the grounding pit indicates that elevated concentrations of petroleum hydrocarbons, and arsenic, manganese, and lead may remain in soils at the bottom of the grounding pit. Although no cPAHs or VOCs were detected in this sample, cPAHs were detected in groundwater samples collected in 2007 and 2008 from Cold Mill wells downgradient of the EGP.

Cold Mill wells CM-MW-4S through CM-MW-6S (Figure 4-2) were sampled for at least four quarters between 2007 and 2008. The analytical results for these samples show that infrequent low concentrations of dissolved metals (arsenic and manganese) and cPAHs (benzo(a)pyrene) have been detected above screening levels.

Given that the oily material identified in the pit is not easily accessible and did not contain significant VOC concentrations, it does not appear to pose a significant direct contact or indoor air quality concern. Also, since TPH concentrations were non-detect in samples collected downgradient of the grounding pit, it is unlikely the oily material released into the pit poses a risk to groundwater quality.

The need for additional remedial actions in the Cold Mill Electrical Grounding Pit area will be evaluated in the FS.

4.7 FORMER COATER LINE TANK

4.7.1 Introduction

The former Coater Line Tank contained methyl ethyl ketone (MEK). The initial investigation work in the vicinity of the Coater Line MEK Tank was conducted in November 1989, and the tank removal and remedial activities were conducted in October 1990. Figure 4-2 shows the location of the former tank and Figure 4-9 presents the exploration locations. Tables 4-20 and 4-21 present a summary of analytical results for the subsurface soil samples collected during the initial investigation and following the remedial actions. The following sections present the results of these investigations.

4.7.2 Previous Investigation/Remediation Activities

The old coater line and associated MEK UST were taken off-line in 1986 and 1987, respectively (Hart Crowser 1990a). After they were taken off-line, an initial subsurface investigation was conducted around the UST to determine whether MEK had leaked from it and had impacted surrounding subsurface soils. This initial investigation was part of a larger project conducted in the fall of 1989 (Hart Crowser 1990b) and is described in greater detail below.

1989 Soil Sampling and Analysis

During this investigation, three soil borings (CL-SB-1 through CL-SB-3) were advanced and sampled on November 17 and 18, 1990 (Figure 4-9). The three soil borings were advanced along the perimeter of the tank to a depth of 25.5 feet below grade and soil samples were collected based on lithological observations (Hart Crowser 1990a). Groundwater was not encountered in any of the soil borings during drilling.

Soil Sampling and Analysis

Five soil samples from the three soil borings were selected for chemical analysis based on sample depth, visual evidence of contamination, and headspace measurements. The subsurface soil samples were submitted for analysis of MEK by EPA Method 8020.

Analytical results of the soil samples collected during the investigation indicate that MEK was detected at concentrations below screening levels in two of the five soil samples submitted for analysis (Table 4-20). MEK was detected in the deepest sample (24 to 24.5 feet below grade) collected from CL-SB-1 at a concentration of 670 ug/kg. The only other location where MEK was detected was in a shallow soil sample (4.5 to 6 feet below grade) collected from CL-SB-2 at a concentration of 980 ug/kg. These concentrations are well below the screening level for MEK of 19,700 ug/kg.

Coater Line Tank Removal and Soil Excavation

The coater line MEK UST remedial activities were conducted between October 2 and December 12, 1990. On October 2, 1990, Kaiser personnel cleaned the interior of the 200-gallon UST and oversaw its removal on October 17, 1990 (Hart Crowser 1991b). The UST appeared to be in fair condition, with slight rust and pitting, but no evidence of holes on its surface.

Potentially impacted soil was excavated from around the UST to a maximum depth of 6 feet below grade (approximately 1 foot below the bottom of the UST). A soil sample from each of the side walls of the excavation was collected and composited into one soil sample (HC-MEKW) and submitted for chemical analysis. In addition, several soil samples were collected from the bottom of the excavation and also composited into one sample (HC-MEKB; Hart Crowser 1991b). Excavated soils were stockpiled near the excavation, and one composite soil sample was collected from the stockpile (HC-MEKP). These samples were analyzed for VOCs. MEK was not detected in either of the excavation samples or in the sample collected from the excavated stockpile materials. However, xylenes were detected in the excavation side walls and bottom samples at concentrations ranging from 1,000 to 30,000 ug/kg, respectively.

Based on the analytical results from the soil verification sample collected from the bottom of the excavation, an additional foot of soil was overexcavated on

December 12, 1990, to a final excavation depth of 7 feet below grade. Another soil verification sample (HC-MEK2B) was collected from the bottom of the excavation for chemical analysis. Approximately 30 cubic yards of soil were removed from the excavation and stockpiled on site for later disposal (Hart Crowser 1991b).

The final soil verification bottom sample contained benzene at 42 ug/kg, which exceeded the screening level of 5 ug/kg. Ethylbenzene (130 ug/kg), and xylenes (1,800 ug/kg) were detected but at concentrations below their respective screening levels. Since at the time of the remediation activities, these concentrations were below their respective proposed MTCA Method A soil cleanup levels, no additional soil was removed, and the cleanup was considered complete.

4.7.3 Proposed Phase II (RI) Work

Based on the earlier analytical results associated with the investigation and removal of this tank, no additional work was proposed in the Phase II RI Work Plan (Hart Crowser 2007b).

4.7.4 Summary of Current Conditions

Soil quality testing performed before and after the MEK tank was removed indicates that relatively low concentrations of MEK and BTEX compounds were released. Benzene was detected in the final soil verification bottom (7 feet below ground surface) sample at a concentration (42 ug/kg) that exceeds the current screening level of 5 ug/kg. The concentrations of other constituents detected were below screening levels.

Given that the tank was removed approximately 15 years ago, the relatively low concentrations of volatiles detected in the tank excavation, and the anticipated low adsorption capacity of site soils (due to their coarse-grain nature and low organic carbon content), it is unlikely that significant volatile organic contamination remains at the former MEK tank site.

There are no indications that MEK or BTEX releases from the tank have significantly impacted groundwater quality at the Kaiser Facility. As discussed previously, subsurface soil testing detected only relatively low concentrations of these compounds. As noted in the Draft Groundwater RI/FS (Hart Crowser 2003), volatile organics have not been identified as being of potential concern in Facility groundwater. This finding is supported by the current Site-Wide Groundwater RI (Hart Crowser 2012). Based on the available soil and groundwater data in the vicinity of the former MEK tank, no additional remedial action is warranted in this area.

4.8 REFERENCES FOR SECTION 4.0

Hart Crowser 1990a. Soil and Groundwater Quality Assessment, Kaiser-Trentwood Facility Interim Report. Prepared for Kaiser Aluminum and Chemical Corporation - Trentwood Works. March 22, 1990. J-2644-01.

Hart Crowser 1990b. Transfer Line Soil and Groundwater Quality Investigation Letter Report. Prepared for Kaiser Aluminum and Chemical Company Trentwood Works. October 16, 1990. J-2644-04.

Hart Crowser 1991a. Transfer Line Removal and Cleanup KACC -Trentwood Facility. Prepared for Kaiser Aluminum and Chemical Corporation. June 1991. J-3116.

Hart Crowser 1991b. Methyl Ethyl Ketone (MEK) Tank Removal Kaiser - Trentwood Works - Letter Report. Prepared for Kaiser Aluminum and Chemical Corporation. February 1, 1991. J-3116.

Hart Crowser 1992a. Continuous Can Processing Line (CCPL) Investigation Kaiser - Trentwood Works - Letter Report. Prepared for Kaiser Aluminum and Chemical Corporation. March 10, 1992. J-2644-20.

Hart Crowser 1992b. CCPL/DOS Remediation KACC - Trentwood Facility. Prepared for Kaiser Aluminum and Chemical Corporation. October 12, 1992. J-2644-32.

Hart Crowser 2003. Draft Groundwater Remedial Investigation/Feasibility Study Kaiser - Trentwood Facility. Prepared for Kaiser Aluminum and Chemical Corporation. July 2003. J-2644-76.

Hart Crowser 2005. Phase I Remedial Investigation Work Plan, Kaiser - Trentwood Facility. Prepared for Kaiser Aluminum and Chemical Corporation. July 2005. J-2644-76.

Hart Crowser 2007a. Sampling and Analysis Plan and Quality Assurance Project Plan - Kaiser Trentwood Facility. Prepared for Kaiser Aluminum Fabricated Products, LLC. January 2007. J-2644-99.

Hart Crowser 2007b. Phase II Remedial Investigation/Feasibility Study Work Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-103. November 30, 2007.

Hart Crowser 2012. Final Site-Wide Groundwater Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington, LLC by Hart Crowser, Inc. May 2012.

Kaiser 2006. Cold Mill Transfer Line Investigation Plan. Letter to Dr. Teresita Bala (Ecology) from Bernard Leber (Kaiser) dated April 5, 2006.

Washington State Department of Ecology (Ecology) 1994. Natural Background Soil Metals Concentrations in Washington State. Prepared by the Washington State Department of Ecology Toxics Cleanup Program. October 1994. Publication #94-115.

Ecology 2006. Kaiser Trentwood - Cold Mill Transfer Line Investigation Plan, April 2006. Letter to Bernard Leber (Kaiser) from Dr. Teresita Bala (Ecology) dated April 11, 2006.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 4 0.doc

Table 4-1 - Analytical Results for Soil Samples from Cold Mill Transfer Line Area

Sample ID	Screening	CM-EX-S1	CM-EX-S2	CM-EX-S3	CM-EX-S5
Sampling Date	Level (a)	5/17/2006	5/17/2006	5/18/2006	5/18/2006
Depth in Feet		9	6	6	6
					Dup of CM-EX-S3
Conventionals in %					
Moisture		7	5	6	7
Total Solids		94.9	96.3	94.8	94.8
Metals in mg/kg					
Arsenic	0.03	$\boxed{9.99}$	$\boxed{4.64}$	$\boxed{10.1}$	$\boxed{8.85}$
Barium	1650	55.6	30.8	63.4	62.7
Cadmium	0.7	0.07 J	0.07 J	0.1 J	0.06 J
Chromium	2000	7.42	5.22	8.7	8.52
Lead	250	7.97	7.56	6.48	5.92
Manganese	52.2	285	244	326	309
Mercury	2	0.001 J	0.001 J	0.001 J	0.001 J
Selenium	5	0.3 J	0.3 J	0.4 J	0.4 J
Silver	14	0.069	0.082	0.065 U	0.073
PCBs in ug/kg					
Aroclor 1016		10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	10 U	10 U
Total PCBs	270	20 U	20 U	20 U	20 U
Semivolatiles in ug/kg					
2-Methylnaphthalene	2190	2.3 J	0.53 J	0.54 J	0.61 J
Acenaphthene	98000	5 U	5 U	0.28 J	0.24 J
Acenaphthylene		5 U	5 U	5 U	5 U
Anthracene	2200000	5 U	5 U	0.26 J	5 U
Benzo(a)anthracene	See BaP (c)	0.34 J	5 U	1.5 J	1.4 J
Benzo(a)pyrene	233	0.36 J	5 U	1.2 J	1.1 J
Benzo(b)fluoranthene	See BaP (c)	0.65 J	5 U	1.6 J	1.6 J
Benzo(g,h,i)perylene		0.6 J	5 U	1.1 J	0.97 J
Benzo(k)fluoranthene	See BaP (c)	0.42 J	5 U	1.3 J	1.4 J
Chrysene	See BaP (c)	0.81 J	5 U	1.8 J	1.8 J
Dibenz(a,h)anthracene	See BaP (c)	0.43 J	5 U	0.59 J	5 U
Dibenzofuran	5090	6.1	5 U	0.26 J	0.26 J
Fluoranthene	630000	1.1 J	0.44 J	2.1 J	2.2 J
Fluorene	100000	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.49 J	5 U	0.94 J	0.71 J
Naphthalene	4490	5 U	5 U	5 U	5 U
Phenanthrene		5 U	0.52 J	1.3 J	1.4 J
Pyrene	660000	1.1 J	5 U	2.2 J	2.3 J
TEQ Equivalent (b)	See BaP (c)	0.6011 J	5 U	1.811 J	1.629 J

Table 4-1 - Analytical Results for Soil Samples from Cold Mill Transfer Line Area

Sample ID Sampling Date Depth in Feet	Screening Level (a)	CM-EX-S1 5/17/2006 9	CM-EX-S2 5/17/2006 6	CM-EX-S3 5/18/2006 6	CM-EX-S5 5/18/2006 6 Dup of CM-EX-S3
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		5.9 U	4.9 U	5.6 U	5.6 U
1,1,1-Trichloroethane	1610	5.9 U	4.9 U	5.6 U	5.6 U
1,1,2,2-Tetrachloroethane		5.9 U	4.9 U	5.6 U	5.6 U
1,1,2-Trichloroethane		5.9 U	4.9 U	5.6 U	5.6 U
1,1-Dichloroethane	8730	5.9 U	4.9 U	5.6 U	5.6 U
1,1-Dichloroethene		5.9 U	4.9 U	5.6 U	5.6 U
1,1-Dichloropropene		5.9 U	4.9 U	5.6 U	5.6 U
1,2,3-Trichlorobenzene		24 U	20 U	23 U	23 U
1,2,3-Trichloropropane		5.9 U	4.9 U	5.6 U	5.6 U
1,2,4-Trichlorobenzene		24 U	20 U	23 U	23 U
1,2,4-Trimethylbenzene	31000	24 U	20 U	23 U	23 U
1,2-Dibromo-3-Chloropropane		24 U	20 U	23 U	23 U
1,2-Dibromoethane(EDB)		24 U	20 U	23 U	23 U
1,2-Dichlorobenzene		5.9 U	4.9 U	5.6 U	5.6 U
1,2-Dichloroethane		5.9 U	4.9 U	5.6 U	5.6 U
1,2-Dichloropropane		5.9 U	4.9 U	5.6 U	5.6 U
1,3,5-Trimethylbenzene	8380	24 U	20 U	23 U	23 U
1,3-Dichlorobenzene		5.9 U	4.9 U	5.6 U	5.6 U
1,3-Dichloropropane		5.9 U	4.9 U	5.6 U	5.6 U
1,4-Dichlorobenzene		5.9 U	4.9 U	5.6 U	5.6 U
2,2-Dichloropropane		5.9 U	4.9 U	5.6 U	5.6 U
2-Butanone (MEK)	20000	15 J	20 U	23 U	23 U
2-Chlorotoluene	2400	24 U	20 U	23 U	23 U
2-Hexanone		24 U	20 U	23 U	23 U
4-Chlorotoluene	4180	24 U	20 U	23 U	23 U
4-Isopropyltoluene		24 U	20 U	23 U	23 U
4-Methyl-2-Pentanone		24 U	20 U	23 U	23 U
Acetone	3210	78	13 J	17 J	15 J
Benzene	5	5.9 U	4.9 U	5.6 U	5.6 U
Bromobenzene		5.9 U	4.9 U	5.6 U	5.6 U
Bromochloromethane		5.9 U	4.9 U	5.6 U	5.6 U
Bromodichloromethane		5.9 U	4.9 U	5.6 U	5.6 U
Bromoform		5.9 U	4.9 U	5.6 U	5.6 U
Bromomethane	52	5.9 U	4.9 U	5.6 U	5.6 U
Carbon Disulfide	5600	5.9 U	4.9 U	5.6 U	5.6 U
Carbon Tetrachloride		5.9 U	4.9 U	5.6 U	5.6 U
Chlorobenzene		5.9 U	4.9 U	5.6 U	5.6 U
Chloroethane		5.9 U	4.9 U	5.6 U	5.6 U
Chloroform	38	5.9 U	4.9 U	5.6 U	5.6 U
Chloromethane	22	5.9 U	4.9 U	5.6 U	5.6 U
Cis-1,2-Dichloroethene		5.9 U	4.9 U	5.6 U	5.6 U
Cis-1,3-Dichloropropene		5.9 U	4.9 U	5.6 U	5.6 U
Dibromochloromethane		5.9 U	4.9 U	5.6 U	5.6 U
Dibromomethane		5.9 U	4.9 U	5.6 U	5.6 U
Dichlorodifluoromethane	47000	5.9 U	4.9 U	5.6 U	5.6 U
Ethylbenzene	5990	5.9 U	4.9 U	5.6 U	5.6 U
Hexachlorobutadiene		24 U	20 U	23 U	23 U
Isopropylbenzene	7370	24 U	20 U	23 U	23 U
Methylene Chloride	22	12 U	9.7 U	12 U	12 U
N-Butylbenzene	19500	24 U	20 U	23 U	23 U
N-Propylbenzene	19500	24 U	20 U	23 U	23 U
Naphthalene	4490	24 U	20 U	23 U	23 U

Table 4-1 - Analytical Results for Soil Samples from Cold Mill Transfer Line Area

Sample ID	Screening	CM-EX-S1	CM-EX-S2	CM-EX-S3	CM-EX-S5
Sampling Date	Level (a)	5/17/2006	5/17/2006	5/18/2006	5/18/2006
Depth in Feet		9	6	6	6
					Dup of CM-EX-S3
Sec-Butylbenzene	15800	24 U	20 U	23 U	23 U
Styrene	33	5.9 U	4.9 U	5.6 U	5.6 U
Tert-Butylbenzene	15600	24 U	20 U	23 U	23 U
Tetrachloroethene	0.9	5.9 U	4.9 U	5.6 U	5.6 U
Toluene	4650	5.9 U	4.9 U	5.6 U	5.6 U
Trans-1,2-Dichloroethene		5.9 U	4.9 U	5.6 U	5.6 U
Trans-1,3-Dichloropropene		5.9 U	4.9 U	5.6 U	5.6 U
Trichloroethene (TCE)		5.9 U	4.9 U	5.6 U	5.6 U
Trichlorofluoromethane		5.9 U	4.9 U	5.6 U	5.6 U
Vinyl Chloride		5.9 U	4.9 U	5.6 U	5.6 U
m,p-Xylenes	8520	5.9 U	4.9 U	5.6 U	5.6 U
o-Xylene	916	5.9 U	4.9 U	5.6 U	5.6 U
NWTPH-HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 D	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Diesel/Fuel oil		50 U	50 U	50 U	50 U
Heavy oil	2000	50 U	50 U	50 U	50 U
Kensol	2000	2100	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
NWTPH-G in mg/kg					
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U

D = Detected but not quantifiable.
J = Estimated value.
U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 4-2 - Analytical Results for Soil Samples from Cold Mill Transfer Line Soil Borings

Sample ID Sampling Date Depth in Feet	Screening Level (a)	CMTL-SB-1/S-1 1/03/2007 5 to 6.5	CMTL-SB-1/S-2 1/03/2007 10 to 11.5	CMTL-SB-1/S-3 1/03/2007 15 to 15.7	CMTL-SB-1/S-4 1/03/2007 10 to 11.5 Duplicate of CMTL-SB-1/S-1
Conventionals in %					
Moisture		3.5	5.1	5.7	4
Total Solids		95	96.8	96	96.6
PCBs in µg/kg					
Aroclor 1016		10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	10 U	10 U
Total PCBs	270	20 U	20 U	20 U	20 U
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	58	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil	2000	100 U	100 U	100 U	100 U

U = Not detected at reporting limit indicated.
Refer to Figure 4-3 for boring location.
Blank indicates sample not analyzed for specific analyte or no screening level established.

(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 4-3 - TOC Analysis for Soil Samples from Cold Mill Transfer Line Area

Sample ID	CM-EX-TOC1	CM-EX-TOC2	CM-EX-TOC3
Sampling Date	5/18/2006	5/18/2006	5/18/2006
Depth in Feet	7 to 8	7 to 8	7 to 8
			Dup of CM-EX-TOC1
Conventionals in mg/kg			
Total Organic Carbon	0.09	0.05	0.09

Refer to Figure 4-3 for sampling locations.

Table 4-4 - Grain Size Distribution for Cold Mill Transfer Line Soil Samples

Sample ID	Sieve	Cumul. Wt. Retained	Percent Finer
CM-EX-GS1			
	3 inch	0.00	100.0
	2 inch	5344.00	92.3
	1.5 inch	10537.00	84.7
	1 inch	17230.00	75.0
	0.75 inch	145.13	69.1
	0.50 inch	526.04	53.6
	0.375 inch	769.30	43.7
	#4	1228.70	25.0
	#10	1419.20	17.2
	#20	1498.40	14.0
	#40	1536.80	12.4
	#60	1567.40	11.2
	#100	1589.10	10.3
	#200	1617.00	9.1
CM-EX-GS2			
	3 inch	1699.60	97.5
	2 inch	7200.30	89.2
	1.5 inch	12120.10	81.9
	1 inch	17633.00	73.6
	0.75 inch	223.40	68.4
	0.50 inch	845.00	53.8
	0.375 inch	1181.60	45.9
	#4	1943.00	28.0
	#10	2563.30	13.4
	#20	2851.80	6.6
	#40	2939.70	4.6
	#60	2985.20	3.5
	#100	3012.60	2.9
	#200	3045.30	2.1

Refer to Figure 4-3 for sampling locations.

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-1S 4/15/2007	CM-MW-1S 10/25/2007	CM-MW-1S 4/21/2008	CM-MW-1S 10/19/2008	CM-MW-2S 4/19/2007	CM-MW-200S 4/19/2007 Dup of CM-MW-2S	CM-MW-2S 10/25/2007
Total Suspended Solids in mg/L		1 U	1 U	779	1 U	107		1 U
Dissolved Metals in ug/L								
Antimony	6	0.16		0.188		0.16	0.16	
Arsenic	0.018	$\boxed{3.23}$		$\boxed{3.44}$		$\boxed{3.63}$	$\boxed{2.99}$	
Barium		33.2						
Cadmium	0.25	0.032						
Chromium	50	0.58						
Iron	300	20 U		11.5 T		135 J	20 UJ	
Lead	0.54	0.017 J						
Manganese	50	0.15		0.6 T		8.07 J	2.32 J	
Selenium	5	2						
Silver	80	0.02 U						
PCBs in ug/L								
Aroclor 1016		0.0048 U	0.0048 U	0.005 U	0.0049 U	0.0048 U		0.0048 U
Aroclor 1221		0.0096 U	0.0096 U	0.01 U	0.0098 U	0.0096 U		0.0096 U
Aroclor 1232		0.0048 U	0.0048 U	0.005 U	0.0049 U	0.0048 U		0.0048 U
Aroclor 1242		0.0048 U	0.0048 U	0.005 U	0.0055 U	0.0048 U		0.0048 U
Aroclor 1248		0.0048 U	0.0048 U	0.005 U	0.0049 U	0.0048 U		0.0048 U
Aroclor 1254		0.0048 U	0.0048 U	0.005 U	0.0049 U	0.0048 U		0.0048 U
Aroclor 1260		0.0048 U	0.0048 U	0.005 U	0.0049 U	0.0048 U		0.0048 U
Total PCBs	0.000064	0.0096 U	0.0096 U	0.01 U	0.0098 U	0.0096 U		0.0096 U
NWTPH-HCID in mg/L								
Gasoline	0.8	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U
Stoddard/Mineral spirits	0.8	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.36	0.2 U		0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-2S 4/21/2008	CM-MW-2S 10/20/2008	CM-MW-200S 10/20/2008 Dup of CM-MW-2S	CM-MW-3S 4/18/2007	CM-MW-300S 4/18/2007 Dup of CM-MW-3S	CM-MW-3S 10/25/2007	CM-MW-3S 4/21/2008
Total Suspended Solids in mg/L		393	166		1 U		1 U	6
Dissolved Metals in ug/L								
Antimony	6	0.193			0.17	0.15		0.158
Arsenic	0.018	7.09			2.99	3.07		3.26
Barium								
Cadmium	0.25							
Chromium	50							
Iron	300	745			20 U	20 U		5.6 T
Lead	0.54							
Manganese	50	43.9			0.09 J	0.16 J		5 U
Selenium	5							
Silver	80							
PCBs in ug/L								
Aroclor 1016		0.005 U	0.005 U		0.0048 U		0.0048 U	0.005 U
Aroclor 1221		0.0099 U	0.01 U		0.0096 U		0.0096 U	0.0099 U
Aroclor 1232		0.005 U	0.005 U		0.0048 U		0.0048 U	0.005 U
Aroclor 1242		0.005 U	0.0075 U		0.0048 U		0.0048 U	0.005 U
Aroclor 1248		0.005 U	0.005 U		0.0048 U		0.0048 U	0.005 U
Aroclor 1254		0.005 U	0.005 U		0.0048 U		0.0048 U	0.005 U
Aroclor 1260		0.005 U	0.005 U		0.0048 U		0.0048 U	0.005 U
Total PCBs	0.000064	0.0099 U	0.01 U		0.0096 U		0.0096 U	0.0099 U
NWTPH-HCID in mg/L								
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U
Kensol	0.5	8.6	1.1	1.8	0.2 U		0.2 U	0.4
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-3S 10/21/2008	CM-MW-300S 10/21/2008 Dup of CM-MW-3S	CM-MW-4S 4/17/2007	CM-MW-4S 10/25/2007	CM-MW-4S 4/20/2008	CM-MW-4S 10/20/2008	CM-MW-5S 4/17/2007
Total Suspended Solids in mg/L		69		3	9	6	6	7
Dissolved Metals in ug/L								
Antimony	6			0.28		0.337		0.35
Arsenic	0.018			$\boxed{1.98}$		$\boxed{1.78}$		$\boxed{2.33}$
Barium								
Cadmium	0.25							
Chromium	50							
Iron	300			20 U		7.9 T		20 U
Lead	0.54							
Manganese	50			0.89		0.7 T		0.1
Selenium	5							
Silver	80							
PCBs in ug/L								
Aroclor 1016		0.0049 U		0.0048 U	0.0049 U	0.0049 U	0.0049 U	0.0048 U
Aroclor 1221		0.034 U		0.0096 U	0.0098 U	0.0097 U	0.0098 U	0.0096 U
Aroclor 1232		0.023 U		0.0048 U	0.0049 U	0.0057 U	0.0049 U	0.0048 U
Aroclor 1242		0.0056 U		0.0048 U	0.0049 U	0.0049 U	0.0051 U	0.0048 U
Aroclor 1248		0.0049 U		0.0048 U	0.0049 U	0.0049 U	0.0049 U	0.0048 U
Aroclor 1254		0.0049 U		0.0048 U	0.0049 U	0.0049 U	0.0049 U	0.0048 U
Aroclor 1260		0.0049 U		0.0048 U	0.0049 U	0.0049 U	0.0049 U	0.0048 U
Total PCBs	0.000064	0.034 U		0.0096 U	0.0098 U	0.0097 U	0.0098 U	0.0096 U
NWTPH-HCID in mg/L								
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kensol	0.5	$\boxed{6.7}$	$\boxed{6.4}$	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	$\boxed{3}$	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID	Screening	CM-MW-5S	CM-MW-5S	CM-MW-5S	CM-MW-6S	CM-MW-6S	CM-MW-6S	CM-MW-6S	CM-MW-7S
Sampling Date	Level (a)	10/25/2007	4/20/2008	10/21/2008	4/19/2007	10/25/2007	4/20/2008	10/19/2008	4/15/2007
Total Suspended Solids in mg/L		1 U	2	86	91	1	328	374	1 U
Dissolved Metals in ug/L									
Antimony	6		0.349		0.18		0.301		0.16
Arsenic	0.018		2.83		1.76		1.05		3.13
Barium									34.2
Cadmium	0.25								0.032
Chromium	50								0.57
Iron	300		6.9 T		238		146		13.2 J
Lead	0.54								0.019 J
Manganese	50		5 U		128		215		0.11
Selenium	5								2.2
Silver	80								0.02 U
PCBs in ug/L									
Aroclor 1016		0.0048 U	0.0049 U	0.0049 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U	0.0048 U
Aroclor 1221		0.0096 U	0.0098 U	0.011 U	0.0098 U	0.0096 U	0.0098 U	0.016 U	0.0096 U
Aroclor 1232		0.0048 U	0.006 U	0.0049 U	0.0094 U	0.0048 U	0.0049 U	0.0049 U	0.0048 U
Aroclor 1242		0.0048 U	0.0049 U	0.0062 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U	0.0048 U
Aroclor 1248		0.0048 U	0.0049 U	0.0049 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U	0.0048 U
Aroclor 1254		0.0048 U	0.0049 U	0.0049 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U	0.0048 U
Aroclor 1260		0.0048 U	0.0049 U	0.0049 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U	0.0048 U
Total PCBs	0.000064	0.0096 U	0.0098 U	0.011 U	0.0098 U	0.0096 U	0.0098 U	0.016 U	0.0096 U
NWTPH-HCID in mg/L									
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID / Sampling Date	Screening Level (a)	CM-MW-7S 10/25/2007	CM-MW-7S 4/21/2008	CM-MW-7S 10/20/2008	CM-MW-8S 4/15/2007	CM-MW-8S 10/25/2007	CM-MW-8S 4/21/2008	CM-MW-8S 10/20/2008
Total Suspended Solids in mg/L		1 U	8	444	1 U	1 U	329	181
Dissolved Metals in ug/L								
Antimony	6		0.187		0.16		0.164	
Arsenic	0.018		$\boxed{3.25}$		$\boxed{3.15}$		$\boxed{3.31}$	
Barium					34.2			
Cadmium	0.25				0.033			
Chromium	50				0.58			
Iron	300		9.3 T		20 U		5.9 T	
Lead	0.54				0.01 J			
Manganese	50		0.8 T		0.12		5 U	
Selenium	5				1.7			
Silver	80				0.02 U			
PCBs in ug/L								
Aroclor 1016		0.0048 U	0.0049 U	0.005 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1221		0.0096 U	0.0098 U	0.051 U	0.0096 U	0.0096 U	0.0097 U	0.0098 U
Aroclor 1232		0.0048 U	0.0049 U	0.017 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1242		0.0048 U	0.0049 U	0.011 U	0.0048 U	0.0048 U	0.0049 U	0.0066 U
Aroclor 1248		0.0048 U	0.0049 U	0.0051 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1254		0.0048 U	0.0049 U	0.005 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U
Aroclor 1260		0.0048 U	0.0049 U	0.005 U	0.0048 U	0.0048 U	0.0049 U	0.0049 U
Total PCBs	0.000064	0.0096 U	0.0098 U	0.051 U	0.0096 U	0.0096 U	0.0097 U	0.0098 U
NWTPH-HCID in mg/L								
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U
Kensol	0.5	0.2 U	0.2 U	0.42	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-1S 4/15/2007	CM-MW-1S 10/25/2007	CM-MW-1S 4/21/2008	CM-MW-1S 10/19/2008	CM-MW-2S 4/19/2007
Semivolatiles in ug/L						
2-Methylnaphthalene		0.02 U	0.0036 T	0.0051 T	0.019 U	0.02 U
Acenaphthene	640	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Acenaphthylene		0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Anthracene	4800	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Benzo(a)anthracene	See BaP (c)	0.02 U	0.019 U	0.0031 T	0.019 U	0.02 U
Benzo(a)pyrene	0.0028	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Benzo(g,h,i)perylene		0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Chrysene	See BaP (c)	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Dibenz(a,h)anthracene	See BaP (c)	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Dibenzofuran	32	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Fluoranthene	90	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Fluorene	640	0.02 U	0.019 U	0.0058 T	0.019 U	0.02 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
Naphthalene	160	0.02 U	0.019 U	0.083	0.0046 T	0.02 U
Phenanthrene		0.02	0.02	0.014 T	0.011 T	0.02 U
Pyrene	480	0.02 U	0.019 U	0.021 U	0.019 U	0.02 U
TEQ Equivalent (b)	See BaP (c)	0.02 U	0.019 U	0.00031 J	0.019 U	0.02 U
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 UJ	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	2 U		2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID	Screening	CM-MW-1S	CM-MW-1S	CM-MW-1S	CM-MW-1S	CM-MW-2S
Sampling Date	Level (a)	4/15/2007	10/25/2007	4/21/2008	10/19/2008	4/19/2007
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 UJ	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.5 U	0.5 U	1.2
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene					2 U	

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID	Screening	CM-MW-2S	CM-MW-2S	CM-MW-2S	CM-MW-3S	CM-MW-3S
Sampling Date	Level (a)	10/25/2007	4/21/2008	10/20/2008	4/18/2007	10/25/2007
Semivolatiles in ug/L						
2-Methylnaphthalene		0.0023 T	0.0034 T	0.0025 T	0.02 U	0.0025 T
Acenaphthene	640	0.019 U	0.12 U	0.019 U	0.02 U	0.019 U
Acenaphthylene		0.019 U	0.039 U	0.019 U	0.02 U	0.019 U
Anthracene	4800	0.019 U	0.02 U	0.019 U	0.02 U	0.019 U
Benzo(a)anthracene	See BaP (c)	0.019 U	0.0097 T	0.019 U	0.02 U	0.019 U
Benzo(a)pyrene	0.0028	0.019 U	0.02 U	0.019 U	0.02 U	0.019 U
Benzo(b)fluoranthene	See BaP (c)	0.019 U	0.015 T	0.019 U	0.02 U	0.019 U
Benzo(g,h,i)perylene		0.019 U	0.0073 T	0.019 U	0.02 U	0.019 U
Benzo(k)fluoranthene	See BaP (c)	0.019 U	0.0061 T	0.019 U	0.02 U	0.019 U
Chrysene	See BaP (c)	0.019 U	0.012 T	0.0058 T	0.02 U	0.019 U
Dibenz(a,h)anthracene	See BaP (c)	0.019 U	0.02 U	0.019 U	0.02 U	0.019 U
Dibenzofuran	32	0.019 U	0.067 U	0.019 U	0.02 U	0.019 U
Fluoranthene	90	0.019 U	0.035	0.0069 T	0.02 U	0.019 U
Fluorene	640	0.019 U	0.02 U	0.019 U	0.02 U	0.019 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.019 U	0.008 T	0.019 U	0.02 U	0.019 U
Naphthalene	160	0.019 U	0.048 U	0.025	0.02 U	0.019 U
Phenanthrene		0.019 U	0.02 U	0.019 U	0.02 U	0.019 U
Pyrene	480	0.019 U	0.022	0.014 T	0.02 U	0.019 U
TEQ Equivalent (b)	See BaP (c)	0.019 U	$\boxed{0.004}$ J	0.000058 J	0.02 U	0.019 U
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 UJ	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U		2 U	2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID	Screening	CM-MW-2S	CM-MW-2S	CM-MW-2S	CM-MW-3S	CM-MW-3S
Sampling Date	Level (a)	10/25/2007	4/21/2008	10/20/2008	4/18/2007	10/25/2007
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene				2 U		

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-3S 4/21/2008	CM-MW-3S 10/21/2008	CM-MW-4S 4/17/2007	CM-MW-4S 10/25/2007	CM-MW-4S 4/20/2008
Semivolatiles in ug/L						
2-Methylnaphthalene		0.019 U	0.02 U	0.0046 J	0.0043 T	0.0032 T
Acenaphthene	640	0.019 U	0.2 U	0.02 U	0.019 U	0.019 U
Acenaphthylene		0.019 U	0.2 U	0.02 U	0.019 U	0.019 U
Anthracene	4800	0.019 U	0.2 U	0.02 U	0.019 U	0.019 U
Benzo(a)anthracene	See BaP (c)	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Benzo(a)pyrene	0.0028	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Benzo(b)fluoranthene	See BaP (c)	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Benzo(g,h,i)perylene		0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Benzo(k)fluoranthene	See BaP (c)	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Chrysene	See BaP (c)	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Dibenz(a,h)anthracene	See BaP (c)	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Dibenzofuran	32	0.019 U	0.2 U	0.02 U	0.019 U	0.019 U
Fluoranthene	90	0.0068 T	0.2 U	0.02 U	0.019 U	0.019 U
Fluorene	640	0.019 U	0.2 U	0.02 U	0.019 U	0.019 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Naphthalene	160	0.019 U	0.018 T	0.0068 J	0.019 U	0.035 U
Phenanthrene		0.019 U	0.2 U	0.0042 J	0.019 U	0.0056 T
Pyrene	480	0.0058 T	0.02 U	0.02 U	0.019 U	0.019 U
TEQ Equivalent (b)	See BaP (c)	0.019 U	0.02 U	0.02 U	0.019 U	0.019 U
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 UJ	2 U	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U		2 U	2 U	2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-3S 4/21/2008	CM-MW-3S 10/21/2008	CM-MW-4S 4/17/2007	CM-MW-4S 10/25/2007	CM-MW-4S 4/20/2008
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.06 T	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene			2 U			

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID	Screening	CM-MW-4S	CM-MW-5S	CM-MW-5S	CM-MW-5S	CM-MW-5S
Sampling Date	Level (a)	10/20/2008	4/17/2007	10/25/2007	4/20/2008	10/21/2008
Semivolatiles in ug/L						
2-Methylnaphthalene		0.0038 T	0.02 U		0.019 U	0.004 T
Acenaphthene	640	0.019 U	0.02 U		0.019 U	0.019 U
Acenaphthylene		0.019 U	0.02 U		0.019 U	0.019 U
Anthracene	4800	0.019 U	0.02 U		0.019 U	0.019 U
Benzo(a)anthracene	See BaP (c)	0.019 U	0.02 U		0.019 U	0.019 U
Benzo(a)pyrene	0.0028	0.019 U	0.02 U		0.019 U	0.019 U
Benzo(b)fluoranthene	See BaP (c)	0.019 U	0.02 U		0.019 U	0.019 U
Benzo(g,h,i)perylene		0.019 U	0.02 U		0.019 U	0.019 U
Benzo(k)fluoranthene	See BaP (c)	0.019 U	0.02 U		0.019 U	0.019 U
Chrysene	See BaP (c)	0.019 U	0.02 U		0.019 U	0.019 U
Dibenz(a,h)anthracene	See BaP (c)	0.019 U	0.02 U		0.019 U	0.019 U
Dibenzofuran	32	0.019 U	0.02 U		0.019 U	0.019 U
Fluoranthene	90	0.019 U	0.02 U		0.019 U	0.0067 T
Fluorene	640	0.019 U	0.02 U		0.019 U	0.019 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.019 U	0.02 U		0.019 U	0.019 U
Naphthalene	160	0.0075 T	0.02 U		0.019 U	0.01 T
Phenanthrene		0.019 U	0.0034 J		0.019 U	0.01 T
Pyrene	480	0.019 U	0.02 U		0.019 U	0.0071 T
TEQ Equivalent (b)	See BaP (c)	0.019 U	0.02 U		0.019 U	0.019 U
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 UJ	2 U	2 U	2 U	2 UJ
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene			2 U	2 U	2 U	
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.16 JT	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID	Screening	CM-MW-4S	CM-MW-5S	CM-MW-5S	CM-MW-5S	CM-MW-5S
Sampling Date	Level (a)	10/20/2008	4/17/2007	10/25/2007	4/20/2008	10/21/2008
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.24 T	0.5 U	0.5 U	0.13 T	0.07 T
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene		2 U				2 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-6S 4/19/2007	CM-MW-6S 10/25/2007	CM-MW-6S 4/20/2008	CM-MW-6S 10/19/2008	CM-MW-7S 4/15/2007
Semivolatiles in ug/L						
2-Methylnaphthalene		0.02 U	0.019 U	0.0046 T	0.0036 T	0.02 U
Acenaphthene	640	0.02 U	0.019 U	0.019 U	0.019 U	0.02 U
Acenaphthylene		0.02 U	0.019 U	0.007 T	0.012 T	0.02 U
Anthracene	4800	0.02 U	0.019 U	0.023	0.028	0.02 U
Benzo(a)anthracene	See BaP (c)	0.02 U	0.019 U	0.067	0.056	0.02 U
Benzo(a)pyrene	0.0028	0.02 U	0.019 U	0.019 T	0.017 T	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.02 U	0.019 U	0.076	0.059	0.02 U
Benzo(g,h,i)perylene		0.02 U	0.019 U	0.018 T	0.02	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.02 U	0.019 U	0.027	0.022	0.02 U
Chrysene	See BaP (c)	0.02 U	0.019 U	0.09	0.06	0.02 U
Dibenz(a,h)anthracene	See BaP (c)	0.02 U	0.019 U	0.0054 T	0.0048 T	0.02 U
Dibenzofuran	32	0.02 U	0.019 U	0.0096 T	0.019 U	0.02 U
Fluoranthene	90	0.02 U	0.019 U	0.3	0.26	0.02 U
Fluorene	640	0.02 U	0.019 U	0.019 U	0.019 U	0.02 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U	0.019 U	0.024	0.02	0.02 U
Naphthalene	160	0.02 U	0.019 U	0.13	0.089	0.02 U
Phenanthrene		0.02 U	0.019 U	0.15	0.11	0.02 U
Pyrene	480	0.02 U	0.019 U	0.24	0.27	0.02 U
TEQ Equivalent (b)	See BaP (c)	0.02 U	0.019 U	0.00338 J	0.03378 J	0.02 U
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 UJ	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	2 U		2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	3.8 T	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	2.1 J	0.5 U	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-6S 4/19/2007	CM-MW-6S 10/25/2007	CM-MW-6S 4/20/2008	CM-MW-6S 10/19/2008	CM-MW-7S 4/15/2007
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 UJ	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.12 T	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene					2 U	

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-7S 10/25/2007	CM-MW-7S 4/21/2008	CM-MW-7S 10/20/2008	CM-MW-8S 4/15/2007	CM-MW-8S 10/25/2007
Semivolatiles in ug/L						
2-Methylnaphthalene		0.0028 T	0.019 U	0.0043 T	0.02 U	0.019 U
Acenaphthene	640	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Acenaphthylene		0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Anthracene	4800	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Benzo(a)anthracene	See BaP (c)	0.019 U	0.019 U	0.019 U	0.02 U	0.0043 T
Benzo(a)pyrene	0.0028	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Benzo(b)fluoranthene	See BaP (c)	0.019 U	0.019 U	0.019 U	0.02 U	0.0041 T
Benzo(g,h,i)perylene		0.019 U	0.019 U	0.019 U	0.02 U	0.011 T
Benzo(k)fluoranthene	See BaP (c)	0.019 U	0.019 U	0.019 U	0.02 U	0.0029 T
Chrysene	See BaP (c)	0.019 U	0.019 U	0.0048 T	0.02 U	0.019 U
Dibenz(a,h)anthracene	See BaP (c)	0.019 U	0.019 U	0.019 U	0.02 U	0.0068 T
Dibenzofuran	32	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Fluoranthene	90	0.019 U	0.019 U	0.007 T	0.02 U	0.019 U
Fluorene	640	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.019 U	0.019 U	0.019 U	0.02 U	0.0089 T
Naphthalene	160	0.019 U	0.019 U	0.028	0.02 U	0.019 U
Phenanthrene		0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Pyrene	480	0.019 U	0.019 U	0.0095 T	0.02 U	0.019 U
TEQ Equivalent (b)	See BaP (c)	0.019 U	0.019 U	0.000048 J	0.02 U	0.0027 J
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 UJ	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U		2 U	2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	2.9 T	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	1.6	0.5 U	0.5 U	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID	Screening	CM-MW-7S	CM-MW-7S	CM-MW-7S	CM-MW-8S	CM-MW-8S
Sampling Date	Level (a)	10/25/2007	4/21/2008	10/20/2008	4/15/2007	10/25/2007
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U	2 U	2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.37 T	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Cymene				2 U		

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID	Screening	CM-MW-8S	CM-MW-8S
Sampling Date	Level (a)	4/21/2008	10/20/2008
Semivolatiles in ug/L			
2-Methylnaphthalene		0.019 U	0.0038 T
Acenaphthene	640	0.019 U	0.02 U
Acenaphthylene		0.019 U	0.02 U
Anthracene	4800	0.019 U	0.02 U
Benzo(a)anthracene	See BaP (c)	0.019 U	0.02 U
Benzo(a)pyrene	0.0028	0.019 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.019 U	0.02 U
Benzo(g,h,i)perylene		0.019 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.019 U	0.02 U
Chrysene	See BaP (c)	0.019 U	0.02 U
Dibenz(a,h)anthracene	See BaP (c)	0.019 U	0.02 U
Dibenzofuran	32	0.019 U	0.02 U
Fluoranthene	90	0.019 U	0.02 U
Fluorene	640	0.019 U	0.005 T
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.019 U	0.02 U
Naphthalene	160	0.019 U	0.04
Phenanthrene		0.019 U	0.011 T
Pyrene	480	0.019 U	0.02 U
TEQ Equivalent (b)	See BaP (c)	0.019 U	0.02 U
Volatiles in ug/L			
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 UJ
1,2-Dibromoethane(EDB)		2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 UJ
2-Butanone (MEK)		20 U	20 U
2-Chlorotoluene		2 U	2 U
2-Hexanone		20 U	20 U
4-Chlorotoluene		2 U	2 U
4-Isopropyltoluene		2 U	
4-Methyl-2-Pentanone		20 U	20 U
Acetone	800	20 U	20 U
Benzene	0.8	0.5 U	0.5 U
Bromobenzene		2 U	2 U
Bromochloromethane		0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U
Freon 11		0.5 U	0.5 U
Freon 12	1600	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U

Table 4-5 - Analytical Results for Cold Mill Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CM-MW-8S 4/21/2008	CM-MW-8S 10/20/2008
Carbon Tetrachloride	0.23	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U
Cumene(Isopropylbenzene)		2 U	2 U
Dibromochloromethane	0.4	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U
Ethylbenzene	530	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U
Methylene Chloride	4.6	2 U	2 U
N-Butylbenzene		2 U	2 U
N-Propylbenzene		2 U	2 U
Naphthalene	160	2 U	2 U
Sec-Butylbenzene		2 U	2 U
Styrene	1.5	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U
Toluene	640	0.11 T	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U
p-Cymene			2 U

J = Estimated value.
T = Value is between the MDL and MRL.
U = Not detected at reporting limit indicated.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 4-6 - Analytical Results for Surface Soil Samples from the Transformer Yard Area

Sample ID Sampling Date	Screening Level (a)	TY-SS-01 5/24/2006	TY-SS-02 5/24/2006	TY-SS-03 5/24/2006	TY-SS-04 5/24/2006	TY-SS-100 5/24/2006 Dup of TY-SS-04
Conventionals in %						
Moisture		13	14	13	14	15
Total Solids		79.5	78.8	78.8	79.9	78.9
PCBs in ug/kg						
Aroclor 1016		10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	10 U	10 U	10 U
Total PCBs	270	20 U	20 U	20 U	20 U	20 U
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
NWTPH-HCID (Silica Gel Cleanup) in mg/kg						
Gasoline	100	20 UJ				
Stoddard/Mineral spirits	100	20 UJ				
Kensol	2000	20 UJ				
Kerosene/Jet fuel	2000	20 UJ				
Diesel/Fuel oil	2000	50 UJ				
Bunker C		50 UJ				
Heavy oil	2000	100 UJ				

Table 4-6 - Analytical Results for Surface Soil Samples from the Transformer Yard Area

Sample ID Sampling Date	Screening Level (a)	TY-SS-05 5/24/2006	TY-SS-06 5/24/2006	TY-SS-07 5/24/2006	TY-SS-08 5/24/2006	TY-SS-09 5/24/2006
Conventionals in %						
Moisture		16	13	14	14	15
Total Solids		78.4	78.5	78.7	79.1	78.3
PCBs in ug/kg						
Aroclor 1016		10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	10 U	10 U	10 U
Total PCBs	270	20 U	20 U	20 U	20 U	20 U
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
NWTPH-HCID (Silica Gel Cleanup) in mg/kg						
Gasoline	100	20 UJ				
Stoddard/Mineral spirits	100	20 UJ				
Kensol	2000	20 UJ				
Kerosene/Jet fuel	2000	20 UJ				
Diesel/Fuel oil	2000	50 UJ				
Bunker C		50 UJ				
Heavy oil	2000	100 UJ				

J = Estimated value.
U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 4-7 - Analytical Results for DOS Excavation Soil Verification Samples

Sample No.	TPH (418.1) in mg/kg	DOS (8015) in mg/kg	Hexanol (8240) in mg/kg
Screening Level (a)	2000		
CCPL-1	110 U	15	0.5 U
CCPL-2	100 U	12	0.5 U
CCPL-3	110 U	22	0.5 U
CCPL-4	100 U	19	0.5 U
CCPL-5	100 U	20	0.5 U
CCPL-6	100 U	5 U	0.5 U

U = Not detected at reporting limit indicated.
Blank indicates no screening level established.

(a) Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
Note these samples were non-detect for other volatile organic constituents based on analysis by EPA Method 8240.

Table 4-8 - Analytical Results for CCPL Subsurface Soil Samples (1991)

Sample ID	Sampling Date	Depth in Feet	Unsat/Sat	Total Chromium in mg/kg	Hexavalent Chromium in mg/kg
Screening Level (a)				2,000/100	18/0.926
CC-MW-1/S-1	11/25/1991	1 to 2.5	Unsat	11	1 U
CC-MW-1/S-2	11/26/1991	5 to 6.5	Unsat	6.3	1 U
CC-MW-1/S-3	11/26/1991	10 to 11.5	Unsat	7.6	1 U
CC-MW-1/S-4	11/26/1991	15 to 16.5	Unsat	14	1 U
CC-MW-1/S-5	11/26/1991	20 to 21.5	Unsat	6.2	1 U
CC-MW-1/S-6	11/27/1991	25 to 26.5	Unsat	7.3	1 U
CC-MW-1/S-7	11/27/1991	35 to 36.5	Unsat	6.6	1 U
CC-MW-1/S-8	11/27/1991	45 to 46.5	Unsat	6.9	1 U
CC-MW-1/S-9	11/27/1991	55 to 56.5	Unsat	4.1	1 U
CC-MW-1/S-10	11/27/1991	70 to 71.5	Sat	2.8	1 UJ
CC-MW-1/S-11	11/27/1991	80 to 81.5	Sat	3.7	1 U
CC-MW-1/S-12	11/27/1991	90 to 92	Sat	7.4	1 U
CC-SB-1/S-1	12/2/1991	1 to 2.5	Unsat	11	1 U
CC-SB-1/S-2	12/2/1991	5 to 6.5	Unsat	6.5	1 U
CC-SB-1/S-3	12/2/1991	10 to 11.5	Unsat	5.2	1 U
CC-SB-1/S-4	12/2/1991	15 to 16.5	Unsat	20	1.4
CC-SB-1/S-5	12/2/1991	20 to 21.5	Unsat	5.2	1 U
CC-SB-1/S-6	12/2/1991	25 to 26.5	Unsat	4.5	1 U
CC-SB-2/S-1	12/2/1991	1 to 2.5	Unsat	6	1 U
CC-SB-2/S-2	12/2/1991	5 to 6.5	Unsat	5.8	1 UJ
CC-SB-2/S-3	12/2/1991	10 to 11.5	Unsat	7	1 U
CC-SB-2/S-4	12/2/1991	20 to 21.5	Unsat	3.4	1 U
CC-SB-2/S-5	12/2/1991	25 to 26.5	Unsat	7.6	1 U
CC-SB-3/S-1	12/2/1991	1 to 2.5	Unsat	11	1 U
CC-SB-3/S-2	12/2/1991	5 to 6.5	Unsat	5.9	1 U
CC-SB-3/S-3	12/2/1991	10 to 11.5	Unsat	7.5	1 U
CC-SB-3/S-4	12/2/1991	15 to 16.5	Unsat	13	1 U
CC-SB-3/S-5	12/2/1991	20 to 21.5	Unsat	6.2	1 U
CC-SB-3/S-6	12/2/1991	25 to 26.5	Unsat	6	1 UJ

J = Estimated value.
U = Not detected at reporting limit indicated.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 4-9 - Analytical Results for CCPL/DOS Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CC-MW-1 12/6/1991	CL-MW-1 8/19/92
Total Suspended Solids in mg/L		10 U	
Dissolved Metals in ug/L			
Antimony	6	$\boxed{7.8}$	
Arsenic	0.018	5 U	
Chromium	50	10 U	
Iron	300	10 U	
Manganese	50	28	
PCBs in ug/L			
Aroclor 1016		0.02 U	
Aroclor 1221		0.05 U	
Aroclor 1232		0.02 U	
Aroclor 1242		0.02 U	
Aroclor 1248		0.02 U	
Aroclor 1254		0.02 U	
Aroclor 1260		0.02 U	
Total PCBs	0.000064	0.05 U	
Volatiles in ug/L			
1,1,1-Trichloroethane	200		1 U
1,1,2,2-Tetrachloroethane	0.17		1 U
1,1,2-Trichloroethane	0.59		1 U
1,1-Dichloroethane	1600		1 U
1,1-Dichloroethene			1 U
1,2-Dichloroethane			1 U
1,2-Dichloropropane	0.5		1 U
2-Butanone (MEK)			11 U
2-Hexanone			10 U
4-Methyl-2-Pentanone			10 U
Acetone	800		10 U
Bromodichloromethane	0.27		1 U
Bromoform	4.3		5 U
Bromomethane	11		10 U
Carbon Disulfide	800		1 U
Carbon Tetrachloride	0.23		1 U
Chlorobenzene	100		1 U
Chloroethane			1 U
Chloroform	5.7		1 U
Chloromethane	3.4		10 U
Cis-1,3-Dichloropropene			1 U
Dibromochloromethane	0.4		1 U
Dichloroethylenes			1 U
Methylene Chloride	4.6		5 U
Styrene	1.5		1 U
Tetrachloroethene	0.081		1 U
Trans-1,3-Dichloropropene			1 U
Trichloroethene (TCE)	0.49		1 U
Vinyl Acetate			10 U
Vinyl Chloride	0.025		1 U
Benzene	0.8	1 U	1 U
Ethylbenzene	530	1 U	1 U
Toluene	640	1 U	1 U

Table 4-9 - Analytical Results for CCPL/DOS Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	CC-MW-1 12/6/1991	CL-MW-1 8/19/92
Total Xylenes	1000	1 U	1 U
TPH in mg/L			
Fuel Fingerprint		0.2 U	
Total Petroleum Hydrocarbons	0.5		1 U

J = Estimated value.
U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).

Table 4-10 - Analytical Results for CCPL Surface Soil Samples

Sample ID	Sampling Date	Location	Sample Type	Total Chromium in mg/kg
Screening Level (a)				2,000
CCPL-C1	2/19/92	Excavation	5-Point Composite	85
CCPL-C2	2/19/92	Excavation	5-Point Composite	120
CCPL-C3	2/19/92	Excavation	5-Point Composite	97
CCPL-C4	2/19/92	Excavation	5-Point Composite	51
CCPL-C5	2/19/92	Excavation	5-Point Composite	340
CCPL-C6	2/19/92	Excavation	5-Point Composite	97
CCPL-C7	2/19/92	Excavation	5-Point Composite	68
CCPL-C8	2/19/92	Excavation	5-Point Composite	270
CCPL-C9	2/19/92	Excavation	5-Point Composite	130
CCPL-C10	2/19/92	Excavation	5-Point Composite	26
CCPL-C11	2/19/92	Excavation	5-Point Composite	73
CCPL-C12	2/19/92	Excavation	5-Point Composite	250
CCPL-C13	2/19/92	Excavation	5-Point Composite	130
CCPL-PPBS-1	2/19/92	Pit Floor	Discrete	12
CCPL-PPBS-2	2/19/92	Pit Floor	Discrete	14
CCPL-PPBS-3	2/19/92	Pit Floor	Discrete	18

CCPL-C1 through CCPL-C13 correspond to composite samples from respective cells shown on Figure 4-5.

Table 4-10 - Analytical Results for CCPL Surface Soil Samples

Sample ID	Screening	CCPL-C4	
Sampling Date	Level (a)	2/19/92	
Location		Excavation	
Sample Type		5-Point Composite	
Total Cyanide in mg/kg		0.1	U
Metals in mg/kg			
Antimony	5.42	2.9	UJ
Arsenic	0.03	$\boxed{9.2}$	
Beryllium	63	0.52	
Cadmium	0.7	$\boxed{1.8}$	
Chromium	2000	51	
Copper	260	22	
Lead	250	28	
Mercury	2	0.089	U
Nickel	130	12	
Selenium	5	0.32	U
Silver	14	0.29	U
Thallium	2	0.32	U
Zinc	5970	71	
Pesticide/PCBs in ug/kg			
4,4'-DDD		10	U
4,4'-DDE		10	U
4,4'-DDT		10	U
Aldrin		5.2	U
Aroclor 1016		100	U
Aroclor 1221		100	U
Aroclor 1232		100	U
Aroclor 1242		100	U
Aroclor 1248		100	U
Aroclor 1254		100	U
Aroclor 1260		100	U
Total PCBs	270	100	U
Chlordane		52	U
Delta-BHC		5.2	U
Dieldrin		10	U
Endosulfan I		5.2	U
Endosulfan II		10	U
Endosulfan Sulfate		10	U
Endrin		10	U
Endrin Ketone		10	U
Heptachlor		5.2	U
Heptachlor Epoxide		5.2	U
Methoxychlor		52	U
Toxaphene		100	U
Alpha-BHC		5.2	U
Beta-BHC		5.2	U
Gamma-BHC		5.2	U

Table 4-10 - Analytical Results for CCPL Surface Soil Samples

Sample ID Sampling Date Location Sample Type	Screening Level (a)	CCPL-C4 2/19/92 Excavation 5-Point Composite
Semivolatiles in ug/kg		
1,2,4-Trichlorobenzene		180 U
1,2-Dichlorobenzene		180 U
1,3-Dichlorobenzene		180 U
1,4-Dichlorobenzene		180 U
2,4,5-Trichlorophenol		910 U
2,4,6-Trichlorophenol		180 U
2,4-Dichlorophenol		180 U
2,4-Dimethylphenol		180 U
2,4-Dinitrophenol		910 U
2,4-Dinitrotoluene		180 U
2,6-Dinitrotoluene		180 U
2-Chloronaphthalene		180 U
2-Chlorophenol		180 U
2-Methylnaphthalene	2190	180 U
2-Methylphenol		180 U
2-Nitroaniline		910 U
2-Nitrophenol		180 U
3,3'-Dichlorobenzidine		360 U
3-Nitroaniline		910 U
4,6-Dinitro-2-methyphenol		910 U
4-Bromophenyl-Phenylether		180 U
4-Chloro-3-methylphenol		180 U
4-Chloroaniline		180 U
4-Chlorophenyl-phenylether		180 U
4-Methylphenol		180 U
4-Nitroaniline		910 U
4-Nitrophenol		910 U
Acenaphthene	98000	120 J
Acenaphthylene		180 U
Aniline		180 U
Anthracene	2200000	270
Benzidine		1800 U
Benzo(a)anthracene	See BaP (c)	470
Benzo(a)pyrene	233	340
Benzo(b)fluoranthene	See BaP (c)	540
Benzo(g,h,i)perylene		190
Benzo(k)fluoranthene	See BaP (c)	150 J
Benzoic Acid		910 U
Benzyl Alcohol		180 U
Bis(2-Chloroethoxy)Methane		180 U
Bis(2-Chloroethyl)Ether		180 U
Bis(2-Ethylhexyl)Phthalate	13000	370
Bis(2-chloroisopropyl) Ether		180 U
Butylbenzylphthalate		180 U
Chrysene	See BaP (c)	480
Di-N-Butylphthalate	57000	360 U
Di-n-octyl Phthalate		150 J
Dibenz(a,h)anthracene	See BaP (c)	61 J

Table 4-10 - Analytical Results for CCPL Surface Soil Samples

Sample ID	Screening	CCPL-C4	
Sampling Date	Level (a)	2/19/92	
Location		Excavation	
Sample Type		5-Point Composite	
Dibenzofuran	5090	63	J
Diethylphthalate		180	U
Dimethyl Phthalate		180	U
Fluoranthene	630000	1200	
Fluorene	100000	110	J
Hexachlorobenzene		180	U
Hexachlorobutadiene		180	U
Hexachlorocyclopentadiene		180	U
Hexachloroethane		180	U
Indeno(1,2,3-cd)pyrene	See BaP (c)	230	
Isophorone		180	U
N-Nitroso-di-n-propylamine		180	U
N-Nitrosodimethylamine		180	U
N-Nitrosodiphenylamine	536	180	U
Naphthalene	4490	180	U
Nitrobenzene		180	U
Pentachlorophenol		180	U
Phenanthrene		1100	
Phenol	22000	180	U
Pyrene	660000	890	
Total Phenols		200	U
TEQ Equivalent (b)	See BaP (c)	489.9	J
Volatiles in ug/kg			
1,1,1-Trichloroethane	1610	55	U
1,1,2,2-Tetrachloroethane		55	U
1,1,2-Trichloroethane		55	U
1,1-Dichloroethane	8730	55	U
1,1-Dichloroethene		55	U
1,2-Dichloroethane		55	U
1,2-Dichloroethene (Total)		55	U
1,2-Dichloropropane		55	U
2-Butanone (MEK)	20000	550	U
2-Hexanone		550	U
4-Methyl-2-Pentanone		550	U
Acetone	3210	1100	U
Benzene	5	55	U
Bromodichloromethane		55	U
Bromoform		270	U
Bromomethane	52	550	U
Carbon Disulfide	5600	55	U
Carbon Tetrachloride		55	U
Chlorobenzene		55	U
Chloroethane		55	U
Chloroform	38	55	U
Chloromethane	22	550	U
Cis-1,3-Dichloropropene		55	U
Dibromochloromethane		55	U
Ethylbenzene	5990	55	U
Methylene Chloride	22	270	U

Table 4-10 - Analytical Results for CCPL Surface Soil Samples

Sample ID	Screening	CCPL-C4
Sampling Date	Level (a)	2/19/92
Location		Excavation
Sample Type		5-Point Composite
Styrene	33	55 U
Tetrachloroethene	0.9	55 U
Toluene	4650	55 U
Total Xylenes	14500	55 U
Trans-1,3-Dichloropropene		55 U
Trichloroethene (TCE)		55 U
Vinyl Acetate		550 U
Vinyl Chloride		55 U
TPH (EPA8015mod) in mg/kg		
Gasoline	100	5 U
Diesel	2000	40

J = Estimated value.
U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 4-11 - Analytical Results for Concrete Samples from CCPL Pit

Sample ID	Sampling Date	Total Chromium in mg/kg
Screening Level (a)		2,000
CS-1-CCPL	2/20/1992	470
CS-2-CCPL	2/20/1992	65
CS-3-CCPL	2/20/1992	320
CS-4-CCPL	2/20/1992	280
CS-5-CCPL	2/20/1992	150
CS-6-CCPL	2/20/1992	59
CS-7-CCPL	2/20/1992	19

Refer to Figure 4-5 for sample locations.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 4-12 - Analytical Results for CCPL/DOS Subsurface Soil Samples (1992)

Boring	Sample ID	Sampling Date	Depth in Feet	Unsat/ Sat	2-ethyl-1-hexanol in mg/kg	TPH (418.1) in mg/kg	DOS (8015) in mg/kg
Screening Level (a)						2,000	
B-1	B1/S1	8/13/1992	2.5 to 4	Unsat	1.1 J	$\boxed{3,200}$	210
	B1/S1 Dup	8/13/1992	2.5 to 4	Unsat	0.52 U	170	31
	B1/S2	8/13/1992	5 to 6.5	Unsat	0.53 U	750	58
	B1/S3	8/13/1992	7.5 to 9	Unsat	0.52 U	21 U	5 U
	B1/S4	8/13/1992	10 to 12	Unsat	0.50 U	20 U	
	B1/S5	8/13/1992	15 to 16.5	Unsat	0.53 U	21 U	5 U
	B1/S6	8/13/1992	20 to 21.5	Unsat	0.52 U	20 U	5 U
B-2	B2/S1	8/13/1992	2.5 to 4	Unsat	0.56 U	230	17
	B2/S2	8/13/1992	5 to 6.5	Unsat	0.53 U	690	50 U
	B2/S4	8/13/1992	10 to 11.5	Unsat	0.51 U	20 U	5 U
B-3	B3/S1	8/14/1992	2.5 to 4	Unsat	0.54 U	21 U	5 U
	B3/S2	8/14/1992	5 to 6.5	Unsat	0.53 U	21 U	5 U
	B3/S3	8/14/1992	7.5 to 9.5	Unsat	0.53 U	21 U	5 U
	B3/S6	8/14/1992	20 to 21.5	Unsat	0.53 U	21 U	5 U
B-4	B4/S-4	8/14/1992	10 to 11	Unsat	0.51 U	21 U	5 U
	B4/S-7	8/18/1992	30 to 31.5	Unsat	0.51 U	21 U	5 U
	B4/S-8	8/18/1992	40 to 42	Unsat	0.53 U	21 U	5 U
	B4/S-9	8/18/1992	50 to 51.3	Unsat	0.52 U	21 U	5 U
	B4/S-10	8/18/1992	60 to 61.5	Unsat	0.52 U	21 U	5 U
	B4/S-11	8/18/1992	70 to 70.8	Sat	0.51 U	66	5 U
	B4/S-12	8/18/1992	80 to 82	Sat	0.51 U	21 U	5 U
B-5	B5/S-1	8/15/1992	2.5 to 4	Unsat	0.55 U	40	20
	B5/S-2	8/15/1992	5 to 6.5	Unsat	0.51 U	21 U	5 U
	B5/S-3	8/15/1992	7.5 to 8.3	Unsat	0.53 U	21 U	5 U

J = Estimated value.
U = Not detected at reporting limit indicated.
Boxed value exceeds screening level.

(a) Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 4-13 - Analytical Results for CCPL/DOS Soil Vapor Sample

Sample ID	Sampling Date	2-ethyl-1-hexanol in mg/m^3
VE-1	8/17/1992	10.2

Refer to Figure 4-6 for sample location.

Table 4-14 - Analytical Results for Chromium Transfer Line Subsurface Soil Samples

Sample ID		Sampling Date	Depth in Feet	Total Chromium in mg/kg	Hexavalent Chromium in mg/kg	TCLP Chromium in mg/L
Screening Level (a)				2,000	18	5
TL-MW-1/S-3		6/15/1990	4 to 5	25		
TL-MW-1/S-6		6/15/1990	29 to 31	12		
TL-MW-1/S-7		6/15/1990	39 to 41	14		
TL-MW-2/S-3	(b)	6/18/1990	4 to 6	110		
TL-MW-2/S-6		6/18/1990	29 to 31	140		
TL-MW-2/S-7		6/18/1990	49 to 51	64		
TL-MW-3/S-4		6/27/1990	19 to 21	6		
TL-MW-3/S-6		6/27/1990	29 to 31	7		
TL-MW-3/S-7		6/27/1990	39 to 41	7		
TL-SB-1/S-1	(b)	6/19/1990	5 to 7	$\boxed{4,000}$	0.1 U	0.08
TL-SB-1/S-2	(b)	6/19/1990	9 to 11	$\boxed{16,000}$	$\boxed{29}$	1.7
TL-SB-1/S-3	(b)	6/19/1990	14 to 15	$\boxed{2,500}$	17	0.07
TL-SB-1/S-4		6/19/1990	19 to 21	910	16	0.02
TL-SB-1/S-5		6/19/1990	24 to 26	770	13	0.02 U
TL-SB-1/S-6	Dup of TL-SB-1/S-5	6/19/1990	24 to 26	1,000	$\boxed{24}$	0.02 U
TL-SB-2/S-1	(b)	6/19/1990	4 to 6	200	1 U	0.02 U
TL-SB-2/S-2	(b)	6/19/1990	9 to 11	$\boxed{2,400}$	15	0.03
TL-SB-2/S-3		6/19/1990	19 to 21	150	9.4	0.02 U
TL-SB-2/S-4		6/19/1990	24 to 26	39	1.4	0.02 U

U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte.
Boxed value exceeds screening level.
Refer to Figure 4-7 for sample locations.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Soil representative of this sample excavated and disposed of off site during subsequent field activitites.

Table 4-15 - Analytical Results for Chromium Transfer Line Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TL-MW-1 3/05/91	TL-MW-2 8/10/90	TL-MW-2D 8/10/90	TL-MW-2 3/05/91	TL-MW-3 8/10/90	TL-MW-3 3/05/91	TL-MW-4 8/10/90	TL-MW-4 3/05/91
Dissolved Metals in µg/L									
Antimony	6		5 U	$\boxed{7}$		$\boxed{8}$		$\boxed{10}$	
Arsenic	0.018		5 U	5 U		$\boxed{38}$		$\boxed{64}$	
Beryllium	4		10 U	10 U		10 U		10 U	
Cadmium	0.25		0.3 U	0.3 U		0.3 U		0.3 U	
Chromium	50	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Copper	3.5		20 U	20 U		20 U		20 U	
Lead	0.54		5 U	5 U		5 U		5 U	
Mercury	0.012		0.5 U	0.5 U		0.5 U		0.5 U	
Nickel	49		30 U	30 U		30 U		30 U	
Selenium	5		5 U	5 U		5 U		5 U	
Silver	80		20 U	20 U		20 U		20 U	
Thallium	0.24		5 U	5 U		5 U		5 U	
Zinc	32		20 U	20 U		20 U		20 U	
TPH (418.1) in mg/L	0.5	1 U			1 U		1 U		$\boxed{3}$

U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte.
Boxed value exceeds screening level.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012)

Table 4-16 - Analytical Results for Chromium Transfer Line Soil Verification Samples

Sample ID	Screening	TL-1	TL-2	TL-5	TL-6
Sampling Date	Level (a)	12/05/90	12/05/90	12/07/90	12/07/90
Depth in Feet		7	7	0 to 16	4
				Composite	Discrete
Screening Analysis in mg/kg					
Total Chromium	2,000	9	5	910	59
Metals in mg/kg					
Total Chromium	2,000				

Sample ID	Screening	TL-7	TL-8	TL-9	TL-10
Sampling Date	Level (a)	12/12/90	12/12/90	12/18/90	12/18/90
Depth in Feet		8 to 16	12 to 16	17 to 18	18
		Composite	Composite	Composite	Composite
Screening Analysis in mg/kg					
Total Chromium	2,000	5350	1850		
Metals in mg/kg					
Total Chromium	2,000			400	690

Table 4-16 - Analytical Results for Chromium Transfer Line Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	TL-9 12/18/90 17 to 18 Composite	TL-10 12/18/90 18 Composite
Semivolatiles in ug/kg			
1,2,4-Trichlorobenzene		0.17 U	0.17 U
1,2-Dichlorobenzene		0.17 U	0.17 U
1,3-Dichlorobenzene		0.17 U	0.17 U
1,4-Dichlorobenzene		0.17 U	0.17 U
2,4,5-Trichlorophenol		0.85 U	0.85 U
2,4,6-Trichlorophenol		0.17 U	0.17 U
2,4-Dichlorophenol		0.17 U	0.17 U
2,4-Dimethylphenol		0.17 U	0.17 U
2,4-Dinitrophenol		0.85 U	0.85 U
2,4-Dinitrotoluene		0.17 U	0.17 U
2,6-Dinitrotoluene		0.17 U	0.17 U
2-Chloronaphthalene		0.17 U	0.17 U
2-Chlorophenol		0.17 U	0.17 U
2-Methylnaphthalene	2190	0.17 U	0.17 U
2-Methylphenol		0.17 U	0.17 U
2-Nitroaniline		0.85 U	0.85 U
2-Nitrophenol		0.17 U	0.17 U
3,3'-Dichlorobenzidine		0.34 U	0.34 U
3-Nitroaniline		0.85 U	0.85 U
4,6-Dinitro-2-methyphenol		0.85 U	0.85 U
4-Bromophenyl-Phenylether		0.17 U	0.17 U
4-Chloro-3-methylphenol		0.17 U	0.17 U
4-Chloroaniline		0.17 U	0.17 U
4-Chlorophenyl-phenylether		0.17 U	0.17 U
4-Methylphenol		0.17 U	0.17 U
4-Nitroaniline		0.85 U	0.85 U
4-Nitrophenol		0.85 U	0.85 U
Acenaphthene	98000	0.17 U	0.17 U
Acenaphthylene		0.17 U	0.17 U
Aniline		0.17 U	0.17 U
Anthracene	2200000	0.17 U	0.17 U
Benzidine		1.7 U	1.7 U
Benzo(a)anthracene	See BaP (c)	0.17 U	0.17 U
Benzo(a)pyrene	233	0.17 U	0.17 U
Benzo(b)fluoranthene	See BaP (c)	0.17 U	0.17 U
Benzo(g,h,i)perylene		0.17 U	0.17 U
Benzo(k)fluoranthene	See BaP (c)	0.17 U	0.17 U
Benzoic Acid		0.85 U	0.85 U
Benzyl Alcohol		0.17 U	0.17 U
Bis(2-Chloroethoxy)Methane		0.17 U	0.17 U
Bis(2-Chloroethyl)Ether		0.17 U	0.17 U
Bis(2-Ethylhexyl)Phthalate	13000	0.17 U	0.17 U
Bis(2-chloroisopropyl) Ether		0.17 U	0.17 U
Butylbenzylphthalate		0.17 U	0.17 U
Chrysene	See BaP (c)	0.17 U	0.17 U
Di-N-Butylphthalate	57000	0.17 U	0.73
Di-n-octyl Phthalate		0.17 U	0.17 U
Dibenz(a,h)anthracene	See BaP (c)	0.17 U	0.17 U

Table 4-16 - Analytical Results for Chromium Transfer Line Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	TL-9 12/18/90 17 to 18 Composite	TL-10 12/18/90 18 Composite
Dibenzofuran	5090	0.17 U	0.17 U
Diethylphthalate		0.17 U	0.17 U
Dimethyl Phthalate		0.17 U	0.17 U
Fluoranthene	630000	0.17 U	0.17 U
Fluorene	100000	0.17 U	0.17 U
Hexachlorobenzene		0.17 U	0.17 U
Hexachlorobutadiene		0.17 U	0.17 U
Hexachlorocyclopentadiene		0.17 U	0.17 U
Hexachloroethane		0.17 U	0.17 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.17 U	0.17 U
Isophorone		0.17 U	0.17 U
N-Nitroso-di-n-propylamine		0.17 U	0.17 U
N-Nitrosodimethylamine		0.17 U	0.17 U
N-Nitrosodiphenylamine	536	0.17 U	0.17 U
Naphthalene	4490	0.17 U	0.17 U
Nitrobenzene		0.17 U	0.17 U
Pentachlorophenol		0.85 U	0.85 U
Phenanthrene		0.17 U	0.17 U
Phenol	22000	0.17 U	0.17 U
Pyrene	660000	0.17 U	0.17 U
TEQ Equivalent (b)	See BaP (c)	0.17 U	0.17 U
Volatiles in ug/kg			
1,1,1-Trichloroethane	1610	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane		0.05 U	0.05 U
1,1,2-Trichloroethane		0.05 U	0.05 U
1,1-Dichloroethane	8730	0.05 U	0.05 U
1,1-Dichloroethene		0.05 U	0.05 U
1,2-Dichloroethane		0.05 U	0.05 U
1,2-Dichloroethene (Total)		0.05 U	0.05 U
1,2-Dichloropropane		0.05 U	0.05 U
2-Butanone (MEK)	20000	0.5 U	0.5 U
2-Hexanone		0.5 U	0.5 U
4-Methyl-2-Pentanone		0.5 U	0.5 U
Acetone	3210	1 U	1 U
Benzene	5	0.05 U	0.05 U
Bromodichloromethane		0.05 U	0.05 U
Bromoform		0.25 U	0.25 U
Bromomethane	52	0.5 U	0.5 U
Carbon Disulfide	5600	0.05 U	0.05 U
Carbon Tetrachloride		0.05 U	0.05 U
Chlorobenzene		0.05 U	0.05 U
Chloroethane		0.05 U	0.05 U
Chloroform	38	0.05 U	0.05 U
Chloromethane	22	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.05 U	0.05 U
Dibromochloromethane		0.05 U	0.05 U
Ethylbenzene	5990	0.05 U	0.05 U
Methylene Chloride	22	0.25 U	0.25 U
Styrene	33	0.05 U	0.05 U

Table 4-16 - Analytical Results for Chromium Transfer Line Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	TL-9 12/18/90 17 to 18 Composite	TL-10 12/18/90 18 Composite
Tetrachloroethene	0.9	0.05 U	0.05 U
Toluene	4650	0.05 U	0.05 U
Total Xylenes	14500	0.05 U	0.05 U
Trans-1,3-Dichloropropene		0.05 U	0.05 U
Trichloroethene (TCE)		0.05 U	0.05 U
Vinyl Acetate		0.5 U	0.5 U
Vinyl Chloride		0.05 U	0.05 U

Table 4-16 - Analytical Results for Chromium Transfer Line Soil Verification Samples

Sample ID	Screening	TL-11	TL-12	TL-13	TL-14	TL-15	TL-16
Sampling Date	Level (a)	1/09/91	1/17/91	1/17/91	1/17/91	1/17/91	1/17/91
Depth in Feet		0 to 15	0 to 15	0 to 15	0 to 15	15 to 16	
		Composite	Composite	Composite	Composite	Composite	Surface Sample
Screening Analysis							
Total Chromium	2,000	75	140	61	270	740	380
Metals in mg/kg							
Hexavalent Chromium	18					5.6	

J = Estimated value.
U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 4-17 - Analytical Results for Chromium Transfer Line Surface Soil Samples - Inner Courtyard

Sample ID	Sampling Date	Total Chromium in mg/kg	Hexavalent Chromium in mg/kg
Screening Level (a)		2,000	18
CY-1A	6/25/1990	1200	1 U
CY-1B	6/25/1990	1300	1 U
CY-2	6/25/1990	380	1 U
CY-3	6/25/1990	26	1 U
CY-4	6/25/1990	1300	1 U
CY-5 (b)	6/25/1990	$\boxed{2400}$	1 U
CY-6	6/25/1990	910	1 U
CY-7	6/25/1990	53	1 U
CY-8	6/25/1990	16	1 U
CY-9	6/25/1990	15	1 U
CY-10	6/25/1990	20	1 U
CY-1	4/2/1991	42	1 U
CY-2	4/2/1991	220	1 U
CY-3	4/2/1991	69	1 U
CY-4	4/2/1991	18	1 U
CY-5	4/2/1991	210	1
CY-6	4/2/1991	19	1 U
CY-7	4/2/1991	59	1 U
CY-8	4/2/1991	15	1 U
CY-9	4/2/1991	18	1 U
CY-10	4/2/1991	9.4	1 U

U = Not detected at reporting limit indicated.
Refer to Figure 4-8 for compositing grid locations.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Soil representative of this sample overexcavated and disposed of off site. See subsequent sample CY-5 collected on 4/2/1991.

Table 4-18 - Analytical Results for Chromium Transfer Line Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TL-MW-1A 4/22/2008	TL-MW-1A 4/23/2008	TL-MW-2 4/23/2008	TL-MW-4 4/23/2008	TL-MW-4 10/21/2008
Total Suspended Solids in mg/L			240			
Dissolved Chromium in ug/L	50		13.9	0.57	1.04	0.2 U
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U				
Stoddard/Mineral spirits	0.8	0.2 U				
Kensol	0.5	0.2 U				
Kerosene/Jet fuel	0.5	0.2 U				
Diesel/Fuel oil	0.5	0.5 U				
Bunker C	0.5	0.5 U				
Heavy oil	0.5	0.5 U				

a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).
U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.

Table 4-19 - Analytical Results for Electrical Grounding Pit Samples

Sample ID	Screening	G-Pit-A		G-Pit-B	
Sampling Date	Level (a)	3/26/2004		3/26/2004	
Matrix		Sludge/Soil		Oil/Water	
Total Solids in %		86.9			
Metals in mg/kg					
Arsenic	0.03	$\boxed{6}$		2	U
Barium	1650	70.5		0.7	
Cadmium	0.7	$\boxed{1}$		0.5	U
Chromium	2000	7.8		1	U
Lead	250	$\boxed{1190}$		37	
Selenium	5	0.9	U	1	U
Silver	14	0.8	U	1	U
Mercury	2	0.28		0.02	U
TPH in mg/kg					
Diesel-Range Organics	2000	$\boxed{90,000}$		$\boxed{1,200,000}$	
Residual-Range Organics	2000	$\boxed{6,300}$		$\boxed{66,000}$	
PCBs in ug/kg					
Aroclor 1016		95	U	1000	U
Aroclor 1221		190	U	2000	U
Aroclor 1232		95	U	1000	U
Aroclor 1242		95	U	1000	U
Aroclor 1248		95	U	1000	U
Aroclor 1254		95	U	1000	U
Aroclor 1260		95	U	1000	U
Total PCBs	270	190	U	2000	U
Volatiles in ug/kg					
Dichlorodifluoromethane	47000			1200	U
Chloromethane	22			1200	U
Vinyl chloride				1200	U
Bromomethane	52			1200	U
Chloroethane				1200	U
Trichlorofluoromethane				1200	U
Acetone	3210			48000	U
1,1-Dichloroethene				1200	U
Carbon Disulfide	5600			1200	U
Dichloromethane				2400	U
trans-1,2-Dichloroethene				1200	U
1,1-Dichloroethane	8730			1200	U
2-Butanone				48000	U
2,2-Dichloropropane				1200	U
cis-1,2-Dichloroethene				1200	U
Chloroform	38			1200	U
Bromochloromethane				1200	U
1,1,1-Trichloroethane	1610			1200	U
1,1-Dichloropropene				1200	U
Carbon tetrachloride				1200	U
1,2-Dichloroethane				1200	U
Benzene	5			1200	U
Trichloroethene	3			1200	U
1,2-Dichloropropane				1200	U
Bromodichloromethane				1200	U
Dibromomethane				1200	U
2-Hexanone				48000	U
cis-1,3-Dichloropropene				1200	U
Toluene	4650			1200	U
trans-1,3-Dichloropropene				1200	U
1,1,2-Trichloroethane				1200	U

Table 4-19 - Analytical Results for Electrical Grounding Pit Samples

Sample ID	Screening	G-Pit-A		G-Pit-B	
Sampling Date	Level (a)	3/26/2004		3/26/2004	
Matrix		Sludge/Soil		Oil/Water	
4-Methyl-2-pentanone				48000	U
1,3-Dichloropropane				1200	U
Tetrachloroethene	0.9			1200	U
Dibromochloromethane				1200	U
1,2-Dibromoethane				4800	U
Chlorobenzene				1200	U
1,1,1,2-Tetrachloroethane				1200	U
Ethylbenzene	5990			1200	U
m,p-Xylenes	8520			1200	U
o-Xylene	916			1200	U
Styrene	33			1200	U
Bromoform				1200	U
Isopropylbenzene	7370			4800	U
1,1,2,2-Tetrachloroethane				1200	U
1,2,3-Trichloropropane				1200	U
Bromobenzene				4800	U
n-Propylbenzene	19500			4800	U
2-Chlorotoluene	2400			4800	U
4-Chlorotoluene	4180			4800	U
1,3,5-Trimethylbenzene	8380			4800	U
tert-Butylbenzene	15600			4800	U
1,2,4-Trimethylbenzene	31000			14000	
sec-Butylbenzene	15800			4800	U
1,3-Dichlorobenzene				1200	U
4-Isopropyltoluene				4800	U
1,4-Dichlorobenzene				1200	U
n-Butylbenzene	19500			4800	U
1,2-Dichlorobenzene				1200	U
1,2-Dibromo-3-Chloropropane				4800	U
1,2,4-Trichlorobenzene				4800	U
1,2,3-Trichlorobenzene				4800	U
Naphthalene	4490			4800	U
Hexachlorobutadiene				4800	U
Semivolatiles in ug/kg					
N-Nitrosodimethylamine		45	U	100	U
Aniline		23	U	100	U
Bis(2-chloroethyl)ether		7.4	U	50	U
Phenol	22000	7.4	U	50	U
2-Chlorophenol		7.4	U	50	U
1,3-Dichlorobenzene		7.4	U	50	U
1,4-Dichlorobenzene		7.4	U	50	U
1,2-Dichlorobenzene		7.4	U	50	U
Benzyl Alcohol		7.4	U	50	U
Bis(2-chloroisopropyl)ether		7.4	U	50	U
2-Methylphenol		7.4	U	50	U
Hexachloroethane		7.4	U	50	U
N-Nitrosodi-n-propylamine		7.4	U	50	U
4-Methylphenol		7.4	U	50	U
Nitrobenzene		7.4	U	50	U
Isophorone		7.4	U	50	U
2-Nitrophenol		7.5	U	50	U
2,4-Dimethylphenol		7.4	U	50	U
Bis(2-chloroethoxy)methane		7.4	U	50	U
2,4-Dichlorophenol		7.4	U	50	U

Table 4-19 - Analytical Results for Electrical Grounding Pit Samples

Sample ID	Screening	G-Pit-A		G-Pit-B	
Sampling Date	Level (a)	3/26/2004		3/26/2004	
Matrix		Sludge/Soil		Oil/Water	
Benzoic Acid		45	U	100	U
1,2,4-Trichlorobenzene		7.4	U	50	U
Naphthalene	4490	7.4	U	50	U
4-Chloroaniline		7.4	U	50	U
Hexachlorobutadiene		7.4	U	50	U
4-Chloro-3-methylphenol		7.4	U	50	U
2-Methylnaphthalene	2190	7.4	U	50	U
Hexachlorocyclopentadiene		7.4	U	500	U
2,4,6-Trichlorophenol		7.4	U	500	U
2,4,5-Trichlorophenol		7.4	U	500	U
2-Chloronaphthalene		7.4	U	500	U
2-Nitroaniline		45	U	1000	U
Acenaphthylene		7.4	U	500	U
Dimethyl Phthalate		7.4	U	500	U
2,6-Dinitrotoluene		7.5	U	500	U
Acenaphthene	98000	7.4	U	500	U
3-Nitroaniline		45	U	1000	U
2,4-Dinitrophenol		45	U	1000	U
Dibenzofuran	5090	7.4	U	500	U
4-Nitrophenol		45	U	1000	U
2,4-Dinitrotoluene		7.5	U	500	U
Fluorene	100000	7.4	U	500	U
4-Chlorophenyl Phenyl Ether		7.4	U	500	U
Diethyl Phthalate		7.4	U	500	U
4-Nitroaniline		45	U	1000	U
4.6-Dinitro-2-methylphenol		45	U	1000	U
N-Nitrosodiphenylamine	536	7.4	U	500	U
4-Bromophenyl Phenyl Ether		74	U	500	U
Hexachlorobenzene		74	U	500	U
Pentachlorophenol		450	U	1000	U
Phenanthrene		74	U	500	U
Anthracene	2200000	74	U	500	U
Di-n-butyl Phthalate		74	U	500	U
Fluoranthene	630000	74	U	500	U
Pyrene	660000	7.4	U	50	U
Butyl Benzyl Phthalate		7.4	U	50	U
3,3'-Dichlorobenzidine		45	U	100	U
Benzo(a)anthracene	See BaP (c)	7.4	U	50	U
Chrysene	See BaP (c)	7.4	U	50	U
Bis(2-ethylhexyl)phthalate	13000	7.4	U	50	U
Di-n-octyl Phthalate		7.4	U	50	U
Benzo(b)fluoranthene	See BaP (c)	7.4	U	50	U
Benzo(k)fluoranthene	See BaP (c)	7.4	U	50	U
Benzo(a)pyrene	233	7.4	U	50	U
Indeno(1,2,3-cd)pyrene	See BaP (c)	7.4	U	50	U
Dibenz(a,h)anthracene	See BaP (c)	7.4	U	50	U
Benzo(g,h,i)perylene		7.4	U	50	U
TEQ Equivalent (b)	See BaP (c)	7.4	U	50	U

Table 4-19 - Analytical Results for Electrical Grounding Pit Samples

Sample ID	Screening	G-Pit-A	G-Pit-B
Sampling Date	Level (a)	3/26/2004	3/26/2004
Matrix		Sludge/Soil	Oil/Water

U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.

(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC 173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 4-20 - Analytical Results for Coater Line MEK UST Subsurface Soil Samples (1989)

Sample ID	Sampling Date	Depth in Feet	2-butanone (MEK) in ug/kg
Screening Level (a)			20,000
CL-SB-1/S-2	11/18/89	8.5 to 10.5	500 U
CL-SB-1/S-5	11/18/89	23.5 to 25.5	670
CL-SB-2/S-1	11/18/89	5 to 7	980
CL-SB-2/S-5	11/18/89	23.5 to 25.5	500 U
CL-SB-3/S-1	11/17/89	5 to 7	500 U

Refer to Figure 4-9 for sample locations.

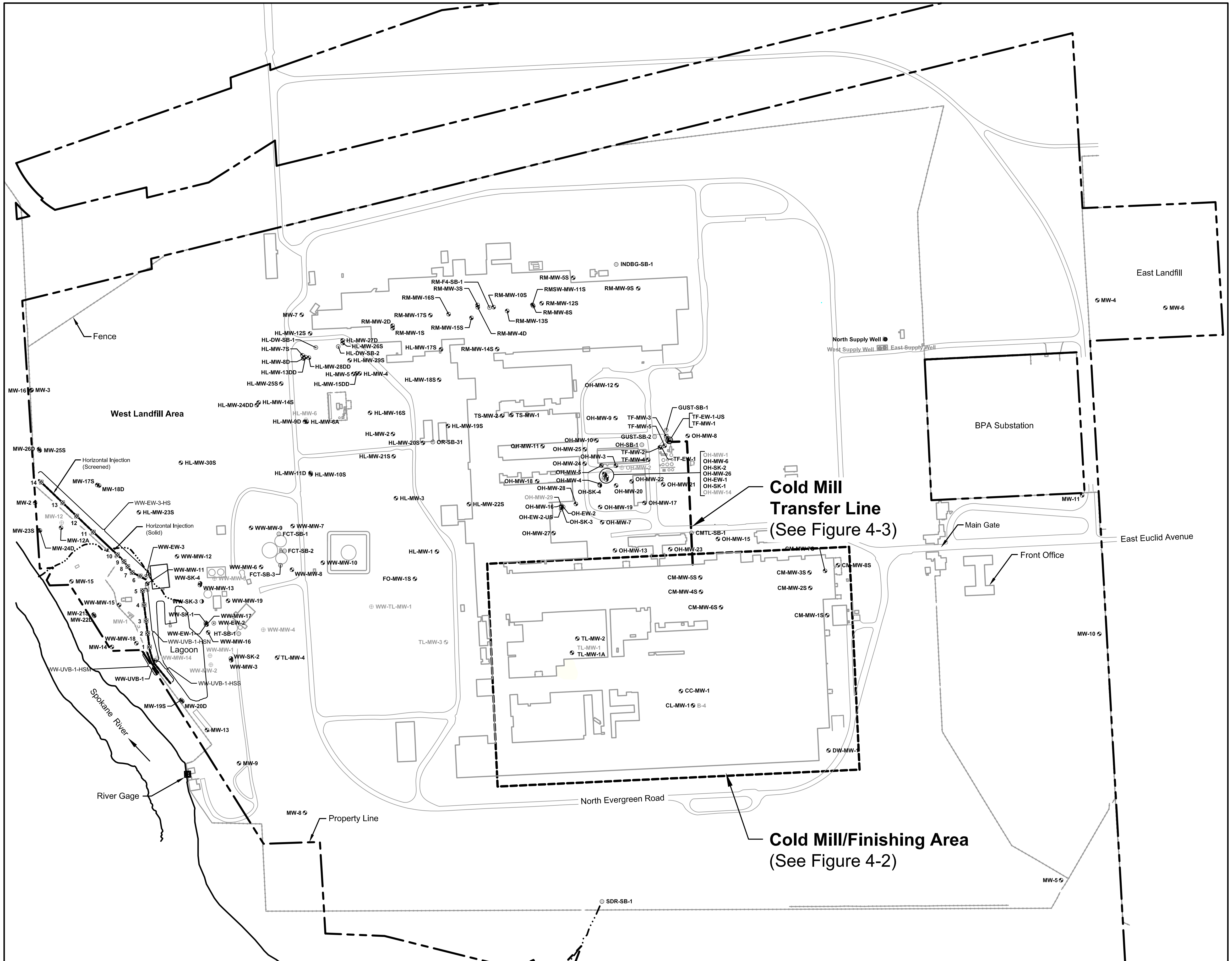
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 4-21 - Analytical Results for Coater Line MEK UST Removal Soil Verification Samples

Sample ID	Screening	HC-MEKB	HC-MEKW	HC-MEK2B
Sampling Date	Level (a)	10/17/90	10/17/90	12/11/90
Depth in Feet		6	4 to 6	7
		Bottom Composite	Side Wall Composite	Bottom
Volatiles in ug/kg				
Benzene	5	500 U	500 U	42
Ethylbenzene	5990	500 U	500 U	130
Toluene	4650	1000 U	1000 U	25 U
Total Xylenes	14500	30000	1000	1800
1,1,1-Trichloroethane	1610	500 U	500 U	
1,1,2,2-Tetrachloroethane		500 U	500 U	
1,1,2-Trichloroethane		500 U	500 U	
1,1-Dichloroethane	8730	500 U	500 U	
1,1-Dichloroethene		500 U	500 U	
1,2-Dichloroethane		500 U	500 U	
1,2-Dichloroethene (Total)		500 U	500 U	
1,2-Dichloropropane		500 U	500 U	
2-Butanone (MEK)	20000	10000 U	10000 U	
2-Hexanone		5000 U	5000 U	
4-Methyl-2-Pentanone		5000 U	5000 U	
Acetone	3210	10000 U	10000 U	
Bromodichloromethane		500 U	500 U	
Bromoform		3000 U	3000 U	
Bromomethane	52	5000 U	5000 U	
Carbon Disulfide	5600	500 U	500 U	
Carbon Tetrachloride		500 U	500 U	
Chlorobenzene		500 U	500 U	
Chloroethane		500 U	500 U	
Chloroform	38	500 U	500 U	
Chloromethane	22	5000 U	5000 U	
Cis-1,3-Dichloropropene		500 U	500 U	
Dibromochloromethane		500 U	500 U	
Methylene Chloride	22	3000 U	3000 U	
Styrene	33	500 U	500 U	
Tetrachloroethene	0.9	500 U	500 U	
Trans-1,3-Dichloropropene		500 U	500 U	
Trichloroethene (TCE)		500 U	500 U	
Vinyl Acetate		5000 U	5000 U	
Vinyl Chloride		500 U	500 U	

U = Not detected at indicated reporting limit.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Cold Mill/Finishing Area Location Map

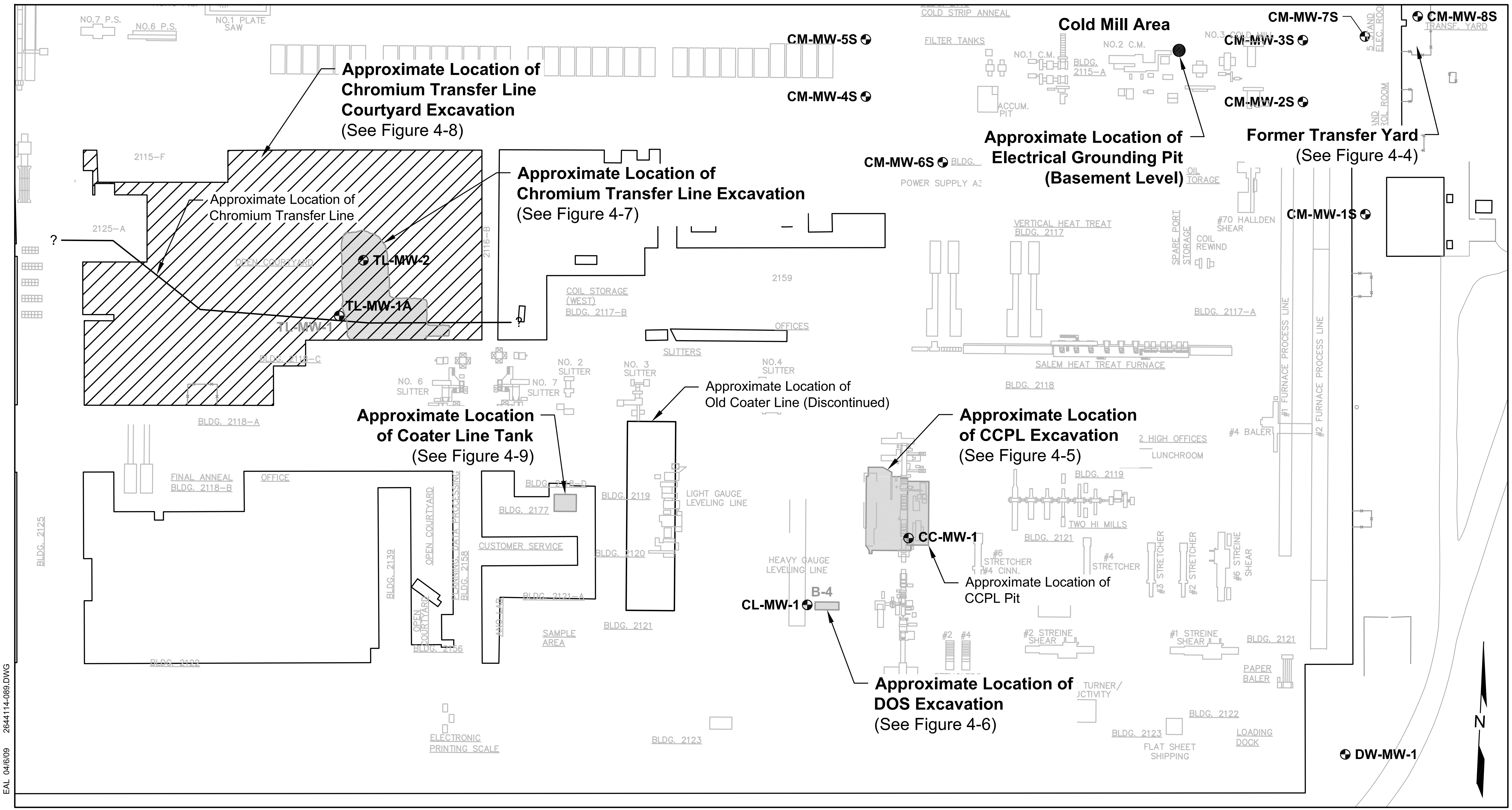


HARTCROWSER

2644-114 5/09

Figure 4-1

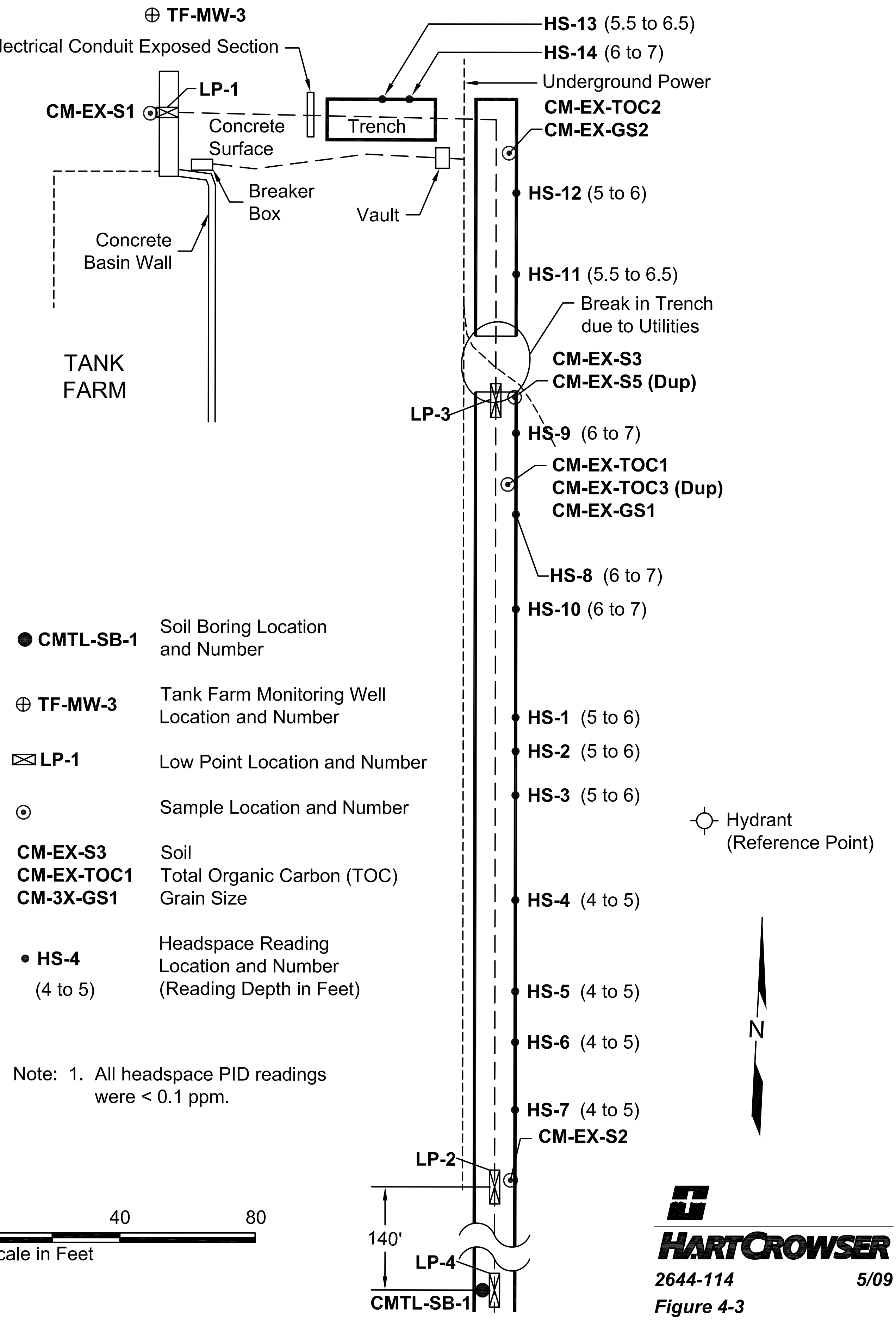
Cold Mill/Finishing Area Index Map



TL-MW-2 Monitoring Well Location and Number

HARTCROWSER
2644-114 *5/09*
Figure 4-2

Exploration Location Plan
Cold Mill Transfer Line



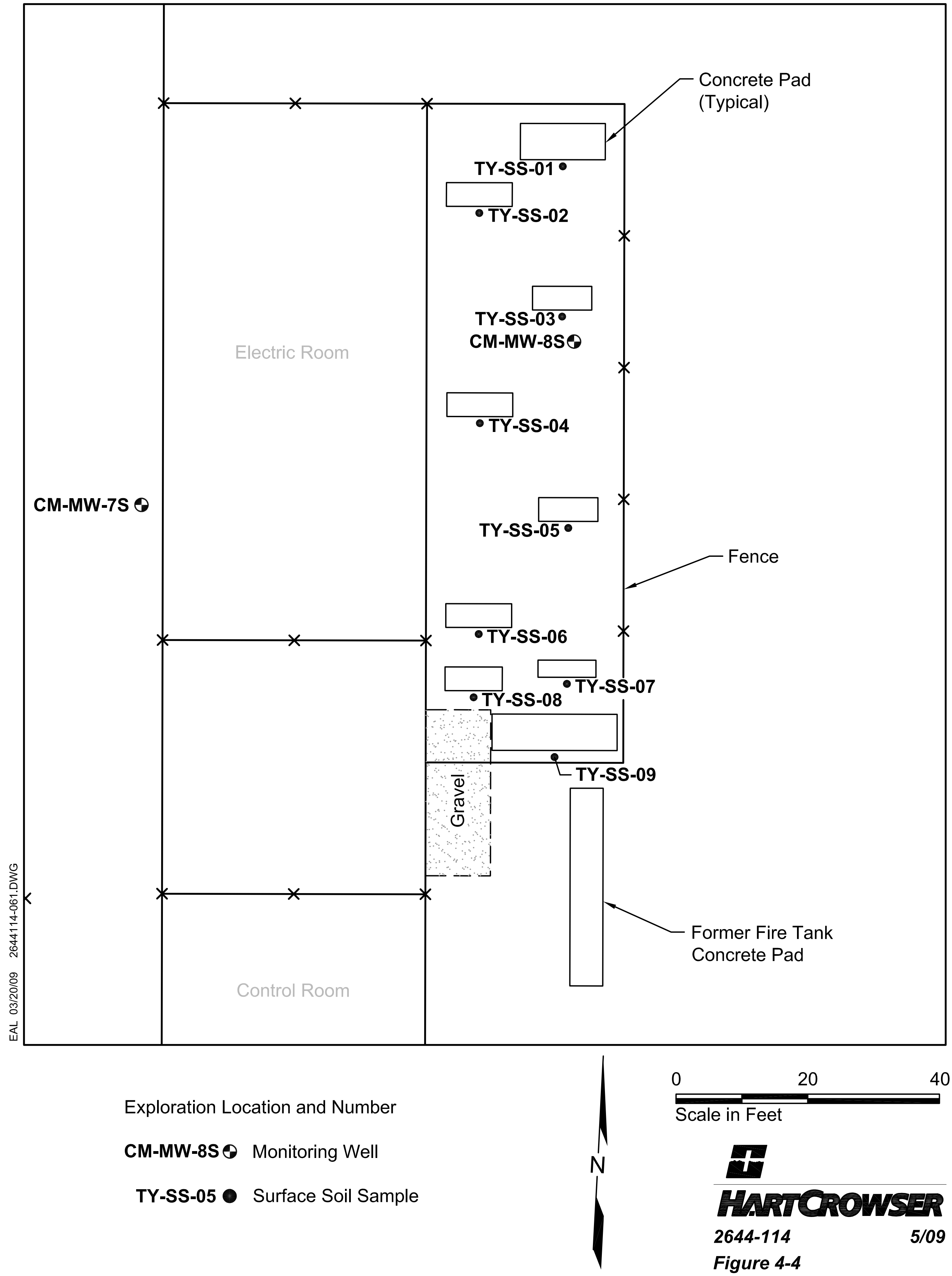
EAL 03/04/09 2644114-060.dwg

HARTCROWSER

2644-114 *5/09*

Figure 4-3

Soil Sample Location Plan
Former Transformer Yard



Exploration Location and Number

CM-MW-8S Monitoring Well

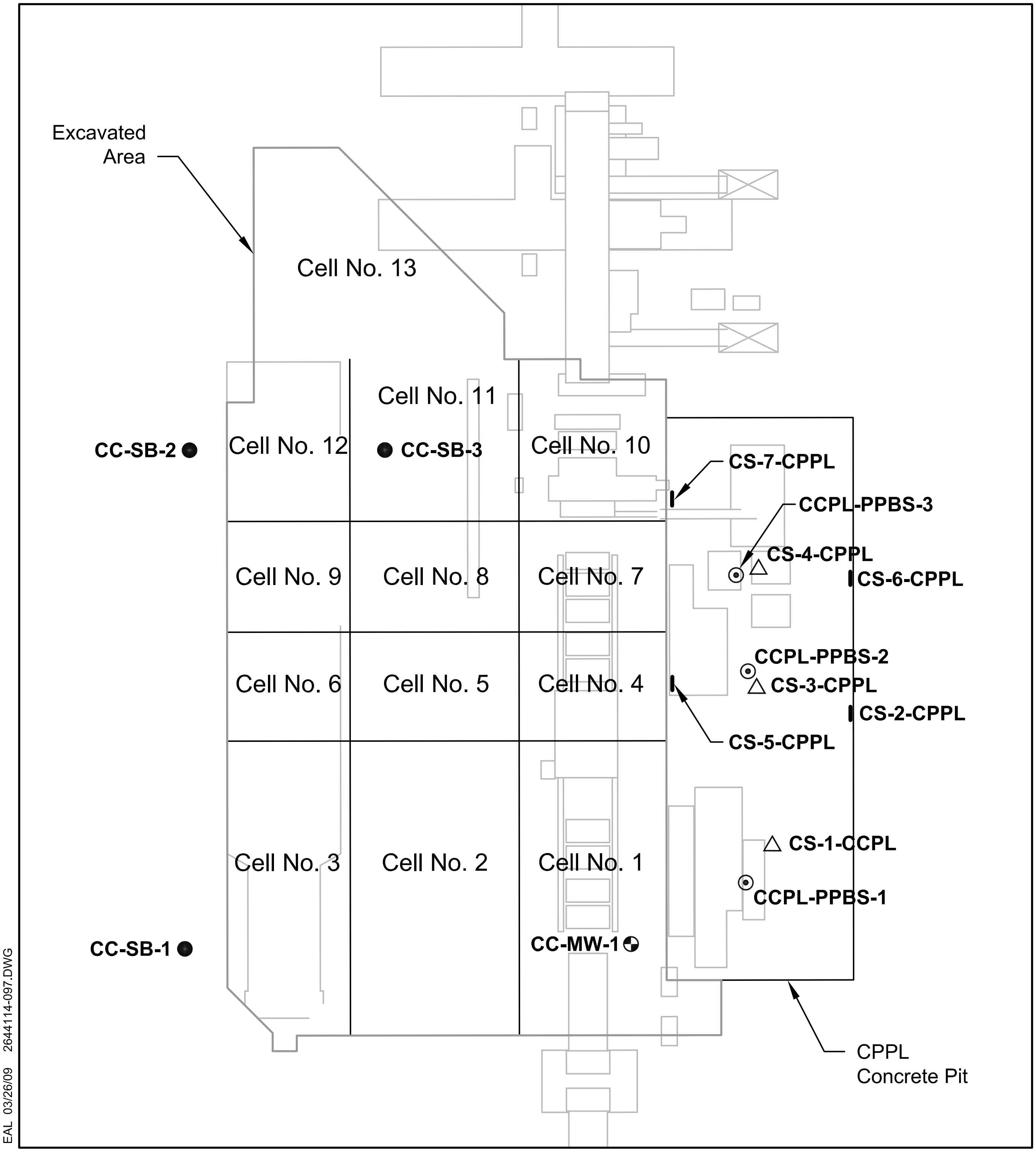
TY-SS-05 Surface Soil Sample

HARTCROWSER

2644-114 ***5/09***

Figure 4-4

Exploration Location Plan
Cold Mill Continuous Can Process Line



CC-MW-1 Monitoring Well Location and Number

CC-SB-1 Soil Boring Location and Number

CCPL-PPBS-1 Soil Sample Location and Number (beneath Process Pit)

CS-1-CPPL Floor Concrete Sample Location and Number

CS-7-CPPL Wall Concrete Sample Location and Number

N

0 20 40

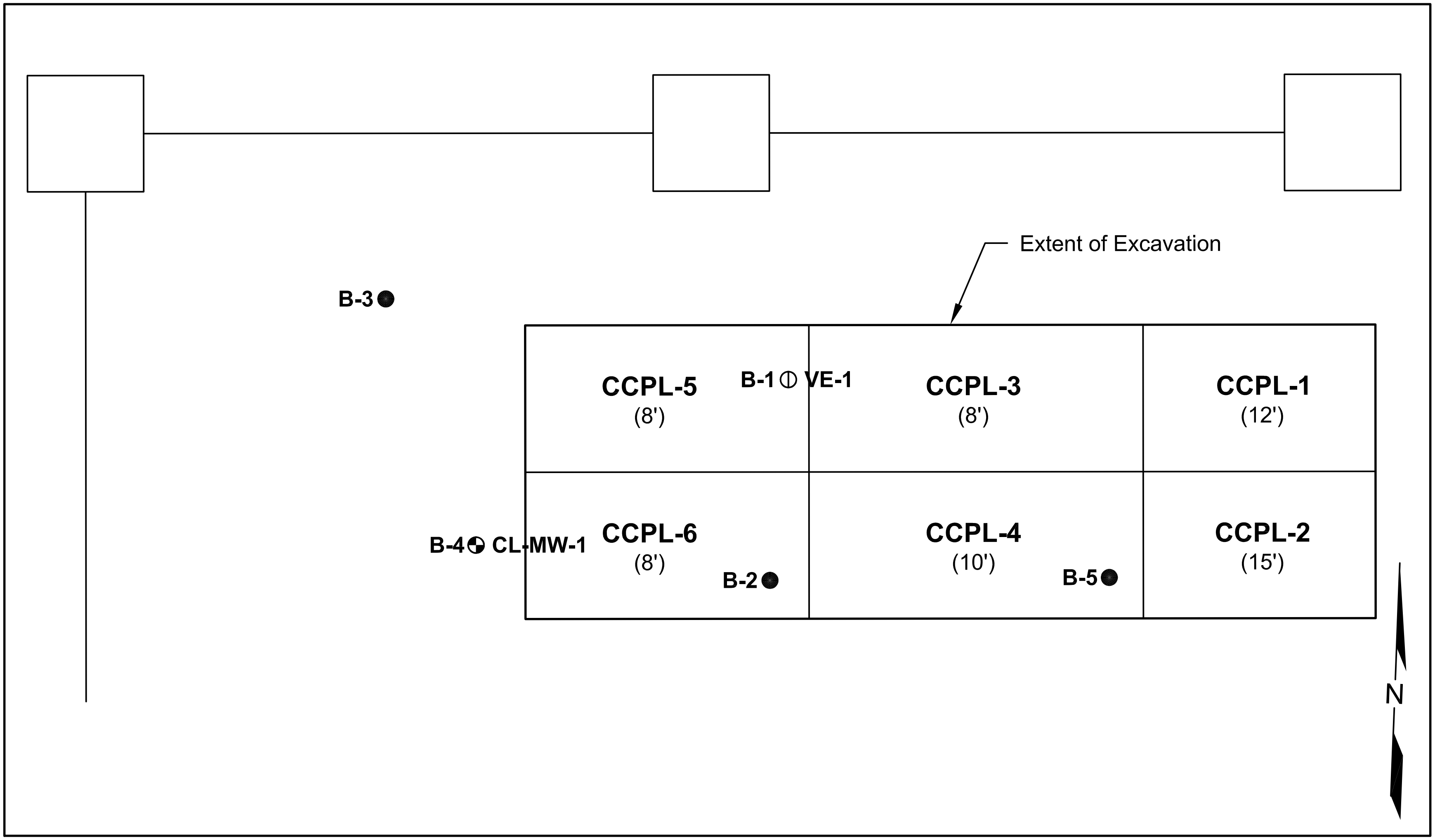
Scale in Feet

HARTCROWSER

2644-114 *5/09*

Figure 4-5

DOS Excavation Exploration and Remediation Plan



Exploration Location and Number

B-2 Soil Boring

CL-MW-1 Groundwater Monitoring Well

VE-1 Vapor Extraction Well

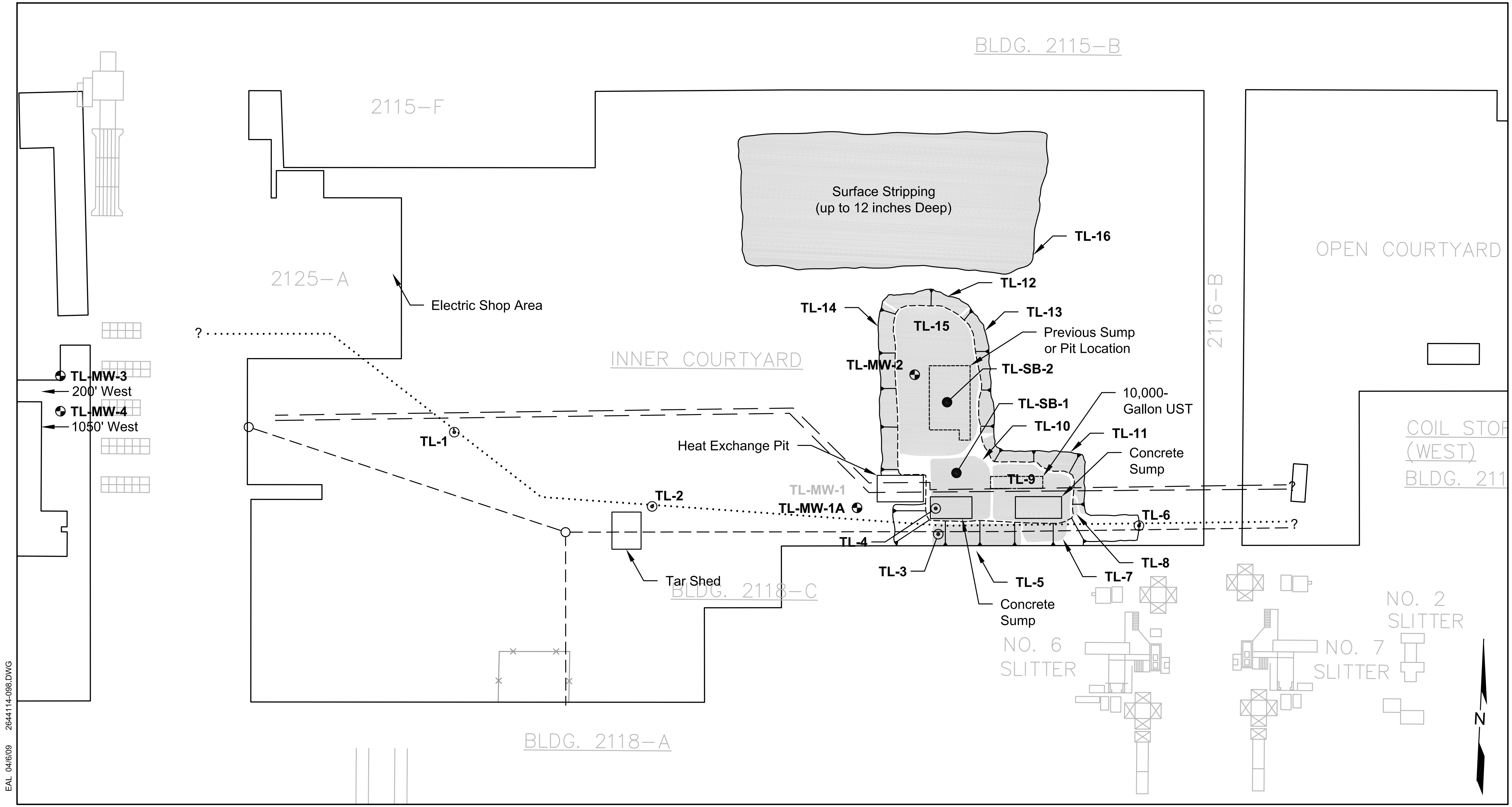
CCPL-1 Soil Verification Composite Sample Location and Number
(12') Depth of Excavation in Feet

0 10 20
Scale in Feet

EAL 04/17/09 2644114-096.DWG

HARTCROWSER
2644-114 ***5/09***
Figure 4-6

Site and Sample Location Plan
Chromium Transfer Line



TL-MW-2 Monitoring Well Location and Number (October 16, 1980)

TL-SB-2 Soil Boring Location and Number (October 16, 1980)

TL-6 Discrete Soil Sample Location and Number

TL-15 Composite Soil Sample Location and Number

Manhole

Chromium Transfer Line

Existing Gravity Lines for Phosphate-Bearing Waste

Storm Sewer Line

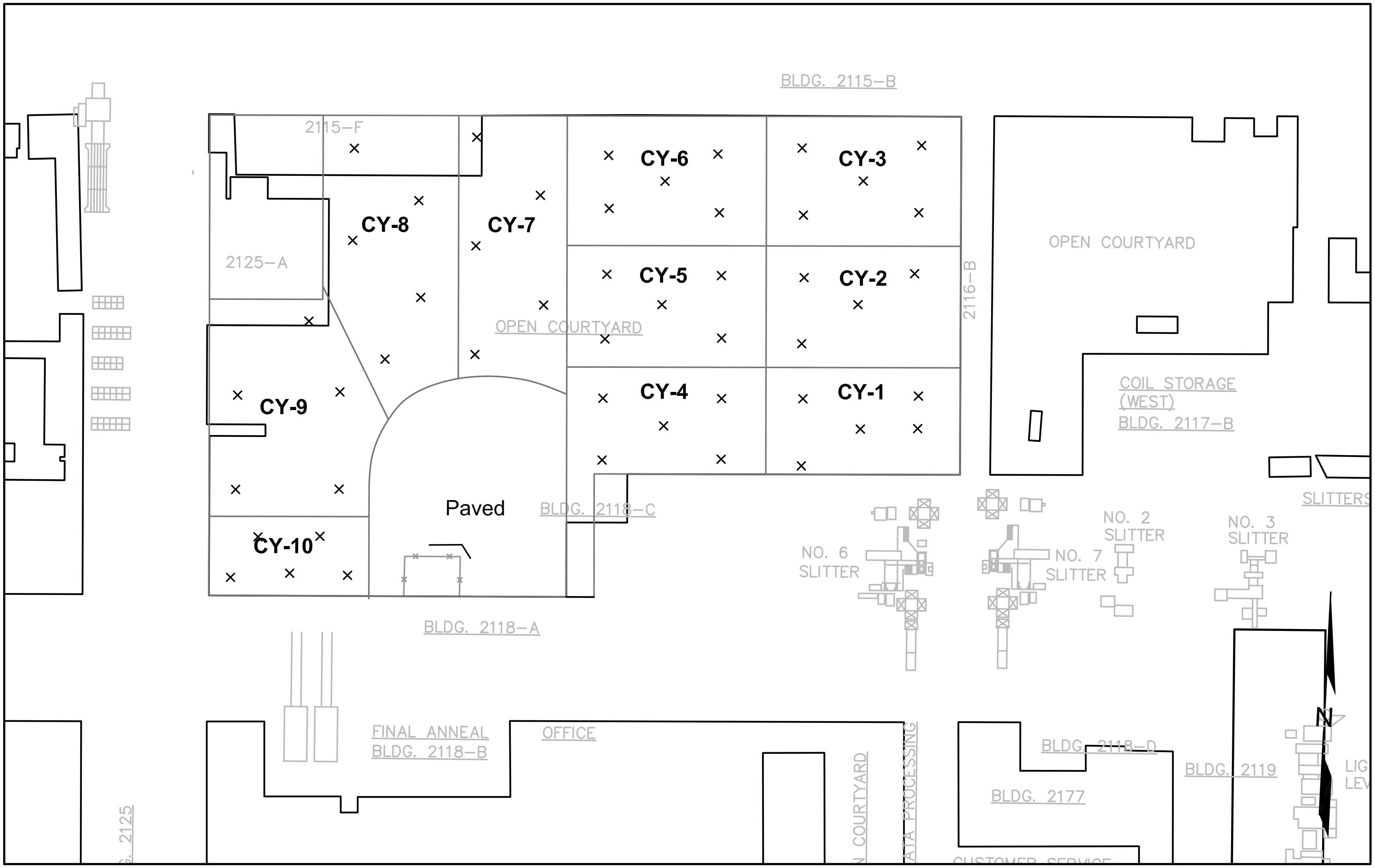
Note: Gray shading denotes area of excavation.

0 50 100
Scale in Feet

HARTCROWSER
2644-114 *5/09*
Figure 4-7

Composite Surface Soil Sample Location Plan

Chromium Transfer Line Inner Courtyard



CY-1 Composite Surface Soil Sampling Area and Number

× Discrete Surface Soil Sampling Location Composited by Area as Delineated

0 100 200

Scale in Feet

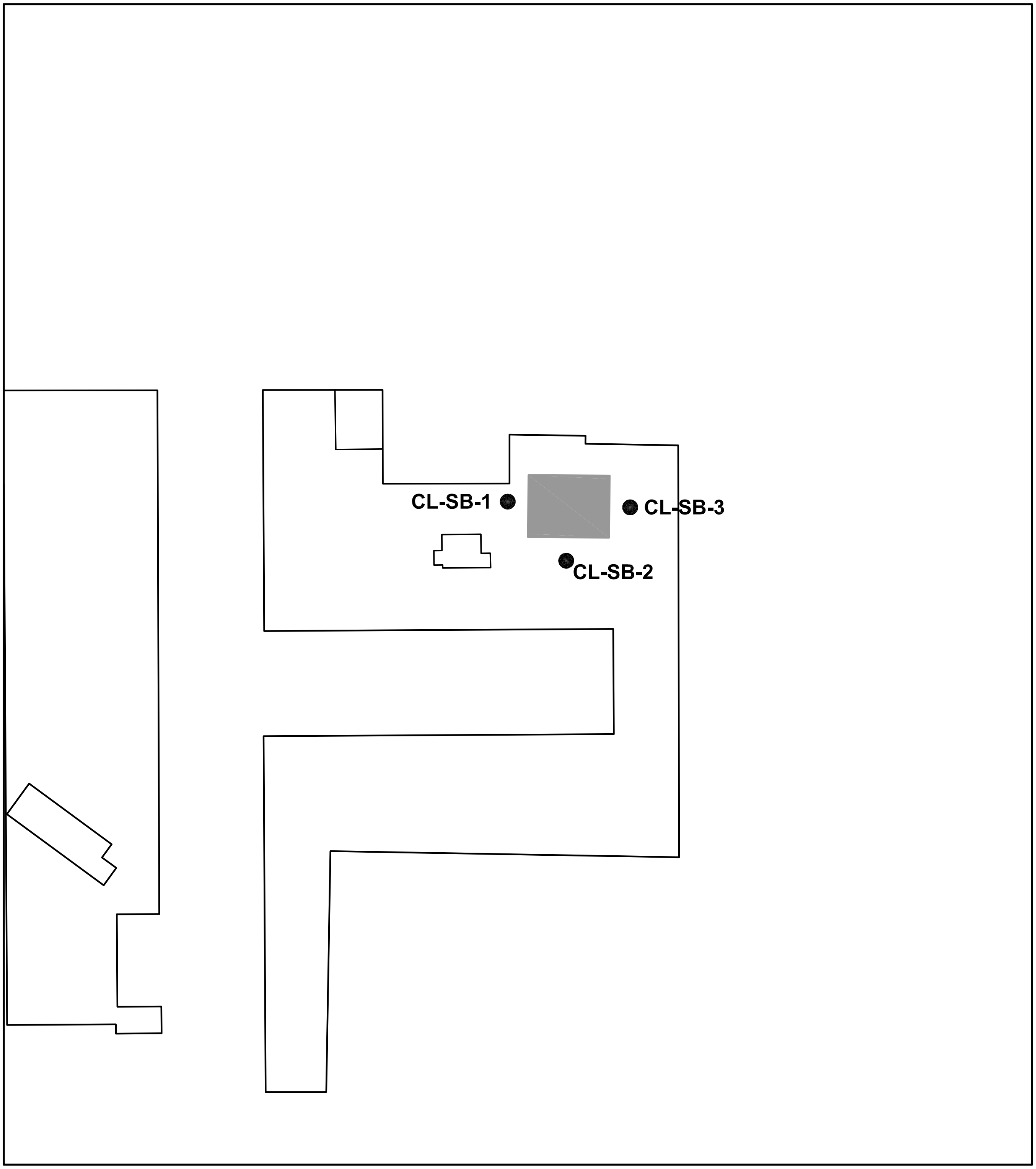
EAL 04/7/09 2644114-095.DWG

HARTCROWSER

2644-114 5/09

Figure 4-8

Soil Boring Location Plan
Coater Line Tank Area



EAL 03/20/09 2644114-090.DWG

CL-SB-1 ● Soil Boring Location and Number

Coater Line Tank

N

0 50 100

Scale in Feet

HARTCROWSER

2644-114 ***5/09***

Figure 4-9

CONTENTS Page

CONTENTS (Continued) <u>Page</u>

TABLES

CONTENTS (Continued)

Page

FIGURES

5.0 OIL HOUSE AREA

5.1 INTRODUCTION

The Oil House and associated systems are located directly east from the Hot Line area (Figure 5-1). The Oil House is located toward the central area of the plant and adjacent to the Tank Farm. Currently, the Oil House area primarily consists of one building (Oil House) and the Tank Farm; however, several USTs and other associated features surrounded the building in the past.

Portions of the Oil House area studied during previous investigations include the 500-Gallon Diesel Tank (UST), the 20,000-Gallon Leaded Gasoline UST, the former Oil House Tank, eight other USTs, the Oil House Drum Storage and French Drain area, and the Tank Farm Kensol spill (Figure 5-2).

Historically, the Oil House served as the central point where new oils arrived at the Facility for storage and distribution throughout the plant. In addition, the Oil House has also served as a central area for management and storage of used oils within the plant. Oil products stored in the USTs and associated systems located around the Oil House included diesel and gasoline and other process oils such as PCB-containing hydraulic oil, Kensol (an aluminum rolling lubricant), mineral oil, Stoddard solvent, and kerosene.

To protect the integrity of the Oil House and surrounding structures, impacted soils from these sources were excavated to the maximum extent practicable; however, residual impacts had to be left in-place in some areas.

5.2 OIL HOUSE TANK AREA

5.2.1 Introduction

A 10,000-gallon Oil House Tank (UST), formerly located immediately south of the Oil House, was removed for disposal in October 1990 along with TPH-contaminated soil (Hart Crowser 1991a). This tank was previously used for waste oil storage at the Facility. The location of the former tank is shown on Figure 5-2. Prior to the removal of the tank, a subsurface soil and groundwater quality assessment was performed in the vicinity of the tank (Hart Crowser 1990). The following section summarizes the subsurface soil and groundwater quality assessment, tank removal, soil excavation, sampling, and chemical analyses that previously occurred in the former Oil House Tank area.

5.2.2 Previous Investigations

The subsurface soil and groundwater quality assessment that occurred in the Oil House Tank area in 1989 was performed to assess the general extent of contamination in the area. At the time, the Oil House Tank was considered the likely source of a zone of elevated soil TPH concentrations located near the water table (i.e., a petroleum smear zone). The Oil House Tank is also considered a likely source of PCB-containing free phase petroleum product in the area and the source of PCBs in the soils, including the smear zone.

Soil Sampling and Analysis

Nine soil borings (OH-MW-1 through OH-MW-6 and OH-SB-1 through OH-SB-3) were advanced in the Oil House Tank area at the locations shown on Figure 5-3. Borings OH-MW-1 through OH-MW-6 were completed to depths ranging from 82.5 to 88.5 feet below ground surface and borings OH-SB-1 through OH-SB-3 were completed to depths ranging from 25 to 68 feet below ground surface. Six of the borings (OH-MW-1 through OH-MW-6) were completed as monitoring wells. Visible petroleum staining was observed in soil samples collected near the water table from these six monitoring wells.

Seventeen soil samples collected from the borings were selected for analysis based on sample depth, field sample jar headspace vapor measurements, visual evidence of contamination, and sample recovery. These seventeen soil samples were analyzed for TPH (EPA 418.1), VOCs, total and EP Toxicity metals (including arsenic, cadmium, chromium, and lead), total organic halides, and pH. Analytical results for the soil samples from the nine borings are presented in Table 5-1.

In general, concentrations of TPH in subsurface soil samples collected near the water table were higher than those in samples collected at shallower depths in the soil column. Soil TPH concentrations in the smear zone (approximate depth of 68 feet) ranged from 52 to 8,400 mg/kg. However, the highest concentration was from the sample collected at a depth of 10 feet in soil boring OH-SB-2 located immediately adjacent to the UST. It appears this soil subsequently was removed during the UST excavation discussed below. The tank appeared to be the primary source of elevated TPH concentrations in the near-surface soils close to the UST and in smear zone soils near the water table throughout the vicinity of the Oil House Tank.

Other constituents detected in the soil samples at concentrations above the screening levels include arsenic in all soil samples analyzed and a few volatile organics from the 18.5- to 20.5-foot-deep sample in boring OH-SB-2. The arsenic detections (2.4 to 11 mg/kg) in soil are at or near the expected background range for soil in the Spokane Basin (1.1 to 10.3 mg/kg; Ecology 1994). It appears that soil representative of the elevated VOCs exceeding the screening level were removed during excavation of the UST.

In October 1990, the 10,000-Gallon Oil House Tank was removed by Kaiser (Hart Crowser 1991a). The excavation was completed to a depth of 22 feet to remove visibly impacted soils. Once visibly impacted soil was removed from the excavation, soil verification samples were collected from each of the side walls and the bottom of the excavation (5-point and 9-point composite samples) and submitted for analysis of TPH, VOC, and SVOCs.

Prior to completion of the excavation, a composite sample, OTP, was collected from directly beneath the location of the former UST. Analytical results (Table 5-2) indicate total PCBs and TPH exceed screening levels at 650 ug/kg and 6,400 mg/kg, respectively. This area was subsequently overexcavated.

After additional excavation was completed, six excavation soil verification samples (OH-B2 [two samples], OH-E2, OH-N2, OH-S2, and OH-W2) were collected. Soil sample OH-B-2 was collected on October, 10, 1990, and was resampled for additional analysis on October 18, 1990, and was given the same sample identification. Petroleum hydrocarbons were detected in the five excavation verification side wall and bottom samples analyzed but at concentrations below the screening level. Analytical results from the soil verification samples collected from the excavation are presented in Table 5-2. These data, with the exception of sample OTP, are representative of soil that remains in-place in the Oil House Tank excavation area.

No further soil removal occurred in the excavation. Further excavation near the UST was hindered by the depth the excavator could reach, concerns about slope stability, and the structural stability of two adjacent buildings. In total, approximately 1,400 cubic yards of soil were removed from the excavation for proper disposal.

Groundwater Sampling and Analysis

Prior to removal of the UST, groundwater samples were collected from the six monitoring wells and analyzed for TPH (EPH 418.1), total metals, and VOCs. Groundwater sample analytical results are presented in Table 5-3. Petroleum hydrocarbons were detected in the six groundwater samples at concentrations exceeding the screening level. The higher TPH concentrations were generally from samples obtained downgradient (west) of the Oil House Tank area.

BTEX compounds and trichloroethene (TCE) were the only VOCs detected in the Oil House Tank area groundwater samples. The concentrations of benzene and TCE in well OH-MW-5 exceed screening levels.

Arsenic and zinc concentrations in the six wells ranged from 31 to 110 ug/L and 20 to 40 ug/L, respectively. The six well sample arsenic concentrations exceeded the screening level, and the sample from well OH-MW-1 exceeded the screening level for zinc. These metal detections are likely indicative of reducing conditions in the shallow aquifer mobilizing naturally occurring metals and caused by biological breakdown of petroleum hydrocarbons.

Following removal of the Oil House Tank, groundwater samples were again collected for analysis from wells OH-MW-1 through OH-MW-6. These wells were sampled between two and five times since the UST removal occurred. Samples collected were submitted for analysis of one or more of the following constituents: metals, PCBs, BTEX, VOCs, and TPH (EPA 418.1 and EPA 8015 modified). These groundwater analytical results are presents in Table 5-4.

Samples collected in March 1991 were analyzed for gasoline- and diesel/fuel oil-range petroleum hydrocarbons and/or TPH, and these fuel fractions were detected in the samples analyzed at concentrations exceeding screening levels. Samples collected in June 1991 were analyzed for gasoline- and diesel/fuel oil-range petroleum hydrocarbons, as well as heavy oil-, Stoddard/mineral spirits-, and Kensol-range petroleum hydrocarbons. In this analysis, Stoddard/mineral spirits-, Kensol-, and heavy oil-range petroleum hydrocarbons were detected at concentrations exceeding screening levels in one or more samples. The highest concentrations from the June 1991 sampling event were observed in well OH-MW-5 located about 60 feet northwest of the former UST, for Stoddard/mineral spirits- and Kensol-range petroleum hydrocarbons.

Groundwater samples collected in March and June 1991 were also analyzed for VOCs and dissolved antimony and arsenic, and select samples were analyzed for dissolved iron and manganese. Dissolved arsenic was detected in each of the samples submitted and dissolved antimony was detected in three of the samples at concentrations above screening levels. Concentrations of dissolved iron and manganese also exceeded their screening levels in the three samples analyzed. Benzene was not detected in any of the groundwater samples collected during this time period. Total xylenes were detected except in one sample submitted for BTEX analysis, and in five of seven samples submitted for VOC analysis with the highest concentration detected in a sample from well OH-MW-5. The TEX detections in groundwater are below their respective screening levels.

Groundwater samples collected in September 1991 and June 1994 were also analyzed for PCBs. Concentrations of total PCBs exceeded screening levels in all samples analyzed. The highest concentrations were found in OH-MW-4 with concentrations of 130 ug/L and 120 ug/L for September 1991 and June 1994, respectively.

5.2.3 Proposed Phase II (RI) Work

Kaiser proposed to continue monitoring accumulation of free phase petroleum on the water table and continue operation of the free phase petroleum skimming system in the former Oil House Tank area. Removal of the free phase petroleum from the water table is a high priority for the Oil House area. No additional investigation activities were proposed in the Phase II RI Work Plan (Hart Crowser 2007).

5.2.4 Summary of Current Conditions

Tables 5-1 and 5-2 summarize analytical results for soil samples from the Oil House Tank area test pits and borings. Tables 5-3 and 5-4 summarize analytical results for groundwater samples collected in area of the Oil House Tank. Extensive soil and groundwater investigations have occurred in the vicinity of the Oil House Tank. Over 15 borings have been advanced within a 100-foot radius of the former UST and most of these borings were completed as monitoring, skimming, or extraction wells.

Prior to removal of the 10,000-gallon UST, soil boring data indicated TPH concentrations exceeding screening level in OH-SB-2 at depths ranging between 8 and 20.5 feet below ground surface. Soil associated with these analytical results were likely subsequently removed during removal of the UST. However, TPH exceeding the screening level was also detected in deeper soil from this boring (58 to 60 feet) indicating that TPH likely extends to the water table at this location.

Following removal of the UST, petroleum hydrocarbons were detected in the bottom and side walls of the excavation at concentrations below the screening levels. Further excavation near the former UST was hindered by the depth the excavator could reach, concerns about slope stability, and the structural stability of two adjacent buildings. In total, approximately 1,400 cubic yards of soil were removed from the excavation for proper disposal.

The UST removal and cleanup proceeded to the extent practicable based on the depth of excavation and adjacent building foundations. The groundwater extraction and skimming operation have been in operation since the mid-1990s and continue to this day. Sufficient data on the nature and extent of soil and groundwater contamination exist for the area of the former Oil House Tank.

Available data indicate the entire area has a prominent petroleum smear zone at the water table from a variety of sources in the area, including the Oil House Tank. Soil data from boring OH-SB-2 in particular appear to indicate that elevated petroleum hydrocarbon concentrations may be throughout the soil column to the water table. Other borings in the area (e.g., OH-MW-1 through OH-MW-6) have limited data from soil located above the water table and the data that are available show concentrations of petroleum hydrocarbons below screening levels. However, these borings indicate a petroleum smear zone at the water table with the possible exception of well OH-MW-2 located upgradient of the former Oil House Tank. Soil collected at the water table from this boring had petroleum hydrocarbons detected at 120 mg/kg. Groundwater sample data for TPH from well OH-MW-2 are inconsistent with the smear zone soil data with TPH concentrations up to 110 mg/L (May 1990) and 950 mg/L diesel and 140 mg/L gasoline indicating that the source or sources of TPH in groundwater is upgradient of the well (March 1991). This well has been decommissioned and is no longer available for monitoring.

Free phase petroleum has frequently been observed downgradient of the former Oil House Tank. Kaiser has installed an extraction well (OH-EW-1) and three petroleum skimming wells (OH-SK-1, OH-SK-2, and OH-SK4) near this extraction well to remove free phase petroleum from the water table in the summer and fall months when free phase petroleum tends to accumulate. Extraction well OH-EW-1 is currently operating and supplies process water to the mill. The drawdown from this pumping well encourages free phase petroleum from the surrounding area to accumulate for removal in the skimming wells. The skimming wells are monitored by Kaiser personnel and are turned on whenever sufficient free phase petroleum is observed in the well. The extent of free phase petroleum in the vicinity of the Oil House as well as its thicknesses have reduced significantly over time (Hart Crowser 2012). This is likely due to natural degradation, active cleanups in the area, and skimming of free phase petroleum accumulations in skimming wells.

Petroleum and PCBs are the primary constituents of potential concern in soil and groundwater in the Oil House Tank area. Petroleum hydrocarbon detections in groundwater have been primarily quantified in the Stoddard solvent, Kensol, and diesel ranges. PCBs detected in groundwater are likely to be associated with the free phase petroleum as PCBs are not typically present in groundwater from the Oil House area unless petroleum is also detected in the sample (Hart Crowser 2012). Arsenic is also present at concentrations above screening levels but this is likely from the mobilization of naturally occurring arsenic because of the reducing conditions caused by the petroleum hydrocarbon in groundwater. Iron and manganese are also present at concentrations above screening levels and are also commonly associated with reducing conditions in the aquifer. VOCs have been infrequently detected and at relatively low concentrations below screening levels when they are present.

The need for additional remedial action as a result of releases from the former Oil House Tank will be evaluated during the FS.

5.3 500-GALLON DIESEL TANK

5.3.1 Introduction

A 500-Gallon Diesel Tank (UST) used to store diesel fuels was removed from the Oil House area in October 1990 (Hart Crowser 1991b). This section summarizes the UST removal, soil excavation, and soil verification sampling and analysis that occurred. The approximate location of this former UST in the Oil House area is shown on Figure 5-2.

5.3.2 Previous Investigations/Remediation Activities

During the tank removal, the UST was observed to be in good shape, with no rust or pitting documented. Field observations indicated soil removed from around the tank was likely impacted with diesel fuel. Additional soil excavation occurred to a depth of 10 feet below ground surface after the tank was removed to excavate the potentially impacted soil.

Soil Verification Sampling and Soil Quality Analytical Results

Analytical results from the verification soil samples collected are presented in Table 5-5. A detailed site plan of the excavation and sampling locations is not available.

Verification soil samples were collected from each of the side walls of the excavation and composited into one sample (HC-DW). A composite sample from the bottom of the excavation was also collected (HC-DB). These samples were submitted for analysis of TPH (EPA 418.1). Samples HC-DW and HC-DB had TPH concentrations below screening levels at 180 and 490 mg/kg, respectively. Note that the work at this location was conducted during the time when the proposed MTCA Method A soil cleanup level for diesel was 200 mg/kg. Currently, the Method A unrestricted cleanup level (and screening level) for diesel in soil is 2,000 mg/kg and is based on protection of groundwater.

Based on the analytical results from sample HC-DB, an additional 2 feet of soil were removed from the bottom of the excavation, to a total depth of 12 feet below ground surface. Another composite bottom soil verification sample (HC-DB2) was collected from the excavation and submitted for TPH analysis using EPA 418.1. TPH was detected in the sample at a concentration of 310 mg/kg.

Based on the TPH concentration in sample HC-DB2 being over the former MTCA Method A cleanup level, another 2 feet of soil were removed from the bottom of the excavation, making the total depth from the ground surface of 14 feet. A composite bottom soil verification sample (HC-DB3) was collected from the excavation and submitted for TPH analysis using EPA 8015 Modified. This soil sample was non-detect for diesel and gasoline.

In total, approximately 100 cubic yards of soil were removed from the excavation for disposal at a permitted off-site landfill.

5.3.3 Proposed Phase II (RI) Work

As discussed in the Phase II RI Work Plan (Hart Crowser 2007), no additional investigation were proposed for the 500-Gallon Diesel Tank area.

5.3.4 Summary of Current Conditions

Based on available data, the diesel-contaminated soil from releases from this small, double-walled tank was removed when the tank was excavated. Minor detections of petroleum hydrocarbons were present in soil removed along with the tank. The final sample collected from the bottom of the excavation did not detect diesel- or gasoline-range petroleum hydrocarbons at a detection limit of 5 mg/kg using EPA Method 8015 modified. Based on experience, with no diesel detections in the soil, it is unlikely that BTEX, PAHs, or naphthalene would be present in the remaining soil at concentrations that would pose a risk. Thus, available data indicate that additional remedial action is not necessary at this location.

5.4 20,000-GALLON LEADED GASOLINE UST

5.4.1 Introduction

The 20,000-Gallon Leaded Gasoline UST was located northeast of the Oil House within the Oil House area of the Trentwood Facility (Figure 5-1). The tank was located on the north end of the above-ground Tank Farm, approximately 100 feet northeast of the Oil House (Figure 5-2).

Area-wide investigations of the Oil House and Hot Line in 1989 indicated a potential for impacts to subsurface soil from releases from this tank. In addition, the tank was located near the area of the January 1991 Kensol Spill (Section 5.7) and was likely impacted by it. Based on this information, the UST was removed in April 1991.

The following sections summarize the UST removal, soil excavation, and soil verification sampling and analysis conducted on the 20,000-Gallon Leaded Gasoline Tank (Hart Crowser 1991d).

5.4.2 Previous Investigations

The 20,000-Gallon Leaded Gasoline UST and associated piping and fuel dispenser were removed in April 1991. The excavation included an area approximately 40 by 50 feet in size and averaged approximately 15 feet deep. The maximum depth of the excavation was 18 feet at the former fuel dispenser location. Field observations showed that soil in this area was likely impacted with petroleum hydrocarbons. However, the vertical reach of the excavating equipment limited additional soil removal from the bottom of the excavation in the former dispenser area. Further excavation to the west was limited due to concern over the continued stability of the adjacent access road. Soil verification samples were collected and analyzed as presented below.

Soil Verification Sampling and Soil Quality Analytical Results

Ten side wall (G-E, G-DW, G-N1, G-N2, GT-NW, G-S1, G-S2, GT-SE, G-W, and 20K-1) and two bottom (GT-B and GT-D) soil verification samples were collected from the excavation (Figure 5-4). Samples GT-NW and GT-SE were composite samples, collected from two side wall locations. Sample GT-D was collected from the former dispenser area at a depth of approximately 18 feet below ground surface. These samples were submitted for TPH (EPA Method 8015 modified). Samples GT-NW, GT-SE, GT-B, and GT-D were also submitted for analysis of BTEX and total lead. The soil verification sample locations are shown on Figure 5-4. Analytical results from these soil verification samples are presented in Table 5-6.

The analytical results for these samples were below screening levels except soil sample GT-D. Analytical results from sample GT-D indicate that gasoline-range petroleum hydrocarbons and total xylenes were present above screening levels at concentrations of 1,700 mg/kg and 22,000 ug/kg, respectively (Table 5-6).

Both exceedances were in the bottom sample collected below the fuel dispenser (GT-D). It should be noted that the soil in the excavation was very gravelly, so because the gravel was not included in the sample analyzed, the tested samples were skewed toward the finer fraction.

The likelihood that the area near the gasoline tank was impacted by the Tank Farm Kensol Spill (Section 5.7) is evidenced by detections of diesel- and heavy oil-range petroleum hydrocarbons in side wall samples collected from the UST excavation (Table 5-6).

Based on the screening levels for the Facility, it appears the lateral extent of the impacted soil has been removed. However, impacted subsurface soil beneath the former fuel dispenser is still present below 18 feet. This impacted soil was left in-place due to the limits of excavation equipment available and concerns with the stability of the adjacent access road. In total, approximately 1,200 cubic yards of soil were removed from the excavation. After completion, the excavation area was backfilled with clean fill and capped with asphalt.

5.4.3 Proposed Phase II (RI) Work

To address identified data gaps in the vicinity of the former 20,000-Gallon Leaded Gasoline UST, the installation of an additional soil borings in the vicinity of the former fuel dispenser, and redevelopment and sampling of groundwater monitoring well TF-MW-3 were proposed in the Phase II RI Work Plan (Hart Crowser 2007).

The new soil boring (GUST-SB-1) was proposed to be advanced to the water table and soil samples would be collected and analyzed on 20-foot-depth intervals. Well TF-MW-3 would be redeveloped to remove fine-grain sediment from the well casing and sampled on two occasions representing high and low groundwater elevation conditions (e.g., April and October). Soil and groundwater samples from the well and boring were to be analyzed for TPH (NWTPH-HCID and NWTPH-Gx), BTEX, and total lead (dissolved lead for groundwater sample).

5.4.4 Phase II RI Field Activities and Analytical Results

After installation and based on newly discovered drawings of the former Gasoline UST and fuel island, proposed boring GUST-SB-1 was identified as being located outside of the area of concern (Figure 5-4). Therefore, an additional soil boring (GUST-SB-2) was advanced downgradient from the fuel dispenser. Upon completion of sampling from these borings, the borings were abandoned in accordance with Chapter 173-160 WAC. The locations of these borings are shown on Figure 5-4.

Groundwater monitoring well TF-MW-3 was redeveloped and sampled and analyzed on two occasions to represent high and low groundwater elevation conditions (i.e., April and October 2008). The following sections present the information obtained from the Phase II field activities. Table 5-7 presents the analytical results of the soil samples collected from the soil borings. Table 5-8 presents the analytical results of groundwater samples collected from TF-MW-3. Boring logs for GUST-SB-1 and GUST-SB-2 are included in Appendix A.

Soil Sampling and Analysis

Soil boring GUST-SB1 was advanced to a final depth of 80 feet below ground surface on August 13, 2008, and soil boring GUST-SB-2 was advanced to a final depth of 77 feet below ground surface on October 24, 2008 (Figure 5-4).

Four soil samples and two field duplicates were collected from each of the soil borings. Analytical results for soil samples from boring GUST-SB1 showed detections of Kensol-range petroleum hydrocarbons and lead at concentrations below screening levels. Analytical results from boring GUST-SB2 showed detections of Kensol, diesel-range petroleum hydrocarbons, mineral spirits/Stoddard solvents, lead, and BTEX compounds. Except for the mineral spirits/Stoddard solvents (2,400 to 7,100 mg/kg) and the Kensol concentrations (2,300 to 9,000 mg/kg) in sample GUST-SB2-S4 and its duplicate, other concentrations detected were below the screening levels (Table 5-7). The exceedances of screening levels were detected at 74 feet below ground surface, which was the depth of the water table at time of drilling.

The petroleum hydrocarbon concentrations above the screening levels observed near the water table in GUST-SB-2 are indicative of the smear zone observed within the Oil House area and are not necessarily indications of constituents from the Gasoline UST.

Groundwater Monitoring

Groundwater monitoring well TF-MW-3 was redeveloped and sampled and analyzed on two occasions in April and October 2008 to represent high and low groundwater elevation conditions (Table 5-8). The groundwater sample was analyzed for VOCs or BTEX, and TPH (NWTPH-HCID and NWTPH-Gx). Analytical results of the groundwater samples from this well indicate concentrations were non-detect except for one tentative detection of toluene (0.12T ug/L) during the October 2008 groundwater sampling round. This tentative detection is well below the groundwater screening level of 640 ug/L toluene. Thus, recent groundwater samples from this well do not indicate impacts from petroleum in the area.

5.4.5 Summary of Current Conditions

Based on previous investigations of the 20,000-Gallon Leaded Gasoline UST, it appeared that the lateral extent of the impacted soil had been excavated. Approximately 1,200 cubic yards of soil were removed from the excavation during the tank removal after which it was backfilled with clean fill and capped with asphalt. Some of this asphalt was subsequently removed during the Cold Mill Transfer Line investigation. There are analytical test results indicating gasoline-range petroleum hydrocarbons exceeding screening levels in the area beneath the former dispenser at a depth of greater than 18 feet.

Since impacted soil above the screening levels was left below the former fuel dispenser, soil borings GUST-SB1 and GUST-SB2 were advanced to the water table in 2008 (Figure 5-4). Analytical results for the soil samples collected from these soil borings indicated that Kensol and mineral spirits/Stoddard solvents above the screening levels were present at 74 feet below ground surface in GUST-SB2 and are likely the result of the smear zone in this area.

The groundwater samples collected from TF-MW-3 did not have any detections above the screening levels suggesting that groundwater in this area has not been significantly impacted from releases from the 20,000-Gallon Leaded Gasoline UST. It should be noted that the well is located upgradient of the location of the former Gasoline UST and would not be expected to accurately represent groundwater quality from the former UST.

The need for additional remedial action in this area will be evaluated during the FS.

5.5 EIGHT USTS AREA

5.5.1 Introduction

Eight USTs, located immediately north of the Oil House, were removed in May 1991 (Hart Crowser 1991f). Seven of the tanks were 10,000-gallon USTs, with four of these tanks containing mineral oil, two of the tanks containing Stoddard solvent, and one tank containing kerosene. The eighth tank was a 1,000-gallon tank containing unleaded gasoline. The location of the former USTs area is shown on Figure 5-2. This section summarizes the previous activities, including the removal of the tanks, soil excavation, soil verification sampling and analysis that occurred in 1991, and recent soil boring and groundwater monitoring activities as defined in the Phase II RI Work Plan (Hart Crowser 2007).

5.5.2 Previous Investigations

The USTs were observed to be in fair to good condition, and no holes were evident following this removal. Approximately 7,000 cubic yards of soil were removed from a common excavation where the tanks were formerly located. The extent of the excavation was limited on the south by the foundation of the Oil House and on the north and east by access roads. The maximum depth of the excavation was 32 feet in some areas. During the excavation, field indications of petroleum impacts were noted in soil samples collected from the side walls and bottom of the excavation. Recent data from wells in the vicinity indicate that the groundwater is at 68 feet below ground surface or at least 36 feet below the bottom of the excavation. A layout of the eight USTs and the excavation area are shown on Figure 5-5.

The excavation area was backfilled with clean fill and capped with asphalt.

Soil Verification Sampling and Soil Quality Analytical Results

Twenty-four soil verification samples were collected from the final excavation side walls and bottom. These samples were analyzed for TPH (EPA Method 8015 modified). One side wall sample (GW) and four bottom samples (GB, 2-B, 4-B, and 7-B) were also analyzed for BTEX, because they represented soils near the former gasoline tank. Three of the bottom soil samples (2-B, 4-B, and 7-B) were also analyzed for VOCs, PAHs, PCBs, and metals. The soil verification sample locations are shown on Figure 5-5, and analytical results from these samples are presented in Table 5-9.

Kensol-range and unknown petroleum hydrocarbons were detected in the six bottom samples (1-B through 3-B and 5-B through 7-B) and five side wall samples (1-SW, 2-NW, 2-SW, 5-SW, and EW) at concentrations exceeding the screening level of 2,000 mg/kg. These concentrations ranged from 2,200 to 69,000 mg/kg. The highest TPH concentrations for bottom samples was detected in samples 1-B and 2-B and for the side wall samples, sample 1-SW had the highest TPH concentration. These three sample locations are in the general vicinity of each other at the southeast corner of the excavation (Figure 5-5).

The BTEX analysis for samples GB, GW, 2-B, 4-B, and 7-B were non-detect for these analytes (see Sheet 4 in Table 5-9).

Samples 2-B, 4-B, and 7-B were analyzed for VOCs, PAHs (with and without silica gel cleanup), PCBs, and metals. As indicated in Table 5-9, only one VOC was detected but at a concentration below its screening level. In addition, although several PAHs were detected, their concentrations were below screening levels.

Arsenic, cadmium, chromium, copper, lead, nickel, and zinc were detected in these three samples. Arsenic was present in the three soil samples analyzed at concentrations exceeding screening levels. Cadmium was detected in soil samples 4-B and 7-B at concentrations exceeding screening levels. Metal detections in these samples are at or near the expected ranges for background soil metals concentration in the Spokane Basin (Ecology 1994).

5.5.3 Proposed Phase II (RI) Work

Available data indicate that the lateral extent of potential impacts were fairly well defined and characterized at the time the tanks were removed, except possibly under the Oil House. Petroleum hydrocarbons quantified as Kensol appear to be the primary constituent of concern in the area. Figure 5-5 shows the likely lateral extent of soil with elevated petroleum hydrocarbon concentrations.

Investigation under the Oil House is not feasible because of low overhead restrictions. However, the lateral spread of petroleum to the south is expected to be similar to that observed to the north (15 to 20 feet).

Based on the findings of the previous investigation and to fill identified data gaps in the eight USTs area, the following actions were proposed in the Phase II RI Work Plan (Hart Crowser 2007):

- **Soil Boring.** Excavate and sample soils from one soil boring (OH-SB-1) to refine the vertical extent of petroleum contamination. Soil samples were to be analyzed for TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx). Selected soil samples were also to be analyzed for VOCs, PAHs, and PCBs.
- **Groundwater Monitoring.** Sample groundwater from one groundwater monitoring well (OH-MW-10) located downgradient of the former UST area. Groundwater samples were to be analyzed for TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx), PAHs, VOCs, PCBs, and dissolved metals (antimony, arsenic, iron, and manganese).

5.5.4 Phase II RI Field Activities and Analytical Results

Soil Boring

Soil boring (OH-SB-1) was advanced to the water table in the vicinity of the soil samples (samples 2-B and 1-SW) with the highest petroleum detections in soil remaining in the area of the former USTs. Figure 5-5 shows the location of this boring.

The soil sample was analyzed for the constituents proposed in the Work Plan. Table 5-10 presents the analytical results of the soil samples collected from the boring. The boring log for OH-SB-1 is included in Appendix A.

Soil Sample Analytical Results

Analytical results of the soil samples collected from OH-SB-1 had detections of TPH in two of the eight samples. Only soil sample OH-SB-1-S8 had detections of Kensol-range petroleum hydrocarbons (9,000 to 10,000 mg/kg) at concentrations exceeding the screening level at a depth of approximately 88 feet. This is indicative of a petroleum smear zone at the water table. However, the soil column at this boring location does not appear to have significant impacts from the former tanks based on the new soil boring data.

Samples OH-SB-1-S2, OH-SB-1-S4, and OH-SB-1-S6 were also analyzed for VOCs, SVOCs, and PAHs. The VOC, SVOCs, and PAHs were non-detect or detected at concentrations below screening levels as shown in Table 5-10.

Analytical results of the soil samples collected and analyzed from soil boring OH-SB-1 were non-detect for PCBs.

Groundwater Monitoring Well

Monitoring well OH-MW-10 is located downgradient of the former UST area (see Figure 5-5). This well is upgradient of the Oil House Drum Storage and French Drain area. At the time of the Phase II work, well OH-MW-10 had not had samples collected for analysis since 1998. Groundwater sample analytical results of this well are representative of conditions in the UST area. The data are also indicative of groundwater conditions at the upgradient boundary of the Drum Storage and French Drain area. Two rounds of groundwater sampling and analysis representing high (April) and low (October) groundwater conditions were conducted for this well during the Phase II investigation. The groundwater samples were analyzed for the constituents proposed in the Work Plan.

Groundwater Sample Analytical Results

NWTPH-HCID analytical results (Table 5-11) of the groundwater samples collected from OH-MW-10 had detections of Kensol-range petroleum hydrocarbons exceeding screening levels in the April and October samples at concentrations of 6.8 and 110 mg/L, respectively. NWTPH-Gx and NWTPH-Dx results for these same samples indicate that gas-, diesel-, and oil-range petroleum hydrocarbons were non-detect.

VOCs were non-detect or detected at concentrations below screening levels. Dissolved iron, arsenic, and manganese were detected at concentrations above screening levels. These metals are often observed at elevated concentration in groundwater when reducing conditions due to petroleum hydrocarbons are present.

5.5.5 Summary of Current Conditions

Soil and groundwater sample analytical results indicate that Kensol-range petroleum hydrocarbons exceeding the screening levels remain in the site soil and groundwater in the area of these former USTs. The other soil and groundwater samples analyzed for VOCs, SVOCs, PAHs, and PCBs were non-detect or detected at concentrations below screening levels. The metal detections in the samples are within expected natural background metals concentration ranges for soil in the Spokane Basin (Ecology 1994).

Excavation boundary soil sample data indicate that concentrations of petroleum exceeding screening levels are present in the approximate areas shown on Figure 5-5. The OH-SB-1 soil sample analytical results indicate that Kensol-range petroleum hydrocarbons above screening levels were encountered at approximately 88 feet below ground surface (approximate groundwater elevation). Soil sample analytical results from boring OH-SB-1 do not indicate a source area to groundwater within the former UST excavation area. This location was selected for the boring because it is the location of the highest petroleum detections based on soil samples collected during the UST removal effort.

The 2008 groundwater monitoring activities confirm the presence of Kensol-range petroleum hydrocarbons, toluene, and selected metals above screening levels. The groundwater conditions are discussed further in the Site-Wide Groundwater RI (Hart Crowser 2012).

The need for additional remedial action in this area will be evaluated during the FS.

5.6 OIL HOUSE DRUM STORAGE AND FRENCH DRAIN AREA

5.6.1 Introduction

Prior to the early 1970s, hydraulic oil containing PCBs was used at the Kaiser Trentwood Facility and drums of this oil were stored on a concrete pad west of the Oil House. The general location of the Oil House Drum Storage area is illustrated on Figure 5-2.

The former Drum Storage and French Drain area consisted of a 5-inch-think concrete slab-on-grade. The concrete slab was surrounded by asphalt to the north, west, and south. The Oil House abutted the Drum Storage and French Drain area to the east. In April 1991, while removing the concrete pad, Kaiser discovered that a storm drain at the north end of this oil storage area was actually a French drain that did not discharge to the sewer system. During the same time period, Kaiser discovered what appeared to be a second French drain that had existed at the south end of the storage area, but had been covered with concrete. This section summarizes an interim PCB cleanup, soil boring assessment, and groundwater sampling and analysis that previously occurred in the former Drum Storage and French Drain area to assess the presence and distribution of PCBs and TPH.

5.6.2 Previous Investigations

In March 1991, an assessment of the Oil House Drum Storage and French Drain area began with the collection of eight wipe samples and a surface soil sample from the northern French drain (Hart Crowser 1991e). These samples were analyzed for PCBs. Four wipe samples collected from the surface of the concrete in and near the French drain contained PCBs, and the remaining four wipe samples were non-detect for PCBs. Eight test pits were excavated to assess the vertical extent of the PCBs. Soil PCB analytical results ranged from non-detect to 106,000 ug/kg. In general, the PCB concentrations decreased with depth. Following the test pit sampling and analysis, the concrete slab and concrete north ramp from the Drum Storage and French Drain area were demolished and removed. Approximately 800 tons of soil were removed from under the former Drum Storage and French Drain area, to a depth of 4 to 5 feet below ground surface.

In summer 1991, Kaiser excavated an additional 400 tons of soil to remove residual elevated PCB concentrations detected in previous soil samples of the bottom of the excavation in spring 1991 (Hart Crowser 1992). Excavation depths after the additional soil removal ranged from 6 to 7 feet below ground surface.

Figure 5-6 shows the final depth of the excavation and the residual PCB concentrations measured in composite soil samples collected and analyzed after the completion of the excavation. Based on the results of shallow test pits in the area, it was theorized that the elevated PCB concentrations at the bottom of the excavation were potentially caused by inefficient excavation of the overlying cobbly soil and not the result of vertical migration of the PCBs. To evaluate this assumption, the vertical and lateral extent of PCBs and TPH under the former Drum Storage and French Drain area was further investigated using borings.

The excavation area was backfilled with imported soil and the French drains were eliminated in October 1991. An asphalt cap was then installed over the former Drum Storage and French Drain area.

Soil Sampling and Analysis

In November 1991, seven soil borings (SA-1 through SA-7) and two groundwater monitoring wells (OH-MW-24 and OH-MW-25) were completed to a depth of between 75 and 90 feet below ground surface. Between 12 and 18 soil samples were collected from each of the nine soil borings. Select samples from each boring were screened for PCBs and analyzed for petroleum hydrocarbons. Screening and analytical results for PCBs and TPH for the soil samples from the borings are presented in Table 5-12. Figure 5-6 shows the sample locations. Figure 5-7 shows a cross section through the area based on analytical results for soil samples collected and analyzed from these explorations.

In soil samples from the upper 60 feet analyzed for TPH, two samples exceeded screening levels; 1) soil sample SA-6/S-4 (25 feet below ground surface) with a diesel concentration of 2,800 mg/kg by EPA Method 8015 modified, and 2) soil sample SA-1/S-1 (10 feet below ground surface) with a TPH concentration of 2,700 mg/kg by EPA Method 418.1.

Based on TPH by EPA Method 8015 modified analytical results, 15 of 20 soil samples collected between a depth of 60 and 80 feet below ground surface contained gasoline-range (i.e., Stoddard solvent) petroleum hydrocarbon concentrations exceeding screening levels. In addition, 10 of these samples contained diesel-range (i.e., Kensol) petroleum hydrocarbons concentrations exceeding screening levels.

The TPH concentrations for samples collected below depths of 80 feet were below screening levels.

The analytical results show higher concentrations of oil-range petroleum hydrocarbons in the upper 25 feet. Oil-range petroleum hydrocarbons were non-detect in soil samples collected below depths of 25 feet. Conversely, Stoddard solvent is not present in the soil samples collected from the upper 65 feet but has been measured in the majority of samples collected from below 65 feet at concentrations exceeding screening levels.

The vertical distributions of PCBs in borings SA-1 and SA-6 correlated strongly with the petroleum hydrocarbon distributions. It appears that the PCBs migrated downward with oily near-surface discharges, but that the vertical driving force for the petroleum hydrocarbon migration abruptly decreased at the 25- to 30-foot-depth interval. PCB concentrations decreased at this depth but increased at the smear zone.

No PCBs were detected in soil samples from borings SA-2 through SA-5, which were drilled to assess soil quality in areas unaffected by the French drains.

Groundwater Sampling and Analysis

Monitoring wells OH-MW-24 and OH-MW-25 were installed to the west and hydraulically downgradient of the former Drum Storage and French Drain area. Groundwater samples from these wells were collected and analyzed in December 1991. These samples were analyzed for PCBs, BTEX, TPH, dissolved metals (including antimony, arsenic, iron, and manganese), and TSS. An additional groundwater sample was collected from well OH-MW-24 in May 1992. This sample was analyzed for PCBs, BTEX, TPH, and TSS.

Previously installed monitoring well OH-MW-10 is located slightly upgradient of the former Drum Storage and French Drain area, and provides a good comparison point for wells OH-MW-24 and OH-MW-25. This well was sampled three times in 1991 and six times between 1997 and 1998.

Analytical results for the groundwater samples from wells OH-MW-10, and OH-MW-24 and OH-MW-25 collected during previous sampling events are presented in Tables 5-11 and 5-13, respectively.

Petroleum hydrocarbons in the Kensol- and Stoddard solvent-range were detected in the two samples from OH-MW-24. By comparison, OH-MW-10 had detections of Kensol-range petroleum hydrocarbons in the April and October 2008 sample results. The TPH detections in this upgradient well support the soil boring assessment conclusion above, that TPH releases from the Drum Storage and French Drain area were not the primary source of the TPH in the smear zone.

Arsenic was detected in groundwater samples from OH-MW-10 and a groundwater sample from OH-MW-24. The arsenic detections in groundwater are likely the result of reducing conditions from the petroleum hydrocarbons in the groundwater mobilizing naturally occurring arsenic in the soil.

PCBs were detected in three groundwater samples from OH-MW-24. Concentrations at this location decreased significantly between early sampling events in 1991 and 1992 compared to recent sampling events in 2008. PCB concentrations were not detected in the other wells in this area above the reporting limits.

5.6.3 Proposed Phase II (RI) Work

The horizontal and vertical extent of residual petroleum and PCBs in the Drum Storage and French Drain area is well characterized and additional soil quality data are not needed for this area; therefore, no additional soil-related work was recommended in the Phase II RI Work Plan (Hart Crowser 2007). Potential impacts from other constituents (e.g., PAHs, VOCs) that may be present can best be evaluated through monitoring of downgradient groundwater quality. Additional groundwater quality data were needed upgradient and downgradient of the Drum Storage and French Drain area as recommended in the Phase II RI Work Plan.

5.6.4 Phase II RI Field Activities and Analytical Results

Groundwater Monitoring Wells

Well OH-MW-10 is located hydraulically downgradient of the Oil House UST removal area and hydraulically on the upgradient edge of the Drum Storage and French Drain area. Wells OH-MW-24 and OH-MW-25 are located hydraulically downgradient of these areas.

Analytical Parameters

Wells OH-MW-10, OH-MW-24, and OH-MW-25 were sampled on two occasions in 2008 representing the high (April) and low (October) groundwater conditions. Samples were analyzed for a comprehensive suite of parameters, including TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx), PAHs, VOCs, PCBs, and dissolved metals (antimony, arsenic, iron, and manganese).

Groundwater analytical results are presented in Tables 5-11 and 5-13.

Phase II Groundwater Analytical Results

Arsenic and manganese were detected in one or both of the April and October 2008 samples collected from groundwater monitoring wells OH-MW-10, OH-MW-24, and OH-MW-25 at concentrations exceeding screening levels. Iron was detected above screening levels in the October 2008 samples collected from OH-MW-10 and OH-MW-24.

Kensol-range petroleum hydrocarbon concentrations exceeded screening levels in samples collected from OH-MW-10 and OH-MW-24. PAHs exceeded screening levels in these three groundwater monitoring wells. PCBs concentrations above screening levels were detected in the October 2008 sample collected from OH-MW-24.

5.6.5 Summary of Current Conditions

Approximately 1,200 tons of TPH- and PCB-contaminated soil were excavated from this area of the Facility. After the completion of the excavation activities, the area was backfilled and an asphalt cap was installed over the former Drum Storage and French Drain area.

Post-excavation composite soil verification sample analytical results show that 9 of the 12 soil samples exceed the screening level for PCBs.

Soil boring soil sample analysis indicate two samples exceeded the screening levels for TPH; 1) soil sample SA-6/S-4 (25 feet below ground surface) with a diesel concentration of 2,800 mg/kg by EPA Method 8015 modified, and 2) soil sample SA-1/S-1 (10 feet below ground surface) with a TPH concentration of 2,700 mg/kg by EPA Method 418.1. PCBs were detected at concentrations exceeding screening levels in the majority of soil samples collected from SA-1 and SA-6.

Elevated petroleum hydrocarbons exceeding the screening levels were measured in the soil borings at the smear zone (approximately 65 to 80 feet below ground surface). This indicates that TPH releases from the Drum Storage and French Drain area were not likely to be the primary source of the TPH concentrations measured in the smear zone.

Groundwater Analysis and Analytical Results

Groundwater analytical results indicate that arsenic, iron, and manganese were present at concentrations exceeding screening levels. Kensol-range petroleum hydrocarbons continue to be present at concentrations exceeding screening levels in groundwater samples from monitoring wells OH-MW-10 and OH-MW-24. Prior to the 2008 groundwater monitoring events, Stoddard/Mineral Spirits was detected at concentrations exceeding screening levels in OH-MW-10 and OH-MW-24, however, the April and October 2008 sampling events indicate that the Stoddard/mineral spirit concentrations are non-detect below screening levels.

PAHs are present at concentrations exceeding screening levels in groundwater samples collected from OH-MW-10, OH-MW-24, and OH-MW-25. For more specific groundwater information, please refer to the Site-Wide Groundwater RI (Hart Crowser 2012).

The need for additional remedial action in this area will be evaluated during the FS.

5.7 TANK FARM KENSOL SPILL

5.7.1 Introduction

A release of virgin Kensol 51, used as an aluminum rolling lubricant for milling processes, occurred in the Tank Farm area of the Oil House in 1991. The Tank Farm is located approximately 120 feet east of the Oil House building in the central area of the Facility and was in the final stages of construction when the leak occurred (Figure 5-2).

On January 25, 1991, a volume discrepancy between the monitoring equipment at the Oil House and the Cold Mill was noted during the transfer of virgin Kensol between these areas (Hart Crowser 1991c). After the discrepancy was noted, usage of the transfer line was immediately stopped. The line was pressure tested on January 30, 1991. The pressure test indicated that the line was not tight, and it appeared the leak was located in a junction box. After failing the test, and notifying Ecology, excavation of impacted soil around the junction box started on January 31, 1991. It is believed that the release was a result of improper installation of the transfer line joints in the junction box and it was estimated at the time of the release that at least 800 gallons of Kensol had been spilled. The junction box was located on the north side of the Tank Farm and approximately 5 feet below ground surface.

5.7.2 Previous Investigations

This section describes soil excavation, investigation, and remedial measures conducted after the release. Figure 5-8 presents the excavation area, the location of soil verification samples collected after the initial excavation, and the well locations installed and monitored after the spill.

Initial Excavation and Soil Sampling and Analysis

An excavation and subsurface investigation was conducted along the north side of the Cold Mill Transfer Line junction box between January 25 and February 27, 1991 (Figure 5-8). The excavation followed areas where signs of the Kensol release were observed in subsurface soils as evidenced by field observations. The excavation was approximately 35 by 20 feet and extended to a depth of 12 feet below ground surface. Approximately 300 cubic yards of TPH-impacted soil were removed during the excavation.

One composite excavation side wall sample (TF#1 sidewall) and one composite bottom soil sample (TF#3 Bottom Composite) were collected and analyzed for TPH (EPA Method 418.1) (Table 5-14). In addition, sample TF#3 Bottom Composite was also analyzed for SVOCs and VOCs.

The sample TF#3 Bottom Composite TPH concentration exceeded the screening level of 2,000 mg/kg at a concentration of 12,000 mg/kg. No SVOCs were detected in the bottom sample but the sample method reporting limits were elevated due to the high TPH concentrations in the sample. The only VOCs detected (methylene chloride and total xylenes) were at concentrations well below their respective screening levels. The excavation was backfilled with clean material to maintain the integrity of the junction box and a subsurface soil assessment to investigate the vertical extent of the contaminated soil was initiated (Hart Crowser 1991c).

Subsurface Soil Investigation

To further evaluate subsurface conditions in the vicinity of the Tank Farm, five soil borings completed as groundwater monitoring wells (TF-MW-1 through TF-MW-5) were advanced to depths ranging from 79.5 to 81 feet below ground surface during the subsurface investigation conducted in February 1991 (Figure 5-8).

Ten subsurface soil samples were collected from the soil borings and submitted for analysis of TPH and fuel fingerprint by EPA Method 418.1 and EPA Method 8015 modified (Table 5-15). Analytical results for the soil boring samples indicate that petroleum hydrocarbons were present in the Kensol-range above screening levels in the soil samples from TF-MW-1, TF-MW-4, and TF-MW-5 at depths of 56 and 66 feet. TPH concentrations by EPA Method 418.1 exceeding screening levels ranged from 5,700 to 21,900 mg/kg in the same samples.

Kensol concentrations identified by EPA Method 8015 modified showed concentrations exceeding screening levels ranging from 6,700 to 25,600 mg/kg. Stoddard solvent-range petroleum hydrocarbons exceeded screening levels in soil samples collected from TF-MW-1 and TF-MW-5 at concentrations ranging from 150 to 290 mg/kg.

Groundwater Sampling and Analysis

One round of groundwater sampling and analysis was conducted on TF-MW-1 through TF-MW-5 in September 1991 (Table 5-16). In addition, upgradient monitoring well OH-MW-8 was sampled and analyzed five times between 1991 and 1992. Approximately 1 to 2 inches of Kensol product were measured on the water table in wells TF-MW-1, TF-MW-2, and TF-MW-5, while no Kensol was observed in wells TF-MW-3, TF-MW-4, or in upgradient well OH-MW-8.

The groundwater sample collected from TF-MW-4 was submitted only for PCB analysis while the remainder of the groundwater samples were submitted for analyses of PCBs, TPH (various methods), and TSS. Samples from OH-MW-8 were submitted for analyses of dissolved metals, PCBs, BTEX, TPH (various methods), and TSS.

In 1991, samples from TF-MW-1 through TF-MW-5 were non-detect for PCBs and Kensol-range petroleum hydrocarbons. Diesel-range petroleum hydrocarbons (0.1 to 0.6 mg/L) were detected in the samples from TF-MW-1, TF-MW-2, and TF-MW-5 but only TF-MW-2 had a concentration above the screening levels.

Well OH-MW-8, located upgradient of the spill area, was non-detect for PCBs and petroleum hydrocarbons during 1991 and 1992 monitoring. Antimony was the only constituent detected in this well at concentrations above the screening level (Table 5-16).

In April 1991, a 16-inch, 1,000 gpm extraction well, TF-EW-1, was installed along with a product recovery pump. Little product was recovered, suggesting that only a small amount of product reached the water table. Extraction well TF-EW-1 was modified, and a shallower distribution well, TF-EW-1-US, was installed in April 2000. These wells were part of a pilot test program to recirculate groundwater and enhance dissolved oxygen in the shallow portion of the aquifer. The Site-Wide Groundwater RI (Hart Crowser 2012) contains additional information on this program.

5.7.3 Proposed Phase II (RI) Work

Analytical data from the initial excavation, the subsurface investigation, and the groundwater monitoring indicate that impacted soil in the immediate area of the spill was removed and the horizontal and vertical extent of soil contamination and groundwater impacts appear to be well defined. However, wells in this area had not been sampled for chemical analysis since 1991. Therefore, additional groundwater monitoring and sampling and analysis of downgradient wells TF-MW-1 through TF-MW4, and upgradient well OH-MW-8 were proposed in the Phase II RI Work Plan (Hart Crowser 2007).

5.7.4 Phase II RI Field Activities and Analytical Results

Monitoring wells TF-MW-1 through TF-MW4, and upgradient well OH-MW-8 were developed to remove fine-grain sediment before sampling on two occasions in 2008 representing the high (April) and low (October) groundwater conditions in the aquifer.

Except for well TF-MW-3, proposed to be sampled for a shorter list of parameters, groundwater samples obtained from these wells were analyzed for TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx), PAHs, VOCs, PCBs, and dissolved metals (antimony, arsenic, iron, manganese).

The following section presents the analytical results for groundwater samples from these wells.

Phase II Groundwater Analytical Results

Groundwater samples were collected from the five wells on April 22 and October 20, 2008, and submitted to the analytical laboratory for chemical analyses. Table 5-16 presents the Phase II groundwater sample analytical results.

Although concentrations of several dissolved metals, SVOCs (non-carcinogenic PAHs and cPAHs), VOCs, and Kensol were detected in these samples, only a few of these constituents were present at concentrations above their screening levels.

TPH was only detected in the Kensol-range (78 to 610 mg/L) above the screening level of 0.5 mg/L in TF-MW-1, TF-MW-2, and TF-MW4. No TPH fractions were detected in upgradient well OH-MW-8 or TF-MW-3 (Table 5-16, Figure 5-8).

Dissolved concentrations of arsenic, iron, and manganese were detected above their respective screening levels in TF-MW-1, TF-MW-2, and TF-MW4 while only arsenic concentrations in upgradient well OH-MW-8 were above the screening level.

Estimated concentrations of cPAHs detected above the screening levels included benzo(a)pyrene at 0.0078 µg/L. The detected cPAHs were converted to a TEQ value (Table 5-16). A cPAH exceedance based on the TEQ value was observed in wells TF-MW-2 and TF-MW-4.

PCBs, non-carcinogenic PAHs, and VOCs concentrations were not detected at concentrations exceeding the screening levels. The overall highest concentrations of PAHs and metals were observed in TF-MW-2 during the low aquifer sampling round (October), while the highest Kensol concentration was observed in TF-MW-1 during the high aquifer sampling round in April (Table 5-16).

5.7.5 Summary of Current Conditions

The composite excavation samples "TF#1 Sidewall" and "TF#3 Bottom Composite" show TPH concentrations exceed screening levels below 12 feet. The soil sample analytical results from soil borings and groundwater monitoring in the Tank Farm area indicate that the Kensol from the 1991 spill migrated to groundwater. Free phase petroleum product has been observed in wells in the immediate vicinity of the spill. Wells TF-MW-2 and TF-MW-4 have been frequently monitored for free phase petroleum during scheduled groundwater monitoring events. Since July 2005, free phase product has been measured in well TF-MW-2 one time during 10 monitoring events with a thickness of 0.01 foot. During the same time period, free phase product has been measured in well TF-MW-4 four times with a maximum thickness of 0.03 foot in September 2006.

Phase II groundwater data indicate that although concentrations of several dissolved metals, SVOCs (non-carcinogenic PAHs and cPAHs), VOCs, and Kensol were detected in these samples in 2008, only a few of these constituents were present at concentrations above their screening levels. These include:

- Kensol in TF-MW-1, TF-MW-2, and TF-MW4;
- Dissolved concentrations of arsenic, iron, and manganese in TF-MW-1, TF-MW-2, and TF-MW4; and

- Several cPAHs were detected in TF-MW-2 and TF-MW-4. Their TEQ equivalence values exceed screening levels in wells TF-MW-2 and TF-MW-4.

Based on these data, it appears groundwater is being impacted by the Kensol spill. Additional information on the nature and extent of groundwater contamination in this area is included in the Site-Wide Groundwater RI (Hart Crowser 2012).

The need for additional remedial action in this area will be evaluated during the FS.

5.8 REFERENCES FOR SECTION 5.0

Hart Crowser 1990. Interim Report, Soil and Groundwater Quality Assessment, Kaiser-Trentwood Facility, Spokane, Washington, J-2644-01. March 22, 1990.

Hart Crowser 1991a. Oil House Tank Removal, Kaiser-Trentwood Works, Spokane, Washington, J-3116. January 8, 1991.

Hart Crowser 1991b. Diesel Tank Removal, Kaiser-Trentwood Works, Spokane, Washington, J-3116. February 1, 1991.

Hart Crowser 1991c. Letter Report to Kaiser Regarding The 1991 Kensol Product Spill. J-2644-08. May 1, 1991.

Hart Crowser 1991d. Gasoline Tank Conditions and Recommendations, Kaiser Aluminum and Chemical Corporation, Trentwood Works, Spokane, Washington, J-2644-12. May 31, 1991.

Hart Crowser 1991e. Interim PCB Cleanup Report, Kaiser Trentwood Works, Spokane, Washington, J-2644-10. June 26, 1991.

Hart Crowser 1991f. Removal of 8 Underground Storage Tanks (USTs), Kaiser - Trentwood Works, Spokane, Washington, J-2644-12. October 15, 1991.

Hart Crowser 1992. Soil Boring Assessment at Oil House Drum Storage Area, Trentwood Works, Spokane, Washington, J-2644-21. February 17, 1992.

Hart Crowser 2007. Phase II Remedial Investigation/Feasibility Study Work Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-103. November 30, 2007.

Hart Crowser 2012. Final Site-Wide Groundwater Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington, LLC by Hart Crowser, Inc. May 2012.

Washington State Department of Ecology (Ecology) 1994. Natural Background Soil Metals Concentrations in Washington State, Washington State Department of Ecology Publication #94-115. October 1994.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 5 0.doc

Table 5-1 - Analytical Results for Soil Samples from the 1989 Oil House Tank Area Borings

Sample ID	Screening	OH-MW-1/S-7	OH-MW-2/S-7	OH-MW-3/S-1	OH-MW-3/S-2	OH-MW-4/S-2	OH-MW-4/S-4	OH-MW-5/S-2
Sampling Date	Level (a)	10/28/89	10/27/89	11/01/89	11/01/89	11/10/89	11/10/89	11/17/89
Depth in Feet		68 to 70	68 to 70	9 to 11	68 to 70	28 to 30	68 to 70	28.5 to 30.5
Unsat/Sat		Sat	Sat	Unsat	Sat	Unsat	Sat	Unsat
Conventionals								
pH		9	8.9	8.9	9	8.8	8.6	9.1
Total Metals in mg/kg								
Arsenic	0.0341/0.0017	10	11	2.4	7.9	6.7	11	5
Cadmium	0.7/0.0349	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chromium	2000/100	32	41	13	23	36	36	43
Lead	250/250	16	27	10 U	10 U	18	15	12
EpTox Metals in mg/L								
Arsenic		0.005 U	0.005 U	0.005 U	0.006	0.005 U	0.006 U	0.005 U
Cadmium		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02	0.01 U
Chromium		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.04
Lead		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Volatiles in ug/kg								
1,1,1-Trichloroethane	1610/85	50 U	50 U	50 U	500 U	50 U	50 U	50 U
1,1-Dichloroethane	8730/543	50 U	50 U	50 U	500 U	50 U	50 U	50 U
2-Butanone (MEK)	20000/1400	500 U	500 U	500 U	5000 U	500 U	500 U	500 U
Benzene	5/0.3	50 U	50 U	50 U	500 U	50 U	50 U	50 U
Chloroform	38/2	50 U	50 U	50 U	500 U	50 U	50 U	50 U
Ethylbenzene	5990/341	50 U	50 U	50 U	500 U	50 U	50 U	50 U
Toluene	4650/273	50 U	50 U	50 U	500 U	50 U	50 U	50 U
Total Xylenes	14500/827	50 U	50 U	50 U	500 U	50 U	50 U	50 U
Total Organic Halides in mg/kg								
Total Organic Halides		4 J	4 U	4 U	4 U	4 U	4 U	4 U
TPH (EPA 418.1) in mg/kg								
Total Petroleum Hydrocarbons	2000	8,400	120	10	6,900	2	5,500	1 U

Table 5-1 - Analytical Results for Soil Samples from the 1989 Oil House Tank Area Borings

Sample ID	Screening	OH-MW-5/S-7	OH-MW-5/S-8	OH-MW-6/S-2	OH-MW-6/S-5	OH-SB-1/S-4	OH-SB-2/S-2A	OH-SB-2/S-2B
Sampling Date	Level (a)	11/17/89	11/17/89	11/19/89	11/19/89	10/28/89	10/30/89	10/30/89
Depth in Feet		58.5 to 60.5	68.5 to 70.5	18.5 to 20.5	69 to 70.5	18 to 19.5	8 to 10	8 to 10
Unsat/Sat		Unsat	Sat	Unsat	Sat	Unsat	Unsat	Unsat
								Dup of OH-SB-2/S-2A
Conventionals								
pH		8.6	8.9	9.1	8.8	8.6	8.7	8.7
Total Metals in mg/kg								
Arsenic	0.0341/0.0017	$\boxed{4.6}$	$\boxed{3.6}$	$\boxed{4.4}$	$\boxed{2.7}$	$\boxed{7.3}$	$\boxed{6.6}$	$\boxed{5.8}$
Cadmium	0.7/0.0349	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chromium	2000/100	39	40	31	29	31	34	24
Lead	250/250	10 U	10 U	10 U	10 U	10 U	33	34
EpTox Metals in mg/L								
Arsenic		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cadmium		0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Chromium		0.03	0.02 U	0.02	0.02 U	0.02 U	0.02 U	0.02 U
Lead		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Volatiles in ug/kg								
1,1,1-Trichloroethane	1610/85	50 U	50 UJ	50 U	50 U	50 U	1300	500 U
1,1-Dichloroethane	8730/543	50 U	50 UJ	50 U	50 U	50 U	530	500 U
2-Butanone (MEK)	20000/1400	500 U	500 UJ	500 U	500 U	500 U	500 U	5000 U
Benzene	5/0.3	50 U	50 UJ	50 U	50 U	50 U	50 U	500 U
Chloroform	38/2	50 U	50 UJ	50 U	50 U	50 U	50 U	500 U
Ethylbenzene	5990/341	50 U	50 UJ	50 U	50 U	50 U	390	500 U
Toluene	4650/273	50 U	50 UJ	50 U	50 U	50 U	1600	1600
Total Xylenes	14500/827	50 U	50 UJ	50 U	50 U	50 U	3700	4200
Total Organic Halides in mg/kg								
Total Organic Halides		4 U	4 U	4 U	4 U	4 U	14 J	4 U
TPH (EPA 418.1) in mg/kg								
Total Petroleum Hydrocarbons	2000	14	$\boxed{6,600}$	47	52	5	$\boxed{34,000}$	$\boxed{11,000}$

Table 5-1 - Analytical Results for Soil Samples from the 1989 Oil House Tank Area Borings

Sample ID	Screening	OH-SB-2/S-4	OH-SB-2/S-8	OH-SB-3/S-4	OH-SB-3/S-5
Sampling Date	Level (a)	10/30/89	10/30/89	10/29/89	10/29/89
Depth in Feet		18.5 to 20.5	58 to 60	18 to 20	23 to 25
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Conventionals					
pH		8.7	9.1	9.3	9
Total Metals in mg/kg					
Arsenic	0.0341/0.0017	$\boxed{4.8}$	$\boxed{6.5}$	$\boxed{11}$	$\boxed{11}$
Cadmium	0.7/0.0349	1 U	1 U	1 U	1 U
Chromium	2000/100	36	31	36	27
Lead	250/250	21	27	10	11
EpTox Metals in mg/L					
Arsenic		0.006	0.005 U	0.005 U	0.005 U
Cadmium		0.01 U	0.01 U	0.01 U	0.01 U
Chromium		0.02	0.03 U	0.02 U	0.02 U
Lead		0.1 U	0.1 U	0.1 U	0.1 U
Volatiles in ug/kg					
1,1,1-Trichloroethane	1610/85	$\boxed{2100}$	50 U	50 U	50 U
1,1-Dichloroethane	8730/543	690	50 U	50 U	50 U
2-Butanone (MEK)	20000/1400	500 U	500 U	500 U	500 U
Benzene	5/0.3	$\boxed{130}$	50 U	50 U	50 U
Chloroform	38/2	$\boxed{650}$	50 U	50 U	50 U
Ethylbenzene	5990/341	1100	50 U	50 U	50 U
Toluene	4650/273	$\boxed{8000}$	50 U	50 U	50 U
Total Xylenes	14500/827	12000	50 U	50 U	50 U
Total Organic Halides in mg/kg					
Total Organic Halides		4 U	4 U	4 U	4 U
TPH (EPA 418.1) in mg/kg					
Total Petroleum Hydrocarbons	2000	$\boxed{16,000}$	$\boxed{4,000}$	180	64

U = Not detected at reporting limit indicated. J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 5-2 - Analytical Results for the Oil House Tank Excavation Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	OTP (d) 10/05/90	OH-B2 10/10/90	OH-B2 10/18/90	OH-E2 10/10/90	OH-N2 10/10/90	OH-S2 10/10/90	OH-W2 10/10/90
PCBs in ug/kg								
Aroclor 1016		33 U						
Aroclor 1221		33 U						
Aroclor 1232		33 U						
Aroclor 1242		33 U						
Aroclor 1248		320						
Aroclor 1254		220						
Aroclor 1260		110						
Total PCBs	270	650						
Semivolatiles in ug/kg								
1,2,4-Trichlorobenzene				170 U				
1,2-Dichlorobenzene				170 U				
1,3-Dichlorobenzene				170 U				
1,4-Dichlorobenzene				170 U				
2,4,5-Trichlorophenol				850 U				
2,4,6-Trichlorophenol				170 U				
2,4-Dichlorophenol				170 U				
2,4-Dimethylphenol				170 U				
2,4-Dinitrophenol				850 U				
2,4-Dinitrotoluene				170 U				
2,6-Dinitrotoluene				170 U				
2-Chloronaphthalene				170 U				
2-Chlorophenol				170 U				
2-Methylnaphthalene	2190			170 U				
2-Methylphenol				170 U				
2-Nitroaniline				850 U				
2-Nitrophenol				170 U				
3,3'-Dichlorobenzidine				340 U				
3-Nitroaniline				850 U				
4,6-Dinitro-2-methyphenol				850 U				
4-Bromophenyl-Phenylether				170 U				
4-Chloro-3-methylphenol				170 U				
4-Chloroaniline				170 U				
4-Chlorophenyl-phenylether				170 U				
4-Methylphenol				170 U				
4-Nitroaniline				850 U				
4-Nitrophenol				850 U				
Acenaphthene	98000			170 U				
Acenaphthylene				170 U				
Aniline				170 U				
Anthracene	2200000			170 U				
Benzidine				1700 U				
Benzo(a)anthracene	See BaP (c)			120 J				
Benzo(a)pyrene	233			94 J				
Benzo(b)fluoranthene	See BaP (c)			150 J				
Benzo(g,h,i)perylene				170 U				
Benzo(k)fluoranthene	See BaP (c)			170 U				
Benzoic Acid				850 U				

Table 5-2 - Analytical Results for the Oil House Tank Excavation Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	OTP (d) 10/05/90	OH-B2 10/10/90	OH-B2 10/18/90	OH-E2 10/10/90	OH-N2 10/10/90	OH-S2 10/10/90	OH-W2 10/10/90
Benzyl Alcohol				170 U				
Bis(2-Chloroethoxy)Methane				170 U				
Bis(2-Chloroethyl)Ether				170 U				
Bis(2-Ethylhexyl)Phthalate	13000			170 U				
Bis(2-chloroisopropyl) Ether				170 U				
Butylbenzylphthalate				170 U				
Chrysene	See BaP (c)			130 J				
Di-N-Butylphthalate	57000			1300 U				
Di-n-octyl Phthalate				170 U				
Dibenz(a,h)anthracene	See BaP (c)			170 U				
Dibenzofuran	5090			170 U				
Diethylphthalate				170 U				
Dimethyl Phthalate				170 U				
Fluoranthene	630000			130 J				
Fluorene	100000			170 U				
Hexachlorobenzene				170 U				
Hexachlorobutadiene				170 U				
Hexachlorocyclopentadiene				170 U				
Hexachloroethane				170 U				
Indeno(1,2,3-cd)pyrene	See BaP (c)			170 U				
Isophorone				170 U				
N-Nitroso-di-n-propylamine				170 U				
N-Nitrosodimethylamine				170 U				
N-Nitrosodiphenylamine	536			170 U				
Naphthalene	4490			170 U				
Nitrobenzene				170 U				
Pentachlorophenol				850 U				
Phenanthrene				170 U				
Phenol	22000			170 U				
Pyrene	660000			130 J				
TEQ Equivalent (b)	See BaP (c)			122.3 J				
Volatiles in ug/kg								
1,1,1-Trichloroethane	1610	50 U		50 U				
1,1,2,2-Tetrachloroethane		50 U		50 U				
1,1,2-Trichloroethane		50 U		50 U				
1,1-Dichloroethane	8730	50 U		50 U				
1,1-Dichloroethene		50 U		50 U				
1,2-Dichloroethane		50 U		50 U				
1,2-Dichloroethene (Total)		50 U		50 U				
1,2-Dichloropropane		50 U		50 U				
2-Butanone (MEK)	20000	500 U		1000 U				
2-Hexanone		500 U		500 U				
4-Methyl-2-Pentanone		500 U		500 U				
Acetone	3210	1000 U		1000 U				
Benzene	5	50 U		50 U				
Bromodichloromethane		50 U		50 U				
Bromoform		250 U		300 U				
Bromomethane	52	500 U		500 U				

Table 5-2 - Analytical Results for the Oil House Tank Excavation Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	OTP (d) 10/05/90	OH-B2 10/10/90	OH-B2 10/18/90	OH-E2 10/10/90	OH-N2 10/10/90	OH-S2 10/10/90	OH-W2 10/10/90
Carbon Disulfide	5600	50 U		50 U				
Carbon Tetrachloride		50 U		50 U				
Chlorobenzene		50 U		50 U				
Chloroethane		50 U		50 U				
Chloroform	38	50 U		50 U				
Chloromethane	22	500 U		500 U				
Cis-1,3-Dichloropropene		50 U		50 U				
Dibromochloromethane		50 U		50 U				
Ethylbenzene	5990	50 U		50 U				
Methylene Chloride	22	250 U		300 U				
Styrene	33	50 U		50 U				
Tetrachloroethene	0.9	50 U		50 U				
Toluene	4650	50 U		100 U				
Total Xylenes	14500	50 U		50 U				
Trans-1,3-Dichloropropene		50 U		50 U				
Trichloroethene (TCE)		50 U		50 U				
Vinyl Acetate		500 U		500 U				
Vinyl Chloride		50 U		50 U				
TPH (EPA 418.1) in mg/kg								
Total Petroleum Hydrocarbons	2000	$\boxed{6,400}$	340		340	23	76	140

U = Not detected at reporting limit indicated. J = Estimated value.

Boxed value exceeds screening level.

Blank indicates sample not analyzed for specific analyte or no screening level established.

(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

(d) Overexcavated during removal of the Oil House Tank.

Table 5-3 - Analytical Results for the 1989 Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-1 12/01/89	OH-MW-2 12/01/89	OH-MW-3 12/01/89	OH-MW-4 12/01/89	OH-MW-5 12/01/89	OH-MW-6 12/01/89
Total Metals in ug/L							
Antimony	6	30 U	30 U	30 U	30 U	30 U	30 U
Arsenic	0.018	83	69	31	42	95	110
Beryllium	4	5 U	5 U	5 U	5 U	5 U	5 U
Cadmium	0.25	5 U	5 U	5 U	5 U	5 U	5 U
Chromium	50	10 U	10 U	10 U	10 U	10 U	10 U
Copper	3.5	20 U	20 U	20 U	20 U	20 U	20 U
Lead	0.54	3 U	3 U	3 U	3 U	3 U	3 U
Mercury	0.012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nickel	49	10 U	10 U	10 U	10 U	10 U	10 U
Selenium	5	2	5	5	2 U	2 U	5
Silver	80	10 U	10 U	10	10 U	10 U	10 U
Thallium	0.24	2 U	2 U	2 U	2 U	2 U	2 U
Zinc	32	40	20	30	20	20	20
Volatiles in ug/L							
1,1,1-Trichloroethane	200	1 U	1 U	1 U	1 UJ	1 U	1 U
1,1,2,2-Tetrachloroethane	0.17	1 U	1 U	1 U	1 UJ	1 U	1 U
1,1,2-Trichloroethane	0.59	1 U	1 U	1 U	1 UJ	1 U	1 U
1,1-Dichloroethane	1600	1 U	1 U	1 U	1 UJ	1 U	1 U
1,1-Dichloroethene		1 U	1 U	1 U	1 UJ	1 U	1 U
1,2-Dichloroethane		1 U	1 U	1 U	1 UJ	1 U	1 U
1,2-Dichloropropane	0.5	1 U	1 U	1 U	1 UJ	1 U	1 U
2-Butanone (MEK)		10 U	10 U	10 U	10 UJ	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 UJ	10 U	10 U
4-Methyl-2-Pentanone		10 U	10 U	10 U	10 UJ	10 U	10 U
Acetone	800	10 U	10 U	10 U	10 UJ	10 U	10 U
Benzene	0.8	1 U	1 U	1 U	1 UJ	2	1 U
Bromodichloromethane	0.27	1 U	1 U	1 U	1 UJ	1 U	1 U
Bromoform	4.3	5 U	5 U	5 U	5 UJ	5 U	5 U
Bromomethane	11	10 U	10 U	10 U	10 UJ	10 U	10 U
Carbon Disulfide	800	1 U	1 U	1 U	1 UJ	1 U	1 U
Carbon Tetrachloride	0.23	1 U	1 U	1 U	1 UJ	1 U	1 U
Chlorobenzene	100	1 U	1 U	1 U	1 UJ	1 U	1 U
Chloroethane		1 U	1 U	1 U	1 UJ	1 U	1 U
Chloroform	5.7	1 U	1 U	1 U	1 UJ	1 U	1 U
Chloromethane	3.4	1 U	1 U	1 U	1 UJ	1 U	1 U
Cis-1,3-Dichloropropene		1 U	1 U	1 U	1 UJ	1 U	1 U
Dibromochloromethane	0.4	10 U	10 U	10 U	10 UJ	10 U	10 U
Dichloroethylenes		1 U	1 U	1 U	1 UJ	1 U	1 U
Ethylbenzene	530	7 J	4	3	1 UJ	7	4 J
Methylene Chloride	4.6	5 U	5 U	5 U	5 UJ	5 U	5 U
Styrene	1.5	1 U	1 U	1 U	1 UJ	1 U	1 U
Tetrachloroethene	0.081	1 U	1 U	1 U	1 UJ	1 U	1 U
Toluene	640	1 U	2 J	1 U	1 UJ	1 U	1 U
Total Xylenes	1000	60 J	43	24	1 UJ	72	1 U

Table 5-3 - Analytical Results for the 1989 Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-1 12/01/89	OH-MW-2 12/01/89	OH-MW-3 12/01/89	OH-MW-4 12/01/89	OH-MW-5 12/01/89	OH-MW-6 12/01/89
Trans-1,3-Dichloropropene		1 U	1 U	1 U	1 UJ	1 U	1 U
Trichloroethene (TCE)	0.49	1 U	1 U	1 U	1 UJ	4	1 U
Vinyl Acetate		10 U	10 U	10 U	10 UJ	10 U	10 U
Vinyl Chloride	0.025	1 U	1 U	1 U	1 UJ	1 U	1 U
TPH (EPA 418.1) in mg/L							
Total Petroleum Hydrocarbons	0.5	120	32	97	190	90	330

U = Not detected at reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).

Table 5-4 - Analytical Results for Additional Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-1 5/08/90	OH-MW-1 3/10/91	OH-MW-2 5/08/90	OH-MW-2 3/09/91	OH-MW-3 5/08/90
Total Metals in ug/L						
Antimony	6	17		21		18
Arsenic	0.018	150		85		31
Beryllium	4	10 U		10 U		10 U
Cadmium	0.25	0.3 U		0.3 U		0.3 U
Chromium	50	20 U		20 U		20 U
Copper	3.5	20		20 U		20 U
Lead	0.54	5 U		5 U		5 U
Mercury	0.012	0.5 U		0.5 U		0.5 U
Nickel	49	30 U		30 U		30 U
Selenium	5	5 U		5 U		5 U
Silver	80	20 U		20 U		20 U
Thallium	0.24	5 U		5 U		5 U
Zinc	32	20 U		20 U		20 U
Dissolved Metals in ug/L						
Antimony	6		5 U		5 U	
Arsenic	0.018		47		81	
Iron	300					
Manganese	50					
PCBs in ug/L						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1242/1248						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs	0.000064					
BTEX in ug/L						
Benzene	0.8	25 U	0.5 U	10 U	0.5 U	5 U
Toluene	640	25 U	2.5 U	10 U	5 U	5 U
Ethylbenzene	530	25 U	5.4	10 U	5 U	5 U
Total Xylenes	1000	250 U	25	70	30	5 U
TPH (EPA 418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5	150	6.4	110	900	73
TPH (EPA 8015) in mg/L						
Diesel/Fuel oil	0.5		41		950	
Gasoline	0.8		12		140	
Heavy oil	0.5					
Stoddard/Mineral spirits	0.8					
Kensol	0.5					

Table 5-4 - Analytical Results for Additional Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-3 3/09/91	OH-MW-3 6/26/91	OH-MW-3 9/22/91	OH-MW-3 6/23/94	OH-MW-4 5/08/90
Total Metals in ug/L						
Antimony	6					13
Arsenic	0.018					55
Beryllium	4					10 U
Cadmium	0.25					0.3 U
Chromium	50					20 U
Copper	3.5					20 U
Lead	0.54					5 U
Mercury	0.012					0.5 U
Nickel	49					30 U
Selenium	5					5 U
Silver	80					20 U
Thallium	0.24					5 U
Zinc	32					20 U
Dissolved Metals in ug/L						
Antimony	6	5 U	11			
Arsenic	0.018	58	35			
Iron	300		4800			
Manganese	50		1200			
PCBs in ug/L						
Aroclor 1016				1 U	2 U	
Aroclor 1221				1 U	2 U	
Aroclor 1232				1 U	2 U	
Aroclor 1242				1 U		
Aroclor 1242/1248					13	
Aroclor 1248				11		
Aroclor 1254				1 U	2 U	
Aroclor 1260				1 U	2 U	
Total PCBs	0.000064			11	13	
BTEX in ug/L						
Benzene	0.8	5 UJ	1 U		25 U	1 U
Toluene	640	1.9 J	1 U		25 U	1 U
Ethylbenzene	530	5.5 J	3		25 U	1 U
Total Xylenes	1000	39 J	36		110 J	1 U
TPH (EPA 418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5	130				74
TPH (EPA 8015) in mg/L						
Diesel/Fuel oil	0.5		1 U			
Gasoline	0.8		1 U			
Heavy oil	0.5		1 J			
Stoddard/Mineral spirits	0.8		69 J			
Kensol	0.5		480 J			

Table 5-4 - Analytical Results for Additional Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-4 3/09/91	OH-MW-4 6/26/91	OH-MW-4 9/19/91	OH-MW-4D 9/19/91 Duplicate of OH-MW-4	OH-MW-4 6/28/94
Total Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Beryllium	4					
Cadmium	0.25					
Chromium	50					
Copper	3.5					
Lead	0.54					
Mercury	0.012					
Nickel	49					
Selenium	5					
Silver	80					
Thallium	0.24					
Zinc	32					
Dissolved Metals in ug/L						
Antimony	6	5 U	8			
Arsenic	0.018	34	24			
Iron	300		3300			
Manganese	50		400			
PCBs in ug/L						
Aroclor 1016				10 U	10 U	2 U
Aroclor 1221				10 U	10 U	2 U
Aroclor 1232				10 U	10 U	2 U
Aroclor 1242				10 U	10 U	
Aroclor 1242/1248						120
Aroclor 1248				130	140	
Aroclor 1254				10 U	10 U	2 U
Aroclor 1260				10 U	10 U	2 U
Total PCBs	0.000064			130	140	120
BTEX in ug/L						
Benzene	0.8	0.5 U	1 U			25 U
Toluene	640	5 U	1 U			25 U
Ethylbenzene	530	5 U	3			25 U
Total Xylenes	1000	7.8	25			34 J
TPH (EPA 418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5	330				
TPH (EPA 8015) in mg/L						
Diesel/Fuel oil	0.5	360	1 U			
Gasoline	0.8	70	1 U			
Heavy oil	0.5		1 J			
Stoddard/Mineral spirits	0.8		69 J			
Kensol	0.5		730 J			

Table 5-4 - Analytical Results for Additional Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-5 5/08/90	OH-MW-5 3/09/91	OH-MW-5 6/26/91	OH-MW-5 9/22/91	OH-MW-6 5/08/90
Total Metals in ug/L						
Antimony	6	16				5 U
Arsenic	0.018	5 U				5 U
Beryllium	4	10 U				10 U
Cadmium	0.25	0.3 U				0.3 U
Chromium	50	20 U				20 U
Copper	3.5	20 U				20 U
Lead	0.54	5 U				5 U
Mercury	0.012	0.5 U				0.5 U
Nickel	49	30 U				30 U
Selenium	5	5 U				5 U
Silver	80	20 U				20 U
Thallium	0.24	5 U				5 U
Zinc	32	20 U				20 U
Dissolved Metals in ug/L						
Antimony	6		5 UJ	7		
Arsenic	0.018		92	21		
Iron	300			7300		
Manganese	50			550		
PCBs in ug/L						
Aroclor 1016					1 U	
Aroclor 1221					1 U	
Aroclor 1232					1 U	
Aroclor 1242					1 U	
Aroclor 1242/1248						
Aroclor 1248					11	
Aroclor 1254					1 U	
Aroclor 1260					1 U	
Total PCBs	0.000064				11	
BTEX in ug/L						
Benzene	0.8	5 U	0.5 U	1 U		5 U
Toluene	640	5	5 U	1 U		5 U
Ethylbenzene	530	5	7.6	12		5 U
Total Xylenes	1000	130	93	160		45
TPH (EPA 418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5	29	370			12
TPH (EPA 8015) in mg/L						
Diesel/Fuel oil	0.5			1 U		
Gasoline	0.8			1 U		
Heavy oil	0.5			1 J		
Stoddard/Mineral spirits	0.8			380 J		
Kensol	0.5			1800 J		

Table 5-4 - Analytical Results for Additional Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-6 3/09/91	OH-MW-6 9/22/91
Total Metals in ug/L			
Antimony	6		
Arsenic	0.018		
Beryllium	4		
Cadmium	0.25		
Chromium	50		
Copper	3.5		
Lead	0.54		
Mercury	0.012		
Nickel	49		
Selenium	5		
Silver	80		
Thallium	0.24		
Zinc	32		
Dissolved Metals in ug/L			
Antimony	6	5 U	
Arsenic	0.018	67	
Iron	300		
Manganese	50		
PCBs in ug/L			
Aroclor 1016			10 U
Aroclor 1221			10 U
Aroclor 1232			10 U
Aroclor 1242			10 U
Aroclor 1242/1248			
Aroclor 1248			56
Aroclor 1254			10 U
Aroclor 1260			10 U
Total PCBs	0.000064		56
BTEX in ug/L			
Benzene	0.8	0.5 UJ	
Toluene	640	0.5 UJ	
Ethylbenzene	530	6.5 J	
Total Xylenes	1000	43 J	
TPH (EPA 418.1) in mg/L			
Total Petroleum Hydrocarbons	0.5	35	
TPH (EPA 8015) in mg/L			
Diesel/Fuel oil	0.5		
Gasoline	0.8		
Heavy oil	0.5		
Stoddard/Mineral spirits	0.8		
Kensol	0.5		

Table 5-4 - Analytical Results for Additional Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-1 5/08/90	OH-MW-2 5/08/90	OH-MW-3 5/08/90	OH-MW-3 6/23/94	OH-MW-4 5/08/90
Volatiles in ug/L						
Benzene	0.8	25 U	10 U	5 U	25 U	1 U
Toluene	640	25 U	10 U	5 U	25 U	1 U
Ethylbenzene	530	25 U	10 U	5 U	25 U	1 U
Total Xylenes	1000	250 U	70	5 U	110 J	1 U
1,1,1-Trichloroethane	200	25 U	10 U	5 U	25 U	1 U
1,1,2,2-Tetrachloroethane	0.17	25 U	10 U	5 U	25 U	1 U
1,1,2-Trichloroethane	0.59	25 U	10 U	5 U	25 U	1 U
1,1-Dichloroethane	1600	25 U	10 U	5 U	25 U	1 U
1,1-Dichloroethene		25 U	10 U	5 U	25 U	1 U
1,2-Dichloroethane		25 U	10 U	5 U	25 U	1 U
1,2-Dichloropropane	0.5	25 U	10 U	5 U	25 U	1 U
2-Butanone (MEK)		250 U	100 U	50 U	250 U	10 U
2-Hexanone		250 U	100 U	50 U	250 U	10 U
4-Methyl-2-Pentanone		250 U	100 U	50 U	250 U	10 U
Acetone	800	250 U	100 U	50 U	500 U	10 U
Bromodichloromethane	0.27	25 U	10 U	5 U	25 U	1 U
Bromoform	4.3	125 U	50 U	25 U	130 U	5 U
Bromomethane	11	250 U	100 U	50 U	250 U	10 U
Carbon Disulfide	800	25 U	10 U	5 U	25 U	1 U
Carbon Tetrachloride	0.23	25 U	10 U	5 U	25 U	1 U
Chlorobenzene	100	25 U	10 U	5 U	25 U	1 U
Chloroethane		25 U	10 U	5 U	25 U	1 U
Chloroform	5.7	25 U	10 U	5 U	25 U	1 U
Chloromethane	3.4	250 U	100 U	50 U	250 U	10 U
Cis-1,3-Dichloropropene		25 U	10 U	5 U	25 U	1 U
Dibromochloromethane	0.4	25 U	10 U	5 U	25 U	1 U
Dichloroethylenes		25 U	10 U	5 U	25 U	1 U
Methylene Chloride	4.6	125 U	50 U	25 U	130 U	5 U
Styrene	1.5	25 U	10 U	5 U	25 U	1 U
Tetrachloroethene	0.081	25 U	10 U	5 U	25 U	1 U
Trans-1,3-Dichloropropene		25 U	10 U	5 U	25 U	1 U
Trichloroethene (TCE)	0.49	25 U	10 U	5 U	25 U	1 U
Vinyl Acetate		250 U	100 U	50 U	250 U	10 U
Vinyl Chloride	0.025	25 U	10 U	5 U	25 U	1 U

Table 5-4 - Analytical Results for Additional Oil House Tank Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-4 6/28/94	OH-MW-5 5/08/90	OH-MW-6 5/08/90
Volatiles in ug/L				
Benzene	0.8	25 U	5 U	5 U
Toluene	640	25 U	5	5 U
Ethylbenzene	530	25 U	5	5 U
Total Xylenes	1000	34 J	130	45
1,1,1-Trichloroethane	200	25 U	5 U	5 U
1,1,2,2-Tetrachloroethane	0.17	25 U	5 U	5 U
1,1,2-Trichloroethane	0.59	25 U	5 U	5 U
1,1-Dichloroethane	1600	25 U	5 U	5 U
1,1-Dichloroethene		25 U	5 U	5 U
1,2-Dichloroethane		25 U	5 U	5 U
1,2-Dichloropropane	0.5	25 U	5 U	5 U
2-Butanone (MEK)		250 U	50 U	50 U
2-Hexanone		250 U	50 U	50 U
4-Methyl-2-Pentanone		250 U	50 U	50 U
Acetone	800	500 U	50 U	50 U
Bromodichloromethane	0.27	25 U	5 U	5 U
Bromoform	4.3	130 U	25 U	25 U
Bromomethane	11	250 U	50 U	50 U
Carbon Disulfide	800	25 U	5 U	5 U
Carbon Tetrachloride	0.23	25 U	5 U	5 U
Chlorobenzene	100	25 U	5 U	5 U
Chloroethane		25 U	5 U	5 U
Chloroform	5.7	25 U	5 U	5 U
Chloromethane	3.4	250 U	50 U	50 U
Cis-1,3-Dichloropropene		25 U	5 U	5 U
Dibromochloromethane	0.4	25 U	5 U	5 U
Dichloroethylenes		25 U	5 U	5 U
Methylene Chloride	4.6	130 U	25 U	25 U
Styrene	1.5	25 U	5 U	5 U
Tetrachloroethene	0.081	25 U	5 U	5 U
Trans-1,3-Dichloropropene		25 U	5 U	5 U
Trichloroethene (TCE)	0.49	25 U	5 U	5 U
Vinyl Acetate		250 U	50 U	50 U
Vinyl Chloride	0.025	25 U	5 U	5 U

U = Not detected at reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).

Table 5-5 - Analytical Results for the 500-Gallon Diesel UST Excavation Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	HC-DW 10/10/1990 8 to 10	HC-DB (b) 10/10/1990 10	HC-DB2 (b) 12/4/1990 12	HC-DB3 12/11/1990 14
TPH (EPA 418.1) in mg/kg					
Total Petroleum Hydrocarbons	2000	180	490	310	
TPH (EPA 8015 Mod) in mg/kg					
Gasoline	100				5 U
Diesel/Fuel oil	2000				5 U

U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte.
(a) Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Overexcavated during removal of the diesel UST.

Table 5-6 - Analytical Results for 20,000-Gallon Gasoline UST Excavation Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	20K-1 May 1991	G-DW May 1991	G-E May 1991	G-N1 May 1991	G-N2 May 1991	G-S1 May 1991	G-S2 May 1991
Metals in mg/kg								
Lead	250							
BTEX in ug/kg								
Benzene	5							
Ethylbenzene	5990							
Toluene	4650							
Total Xylenes	14500							
TPH (EPA 8015) in mg/kg								
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	100	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heavy oil	2000	10 U	10 U	120	21	22	8 J	24
Unknown		10 U	29	230	97	63	120	110

Table 5-6 - Analytical Results for 20,000-Gallon Gasoline UST Excavation Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	G-W May 1991	GT-B May 1991	GT-D May 1991	GT-NW May 1991	GT-SE May 1991
Metals in mg/kg						
Lead	250		11	18	10	11
BTEX in ug/kg						
Benzene	5		50 U	50 U	50 U	50 U
Ethylbenzene	5990		50 U	470	50 U	50 U
Toluene	4650		50 U	120	50 U	50 U
Total Xylenes	14500		50 U	$\boxed{22,000}$	50 U	50 U
TPH (EPA 8015) in mg/kg						
Gasoline	100	10 U	10 U	$\boxed{1,700}$	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	310	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U
Heavy oil	2000	39	10 U	10 U	10 U	15
Unknown		59	10 U	10 U	240	360

U = Not detected at reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 5-7 - Analytical Results for Soil Samples from Borings GUST-SB-1 and GUST-SB-2

Sample ID	Screening	GUST-SB1-S1	GUST-SB1-S2	GUST-SB1-S3	GUST-SB1-S4	GUST-SB1-S40	GUST-SB2-S1	GUST-SB2-S2
Sampling Date	Level (a)	8/13/2008	8/13/2008	8/13/2008	8/13/2008	8/13/2008	10/24/2008	10/24/2008
Depth in Feet		19.5 to 20	32.5 to 33	60 to 61	77 to 80	77 to 80	30 to 31	51 to 53
Unsat/Sat		Unsat	Unsat	Unsat	Sat	Sat	Unsat	Unsat
						Dup of GUST-SB1-S4		
Conventionals in %								
Moisture		6	3.4	7.1	8.9	9.4	8.5	6.8
Total Solids		93.8	96.6	94.3	92.8	92.5	95.3	95.6
NWTPH-Gx in mg/kg								
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U
NWTPH HCID in mg/kg								
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	180	220
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Kensol	2000	20 U	20 U	20 U	1400	1100	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Lead in mg/kg	250	5.85	6.5	14.8	10.4	12.5	16.7 T	11.5 T
Volatiles in ug/kg								
Benzene	5/0.3	4.3 U	4.9 U	4 U	4.3 U	4.2 U	0.2 T	0.2 T
Ethylbenzene	5990/341	4.3 U	4.9 U	4 U	4.3 U	4.2 U	4.6 U	0.38 T
m,p-Xylenes	8520/487	4.3 U	4.9 U	4 U	4.3 U	4.2 U	0.44 T	0.78 T
o-Xylene	916/53	4.3 U	4.9 U	4 U	4.3 U	4.2 U	4.6 U	0.31 T
Toluene	4650/273	4.3 U	4.9 U	4 U	4.3 U	4.2 U	0.57 T	0.76 T

Table 5-7 - Analytical Results for Soil Samples from Borings GUST-SB-1 and GUST-SB-2

Sample ID	Screening Level (a)	GUST-SB2-S3		GUST-SB2-S4		GUST-SB3	
Sampling Date		10/24/2008		10/24/2008		10/24/2008	
Depth in Feet		61 to 63		74 to 75		74 to 75	
Unsat/Sat		Unsat		Sat		Sat	
						Dup of GUST-SB2-S4	
Conventionals in %							
Moisture		8.1		7.2		7.5	
Total Solids		95		91.2		92.9	
NWTPH-Gx in mg/kg							
Gasoline	100	5	U	5	U	5	U
Mineral spirits/Stoddard	100	5	U	$\boxed{7100}$		$\boxed{2400}$	
NWTPH HCID in mg/kg							
Bunker C		50	U	50	U	50	U
Diesel/Fuel oil	2000	50	U	50	U	50	U
Gasoline	100	20	U	20	U	20	U
Heavy oil	2000	100	U	100	U	100	U
Kensol	2000	20	U	$\boxed{9000}$		$\boxed{2300}$	
Kerosene/Jet fuel	2000	20	U	20	U	20	U
Stoddard/Mineral spirits	100	20	U	20	U	20	U
Lead in mg/kg	250	13.9	T	9.8	T	6.5	T
Volatiles in ug/kg							
Benzene	5/0.3	0.39	T	110	U	330	U
Ethylbenzene	5990/341	5.1	U	110	U	330	U
m,p-Xylenes	8520/487	0.29	T	110	U	330	U
o-Xylene	916/53	5.1	U	110	U	330	U
Toluene	4650/273	0.33	T	110	U	330	U

U = Not detected at the reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.

(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 5-8 - Analytical Results for Groundwater Samples for TF-MW-3

Sample ID Sampling Date	Screening Level (a)	TF-MW-3 4/24/2008	TF-MW-3 10/20/2008
Volatiles in ug/L			
1,1,1,2-Tetrachloroethane	1.7	0.5 U	
1,1,1-Trichloroethane	200	0.5 U	
1,1,2,2-Tetrachloroethane	0.17	0.5 U	
1,1,2-Trichloroethane	0.59	0.5 U	
1,1-Dichloroethane	1600	0.5 U	
1,1-Dichloroethene		0.5 U	
1,1-Dichloropropene		0.5 U	
1,2,3-Trichlorobenzene		2 U	
1,2,3-Trichloropropane	0.0063	0.5 U	
1,2,4-Trichlorobenzene	35	2 U	
1,2,4-Trimethylbenzene	400	2 U	
1,2-Dibromo-3-Chloropropane	0.031	2 U	
1,2-Dibromoethane(EDB)		2 U	
1,2-Dichlorobenzene	420	0.5 U	
1,2-Dichloroethane(EDC)	0.38	0.5 U	
1,2-Dichloropropane	0.5	0.5 U	
1,3,5-Trimethylbenzene	400	2 U	
1,3-Dichlorobenzene	320	0.5 U	
1,3-Dichloropropane		0.5 U	
1,4-Dichlorobenzene	1.8	0.5 U	
2,2-Dichloropropane		0.5 U	
2-Butanone (MEK)		20 U	
2-Chlorotoluene		2 U	
2-Hexanone		20 U	
4-Chlorotoluene		2 U	
4-Isopropyltoluene		2 U	
4-Methyl-2-Pentanone		20 U	
Acetone	800	20 U	
Benzene	0.8	0.5 U	0.5 U
Bromobenzene		2 U	
Bromochloromethane		0.5 U	
Bromodichloromethane	0.27	0.5 U	
Bromoform	4.3	0.5 U	
Bromomethane	11	0.5 UJ	
Freon 11		0.5 U	
Freon 12	1600	0.5 U	
Carbon Disulfide	800	0.5 U	
Carbon Tetrachloride	0.23	0.5 U	
Chlorobenzene	100	0.5 U	
Chloroethane		0.5 U	
Chloroform	5.7	0.5 U	
Chloromethane	3.4	0.5 U	
Cis-1,2-Dichloroethene		0.5 U	
Cis-1,3-Dichloropropene		0.5 U	
Cumene(Isopropylbenzene)		2 U	
Dibromochloromethane	0.4	0.5 U	
Dibromomethane		0.5 U	
Ethylbenzene	530	0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	
Methylene Chloride	4.6	2 U	

Table 5-8 - Analytical Results for Groundwater Samples for TF-MW-3

Sample ID Sampling Date	Screening Level (a)	TF-MW-3 4/24/2008	TF-MW-3 10/20/2008
N-Butylbenzene		2 U	
N-Propylbenzene		2 U	
Naphthalene	160	2 U	
Sec-Butylbenzene		2 U	
Styrene	1.5	0.5 U	
Tert-Butylbenzene		2 U	
Tetrachloroethene	0.081	0.5 U	
Toluene	640	0.5 U	0.12 T
Trans-1,2-Dichloroethene		0.5 U	
Trans-1,3-Dichloropropene		0.5 U	
Trichloroethene (TCE)	0.49	0.5 U	
Vinyl Chloride	0.025	0.5 U	
m,p-Xylenes	16000	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U
p-Cymene			
NWTPH HCID in mg/L			
Gasoline	0.8	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U
Kensol	0.5	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U
Bunker C	0.5	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U
NWTPH-Gx in mg/L			
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U

U = Not detected at reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
Blank indicates sample not analyzed for specific analyte or no screening level established.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).

Table 5-9 - Analytical Results for Eight USTs Excavation Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	1-B 6/11/90	1-NW 6/11/90	1-SW 6/11/90	2-B 6/11/90	2-NW 6/11/90	2-SW 6/11/90	3-B 6/11/90	3-NW 6/11/90	3-SW 6/11/90
TPH (EPA 8015) in mg/kg										
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	14,000	10 U	14,000	69,000	2,500	2,200	3,100	10 U	330
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heavy oil	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Unknown	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Sample ID Sampling Date	Screening Level (a)	4-B 6/11/90	4-NW 6/11/90	4-SW 6/11/90	5-B 6/11/90	5-NW 6/11/90	5-SW 6/11/90	6-B 6/11/90	6-NW 6/11/90	6-SW 6/11/90
TPH (EPA 8015) in mg/kg										
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	1,400	10 U	780	2,200	10 U	7,400	2,500	1,500	27
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heavy oil	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Unknown	2000	36	10 U	83	2,400	10 U	780	1,300	680	10 U

Sample ID Sampling Date	Screening Level (a)	7-B 6/11/90	7-NW 6/11/90	7-SW 6/11/90	EW 6/11/90	GB 6/11/90	GW 6/11/90
TPH (EPA 8015) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	4,600	1,500	200	5,800	42	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Heavy oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Unknown	2000	190	10 U	15	10 U	55	10 U

Table 5-9 - Analytical Results for Eight USTs Excavation Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	2-B 6/11/90	4-B 6/11/90	7-B 6/11/90	GB 6/11/90	GW 6/11/90
Metals in mg/kg						
Antimony	5.42	3 U	3 U	3 U		
Arsenic	0.03	$\boxed{12.4}$	$\boxed{11.2}$	$\boxed{8}$		
Beryllium	63	0.5 U	0.5 U	0.5 U		
Cadmium	0.7	0.6	$\boxed{1}$	$\boxed{0.9}$		
Chromium	2000	4.6	7.5	8.3		
Copper	260	12.3	16.6	13.3		
Lead	250	6.6	14.4	14.4		
Mercury	2	0.25 U	0.25 U	0.25 U		
Nickel	130	5.1	6	5.5		
Selenium	5	1 U	1 U	1 U		
Silver	14	1 U	1 U	1 U		
Thallium	2	1 U	1 U	1 U		
Zinc	5970	22.6	33.5	27.6		
PCBs in ug/kg						
Aroclor 1016		33 U	33 U	33 U		
Aroclor 1221		33 U	33 U	33 U		
Aroclor 1232		33 U	33 U	33 U		
Aroclor 1242		33 U	33 U	33 U		
Aroclor 1248		33 U	33 U	33 U		
Aroclor 1254		33 U	33 U	33 U		
Aroclor 1260		33 U	33 U	33 U		
Total PCBs	270	33 U	33 U	33 U		
PAHs (w/o silica gel cleanup) in ug/kg						
Acenaphthene	98000	170 U	170 U	170 U		
Acenaphthylene		170 U	170 U	170 U		
Anthracene	2200000	8.3 U	8.3 U	8.3 U		
Benzo(a)anthracene	See BaP (c)	17 U	17 U	17 U		
Benzo(a)pyrene	233	17 U	17 U	17 U		
Benzo(b)fluoranthene	See BaP (c)	17 U	17 U	17 U		
Benzo(g,h,i)perylene		17 U	17 U	17 U		
Benzo(k)fluoranthene	See BaP (c)	17 U	17 U	17 U		
Chrysene	See BaP (c)	17 U	17 U	17 U		
Dibenz(a,h)anthracene	See BaP (c)	34 U	34 U	34 U		
Fluoranthene	630000	17 U	17 U	17 U		
Fluorene	100000	17 U	17 U	17 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)	17 U	17 U	17 U		
Naphthalene	4490	83 U	83 U	83 U		
Phenanthrene		8.7	12	11		
Pyrene	660000	17 U	17 U	17 U		
TEQ Equivalent (b)	See BaP (c)	17 U	17 U	17 U		
PAHs (with silica gel cleanup) in ug/kg						
Acenaphthene	98000	170 U	170 U	170 U		
Acenaphthylene		170 U	170 U	170 U		
Anthracene	2200000	8.3 U	8.3 U	8.3 U		
Benzo(a)anthracene	See BaP (c)	17 U	17 U	17 U		
Benzo(a)pyrene	233	17 U	14 J	17 U		
Benzo(b)fluoranthene	See BaP (c)	17 U	10 J	17 U		
Benzo(g,h,i)perylene		17 U	28	17 U		
Benzo(k)fluoranthene	See BaP (c)	17 U	14 J	17 U		
Chrysene	See BaP (c)	17 U	17 U	17 U		

Table 5-9 - Analytical Results for Eight USTs Excavation Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	2-B 6/11/90	4-B 6/11/90	7-B 6/11/90	GB 6/11/90	GW 6/11/90
Dibenz(a,h)anthracene	See BaP (c)	34 U	21 J	34 U		
Fluoranthene	630000	17 U	17 U	17 U		
Fluorene	100000	17 U	17 U	17 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)	17 U	26	17 U		
Naphthalene	4490	83 U	83 U	83 U		
Phenanthrene		8.3 U	11	8.3 U		
Pyrene	660000	17 U	17 U	17 U		
TEQ Equivalent (b)	See BaP (c)	17 U	21.1 J	17 U		
Volatiles in ug/kg						
1,1,1-Trichloroethane	1610	57	50 U	50 U		
1,1,2,2-Tetrachloroethane		50 U	50 U	50 U		
1,1,2-Trichloroethane		50 U	50 U	50 U		
1,1-Dichloroethane	8730	50 U	50 U	50 U		
1,1-Dichloroethene		50 U	50 U	50 U		
1,2-Dichloroethane		50 U	50 U	50 U		
1,2-Dichloroethene (Total)		50 U	50 U	50 U		
1,2-Dichloropropane		50 U	50 U	50 U		
2-Butanone (MEK)	20000	500 U	500 U	500 U		
2-Hexanone		500 U	500 U	500 U		
4-Methyl-2-Pentanone		500 U	500 U	500 U		
Acetone	3210	1000 U	1000 U	1000 U		
Bromodichloromethane		50 U	50 U	50 U		
Bromoform		250 U	250 U	250 U		
Bromomethane	52	500 U	500 U	500 U		
Carbon Disulfide	5600	50 U	50 U	50 U		
Carbon Tetrachloride		50 U	50 U	50 U		
Chlorobenzene		50 U	50 U	50 U		
Chloroethane		50 U	50 U	50 U		
Chloroform	38	50 U	50 U	50 U		
Chloromethane	22	500 U	500 U	500 U		
Cis-1,3-Dichloropropene		50 U	50 U	50 U		
Dibromochloromethane		50 U	50 U	50 U		
Methylene Chloride	22	350 U	270 U	340 U		
Styrene	33	50 U	50 U	50 U		
Tetrachloroethene	0.9	50 U	50 U	50 U		
Trans-1,3-Dichloropropene		50 U	50 U	50 U		
Trichloroethene (TCE)		50 U	50 U	50 U		
Vinyl Acetate		500 U	500 U	500 U		
Vinyl Chloride		50 U	50 U	50 U		
Benzene	5	50 U	50 U	50 U	50 U	50 U
Ethylbenzene	5990	50 U	50 U	50 U	50 U	50 U
Toluene	4650	50 U	50 U	50 U	50 U	50 U
Total Xylenes	14500	50 U	50 U	50 U	50 U	50 U

Table 5-9 - Analytical Results for Eight USTs Excavation Soil Verification Samples

Sample ID	Screening	2-B	4-B	7-B	GB	GW
Sampling Date	Level (a)	6/11/90	6/11/90	6/11/90	6/11/90	6/11/90

J = Estimated value.
U = Not detected at reporting limit indicated.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 5-10 - Analytical Results for Soil Samples from Boring OH-SB-1

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	OH-SB-1-S2 8/12/2008 21 to 22	OH-SB-1-S4 8/12/2008 36 to 37	OH-SB-1-S-40 8/12/2008 36 to 37 Dup of OH-SB-1-S4	OH-SB-1-S6 8/13/2008 61.5 to 62.5
Total Solids in %		90.7	93.5	91.9	92.2
PCBs in µg/kg					
Aroclor 1016		9.7 U	10 U	9.8 U	9.9 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		9.7 U	10 U	9.8 U	9.9 U
Aroclor 1242		9.7 U	10 U	9.8 U	9.9 U
Aroclor 1248		9.7 U	10 U	9.8 U	9.9 U
Aroclor 1254		9.7 U	10 U	9.8 U	9.9 U
Aroclor 1260		9.7 U	10 U	9.8 U	9.9 U
Total PCBs	270	20 U	20 U	20 U	20 U
Semivolatiles(SIM) in µg/kg					
2-Methylnaphthalene	2190	2.7 U	2.7 U	2.7 U	2.7 U
Acenaphthene	98000	2.7 U	2.7 U	2.7 U	2.7 U
Acenaphthylene		2.7 U	2.7 U	2.7 U	2.7 U
Anthracene	2200000	2.7 U	2.7 U	2.7 U	2.7 U
Benzo(a)anthracene	See BaP (c)	2.7 U	2.7 U	2.7 U	2.7 U
Benzo(a)pyrene	233	2.7 U	2.7 U	2.7 U	2.7 U
Benzo(b)fluoranthene	See BaP (c)	0.32 T	0.34 T	2.7 U	2.7 U
Benzo(g,h,i)perylene		2.7 U	2.7 U	2.7 U	2.7 U
Benzo(k)fluoranthene	See BaP (c)	2.7 U	2.7 U	2.7 U	2.7 U
Chrysene	See BaP (c)	0.42 T	0.4 T	2.7 U	2.7 U
Dibenz(a,h)anthracene	See BaP (c)	2.7 U	2.7 U	2.7 U	2.7 U
Dibenzofuran	5090	2.7 U	2.7 U	2.7 U	2.7 U
Fluoranthene	630000	2.7 U	2.7 U	2.7 U	2.7 U
Fluorene	100000	2.7 U	2.7 U	2.7 U	2.7 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	2.7 U	2.7 U	2.7 U	2.7 U
Naphthalene	4490	2.7 U	2.7 U	2.7 U	2.7 U
Phenanthrene		2.7 U	2.7 U	2.7 U	2.7 U
Pyrene	660000	0.41 T	0.41 T	2.7 U	2.7 U
TEQ Equivalent (b)	See BaP (c)	0.0362 J	0.038 J	2.7 U	2.7 U
Volatiles in µg/kg					
1,1,1,2-Tetrachloroethane		3.8 U	47 U	5.5 U	4.1 U
1,1,1-Trichloroethane	1610	3.8 U	47 U	5.5 U	4.1 U
1,1,2,2-Tetrachloroethane		3.8 U	47 U	5.5 U	4.1 U
1,1,2-Trichloroethane		3.8 U	47 U	5.5 U	4.1 U
1,1-Dichloroethane	8730	3.8 U	47 U	5.5 U	4.1 U
1,1-Dichloroethene		3.8 U	47 U	5.5 U	4.1 U
1,1-Dichloropropene		3.8 U	47 U	5.5 U	4.1 U
1,2,3-Trichlorobenzene		16 U	190 U	22 U	17 U
1,2,3-Trichloropropane		3.8 U	47 U	5.5 U	4.1 U
1,2,4-Trichlorobenzene		16 U	190 U	22 U	17 U
1,2,4-Trimethylbenzene	31000	0.27 T	190 U	0.25 T	0.29 JT

Table 5-10 - Analytical Results for Soil Samples from Boring OH-SB-1

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	OH-SB-1-S2 8/12/2008 21 to 22	OH-SB-1-S4 8/12/2008 36 to 37	OH-SB-1-S-40 8/12/2008 36 to 37 Dup of OH-SB-1-S4	OH-SB-1-S6 8/13/2008 61.5 to 62.5
1,2-Dibromo-3-Chloropropane		16 U	190 U	22 U	17 U
1,2-Dibromoethane(EDB)		16 U	190 U	22 U	17 U
1,2-Dichlorobenzene		3.8 U	47 U	5.5 U	4.1 U
1,2-Dichloroethane(EDC)		3.8 U	47 U	5.5 U	4.1 U
1,2-Dichloropropane		3.8 U	47 U	5.5 U	4.1 U
1,3,5-Trimethylbenzene	8380	0.12 T	190 U	22 U	17 U
1,3-Dichlorobenzene		3.8 U	47 U	5.5 U	4.1 U
1,3-Dichloropropane		3.8 U	47 U	5.5 U	4.1 U
1,4-Dichlorobenzene		3.8 U	47 U	5.5 U	4.1 U
2,2-Dichloropropane		3.8 U	47 U	5.5 U	4.1 U
2-Butanone (MEK)	20000	3.1 T	1900 U	5.2 T	6.6 T
2-Chlorotoluene	2400	16 U	190 U	22 U	17 U
2-Hexanone		0.71 T	1900 U	22 U	2 T
4-Chlorotoluene	4180	16 U	190 U	22 U	17 U
4-Isopropyltoluene		16 U	190 U	22 U	17 U
4-Methyl-2-Pentanone		16 U	1900 U	22 U	17 U
Acetone	3210	6.5 JT	1900 U	17 JT	41
Benzene	5	3.8 U	47 U	5.5 U	4.1 U
Bromobenzene		3.8 U	190 U	5.5 U	4.1 U
Bromochloromethane		3.8 U	47 U	5.5 U	4.1 U
Bromodichloromethane		3.8 U	47 U	5.5 U	4.1 U
Bromoform		3.8 U	47 U	5.5 U	4.1 U
Bromomethane	52	3.8 U	47 U	5.5 U	4.1 U
Freon 11		3.8 U	47 U	5.5 U	4.1 U
Freon 12		3.8 U	47 U	5.5 U	4.1 U
Carbon Disulfide	5600	1.5 T	47 U	3 T	17
Carbon Tetrachloride		3.8 U	47 U	5.5 U	4.1 U
Chlorobenzene		3.8 U	47 U	5.5 U	4.1 U
Chloroethane		3.8 U	47 U	5.5 U	4.1 U
Chloroform	38	3.8 U	47 U	5.5 U	4.1 U
Chloromethane	22	3.8 U	47 U	5.5 U	4.1 U
Cis-1,2-Dichloroethene		3.8 U	47 U	5.5 U	4.1 U
Cis-1,3-Dichloropropene		3.8 U	47 U	5.5 U	4.1 U
Dibromochloromethane		3.8 U	47 U	5.5 U	4.1 U
Dibromomethane		3.8 U	47 U	5.5 U	4.1 U
Ethylbenzene	5990	3.8 U	47 U	5.5 U	0.19 T
Hexachlorobutadiene		16 U	190 U	22 U	17 U
Isopropylbenzene(Cumene)		16 U	190 U	22 U	17 U
Methylene Chloride	22	7.6 U	190 U	11 U	8.1 U
N-Butylbenzene	19500	16 U	190 U	22 U	17 U
N-Propylbenzene	19500	16 U	190 U	22 U	17 U
Naphthalene	4490	16 U	190 U	22 U	17 U
Sec-Butylbenzene	15800	16 U	190 U	22 U	17 U

Table 5-10 - Analytical Results for Soil Samples from Boring OH-SB-1

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	OH-SB-1-S2 8/12/2008 21 to 22	OH-SB-1-S4 8/12/2008 36 to 37	OH-SB-1-S-40 8/12/2008 36 to 37 Dup of OH-SB-1-S4	OH-SB-1-S6 8/13/2008 61.5 to 62.5
Styrene	33	3.8 U	47 U	5.5 U	4.1 U
Tert-Butylbenzene	15600	16 U	190 U	22 U	17 U
Tetrachloroethene	0.9	3.8 U	47 U	5.5 U	4.1 U
Toluene	4650	3.8 U	47 U	5.5 U	4.1 U
Trans-1,2-Dichloroethene		3.8 U	47 U	5.5 U	4.1 U
Trans-1,3-Dichloropropene		3.8 U	47 U	5.5 U	4.1 U
Trichloroethene (TCE)		3.8 U	47 U	5.5 U	4.1 U
Vinyl Chloride		3.8 U	47 U	5.5 U	4.1 U
m,p-Xylenes	8520	0.23 T	47 U	5.5 U	0.26 T
o-Xylene	916	3.8 U	47 U	5.5 U	4.1 U

Table 5-10 - Analytical Results for Soil Samples from Boring OH-SB-1

Sample ID Sampling Date Sample Depth in Feet	Screening Level (a)	OH-SB-1-S1 8/12/2008 9 to 10	OH-SB-1-S2 8/12/2008 21 to 22	OH-SB-1-S3 8/12/2008 27.5 to 28	OH-SB-1-S4 8/12/2008 36 to 37	OH-SB-1-S-40 8/12/2008 36 to 37 Dup of OH-SB-1-S4	OH-SB-1-S5 8/12/2008 47 to 48	OH-SB-1-S6 8/13/2008 61.5 to 62.5
Moisture in %		5.0	6.0	4.7	6.9	6.6	7.1	7.5
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	120	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg								
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	150	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
NWTPH-Gx in mg/kg								
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 5-10 - Analytical Results for Soil Samples from Boring OH-SB-1

Sample ID	Screening	OH-SB-1-S7	OH-SB-1-S8
Sampling Date	Level (a)	8/13/2008	8/13/2008
Sample Depth in Feet		68 to 69	88 to 89
Moisture in %		9.5	12
NWTPH-HCID in mg/kg			
Gasoline	100	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U
Kensol	2000	20 U	9,000
Kerosene/Jet fuel	2000	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U
Bunker C		50 U	50 U
Heavy oil	2000	100 U	100 U
NWTPH-Dx in mg/kg			
Kensol	2000	20 U	10,000
Kerosene/Jet fuel	2000	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U
Heavy oil	2000	50 U	50 U
NWTPH-Gx in mg/kg			
Mineral spirits/Stoddard	100	5 U	5 U
Gasoline	100	5 U	5 U

U = Not detected at reporting limit indicated.
T = Value is between the MDL and MRL.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 5-11 - Analytical Results for Groundwater Samples from Well OH-MW-10

Sample ID Sampling Date	Screening Level (a)	OH-MW-10 3/10/91	OH-MW-10 6/28/91	OH-MW-10 9/19/91	OH-MW-10 10/01/97	OH-MW-10 12/18/97	OH-MW-10 2/21/98	OH-MW-10 5/06/98
Dissolved Metals in ug/L								
Antimony	6	$\boxed{6}$	$\boxed{14}$					
Arsenic	0.018	$\boxed{44}$	$\boxed{42}$					
Iron	300		$\boxed{2800}$					
Manganese	50		$\boxed{430}$					
PCBs in ug/L								
Aroclor 1016				1000 U				
Aroclor 1221				1000 U				
Aroclor 1232				1000 U				
Aroclor 1242				1000 U				
Aroclor 1248				1000 U				
Aroclor 1254				1000 U				
Aroclor 1260				1000 U				
Total PCBs	0.000064			1000 U				
TPH (418.1) in mg/L								
Total Petroleum Hydrocarbons	0.5	3						
TPH-HCID in mg/L								
Gasoline	0.8		1 U		0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8		$\boxed{24}$		$\boxed{15}$	$\boxed{3.6}$	$\boxed{6.9}$	$\boxed{0.35}$ J
Diesel/Fuel oil	0.5		1 U		0.8 U	0.8 U	0.8 U	0.8 U
Kensol	0.5		$\boxed{93}$		$\boxed{93}$	$\boxed{27}$	$\boxed{47}$	$\boxed{0.58}$
Kerosene/Jet fuel	0.5				0.4 U	0.4 U	0.2 U	0.2 U
Bunker C	0.5				2 U	2 U	2 U	2 U
Heavy oil	0.5		1 U		2 U	2 U	2.9	2 U
TPH-Dx in mg/L								
Kerosene/Jet fuel	0.5							
Diesel/Fuel oil	0.5							
Heavy oil	0.5							
TPH-Gx in mg/L								
Mineral spirits/Stoddard	0.8							
Gasoline	0.8							

Table 5-11 - Analytical Results for Groundwater Samples from Well OH-MW-10

Sample ID Sampling Date	Screening Level (a)	OH-MW-10 9/21/98	OH-MW-10 12/17/98	OH-MW-10 4/22/2008	OH-MW-10 10/22/2008
Dissolved Metals in ug/L					
Antimony	6			0.169	0.159
Arsenic	0.018			$\boxed{4.74}$	$\boxed{10.7}$
Iron	300			102	$\boxed{775}$
Manganese	50			49.5	$\boxed{195}$
PCBs in ug/L					
Aroclor 1016				0.007 U	0.023 UJC
Aroclor 1221				0.051 U	0.36 UJC
Aroclor 1232				0.016 U	1.8 UJC
Aroclor 1242				0.006 U	0.061 UJC
Aroclor 1248				0.014 U	0.027 UJC
Aroclor 1254				0.012 U	0.041 UJC
Aroclor 1260				0.005 U	0.009 UJC
Total PCBs	0.000064			0.051 U	1.8 UJC
TPH (418.1) in mg/L					
Total Petroleum Hydrocarbons	0.5				
TPH-HCID in mg/L					
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	$\boxed{27}$	$\boxed{8.8}$	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.8 U	0.8 U	0.5 U	0.5 U
Kensol	0.5	$\boxed{250}$	$\boxed{77}$	$\boxed{6.8}$	$\boxed{110}$
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Bunker C	0.5	2 U	2 U	0.5 U	0.5 U
Heavy oil	0.5	9.7	2 U	0.5 U	0.5 U
TPH-Dx in mg/L					
Kerosene/Jet fuel	0.5			0.2 U	0.2 U
Diesel/Fuel oil	0.5			0.2 U	0.2 U
Heavy oil	0.5			0.5 U	0.5 U
TPH-Gx in mg/L					
Mineral spirits/Stoddard	0.8				0.1 U
Gasoline	0.8				0.1 U

Table 5-11 - Analytical Results for Groundwater Samples from Well OH-MW-10

Sample ID Sampling Date	Screening Level (a)	OH-MW-10 3/10/91	OH-MW-10 6/28/91	OH-MW-10 4/22/2008	OH-MW-10 10/22/2008
Semivolatiles in ug/L					
2,2'-Oxybis(2-chloropropane)			100 U		
2,4,5-Trichlorophenol	800		500 U		
2,4,6-Trichlorophenol	1.4		100 U		
2,4-Dichlorophenol	24		100 U		
2,4-Dimethylphenol	160		100 U		
2,4-Dinitrophenol	32		500 U		
2,4-Dinitrotoluene	0.11		100 U		
2,6-Dinitrotoluene	16		100 U		
2-Chloronaphthalene			100 U		
2-Chlorophenol	40		100 U		
2-Methylnaphthalene			100 U	0.019 U	0.22 U
2-Methylphenol			100 U		
2-Nitroaniline			500 U		
3,3'-Dichlorobenzidine	0.021		200 U		
3-Nitroaniline			500 U		
4,6-Dinitro-2-methyphenol			500 U		
4-Bromophenyl-Phenylether			100 U		
4-Chloro-3-methylphenol			100 U		
4-Chloroaniline			100 U		
4-Chlorophenyl-phenylether			100 U		
4-Methylphenol			100 U		
4-Nitroaniline			500 U		
4-Nitrophenol			500 U		
Acenaphthene	640		100 U	0.14 U	0.22 U
Acenaphthylene			100 U	0.17 U	0.98 U
Aniline	7.7		100 U		
Anthracene	4800		100 U	0.094 U	0.22 U
Benzidine	0.000086		1000 U		
Benzo(a)anthracene	See BaP (c)		100 U	0.019 U	0.22 U
Benzo(a)pyrene	0.0028		100 U	0.019 U	0.22 U
Benzo(b)fluoranthene	See BaP (c)		100 U	0.0052 T	0.22 U
Benzo(g,h,i)perylene			100 U	0.0033 T	0.22 U
Benzo(k)fluoranthene	See BaP (c)		100 U	0.019 U	0.22 U
Benzoic Acid	64000		500 U		
Benzyl Alcohol	2400		100 U		
Bis(2-Chloroethoxy)Methane			100 U		
Bis(2-Chloroethyl)Ether	0.03		100 U		
Bis(2-Ethylhexyl)Phthalate	1.2		100 U		
Butylbenzylphthalate	1300		100 U		
Chrysene	See BaP (c)		100 U	0.019 U	0.22 U
Di-N-Butylphthalate			100 U		
Di-n-octyl Phthalate	320		100 U		
Dibenz(a,h)anthracene	See BaP (c)		100 U	0.019 U	0.22 U
Dibenzofuran	32		100 U	0.12 U	0.22 U
Diethylphthalate			100 U		
Dimethyl Phthalate	16000		100 U		
Fluoranthene	90		100 U	0.094 U	0.22 U
Fluorene	640		100 U	0.094 U	0.22 U
Hexachlorobenzene	0.00028		100 U		
Hexachlorobutadiene	0.44		100 U		

Table 5-11 - Analytical Results for Groundwater Samples from Well OH-MW-10

Sample ID Sampling Date	Screening Level (a)	OH-MW-10 3/10/91	OH-MW-10 6/28/91	OH-MW-10 4/22/2008	OH-MW-10 10/22/2008
Hexachlorocyclopentadiene	40		100 U		
Hexachloroethane	1.4		100 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)		100 U	0.0043 T	0.22 U
Isophorone	8.4		100 U		
N-Nitroso-di-n-propylamine	0.005		100 U		
N-Nitrosodimethylamine			100 U		
N-Nitrosodiphenylamine	3.3		100 U		
Naphthalene	160		100 U	0.01 T	0.22 U
Nitrobenzene	4		100 U		
o-Nitrophenol			100 U		
Pentachlorophenol	0.27		500 U		
Phenanthrene			100 U	0.094 U	0.22 U
Phenol	4800		100 U		
Pyrene	480		100 U	0.0049 T	0.22 U
TEQ Equivalent (b)	See BaP (c)		100 U	0.001 J	0.22 U
Volatiles in ug/L					
1,1,1,2-Tetrachloroethane	1.7			0.5 U	0.5 U
1,1,1-Trichloroethane	200			0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17			0.5 U	0.5 U
1,1,2-Trichloroethane	0.59			0.5 U	0.5 U
1,1-Dichloroethane	1600			0.5 U	0.5 U
1,1-Dichloroethene				0.5 U	0.5 U
1,1-Dichloropropene				0.5 U	0.5 U
1,2,3-Trichlorobenzene				2 U	2 U
1,2,3-Trichloropropane	0.0063			0.5 U	0.5 U
1,2,4-Trichlorobenzene	35			2 U	2 U
1,2,4-Trimethylbenzene	400			0.37 T	0.04 T
1,2-Dibromo-3-Chloropropane	0.031			2 U	2 UJ
1,2-Dibromoethane(EDB)				2 U	2 U
1,2-Dichlorobenzene	420		100 U	0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38			0.5 U	0.5 U
1,2-Dichloropropane	0.5			0.5 U	0.5 U
1,3,5-Trimethylbenzene	400			2 U	2 U
1,3-Dichlorobenzene	320		100 U	0.5 U	0.5 U
1,3-Dichloropropane				0.5 U	0.5 U
1,4-Dichlorobenzene	1.8		100 U	0.5 U	0.5 U
2,2-Dichloropropane				0.5 U	0.5 U
2-Butanone (MEK)				20 U	20 U
2-Chlorotoluene				2 U	2 U
2-Hexanone				20 U	20 U
4-Chlorotoluene				2 U	2 U
4-Isopropyltoluene				2 U	
4-Methyl-2-Pentanone				20 U	20 U
Acetone	800			20 U	20 U
Benzene	0.8	0.5 U	1 U	0.5 U	0.5 U
Bromobenzene				2 U	2 U
Bromochloromethane				0.5 U	0.5 U
Bromodichloromethane	0.27			0.5 U	0.5 U
Bromoform	4.3			0.5 U	0.5 UJ
Bromomethane	11			0.5 U	0.5 U
Freon 11				0.5 U	0.5 U

Table 5-11 - Analytical Results for Groundwater Samples from Well OH-MW-10

Sample ID Sampling Date	Screening Level (a)	OH-MW-10 3/10/91	OH-MW-10 6/28/91	OH-MW-10 4/22/2008	OH-MW-10 10/22/2008
Freon 12	1600			0.5 U	0.5 U
Carbon Disulfide	800			0.5 U	0.5 U
Carbon Tetrachloride	0.23			0.5 U	0.5 U
Chlorobenzene	100			0.5 U	0.5 U
Chloroethane				0.5 U	0.5 U
Chloroform	5.7			0.5 U	0.5 U
Chloromethane	3.4			0.5 U	0.5 U
Cis-1,2-Dichloroethene				0.5 U	0.5 U
Cis-1,3-Dichloropropene				0.5 U	0.5 U
Cumene(Isopropylbenzene)				0.11 T	0.09 T
Dibromochloromethane	0.4			0.5 U	0.5 U
Dibromomethane				0.5 U	0.5 U
Ethylbenzene	530	5 U	1	0.5 U	0.5 U
Hexachlorobutadiene	0.44			2 U	2 U
Methylene Chloride	4.6			2 U	2 U
N-Butylbenzene				2 U	2 U
N-Propylbenzene				0.1 T	0.04 T
Naphthalene	160			2 U	2 U
Sec-Butylbenzene				0.23 T	0.15 T
Styrene	1.5			0.5 U	0.5 U
Tert-Butylbenzene				2 U	2 U
Tetrachloroethene	0.081			0.5 U	0.5 U
Toluene	640	5 U	1 U	1.5	0.11 T
Total Xylenes	1000	18	47		
Trans-1,2-Dichloroethene				0.5 U	0.5 U
Trans-1,3-Dichloropropene				0.5 U	0.5 U
Trichloroethene (TCE)	0.49			0.5 U	0.5 U
Trimethylbenzene Isomers			100 U		
Vinyl Chloride	0.025			0.5 U	0.5 U
m,p-Xylenes	16000			0.5 U	0.5 U
o-Xylene	16000			0.5 U	0.5 U
p-Cymene					2 U

Table 5-11 - Analytical Results for Groundwater Samples from Well OH-MW-10

Sample ID	Screening	OH-MW-10	OH-MW-10	OH-MW-10	OH-MW-10
Sampling Date	Level (a)	3/10/91	6/28/91	4/22/2008	10/22/2008

U = Not detected at reporting limit indicated.
J = Estimated value.
C = Non-detect PCB results are reported at MDL since ULL extraction method (EPA3535) could not be used.
EPA extraction method 3520C was used.
T = Value is between the MDL and MRL.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency
methodology specified in WAC 173-340-708(8).

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	OH-MW-24/S-1	OH-MW-24/S-2	OH-MW-24/S-3	OH-MW-24/S-12
Sampling Date	Level (a)	11/25/91	11/25/91	11/25/91	11/25/91
Depth in Feet		8 to 8.5	13 to 13.5	18 to 20	63 to 65
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Conventionals in mg/kg					
Total Organic Carbon					
Ammonia as N					
Total Kjeldahl Nitrogen					
Nitrate as N					
Orthophosphate					
Total Phosphorus					
PCBs (Screen) in ug/kg (b)					
Aroclor 1016		500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)					
Aroclor 1016		33 UJ	33 U		33 UJ
Aroclor 1221		33 UJ	33 U		33 UJ
Aroclor 1232		33 UJ	33 U		33 UJ
Aroclor 1242		33 UJ	33 U		33 UJ
Aroclor 1248		33 UJ	33 U		33 UJ
Aroclor 1254		33 UJ	33 U		33 UJ
Aroclor 1260		33 UJ	33 U		33 UJ
Total PCBs	270/14	33 UJ	33 U		33 UJ
TPH (EPA 418.1) in mg/kg	2000				
TPH (EPA 8015 mod) in mg/kg					
Gasoline	100	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	OH-MW-24/S-13	OH-MW-24/S-14	OH-MW-24/S-15	OH-MW-24/S-16
Sampling Date	Level (a)	11/25/91	11/25/91	11/25/91	11/25/91
Depth in Feet		68 to 70	73 to 75	78 to 80	83 to 84.5
Unsat/Sat		Sat	Sat	Sat	Sat
Conventionals in mg/kg					
Total Organic Carbon					
Ammonia as N					
Total Kjeldahl Nitrogen					
Nitrate as N					
Orthophosphate					
Total Phosphorus					
PCBs (Screen) in ug/kg (b)					
Aroclor 1016		500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U
Aroclor 1248		200 U	570	600	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	570	600	500 U
PCBs (EPA8080) in ug/kg (c)					
Aroclor 1016					33 U
Aroclor 1221					33 U
Aroclor 1232					33 U
Aroclor 1242					33 U
Aroclor 1248					33 U
Aroclor 1254					33 U
Aroclor 1260					33 U
Total PCBs	270/14				33 U
TPH (EPA 418.1) in mg/kg	2000				
TPH (EPA 8015 mod) in mg/kg					
Gasoline	100	10 U	10 U	10 U	10 U
Kensol	2000	5900	5700	4500	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U
Stoddard Solvent	100	660	650	2300	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	OH-MW-24/S-17	OH-MW-25/S-1	OH-MW-25/S-2	OH-MW-25/S-3
Sampling Date	Level (a)	11/25/91	12/03/91	12/03/91	12/03/91
Depth in Feet		88 to 90	3 to 3.5	8 to 10	13 to 14
Unsat/Sat		Sat	Unsat	Unsat	Unsat
Conventionals in mg/kg					
Total Organic Carbon					
Ammonia as N					
Total Kjeldahl Nitrogen					
Nitrate as N					
Orthophosphate					
Total Phosphorus					
PCBs (Screen) in ug/kg (b)					
Aroclor 1016		500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)					
Aroclor 1016			33 U		
Aroclor 1221			33 U		
Aroclor 1232			33 U		
Aroclor 1242			33 U		
Aroclor 1248			33 U		
Aroclor 1254			33 U		
Aroclor 1260			33 U		
Total PCBs	270/14		33 U		
TPH (EPA 418.1) in mg/kg	2000				
TPH (EPA 8015 mod) in mg/kg					
Gasoline	100	10 U	10 U	10 U	10 U
Kensol	2000	10 U	5 J	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	OH-MW-25/S-4	OH-MW-25/S-5	OH-MW-25/S-6	OH-MW-25/S-13
Sampling Date	Level (a)	12/03/91	12/03/91	12/03/91	12/03/91
Depth in Feet		18 to 20	23 to 24	28 to 30	63 to 65
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Conventionals in mg/kg					
Total Organic Carbon					
Ammonia as N					
Total Kjeldahl Nitrogen					
Nitrate as N					
Orthophosphate					
Total Phosphorus					
PCBs (Screen) in ug/kg (b)					
Aroclor 1016		500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)					
Aroclor 1016					
Aroclor 1221					
Aroclor 1232					
Aroclor 1242					
Aroclor 1248					
Aroclor 1254					
Aroclor 1260					
Total PCBs	270/14				
TPH (EPA 418.1) in mg/kg	2000				
TPH (EPA 8015 mod) in mg/kg					
Gasoline	100	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	OH-MW-25/S-14	OH-MW-25/S-15	OH-MW-25/S-16	OH-MW-25/S-17
Sampling Date	Level (a)	12/03/91	12/03/91	12/03/91	12/03/91
Depth in Feet		68 to 70	73 to 75	78 to 80	83 to 85
Unsat/Sat		Sat	Sat	Sat	Sat
Conventionals in mg/kg					
Total Organic Carbon					
Ammonia as N					
Total Kjeldahl Nitrogen					
Nitrate as N					
Orthophosphate					
Total Phosphorus					
PCBs (Screen) in ug/kg (b)					
Aroclor 1016		500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)					
Aroclor 1016			33 U		
Aroclor 1221			33 U		
Aroclor 1232			33 U		
Aroclor 1242			33 U		
Aroclor 1248			33 U		
Aroclor 1254			33 U		
Aroclor 1260			33 U		
Total PCBs	270/14		33 U		
TPH (EPA 418.1) in mg/kg	2000				
TPH (EPA 8015 mod) in mg/kg					
Gasoline	100	10 U	10 U	10 U	10 U
Kensol	2000	10 U	3300	2800	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	1500	1500	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	OH-MW-25/S-18	SA-1/S-1	SA-1/S-2	SA-1/S-3	SA-1/S-5
Sampling Date	Level (a)	12/03/91	9/17/91	9/17/91	9/17/91	9/17/91
Depth in Feet		88 to 90	10	15	20	30
Unsat/Sat		Sat	Unsat	Unsat	Unsat	Unsat
Conventionals in mg/kg						
Total Organic Carbon						
Ammonia as N						
Total Kjeldahl Nitrogen						
Nitrate as N						
Orthophosphate						
Total Phosphorus						
PCBs (Screen) in ug/kg (b)						
Aroclor 1016		500 U	250 U	250 U	250 U	500 U
Aroclor 1221		500 U	250 U	250 U	250 U	500 U
Aroclor 1232		500 U	250 U	250 U	250 U	500 U
Aroclor 1242		500 U	250 U	250 U	250 U	500 U
Aroclor 1248		200 U	2900000	2300000	670000 J	850
Aroclor 1254		200 U	100 U	100 U	100 U	200 U
Aroclor 1260		200 U	100 U	100 U	100 U	200 U
Aroclor 1262		200 U	100 U	100 U	100 U	200 U
Aroclor 1268		200 U	100 U	100 U	100 U	200 U
Total PCBs	270/14	500 U	2900000	2300000	670000 J	850
PCBs (EPA8080) in ug/kg (c)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs	270/14					
TPH (EPA 418.1) in mg/kg	2000		2700	1800	250	25 U
TPH (EPA 8015 mod) in mg/kg						
Gasoline	100	10 U				
Kensol	2000	10 U				
Kerosene/Jet fuel	2000	10 U				
Stoddard Solvent	100	10 U				
Diesel/Fuel oil	2000	10 U				
Bunker C		10 U				
Oil	2000	10 U				
Unknown		10 U				

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-1/S-6	SA-1/S-8	SA-1/S-9	SA-1/S-10	SA-1/S-11	SA-1/S-12
Sampling Date	Level (a)	9/17/91	9/17/91	9/17/91	9/17/91	9/17/91	9/17/91
Depth in Feet		35	45	50	55	60	65
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		700	690	360	160 J	110 J	540
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	$\boxed{700}$	$\boxed{690}$	$\boxed{360}$	160 J	110 J	$\boxed{540}$
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Total PCBs	270/14						
TPH (EPA 418.1) in mg/kg	2000	25 U	25 U	25 U	25 U	25 U	25 U
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100						
Kensol	2000						
Kerosene/Jet fuel	2000						
Stoddard Solvent	100						
Diesel/Fuel oil	2000						
Bunker C							
Oil	2000						
Unknown							

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-1/S-13	SA-1/S-14	SA-1/S-15	SA-2/S-1	SA-2/S-2	SA-2/S-3
Sampling Date	Level (a)	9/17/91	9/17/91	9/17/91	9/11/91	9/11/91	9/11/91
Depth in Feet		70	75	80	10	15	20
Unsat/Sat		Sat	Sat	Sat	Unsat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon			60000			3000	
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		250 U	250 U	250 U	500 U	500 U	500 U
Aroclor 1221		250 U	250 U	250 U	500 U	500 U	500 U
Aroclor 1232		250 U	250 U	250 U	500 U	500 U	500 U
Aroclor 1242		250 U	250 U	250 U	500 U	500 U	500 U
Aroclor 1248		100 U	100 U	100 U	200 U	200 U	200 U
Aroclor 1254		100 U	100 U	100 U	200 U	200 U	200 U
Aroclor 1260		100 U	100 U	100 U	200 U	200 U	200 U
Aroclor 1262		100 U	100 U	100 U	200 U	200 U	200 U
Aroclor 1268		100 U	100 U	100 U	200 U	200 U	200 U
Total PCBs	270/14	250 U	250 U	250 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016							33 U
Aroclor 1221							33 U
Aroclor 1232							33 U
Aroclor 1242							33 U
Aroclor 1248							33 U
Aroclor 1254							33 U
Aroclor 1260							33 U
Total PCBs	270/14						33 U
TPH (EPA 418.1) in mg/kg	2000	$\boxed{7400}$	$\boxed{9500}$	69			
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100						
Kensol	2000						
Kerosene/Jet fuel	2000						
Stoddard Solvent	100						
Diesel/Fuel oil	2000						
Bunker C							
Oil	2000						
Unknown							

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-2/S-4	SA-2/S-10	SA-2/S-11	SA-2/S-12	SA-3/S-1	SA-3/S-2
Sampling Date	Level (a)	9/11/91	9/11/91	9/11/91	9/11/91	11/11/91	11/11/91
Depth in Feet		25	65	70	75	10	15
Unsat/Sat		Unsat	Unsat	Sat	Sat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon		1700		2400			
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016			500 U	500 U	500 U	500 U	500 U
Aroclor 1221			500 U	500 U	500 U	500 U	500 U
Aroclor 1232			500 U	500 U	500 U	500 U	500 U
Aroclor 1242			500 U	500 U	500 U	500 U	500 U
Aroclor 1248			200 U	200 U	200 U	200 U	200 U
Aroclor 1254			200 U	200 U	200 U	200 U	200 U
Aroclor 1260			200 U	200 U	200 U	200 U	200 U
Aroclor 1262			200 U	200 U	200 U	200 U	200 U
Aroclor 1268			200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14		500 U	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Total PCBs	270/14						
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100					10 U	10 U
Kensol	2000					10 U	10 U
Kerosene/Jet fuel	2000					10 U	10 U
Stoddard Solvent	100					10 U	10 U
Diesel/Fuel oil	2000					10 U	10 U
Bunker C						10 U	10 U
Oil	2000					10 U	10 U
Unknown						10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-3/S-3	SA-3/S-4	SA-3/S-5	SA-3/S-6	SA-3/S-7	SA-3/S-12
Sampling Date	Level (a)	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91
Depth in Feet		20	25	30	35	40	65
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U		500 U
Aroclor 1221		500 U	500 U	500 U	500 U		500 U
Aroclor 1232		500 U	500 U	500 U	500 U		500 U
Aroclor 1242		500 U	500 U	500 U	500 U		500 U
Aroclor 1248		200 U	200 U	200 U	200 U		200 U
Aroclor 1254		200 U	200 U	200 U	200 U		200 U
Aroclor 1260		200 U	200 U	200 U	200 U		200 U
Aroclor 1262		200 U	200 U	200 U	200 U		200 U
Aroclor 1268		200 U	200 U	200 U	200 U		200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U		500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016						33 U	
Aroclor 1221						33 U	
Aroclor 1232						33 U	
Aroclor 1242						33 U	
Aroclor 1248						33 U	
Aroclor 1254						33 U	
Aroclor 1260						33 U	
Total PCBs	270/14					33 U	
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U		10 U
Kensol	2000	10 U	10 U	10 U	10 U		10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U		10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U		10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U		10 U
Bunker C		10 U	10 U	10 U	10 U		10 U
Oil	2000	10 U	10 U	10 U	10 U		10 U
Unknown		10 U	10 U	10 U	10 U		10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-3/S-13	SA-3/S-14	SA-3/S-15	SA-3/S-16	SA-3/S-17	SA-4/S-1
Sampling Date	Level (a)	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91	11/22/91
Depth in Feet		70	75	80	85	90	10
Unsat/Sat		Sat	Sat	Sat	Sat	Sat	Unsat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016			33 U				33 U
Aroclor 1221			33 U				33 U
Aroclor 1232			33 U				33 U
Aroclor 1242			33 U				33 U
Aroclor 1248			33 U				33 U
Aroclor 1254			33 U				33 U
Aroclor 1260			33 U				33 U
Total PCBs	270/14		33 U				33 U
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 UJ	10 U
Kensol	2000	4500	8300	3400	10 U	10 UJ	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 UJ	10 U
Stoddard Solvent	100	230	2800	1200	10 U	10 UJ	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 UJ	10 U
Bunker C		10 U	10 U	10 U	10 U	10 UJ	10 U
Oil	2000	10 U	10 U	10 U	10 U	10 UJ	10 U
Unknown		10 U	10 U	10 U	10 U	10 UJ	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-4/S-2	SA-4/S-3	SA-4/S-4	SA-4/S-5	SA-4/S-6	SA-4/S-7
Sampling Date	Level (a)	11/22/91	11/22/91	11/22/91	11/22/91	11/22/91	11/22/91
Depth in Feet		15	20	25	30	35	40
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Total PCBs	270/14						
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	70	390	1500	280	31
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-4/S-8	SA-4/S-9	SA-4/S-10	SA-4/S-11	SA-4/S-12	SA-4/S-13
Sampling Date	Level (a)	11/22/91	11/22/91	11/22/91	11/22/91	11/22/1991	11/22/91
Depth in Feet		45	50	55	60	65	70
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Sat
Conventionals in mg/kg							
Total Organic Carbon						678	
Ammonia as N						0.05	
Total Kjeldahl Nitrogen						27	
Nitrate as N						0.01 U	
Orthophosphate						0.02 UJ	
Total Phosphorus						234	
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Total PCBs	270/14						
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U	10 U	$\boxed{2700}$
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	$\boxed{730}$
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-4/S-14	SA-4/S-15	SA-4/S-16	SA-4/S-17	SA-5/S-1	SA-5/S-2
Sampling Date	Level (a)	11/22/1991	11/22/1991	11/22/91	11/22/91	11/10/91	11/10/91
Depth in Feet		75	80	85	90	10	15
Unsat/Sat		Sat	Sat	Sat	Sat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon		3533	1875				
Ammonia as N		0.14	0.34				
Total Kjeldahl Nitrogen		131	23				
Nitrate as N		0.01 U	0.01 U				
Orthophosphate		0.01 UJ	0.01 UJ				
Total Phosphorus		422	257				
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016		33 U					
Aroclor 1221		33 U					
Aroclor 1232		33 U					
Aroclor 1242		33 U					
Aroclor 1248		33 U					
Aroclor 1254		33 U					
Aroclor 1260		33 U					
Total PCBs	270/14	33 U					
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	1500	780	22	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	$\boxed{470}$	$\boxed{250}$	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-5/S-3	SA-5/S-4	SA-5/S-5	SA-5/S-6	SA-5/S-7	SA-5/S-12
Sampling Date	Level (a)	11/10/91	11/10/91	11/10/91	11/10/91	11/10/91	11/10/91
Depth in Feet		20	25	30	35	40	65
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U		500 U
Aroclor 1221		500 U	500 U	500 U	500 U		500 U
Aroclor 1232		500 U	500 U	500 U	500 U		500 U
Aroclor 1242		500 U	500 U	500 U	500 U		500 U
Aroclor 1248		200 U	200 U	200 U	200 U		200 U
Aroclor 1254		200 U	200 U	200 U	200 U		200 U
Aroclor 1260		200 U	200 U	200 U	200 U		200 U
Aroclor 1262		200 U	200 U	200 U	200 U		200 U
Aroclor 1268		200 U	200 U	200 U	200 U		200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U		500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016						33 U	
Aroclor 1221						33 U	
Aroclor 1232						33 U	
Aroclor 1242						33 U	
Aroclor 1248						33 U	
Aroclor 1254						33 U	
Aroclor 1260						33 U	
Total PCBs	270/14					33 U	
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U		10 UJ
Kensol	2000	10 U	10 U	10 U	10 U		10 UJ
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U		10 UJ
Stoddard Solvent	100	10 U	10 U	10 U	10 U		10 UJ
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U		10 UJ
Bunker C		10 U	10 U	10 U	10 U		10 UJ
Oil	2000	10 U	10 U	10 U	10 U		10 UJ
Unknown		10 U	10 U	10 U	10 U		10 UJ

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

	Screening Level (a)	SA-5/S-13	SA-5/S-14	SA-5/S-15	SA-5/S-16	SA-5/S-17	SA-6/S-1
Sample ID	Screening	SA-5/S-13	SA-5/S-14	SA-5/S-15	SA-5/S-16	SA-5/S-17	SA-6/S-1
Sampling Date	Level (a)	11/10/91	11/10/1991	11/10/91	11/10/91	11/10/91	11/09/91
Depth in Feet		70	75	80	85	90	10
Unsat/Sat		Sat	Sat	Sat	Sat	Sat	Unsat
Conventionals in mg/kg							
Total Organic Carbon			3118				
Ammonia as N			0.52				
Total Kjeldahl Nitrogen			31				
Nitrate as N			0.02				
Orthophosphate			0.01 UJ				
Total Phosphorus			303				
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U	720000
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	500 U	500 U	500 U	500 U	$\boxed{720000}$
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016			33 U				
Aroclor 1221			33 U				
Aroclor 1232			33 U				
Aroclor 1242			33 U				
Aroclor 1248			33 U				
Aroclor 1254			33 U				
Aroclor 1260			33 U				
Total PCBs	270/14		33 U				
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	$\boxed{4600}$	230	10 U	10 U	690
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	$\boxed{3900}$	$\boxed{170}$	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U	10 U	1400
Unknown		10 U	10 U	10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-6/S-2	SA-6/S-3	SA-6/S-4	SA-6/S-5	SA-6/S-6	SA-6/S-7
Sampling Date	Level (a)	11/09/91	11/09/91	11/09/91	11/09/91	11/09/91	11/09/91
Depth in Feet		15	20	25	30	35	40
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		68000	270000	710000	980	130 J	150 J
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	$\boxed{68000}$	$\boxed{270000}$	$\boxed{710000}$	$\boxed{980}$	130 J	150 J
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Total PCBs	270/14						
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	130	1000	1300	10 U	10 U	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U
Oil	2000	350	1800	$\boxed{2800}$	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-6/S-8	SA-6/S-9	SA-6/S-10	SA-6/S-11	SA-6/S-12	SA-6/S-13
Sampling Date	Level (a)	11/09/91	11/09/91	11/09/91	11/09/91	11/09/91	11/09/91
Depth in Feet		45	50	55	60	65	70
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Sat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		290	420	160 J	270	820	270
Aroclor 1254		200 U	200 U	200 U	200 U	320	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	$\boxed{290}$	$\boxed{420}$	160 J	$\boxed{270}$	$\boxed{1140}$	$\boxed{270}$
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016			33 U				
Aroclor 1221			33 U				
Aroclor 1232			33 U				
Aroclor 1242			33 U				
Aroclor 1248			190				
Aroclor 1254			33 U				
Aroclor 1260			33 U				
Total PCBs	270/14		190				
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U	$\boxed{7400}$	$\boxed{7600}$
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	$\boxed{230}$	$\boxed{1500}$
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-6/S-14	SA-6/S-15	SA-6/S-16	SA-6/S-17	SA-7/S-1	SA-7/S-2
Sampling Date	Level (a)	11/09/91	11/09/91	11/09/91	11/09/91	11/26/91	11/26/91
Depth in Feet		75	80	85	90	5	10
Unsat/Sat		Sat	Sat	Sat	Sat	Unsat	Unsat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		210	240	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	210	240	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016					33 U	33 UJ	
Aroclor 1221					33 U	33 UJ	
Aroclor 1232					33 U	33 UJ	
Aroclor 1242					33 U	33 UJ	
Aroclor 1248					33 U	33 UJ	
Aroclor 1254					33 U	33 UJ	
Aroclor 1260					33 U	33 UJ	
Total PCBs	270/14				33 U	33 UJ	
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	1600	1200	10 U	10 U	7	10
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	2500	750	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U	25	10 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-7/S-3	SA-7/S-4	SA-7/S-5	SA-7/S-6	SA-7/S-13	SA-7/S-14
Sampling Date	Level (a)	11/26/91	11/26/91	11/26/91	11/26/91	11/26/91	11/26/91
Depth in Feet		15	20	25	30	65	70
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Sat
Conventionals in mg/kg							
Total Organic Carbon							
Ammonia as N							
Total Kjeldahl Nitrogen							
Nitrate as N							
Orthophosphate							
Total Phosphorus							
PCBs (Screen) in ug/kg (b)							
Aroclor 1016		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U	500 U	500 U
Aroclor 1248		200 U	1500	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	500 U	1500	500 U	500 U	500 U	500 U
PCBs (EPA8080) in ug/kg (c)							
Aroclor 1016							33 UJ
Aroclor 1221							33 UJ
Aroclor 1232							33 UJ
Aroclor 1242							33 UJ
Aroclor 1248							120 J
Aroclor 1254							33 UJ
Aroclor 1260							33 UJ
Total PCBs	270/14						120 J
TPH (EPA 418.1) in mg/kg	2000						
TPH (EPA 8015 mod) in mg/kg							
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	10 U	15	10 U	10 U	12	3900
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard Solvent	100	10 U	10 U	10 U	10 U	10 U	410
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U	10 U	10 U

Table 5-12 - Analytical Results for Soil Samples from the Oil House Drum Storage and French Drain Area Borings

Sample ID	Screening	SA-7/S-15	SA-7/S-16	SA-7/S-17	SA-7/S-18
Sampling Date	Level (a)	11/26/91	11/26/91	11/26/91	11/26/91
Depth in Feet		75	80	85	90
Unsat/Sat		Sat	Sat	Sat	Sat
Conventionals in mg/kg					
Total Organic Carbon					
Ammonia as N					
Total Kjeldahl Nitrogen					
Nitrate as N					
Orthophosphate					
Total Phosphorus					
PCBs (Screen) in ug/kg (b)					
Aroclor 1016		500 U	500 U	500 U	500 U
Aroclor 1221		500 U	500 U	500 U	500 U
Aroclor 1232		500 U	500 U	500 U	500 U
Aroclor 1242		500 U	500 U	500 U	500 U
Aroclor 1248		200	200	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Aroclor 1262		200 U	200 U	200 U	200 U
Aroclor 1268		200 U	200 U	200 U	200 U
Total PCBs	270/14	$\boxed{200}$	$\boxed{200}$	500 U	500 U
PCBs (EPA8080) in ug/kg (c)					
Aroclor 1016					
Aroclor 1221					
Aroclor 1232					
Aroclor 1242					
Aroclor 1248					
Aroclor 1254					
Aroclor 1260					
Total PCBs	270/14				
TPH (EPA 418.1) in mg/kg	2000				
TPH (EPA 8015 mod) in mg/kg					
Gasoline	100	10 U	10 U	10 U	10 U
Kensol	2000	$\boxed{5600}$	$\boxed{2800}$	71	10 U
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U
Stoddard Solvent	100	$\boxed{2000}$	$\boxed{940}$	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U
Oil	2000	10 U	10 U	10 U	10 U
Unknown		10 U	10 U	10 U	10 U

U = Not detected at reporting limit indicated. J = Estimated value.

Boxed value exceeds screening level.

Blank indicates sample not analyzed for specific analyte or no screening level established.

(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

(b) PCB Screening by Hart Crowser FAST Laboratory.

(c) PCB Confirmation analysis by Analytical Technologies, Inc.

Table 5-13 - Analytical Results for the Oil House Drum Storage and French Drain Area Groundwater Samples from Wells OH-MW-24 and OH-MW-25

Sample ID Sampling Date	Screening Level (a)	OH-MW-24 12/05/91	OH-MW-24 5/14/92	OH-MW-24 4/24/2008	OH-MW-24 10/23/2008	OH-MW-25 12/05/91	OH-MW-25 4/24/2008	OH-MW-25 10/23/2008
Total Susp. Solids in mg/L		10 U	61			10 U		
Dissolved Metals in ug/L								
Antimony	6	11 U		0.148	0.21	16 U	0.138	0.171
Arsenic	0.018	9.7		1.84 U	6.7	5 U	2.13	2.9
Iron	300	910		240	343	240	20 U	20 U
Manganese	50	820		65.3	95.5	230	64	10.8
PCBs in ug/L								
Aroclor 1016		20 U	20 U	0.0069 U	0.053 U	0.02 U	0.0061 U	0.0049 U
Aroclor 1221		50 U	50 U	0.01 U	0.11 U	0.05 U	0.0099 U	0.025 U
Aroclor 1232		50 U	50 U	0.0094 U	0.053 U	0.05 U	0.0094 U	0.0049 U
Aroclor 1242		20 U	500	0.012 U	0.053 U	0.02 U	0.0098 U	0.0049 U
Aroclor 1248		1200	20 U	0.0079 U	2.1	0.02 U	0.0094 U	0.0049 U
Aroclor 1254		20 U	280	0.005 U	0.053 U	0.02 U	0.005 U	0.0049 U
Aroclor 1260		20 U	20 U	0.005 U	0.053 UJ	0.02 U	0.005 U	0.0049 U
Total PCBs	0.000064	1200	780	0.012 U	2.1	0.05 U	0.0099 U	0.025 U
TPH (EPA 418.1) in mg/L	0.5							
TPH (EPA 8015) in mg/L								
Gasoline	0.8							
Stoddard/Mineral spirits	0.8							
Kensol	0.5							
Diesel/Fuel oil	0.5							
Heavy oil	0.5							
TPH-HCID in mg/L								
Gasoline	0.8	0.2 U	1 U	0.2 U	0.2 U	0.1 J	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	1	2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kensol	0.5	4	22	0.2 U	17	0.2 U	0.2 U	0.32
Kerosene/Jet fuel	0.5	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	1 U	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U
Bunker C	0.5	0.2 U	1 U	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U
Heavy oil	0.5	0.2 U	1 U	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U
TPH-Dx in mg/L								
Kerosene/Jet fuel	0.5			0.2 U	0.2 U		0.2 U	0.2 U
Diesel/Fuel oil	0.5			0.2 U	0.2 U		0.2 U	0.2 U
Heavy oil	0.5			0.5 U	0.5 U		0.5 U	0.5 U
TPH-Gx in mg/L								
Mineral spirits/Stoddard	0.8			0.1 U	0.1 U		0.1 U	0.1 U
Gasoline	0.8			0.1 U	0.1 U		0.1 U	0.1 U

Table 5-13 - Analytical Results for the Oil House Drum Storage and French Drain Area Groundwater Samples from Wells OH-MW-24 and OH-MW-25

Sample ID Sampling Date	Screening Level	OH-MW-24 12/05/91	OH-MW-24 5/14/92	OH-MW-24 4/24/2008	OH-MW-24 10/23/2008
Semivolatiles in ug/L					
2,2'-Oxybis(2-chloropropane)					
2,4,5-Trichlorophenol	800				
2,4,6-Trichlorophenol	1.4				
2,4-Dichlorophenol	24				
2,4-Dimethylphenol	160				
2,4-Dinitrophenol	32				
2,4-Dinitrotoluene	0.11				
2,6-Dinitrotoluene	16				
2-Chloronaphthalene					
2-Chlorophenol	40				
2-Methylnaphthalene				0.019 U	0.044 U
2-Methylphenol					
2-Nitroaniline					
3,3'-Dichlorobenzidine	0.021				
3-Nitroaniline					
4,6-Dinitro-2-methyphenol					
4-Bromophenyl-Phenylether					
4-Chloro-3-methylphenol					
4-Chloroaniline					
4-Chlorophenyl-phenylether					
4-Methylphenol					
4-Nitroaniline					
4-Nitrophenol					
Acenaphthene	640			0.019 U	0.044 U
Acenaphthylene				0.019 U	0.044 U
Aniline	7.7				
Anthracene	4800			0.019 U	0.41 U
Benzidine	0.000086				
Benzo(a)anthracene	See BaP (c)			0.019 U	0.025 T
Benzo(a)pyrene	0.0028			0.019 U	$\boxed{0.034}$ T
Benzo(b)fluoranthene	See BaP (c)			0.0032 T	0.085
Benzo(g,h,i)perylene				0.019 U	0.05
Benzo(k)fluoranthene	See BaP (c)			0.019 U	0.024 T
Benzoic Acid	64000				
Benzyl Alcohol	2400				
Bis(2-Chloroethoxy)Methane					
Bis(2-Chloroethyl)Ether	0.03				
Bis(2-Ethylhexyl)Phthalate	1.2				
Butylbenzylphthalate	1300				
Chrysene	See BaP (c)			0.019 U	0.016 T
Di-N-Butylphthalate					
Di-n-octyl Phthalate	320				
Dibenz(a,h)anthracene	See BaP (c)			0.019 U	0.044 U
Dibenzofuran	32			0.015 T	0.044 U
Diethylphthalate					
Dimethyl Phthalate	16000				
Fluoranthene	90			0.019 U	0.083
Fluorene	640			0.024 U	0.044 U
Hexachlorobenzene	0.00028				
Hexachlorobutadiene	0.44				
Hexachlorocyclopentadiene	40				
Hexachloroethane	1.4				
Indeno(1,2,3-cd)pyrene	See BaP (c)			0.003 T	0.076

Table 5-13 - Analytical Results for the Oil House Drum Storage and French Drain Area Groundwater Samples from Wells OH-MW-24 and OH-MW-25

Sample ID Sampling Date	Screening Level	OH-MW-24 12/05/91	OH-MW-24 5/14/92	OH-MW-24 4/24/2008	OH-MW-24 10/23/2008
Isophorone	8.4				
N-Nitroso-di-n-propylamine	0.005				
N-Nitrosodimethylamine					
N-Nitrosodiphenylamine	3.3				
Naphthalene	160			0.06 U	0.044 U
Nitrobenzene	4				
o-Nitrophenol					
Pentachlorophenol	0.27				
Phenanthrene				0.019 U	0.22 U
Phenol	4800				
Pyrene	480			0.019 U	0.1
TEQ Equivalent (b)	See BaP (c)			0.00062 J	$\boxed{0.0552}$ J
Volatiles in ug/L					
Benzene	0.8	1 U	1 U	0.5 U	0.5 U
Ethylbenzene	530	13	1 U	0.5 U	0.5 U
Toluene	640	1	1 U	0.5 U	0.91
m,p-Xylenes	16000			0.5 U	0.5 U
o-Xylene	16000			0.5 U	0.5 U
Total Xylenes	1000	17	1 U		
1,1,1,2-Tetrachloroethane	1.7			0.5 U	0.5 U
1,1,1-Trichloroethane	200			0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17			0.5 U	0.5 U
1,1,2-Trichloroethane	0.59			0.5 U	0.5 U
1,1-Dichloroethane	1600			0.5 U	0.5 U
1,1-Dichloroethene				0.5 U	0.5 U
1,1-Dichloropropene				0.5 U	0.5 U
1,2,3-Trichlorobenzene				2 U	2 U
1,2,3-Trichloropropane	0.0063			0.5 U	0.5 U
1,2,4-Trichlorobenzene	35			2 U	2 U
1,2,4-Trimethylbenzene	400			2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031			2 U	2 U
1,2-Dibromoethane(EDB)				2 U	2 U
1,2-Dichlorobenzene	420			0.5 U	0.06 T
1,2-Dichloroethane(EDC)	0.38			0.5 U	0.5 U
1,2-Dichloropropane	0.5			0.5 U	0.5 U
1,3,5-Trimethylbenzene	400			2 U	2 U
1,3-Dichlorobenzene	320			0.5 U	0.5 U
1,3-Dichloropropane				0.5 U	0.5 U
1,4-Dichlorobenzene	1.8			0.5 U	0.5 U
2,2-Dichloropropane				0.5 U	0.5 U
2-Butanone (MEK)				20 U	20 U
2-Chlorotoluene				2 U	2 U
2-Hexanone				20 U	20 U
4-Chlorotoluene				2 U	2 U
4-Isopropyltoluene				2 U	
4-Methyl-2-Pentanone				20 U	20 U
Acetone	800			20 U	2.8 T
Bromobenzene				2 U	2 U
Bromochloromethane				0.5 U	0.5 U
Bromodichloromethane	0.27			0.5 U	0.5 U
Bromoform	4.3			0.5 U	0.5 U
Bromomethane	11			0.5 UJ	0.5 U
Freon 11				0.5 U	0.5 U
Freon 12	1600			0.5 U	0.5 U

Table 5-13 - Analytical Results for the Oil House Drum Storage and French Drain Area Groundwater Samples from Wells OH-MW-24 and OH-MW-25

Sample ID Sampling Date	Screening Level	OH-MW-24 12/05/91	OH-MW-24 5/14/92	OH-MW-24 4/24/2008	OH-MW-24 10/23/2008
Carbon Disulfide	800			0.5 U	0.5 U
Carbon Tetrachloride	0.23			0.5 U	0.5 U
Chlorobenzene	100			0.5 U	0.5 U
Chloroethane				0.5 U	0.5 U
Chloroform	5.7			0.5 U	0.5 U
Chloromethane	3.4			0.5 U	0.5 U
Cis-1,2-Dichloroethene				0.5 U	0.5 U
Cis-1,3-Dichloropropene				0.5 U	0.5 U
Cumene(Isopropylbenzene)				0.35 T	0.46 T
Dibromochloromethane	0.4			0.5 U	0.5 U
Dibromomethane				0.5 U	0.5 U
Hexachlorobutadiene	0.44			2 U	2 U
Methylene Chloride	4.6			2 U	2 U
N-Butylbenzene				0.06 T	2 U
N-Propylbenzene				2 U	2 U
Naphthalene	160			2 U	2 U
Sec-Butylbenzene				0.87 T	0.83 T
Styrene	1.5			0.5 U	0.5 U
Tert-Butylbenzene				0.12 T	0.12 T
Tetrachloroethene	0.081			0.5 U	0.5 U
Trans-1,2-Dichloroethene				0.5 U	0.5 U
Trans-1,3-Dichloropropene				0.5 U	0.5 U
Trichloroethene (TCE)	0.49			0.5 U	0.5 U
Trimethylbenzene Isomers					
Vinyl Chloride	0.025			0.5 U	0.5 U
p-Cymene					2 U

Table 5-13 - Analytical Results for the Oil House Drum Storage and French Drain Area Groundwater Samples from Wells OH-MW-24 and OH-MW-25

Sample ID Sampling Date	Screening Level	OH-MW-25 12/05/91	OH-MW-25 4/24/2008	OH-MW-25 10/23/2008
Semivolatiles in ug/L				
2,2'-Oxybis(2-chloropropane)				
2,4,5-Trichlorophenol	800			
2,4,6-Trichlorophenol	1.4			
2,4-Dichlorophenol	24			
2,4-Dimethylphenol	160			
2,4-Dinitrophenol	32			
2,4-Dinitrotoluene	0.11			
2,6-Dinitrotoluene	16			
2-Chloronaphthalene				
2-Chlorophenol	40			
2-Methylnaphthalene			0.019 U	0.0042 T
2-Methylphenol				
2-Nitroaniline				
3,3'-Dichlorobenzidine	0.021			
3-Nitroaniline				
4,6-Dinitro-2-methyphenol				
4-Bromophenyl-Phenylether				
4-Chloro-3-methylphenol				
4-Chloroaniline				
4-Chlorophenyl-phenylether				
4-Methylphenol				
4-Nitroaniline				
4-Nitrophenol				
Acenaphthene	640		0.019 U	0.019 U
Acenaphthylene			0.019 U	0.019 U
Aniline	7.7			
Anthracene	4800		0.0081 T	0.019 U
Benzidine	0.000086			
Benzo(a)anthracene	See BaP (c)		0.023	0.019 U
Benzo(a)pyrene	0.0028		$\boxed{0.014}$ T	0.019 U
Benzo(b)fluoranthene	See BaP (c)		0.035	0.0033 T
Benzo(g,h,i)perylene			0.023	0.019 U
Benzo(k)fluoranthene	See BaP (c)		0.011 T	0.019 U
Benzoic Acid	64000			
Benzyl Alcohol	2400			
Bis(2-Chloroethoxy)Methane				
Bis(2-Chloroethyl)Ether	0.03			
Bis(2-Ethylhexyl)Phthalate	1.2			
Butylbenzylphthalate	1300			
Chrysene	See BaP (c)		0.03	0.019 U
Di-N-Butylphthalate				
Di-n-octyl Phthalate	320			
Dibenz(a,h)anthracene	See BaP (c)		0.0039 T	0.019 U
Dibenzofuran	32		0.011 T	0.019 U
Diethylphthalate				
Dimethyl Phthalate	16000			
Fluoranthene	90		0.06	0.019 U
Fluorene	640		0.026	0.019 U
Hexachlorobenzene	0.00028			
Hexachlorobutadiene	0.44			
Hexachlorocyclopentadiene	40			
Hexachloroethane	1.4			
Indeno(1,2,3-cd)pyrene	See BaP (c)		0.023	0.019 U

Table 5-13 - Analytical Results for the Oil House Drum Storage and French Drain Area Groundwater Samples from Wells OH-MW-24 and OH-MW-25

Sample ID Sampling Date	Screening Level	OH-MW-25 12/05/91	OH-MW-25 4/24/2008	OH-MW-25 10/23/2008
Isophorone	8.4			
N-Nitroso-di-n-propylamine	0.005			
N-Nitrosodimethylamine				
N-Nitrosodiphenylamine	3.3			
Naphthalene	160		0.082 U	0.016 T
Nitrobenzene	4			
o-Nitrophenol				
Pentachlorophenol	0.27			
Phenanthrene			0.022 U	0.019 U
Phenol	4800			
Pyrene	480		0.073	0.008 T
TEQ Equivalent (b)	See BaP (c)		$\boxed{0.0239}$ J	0.00033 J
Volatiles in ug/L				
Benzene	0.8	1 U	0.5 U	0.5 U
Ethylbenzene	530	1	0.06 T	0.5 U
Toluene	640	1 U	0.5 U	0.54
m,p-Xylenes	16000		0.5 U	0.5 U
o-Xylene	16000		0.5 U	0.5 U
Total Xylenes	1000	3		
1,1,1,2-Tetrachloroethane	1.7		0.5 U	0.5 U
1,1,1-Trichloroethane	200		0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17		0.5 U	0.5 U
1,1,2-Trichloroethane	0.59		0.5 U	0.5 U
1,1-Dichloroethane	1600		0.5 U	0.5 U
1,1-Dichloroethene			0.5 U	0.5 U
1,1-Dichloropropene			0.5 U	0.5 U
1,2,3-Trichlorobenzene			2 U	2 U
1,2,3-Trichloropropane	0.0063		0.5 U	0.5 U
1,2,4-Trichlorobenzene	35		2 U	2 U
1,2,4-Trimethylbenzene	400		2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031		2 U	2 U
1,2-Dibromoethane(EDB)			2 U	2 U
1,2-Dichlorobenzene	420		0.5 U	0.5 U
1,2-Dichloroethane(EDC)	0.38		0.5 U	0.5 U
1,2-Dichloropropane	0.5		0.5 U	0.5 U
1,3,5-Trimethylbenzene	400		2 U	2 U
1,3-Dichlorobenzene	320		0.5 U	0.5 U
1,3-Dichloropropane			0.5 U	0.5 U
1,4-Dichlorobenzene	1.8		0.5 U	0.5 U
2,2-Dichloropropane			0.5 U	0.5 U
2-Butanone (MEK)			20 U	20 U
2-Chlorotoluene			2 U	2 U
2-Hexanone			20 U	20 U
4-Chlorotoluene			2 U	2 U
4-Isopropyltoluene			2 U	
4-Methyl-2-Pentanone			20 U	20 U
Acetone	800		20 U	3.8 T
Bromobenzene			2 U	2 U
Bromochloromethane			0.5 U	0.5 U
Bromodichloromethane	0.27		0.5 U	0.5 U
Bromoform	4.3		0.5 U	0.5 U
Bromomethane	11		0.5 UJ	0.5 U
Freon 11			0.5 U	0.5 U
Freon 12	1600		0.5 U	0.5 U

Table 5-13 - Analytical Results for the Oil House Drum Storage and French Drain Area Groundwater Samples from Wells OH-MW-24 and OH-MW-25

Sample ID Sampling Date	Screening Level	OH-MW-25 12/05/91	OH-MW-25 4/24/2008	OH-MW-25 10/23/2008
Carbon Disulfide	800		0.5 U	0.5 U
Carbon Tetrachloride	0.23		0.5 U	0.5 U
Chlorobenzene	100		0.5 U	0.5 U
Chloroethane			0.5 U	0.5 U
Chloroform	5.7		0.5 U	0.5 U
Chloromethane	3.4		0.5 U	0.5 U
Cis-1,2-Dichloroethene			0.5 U	0.5 U
Cis-1,3-Dichloropropene			0.5 U	0.5 U
Cumene(Isopropylbenzene)			0.21 T	2 U
Dibromochloromethane	0.4		0.5 U	0.5 U
Dibromomethane			0.5 U	0.5 U
Hexachlorobutadiene	0.44		2 U	2 U
Methylene Chloride	4.6		2 U	2 U
N-Butylbenzene			0.11 T	2 U
N-Propylbenzene			0.24 T	2 U
Naphthalene	160		2 U	2 U
Sec-Butylbenzene			0.41 T	2 U
Styrene	1.5		0.5 U	0.5 U
Tert-Butylbenzene			0.1 T	2 U
Tetrachloroethene	0.081		0.5 U	0.5 U
Trans-1,2-Dichloroethene			0.5 U	0.5 U
Trans-1,3-Dichloropropene			0.5 U	0.5 U
Trichloroethene (TCE)	0.49		0.5 U	0.5 U
Trimethylbenzene Isomers				
Vinyl Chloride	0.025		0.5 U	0.5 U
p-Cymene				2 U

U = Not detected at reporting limit indicated. J = Estimated value.
T = Value is between the MDL and MRL.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 5-14 - Analytical Results for Soil Samples from the Tank Farm Kensol Spill Area

Sample ID Sampling Date	Screening Level (a)	TF#3 Bottom Composite 2/4/1991	TF#1 Sidewall 2/3/1991
Total Solids in %		95.4	95.1
TPH (418.1) in mg/kg	2000	$\boxed{12,000}$	670
Semivolatiles in ug/kg			
Phenol	22000	2100 U	
Aniline		11000 U	
Bis(2-chloroethyl)ether		2100 U	
2-Chlorophenol		2100 U	
1,3-Dichlorobenzene		2100 U	
1,4-Dichlorobenzene		2100 U	
Benzyl alcohol		2100 U	
1,2-Dichlorobenzene		2100 U	
2-Methylphenol		2100 U	
Bis(2-chloroisopropyl)ether		2100 U	
4-Methylphenol		2100 U	
N-Nitroso-di-n-propylamine		2100 U	
Hexachloroethane		4200 U	
Nitrobenzene		2100 U	
Isophorone		2100 U	
2-Nitrophenol		4200 U	
2,4-Dimethylphenol		2100 U	
Benzoic acid		52000 U	
Bis(2-chloroethoxy)methane		2100 U	
2,4-Dichlorophenol		4200 U	
1,2,4-Trichlorobenzene		2100 U	
Naphthalene	4490	2100 U	
4-Chloroaniline		2100 U	
Hexachlorobutadiene		2100 U	
4-Chloro-3-methylphenol		4200 U	
2-Methylnaphthalene	2190	2100 U	
Hexachlorocyclopentadiene		4200 U	
2,4,6-Trichlorophenol		4200 U	
2,4,5-Trichlorophenol		4200 U	
2-Chloronaphthalene		2100 U	
2-Nitroaniline		4200 U	
Dimethyl phthalate		2100 U	
Acenapthylene		2100 U	
2,6-Dinitrotoluene		4200 U	
3-Nitroaniline		10000 U	
Acenaphthene	98000	2100 U	
2,4-Dinitrophenol		21000 U	
4-Nitrophenol		21000 U	
Dibenzofuran	5090	2100 U	
2,4-Dinitrotoluene		4200 U	
Diethyl phthalate		2100 U	
4-Chlorophenyl phenylether		2100 U	

Table 5-14 - Analytical Results for Soil Samples from the Tank Farm Kensol Spill Area

Sample ID	Screening Level (a)	TF#3 Bottom Composite		TF#1 Sidewall
Sampling Date		2/4/1991		2/3/1991
Fluorene	100000	2100	U	
4-Nitroaniline		4200	U	
4,6-Dinitro-2-methylphenol		2100	U	
N-Nitrosodiphenylamine	536	2100	U	
1,2-Diphenylhydrazine		4200	U	
4-Bromophenyl phenylether		4200	U	
Hexachlorobenzene		4200	U	
Pentachlorophenol		21000	U	
Phenanthrene		2100	U	
Anthracene	2200000	2100	U	
Di-n-butyl phthalate		2100	U	
Fluoranthene	630000	2100	U	
Pyrene	660000	2100	U	
Benzidine		52000	U	
Butylbenzylphthalate		2100	U	
3,3'-Dichlorobenzidine		42000	U	
Benzo(a)anthracene	See BaP (c)	2100	U	
Chrysene	See BaP (c)	2100	U	
Bis(2-ethylhexyl)phthalate	13000	2100	U	
Di-n-octyl phthalate		2100	U	
Benzo(b)fluoranthene	See BaP (c)	2100	U	
Benzo(k)fluoranthene	See BaP (c)	2100	U	
Benzo(a)pyrene	233	2100	U	
Indeno(1,2,3-cd)pyrene	See BaP (c)	2100	U	
Dibenz(a,h)anthracene	See BaP (c)	2100	U	
Benzo(g,h,i)perylene		2100	U	
TEQ Equivalent (b)	See BaP (c)	2100	U	
Volatiles in ug/kg				
Chloromethane	22	5	U	
Bromomethane	52	5	U	
Vinyl chloride		5	U	
Chloroethane		16	U	
Methylene Chloride	22	5		
Acetone	3210	26	U	
Carbon disulfide	5600	5	U	
1,1-Dichloroethene		5	U	
1,1-Dichloroethane	8730	5	U	
Trans-1,2-Dichloroethene		5	U	
Cis-1,2-Dichloroethene		5	U	
Total 1,2-Dichloroethene		5	U	
Chloroform	38	5	U	
2-Butanone (MEK)	20000	16	U	
1,2-Dichloroethane		5	U	
1,1,1-Trichloroethane	1610	5	U	
Carbon tetrachloride		5	U	
Vinyl acetate		5	U	
Bromodichloromethane		5	U	

Table 5-14 - Analytical Results for Soil Samples from the Tank Farm Kensol Spill Area

Sample ID	Screening Level (a)	TF#3 Bottom Composite	TF#1 Sidewall
Sampling Date		2/4/1991	2/3/1991
1,2-Dichloropropane		5 U	
Trichloroethene (TCE)		5 U	
Benzene	5	5 U	
Dibromochloromethane		16 U	
1,1,2-Trichloroethane		5 U	
Bromoform		5 U	
4-Methyl-2-Pentanone		16 U	
2-Hexanone		16 U	
1,1,2,2-Tetrachloroethane		16 U	
Tetrachloroethene	0.9	5 U	
Toluene	4650	5 U	
Chlorobenzene		16 U	
Trans-1,3-Dichloropropene		16 U	
Ethylbenzene	5990	5 U	
Cis-1,3-Dichloropropene		16 U	
Styrene	33	5 U	
Total Xylenes	14500	28	

U = Not detected at reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 5-15 - Analytical Results for Soil Samples from the Tank Farm Kensol Spill Area Borings

Sample ID	Screening	TF-MW-1/S-10	TF-MW-1/S-11	TF-MW-2/S-5	TF-MW-2/S-7	TF-MW-3/S-5	TF-MW-3/S-7	TF-MW-4/S-2
Sampling Date	Level (a)	2/22/91	2/22/91	2/23/91	2/23/91	2/25/91	2/25/91	2/26/91
Depth in Feet		56	66	46	66	46	66	26
TPH (EPA 418.1) in mg/kg								
Total Petroleum Hydrocarbons	2000	$\boxed{17,200}$	$\boxed{11,700}$	120	96	45	31	280
TPH (EPA 8015 mod) in mg/kg								
Gasoline	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Kensol	2000	$\boxed{12,900}$	$\boxed{14,500}$	10 U	10 U	10 U	10 U	85
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Stoddard/Mineral spirits	100	$\boxed{230}$	$\boxed{290}$	10 U	10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heavy oil	2000	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Unknown		92	110	10 U	10 U	10 U	10 U	10 U

Sample ID	Screening	TF-MW-4/S-6	TF-MW-5/S-3	TF-MW-5/S-6
Sampling Date	Level (a)	2/26/91	2/27/91	2/27/91
Depth in Feet		66	36	66
TPH (EPA 418.1) in mg/kg				
Total Petroleum Hydrocarbons	2000	$\boxed{21,900}$	200	$\boxed{5,700}$
TPH (EPA 8015 mod) in mg/kg				
Gasoline	100	10 U	10 U	10 U
Kensol	2000	$\boxed{25,600}$	10 U	$\boxed{6,700}$
Kerosene/Jet fuel	2000	10 U	10 U	10 U
Stoddard/Mineral spirits	100	$\boxed{150}$	10 U	40
Diesel/Fuel oil	2000	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U
Heavy oil	2000	10 U	10 U	10 U
Unknown		10 U	10 U	10 U

U = Not detected at reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates no screening level available.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-8 3/10/91	OH-MW-8 6/26/91	OH-MW-8 9/19/91	OH-MW-8 10/03/91	OH-MW-8 5/13/92	OH-MW-8 4/22/2008
Conventionals in mg/L							
Nitrate + Nitrite	10				2.3		
Ortho-phosphate					0.005 U		
Total Kjeldahl Nitrogen					0.25 U		
Total Organic Carbon					23		
Total Suspended Solids				10		10 U	
Dissolved Metals in ug/L							
Antimony	6	$\boxed{9}$	$\boxed{17}$				0.151
Arsenic	0.018	5 U	5 U				$\boxed{2.99}$
Iron	300		15 U				20 U
Manganese	50		2 U				0.1
PCBs in ug/L							
Aroclor 1016				0.02 U		0.02 U	0.0049 U
Aroclor 1221				0.05 U		0.05 U	0.0098 U
Aroclor 1232				0.05 U		0.05 U	0.0049 U
Aroclor 1242				0.02 U		0.02 U	0.0049 U
Aroclor 1248				0.02 U		0.02 U	0.0049 U
Aroclor 1254				0.02 U		0.02 U	0.0049 U
Aroclor 1260				0.02 U		0.02 U	0.0049 U
Total PCBs	0.000064			0.05 U		0.05 U	0.0098 U
Semivolatiles in ug/L							
2-Methylnaphthalene							0.019 U
Acenaphthene	640						0.019 U
Acenaphthylene							0.019 U
Anthracene	4800						0.019 U
Benzo(a)anthracene	See BaP (c)						0.019 U
Benzo(a)pyrene	0.0028						0.019 U
Benzo(b)fluoranthene	See BaP (c)						0.019 U
Benzo(g,h,i)perylene							0.019 U
Benzo(k)fluoranthene	See BaP (c)						0.019 U
Chrysene	See BaP (c)						0.019 U
Dibenz(a,h)anthracene	See BaP (c)						0.019 U
Dibenzofuran	32						0.019 U
Fluoranthene	90						0.019 U
Fluorene	640						0.019 U
Indeno(1,2,3-cd)pyrene	See BaP (c)						0.019 U
Naphthalene	160						0.025
Phenanthrene							0.0066 T
Pyrene	480						0.019 U
TEQ Equivalent (b)	See BaP (c)						0.019 U
Volatiles in ug/L							
1,1,1,2-Tetrachloroethane	1.7						0.5 U
1,1,1-Trichloroethane	200						0.5 U
1,1,2,2-Tetrachloroethane	0.17						0.5 U
1,1,2-Trichloroethane	0.59						0.5 U
1,1-Dichloroethane	1600						0.5 U
1,1-Dichloroethene							0.5 U
1,1-Dichloropropene							0.5 U
1,2,3-Trichlorobenzene							2 U
1,2,3-Trichloropropane	0.0063						0.5 U
1,2,4-Trichlorobenzene	35						2 U
1,2,4-Trimethylbenzene	400						2 U
1,2-Dibromo-3-Chloropropane	0.031						2 U
1,2-Dibromoethane(EDB)							2 U
1,2-Dichlorobenzene	420						0.5 U

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-8 3/10/91	OH-MW-8 6/26/91	OH-MW-8 9/19/91	OH-MW-8 10/03/91	OH-MW-8 5/13/92	OH-MW-8 4/22/2008
1,2-Dichloroethane(EDC)	0.38						0.5 U
1,2-Dichloropropane	0.5						0.5 U
1,3,5-Trimethylbenzene	400						2 U
1,3-Dichlorobenzene	320						0.5 U
1,3-Dichloropropane							0.5 U
1,4-Dichlorobenzene	1.8						0.5 U
2,2-Dichloropropane							0.5 U
2-Butanone (MEK)							20 U
2-Chlorotoluene							2 U
2-Hexanone							20 U
4-Chlorotoluene							2 U
4-Isopropyltoluene							2 U
4-Methyl-2-Pentanone							20 U
Acetone	800						20 U
Benzene	0.8	0.5 U	1 U			1 U	0.5 U
Bromobenzene							2 U
Bromochloromethane							0.5 U
Bromodichloromethane	0.27						0.5 U
Bromoform	4.3						0.5 U
Bromomethane	11						0.5 U
Freon 11							0.5 U
Freon 12	1600						0.5 U
Carbon Disulfide	800						0.5 U
Carbon Tetrachloride	0.23						0.5 U
Chlorobenzene	100						0.5 U
Chloroethane							0.5 U
Chloroform	5.7						0.5 U
Chloromethane	3.4						0.5 U
Cis-1,2-Dichloroethene							0.5 U
Cis-1,3-Dichloropropene							0.5 U
Cumene(Isopropylbenzene)							2 U
Dibromochloromethane	0.4						0.5 U
Dibromomethane							0.5 U
Ethylbenzene	530	0.5 U	1 U			1 U	0.5 U
Hexachlorobutadiene	0.44						2 U
Methylene Chloride	4.6						2 U
N-Butylbenzene							2 U
N-Propylbenzene							2 U
Naphthalene	160						2 U
Sec-Butylbenzene							2 U
Styrene	1.5						0.5 U
Tert-Butylbenzene							2 U
Tetrachloroethene	0.081						0.5 U
Toluene	640	0.5 U	1 U			1	0.5 U
Total Xylenes	1000	0.5 U	1 U			1 U	
Trans-1,2-Dichloroethene							0.5 U
Trans-1,3-Dichloropropene							0.5 U
Trichloroethene (TCE)	0.49						0.5 U
Vinyl Chloride	0.025						0.5 U
m,p-Xylenes	16000						0.5 U
o-Xylene	16000						0.5 U
p-Cymene							
TPH (EPA 418.1) in mg/L							
Total Petroleum Hydrocarbons	0.5	1 U					
TPH (EPA 8015) in mg/L							

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-8 3/10/91	OH-MW-8 6/26/91	OH-MW-8 9/19/91	OH-MW-8 10/03/91	OH-MW-8 5/13/92	OH-MW-8 4/22/2008
Gasoline	0.8		1 U	0.1 U		1 U	
Stoddard/Mineral spirits	0.8		1 U	0.1 U		1 U	
Kensol	0.5		1 U	0.1 U		1 U	
Kerosene/Jet fuel	0.5					1 U	
Diesel/Fuel oil	0.5		1 U	0.1 U		1 U	
Bunker C	0.5					1 U	
Heavy oil	0.5		1 U	0.1 U		1 U	
NWTPH HCID in mg/L							
Gasoline	0.8						0.2 U
Stoddard/Mineral spirits	0.8						0.2 U
Kensol	0.5						0.2 U
Kerosene/Jet fuel	0.5						0.2 U
Diesel/Fuel oil	0.5						0.5 U
Bunker C	0.5						0.5 U
Heavy oil	0.5						0.5 U
NWTPH-Dx in mg/L							
Kerosene/Jet fuel	0.5						0.2 U
Diesel/Fuel oil	0.5						0.2 U
Heavy oil	0.5						0.5 U
NWTPH-Gx in mg/L							
Mineral spirits/Stoddard	0.8						
Gasoline	0.8						

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID	Screening	OH-MW-8	TF-MW-1	TF-MW-1	TF-MW-1	TF-MW-2
Sampling Date	Level (a)	10/20/2008	9/20/91	4/24/2008	10/21/2008	9/20/91
Conventionals in mg/L						
Nitrate + Nitrite	10					
Ortho-phosphate						
Total Kjeldahl Nitrogen						
Total Organic Carbon						
Total Suspended Solids			11			740
Dissolved Metals in ug/L						
Antimony	6	0.158		0.168	0.185	
Arsenic	0.018	2.9		3.31	6.6	
Iron	300	5.1 T		209	630	
Manganese	50	0.228 U		240	301	
PCBs in ug/L						
Aroclor 1016		0.005 U	20 U	0.049 U	0.018 U	20 U
Aroclor 1221		0.0099 U	50 U	0.039 U	0.016 U	50 U
Aroclor 1232		0.005 U	50 U	0.051 U	0.031 U	50 U
Aroclor 1242		0.0078 U	20 U	0.092 U	0.023 U	20 U
Aroclor 1248		0.005 U	20 U	0.043 U	0.0065 U	20 U
Aroclor 1254		0.005 U	20 U	0.02 U	0.005 U	20 U
Aroclor 1260		0.005 U	20 U	0.02 U	0.005 UJ	20 U
Total PCBs	0.000064	0.0099 U	50 U	0.092 U	0.031 UJ	50 U
Semivolatiles in ug/L						
2-Methylnaphthalene		0.0038 T		0.019 U	0.019 U	
Acenaphthene	640	0.02 U		0.38 U	0.19 U	
Acenaphthylene		0.02 U		0.38 U	0.19 U	
Anthracene	4800	0.02 U		0.38 U	0.19 U	
Benzo(a)anthracene	See BaP (c)	0.02 U		0.019 U	0.019 U	
Benzo(a)pyrene	0.0028	0.02 U		0.019 U	0.019 U	
Benzo(b)fluoranthene	See BaP (c)	0.02 U		0.0027 T	0.019 U	
Benzo(g,h,i)perylene		0.02 U		0.019 U	0.019 U	
Benzo(k)fluoranthene	See BaP (c)	0.02 U		0.019 U	0.019 U	
Chrysene	See BaP (c)	0.02 U		0.019 U	0.019 U	
Dibenz(a,h)anthracene	See BaP (c)	0.02 U		0.019 U	0.019 U	
Dibenzofuran	32	0.02 U		13 U	0.19 U	
Fluoranthene	90	0.02 U		0.38 U	0.05 T	
Fluorene	640	0.0046 T		11 U	0.19 U	
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U		0.019 U	0.019 U	
Naphthalene	160	0.041		0.019 U	0.019 U	
Phenanthrene		0.02 U		0.38 U	0.19 U	
Pyrene	480	0.02 U		0.027	0.013 T	
TEQ Equivalent (b)	See BaP (c)	0.02 U		0.00027 J	0.019 U	
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U		0.5 U	0.5 U	
1,1,1-Trichloroethane	200	0.5 U		0.5 U	0.5 U	
1,1,2,2-Tetrachloroethane	0.17	0.5 U		0.5 U	0.5 U	
1,1,2-Trichloroethane	0.59	0.5 U		0.5 U	0.5 U	
1,1-Dichloroethane	1600	0.5 U		0.5 U	0.5 U	
1,1-Dichloroethene		0.5 U		0.5 U	0.5 U	
1,1-Dichloropropene		0.5 U		0.5 U	0.5 U	
1,2,3-Trichlorobenzene		2 U		2 U	2 U	
1,2,3-Trichloropropane	0.0063	0.5 U		0.5 U	0.5 U	
1,2,4-Trichlorobenzene	35	2 U		2 U	2 U	
1,2,4-Trimethylbenzene	400	2 U		2 U	2 U	
1,2-Dibromo-3-Chloropropane	0.031	2 UJ		2 U	2 UJ	
1,2-Dibromoethane(EDB)		2 U		2 U	2 U	
1,2-Dichlorobenzene	420	0.5 U		0.5 U	0.5 U	

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-8 10/20/2008	TF-MW-1 9/20/91	TF-MW-1 4/24/2008	TF-MW-1 10/21/2008	TF-MW-2 9/20/91
1,2-Dichloroethane(EDC)	0.38	0.5 U		0.5 U	0.5 U	
1,2-Dichloropropane	0.5	0.5 U		0.5 U	0.5 U	
1,3,5-Trimethylbenzene	400	2 U		2 U	2 U	
1,3-Dichlorobenzene	320	0.5 U		0.5 U	0.5 U	
1,3-Dichloropropane		0.5 U		0.5 U	0.5 U	
1,4-Dichlorobenzene	1.8	0.5 U		0.5 U	0.5 U	
2,2-Dichloropropane		0.5 UJ		0.5 U	0.5 U	
2-Butanone (MEK)		20 U		20 U	20 U	
2-Chlorotoluene		2 U		2 U	2 U	
2-Hexanone		20 U		20 U	20 U	
4-Chlorotoluene		2 U		2 U	2 U	
4-Isopropyltoluene				2 U		
4-Methyl-2-Pentanone		20 U		20 U	20 U	
Acetone	800	20 U		20 U	20 U	
Benzene	0.8	0.5 U		0.5 U	0.5 U	
Bromobenzene		2 U		2 U	2 U	
Bromochloromethane		0.5 U		0.5 U	0.5 U	
Bromodichloromethane	0.27	0.5 U		0.5 U	0.5 U	
Bromoform	4.3	0.5 U		0.5 U	0.5 UJ	
Bromomethane	11	0.5 U		0.5 UJ	0.5 U	
Freon 11		0.5 U		0.5 U	0.5 U	
Freon 12	1600	0.5 U		0.5 U	0.5 U	
Carbon Disulfide	800	0.05 T		0.5 U	0.1 T	
Carbon Tetrachloride	0.23	0.5 U		0.5 U	0.5 U	
Chlorobenzene	100	0.5 U		0.5 U	0.5 U	
Chloroethane		0.5 U		0.5 U	0.5 U	
Chloroform	5.7	0.5 U		0.5 U	0.5 U	
Chloromethane	3.4	0.5 U		0.5 U	0.06 T	
Cis-1,2-Dichloroethene		0.5 U		0.5 U	0.5 U	
Cis-1,3-Dichloropropene		0.5 U		0.5 U	0.5 U	
Cumene(Isopropylbenzene)		2 U		2 U	2 U	
Dibromochloromethane	0.4	0.5 U		0.5 U	0.5 U	
Dibromomethane		0.5 U		0.5 U	0.5 U	
Ethylbenzene	530	0.5 U		0.5 U	0.5 U	
Hexachlorobutadiene	0.44	2 U		2 U	2 U	
Methylene Chloride	4.6	2 U		2 U	2 U	
N-Butylbenzene		2 U		2 U	2 U	
N-Propylbenzene		2 U		2 U	2 U	
Naphthalene	160	2 U		2 U	2 U	
Sec-Butylbenzene		2 U		2 U	2 U	
Styrene	1.5	0.5 U		0.5 U	0.5 U	
Tert-Butylbenzene		2 U		2 U	2 U	
Tetrachloroethene	0.081	0.5 U		0.5 U	0.5 U	
Toluene	640	0.06 T		0.5 U	0.5 U	
Total Xylenes	1000					
Trans-1,2-Dichloroethene		0.5 U		0.5 U	0.5 U	
Trans-1,3-Dichloropropene		0.5 U		0.5 U	0.5 U	
Trichloroethene (TCE)	0.49	0.5 U		0.5 U	0.5 U	
Vinyl Chloride	0.025	0.5 U		0.5 U	0.5 U	
m,p-Xylenes	16000	0.5 U		0.5 U	0.5 U	
o-Xylene	16000	0.5 U		0.5 U	0.5 U	
p-Cymene		2 U			2 U	
TPH (EPA418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5					
TPH (EPA8015) in mg/L						

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	OH-MW-8 10/20/2008	TF-MW-1 9/20/91	TF-MW-1 4/24/2008	TF-MW-1 10/21/2008	TF-MW-2 9/20/91
Gasoline	0.8		0.1 U			0.1 U
Stoddard/Mineral spirits	0.8		0.1 U			0.1 U
Kensol	0.5		0.1 U			0.1 U
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5		0.1			0.6
Bunker C	0.5					
Heavy oil	0.5		0.1 U			0.1 U
NWTPH HCID in mg/L						
Gasoline	0.8	0.2 U		0.2 U	0.2 U	
Stoddard/Mineral spirits	0.8	0.2 U		0.2 U	0.2 U	
Kensol	0.5	0.2 U		610	120	
Kerosene/Jet fuel	0.5	0.2 U		0.2 U	0.2 U	
Diesel/Fuel oil	0.5	0.5 U		0.5 U	0.5 U	
Bunker C	0.5	0.5 U		0.5 U	0.5 U	
Heavy oil	0.5	0.5 U		0.5 U	0.5 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U		0.2 U	0.2 U	
Diesel/Fuel oil	0.5	0.2 U		0.2 U	0.2 U	
Heavy oil	0.5	0.5 U		0.5 U	0.5 U	
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U		0.1 U	0.1 U	
Gasoline	0.8	0.1 U		0.1 U	0.1 U	

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID	Screening	TF-MW-2		TF-MW-2		TF-MW-3		TF-MW-3		TF-MW-3	
Sampling Date	Level (a)	4/24/2008		10/21/2008		9/20/91		4/23/2008		4/24/2008	
Conventionals in mg/L											
Nitrate + Nitrite	10										
Ortho-phosphate											
Total Kjeldahl Nitrogen											
Total Organic Carbon											
Total Suspended Solids						17					
Dissolved Metals in ug/L											
Antimony	6	0.166		0.144							
Arsenic	0.018	58.6		5.7							
Iron	300	22400		2130							
Manganese	50	2760		465							
PCBs in ug/L											
Aroclor 1016		0.042	U	0.023	UJC	20	U				
Aroclor 1221		0.3	U	0.11	UJC	50	U				
Aroclor 1232		0.036	U	0.0064	UJC	50	U				
Aroclor 1242		0.025	U	0.0075	UJC	20	U				
Aroclor 1248		0.025	U	0.0092	UJC	20	U				
Aroclor 1254		0.025	U	0.041	UJC	20	U				
Aroclor 1260		0.025	U	0.0055	UJC	20	U				
Total PCBs	0.000064	0.3	U	0.11	UJC	50	U				
Semivolatiles in ug/L											
2-Methylnaphthalene		0.02	U	0.012	T						
Acenaphthene	640	0.4	U	0.19	U						
Acenaphthylene		0.4	U	0.19	U						
Anthracene	4800	0.4	U	0.19	U						
Benzo(a)anthracene	See BaP (c)	0.02	U	0.019	U						
Benzo(a)pyrene	0.0028	0.02	U	0.0078	T						
Benzo(b)fluoranthene	See BaP (c)	0.0059	T	0.012	T						
Benzo(g,h,i)perylene		0.02	U	0.019	U						
Benzo(k)fluoranthene	See BaP (c)	0.02	U	0.013	T						
Chrysene	See BaP (c)	0.02	U	0.017	T						
Dibenz(a,h)anthracene	See BaP (c)	0.02	U	0.012	T						
Dibenzofuran	32	19	U	0.19	U						
Fluoranthene	90	0.4	U	0.19	U						
Fluorene	640	26	U	0.19	U						
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.003	T	0.019	U						
Naphthalene	160	0.02	U	0.0058	T						
Phenanthrene		0.4	U	0.19	U						
Pyrene	480	0.028		0.031							
TEQ Equivalent (b)	See BaP (c)	0.00089	J	0.01167	J						
Volatiles in ug/L											
1,1,1,2-Tetrachloroethane	1.7	0.5	U	0.5	U					0.5	U
1,1,1-Trichloroethane	200	0.5	U	0.5	U					0.5	U
1,1,2,2-Tetrachloroethane	0.17	0.5	U	0.5	U					0.5	U
1,1,2-Trichloroethane	0.59	0.5	U	0.5	U					0.5	U
1,1-Dichloroethane	1600	0.5	U	0.5	U					0.5	U
1,1-Dichloroethene		0.5	U	0.5	U					0.5	U
1,1-Dichloropropene		0.5	U	0.5	U					0.5	U
1,2,3-Trichlorobenzene		0.11	T	2	U					2	U
1,2,3-Trichloropropane	0.0063	0.5	U	0.5	U					0.5	U
1,2,4-Trichlorobenzene	35	2	U	2	U					2	U
1,2,4-Trimethylbenzene	400	2	U	2	U					2	U
1,2-Dibromo-3-Chloropropane	0.031	2	U	2	UJ					2	U
1,2-Dibromoethane(EDB)		2	U	2	U					2	U
1,2-Dichlorobenzene	420	0.5	U	0.5	U					0.5	U

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TF-MW-2 4/24/2008	TF-MW-2 10/21/2008	TF-MW-3 9/20/91	TF-MW-3 4/23/2008	TF-MW-3 4/24/2008
1,2-Dichloroethane(EDC)	0.38	0.5 U	0.5 U			0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U			0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U			2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U			0.5 U
1,3-Dichloropropane		0.5 U	0.5 U			0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U			0.5 U
2,2-Dichloropropane		0.5 U	0.5 U			0.5 U
2-Butanone (MEK)		20 U	20 U			20 U
2-Chlorotoluene		2 U	2 U			2 U
2-Hexanone		20 U	20 U			20 U
4-Chlorotoluene		2 U	2 U			2 U
4-Isopropyltoluene		2 U				2 U
4-Methyl-2-Pentanone		20 U	20 U			20 U
Acetone	800	6.5 T	20 U			20 U
Benzene	0.8	0.5 U	0.5 U			0.5 U
Bromobenzene		2 U	2 U			2 U
Bromochloromethane		0.5 U	0.5 U			0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U			0.5 U
Bromoform	4.3	0.5 U	0.5 UJ			0.5 U
Bromomethane	11	0.5 UJ	0.5 U			0.5 UJ
Freon 11		0.5 U	0.5 U			0.5 U
Freon 12	1600	0.5 U	0.5 U			0.5 U
Carbon Disulfide	800	0.09 T	0.3 T			0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U			0.5 U
Chlorobenzene	100	0.5 U	0.5 U			0.5 U
Chloroethane		0.5 U	0.5 U			0.5 U
Chloroform	5.7	0.5 U	0.05 T			0.5 U
Chloromethane	3.4	0.5 U	0.2 T			0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U			0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U			0.5 U
Cumene(Isopropylbenzene)		2 U	2 U			2 U
Dibromochloromethane	0.4	0.5 U	0.5 U			0.5 U
Dibromomethane		0.5 U	0.5 U			0.5 U
Ethylbenzene	530	0.5 U	0.5 U			0.5 U
Hexachlorobutadiene	0.44	2 U	2 U			2 U
Methylene Chloride	4.6	2 U	2 U			2 U
N-Butylbenzene		2 U	2 U			2 U
N-Propylbenzene		2 U	2 U			2 U
Naphthalene	160	2 U	2 U			2 U
Sec-Butylbenzene		2 U	2 U			2 U
Styrene	1.5	0.5 U	0.5 U			0.5 U
Tert-Butylbenzene		2 U	2 U			2 U
Tetrachloroethene	0.081	0.5 U	0.5 U			0.5 U
Toluene	640	0.5 U	0.12 T			0.5 U
Total Xylenes	1000					
Trans-1,2-Dichloroethene		0.5 U	0.5 U			0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U			0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U			0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U			0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U			0.5 U
o-Xylene	16000	0.5 U	0.5 U			0.5 U
p-Cymene			2 U			
TPH (EPA418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5					
TPH (EPA8015) in mg/L						

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TF-MW-2 4/24/2008	TF-MW-2 10/21/2008	TF-MW-3 9/20/91	TF-MW-3 4/23/2008	TF-MW-3 4/24/2008
Gasoline	0.8			0.1 U		
Stoddard/Mineral spirits	0.8			0.1 U		
Kensol	0.5			0.1 U		
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5			0.1 U		
Bunker C	0.5					
Heavy oil	0.5			0.1 U		
NWTPH HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U		0.2 U	
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U		0.2 U	
Kensol	0.5	88	78		0.2 U	
Kerosene/Jet fuel	0.5	0.2 U	0.2 U		0.2 U	
Diesel/Fuel oil	0.5	0.5 U	0.5 U		0.5 U	
Bunker C	0.5	0.5 U	0.5 U		0.5 U	
Heavy oil	0.5	0.5 U	0.5 U		0.5 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U	0.2 U			
Diesel/Fuel oil	0.5	0.2 U	0.2 U			
Heavy oil	0.5	0.5 U	0.5 U			
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U		0.1 U	
Gasoline	0.8	0.1 U	0.1 U		0.1 U	

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TF-MW-3 10/20/2008	TF-MW-4 9/22/91	TF-MW-4 4/24/2008	TF-MW-4 10/20/2008	TF-MW-5 9/20/91
Conventionals in mg/L						
Nitrate + Nitrite	10					
Ortho-phosphate						
Total Kjeldahl Nitrogen						
Total Organic Carbon						
Total Suspended Solids						28
Dissolved Metals in ug/L						
Antimony	6			0.195	0.195	
Arsenic	0.018			$\boxed{2.07}$	$\boxed{37.8}$	
Iron	300			$\boxed{971}$	$\boxed{9870}$	
Manganese	50			$\boxed{785}$	$\boxed{1180}$	
PCBs in ug/L						
Aroclor 1016			1000 U	0.033 U	0.13 UJC	20 U
Aroclor 1221			1000 U	0.94 U	0.6 UJC	50 U
Aroclor 1232			1000 U	0.025 U	0.24 UJC	50 U
Aroclor 1242			1000 U	0.045 U	0.14 UJC	20 U
Aroclor 1248			1000 U	0.046 U	0.097 UJC	20 U
Aroclor 1254			1000 U	0.025 U	0.041 UJC	20 U
Aroclor 1260			1000 U	0.025 U	0.0055 UJC	20 U
Total PCBs	0.000064		1000 U	0.94 U	0.6 UJC	50 U
Semivolatiles in ug/L						
2-Methylnaphthalene				0.02 U	2.8	
Acenaphthene	640			1.2 U	1.9 U	
Acenaphthylene				0.81 U	1.9 U	
Anthracene	4800			1.4 U	8.5 U	
Benzo(a)anthracene	See BaP (c)			0.02 U	0.051 T	
Benzo(a)pyrene	0.0028			0.02 U	0.19 U	
Benzo(b)fluoranthene	See BaP (c)			0.02 U	0.19 U	
Benzo(g,h,i)perylene				0.02 U	0.19 U	
Benzo(k)fluoranthene	See BaP (c)			0.02 U	0.19 U	
Chrysene	See BaP (c)			0.02 U	0.19 U	
Dibenz(a,h)anthracene	See BaP (c)			0.02 U	0.19 U	
Dibenzofuran	32			9.5 U	1.9 U	
Fluoranthene	90			0.098 T	1.9 U	
Fluorene	640			6.1 U	1.9 U	
Indeno(1,2,3-cd)pyrene	See BaP (c)			0.02 U	0.19 U	
Naphthalene	160			0.02 U	0.79	
Phenanthrene				3.3 U	23	
Pyrene	480			0.057	0.15 T	
TEQ Equivalent (b)	See BaP (c)			0.02 U	$\boxed{0.0051}$ J	
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7			0.5 U	0.5 U	
1,1,1-Trichloroethane	200			0.5 U	0.5 U	
1,1,2,2-Tetrachloroethane	0.17			0.5 U	0.5 U	
1,1,2-Trichloroethane	0.59			0.5 U	0.5 U	
1,1-Dichloroethane	1600			0.5 U	0.5 U	
1,1-Dichloroethene				0.5 U	0.5 U	
1,1-Dichloropropene				0.5 U	0.5 U	
1,2,3-Trichlorobenzene				2 U	2 U	
1,2,3-Trichloropropane	0.0063			0.5 U	0.5 U	
1,2,4-Trichlorobenzene	35			2 U	2 U	
1,2,4-Trimethylbenzene	400			0.09 T	5.1	
1,2-Dibromo-3-Chloropropane	0.031			2 U	2 UJ	
1,2-Dibromoethane(EDB)				2 U	2 U	
1,2-Dichlorobenzene	420			0.5 U	0.5 U	

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

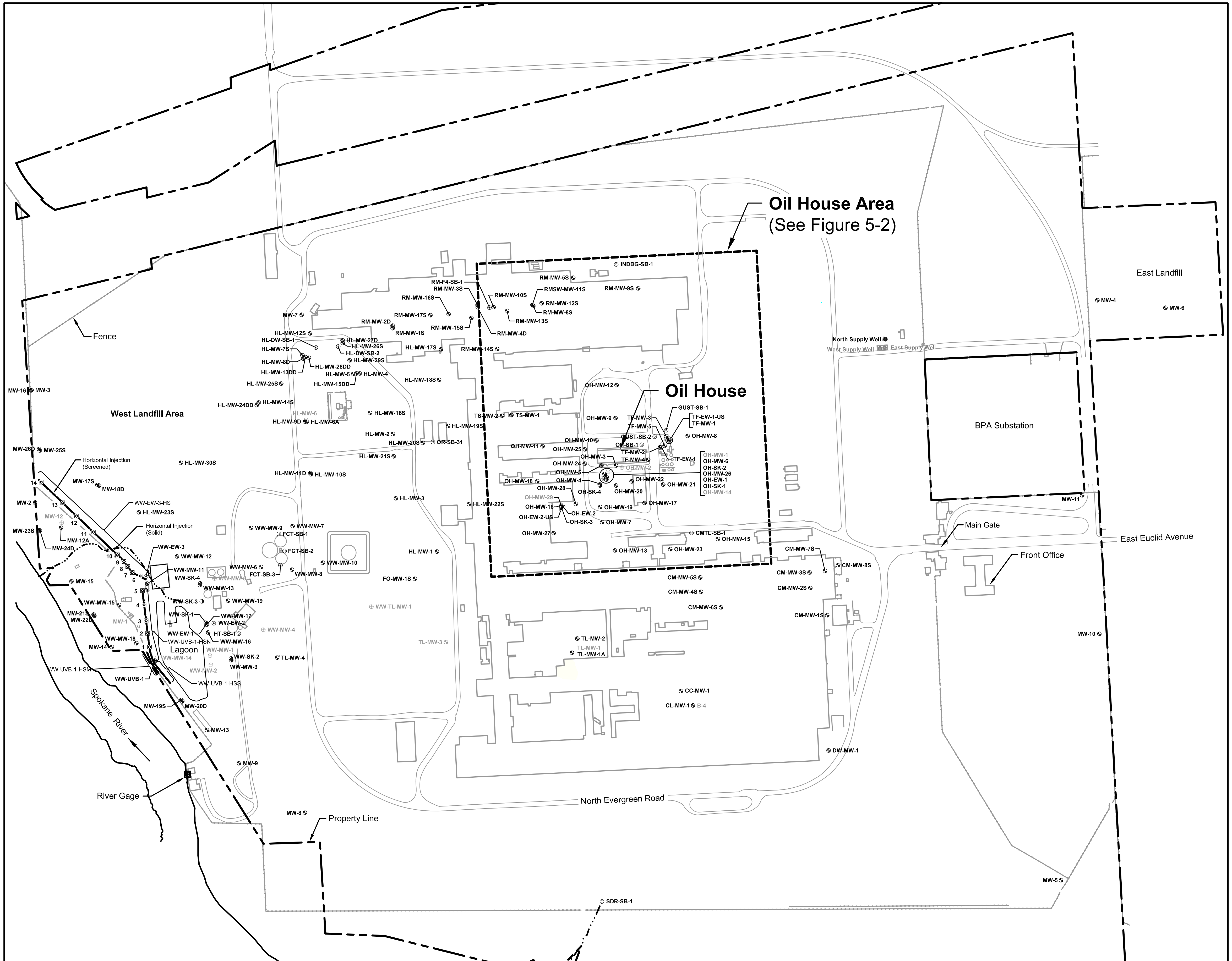
Sample ID Sampling Date	Screening Level (a)	TF-MW-3 10/20/2008	TF-MW-4 9/22/91	TF-MW-4 4/24/2008	TF-MW-4 10/20/2008	TF-MW-5 9/20/91
1,2-Dichloroethane(EDC)	0.38			0.5 U	0.5 U	
1,2-Dichloropropane	0.5			0.5 U	0.5 U	
1,3,5-Trimethylbenzene	400			2 U	2 U	
1,3-Dichlorobenzene	320			0.5 U	0.5 U	
1,3-Dichloropropane				0.5 U	0.5 U	
1,4-Dichlorobenzene	1.8			0.5 U	0.5 U	
2,2-Dichloropropane				0.5 U	0.5 UJ	
2-Butanone (MEK)				20 U	20 U	
2-Chlorotoluene				2 U	2 U	
2-Hexanone				20 U	20 U	
4-Chlorotoluene				2 U	2 U	
4-Isopropyltoluene				2 U		
4-Methyl-2-Pentanone				20 U	20 U	
Acetone	800			20 U	3.4 T	
Benzene	0.8	0.5 U		0.5 U	0.5 U	
Bromobenzene				2 U	2 U	
Bromochloromethane				0.5 U	0.5 U	
Bromodichloromethane	0.27			0.5 U	0.5 U	
Bromoform	4.3			0.5 U	0.5 U	
Bromomethane	11			0.5 UJ	0.5 U	
Freon 11				0.5 U	0.5 U	
Freon 12	1600			0.5 U	0.5 U	
Carbon Disulfide	800			0.5 U	0.54	
Carbon Tetrachloride	0.23			0.5 U	0.5 U	
Chlorobenzene	100			0.5 U	0.5 U	
Chloroethane				0.5 U	0.5 U	
Chloroform	5.7			0.28 T	0.5 U	
Chloromethane	3.4			0.5 U	0.1 T	
Cis-1,2-Dichloroethene				0.5 U	0.5 U	
Cis-1,3-Dichloropropene				0.5 U	0.5 U	
Cumene(Isopropylbenzene)				2 U	0.17 T	
Dibromochloromethane	0.4			0.5 U	0.5 U	
Dibromomethane				0.15 T	0.5 U	
Ethylbenzene	530	0.5 U		0.5 U	0.5 U	
Hexachlorobutadiene	0.44			2 U	2 U	
Methylene Chloride	4.6			0.26 T	0.37 T	
N-Butylbenzene				2 U	0.43 T	
N-Propylbenzene				2 U	0.4 T	
Naphthalene	160			2 U	0.23 T	
Sec-Butylbenzene				0.06 T	0.4 T	
Styrene	1.5			0.5 U	0.5 U	
Tert-Butylbenzene				2 U	0.05 T	
Tetrachloroethene	0.081			0.5 U	0.5 U	
Toluene	640	0.12 T		0.5 U	0.33 T	
Total Xylenes	1000					
Trans-1,2-Dichloroethene				0.5 U	0.5 U	
Trans-1,3-Dichloropropene				0.5 U	0.5 U	
Trichloroethene (TCE)	0.49			0.5 U	0.5 U	
Vinyl Chloride	0.025			0.5 U	0.5 U	
m,p-Xylenes	16000	0.5 U		0.5 U	0.5 U	
o-Xylene	16000	0.5 U		0.5 U	0.12 T	
p-Cymene					0.41 T	
TPH (EPA418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5					
TPH (EPA8015) in mg/L						

Table 5-16 - Analytical Results for Tank Farm Kensol Spill Area Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TF-MW-3 10/20/2008	TF-MW-4 9/22/91	TF-MW-4 4/24/2008	TF-MW-4 10/20/2008	TF-MW-5 9/20/91
Gasoline	0.8					0.1 U
Stoddard/Mineral spirits	0.8					0.1 U
Kensol	0.5					0.1 U
Kerosene/Jet fuel	0.5					
Diesel/Fuel oil	0.5					0.04
Bunker C	0.5					
Heavy oil	0.5					0.1 U
NWTPH HCID in mg/L						
Gasoline	0.8	0.2 U		0.2 U	0.2 U	
Stoddard/Mineral spirits	0.8	0.2 U		0.2 U	0.2 U	
Kensol	0.5	0.2 U		$\boxed{150}$	$\boxed{200}$	
Kerosene/Jet fuel	0.5	0.2 U		0.2 U	0.2 U	
Diesel/Fuel oil	0.5	0.5 U		0.5 U	0.5 U	
Bunker C	0.5	0.5 U		0.5 U	0.5 U	
Heavy oil	0.5	0.5 U		0.5 U	0.5 U	
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5			0.2 U	0.2 U	
Diesel/Fuel oil	0.5			0.2 U	0.2 U	
Heavy oil	0.5			0.5 U	0.5 U	
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U		0.1 U	0.1 U	
Gasoline	0.8	0.1 U		0.1 U	0.1 U	

C = Non-detect PCB results are reported at MDL since ULL extraction method (EPA 3535) could not be used. EPA Extraction Method 3520C was used.
U = Not detected at the reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Oil House Area Location Map



Exploration Location and Number

OH-EW-1	Extraction Well
OH-MW-4	Monitoring Well
WW-TL-MW-1	Abandoned Monitoring Well
OH-SK-1	Skimming Well
TF-EW-1-US	Groundwater Recirculation Well
North Supply Well	Supply Well
East Supply Well	Backup Supply Well
RM-F4-SB-1	Soil Boring

N

0 500 1000

Scale in Feet

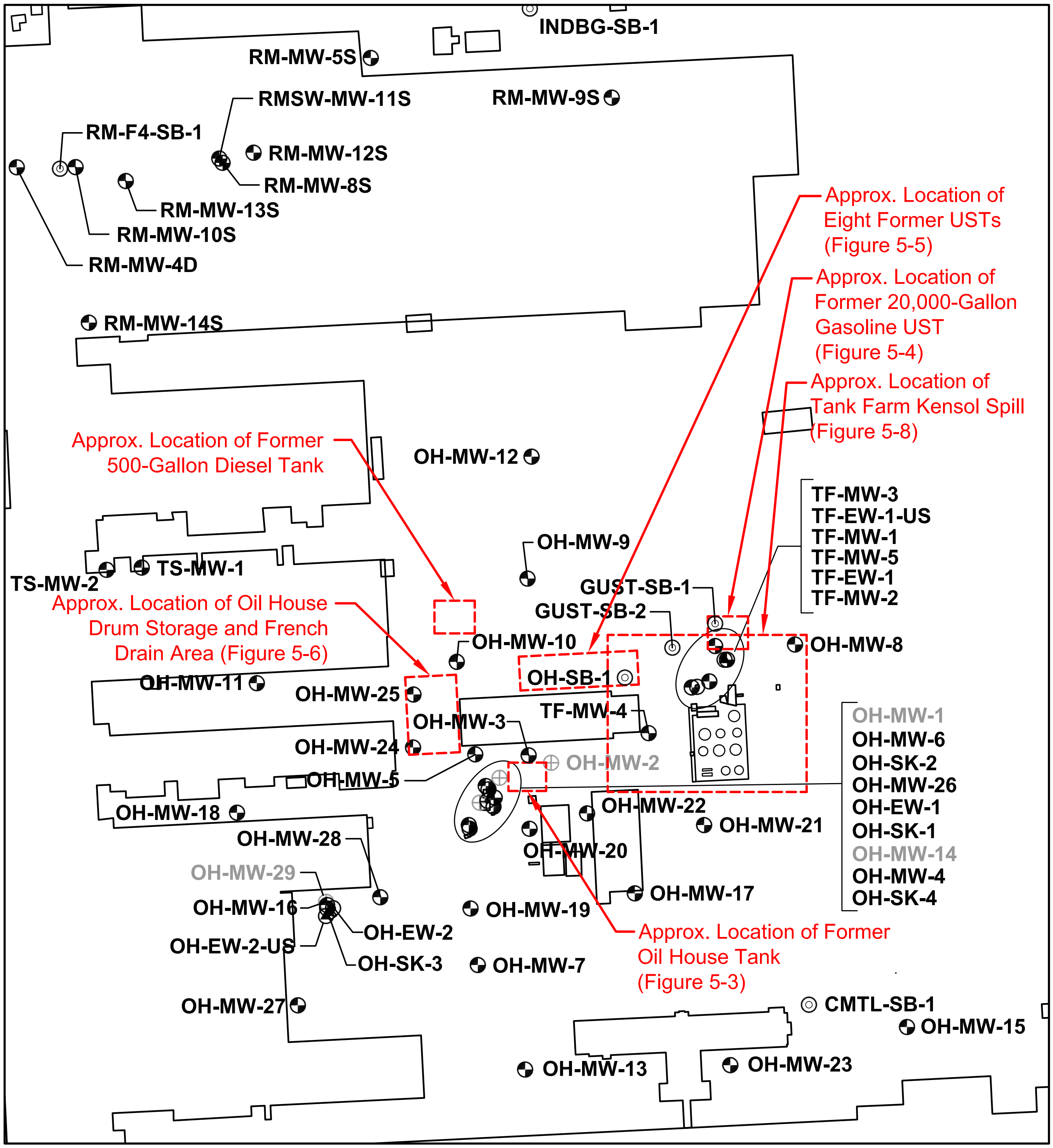
EAL 05/7/09 2644114-064.DWG

HARTCROWSER

2644-114 5/09

Figure 5-1

Oil House Area Index Map



Exploration Location and Number

OH-EW-1 ⦿ Extraction Well

OH-MW-4 Monitoring Well

WW-TL-MW-1 ⊕ Abandoned Monitoring Well

OH-SK-1 ◑ Skimming Well

TF-EW-1-US Upper Screen Well

OH-SB-1 ◎ Soil Boring

N

0 200 400

Scale in Feet

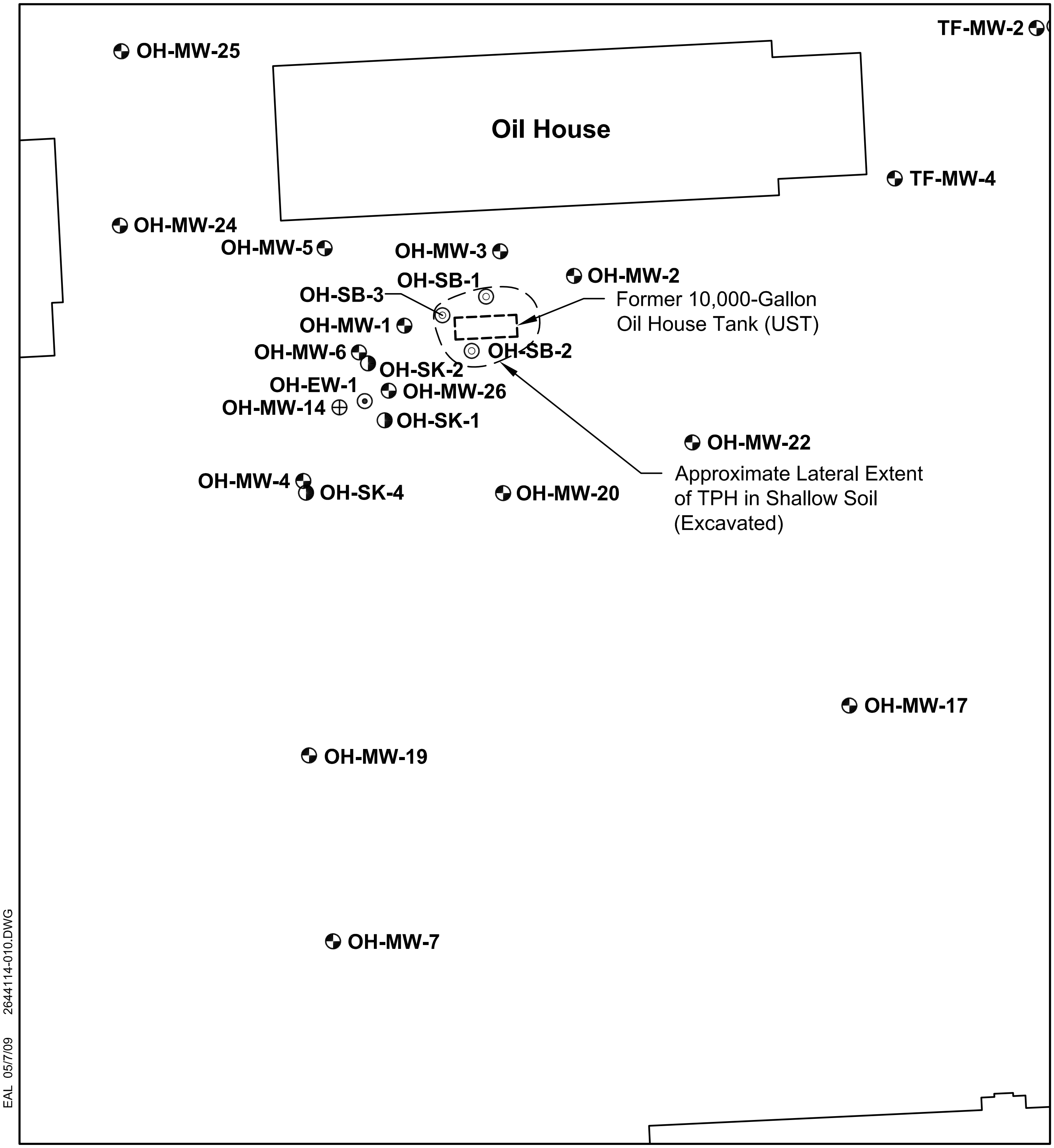
HARTCROWSER

2644-114 *5/09*

Figure 5-2

EAL 05/7/09 2644114-009.DWG

Exploration Location Plan
Oil House Tank Area



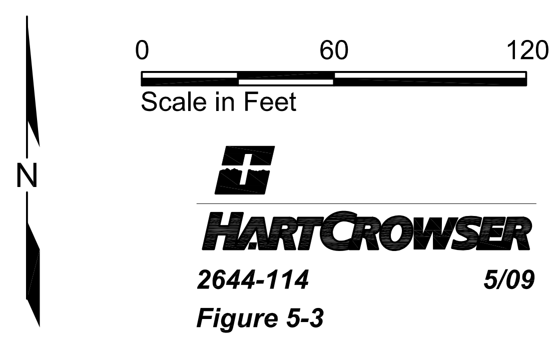
Exploration Location and Number

OH-EW-1 ⦿ Extraction Well

OH-MW-4 Monitoring Well

OH-SK-1 ◑ Skimming Well

OH-SB-1 ◎ Soil Boring

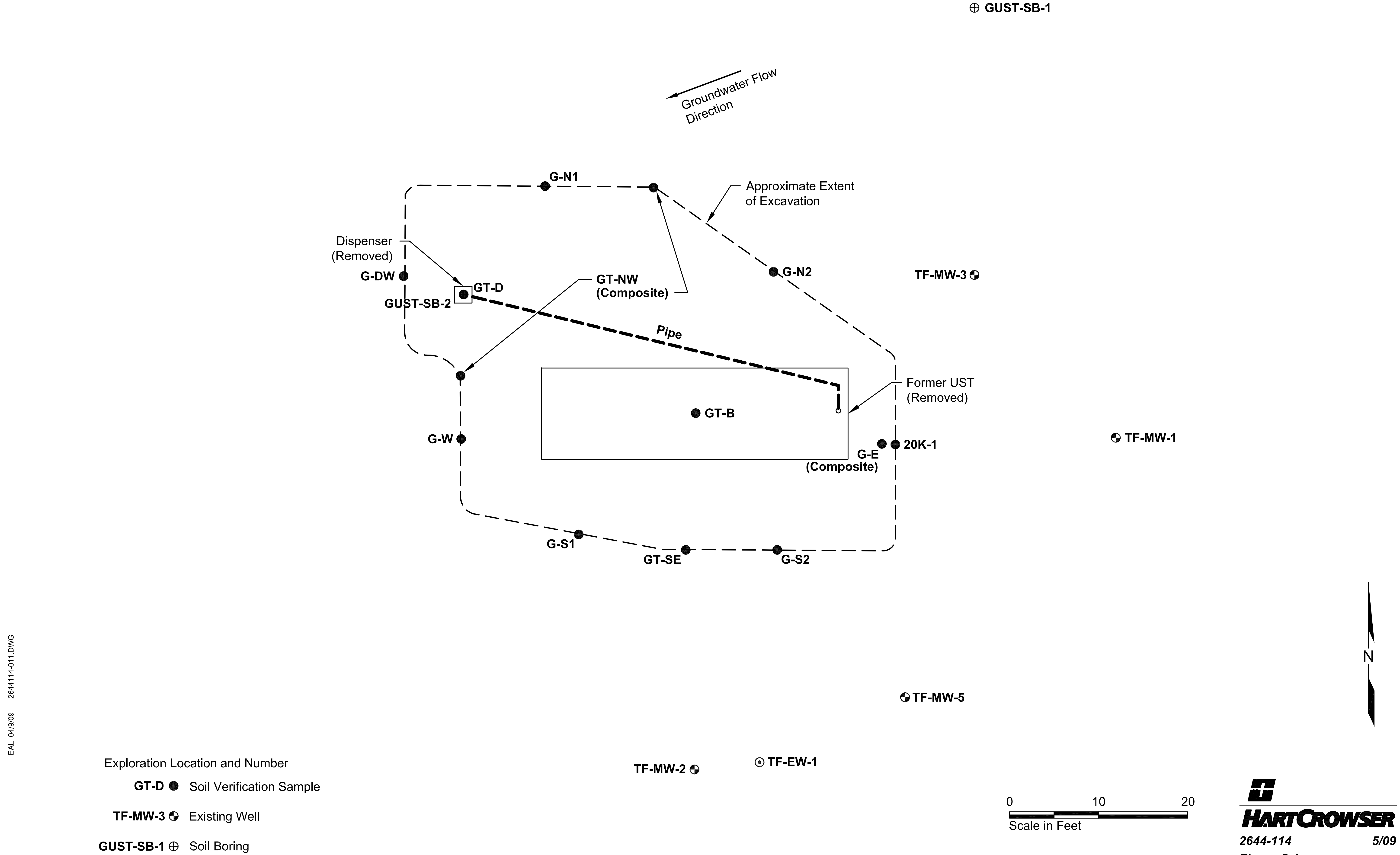


HARTCROWSER

2644-114 *5/09*

Figure 5-3

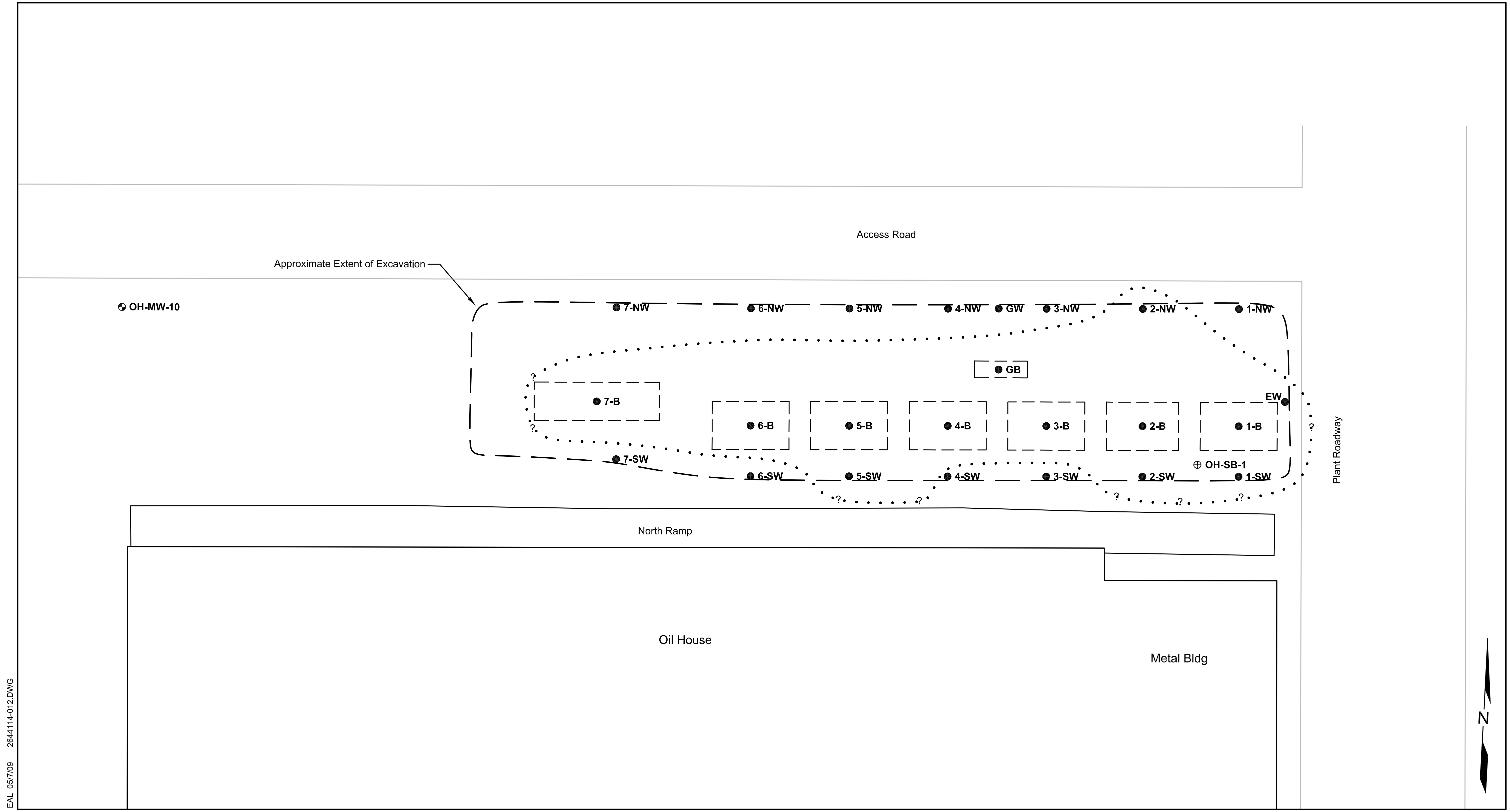
Soil Sample Location Plan
20,000-Gallon Leaded Gasoline UST Excavation



2644-114 *5/09*

Figure 5-4

Exploration Location Plan
Eight USTs Excavation



OH-MW-10 Monitoring Well Location and Number

6-SW Soil Verification Sample Location and Number

OH-SB-1 Soil Boring Location and Number

Approximate Lateral Extent of TPH above 2,000 mg/kg

Former UST

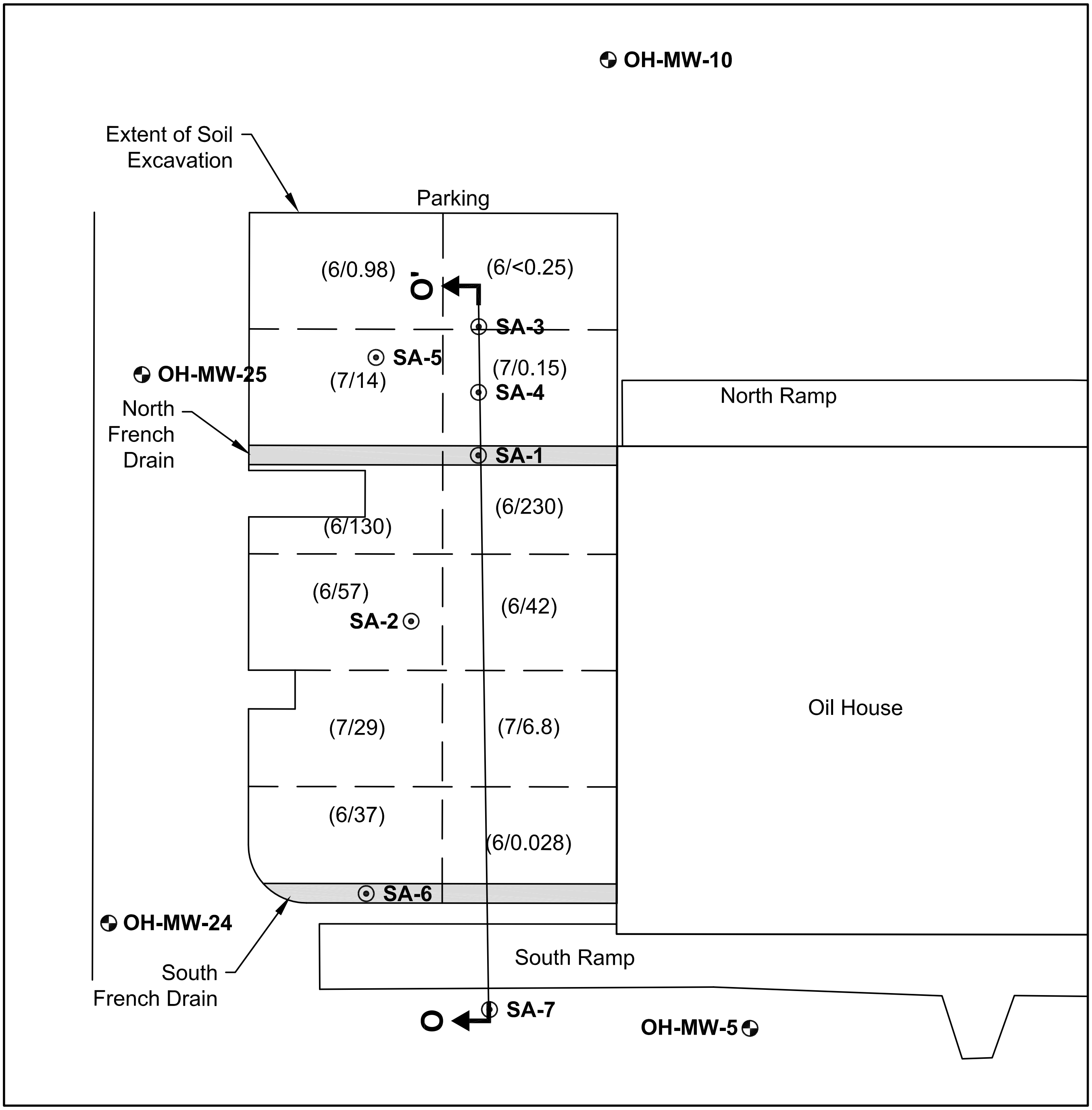
0 20 40
Scale in Feet

HARTCROWSER

2644-114 5/09

Figure 5-5

Exploration and Sample Location Plan
Oil House Drum Storage and French Drain Area



EAL 04/9/09 2644114-013.DWG

Monitoring Location and Number

SA-2 ⦿ Storage Area Soil Boring Location and Number

OH-MW-4 Soil Boring and 4-inch Monitoring Well Location and Number

Zones for Composite Sampling of Excavation Floor

(6/<0.25) Depth of Excavation in Feet/ Composited PCB Concentration in mg/kg

O O' Cross Section Location and Designation (See Figure 5-7)

N

0 20 40

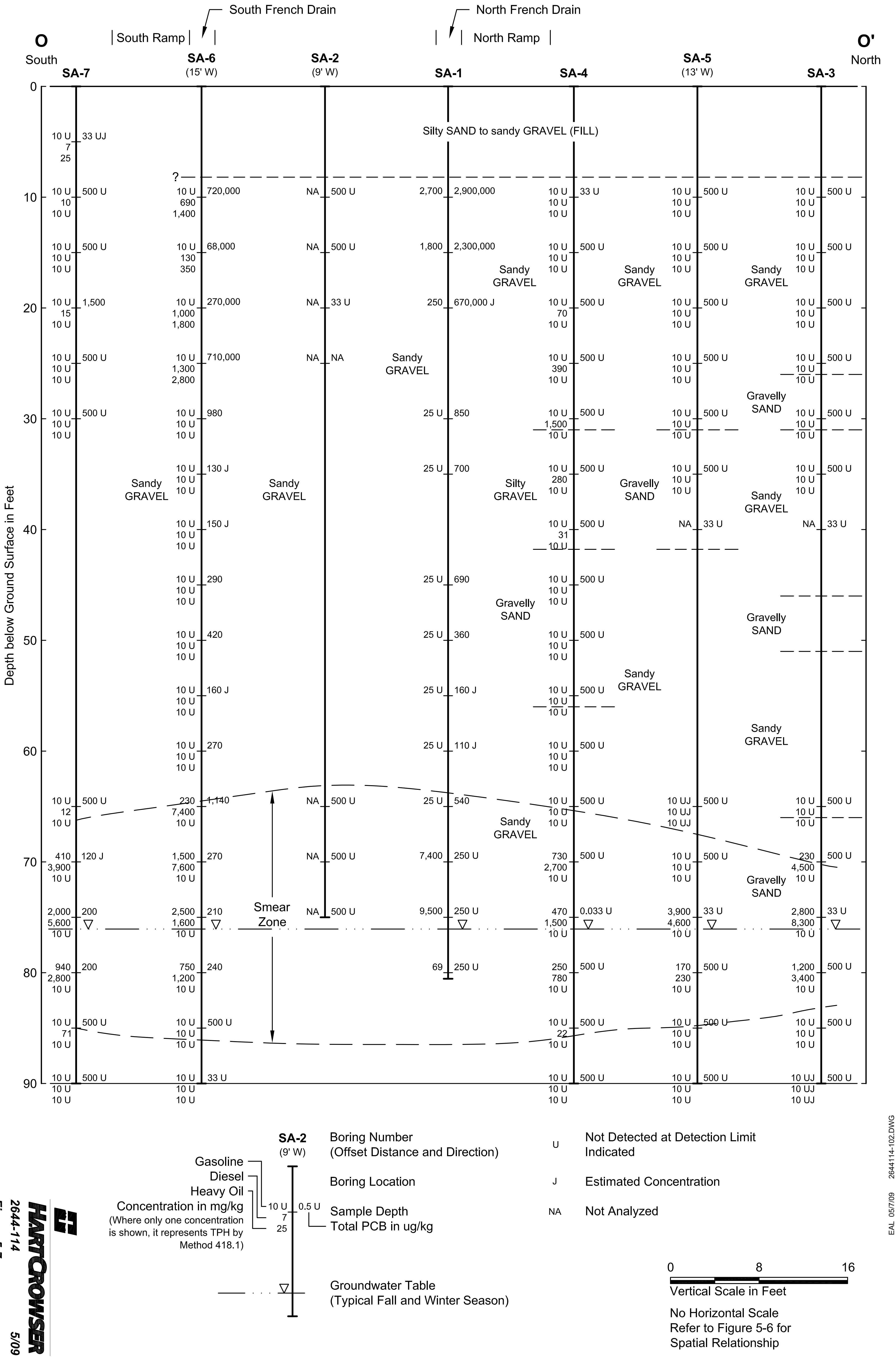
Scale in Feet

HARTCROWSER

2644-114 *5/09*

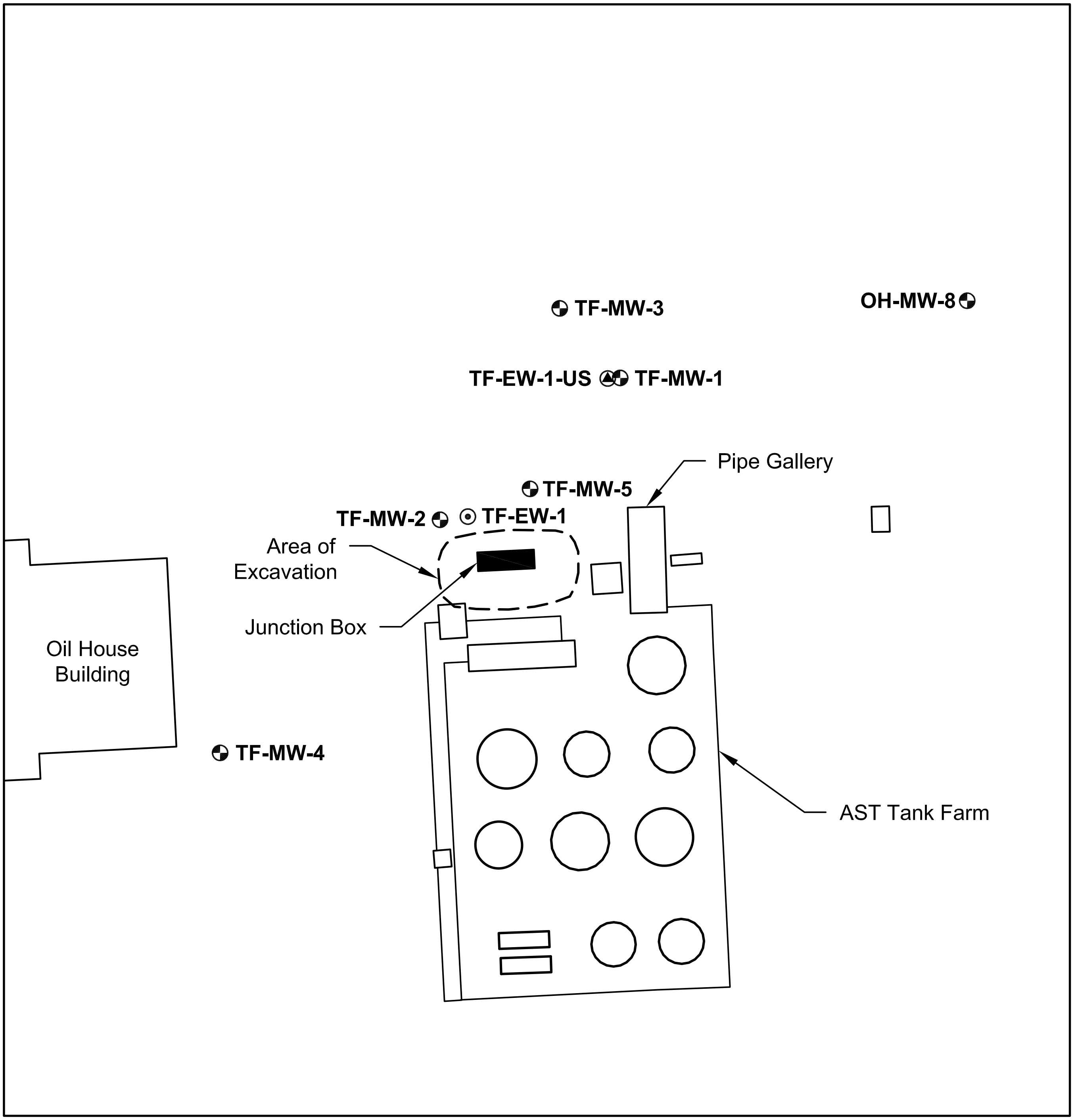
Figure 5-6

Subsurface Cross Section O-O'
Oil House Drum Storage and French Drain Area



HARTCROWSER
2644-114 5/09
Figure 5-7

Exploration Location Plan
Tank Farm Kensol Spill Area



EAL 03/20/09 2644114-014.DWG

Exploration Location and Number

TF-EW-1 ⦿ Extraction Well

TF-MW-4 ◐ Monitoring Well

TF-EW-1-US Groundwater Recirculation Well

◯ Above-ground Storage Tank

N

0 40 80
Scale in Feet

HARTCROWSER

2644-114 ***5/09***

Figure 5-8

CONTENTS Page

CONTENTS (Continued)

Page

TABLES

FIGURES

6.0 WASTEWATER TREATMENT AREA

6.1 INTRODUCTION

Significant historical characterization and cleanup activities have been conducted within the Wastewater Treatment area. This section concentrates on the work conducted around the Field-Constructed Tanks, the Hoffman Tank, and the Hydrogen Sulfide Scrubber Building. Significant cleanup work has been recently conducted in the Wastewater Lagoon under Agreed Order No. 2868 but it is not discussed in this report and is being reported to Ecology under separate cover.

6.1.1 Purpose

The objectives of the Phase II investigation were to identify data gaps on the investigations conducted around the Field-Constructed Tanks, former Hoffman Tank, and Hydrogen Sulfide Scrubber Building, and to establish a sampling and analysis plan to address such gaps. The final goal of the Phase II RI Work Plan (Hart Crowser 2007) was to gather sufficient information to characterize the quality of subsurface soil and groundwater beneath these areas and to help characterize the relative nature and extent of impacts related to the operation of these systems as reported herein.

6.1.2 Location

The Wastewater Treatment area is located about 400 feet east of the Spokane River on the western area of the Kaiser Facility just west of Evergreen Way (Figure 6-1). The area primarily consists of the Industrial Wastewater Treatment (IWT) plant, the Sanitary Wastewater Treatment Plant, the Trace Oil Filtration system, the Wastewater Lagoon, the former Field-Constructed Tanks, the former Hoffman Tank area, and the Hydrogen Sulfide Scrubber Building.

The Field-Constructed Tanks were located toward the northeastern end of the Wastewater Treatment area. The former Hoffman Tank was located southeast of the IWT building, and the Hydrogen Sulfide Scrubber Building is near the southwest corner of the IWT building (Figure 6-2).

6.2 FIELD-CONSTRUCTED TANKS

6.2.1 Introduction

The Field-Constructed Tanks (FCTs) consisted of three fuel storage tanks constructed between 1942 and 1950. The FCTs are part of the Wastewater Treatment area and are located toward the northeastern end of the IWT plant (Figure 6-1).

In 1942, the first two tanks installed were constructed in-place of concrete. These tanks were each 225,000-gallon above-ground storage tanks (ASTs) (Figure 6-2). In 1950, the third and largest tank, a 588,000-gallon capacity steel AST, was constructed abutting the west side of the two existing 225,000-gallon capacity tanks. This third tank was lined on the outside with cinder blocks.

After the tanks were constructed, soil was pushed up around the tanks to within about 3 feet from the top, except for the western end of the largest tank. The FCT tank system also includes a pump house located near the center of the tank configuration (Figures 6-2 and 6-3). With improved availability of natural gas, the storage capacity for fuel oil was no longer needed so the tanks were eventually emptied. After being emptied, the tanks were sporadically used to separate oil and water mixtures generated during treatment of the plant's industrial wastewater. The tanks were cleaned and decommissioned in 1989 (Hart Crowser 2003).

Impacts near the FCTs were first discovered in 1989, the same year that sampling and analysis were conducted on an area-wide basis within the Wastewater Treatment area. The sampling and analysis were conducted to support closure activities of some of the older and unused IWT structures and construction related to replacement of old features.

6.2.2 Previous Investigations

Historical characterization and cleanup activities conducted within the area of the FCTs include an initial investigation in 1989, a second investigation in 1990, and a characterization investigation in 1992. These investigations were conducted on an area-wide basis within the IWT plant area but some of the data are relevant to the FCTs.

In the fall of 1989, Kaiser advanced fourteen soil borings throughout the Wastewater Treatment area to investigate overall soil and groundwater quality in the area. Of these borings, five (WW-SB-5 through WW-SB-7, WW-MW-6, and WW-MW-7) were located around the FCTs (Hart Crowser 1990). The additional investigations conducted between 1990 and 1992 included the installation of two additional groundwater monitoring wells (WW-MW-8 and WW-MW-9) in the area of the FCTs in December 1990 (Hart Crowser 1991a and 1992a).

The following sections present a summary of the results of these investigations. Figure 6-2 presents the main features of the area and Figure 6-3 presents the exploration locations around the FCT. Tables 6-1 and 6-2 present the analytical results of subsurface and surface soil, respectively. Table 6-3 presents the analytical results of groundwater samples collected during previous investigations.

Subsurface Investigation

In November 1989, soil borings WW-SB-5 through WW-SB-7 and monitoring wells WW-MW-6 and WW-MW-7 were advanced around the FCTs (Figure 6-2). The three soil borings were advanced to depths between 10.5 to 25.5 feet below ground surface and the two monitoring wells were advanced to depths between 73.5 and 84 feet below ground surface. Groundwater was encountered between 66 and 73 feet below ground surface during drilling.

In December 1990, wells WW-MW-8 and WW-MW-9 were installed in the vicinity of the FCTs (Hart Crowser 1991a). Both soil and groundwater samples were collected during installation of these wells. At least two soil samples were selected from each well boring for chemical analyses based on visual indications and headspace readings (Hart Crowser 1991a). Borings were advanced to depths of between 74 to 84 feet below ground surface. Groundwater was encountered between 62 and 70 feet below ground surface. Groundwater samples were collected and analyzed from both wells in March and September 1991. Monitoring well WW-MW-9 was also sampled and analyzed in June 1991.

Soil analytical results from boring installations are summarized in Table 6-1. Groundwater analytical results are presented in Table 6-3.

In addition, one surface soil sample (WW-SS-1; 0 to 6 inches below surface) was collected between the tanks (Figures 6-2 and 6-3).

Subsurface Soil Sampling and Analysis

Eleven subsurface soil samples (approximately two per boring) were collected from the soil borings and wells advanced around the FCTs. The soil samples from soil borings WW-SB-5 through WW-SB-7 and monitoring wells WW-MW-6 and WW-MW-7 were submitted for laboratory analysis of TPH, VOCs, total and

EP Toxicity metals (arsenic, cadmium, chromium, and lead), and pH. The four subsurface soil samples selected for chemical analyses from the installation of monitoring wells WW-MW-8 and WW-MW-9 were submitted for analysis of TPH by EPA Method 418.1. The soil sample analytical results are summarized in Table 6-1.

Total arsenic was detected in all soil samples (0.9 to 6.4 mg/kg) at concentrations exceeding screening levels. However, these concentrations are within the expected natural background concentrations for the Spokane Basin (Ecology 1994). The other total metals were non-detect or detected at concentrations below their respective screening levels (Table 6-1).

TPH concentrations exceeding screening levels were detected in WW-SB-5/S-1, WW-MW-6/S-6, WW-MW-8/S-3, and WW-MW-9/S-2 at 3,400, 2,300, 3,400, and 2,100 mg/kg, respectively (Table 6-1). The WW-SB-5/S-1 sample was collected from a depth of between 5 to 7 feet below ground surface and the three other samples were collected at a depth of between 63 to 76 feet below ground surface. These results indicate that TPH impacts above the screening levels were present not only in shallow soils but also in a petroleum smear zone near the water table.

Two extremely low concentrations of EP Toxicity arsenic and chromium were detected at depths of 23 to 25 feet below ground surface. These concentrations indicate these metals are not readily leachable from the soil.

The other constituents were either non-detect or detected at concentrations below screening levels.

Surface Soil Sampling and Analysis

One surface soil sample (WW-SS-1) was collected and analyzed near the tanks during the 1989 IWT investigation (Hart Crowser 1990). Surface sample WW-SS-1 was a three-point composite collected from 0 to 6 inches below ground surface in the area between two of the Field-Constructed Tanks as shown on Figures 6-2 and 6-3. This sample was analyzed for TPH, total and EP Toxicity metals (arsenic, cadmium, chromium, and lead), and PAHs (Table 6-2).

Analytical results for this sample indicated a TPH concentration of 65,000 mg/kg, which is above the screening level of 2,000 mg/kg. In addition, arsenic was detected at 8.2 mg/kg, which exceeds the screening level but is within the expected background range for arsenic in Spokane Basin soil (Ecology 1994). The other constituents analyzed for were non-detect or detected at concentrations below screening levels (Table 6-2).

Although leachable concentrations of arsenic and cadmium were also detected, these were extremely low and considered not readily leachable (Hart Crowser 1990). The EP Toxicity data were collected to aid in the disposal characterization of soil underlying the tanks. PAH concentrations detected were below their respective screening levels. Soil representative of this sample was subsequently removed during demolition of the FCTs.

Groundwater Sampling and Analysis

Groundwater monitoring wells WW-MW-6 and WW-MW-7 were sampled five times in 1989 through 1991. Wells WW-MW-8 and WW-MW-9 were sampled several times in 1991. Groundwater samples collected from monitoring wells were analyzed for one or more of the following:

- TPH by EPA Method 418.1;
- Fuel fingerprint by EPA Method 8015, modified;
- Total suspended solids;
- Total metals;
- Dissolved metals;
- PCBs; and
- VOCs.

Analytical results for the groundwater samples collected from WW-MW-6 indicate concentrations of total and dissolved arsenic, total and dissolved antimony, dissolved iron, dissolved manganese, TPH, and total PCBs (one sample) exceed screening levels. Analytical results for the groundwater samples collected from WW-MW-7 indicate concentrations of total arsenic, total and dissolved antimony, dissolved manganese, and TPH exceed screening levels. Analytical results for the groundwater samples collected from WW-MW-8 indicate concentrations of total arsenic exceed screening levels. Analytical results for the groundwater samples collected from WW-MW-9 indicate concentrations of dissolved antimony, dissolved arsenic, dissolved iron, dissolved manganese, TPH, and diesel-range petroleum hydrocarbons exceed screening levels (Table 6-3).

1992 Field-Constructed Tanks Sampling and Analysis

To assess the soil quality directly beneath the tanks, on January 14, 1992, two near-surface soil samples were collected from under each of the two smaller concrete FCTs (Hart Crowser 1992b). The soil samples were collected through concrete cores cut through the bottom of both tanks, one on the north side and one on the south side. The samples from the north tank were labeled 1N-N and

1N-S, and the samples from the southern tank were labeled 1S-N and 1S-S (Figure 6-3).

The four near-surface soil samples were analyzed for VOCs, SVOCs, organochlorine pesticides and PCBs, priority pollutant metals, cyanide, and total phenolics (Table 6-4).

Arsenic concentrations exceeded the screening levels in the four soil samples between 3.4 and 8.6 mg/kg. However, these concentrations are within the expected natural background concentrations for the Spokane Basin (Ecology 1994). Cadmium exceeded the screening levels in samples 1N-N, and 1N-S at concentrations of 6.8 and 5 mg/kg, respectively. Silver exceeded the screening levels in sample 1N-N at a concentration of 24 mg/kg. Styrene exceeded the screening level (33 ug/kg) in sample 1N-N at a concentration of 290 ug/kg.

The other constituents were non-detect or detected at concentrations below screening levels.

Soil representative of these samples was subsequently removed during demolition of the FCTs.

6.2.3 Proposed Phase II (RI) Work

Available soil data from below the FCTs indicate minimal impacts from operation of the tanks. However, sufficient investigation had not been conducted in this area to quantify the nature and extent of impacts that have been identified.

The tanks were proposed for demolition in the Phase II RI Work Plan (Hart Crowser 2007). Three soil borings were proposed to be advanced in the backfill soil around the tanks. Analytical results from the boring samples were used to identify likely constituents of concern within the backfill material and to aid in decisions on appropriate disposal methods.

After the analytical results from the soil boring samples were evaluated and the FCTs demolished, excavation and sampling of 12 test pits on the footprint of the removed tanks were proposed. The data obtained from the test pit soil samples will be used to assess whether further investigations or cleanup is necessary in and around the FCTs.

6.2.4 Phase II RI Field Activities and Analytical Results

The Phase II field activities conducted on the FCTs included three major tasks consisting of a 1) pre-demolition investigation (soil borings), 2) demolition of the

FCTs and associated infrastructure, and 3) a post-demolition investigation (test pits). The following sections describe the work conducted during the Phase II RI. Figure 6-3 presents the exploration locations and Tables 6-5 and 6-6 present the analytical results of soil samples, collected from the borings and test pits, respectively, during the Phase II work.

Pre-Demolition Investigation

On March 19, 2008, prior to removing the tanks three soil borings (FCT-SB-1 through FCT-SB-3) were advance to 30 feet below ground surface using sonic drilling techniques (Figure 6-3). The soil borings were advanced on the backfill around the tanks to identify likely constituents of concern within the backfill material for disposal purposes. Three soil samples, at 5, 15, and 30 feet below the top of the backfill surface, were collected from each boring and submitted for chemical analysis of TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx), VOCs, PAHs, PCBs, and metals. Soil boring logs are presented in Appendix A.

Subsurface Backfill Material Chemical Results

Analytical results of the samples collected from the three soil borings indicate arsenic exceeding screening levels at concentrations ranging from 4.66 to 13.2 mg/kg. Only one of these soil samples (FCT-SB-1-S3 [30 feet deep]) exceeded the expected background range for arsenic in soil based on Ecology (1994).

Soil sample FCT-SB-3-S1A was collected in an area of the berm around the tanks with visible indications of petroleum-like contamination. Soil samples FCT-SB-2-S3 and FCT-SB-3-S1A exceeded screening levels for heavy oil-range petroleum hydrocarbons at concentrations of 3,000 and 14,000 mg/kg by NWTPH-HCID and 3,300 and 13,000 mg/kg by NWTPH-Dx, respectively. Soil sample FCT-SB-3-S1A also exceeded screening levels for diesel oil-range petroleum hydrocarbons at a concentration of 9,500 mg/kg by NWTPH-HCID and 9,500 mg/kg by NWTPH-Dx. Methylene chloride was present in soil sample FCT-SB-3-S1A at an estimated concentration that was above the method reporting limit but below the reported quantitation limit. Therefore, the methylene chloride concentration is estimated to be approximately 35 ug/kg, which exceeds the screening level of 22 ug/kg.

SVOC exceedances were observed in the surface soil sample collected from FCT-SB-3. These exceedances were for 2-methylnaphthalene (2,600 ug/kg), anthracene (680 ug/kg), benzo(a)anthracene (680 ug/kg), benzo(b)flouranthene (540 ug/kg), and chrysene (770 ug/kg). Aroclor 1248 was the only PCB exceedance (870 ug/kg) detected also in the surface soil sample collected at

FCT-SB-3 (Table 6-5). The other SVOCs were non-detect or detected at concentrations below screening levels.

Soil associated with these berm samples were removed and disposed of during demolition of the FCTs, as described below.

FCTs and Associated Infrastructure Demolition

The FCTs were demolished between May 28 and June 30, 2008, by Northwest Envirocon (Envirocon) under contract with Kaiser and with Hart Crowser's oversight. After utility clearances were complete, the demolition crew started excavating the backfill materials surrounding the tanks and removing the wooden lids on the North and South tanks. Additional tank infrastructure such as metal roofs, stairs, cinder blocks, the pump house, and tank "I" beams were also removed during the first week of demolition activities. All materials, including clean and impacted soil, were segregated into separate stockpiles for later disposal and/or recycling.

The West Tank (steel) was emptied and cleaned between June 2 and 5, 2008. Both concrete tanks (North and South) were previously emptied and cleaned. Oily water that had accumulated in the West Tank during cleaning and rainwater that had accumulated in the bottom of the pump house were pumped for treatment and disposal at the IWT plant.

The concrete tanks (North and South) were demolished with conventional heavy equipment while the steel tank (West Tank) was cut in pieces for haul out. In addition, the interior of the West Tank walls were lined with a tar paper containing asbestos; therefore, the wall of the tank was abated in accordance with applicable requirements by a Kaiser subcontractor prior to cutting for disposal/recycling.

A ground penetrating radar (GPR) survey was conducted on June 4, 2008, to identify an active 24-inch water main that Kaiser drawings indicated was under the West Tank. The GPR survey could not identify the water main so the pipe was uncovered with an excavator to determine its location and depth. Since the water main was found to be located within 2 feet or less of the West Tank concrete floor and footings, it was determined that the slab and footings of the three tanks would be removed by placing expansive grout into core holes drilled into the footings. The grout would better protect the integrity of the underlying water main while breaking the concrete apart. The removal of the slab and footings was conducted on June 28 and 29, 2008, and a section of reinforced footings on the West Tank, just above the water main, was left in-place.

Backfill materials being excavated were field screened for the presence of petroleum hydrocarbons using visual observations and photoionization detector (PID) readings. Soil staining and PID readings were used as indicators of impacted soil and to segregate the excavated materials to the appropriate stockpile.

Impacted soil was observed at the perimeter of the exposed footings of the West Tank and the North Tank and the area of the pump house. Most of the backfill materials surrounding the tanks showed evidence of petroleum impacts. The TPH-impacted soil was removed from around the FCTs and stockpiled. The base of the stockpile was lined with a high-density polyethylene (HDPE) liner and covered with visqueen to prevent surface water runoff.

Stockpiled soils were sampled by Hart Crowser personnel between June 29 and July 1, 2008. Based on the results from these samples, the soils were disposed of off site in a regulated facility permitted to receive this type of material.

Post-Demolition Investigation

Once the tanks were removed, four test pits were advanced in the footprint of each tank and one beneath the former pump house for a total of 13 test pits (Figure 6-3). The test pit locations (FCT-TP-1 through FCT-TP-13) were selected based on field observations of TPH impacts and were advanced to depths between 9.5 and 10 feet below ground surface. Test pits FCT-TP-1 through FCT-TP-4 were advanced on the footprint of the South Tank. Test pits FCT-TP-6 through FCT-TP-8 and FCT-TP-13 were advanced on the footprint of the North Tank. Test pits FCT-TP-9 through FCT-TP-12 were advanced on the footprint of the West Tank; and Test Pit FCT-TP-5 was advanced at the location of the pump house (Figure 6-3). Test pit logs are presented in Appendix A.

Three soil samples were collected from each test pit. One sample was collected at a depth of about 2 feet below ground surface, one sample at 6 feet below ground surface, and the third sample was collected at the bottom of the test pit (Table 6-6). All samples were analyzed for a comprehensive suite of petroleum hydrocarbons as shown in Table 6-6. The bottom sample from each test pit was also analyzed for nine metals, PCBs, SVOCs, and VOCs.

FCT Test Pit Subsurface Soil Quality Results

Analytical results for the soil samples collected from the test pits indicate that diesel and heavy oil were the only TPH fractions detected in these samples and only samples collected from TP-6 (North Tank at 2 and 6 feet below surface) and

TP-9 (West Tank at 2 feet below surface) had concentrations above the screening levels (Table 6-6).

Arsenic (3.22 to 60.7 mg/kg) was detected at concentrations above the screening levels in samples analyzed (Table 6-6). However, only 6 of the arsenic results exceeded the expected natural background range for the Spokane Basin (Ecology 1994). Of these six apparently elevated arsenic detections, only one sample (TP-2 Bottom) exceeded the expected arsenic background range by more than 3 mg/kg.

Although low concentrations of SVOCs, PCBs, and VOCs were detected in one or more test pits from each tank, none were at concentrations above the screening levels (Table 6-6).

Note that soil represented by these test pit samples remains in-place in the FCT area.

6.2.5 Summary of Current Conditions

Analytical results of subsurface soil samples collected from the test pits after the FCTs demolition indicate that TPH in the form of diesel and heavy oil is present above the screening levels in the central area between the North and West Tanks (Figure 6-3). Soil samples within 10 feet from the surface in TP-6 and TP-9 are the only ones showing exceedances of TPH screening levels. These test pits extend into the footprint of the former pump house, which appeared from field observations to be the main source of TPH to soil.

Previous soil and groundwater samples from the wells and soil borings around the FCTs indicate that deeper impacts to the water table exist in the general area of the FCTs. However; it is unclear whether these impacts are originating from leakage from the tanks or are from other upgradient sources such as the Transfer Lines or the RCU.

The need for additional remedial action in this area will be evaluated during the FS.

6.3 FORMER HOFFMAN TANK

6.3.1 Introduction

The former Hoffman Tank is part of the Wastewater Treatment area (Figure 6-1). The Hoffman Tank was located toward the central area of the IWT plant directly southeast of the IWT building Figure 6-2). The tank was part of the treatment process of the Facility's industrial wastewater.

Specifically, the Hoffman Tank was used as a flow-through process tank to filter oily water prior to it entering the IWT plant. In the mid- to late 1980s, the tank was taken off-line and was ultimately removed in 1990. Impacted soils identified during the removal were cleaned up to the maximum extent practicable in an excavation effort in 1991. After the removal activities were completed, a cover was installed in 1991 as an institutional control to reduce the potential for residual petroleum contaminants in soil that had to be left in-place from migrating to groundwater.

6.3.2 Previous Investigations

Previous investigations to specifically evaluate the Hoffman Tank were conducted in three major efforts including 1) the site-wide investigation of the IWT, 2) the tank removal and excavation of impacted soils conducted between late 1990 and early 1991, and 3) the cleanup activities conducted between late 1991 and 1992.

The following sections present a summary of these investigations. Figure 6-4 and 6-5 present the exploration locations after the removal and excavation and the engineered cover constructed after cleanup, respectively. Figure 6-6 presents a cross section through the excavation showing the removed soil and cap location in profile.

Site-Wide Investigation of the IWT

During the 1989 site-wide investigations of the IWT, two soil borings, WW-SB-4 and WW-MW-4 were advanced within the Hoffman Tank area. WW-MW-4 was completed as a monitoring well to a depth of approximately 70 feet below ground surface and soil boring WW-SB-4 was completed to a depth of approximately 38 feet below ground surface. Soil samples were collected at approximately 6, 9, 14, 29, 48, and 69 feet below ground surface in WW-MW-4 and at 6 and 10 feet below ground surface in WW-SB-4. Soil samples were analyzed for pH, total metals, EP Toxicity metals, selected VOCs, and TPH (EPA Method 418.1). Soil sample WW-MW-4-S-5 analytical results indicate a TPH concentration of 2,800 mg/kg at a depth of about 50 feet below ground surface, which exceeds the screening level (Table 6-7 and Figure 6-6). Soil samples collect from boring WW-SB-4 had arsenic and TPH concentrations exceeding screening levels. However soil representative of these samples was subsequently excavated and disposed of off site during removal of the Hoffman Tank. The arsenic concentrations in the soil samples from both borings exceeded screening levels at a range of 0.7 to 6.7 mg/kg (Table 6-7). However, these arsenic concentrations are within expected natural background ranges for soil in the Spokane Basin (Ecology 1994).

As discussed in Section 6.2, groundwater monitoring in the Wastewater Treatment area has been ongoing and indicates several metals, TPH, and diesel-range petroleum hydrocarbons exceed the screening levels (Table 6-3). For more detailed information about groundwater quality in the Wastewater Treatment area please refer to the Site-Wide Groundwater RI (Hart Crowser 2012).

Hoffman Tank Removal and Excavation of Impacted Soils

During the fall of 1990, Kaiser began preparing to remove the Hoffman Tank (Hart Crowser 1991b). After notifying Ecology of the tank closure and obtaining a permit for its removal; on October 4, 1990, Kaiser personnel removed the Hoffman Tank. The tank was disposed of off site at a metal salvage yard (Hart Crowser 1991b).

During the removal, petroleum odors and staining were noted in soils surrounding the tank. One discrete soil sample, WWP, was collected from approximately 1-foot beneath the tank on October 5, 1990 (Hart Crowser 1991b). Analytical results of this sample indicate that TPH was detected at a concentration of 37,000 mg/kg and PCBs (Aroclor 1248) were detected at a concentration of 0.09 mg/kg. No VOCs were detected. Since soil associated with this sample was removed from the site during the excavation, these data are not included in Table 6-8.

Following the tank removal and the collection of soil sample WWP, approximately 6,500 cubic yards of impacted soil were excavated between April and May 1991. Although field observations of petroleum odors and staining were noted in these soils, no volatile organic vapors were detected with a PID. Excavation of impacted soils stopped when a 24-inch water main was encountered in the excavation at a depth of approximately 10 feet below ground surface. Excavation activities were also stopped when the southeast border of the IWT building and foundation were reached (Figure 6-4).

The excavation covered an area of approximately 11,700 square feet to depths ranging from 15 to 35 feet below ground surface (Figure 6-6). The IWT building bounds the northwestern limit of the excavation, and the bottom of the excavation in this area was located below the building's foundation. Groundwater was not encountered during the excavation.

Excavation Soil Verification Sampling and Analysis

After excavation activities were completed, soil verification samples were collected and analyzed to assess the quality of the soils left in-place within the excavation. The excavation was divided into eleven grid areas (Figure 6-4) and one composite soil verification sample (HTE1 through HTE11) was collected from each grid in April and May 1991 and submitted for analysis.

Soil samples HTE1 through HTE4 were collected from the bottom of the excavation and samples HTE5 through HTE11 were collected from the side walls. Samples HTE5 and HTE6 were collected beneath the IWT building footings and sample HTE6 represented a localized stained area left in-place.

The eleven composite soil verification samples collected from the final excavation were submitted for analysis of TPH (EPA Method 418.1). In addition, two of these samples (HTE4 and HTE6) were also analyzed for VOCs, PAHs, PCBs, and PP metals. Because of the dilution effects of the high TPH concentration in HTE6, this sample was also analyzed for PAHs by EPA Method 8310 using a silica gel cleanup.

Analytical results of these soil samples indicate that TPH exceeding screening levels was detected in the soil samples HTE5, HTE6, and HTE7 at concentrations of 4,400, 33,000, and 5,000 mg/kg, respectively (Table 6-8). These were the composite soil samples collected along the IWT building footings, the stained area, and a pipe run along the west side of the excavation.

Arsenic was detected in soil samples HTE4 and HTE6 at concentrations exceeding screening levels at 8.7 and 12 mg/kg, respectively. These arsenic detections are at or near the expected soil background range of 1.1 to 10.3 mg/kg for the Spokane Basin (Ecology 1994). Cadmium was detected in soil samples HTE4 and HTE6 at concentrations exceeding screening levels at 3.7 and 3.8 mg/kg, respectively. PCBs as Aroclor 1248 (520 ug/kg in HTE4) was detected at a concentration above the screening levels for Total PCBs (Table 6-8).

Cleanup Activities

Based on the analytical results of the soil verification sample, residual concentrations of TPH, PCBs, and metals above the screening levels were left in-place within the excavation primarily along the foundation of the IWT building and near the location of the former tank. Since additional excavation would likely compromise the building and adjacent utilities, a cover for the area was installed in 1992 as a remedial alternative and institutional control (Hart Crowser 1992b).

The following sections present specific information regarding the installation of the cover over the former Hoffman Tank area.

Geomembrane Installation

The independent cleanup action activities within the Hoffman Tank area started during the fall of 1991 and consisted of regrading of the excavation, installing an impermeable surface (geomembrane) over the regraded area, and installing a catch basin and stormwater collection system to collect surface water runoff over the membrane and direct it into a catch basin for treatment in the IWT plant (Hart Crowser 1992b). The membrane and drainage system, shown on Figure 6-5, were designed to prevent stormwater infiltration through the residual impacted soils minimizing the migration of the contaminants to groundwater.

Kaiser personnel started rough grading of the excavation on September 23, 1991, and grading was completed using pit run material by a Kaiser subcontractor on October 22, 1991. The catch basin and coarse sand subbase were installed over the regraded area by October 24, 1991. The membrane was installed over the subbase and consisted of a 145-foot-long by 90-foot-wide 50-mil PVC geomembrane connected to the foundation for the IWT building and the catch basin. The membrane was covered with a 12-inch layer of coarse sand above the liner, which was completed by December 1991.

6.3.3 Proposed Phase II (RI) Work

Although the soil representative of the samples from WW-SB-4 and the upper sample from WW-MW-4 was removed during the 1991/1992 tank removal and impacted soil excavation, soil with residual contamination below the final depth of the excavation was left in-place. Soils from below the excavation limit in well boring WW-MW-4 represent soil conditions in-place beneath the excavation. Data from these borings, excavation verification soil samples, and the cleanup activities are represented on Cross Section H-H', on Figure 6-6.

Soil data from well WW-MW-4 indicate that elevated concentrations of TPH above the screening levels had migrated to at least 50 feet below ground surface (Figure 6-6). Based on the results of the soil verification samples and soil samples from WW-MW-4 and WW-SB-1, the lateral extent of petroleum-impacted soil is well defined, except for below the IWT building and below the final excavation depth. Also, it is highly likely that the petroleum contamination identified during construction of the new Hydrogen Sulfide Scrubber Building (see Section 6.4) originated from the Hoffman Tank. Therefore, additional definition of the horizontal and vertical extent of soil impacts from the former Hoffman Tank in the area west and southwest of the Hydrogen Sulfide Scrubber Building was needed.

Based on this information, one soil boring (HT-SB-1) was proposed in the Phase II RI Work Plan (Hart Crowser 2007) to provide additional horizontal and vertical characterization information on the historical releases from the operation of the former Hoffman Tank.

6.3.4 Phase II RI Field Activities and Analytical Results

Soil boring HT-SB-1 was advanced on August 12, 2008, to a depth of 70 feet below ground surface as shown on Figure 6-4. The water table in this well was observed at 63 feet below ground surface and subsurface soil samples were collected at 10-foot-depth intervals to the water table. The soil samples collected were analyzed for TPH (NWTPH-HCID, NWTPH-Dx, and NWTPH-Gx). In addition, three samples collected at depths of 19, 38, and 59 feet below ground surface were also analyzed for VOCs, PAHs, PCBs, and metals. Appendix A presents the boring log for HT-SB-1.

Analytical results for soil samples (HT-SB-1-S6) collected from this boring indicated that TPH as diesel and Kensol, three SVOCs (non-carcinogenic PAHs), and two VOCs were detected in this sample at concentrations above screening levels (Table 6-9). The majority of the elevated constituents detected in this boring are at the water table and are indicative of a smear zone. This smear zone has been noted throughout the Wastewater area in the past. Arsenic was also detected above its screening level in the four samples analyzed but only two of those samples slightly exceed the expected upper range of arsenic in soil within the Spokane Basin (Ecology 1994).

6.3.5 Summary of Current Conditions

Based on the results of soil verification samples collected from the Hoffman Tank excavation area, it appears that the removal of impacted soil was successful except for the impacted soil left in-place near the IWT building (soil samples HTE5, HTE6, and HTE7). Extensive cleanup and capping have been completed in this is area. Even so, the need for additional remedial action in the Hoffman Tank area will be evaluated during the FS.

6.4 HYDROGEN SULFIDE SCRUBBER BUILDING

6.4.1 Introduction

The Hydrogen Sulfide Scrubber Building (H_2S Building) is part of the Wastewater Treatment area (Figure 6-1). The building is located adjacent to the southwest corner of the IWT plant building and was constructed in 1998 (Figure 6-2).

Impacts to the areas were first observed in 1998 while excavating the foundations of the new scrubber building (Hart Crowser 1998). Based on information collected during subsurface investigations conducted at adjacent locations, the impacted soil appears to have originated from historical releases from the Hoffman Tank (Figure 6-2).

6.4.2 Previous Investigations

During the spring of 1998, Kaiser was excavating the foundations for the construction of a new building to house the Hydrogen Sulfide Scrubber when they encountered TPH-impacted soils. Cleanup activities conducted in this area included further excavation of impacted soils and soil verification sample collection and analysis from the side walls, and the bottom of the excavation.

The following sections present a summary of this investigation and the Phase II RI investigation. Figure 6-7 present the exploration locations after the excavation of impacted soils. Table 6-10 presents the analytical results of the soil verification samples collected after the excavation.

Excavation of Impacted Soils and Soil Verification Sampling and Analysis

To evaluate for the presence of TPH-impacted soil, three soil samples were collected along the sides and bottom of the foundation excavation on April 2, 1998 (Figure 6-7). The samples consisted of a discrete soil sample collected from the bottom of the excavation (WW-T-OS-S-1), a composite sample from the bottom of the excavation (WW-T-OS-S-2), and one additional composite sample collected from the south side wall (WW-T-OS-S-3).

These three soil verification samples were analyzed for NWTPH-Dx while the bottom discrete and composite soil samples were also analyzed for VOCs, SVOCs, organochlorine pesticides and PCBs, and total metals.

Analytical results for soil verification sample WW-T-OS-S-2 indicate exceedance of screening levels for diesel- and heavy oil-range petroleum hydrocarbons at concentrations of 20,000 and 22,000 mg/kg, respectively (Table 6-10). This sample also exceeded screening levels for total PCBs as well as for total arsenic, total cadmium, and total lead. In addition, estimated concentrations of SVOCs also exceeded screening levels in this sample.

Since elevated concentrations of TPH, metals, and SVOCs remained on the bottom of the excavation, further excavation was conducted and a second composite soil sample (WW-T-O-SCRUB-COMP) was collected and analyzed (Figure 6-7). This sample was analyzed for PAHs and for EPH and VPH (Ecology Methods) to assess the character of the contaminants. Analytical results for this sample indicate that total aliphatic compounds (heavier petroleum fractions) were present at concentrations ranging from 82 to 16,000 mg/kg and total aromatics (lighter petroleum fractions) were much lower at a concentration of 3.4 mg/kg (only one detection). These results are in alignment with the TPH results obtained from the rest of the samples where only heavy TPH fractions (oil and diesel) were detected (Table 6-10). Analytical results of this sample indicate the PAH constituents were non-detect or detected at concentrations below the screening levels.

The final excavation was approximately 400 square feet in size (20 by 20 feet) and between 4 and 7 feet in depth. The final dimensions of the excavation area were limited by the proximity of other building structures in the immediate vicinity. Groundwater was not encountered within the excavation (Hart Crowser 1998).

6.4.3 Proposed Phase II (RI) Work

Constituents identified in the soil samples collected from the H_2S Scrubber Building excavation are consistent with soil data observed during the investigation and cleanup of the former Hoffman Tank. Elevated petroleum constituents were detected adjacent to the IWT building foundation, which is located about 20 feet from the area of concern identified during construction of the new H_2S Scrubber Building.

Since soil boring HT-SB-1 was proposed in the Phase II RI Work Plan to be advanced just southwest of the H_2S Scrubber Building related to the former Hoffman Tank, no additional investigations were proposed for the H_2S Scrubber Building in the Phase II RI Work Plan (Hart Crowser 2007).

6.4.4 Summary of Current Conditions

After the cleanup actions were completed to the extent possible, the H_2S Scrubber Building was constructed and surrounding areas were paved to reduce the potential for stormwater infiltration in the area to mobilize contaminants. Residual TPH and arsenic impacts above the screening levels are present within 20 feet from the surface along the south side of the IWT building.

As presented in Section 6.3, one soil boring (HT-SB-1) was advanced southwest of the H_2S Scrubber Building. Analytical results of soil samples collected from this soil boring indicate that evidence of soil contamination are generally at or near the water table and not in shallow, vadose zone soil (Table 6-9). These findings are indicative of a petroleum smear zone that has previously been identified throughout the Wastewater area of the Facility.

Results of EPH and VPH analyses conducted in soil samples collected from the bottom of the Scrubber Building excavation indicate that TPH impacts are skewed toward the heavier petroleum fractions.

The need for additional remedial action in the H_2S Scrubber Building area will be evaluated during the FS.

6.5 REFERENCES FOR SECTION 6.0

Hart Crowser 1990. Soil and Groundwater Quality Assessment-Kaiser-Trentwood Facility Interim Report. Prepared for Kaiser Aluminum and Chemical Corporation - Trentwood Works. J-2644-01. March 22, 1991.

Hart Crowser 1991a. Monitoring Well Installation ad Groundwater Sampling - Letter Report. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-07. May 29, 1991.

Hart Crowser 1991b. Observation and Documentation of Hoffman Flow-Through Process Tank Closure and Subsurface Investigation Kaiser Trentwood Facility - Letter Report. Prepared for Kaiser Aluminum and Chemical Company. J-2644-11 September 18, 1991.

Hart Crowser 1992a. Monitoring Well Installation, and Soil and Groundwater Sampling October through December 1991 - Letter Report. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-26. January 23, 1991.

Hart Crowser 1992b. Sampling Results from Beneath the Field-Constructed Concrete Tanks – Letter Report. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-28. February 14, 1992.

Hart Crowser 1998. Soil Chemical Testing Results, Hydrogen Sulfide Scrubber Building Excavation, Kaiser Trentwood Facility - Letter Report. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-66. May 19, 1998.

Hart Crowser 2003. Draft Groundwater Remedial Investigation/Feasibility Study Kaiser - Trentwood Facility. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-76. Modified July 2003.

Hart Crowser 2007. Phase II Remedial Investigation/Feasibility Study Work Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-103. November 30, 2007.

Hart Crowser 2012. Final Site-Wide Groundwater Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington, LLC by Hart Crowser, Inc. May 2012.

Washington State Department of Ecology (Ecology) 1994. Natural Background Soil Metals Concentrations in Washington State. Prepared by the Washington State Department of Ecology Toxics Cleanup Program. Publication #94-115. October 1991.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 6.0.doc

Table 6-1 - Analytical Results for Subsurface Soil Samples - 1989 through 1991 IWT Investigation in Area of Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet Unsat/Sat	Screening Level (a)	WW-MW-6/S-3 11/07/89 18 to 20 Unsat	WW-MW-6/S-6 11/07/89 63 to 65 Sat	WW-MW-7/S-1 11/03/89 5 to 7 Unsat	WW-MW-7/S-4 11/03/89 18 to 20 Unsat	WW-MW-7/S-6 11/03/89 68.5 to 70.5 Sat	WW-SB-5/S-1 11/04/89 5 to 7 Unsat	WW-SB-5/S-5 11/04/89 23 to 25 Unsat
pH		8.6	8.3	8.3	8.8	8.6	7	8.8
Total Metals in mg/kg								
Arsenic	0.03/0.0017	5.8	6.4	2.2	1.4	1.3	1.7	4.2
Cadmium	0.7/0.0349	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chromium	2000/100	74	45	22	31	5.3	34	19
Hexavalent Chromium	18/0.926	0.1 U						
Lead	250/250	18	29	120	37	10 U	10 U	10 U
EP Toxicity Metals in mg/L								
Arsenic		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Cadmium		0.01 U	0.01 U	0.01	0.01 U	0.01 U	0.01 U	0.01 U
Chromium		0.02 U	0.02 U	0.02 U	0.02	0.02 U	0.02 U	0.02 U
Lead		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Volatiles in ug/kg								
1,1,1-Trichloroethane	1610/85	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U
1,1-Dichloroethane	8730/543	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U
2-Butanone (MEK)	20000/1400	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U
Benzene	5/0.3	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U
Chloroform	38/2	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U
Ethylbenzene	5990/341	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U
Toluene	4650/273	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U
Total Organic Halides		4 U	4 U	4 U	4 U	4 U	18 J	4 U
Total Xylenes	14500/827	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U
TPH (418.1) in mg/kg								
Total Petroleum Hydrocarbons	2000	13	2300	220	7	27	3400	14

Table 6-1 - Analytical Results for Subsurface Soil Samples - 1989 through 1991 IWT Investigation in Area of Field-Constructed Tanks

Sample ID	Screening	WW-SB-6/S-2	WW-SB-6/S-5	WW-SB-7/S-1	WW-SB-7/S-5	WW-MW-8/S-2	WW-MW-8/S-3	WW-MW-9/S-1	WW-MW-9/S-2
Sampling Date	Level (a)	11/04/89	11/04/89	11/03/89	11/03/89	12/11/90	12/11/90	12/12/90	12/12/90
Depth in Feet		9 to 11	23 to 25	5 to 7	23 to 25	69 to 71	74 to 76	59 to 61	64 to 66
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat	Sat	Sat
pH		8.2	8.9	8.8	9.7				
Total Metals in mg/kg									
Arsenic	0.03/0.0017	$\boxed{0.9}$	$\boxed{3.6}$	$\boxed{1.2}$	$\boxed{1.9}$				
Cadmium	0.7/0.0349	1 U	1 U	1 U	1 U				
Chromium	2000/100	21	3.7	25	19				
Hexavalent Chromium	18/0.926								
Lead	250/250	10 U	10 U	10 U	10 U				
EP Toxicity Metals in mg/L									
Arsenic		0.005 U	0.005 U	0.005 U	0.007				
Cadmium		0.01 U	0.01 U	0.01 U	0.01 U				
Chromium		0.02 U	0.02	0.02 U	0.02 U				
Lead		0.1 U	0.1 U	0.1 U	0.1 U				
Volatiles in ug/kg									
1,1,1-Trichloroethane	1610/85	0.05 U	0.05 U	0.05 U	0.05 U				
1,1-Dichloroethane	8730/543	0.05 U	0.05 U	0.05 U	0.05 U				
2-Butanone (MEK)	20000/1400	0.5 U	0.5 U	0.5 U	0.5 U				
Benzene	5/0.3	0.05 U	0.05 U	0.05 U	0.05 U				
Chloroform	38/2	0.05 U	0.05 U	0.05 U	0.05 U				
Ethylbenzene	5990/341	0.05 U	0.05 U	0.05 U	0.05 U				
Toluene	4650/273	0.05 U	0.05 U	0.05 U	0.05 U				
Total Organic Halides		4 U	4 U	4 U	4 U				
Total Xylenes	14500/827	0.05 U	0.05 U	0.05 U	0.05 U				
TPH (418.1) in mg/kg									
Total Petroleum Hydrocarbons	2000	7	10	26	82	660	$\boxed{3400}$ J	13	$\boxed{2100}$

U = Not detected at the reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 6-2 - Analytical Results for Surface Soil Samples - 1989 IWT Investigation

Sample ID	Screening	WW-SS-1		WW-SS-2		WW-SS-3	
Sampling Date	Level (a)	11/9/1989		11/9/1989		11/9/1989	
Sample Location		FCT		Hoffman Tank		Hoffman Tank	
pH		5.3		6.7		5.1	
Moisture in %		7.6		7.0		6.9	
Conventionals in mg/kg							
Chloride		95	U	35		82	
Fluoride		15	U	5.6	U	8.7	U
Total Metals in mg/kg							
Arsenic	0.0341	$\boxed{8.2}$		$\boxed{2.2}$		$\boxed{2.2}$	
Cadmium	0.7	1.5		1.0	U	1.0	U
Chromium	2000	230		90		78	
Lead	250	410		95		87	
EP Toxicity Metals in mg/L							
Arsenic		0.016		0.005	U	0.005	U
Cadmium		0.01		0.01	U	0.07	
Chromium		0.02	U	0.02	U	0.04	
Lead		0.1	U	0.1	U	0.2	
PAHs in mg/kg							
Naphthalene	4490	0.93	U	0.81	U	0.55	U
Acenaphthylene		16		15		0.66	
Acenaphthene	98000	0.72	U	0.81	U	0.55	U
Fluorene	100000	0.16	U	0.16	U	0.11	U
Phenanthrene		0.16	U	0.16	U	0.11	U
Anthracene	2200000	0.16	U	0.16	U	0.11	U
Fluoranthene	630000	0.19		0.16	U	0.11	U
Pyrene	660000	0.16	U	0.16	U	0.11	U
Benzo(a)anthracene	See BaP (c)	0.16	U	0.16	U	0.11	U
Chrysene	See BaP (c)	0.16	U	0.16	U	0.11	U
Benzo(b)fluoranthene	See BaP (c)	0.16	U	0.16	U	0.11	U
Benzo(k)fluoranthene	See BaP (c)	0.16	U	0.16	U	0.11	U
Benzo(a)pyrene	233	0.16	U	0.16	U	0.11	U
Dibenz(a,h)anthracene	See BaP (c)	0.77	U	0.81	U	0.55	U
Benzo(g,h,i)perylene		0.16	U	0.16	U	0.11	U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.16	U	0.16	U	0.11	U
TEQ Equivalent (b)	See BaP (c)	0.16	U	0.16	U	0.11	U
TPH (418.1) in mg/kg	2000	$\boxed{65,000}$		$\boxed{82,000}$		$\boxed{110,000}$	

U = Not detected at reporting limit indicated.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8)

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID Sampling Date	Screening Level (a)	WW-MW-6 11/30/89	WW-MW-6 5/09/90	WW-MW-6 3/07/91	WW-MW-6 6/28/91	WW-MW-6 9/21/91
Conventionals in mg/L						
Nitrate + Nitrite	10					
Ortho Phosphorus						
Total Kjeldahl Nitrogen						
Total Organic Carbon						
Total Suspended Solids						
Total Metals in ug/L						
Antimony	6	30 U	9			
Arsenic	0.018	20	18			
Beryllium	4	5 U	10 U			
Cadmium	0.25	5 U	0.3 U			
Chromium	50	10 U	20 U			
Copper	3.5	20 U	20 U			
Lead	0.54	3 U	5 U			
Mercury	0.012	0.5 U	0.5 U			
Nickel	49	10 U	30 U			
Selenium	5	3	5 U			
Silver	80	10 U	20 U			
Thallium	0.24	2 U	5 U			
Zinc	32	20	20 U			
Dissolved Metals in ug/L						
Antimony	6			7	5	
Arsenic	0.018			14	9	
Iron	300				900	
Manganese	50				230	
PCBs in ug/L						
Aroclor 1016						1 U
Aroclor 1221						1 U
Aroclor 1232						1 U
Aroclor 1242						1 U
Aroclor 1248						17
Aroclor 1254						1 U
Aroclor 1260						1 U
Total PCBs	0.000064					17
TPH (418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5	24	8.8	12		
TPH (8015) in mg/L						
Gasoline	0.8				1 U	
Stoddard/Mineral spirits	0.8				1 U	
Kensol	0.5				41	
Diesel/Fuel oil	0.5				1 U	
Heavy oil	0.5				8	
Kerosene/Jet fuel	0.5					
Bunker C	0.5					

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID Sampling Date	Screening Level (a)	WW-MW-7 11/30/89	WW-MW-7 5/09/90	WW-MW-7 3/09/91	WW-MW-7 6/26/91	WW-MW-7 9/17/91
Conventionals in mg/L						
Nitrate + Nitrite	10					
Ortho Phosphorus						
Total Kjeldahl Nitrogen						
Total Organic Carbon						
Total Suspended Solids						18
Total Metals in ug/L						
Antimony	6	30 U	18			
Arsenic	0.018	15	5 U			
Beryllium	4	5 U	10 U			
Cadmium	0.25	5 U	0.3 U			
Chromium	50	10 U	20 U			
Copper	3.5	20 U	20 U			
Lead	0.54	3 U	5 U			
Mercury	0.012	0.5 U	0.5 U			
Nickel	49	10 U	30 U			
Selenium	5	5	5 U			
Silver	80	10 U	20 U			
Thallium	0.24	2 U	5 U			
Zinc	32	20	20 U			
Dissolved Metals in ug/L						
Antimony	6			8	16	
Arsenic	0.018			5 U	5 U	
Iron	300				61	
Manganese	50				200	
PCBs in ug/L						
Aroclor 1016						0.02 U
Aroclor 1221						0.05 U
Aroclor 1232						0.05 U
Aroclor 1242						0.02 U
Aroclor 1248						0.02 U
Aroclor 1254						0.02 U
Aroclor 1260						0.02 U
Total PCBs	0.000064					0.05 U
TPH (418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5	52	1.3	1 U		
TPH (8015) in mg/L						
Gasoline	0.8				1 U	0.1 U
Stoddard/Mineral spirits	0.8				1 U	0.1 U
Kensol	0.5				1 U	0.1 U
Diesel/Fuel oil	0.5				1 U	0.4
Heavy oil	0.5				1 U	0.1 U
Kerosene/Jet fuel	0.5					
Bunker C	0.5					

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID Sampling Date	Screening Level (a)	WW-MW-8 3/09/91	WW-MW-8 9/17/91	WW-MW-9 3/09/91	WW-MW-9 6/26/91	WW-MW-9D 6/26/91 Dup
Conventionals in mg/L						
Nitrate + Nitrite	10					
Ortho Phosphorus						
Total Kjeldahl Nitrogen						
Total Organic Carbon						
Total Suspended Solids			14			
Total Metals in ug/L						
Antimony	6					
Arsenic	0.018					
Beryllium	4					
Cadmium	0.25					
Chromium	50					
Copper	3.5					
Lead	0.54					
Mercury	0.012					
Nickel	49					
Selenium	5					
Silver	80					
Thallium	0.24					
Zinc	32					
Dissolved Metals in ug/L						
Antimony	6	5 U		8	5 U	10
Arsenic	0.018	22		5 U	5 U	6
Iron	300				740	780
Manganese	50				280	280
PCBs in ug/L						
Aroclor 1016			0.02 U			
Aroclor 1221			0.05 U			
Aroclor 1232			0.05 U			
Aroclor 1242			0.02 U			
Aroclor 1248			0.02 U			
Aroclor 1254			0.02 U			
Aroclor 1260			0.02 U			
Total PCBs	0.000064		0.05 U			
TPH (418.1) in mg/L						
Total Petroleum Hydrocarbons	0.5	1 U		6.6		
TPH (8015) in mg/L						
Gasoline	0.8		0.1 U		1 U	1 U
Stoddard/Mineral spirits	0.8		0.1 U		1 U	1 U
Kensol	0.5		0.1 U		1 U	1 U
Diesel/Fuel oil	0.5		0.1		3	1 U
Heavy oil	0.5		0.1 U		1 U	1 U
Kerosene/Jet fuel	0.5					
Bunker C	0.5					

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID Sampling Date	Screening Level (a)	WW-MW-9 9/17/91	WW-MW-9 10/03/91
Conventionals in mg/L			
Nitrate + Nitrite	10		0.04
Ortho Phosphorus			0.007
Total Kjeldahl Nitrogen			0.28
Total Organic Carbon			52
Total Suspended Solids		10 U	3
Total Metals in ug/L			
Antimony	6		
Arsenic	0.018		
Beryllium	4		
Cadmium	0.25		
Chromium	50		
Copper	3.5		
Lead	0.54		
Mercury	0.012		
Nickel	49		
Selenium	5		
Silver	80		
Thallium	0.24		
Zinc	32		
Dissolved Metals in ug/L			
Antimony	6		
Arsenic	0.018		
Iron	300		
Manganese	50		
PCBs in ug/L			
Aroclor 1016		0.02 U	0.02 U
Aroclor 1221		0.05 U	0.05 U
Aroclor 1232		0.05 U	0.05 U
Aroclor 1242		0.02 U	0.02 U
Aroclor 1248		0.02 U	0.02 U
Aroclor 1254		0.02 U	0.02 U
Aroclor 1260		0.02 U	0.02 U
Total PCBs	0.000064	0.05 U	0.05 U
TPH (418.1) in mg/L			
Total Petroleum Hydrocarbons	0.5		
TPH (8015) in mg/L			
Gasoline	0.8	0.1 U	1 U
Stoddard/Mineral spirits	0.8	0.1 U	
Kensol	0.5	0.1 U	
Diesel/Fuel oil	0.5	$\boxed{0.9}$	1 U
Heavy oil	0.5	0.1 U	
Kerosene/Jet fuel	0.5		
Bunker C	0.5		

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID Sampling Date	Screening Level (a)	WW-MW-6 11/30/89	WW-MW-6 5/09/90	WW-MW-6 3/07/91	WW-MW-6 6/28/91	WW-MW-7 11/30/89
Volatiles in ug/L						
1,1,1-Trichloroethane	200	1 U	5 U			1 U
1,1,2,2-Tetrachloroethane	0.17	1 U	5 U			1 U
1,1,2-Trichloroethane	0.59	1 U	5 U			1 U
1,1-Dichloroethane	1600	1 U	5 U			1 U
1,1-Dichloroethene		1 U	5 U			1 U
1,2-Dichlorobenzene	420				100 U	
1,2-Dichloroethane		1 U	5 U			1 U
1,2-Dichloropropane	0.5	1 U	5 U			1 U
1,3-Dichlorobenzene	320				100 U	
1,4-Dichlorobenzene	1.8				100 U	
2-Butanone (MEK)		10 U	50 U			10 U
2-Hexanone		10 U	50 U			10 U
4-Methyl-2-Pentanone		10 U	50 U			10 U
Acetone	800	10 U	50 U			10 U
Bromodichloromethane	0.27	1 U	5 U			1 U
Bromoform	4.3	5 U	25 U			5 U
Bromomethane	11	10 U	50 U			10 U
Carbon Disulfide	800	1 U	5 U			1 U
Carbon Tetrachloride	0.23	1 U	5 U			1 U
Chlorobenzene	100	1 U	5 U			1 U
Chloroethane		1 U	5 U			1 U
Chloroform	5.7	1 U	5 U			1 U
Chloromethane	3.4	1 U	50 U			1 U
Cis-1,3-Dichloropropene		1 U	5 U			1 U
Dibromochloromethane	0.4	10 U	5 U			10 U
Dichloroethylenes		1 U	5 U			1 U
Methylene Chloride	4.6	5 U	25 U			5 U
Styrene	1.5	1 U	5 U			1 U
Tetrachloroethene	0.081	1 U	5 U			1 U
Trans-1,3-Dichloropropene		1 U	5 U			1 U
Trichloroethene (TCE)	0.49	1 U	5 U			1 U
Trimethylbenzene Isomers					100 U	
Vinyl Acetate		10 U	50 U			10 U
Vinyl Chloride	0.025	1 U	5 U			1 U
Benzene	0.8	1 U	5 U	0.5 UJ	1 U	1 U
Ethylbenzene	530	1 U	5 U	2.9 J	2	7
Toluene	640	1 U	15	1.4 J	1 U	1 U
Total Xylenes	1000	15	5 U	25 J	11	7

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID Sampling Date	Screening Level (a)	WW-MW-7 5/09/90	WW-MW-7 3/09/91	WW-MW-7 6/26/91	WW-MW-8 3/09/91	WW-MW-9 3/09/91
Volatiles in ug/L						
1,1,1-Trichloroethane	200	1 U				
1,1,2,2-Tetrachloroethane	0.17	1 U				
1,1,2-Trichloroethane	0.59	1 U				
1,1-Dichloroethane	1600	1 U				
1,1-Dichloroethene		1 U				
1,2-Dichlorobenzene	420					
1,2-Dichloroethane		1 U				
1,2-Dichloropropane	0.5	1 U				
1,3-Dichlorobenzene	320					
1,4-Dichlorobenzene	1.8					
2-Butanone (MEK)		10 U				
2-Hexanone		10 U				
4-Methyl-2-Pentanone		10 U				
Acetone	800	10 U				
Bromodichloromethane	0.27	1 U				
Bromoform	4.3	5 U				
Bromomethane	11	10 U				
Carbon Disulfide	800	1 U				
Carbon Tetrachloride	0.23	1 U				
Chlorobenzene	100	1 U				
Chloroethane		1 U				
Chloroform	5.7	1 U				
Chloromethane	3.4	10 U				
Cis-1,3-Dichloropropene		1 U				
Dibromochloromethane	0.4	1 U				
Dichloroethylenes		1 U				
Methylene Chloride	4.6	5 U				
Styrene	1.5	1 U				
Tetrachloroethene	0.081	1 U				
Trans-1,3-Dichloropropene		1 U				
Trichloroethene (TCE)	0.49	1 U				
Trimethylbenzene Isomers						
Vinyl Acetate		10 U				
Vinyl Chloride	0.025	1 U				
Benzene	0.8	1 U	0.5 U	1 U	0.5 U	0.5 U
Ethylbenzene	530	1 U	0.5 U	1 U	2.7	0.5 U
Toluene	640	1 U	0.5 U	5 U	0.5 U	0.5 U
Total Xylenes	1000	1 U	0.5 U	15	2.2	0.5 U

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID Sampling Date	Screening Level (a)	WW-MW-9 6/26/91	WW-MW-9D 6/26/91
Volatiles in ug/L			
1,1,1-Trichloroethane	200		
1,1,2,2-Tetrachloroethane	0.17		
1,1,2-Trichloroethane	0.59		
1,1-Dichloroethane	1600		
1,1-Dichloroethene			
1,2-Dichlorobenzene	420		
1,2-Dichloroethane			
1,2-Dichloropropane	0.5		
1,3-Dichlorobenzene	320		
1,4-Dichlorobenzene	1.8		
2-Butanone (MEK)			
2-Hexanone			
4-Methyl-2-Pentanone			
Acetone	800		
Bromodichloromethane	0.27		
Bromoform	4.3		
Bromomethane	11		
Carbon Disulfide	800		
Carbon Tetrachloride	0.23		
Chlorobenzene	100		
Chloroethane			
Chloroform	5.7		
Chloromethane	3.4		
Cis-1,3-Dichloropropene			
Dibromochloromethane	0.4		
Dichloroethylenes			
Methylene Chloride	4.6		
Styrene	1.5		
Tetrachloroethene	0.081		
Trans-1,3-Dichloropropene			
Trichloroethene (TCE)	0.49		
Trimethylbenzene Isomers			
Vinyl Acetate			
Vinyl Chloride	0.025		
Benzene	0.8	1 U	1 U
Ethylbenzene	530	1 U	1 U
Toluene	640	1 U	1 U
Total Xylenes	1000	1 U	1 U

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID Sampling Date	Screening Level (a)	WW-MW-6 6/28/91
Semivolatiles in ug/L		
2,2'-Oxybis(2-chloropropane)		100 U
2,4,5-Trichlorophenol	800	500 U
2,4,6-Trichlorophenol	1.4	100 U
2,4-Dichlorophenol	24	100 U
2,4-Dimethylphenol	160	100 U
2,4-Dinitrophenol	32	500 U
2,4-Dinitrotoluene	0.11	100 U
2,6-Dinitrotoluene	16	100 U
2-Chloronaphthalene		100 U
2-Chlorophenol	40	100 U
2-Methylnaphthalene		100 U
2-Methylphenol		100 U
2-Nitroaniline		500 U
3,3'-Dichlorobenzidine	0.021	200 U
3-Nitroaniline		500 U
4,6-Dinitro-2-methyphenol		500 U
4-Bromophenyl-Phenylether		100 U
4-Chloro-3-methylphenol		100 U
4-Chloroaniline		100 U
4-Chlorophenyl-phenylether		100 U
4-Methylphenol		100 U
4-Nitroaniline		500 U
4-Nitrophenol		500 U
Acenaphthene	640	100 U
Acenaphthylene		100 U
Aniline	7.7	100 U
Anthracene	4800	100 U
Benzidine	0.000086	1000 U
Benzo(a)anthracene	See BaP (c)	100 U
Benzo(a)pyrene	0.0028	100 U
Benzo(b)fluoranthene	See BaP (c)	100 U
Benzo(g,h,i)perylene		100 U
Benzo(k)fluoranthene	See BaP (c)	100 U
Benzoic Acid	64000	500 U
Benzyl Alcohol	2400	100 U
Bis(2-Chloroethoxy)Methane		100 U
Bis(2-Chloroethyl)Ether	0.03	100 U
Bis(2-Ethylhexyl)Phthalate	1.2	100 U
Butylbenzylphthalate	1300	100 U
Chrysene	See BaP (c)	100 U
Di-N-Butylphthalate		100 U
Di-n-octyl Phthalate	320	100 U
Dibenz(a,h)anthracene	See BaP (c)	100 U
Dibenzofuran	32	100 U
Diethylphthalate		100 U
Dimethyl Phthalate	16000	100 U
Fluoranthene	90	100 U
Fluorene	640	100 U
Hexachlorobenzene	0.00028	100 U
Hexachlorobutadiene	0.44	100 U

Table 6-3 - Analytical Results for Groundwater Samples - Wastewater Treatment Area

Sample ID	Screening	WW-MW-6
Sampling Date	Level (a)	6/28/91
Hexachlorocyclopentadiene	40	100 U
Hexachloroethane	1.4	100 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	100 U
Isophorone	8.4	100 U
N-Nitroso-di-n-propylamine	0.005	100 U
N-Nitrosodimethylamine		100 U
N-Nitrosodiphenylamine	3.3	100 U
Naphthalene	160	100 U
Nitrobenzene	4	100 U
Pentachlorophenol	0.27	500 U
Phenanthrene		66 J
Phenol	4800	100 U
Pyrene	480	100 U
o-Nitrophenol		100 U
TEQ Equivalent (b)	See BaP (c)	100 U

U = Not detected at reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 6-4 - Analytical Results for Surface Soil Samples below Field-Constructed Tanks

Sample ID Sampling Date	Screening Level (a)	1N-N 1/14/92	1N-S 1/14/92	1S-N 1/14/92	1S-S 1/14/92
Conventionals in mg/kg					
Total Cyanide		0.2 U	0.2 U	0.2 U	0.2 U
Total Metals in mg/kg					
Antimony	5.42	2.6 U	2.2 U	2.5 U	2.4 U
Arsenic	0.03	$\boxed{3.4}$	$\boxed{7.6}$	$\boxed{8.6}$	$\boxed{8.3}$
Beryllium	63	0.23	0.15	0.11	0.2
Cadmium	0.7	$\boxed{6.8}$	$\boxed{5}$	0.3	0.44
Chromium	2000	7.6	7.8	3.3	10
Copper	260	43	29	13	19
Lead	250	8.3	8.5	7.3	10
Mercury	2	0.09 U	0.09 U	0.09 U	0.1 U
Nickel	130	5.3	6.3	9.2	8.1
Selenium	5	0.25 U	0.22 U	0.23	0.24 U
Silver	14	$\boxed{24}$	7.7	0.36	0.26 U
Thallium	2	0.25 U	0.22 U	0.23 U	0.24 U
Zinc	5970	38	40	17	28
Pesticide/PCBs in ug/kg					
4,4'-DDD		10 U	10 U	10 U	10 U
4,4'-DDE		10 U	10 U	10 U	10 U
4,4'-DDT		10 U	10 U	10 U	10 U
Aldrin		5 U	5 U	5 U	5 U
Chlordane		50 U	50 U	50 U	50 U
Delta-BHC		5 U	5 U	5 U	5 U
Dieldrin		10 U	10 U	10 U	10 U
Endosulfan I		5 U	5 U	5 U	5 U
Endosulfan II		10 U	10 U	10 U	10 U
Endosulfan Sulfate		10 U	10 U	10 U	10 U
Endrin		10 U	10 U	10 U	10 U
Endrin Ketone		10 U	10 U	10 U	10 U
Heptachlor		5 U	5 U	5 U	5 U
Heptachlor Epoxide		5 U	5 U	5 U	5 U
Methoxychlor		50 U	50 U	50 U	50 U
Toxaphene		100 U	100 U	100 U	100 U
Alpha-BHC		5 U	5 U	5 U	5 U
Beta-BHC		5 U	5 U	5 U	5 U
Gamma-BHC		5 U	5 U	5 U	5 U
Aroclor 1016		100 U	100 U	100 U	100 U
Aroclor 1221		100 U	100 U	100 U	100 U
Aroclor 1232		100 U	100 U	100 U	100 U
Aroclor 1242		100 U	100 U	100 U	100 U
Aroclor 1248		100 U	100 U	100 U	100 U
Aroclor 1254		100 U	100 U	100 U	100 U
Aroclor 1260		100 U	100 U	100 U	100 U
Total PCBs	270	100 U	100 U	100 U	100 U

Table 6-4 - Analytical Results for Surface Soil Samples below Field-Constructed Tanks

Sample ID Sampling Date	Screening Level (a)	1N-N 1/14/92	1N-S 1/14/92	1S-N 1/14/92	1S-S 1/14/92
Semivolatiles in ug/kg					
1,2,4-Trichlorobenzene		170 U	170 U	170 U	170 U
1,2-Dichlorobenzene		170 U	170 U	170 U	170 U
1,3-Dichlorobenzene		170 U	170 U	170 U	170 U
1,4-Dichlorobenzene		170 U	170 U	170 U	170 U
2,4,5-Trichlorophenol		830 U	830 U	830 U	830 U
2,4,6-Trichlorophenol		170 U	170 U	170 U	170 U
2,4-Dichlorophenol		170 U	170 U	170 U	170 U
2,4-Dimethylphenol		170 U	170 U	170 U	170 U
2,4-Dinitrophenol		830 U	830 U	830 U	830 U
2,4-Dinitrotoluene		170 U	170 U	170 U	170 U
2,6-Dinitrotoluene		170 U	170 U	170 U	170 U
2-Chloronaphthalene		170 U	170 U	170 U	170 U
2-Chlorophenol		170 U	170 U	170 U	170 U
2-Methylnaphthalene	2190	680	170 U	170 U	170 U
2-Methylphenol		170 U	170 U	170 U	170 U
2-Nitroaniline		830 U	830 U	830 U	830 U
2-Nitrophenol		170 U	170 U	170 U	170 U
3,3'-Dichlorobenzidine		330 U	330 U	330 U	330 U
3-Nitroaniline		830 U	830 U	830 U	830 U
4,6-Dinitro-2-methyphenol		830 U	830 U	830 U	830 U
4-Bromophenyl-Phenylether		170 U	170 U	170 U	170 U
4-Chloro-3-methylphenol		170 U	170 U	170 U	170 U
4-Chloroaniline		170 U	170 U	170 U	170 U
4-Chlorophenyl-phenylether		170 U	170 U	170 U	170 U
4-Methylphenol		170 U	170 U	170 U	170 U
4-Nitroaniline		830 U	830 U	830 U	830 U
4-Nitrophenol		830 U	830 U	830 U	830 U
Acenaphthene	98000	170 U	170 U	170 U	170 U
Acenaphthylene		170 U	170 U	170 U	170 U
Aniline		170 U	170 U	170 U	170 U
Anthracene	2200000	170 U	170 U	170 U	170 U
Benzidine		1700 U	1700 U	1700 U	1700 U
Benzo(a)anthracene	See BaP (c)	170 U	170 U	170 U	170 U
Benzo(a)pyrene	233	170 U	170 U	170 U	170 U
Benzo(b)fluoranthene	See BaP (c)	170 U	170 U	170 U	170 U
Benzo(g,h,i)perylene		170 U	170 U	170 U	170 U
Benzo(k)fluoranthene	See BaP (c)	170 U	170 U	170 U	170 U
Benzoic Acid		830 U	830 U	830 U	830 U
Benzyl Alcohol		170 U	170 U	170 U	170 U
Bis(2-Chloroethoxy)Methane		170 U	170 U	170 U	170 U
Bis(2-Chloroethyl)Ether		170 U	170 U	170 U	170 U
Bis(2-Ethylhexyl)Phthalate	13000	150 J	87 J	170 U	170 U
Bis(2-chloroisopropyl) Ether		170 U	170 U	170 U	170 U
Butylbenzylphthalate		170 U	170 U	170 U	170 U

Table 6-4 - Analytical Results for Surface Soil Samples below Field-Constructed Tanks

Sample ID Sampling Date	Screening Level (a)	1N-N 1/14/92	1N-S 1/14/92	1S-N 1/14/92	1S-S 1/14/92
Chrysene	See BaP (c)	170 U	170 U	170 U	170 U
Di-N-Butylphthalate	57000	170 U	170 U	170 U	170 U
Di-n-octyl Phthalate		170 U	170 U	170 U	170 U
Dibenz(a,h)anthracene	See BaP (c)	170 U	170 U	170 U	170 U
Dibenzofuran	5090	170 U	170 U	170 U	170 U
Diethylphthalate		170 U	170 U	170 U	170 U
Dimethyl Phthalate		910	170 U	170 U	170 U
Fluoranthene	630000	170 U	170 U	170 U	170 U
Fluorene	100000	110 J	170 U	170 U	170 U
Hexachlorobenzene		170 U	170 U	170 U	170 U
Hexachlorobutadiene		170 U	170 U	170 U	170 U
Hexachlorocyclopentadiene		170 U	170 U	170 U	170 U
Hexachloroethane		170 U	170 U	170 U	170 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	170 U	170 U	170 U	170 U
Isophorone		170 U	170 U	170 U	170 U
N-Nitroso-di-n-propylamine		170 U	170 U	170 U	170 U
N-Nitrosodimethylamine		170 U	170 U	170 U	170 U
N-Nitrosodiphenylamine	536	170 U	170 U	170 U	170 U
Naphthalene	4490	180	170 U	170 U	170 U
Nitrobenzene		170 U	170 U	170 U	170 U
Pentachlorophenol		830 U	830 U	830 U	830 U
Phenanthrene		350	170 U	170 U	170 U
Phenol	22000	170 U	170 U	170 U	170 U
Pyrene	660000	170 U	170 U	170 U	170 U
Total Phenols		200 U	200 U	200 U	200 U
TEQ Equivalent (b)	See BaP (c)	170 U	170 U	170 U	170 U
Volatiles in ug/kg					
1,1,1-Trichloroethane	1610	50 U	50 U	50 U	50 U
1,1,2,2-Tetrachloroethane		50 U	50 U	50 U	50 U
1,1,2-Trichloroethane		50 U	50 U	50 U	50 U
1,1-Dichloroethane	8730	50 U	50 U	50 U	50 U
1,1-Dichloroethene		50 U	50 U	50 U	50 U
1,2-Dichloroethane		50 U	50 U	50 U	50 U
1,2-Dichloroethene (Total)		50 U	50 U	50 U	50 U
1,2-Dichloropropane		50 U	50 U	50 U	50 U
2-Butanone (MEK)	20000	500 U	500 U	500 U	500 U
2-Hexanone		500 U	500 U	500 U	500 U
4-Methyl-2-Pentanone		500 U	500 U	500 U	500 U
Acetone	3210	1000 U	1000 U	1000 U	1000 U
Benzene	5	50 U	50 U	50 U	50 U
Bromodichloromethane		50 U	50 U	50 U	50 U
Bromoform		250 U	250 U	250 U	250 U
Bromomethane	52	500 U	500 U	500 U	500 U
Carbon Disulfide	5600	50 U	50 U	50 U	50 U
Carbon Tetrachloride		50 U	50 U	50 U	50 U

Table 6-4 - Analytical Results for Surface Soil Samples below Field-Constructed Tanks

Sample ID Sampling Date	Screening Level (a)	1N-N 1/14/92	1N-S 1/14/92	1S-N 1/14/92	1S-S 1/14/92
Chlorobenzene		50 U	50 U	50 U	50 U
Chloroethane		50 U	50 U	50 U	50 U
Chloroform	38	50 U	50 U	50 U	50 U
Chloromethane	22	500 U	500 U	500 U	500 U
Cis-1,3-Dichloropropene		50 U	50 U	50 U	50 U
Dibromochloromethane		50 U	50 U	50 U	50 U
Ethylbenzene	5990	50 U	50 U	50 U	50 U
Methylene Chloride	22	500 U	500 U	500 U	500 U
Styrene	33	290	50 U	50 U	50 U
Tetrachloroethene	0.9	50 U	50 U	50 U	50 U
Toluene	4650	50 U	50 U	50 U	50 U
Total Xylenes	14500	50 U	50 U	50 U	120
Trans-1,3-Dichloropropene		50 U	50 U	50 U	50 U
Trichloroethene (TCE)		50 U	50 U	50 U	50 U
Vinyl Acetate		500 U	500 U	500 U	500 U
Vinyl Chloride		50 U	50 U	50 U	50 U
TPH (8015 mod) in mg/kg					
Gasoline	100	10 U	10 U	10 U	10 U
Stoddard/Mineral spirits	100	10 U	10 U	10 U	10 U
Kensol	2000	10 U	10 U	10 U	10 U
Bunker C		10 U	10 U	10 U	10 U
Diesel/Fuel oil	2000	10 U	10 U	10 U	10 U
Heavy oil	2000	350	680	47	19
Kerosene/Jet fuel	2000	10 U	10 U	10 U	10 U
Unknown		300	390	11	9 J

U = Not detected at reporting limit indicated.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a
Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as
specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340 708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID	Screening Level (a)	FCT-SB-1-S1	FCT-SB-1-S2	FCT-SB-1-S3	FCT-SB-1-S4	FCT-SB-2-S1	FCT-SB-2-S2	FCT-SB-2-S3
Sampling Date		3/19/2008	3/19/2008	3/19/2008	3/19/2008	3/19/2008	3/19/2008	3/19/2008
Sample Depth in Feet		5	15	30	30 Dup of FCT-SB-1-S3	5	15	30
Moisture in %								11
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	1400
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	$\boxed{3000}$
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	1300
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	$\boxed{3300}$
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg								
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID	Screening	FCT-SB-2-S4	FCT-SB-3-S1A	FCT-SB-3-S1	FCT-SB-3-S2	FCT-SB-3-S3	FCT-SB-3-S4
Sampling Date	Level (a)	3/19/2008	3/19/2008	3/19/2008	3/19/2008	3/19/2008	3/19/2008
Sample Depth in Feet		30	1	5	15	30	30
		Dup of FCT-SB-2-S3					Dup of FCT-SB-3-S3
Moisture in %		10	12				11
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	940	$\boxed{9500}$	50 U	50 U	50 U	73
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	$\boxed{3800}$	$\boxed{14000}$	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	1000	$\boxed{9500}$	20 U	20 U	20 U	85
Heavy oil	2000	$\boxed{3700}$	$\boxed{13000}$	50 U	50 U	50 U	50 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U

Non-detect results are reported on a wet weight basis

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-1-S1 3/19/2008 5	FCT-SB-1-S2 3/19/2008 15	FCT-SB-1-S3 3/19/2008 30	FCT-SB-1-S4 3/19/2008 Dup of FCT-SB-1-S3
Total Solids in %		90.6	89.4	95.4	95.4
Metals in mg/kg					
Antimony	5.42	0.24 J	0.22 J	0.17 J	0.19 J
Arsenic	0.03	$\boxed{5.03}$	$\boxed{4.78}$	$\boxed{13.2}$	$\boxed{7.08}$
Barium	1650	164	110	48.2	40.3
Cadmium	0.7	0.171	0.116	0.057	0.058
Chromium	2000	12.4	10.6	7.84	5.23
Lead	250	13.6	10.8	9.03	6.69
Mercury	2	0.007 T	0.01 T	0.02 U	0.02 U
Selenium	5	1.1 U	1.1 U	1 U	1.1 U
Silver	14	0.223	0.15	0.077	0.103
PCBs in ug/kg					
Aroclor 1016		10 U	11 U	18 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	16 U	10 U	16 U
Aroclor 1242		10 U	10 U	16 U	13 U
Aroclor 1248		10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U
Aroclor 1260		84	10 U	10 U	10 U
Total PCBs	270	84	20 U	20 U	20 U
Semivolatiles (8270SIM) in ug/kg					
2-Methylnaphthalene	2190	0.64 T	0.66 T	4.8 U	4.8 U
Acenaphthene	98000	4.7 U	4.4 U	4.8 U	4.8 U
Acenaphthylene		4.7 U	4.4 U	4.8 U	4.8 U
Anthracene	2200000	4.7 U	4.4 U	4.8 U	4.8 U
Benzo(a)anthracene	See BaP (c)	1.2 T	4.4 U	4.8 U	4.8 U
Benzo(a)pyrene	233	4.7 U	4.4 U	4.8 U	4.8 U
Benzo(b)fluoranthene	See BaP (c)	4.7 U	4.4 U	4.8 U	4.8 U
Benzo(g,h,i)perylene		1.1 T	4.4 U	4.8 U	4.8 U
Benzo(k)fluoranthene	See BaP (c)	4.7 U	4.4 U	4.8 U	4.8 U
Chrysene	See BaP (c)	1.1 T	0.64 T	4.8 U	0.64 T
Dibenz(a,h)anthracene	See BaP (c)	4.7 U	4.4 U	4.8 U	4.8 U
Dibenzofuran	5090	4.7 U	4.4 U	4.8 U	4.8 U
Fluoranthene	630000	4.7 U	0.87 T	4.8 U	4.8 U
Fluorene	100000	4.7 U	4.4 U	4.8 U	4.8 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.69 T	4.4 U	4.8 U	4.8 U
Naphthalene	4490	4.7 U	4.4 U	4.8 U	4.8 U
Phenanthrene		4.7 U	0.83 T	4.8 U	4.8 U
Pyrene	660000	4.7 U	0.75 T	4.8 U	4.8 U
TEQ Equivalent (b)	See BaP (c)	0.20 J	0.0064 J	4.8 U	0.0064 J

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-2-S1 3/19/2008 5	FCT-SB-2-S2 3/19/2008 15	FCT-SB-2-S3 3/19/2008 30	FCT-SB-2-S4 3/19/2008 Dup of FCT-SB-2-S3
Total Solids in %		89	89.2	93.5	93.6
Metals in mg/kg					
Antimony	5.42	0.26 J	0.23 J	0.14 J	0.17 J
Arsenic	0.03	6.23	5.22	6.76	6.11
Barium	1650	183	103	27.5	25.8
Cadmium	0.7	0.318	0.137	0.092	0.061
Chromium	2000	15.2	14.9	5.93	4.61
Lead	250	33	13.1	5.52	5.72
Mercury	2	0.408	0.277	0.02 U	0.02 U
Selenium	5	0.5 T	1.1 U	1 U	1.1 U
Silver	14	0.207	0.164	0.104	0.099
PCBs in ug/kg					
Aroclor 1016		10 U	9.9 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	9.9 U	10 U	10 U
Aroclor 1242		10 U	9.9 U	10 U	10 U
Aroclor 1248		10 U	9.9 U	10 U	10 U
Aroclor 1254		10 U	9.9 U	10 U	10 U
Aroclor 1260		23	11	10 U	10 U
Total PCBs	270	23	11	20 U	20 U
Semivolatiles (8270SIM) in ug/kg					
2-Methylnaphthalene	2190	74	19	0.62 T	4.8 U
Acenaphthene	98000	1.5 T	0.48 T	0.99 T	4.8 U
Acenaphthylene		1.7 T	0.53 T	1 T	0.72 T
Anthracene	2200000	10	2.8 T	6.4 U	6 U
Benzo(a)anthracene	See BaP (c)	34	21	4.7 U	14 U
Benzo(a)pyrene	233	49	21	170	130
Benzo(b)fluoranthene	See BaP (c)	71	25	160 X	110 X
Benzo(g,h,i)perylene		72	19	740	710
Benzo(k)fluoranthene	See BaP (c)	19	8.2	4.7 UX	4.8 UX
Chrysene	See BaP (c)	35	22	450	240
Dibenz(a,h)anthracene	See BaP (c)	13	5.4	84	64
Dibenzofuran	5090	12	2.9 T	4.7 U	4.8 U
Fluoranthene	630000	34	17	34	28
Fluorene	100000	3.8 T	1.2 T	4.7 U	4.8 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	60	18	270	230
Naphthalene	4490	30	9.3	4.7 U	4.8 U
Phenanthrene		67	15	5.8 U	8.4 U
Pyrene	660000	44	24	640	360
TEQ Equivalent (b)	See BaP (c)	69.05	28.98	225.9 X	172.8 X

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-3-S1 3/19/2008 5	FCT-SB-3-S1A 3/19/2008 1	FCT-SB-3-S2 3/19/2008 15	FCT-SB-3-S3 3/19/2008 30
Total Solids in %		86.8	91	91.9	93.1
Metals in mg/kg					
Antimony	5.42	0.16 J	0.46 J	0.11 J	0.22 J
Arsenic	0.03	$\boxed{5.1}$	$\boxed{5.09}$	$\boxed{4.66}$	$\boxed{6.48}$
Barium	1650	162	88.5	45.3	50.6
Cadmium	0.7	0.258	0.835	0.055	0.092
Chromium	2000	12.5	20.2	7.91	16.4
Lead	250	12.8	138	16.8	8.43
Mercury	2	0.01 T	2.22	0.02 U	0.02 U
Selenium	5	1.2 U	1.1 U	1.1 U	1 U
Silver	14	0.103	0.799	0.073	0.13
PCBs in ug/kg					
Aroclor 1016		10 U	25 U	10 U	10 U
Aroclor 1221		20 U	50 U	20 U	20 U
Aroclor 1232		10 U	25 U	10 U	10 U
Aroclor 1242		10 U	25 U	10 U	10 U
Aroclor 1248		10 U	870	10 U	10 U
Aroclor 1254		10 U	25 U	10 U	10 U
Aroclor 1260		10 U	25 U	10 U	10 U
Total PCBs	270	20 U	870	20 U	20 U
Semivolatiles (8270SIM) in ug/kg					
2-Methylnaphthalene	2190	4.6 T	2600	0.54 T	1.7 T
Acenaphthene	98000	4.9 U	540	4.6 U	0.56 T
Acenaphthylene		4.9 U	87 U	4.6 U	4.4 U
Anthracene	2200000	4.9 U	370 U	4.6 U	4.4 U
Benzo(a)anthracene	See BaP (c)	4.9 U	680	4.6 U	4.4 U
Benzo(a)pyrene	233	4.9 U	$\boxed{680}$	4.6 U	4.4 U
Benzo(b)fluoranthene	See BaP (c)	4.9 U	540	4.6 U	4.4 U
Benzo(g,h,i)perylene		3.1 T	510	0.66 T	4.4 U
Benzo(k)fluoranthene	See BaP (c)	4.9 U	130	4.6 U	4.4 U
Chrysene	See BaP (c)	4.9 U	770	4.6 U	4.4 U
Dibenz(a,h)anthracene	See BaP (c)	4.9 U	120	4.6 U	4.4 U
Dibenzofuran	5090	4.9 U	180	4.6 U	4.4 U
Fluoranthene	630000	4.9 U	660	4.6 U	4.4 U
Fluorene	100000	4.9 U	740	4.6 U	1.7 T
Indeno(1,2,3-cd)pyrene	See BaP (c)	1.7 T	310	4.6 U	4.4 U
Naphthalene	4490	4.9 U	440	4.6 U	4.4 U
Phenanthrene		2.7 T	2100	4.6 U	3.2 T
Pyrene	660000	4.9 U	4300	4.6 U	4.4 U
TEQ Equivalent (b)	See BaP (c)	0.17 J	$\boxed{865.7}$	4.6 U	4.4 U

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-3-S4 3/19/2008 Dup of FCT-SB-3-S3
Total Solids in %		92.1
Metals in mg/kg		
Antimony	5.42	0.12 J
Arsenic	0.03	$\boxed{5.38}$
Barium	1650	55.6
Cadmium	0.7	0.137
Chromium	2000	13.5
Lead	250	9.62
Mercury	2	0.02 U
Selenium	5	1 U
Silver	14	0.27
PCBs in ug/kg		
Aroclor 1016		10 U
Aroclor 1221		20 U
Aroclor 1232		10 U
Aroclor 1242		10 U
Aroclor 1248		10 U
Aroclor 1254		10 U
Aroclor 1260		10 U
Total PCBs	270	20 U
Semivolatiles (8270SIM) in ug/kg		
2-Methylnaphthalene	2190	3 T
Acenaphthene	98000	1.8 T
Acenaphthylene		4.7 U
Anthracene	2200000	4.7 U
Benzo(a)anthracene	See BaP (c)	0.74 T
Benzo(a)pyrene	233	4.7 U
Benzo(b)fluoranthene	See BaP (c)	4.7 U
Benzo(g,h,i)perylene		4.7 U
Benzo(k)fluoranthene	See BaP (c)	4.7 U
Chrysene	See BaP (c)	0.75 T
Dibenz(a,h)anthracene	See BaP (c)	4.7 U
Dibenzofuran	5090	4.7 U
Fluoranthene	630000	1.2 T
Fluorene	100000	2.9 T
Indeno(1,2,3-cd)pyrene	See BaP (c)	4.7 U
Naphthalene	4490	4.7 U
Phenanthrene		4.1 T
Pyrene	660000	1.7 T
TEQ Equivalent (b)	See BaP (c)	0.0815 J

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-1-S1 3/19/2008 5	FCT-SB-1-S2 3/19/2008 15	FCT-SB-1-S3 3/19/2008 30	FCT-SB-1-S4 3/19/2008 Dup of FCT-SB-1-S3
Total Solids in %		90.2	88.4	94.8	94.6
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		5.5 U	5.4 U	5.2 U	5.5 U
1,1,1-Trichloroethane	1610	5.5 U	5.4 U	5.2 U	5.5 U
1,1,2,2-Tetrachloroethane		5.5 U	5.4 U	5.2 U	5.5 U
1,1,2-Trichloroethane		5.5 U	5.4 U	5.2 U	5.5 U
1,1-Dichloroethane	8730	5.5 U	5.4 U	5.2 U	5.5 U
1,1-Dichloroethene		5.5 U	5.4 U	5.2 U	5.5 U
1,1-Dichloropropene		5.5 U	5.4 U	5.2 U	5.5 U
1,2,3-Trichlorobenzene		22 U	22 U	21 U	22 U
1,2,3-Trichloropropane		5.5 U	5.4 U	5.2 U	5.5 U
1,2,4-Trichlorobenzene		22 U	22 U	21 U	22 U
1,2,4-Trimethylbenzene	31000	22 U	22 U	21 U	22 U
1,2-Dibromo-3-Chloropropane		22 U	22 U	21 U	22 U
1,2-Dibromoethane(EDB)		22 U	22 U	21 U	22 U
1,2-Dichlorobenzene		5.5 U	5.4 U	5.2 U	5.5 U
1,2-Dichloroethane(EDC)		5.5 U	5.4 U	5.2 U	5.5 U
1,2-Dichloropropane		5.5 U	5.4 U	5.2 U	5.5 U
1,3,5-Trimethylbenzene	8380	22 U	22 U	21 U	22 U
1,3-Dichlorobenzene		5.5 U	5.4 U	5.2 U	5.5 U
1,3-Dichloropropane		5.5 U	5.4 U	5.2 U	5.5 U
1,4-Dichlorobenzene		5.5 U	5.4 U	5.2 U	5.5 U
2,2-Dichloropropane		5.5 U	5.4 U	5.2 U	5.5 U
2-Butanone (MEK)	20000	7.7 T	5.2 T	3.6 T	3.8 T
2-Chlorotoluene	2400	22 U	22 U	21 U	22 U
2-Hexanone		22 U	22 U	21 U	22 U
4-Chlorotoluene	4180	22 U	22 U	21 U	22 U
4-Isopropyltoluene		22 U	22 U	21 U	22 U
4-Methyl-2-Pentanone		22 U	22 U	21 U	22 U
Acetone	3210	60	37	11 T	14 T
Benzene	5	5.5 U	5.4 U	5.2 U	5.5 U
Bromobenzene		5.5 U	5.4 U	5.2 U	5.5 U
Bromochloromethane		5.5 U	5.4 U	5.2 U	5.5 U
Bromodichloromethane		5.5 U	5.4 U	5.2 U	5.5 U
Bromoform		5.5 U	5.4 U	5.2 U	5.5 U
Bromomethane	52	5.5 U	5.4 U	5.2 U	5.5 U
Freon 11		5.5 U	5.4 U	5.2 U	5.5 U
Freon 12		0.35 T	0.47 T	0.58 T	0.44 T
Carbon Disulfide	5600	0.4 T	0.53 T	0.43 T	0.68 T
Carbon Tetrachloride		5.5 U	5.4 U	5.2 U	5.5 U
Chlorobenzene		5.5 U	5.4 U	5.2 U	5.5 U

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-1-S1 3/19/2008 5	FCT-SB-1-S2 3/19/2008 15	FCT-SB-1-S3 3/19/2008 30	FCT-SB-1-S4 3/19/2008 Dup of FCT-SB-1-S3
Chloroethane		5.5 U	5.4 U	5.2 U	5.5 U
Chloroform	38	5.5 U	5.4 U	5.2 U	5.5 U
Chloromethane	22	5.5 U	5.4 U	5.2 U	5.5 U
Cis-1,2-Dichloroethene		5.5 U	5.4 U	5.2 U	5.5 U
Cis-1,3-Dichloropropene		5.5 U	5.4 U	5.2 U	5.5 U
Dibromochloromethane		5.5 U	5.4 U	5.2 U	5.5 U
Dibromomethane		5.5 U	5.4 U	5.2 U	5.5 U
Ethylbenzene	5990	5.5 U	5.4 U	5.2 U	5.5 U
Hexachlorobutadiene		22 U	22 U	21 U	22 U
Isopropylbenzene(Cumene)		22 U	22 U	21 U	22 U
Methylene Chloride	22	11 U	11 U	11 U	11 U
N-Butylbenzene	19500	22 U	22 U	21 U	22 U
N-Propylbenzene	19500	22 U	22 U	21 U	22 U
Naphthalene	4490	22 U	22 U	21 U	22 U
Sec-Butylbenzene	15800	22 U	22 U	21 U	22 U
Styrene	33	5.5 U	5.4 U	5.2 U	5.5 U
Tert-Butylbenzene	15600	22 U	22 U	21 U	22 U
Tetrachloroethene	0.9	5.5 U	5.4 U	5.2 U	5.5 U
Toluene	4650	5.5 U	5.4 U	5.2 U	5.5 U
Trans-1,2-Dichloroethene		5.5 U	5.4 U	5.2 U	5.5 U
Trans-1,3-Dichloropropene		5.5 U	5.4 U	5.2 U	5.5 U
Trichloroethene (TCE)		5.5 U	5.4 U	5.2 U	5.5 U
Vinyl Chloride		5.5 U	5.4 U	5.2 U	5.5 U
m,p-Xylenes	8520	5.5 U	5.4 U	0.19 T	0.2 T
o-Xylene	916	5.5 U	5.4 U	5.2 U	5.5 U

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-2-S1 3/19/2008 5	FCT-SB-2-S2 3/19/2008 15	FCT-SB-2-S3 3/19/2008 30	FCT-SB-2-S4 3/19/2008 Dup of FCT-SB-2-S3
Total Solids in %		89.6	87.1	92.6	93.8
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		4.7 U	5 U	5.4 U	5.4 UJ
1,1,1-Trichloroethane	1610	4.7 U	5 U	5.4 U	5.4 U
1,1,2,2-Tetrachloroethane		4.7 U	5 U	5.4 U	5.4 UJ
1,1,2-Trichloroethane		4.7 U	5 U	5.4 U	5.4 UJ
1,1-Dichloroethane	8730	4.7 U	5 U	5.4 U	5.4 U
1,1-Dichloroethene		4.7 U	5 U	5.4 U	5.4 U
1,1-Dichloropropene		4.7 U	5 U	5.4 U	5.4 U
1,2,3-Trichlorobenzene		19 U	20 U	22 U	22 UJ
1,2,3-Trichloropropane		4.7 U	5 U	5.4 U	5.4 UJ
1,2,4-Trichlorobenzene		19 U	20 U	22 U	22 UJ
1,2,4-Trimethylbenzene	31000	0.23 T	20 U	0.12 T	0.82 JT
1,2-Dibromo-3-Chloropropane		19 U	20 U	22 U	22 UJ
1,2-Dibromoethane(EDB)		19 U	20 U	22 U	22 UJ
1,2-Dichlorobenzene		4.7 U	5 U	5.4 U	5.4 UJ
1,2-Dichloroethane(EDC)		4.7 U	5 U	5.4 U	5.4 U
1,2-Dichloropropane		4.7 U	5 U	5.4 U	5.4 U
1,3,5-Trimethylbenzene	8380	19 U	20 U	22 U	22 UJ
1,3-Dichlorobenzene		4.7 U	5 U	5.4 U	5.4 UJ
1,3-Dichloropropane		4.7 U	5 U	5.4 U	5.4 UJ
1,4-Dichlorobenzene		4.7 U	5 U	5.4 U	5.4 UJ
2,2-Dichloropropane		4.7 U	5 U	5.4 U	5.4 U
2-Butanone (MEK)	20000	17 T	5.2 T	8.9 T	26
2-Chlorotoluene	2400	19 U	20 U	22 U	22 UJ
2-Hexanone		19 U	20 U	22 U	4 JT
4-Chlorotoluene	4180	19 U	20 U	22 U	22 UJ
4-Isopropyltoluene		19 U	20 U	22 U	22 UJ
4-Methyl-2-Pentanone		19 U	20 U	22 U	22 U
Acetone	3210	130	39	49	170
Benzene	5	4.7 U	5 U	5.4 U	1.1 JT
Bromobenzene		4.7 U	5 U	5.4 U	5.4 UJ
Bromochloromethane		4.7 U	5 U	5.4 U	5.4 U
Bromodichloromethane		4.7 U	5 U	5.4 U	5.4 U
Bromoform		4.7 U	5 U	5.4 U	5.4 UJ
Bromomethane	52	4.7 U	5 U	5.4 U	5.4 U
Freon 11		4.7 U	5 U	5.4 U	5.4 U
Freon 12		0.57 JT	0.57 JT	0.43 JT	1.2 T
Carbon Disulfide	5600	0.2 T	0.18 T	0.34 T	2.1 T
Carbon Tetrachloride		4.7 U	5 U	5.4 U	5.4 U
Chlorobenzene		4.7 U	5 U	5.4 U	5.4 UJ

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-2-S1 3/19/2008 5		FCT-SB-2-S2 3/19/2008 15		FCT-SB-2-S3 3/19/2008 30		FCT-SB-2-S4 3/19/2008 Dup of FCT-SB-2-S3	
Chloroethane		4.7	U	5	U	5.4	U	5.4	U
Chloroform	38	4.7	U	5	U	5.4	U	5.4	U
Chloromethane	22	4.7	U	5	U	5.4	U	5.4	U
Cis-1,2-Dichloroethene		4.7	U	5	U	5.4	U	5.4	U
Cis-1,3-Dichloropropene		4.7	U	5	U	5.4	U	5.4	U
Dibromochloromethane		4.7	U	5	U	5.4	U	5.4	UJ
Dibromomethane		4.7	U	5	U	5.4	U	5.4	U
Ethylbenzene	5990	4.7	U	5	U	5.4	U	5.4	UJ
Hexachlorobutadiene		19	U	20	U	22	U	22	UJ
Isopropylbenzene(Cumene)		19	U	20	U	22	U	22	UJ
Methylene Chloride	22	9.4	U	10	U	11	U	11	U
N-Butylbenzene	19500	19	U	20	U	22	U	22	UJ
N-Propylbenzene	19500	19	U	20	U	22	U	22	UJ
Naphthalene	4490	19	U	20	U	22	U	22	UJ
Sec-Butylbenzene	15800	19	U	20	U	22	U	22	UJ
Styrene	33	4.7	U	5	U	5.4	U	5.4	UJ
Tert-Butylbenzene	15600	19	U	20	U	22	U	22	UJ
Tetrachloroethene	0.9	4.7	U	5	U	5.4	U	5.4	UJ
Toluene	4650	4.7	U	5	U	5.4	U	2.3	JT
Trans-1,2-Dichloroethene		4.7	U	5	U	5.4	U	5.4	U
Trans-1,3-Dichloropropene		4.7	U	5	U	5.4	U	5.4	UJ
Trichloroethene (TCE)		4.7	U	5	U	5.4	U	5.4	U
Vinyl Chloride		4.7	U	5	U	5.4	U	5.4	U
m,p-Xylenes	8520	0.41	T	5	U	0.33	T	1.5	JT
o-Xylene	916	4.7	U	5	U	5.4	U	0.57	JT

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-3-S1 3/19/2008 5	FCT-SB-3-S1A 3/19/2008 1	FCT-SB-3-S2 3/19/2008 15	FCT-SB-3-S3 3/19/2008 30
Total Solids in %		86.6	92.3	93.6	93.1
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		6 U	85 U	5 U	5.3 U
1,1,1-Trichloroethane	1610	6 U	85 U	5 U	5.3 U
1,1,2,2-Tetrachloroethane		6 U	85 U	5 U	5.3 U
1,1,2-Trichloroethane		6 U	85 U	5 U	5.3 U
1,1-Dichloroethane	8730	6 U	85 U	5 U	5.3 U
1,1-Dichloroethene		6 U	85 U	5 U	5.3 U
1,1-Dichloropropene		6 U	85 U	5 U	5.3 U
1,2,3-Trichlorobenzene		24 U	340 U	20 U	21 U
1,2,3-Trichloropropane		6 U	85 U	5 U	5.3 U
1,2,4-Trichlorobenzene		24 U	340 U	20 U	21 U
1,2,4-Trimethylbenzene	31000	24 U	760	20 U	21 U
1,2-Dibromo-3-Chloropropane		24 U	340 U	20 U	21 U
1,2-Dibromoethane(EDB)		24 U	340 U	20 U	21 U
1,2-Dichlorobenzene		6 U	85 U	5 U	5.3 U
1,2-Dichloroethane(EDC)		6 U	85 U	5 U	5.3 U
1,2-Dichloropropane		6 U	85 U	5 U	5.3 U
1,3,5-Trimethylbenzene	8380	24 U	410	20 U	21 U
1,3-Dichlorobenzene		6 U	85 U	5 U	5.3 U
1,3-Dichloropropane		6 U	85 U	5 U	5.3 U
1,4-Dichlorobenzene		6 U	20 T	5 U	5.3 U
2,2-Dichloropropane		6 U	85 U	5 U	5.3 U
2-Butanone (MEK)	20000	6.8 T	3400 U	2.2 T	11 T
2-Chlorotoluene	2400	24 U	340 U	20 U	21 U
2-Hexanone		24 U	3400 U	20 U	21 U
4-Chlorotoluene	4180	24 U	52 T	20 U	21 U
4-Isopropyltoluene		24 U	270 T	20 U	21 U
4-Methyl-2-Pentanone		24 U	3400 U	20 U	21 U
Acetone	3210	48	670 T	17 T	63
Benzene	5	6 U	85 U	5 U	5.3 U
Bromobenzene		6 U	340 U	5 U	5.3 U
Bromochloromethane		6 U	85 U	5 U	5.3 U
Bromodichloromethane		6 U	85 U	5 U	5.3 U
Bromoform		6 U	85 U	5 U	5.3 U
Bromomethane	52	6 U	85 U	5 U	5.3 U
Freon 11		6 U	85 U	5 U	5.3 U
Freon 12		0.62 T	85 U	0.47 JT	5.3 UJ
Carbon Disulfide	5600	0.51 T	85 U	0.35 T	4.3 T
Carbon Tetrachloride		6 U	85 U	5 U	5.3 U
Chlorobenzene		6 U	85 U	5 U	5.3 U

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-3-S1 3/19/2008 5	FCT-SB-3-S1A 3/19/2008 1	FCT-SB-3-S2 3/19/2008 15	FCT-SB-3-S3 3/19/2008 30
Chloroethane		6 U	85 U	5 U	5.3 U
Chloroform	38	6 U	85 U	5 U	5.3 U
Chloromethane	22	6 U	85 U	5 U	5.3 U
Cis-1,2-Dichloroethene		6 U	85 U	5 U	5.3 U
Cis-1,3-Dichloropropene		6 U	85 U	5 U	5.3 U
Dibromochloromethane		6 U	85 U	5 U	5.3 U
Dibromomethane		6 U	85 U	5 U	5.3 U
Ethylbenzene	5990	6 U	46 T	5 U	0.17 JT
Hexachlorobutadiene		24 U	340 U	20 U	21 U
Isopropylbenzene(Cumene)		24 U	22 T	20 U	21 U
Methylene Chloride	22	12 U	$\boxed{35}$ JT	9.9 U	11 U
N-Butylbenzene	19500	24 U	250 T	20 U	21 U
N-Propylbenzene	19500	24 U	69 T	20 U	21 U
Naphthalene	4490	24 U	1100	20 U	21 U
Sec-Butylbenzene	15800	24 U	100 T	20 U	21 U
Styrene	33	6 U	85 U	5 U	5.3 U
Tert-Butylbenzene	15600	24 U	340 U	20 U	21 U
Tetrachloroethene	0.9	6 U	85 U	5 U	5.3 U
Toluene	4650	6 U	120	5 U	5.3 U
Trans-1,2-Dichloroethene		6 U	85 U	5 U	5.3 U
Trans-1,3-Dichloropropene		6 U	85 U	5 U	5.3 U
Trichloroethene (TCE)		6 U	85 U	5 U	5.3 U
Vinyl Chloride		6 U	85 U	5 U	5.3 U
m,p-Xylenes	8520	6 U	210	0.17 JT	0.44 JT
o-Xylene	916	6 U	110	5 U	0.16 T

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-3-S4 3/19/2008 Dup of FCT-SB-3-S3
Total Solids in %		91.8
Volatiles in ug/kg		
1,1,1,2-Tetrachloroethane		5 U
1,1,1-Trichloroethane	1610	5 U
1,1,2,2-Tetrachloroethane		5 U
1,1,2-Trichloroethane		5 U
1,1-Dichloroethane	8730	5 U
1,1-Dichloroethene		5 U
1,1-Dichloropropene		5 U
1,2,3-Trichlorobenzene		20 U
1,2,3-Trichloropropane		5 U
1,2,4-Trichlorobenzene		20 U
1,2,4-Trimethylbenzene	31000	20 U
1,2-Dibromo-3-Chloropropane		20 U
1,2-Dibromoethane(EDB)		20 U
1,2-Dichlorobenzene		5 U
1,2-Dichloroethane(EDC)		5 U
1,2-Dichloropropane		5 U
1,3,5-Trimethylbenzene	8380	20 U
1,3-Dichlorobenzene		5 U
1,3-Dichloropropane		5 U
1,4-Dichlorobenzene		5 U
2,2-Dichloropropane		5 U
2-Butanone (MEK)	20000	10 T
2-Chlorotoluene	2400	20 U
2-Hexanone		20 U
4-Chlorotoluene	4180	20 U
4-Isopropyltoluene		20 U
4-Methyl-2-Pentanone		20 U
Acetone	3210	58
Benzene	5	5 U
Bromobenzene		5 U
Bromochloromethane		5 U
Bromodichloromethane		5 U
Bromoform		5 U
Bromomethane	52	5 U
Freon 11		5 U
Freon 12		5 UJ
Carbon Disulfide	5600	7.8
Carbon Tetrachloride		5 U
Chlorobenzene		5 U

Table 6-5 - Additional Analytical Results from 2008 Soil Borings in Field-Constructed Tanks

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-SB-3-S4 3/19/2008 Dup of FCT-SB-3-S3	
Chloroethane		5	U
Chloroform	38	5	U
Chloromethane	22	5	U
Cis-1,2-Dichloroethene		5	U
Cis-1,3-Dichloropropene		5	U
Dibromochloromethane		5	U
Dibromomethane		5	U
Ethylbenzene	5990	0.19	JT
Hexachlorobutadiene		20	U
Isopropylbenzene(Cumene)		20	U
Methylene Chloride	22	10	U
N-Butylbenzene	19500	20	U
N-Propylbenzene	19500	20	U
Naphthalene	4490	20	U
Sec-Butylbenzene	15800	20	U
Styrene	33	5	U
Tert-Butylbenzene	15600	20	U
Tetrachloroethene	0.9	5	U
Toluene	4650	5	U
Trans-1,2-Dichloroethene		5	U
Trans-1,3-Dichloropropene		5	U
Trichloroethene (TCE)		5	U
Vinyl Chloride		5	U
m,p-Xylenes	8520	0.44	JT
o-Xylene	916	0.19	T

U = Not detected at reporting limit indicated. J = Estimated value.
T = Reported result below associated quantitation limit but above MDL.
X = Benzo(b)fluoranthene and Benzo(k)fluoranthene could not be resolved due to matrix interference. The analytes were integrated together and reported as Benzo(b)fluoranthene.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-1-S1 7/02/2008 2 to 2.5	FCT-TP-1-S2 7/02/2008 6 to 6.5	FCT-TP-1-Bottom 7/02/2008 9 to 9.5	FCT-TP-2-S1 7/02/2008 2 to 2.5	FCT-TP-2-S2 7/02/2008 6 to 6.5	FCT-TP-2-Bottom 7/02/2008 9 to 9.5	FCT-TP-200 7/02/2008 Dup of FCT-TP-2-Bottom
Moisture in %		7.6	4.1	7.1	7.3	7.3	7.4	9.4
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg								
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-3-S1 7/02/2008 2 to 3	FCT-TP-3-S2 7/02/2008 6 to 6.5	FCT-TP-3-Bottom 7/02/2008 9 to 9.5	FCT-TP-4-S1 7/02/2008 2 to 2.5	FCT-TP-4-S2 7/02/2008 6 to 6.5	FCT-TP-4-Bottom 7/02/2008 9 to 9.5	FCT-TP-400 7/02/2008 Dup of FCT-TP-4-Bottom
Moisture in %		5.5	4.9	4.7	5.7	6.6	7.4	6.8
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	67	50 U	50 U	85	200	220	270
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	190	100 U	100 U	190	460	450	490
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	60	20 U	20 U	81	200	200	240
Heavy oil	2000	180	50 U	50 U	220	430	440	500
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg								
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-5-S1 7/02/2008 2 to 2.5	FCT-TP-5-S2 7/02/2008 6 to 6.5	FCT-TP-5-Bottom 7/02/2008 8.5 to 9	FCT-TP-6-S1 7/02/2008 2 to 2.5	FCT-TP-6-S2 7/02/2008 6 to 6.5	FCT-TP-6-Bottom 7/02/2008 8 to 8.5	FCT-TP-7-S1 7/02/2008 2 to 2.5
Moisture in %		5.4	5	8.1	7.9	5.6	7.2	5.8
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	100	86	330	$\boxed{8100}$	$\boxed{4200}$	510	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	110	100	260	$\boxed{2300}$	1700	330	100 U
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	94	85	340	$\boxed{7300}$	$\boxed{4500}$	510	20 U
Heavy oil	2000	120	130	310	$\boxed{3300}$	2000	340	50 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg								
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-7-S2 7/02/2008 6 to 7	FCT-TP-7-Bottom 7/02/2008 8.5 to 9	FCT-TP-8-S1 7/03/2008 1 to 2	FCT-TP-8-S2 7/03/2008 6 to 7	FCT-TP-8-Bottom 7/03/2008 9 to 10	FCT-TP-9-S1 7/03/2008 2 to 3	FCT-TP-9-S2 7/03/2008 6 to 6.5
Moisture in %		5.8	6.1	5.6	6.6	3.9	4.9	6.6
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50	50 U	50 U	50 U	50 U	1800	370
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	200	100 U	100 U	100 U	100 U	540	350
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	46	20 U	20 U	20 U	20 U	2500	450
Heavy oil	2000	220	50 U	50 U	50 U	50 U	750	440
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg								
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U		5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U		5 U	5 U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-9-Bottom 7/03/2008 8 to 8.5	FCT-TP-10-S1 7/03/2008 2 to 2.5	FCT-TP-10-Bottom 7/03/2008 6 to 7	FCT-TP-11-Bottom 7/03/2008 2 to 3	FCT-TP-12-S1 7/03/2008 3 to 4	FCT-TP-12-S2 7/03/2008 6 to 7
Moisture in %		4.8	13	4.6	7.3	3.1	8.7
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	250
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	630
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	200
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U	530
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-12-Bottom 7/03/2008 10 to 11	FCT-TP-13-S1 7/03/2008 2 to 3	FCT-TP-13-S2 7/03/2008 6 to 7	FCT-TP-13-Bottom 7/03/2008 10 to 11
Moisture in %		6.1	10	8.4	5.2
NWTPH-HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	1900	570	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	1800	1200	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	1700	620	20 U
Heavy oil	2000	50 U	1600	900	50 U
Kensol	2000	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100	5 U	5 U	5 U	
Gasoline	100	5 U	5 U	5 U	

Non-detect results are reported on a wet weight basis.

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-1 Bottom 7/02/2008 9 to 9.5	FCT-TP-2 Bottom 7/02/2008 9 to 9.5	FCT-TP-200 7/02/2008 9 to 9.5 Field Dup of FCT-TP-2 Bottom	FCT-TP-3 Bottom 7/02/2008 9 to 9.5
Total Solids in %		92.7	89.7	91	93.8
Metals in mg/kg					
Antimony	5.42	0.13 J	0.17 J	0.15 J	0.16 J
Arsenic	0.03	8.64	60.7	10.7	7.68
Barium	1650	45.2	53.1	55.6	93.1
Cadmium	0.7	0.52	0.087	0.059	0.078
Chromium	2000	7.23	5.59	6.32	12.2
Lead	250	11.7	11.9	8.28	10.9
Mercury	2	0.014 U	0.003 T	0.003 T	0.018 U
Selenium	5	1.06 U	1.1 U	1.1 U	1.05 U
Silver	14	0.044	0.066	0.046	0.093
PCBs in ug/kg					
Aroclor 1016		9.9 U	9.9 U	10 U	9.9 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		9.9 U	9.9 U	10 U	9.9 U
Aroclor 1242		9.9 U	9.9 U	10 U	9.9 U
Aroclor 1248		9.9 U	9.9 U	10 U	9.9 U
Aroclor 1254		9.9 U	9.9 U	10 U	9.9 U
Aroclor 1260		9.9 U	9.9 U	10 U	9.9 U
Total PCBs	270	20 U	20 U	20 U	20 U
Semivolatiles in ug/kg					
2-Methylnaphthalene	2190	150	18	15	0.53 T
Acenaphthene	98000	9	1.4 T	1.1 T	4.9 U
Acenaphthylene		4.8 U	4.9 U	5 U	4.9 U
Anthracene	2200000	11	2.5 T	1.2 T	4.9 U
Benzo(a)anthracene	See BaP (c)	6.2	1.7 T	0.7 T	0.71 T
Benzo(a)pyrene	233	4.1 T	1.9 T	5 U	4.9 U
Benzo(b)fluoranthene	See BaP (c)	2.8 T	0.72 T	0.54 T	4.9 U
Benzo(g,h,i)perylene		4.4 T	1.2 T	5 U	4.9 U
Benzo(k)fluoranthene	See BaP (c)	0.77 T	0.34 T	5 U	4.9 U
Chrysene	See BaP (c)	5.9	2.1 T	0.91 T	0.3 T
Dibenz(a,h)anthracene	See BaP (c)	0.94 T	0.43 T	0.29 T	4.9 U
Dibenzofuran	5090	6.7	1.7 T	1.6 T	4.9 U
Fluoranthene	630000	7.2	3 T	2.2 T	4.9 U
Fluorene	100000	17	2 T	1.7 T	4.9 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	1.7 T	0.5 T	0.24 T	4.9 U
Naphthalene	4490	18	2.6 T	2 T	0.44 T
Phenanthrene		82	48	36	0.89 T
Pyrene	660000	37	9.4	9.5	0.5 T
TEQ Equivalent (b)	See BaP (c)	5.4 J	2.29 J	0.1861 J	0.074 J

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-1 Bottom 7/02/2008 9 to 9.5	FCT-TP-2 Bottom 7/02/2008 9 to 9.5	FCT-TP-200 7/02/2008 9 to 9.5 Field Dup of FCT-TP-2 Bottom	FCT-TP-3 Bottom 7/02/2008 9 to 9.5
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		5.1 U	5 U	4.8 U	4.5 U
1,1,1-Trichloroethane	1610	5.1 U	5 U	4.8 U	4.5 U
1,1,2,2-Tetrachloroethane		5.1 U	5 U	4.8 U	4.5 U
1,1,2-Trichloroethane		5.1 U	5 U	4.8 U	4.5 U
1,1-Dichloroethane	8730	5.1 U	5 U	4.8 U	4.5 U
1,1-Dichloroethene		5.1 U	5 U	4.8 U	4.5 U
1,1-Dichloropropene		5.1 U	5 U	4.8 U	4.5 U
1,2,3-Trichlorobenzene		21 U	20 U	19 U	18 U
1,2,3-Trichloropropane		5.1 U	5 U	4.8 U	4.5 U
1,2,4-Trichlorobenzene		21 U	20 U	19 U	18 U
1,2,4-Trimethylbenzene	31000	26	0.9 T	14 T	0.36 T
1,2-Dibromo-3-Chloropropane		21 U	20 U	19 U	18 U
1,2-Dibromoethane(EDB)		21 U	20 U	19 U	18 U
1,2-Dichlorobenzene		5.1 U	5 U	4.8 U	4.5 U
1,2-Dichloroethane(EDC)		5.1 U	5 U	4.8 U	4.5 U
1,2-Dichloropropane		5.1 U	5 U	4.8 U	4.5 U
1,3,5-Trimethylbenzene	8380	6 JT	0.27 JT	3.2 JT	0.12 JT
1,3-Dichlorobenzene		5.1 U	5 U	4.8 U	4.5 U
1,3-Dichloropropane		5.1 U	5 U	4.8 U	4.5 U
1,4-Dichlorobenzene		5.1 U	5 U	4.8 U	4.5 U
2,2-Dichloropropane		5.1 U	5 U	4.8 U	4.5 U
2-Butanone (MEK)	20000	3.1 T	6.4 T	6.7 T	18 U
2-Chlorotoluene	2400	21 U	20 U	19 U	18 U
2-Hexanone		21 U	20 U	19 U	18 U
4-Chlorotoluene	4180	0.19 T	20 U	19 U	18 U
4-Isopropyltoluene		2.4 JT	0.13 JT	1 JT	18 U
4-Methyl-2-Pentanone		21 U	20 U	19 U	18 U
Acetone	3210	24	45	44	18 U
Benzene	5	5.1 U	5 U	4.8 U	4.5 U
Bromobenzene		5.1 U	5 U	4.8 U	4.5 U
Bromochloromethane		5.1 U	5 U	4.8 U	4.5 U
Bromodichloromethane		5.1 U	5 U	4.8 U	4.5 U
Bromoform		5.1 U	5 U	4.8 U	4.5 U
Bromomethane	52	1.3 JT	5 U	4.8 U	4.5 U
Freon 11		5.1 U	5 U	4.8 U	4.5 U
Freon 12		5.1 U	5 U	4.8 U	4.5 U
Carbon Disulfide	5600	0.45 T	5 U	0.33 T	0.08 T
Carbon Tetrachloride		5.1 U	5 U	4.8 U	4.5 U
Chlorobenzene		5.1 U	5 U	4.8 U	4.5 U
Chloroethane		5.1 U	5 U	4.8 U	4.5 U
Chloroform	38	5.1 U	5 U	4.8 U	4.5 U
Chloromethane	22	0.22 T	5 U	4.8 U	0.15 T
Cis-1,2-Dichloroethene		5.1 U	5 U	4.8 U	4.5 U
Cis-1,3-Dichloropropene		5.1 U	5 U	4.8 U	4.5 U
Dibromochloromethane		5.1 U	5 U	4.8 U	4.5 U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-1 Bottom 7/02/2008 9 to 9.5	FCT-TP-2 Bottom 7/02/2008 9 to 9.5	FCT-TP-200 7/02/2008 9 to 9.5 Field Dup of FCT-TP-2 Bottom	FCT-TP-3 Bottom 7/02/2008 9 to 9.5
Dibromomethane		5.1 U	5 U	4.8 U	4.5 U
Ethylbenzene	5990	1.7 T	5 U	1.2 T	4.5 U
Hexachlorobutadiene		21 U	20 U	19 U	18 U
Isopropylbenzene(Cumene)		1.1 T	20 U	0.61 T	18 U
Methylene Chloride	22	11 U	10 U	4 T	8.9 U
N-Butylbenzene	19500	3 T	20 U	1.1 T	18 U
N-Propylbenzene	19500	2.5 JT	20 U	1.4 JT	18 U
Naphthalene	4490	56	20 U	37	18 U
Sec-Butylbenzene	15800	1.7 T	20 U	0.76 T	18 U
Styrene	33	5.1 U	5 U	0.15 T	0.15 T
Tert-Butylbenzene	15600	21 U	20 U	19 U	18 U
Tetrachloroethene	0.9	5.1 U	5 U	4.8 U	4.5 U
Toluene	4650	5.1 U	5 U	4.8 U	4.5 U
Trans-1,2-Dichloroethene		5.1 U	5 U	4.8 U	4.5 U
Trans-1,3-Dichloropropene		5.1 U	5 U	4.8 U	4.5 U
Trichloroethene (TCE)		5.1 U	5 U	4.8 U	4.5 U
Vinyl Chloride		5.1 U	5 U	4.8 U	4.5 U
m,p-Xylenes	8520	5.8 J	0.43 JT	4.5 JT	0.24 JT
o-Xylene	916	4.9 T	0.21 T	3.4 T	0.28 T

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-4 Bottom 7/02/2008 9 to 9.5	FCT-TP-400 7/02/2008 9 to 9.5 Field Dup of FCT-TP-4 Bottom	FCT-TP-5 Bottom 7/02/2008 8.5 to 9	FCT-TP-6 Bottom 7/02/2008 8 to 8.5
Total Solids in %		93.8	81.9	97.9	89.7
Metals in mg/kg					
Antimony	5.42	0.38 J	0.26 J	0.22 J	0.2 J
Arsenic	0.03	9.05	10.6	9.96	6.03
Barium	1650	49.7	57.9	41.3	37.2
Cadmium	0.7	0.085	0.07	0.082	0.095
Chromium	2000	6.29	7.51	5.86	7.84
Lead	250	10.9	13	9.9	7.1
Mercury	2	0.007 T	0.007 T	0.02	0.07
Selenium	5	1.06 U	1.2 U	1.02 U	1.11 U
Silver	14	0.193	0.082	0.042	0.063
PCBs in ug/kg					
Aroclor 1016		10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U
Aroclor 1248		11	4.2 T	19	7.7 T
Aroclor 1254		11	5 T	18	8.6 T
Aroclor 1260		10 U	10 U	10 U	10 U
Total PCBs	270	22	9.2 T	37	16.3 T
Semivolatiles in ug/kg					
2-Methylnaphthalene	2190	7.4	6.5	17	18
Acenaphthene	98000	1.5 T	1.3 T	4.8 T	36
Acenaphthylene		4.9 U	5 U	5 U	4.9 U
Anthracene	2200000	1 T	5 U	3.2 T	11 U
Benzo(a)anthracene	See BaP (c)	1.6 T	1.5 T	3.2 T	6.3
Benzo(a)pyrene	233	1.3 T	0.65 T	2.2 T	23
Benzo(b)fluoranthene	See BaP (c)	4.9 U	5 U	2.1 T	10
Benzo(g,h,i)perylene		6.7	6.9	4 T	260
Benzo(k)fluoranthene	See BaP (c)	4.9 U	5 U	0.68 T	4.9 U
Chrysene	See BaP (c)	1.3 T	1.2 T	3.1 T	39
Dibenz(a,h)anthracene	See BaP (c)	0.41 T	5 U	0.72 T	7.1
Dibenzofuran	5090	1.1 T	1.2 T	3.4 T	19
Fluoranthene	630000	1.7 T	1.6 T	5.2	16
Fluorene	100000	2.9 T	2.9 T	9.3	77
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.76 T	0.99 T	1.1 T	21
Naphthalene	4490	0.87 T	1 T	2 T	10
Phenanthrene		12	12	36	110
Pyrene	660000	6.9	5.8	16	150
TEQ Equivalent (b)	See BaP (c)	1.59 J	0.911 J	3.011 J	27.83

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-4 Bottom 7/02/2008 9 to 9.5	FCT-TP-400 7/02/2008 9 to 9.5 Field Dup of FCT-TP-4 Bottom	FCT-TP-5 Bottom 7/02/2008 8.5 to 9	FCT-TP-6 Bottom 7/02/2008 8 to 8.5
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		3.7 U	5 U	4.6 U	50 U
1,1,1-Trichloroethane	1610	3.7 U	5 U	4.6 U	50 U
1,1,2,2-Tetrachloroethane		3.7 U	5 U	4.6 U	50 U
1,1,2-Trichloroethane		3.7 U	5 U	4.6 U	50 U
1,1-Dichloroethane	8730	3.7 U	5 U	4.6 U	50 U
1,1-Dichloroethene		3.7 U	5 U	4.6 U	50 U
1,1-Dichloropropene		3.7 U	5 U	4.6 U	50 U
1,2,3-Trichlorobenzene		15 U	20 U	19 U	200 U
1,2,3-Trichloropropane		3.7 U	5 U	4.6 U	50 U
1,2,4-Trichlorobenzene		15 U	20 U	19 U	200 U
1,2,4-Trimethylbenzene	31000	15 U	20 U	3.1 T	170 T
1,2-Dibromo-3-Chloropropane		15 U	20 U	19 U	200 U
1,2-Dibromoethane(EDB)		15 U	20 U	19 U	200 U
1,2-Dichlorobenzene		3.7 U	5 U	4.6 U	50 U
1,2-Dichloroethane(EDC)		3.7 U	5 U	4.6 U	50 U
1,2-Dichloropropane		3.7 U	5 U	4.6 U	50 U
1,3,5-Trimethylbenzene	8380	15 U	20 U	0.89 JT	84 T
1,3-Dichlorobenzene		3.7 U	5 U	4.6 U	50 U
1,3-Dichloropropane		3.7 U	5 U	4.6 U	50 U
1,4-Dichlorobenzene		3.7 U	5 U	4.6 U	50 U
2,2-Dichloropropane		3.7 U	5 U	4.6 U	50 U
2-Butanone (MEK)	20000	8.6 T	17 T	18 T	2000 U
2-Chlorotoluene	2400	15 U	20 U	19 U	200 U
2-Hexanone		15 U	2.3 T	5.1 T	2000 U
4-Chlorotoluene	4180	15 U	20 U	19 U	200 U
4-Isopropyltoluene		15 U	20 U	0.4 JT	37 JT
4-Methyl-2-Pentanone		15 U	20 U	19 U	2000 U
Acetone	3210	57	100	110	310 T
Benzene	5	3.7 U	5 U	4.6 U	50 U
Bromobenzene		3.7 U	5 U	4.6 U	200 U
Bromochloromethane		3.7 U	5 U	4.6 U	50 U
Bromodichloromethane		3.7 U	5 U	4.6 U	50 U
Bromoform		3.7 U	5 U	4.6 U	50 U
Bromomethane	52	3.7 U	1.6 JT	1.1 JT	50 U
Freon 11		3.7 U	5 U	4.6 U	50 U
Freon 12		3.7 U	5 U	4.6 U	23 JT
Carbon Disulfide	5600	0.15 T	0.37 T	0.42 T	50 U
Carbon Tetrachloride		3.7 U	5 U	4.6 U	50 U
Chlorobenzene		3.7 U	5 U	4.6 U	50 U
Chloroethane		3.7 U	5 U	4.6 U	50 U
Chloroform	38	3.7 U	5 U	4.6 U	50 U
Chloromethane	22	0.12 T	0.28 T	0.2 T	50 U
Cis-1,2-Dichloroethene		3.7 U	5 U	4.6 U	50 U
Cis-1,3-Dichloropropene		3.7 U	5 U	4.6 U	50 U
Dibromochloromethane		3.7 U	5 U	4.6 U	50 U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-4 Bottom 7/02/2008 9 to 9.5	FCT-TP-400 7/02/2008 9 to 9.5 Field Dup of FCT-TP-4 Bottom	FCT-TP-5 Bottom 7/02/2008 8.5 to 9	FCT-TP-6 Bottom 7/02/2008 8 to 8.5
Dibromomethane		3.7 U	5 U	4.6 U	50 U
Ethylbenzene	5990	3.7 U	5 U	4.6 U	9.9 T
Hexachlorobutadiene		15 U	20 U	19 U	200 U
Isopropylbenzene(Cumene)		15 U	20 U	19 U	11 JT
Methylene Chloride	22	2 T	1.9 T	9.1 U	21 T
N-Butylbenzene	19500	15 U	20 U	19 U	75 JT
N-Propylbenzene	19500	15 U	20 U	19 U	19 T
Naphthalene	4490	15 U	20 U	8.6 T	170 T
Sec-Butylbenzene	15800	15 U	20 U	19 U	33 JT
Styrene	33	3.7 U	5 U	4.6 U	16 T
Tert-Butylbenzene	15600	15 U	20 U	19 U	200 U
Tetrachloroethene	0.9	3.7 U	5 U	4.6 U	50 U
Toluene	4650	3.7 U	5 U	4.6 U	13 T
Trans-1,2-Dichloroethene		3.7 U	5 U	4.6 U	50 U
Trans-1,3-Dichloropropene		3.7 U	5 U	4.6 U	50 U
Trichloroethene (TCE)		3.7 U	5 U	4.6 U	50 U
Vinyl Chloride		3.7 U	5 U	4.6 U	50 U
m,p-Xylenes	8520	0.15 JT	5 U	0.48 JT	38 T
o-Xylene	916	3.7 U	5 U	0.3 T	28 T

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID	Screening	FCT-TP-7 Bottom		FCT-TP-8 Bottom		FCT-TP-9 Bottom		FCT-TP-10 Bottom	
Sampling Date	Level (a)	7/02/2008		7/03/2008		7/03/2008		7/03/2008	
Depth in Feet		8.5 to 9		9 to 10		8 to 8.5		6 to 7	
Total Solids in %		93.8		93.9		92.3		95	
Metals in mg/kg									
Antimony	5.42	0.16	J	0.06	J	0.13	J	0.3	J
Arsenic	0.03	$\boxed{12.5}$		$\boxed{3.22}$		$\boxed{9.33}$		$\boxed{12}$	
Barium	1650	36.8		16.9		42.2		34.6	
Cadmium	0.7	0.063		0.018	T	0.066		0.055	
Chromium	2000	6.01		3.24		5.43		5.09	
Lead	250	10		3.95		9.75		8.71	
Mercury	2	0.019	U	0.011	U	0.001	T	0.016	U
Selenium	5	1.06	U	1.05	U	1.06	U	1.03	U
Silver	14	0.06		0.034		0.044		0.06	
PCBs in ug/kg									
Aroclor 1016		9.9	U	10	U	10	U	9.9	U
Aroclor 1221		20	U	20	U	20	U	20	U
Aroclor 1232		9.9	U	10	U	10	U	9.9	U
Aroclor 1242		9.9	U	10	U	10	U	9.9	U
Aroclor 1248		9.9	U	10	U	16		9.9	U
Aroclor 1254		9.9	U	10	U	10	U	9.9	U
Aroclor 1260		9.9	U	10	U	10	U	9.9	U
Total PCBs	270	20	U	20	U	16		20	U
Semivolatiles in ug/kg									
2-Methylnaphthalene	2190	15		4.9	U	0.74	T	4.9	U
Acenaphthene	98000	1	T	4.9	U	1.1	T	4.9	U
Acenaphthylene		5	U	4.9	U	4.8	U	4.9	U
Anthracene	2200000	1.3	T	4.9	U	4.8	U	4.9	U
Benzo(a)anthracene	See BaP (c)	1.3	T	4.9	U	1.4	T	4.9	U
Benzo(a)pyrene	233	5	U	4.9	U	1.4	T	4.9	U
Benzo(b)fluoranthene	See BaP (c)	0.3	T	4.9	U	0.5	T	4.9	U
Benzo(g,h,i)perylene		5	U	4.9	U	0.78	T	4.9	U
Benzo(k)fluoranthene	See BaP (c)	5	U	4.9	U	4.8	U	4.9	U
Chrysene	See BaP (c)	0.89	T	4.9	U	1	T	4.9	U
Dibenz(a,h)anthracene	See BaP (c)	5	U	4.9	U	4.8	U	4.9	U
Dibenzofuran	5090	0.81	T	4.9	U	4.8	U	4.9	U
Fluoranthene	630000	0.91	T	4.9	U	1.2	T	4.9	U
Fluorene	100000	2.3	T	4.9	U	2.6	T	4.9	U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.26	T	4.9	U	0.23	T	4.9	U
Naphthalene	4490	1.9	T	0.42	T	0.62	T	0.4	T
Phenanthrene		9.6		4.9	U	5.9		4.9	U
Pyrene	660000	4.1	T	4.9	U	4.9		4.9	U
TEQ Equivalent (b)	See BaP (c)	0.1949	J	4.9	U	1.623	J	4.9	U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-7 Bottom 7/02/2008 8.5 to 9	FCT-TP-8 Bottom 7/03/2008 9 to 10	FCT-TP-9 Bottom 7/03/2008 8 to 8.5	FCT-TP-10 Bottom 7/03/2008 6 to 7
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		4.6 U	5.2 U	4.5 U	4.6 U
1,1,1-Trichloroethane	1610	4.6 U	5.2 U	4.5 U	4.6 U
1,1,2,2-Tetrachloroethane		4.6 U	5.2 U	4.5 U	4.6 U
1,1,2-Trichloroethane		4.6 U	5.2 U	4.5 U	4.6 U
1,1-Dichloroethane	8730	4.6 U	5.2 U	4.5 U	4.6 U
1,1-Dichloroethene		4.6 U	5.2 U	4.5 U	4.6 U
1,1-Dichloropropene		4.6 U	5.2 U	4.5 U	4.6 U
1,2,3-Trichlorobenzene		19 U	21 U	18 U	19 U
1,2,3-Trichloropropane		4.6 U	5.2 U	4.5 U	4.6 U
1,2,4-Trichlorobenzene		19 U	21 U	18 U	19 U
1,2,4-Trimethylbenzene	31000	1.1 T	21 U	1.4 T	0.14 T
1,2-Dibromo-3-Chloropropane		19 U	21 U	18 U	19 U
1,2-Dibromoethane(EDB)		19 U	21 U	18 U	19 U
1,2-Dichlorobenzene		4.6 U	5.2 U	4.5 U	4.6 U
1,2-Dichloroethane(EDC)		4.6 U	5.2 U	4.5 U	4.6 U
1,2-Dichloropropane		4.6 U	5.2 U	4.5 U	4.6 U
1,3,5-Trimethylbenzene	8380	0.29 JT	21 U	0.5 JT	19 U
1,3-Dichlorobenzene		4.6 U	5.2 U	4.5 U	4.6 U
1,3-Dichloropropane		4.6 U	5.2 U	4.5 U	4.6 U
1,4-Dichlorobenzene		4.6 U	5.2 U	4.5 U	4.6 U
2,2-Dichloropropane		4.6 U	5.2 U	4.5 U	4.6 U
2-Butanone (MEK)	20000	19 U	21 U	9.5 T	19 U
2-Chlorotoluene	2400	19 U	21 U	18 U	19 U
2-Hexanone		19 U	21 U	18 U	19 U
4-Chlorotoluene	4180	19 U	21 U	18 U	19 U
4-Isopropyltoluene		19 U	21 U	18 U	19 U
4-Methyl-2-Pentanone		19 U	21 U	18 U	19 U
Acetone	3210	19 U	21 U	54	19 U
Benzene	5	4.6 U	5.2 U	4.5 U	4.6 U
Bromobenzene		4.6 U	5.2 U	4.5 U	4.6 U
Bromochloromethane		4.6 U	5.2 U	4.5 U	4.6 U
Bromodichloromethane		4.6 U	5.2 U	4.5 U	4.6 U
Bromoform		4.6 U	5.2 U	4.5 U	4.6 U
Bromomethane	52	2.1 JT	5.2 U	4.5 U	4.6 U
Freon 11		4.6 U	5.2 U	4.5 U	4.6 U
Freon 12		4.6 U	5.2 U	4.5 U	4.6 U
Carbon Disulfide	5600	4.6 U	0.3 T	0.54 T	0.21 T
Carbon Tetrachloride		4.6 U	5.2 U	4.5 U	4.6 U
Chlorobenzene		4.6 U	5.2 U	4.5 U	4.6 U
Chloroethane		4.6 U	5.2 U	4.5 U	4.6 U
Chloroform	38	4.6 U	5.2 U	4.5 U	4.6 U
Chloromethane	22	0.39 T	5.2 U	4.5 U	4.6 U
Cis-1,2-Dichloroethene		4.6 U	5.2 U	4.5 U	4.6 U
Cis-1,3-Dichloropropene		4.6 U	5.2 U	4.5 U	4.6 U
Dibromochloromethane		4.6 U	5.2 U	4.5 U	4.6 U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-7 Bottom 7/02/2008 8.5 to 9		FCT-TP-8 Bottom 7/03/2008 9 to 10		FCT-TP-9 Bottom 7/03/2008 8 to 8.5		FCT-TP-10 Bottom 7/03/2008 6 to 7	
Dibromomethane		4.6	U	5.2	U	4.5	U	4.6	U
Ethylbenzene	5990	4.6	U	5.2	U	4.5	U	4.6	U
Hexachlorobutadiene		19	U	21	U	18	U	19	U
Isopropylbenzene(Cumene)		19	U	21	U	18	U	19	U
Methylene Chloride	22	9.2	U	11	U	8.9	U	9.2	U
N-Butylbenzene	19500	0.27	T	21	U	18	U	19	U
N-Propylbenzene	19500	19	U	21	U	18	U	19	U
Naphthalene	4490	19	U	21	U	18	U	19	U
Sec-Butylbenzene	15800	19	U	21	U	18	U	19	U
Styrene	33	0.14	T	5.2	U	4.5	U	4.6	U
Tert-Butylbenzene	15600	19	U	21	U	18	U	19	U
Tetrachloroethene	0.9	4.6	U	5.2	U	4.5	U	4.6	U
Toluene	4650	4.6	U	5.2	U	4.5	U	4.6	U
Trans-1,2-Dichloroethene		4.6	U	5.2	U	4.5	U	4.6	U
Trans-1,3-Dichloropropene		4.6	U	5.2	U	4.5	U	4.6	U
Trichloroethene (TCE)		4.6	U	5.2	U	4.5	U	4.6	U
Vinyl Chloride		4.6	U	5.2	U	4.5	U	4.6	U
m,p-Xylenes	8520	0.37	JT	0.21	JT	0.49	JT	4.6	U
o-Xylene	916	0.25	T	5.2	U	0.31	T	4.6	U

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-11 Bottom 7/03/2008 2 to 3	FCT-TP-12 Bottom 7/03/2008 10 to 11	FCT-TP-13 S-2 7/03/2008 6 to 7	FCT-TP-13 Bottom 7/03/2008 10 to 11
Total Solids in %		92.9	91.7	94.2	91.1
Metals in mg/kg					
Antimony	5.42	0.09 J	0.14 J		0.21 J
Arsenic	0.03	10.2	9.71		11.5
Barium	1650	127	44.8		58.2
Cadmium	0.7	0.105	0.054		0.08
Chromium	2000	14.4	8.79		6.43
Lead	250	11.1	10.9		12.5
Mercury	2	0.004 T	0.007 T		0.03
Selenium	5	1.08 U	1.08 U		1.09 U
Silver	14	0.119	0.03		0.066
PCBs in ug/kg					
Aroclor 1016		10 U	10 U		10 U
Aroclor 1221		20 U	20 U		20 U
Aroclor 1232		10 U	10 U		10 U
Aroclor 1242		10 U	10 U		10 U
Aroclor 1248		10 U	10 U		10 U
Aroclor 1254		10 U	10 U		10 U
Aroclor 1260		10 U	10 U		2.9 T
Total PCBs	270	20 U	20 U		2.9 T
Semivolatiles in ug/kg					
2-Methylnaphthalene	2190	2.3 T	0.48 T		1.2 T
Acenaphthene	98000	0.72 T	5 U		0.25 T
Acenaphthylene		4.8 U	5 U		5 U
Anthracene	2200000	1.5 T	5 U		1.2 T
Benzo(a)anthracene	See BaP (c)	7.2	5 U		5 U
Benzo(a)pyrene	233	6.2	5 U		5 U
Benzo(b)fluoranthene	See BaP (c)	2.3 T	5 U		5 U
Benzo(g,h,i)perylene		25	8.5		170
Benzo(k)fluoranthene	See BaP (c)	0.54 T	5 U		5 U
Chrysene	See BaP (c)	10	5 U		5 U
Dibenz(a,h)anthracene	See BaP (c)	1.8 T	0.38 T		2.8 T
Dibenzofuran	5090	4.8 U	5 U		5 U
Fluoranthene	630000	3.6 T	5 U		5 U
Fluorene	100000	1.7 T	5 U		5 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	3.3 T	5 U		9.3
Naphthalene	4490	1 T	0.54 T		0.58 T
Phenanthrene		12	5 U		1.7 T
Pyrene	660000	21	5 U		3.1 T
TEQ Equivalent (b)	See BaP (c)	7.814 J	0.038 J		1.21 J

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-11 Bottom 7/03/2008 2 to 3	FCT-TP-12 Bottom 7/03/2008 10 to 11	FCT-TP-13 S-2 7/03/2008 6 to 7	FCT-TP-13 Bottom 7/03/2008 10 to 11
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		5 U	4.3 U	4.8 U	
1,1,1-Trichloroethane	1610	5 U	4.3 U	4.8 U	
1,1,2,2-Tetrachloroethane		5 U	4.3 U	4.8 U	
1,1,2-Trichloroethane		5 U	4.3 U	4.8 U	
1,1-Dichloroethane	8730	5 U	4.3 U	4.8 U	
1,1-Dichloroethene		5 U	4.3 U	4.8 U	
1,1-Dichloropropene		5 U	4.3 U	4.8 U	
1,2,3-Trichlorobenzene		20 U	18 U	20 U	
1,2,3-Trichloropropane		5 U	4.3 U	4.8 U	
1,2,4-Trichlorobenzene		20 U	18 U	20 U	
1,2,4-Trimethylbenzene	31000	20 U	18 U	20 U	
1,2-Dibromo-3-Chloropropane		20 U	18 U	20 U	
1,2-Dibromoethane(EDB)		20 U	18 U	20 U	
1,2-Dichlorobenzene		5 U	4.3 U	4.8 U	
1,2-Dichloroethane(EDC)		5 U	4.3 U	4.8 U	
1,2-Dichloropropane		5 U	4.3 U	4.8 U	
1,3,5-Trimethylbenzene	8380	20 U	18 U	20 U	
1,3-Dichlorobenzene		5 U	4.3 U	4.8 U	
1,3-Dichloropropane		5 U	4.3 U	4.8 U	
1,4-Dichlorobenzene		5 U	4.3 U	4.8 U	
2,2-Dichloropropane		5 U	4.3 U	4.8 U	
2-Butanone (MEK)	20000	4.5 T	15 T	14 T	
2-Chlorotoluene	2400	20 U	18 U	20 U	
2-Hexanone		20 U	18 U	20 U	
4-Chlorotoluene	4180	20 U	18 U	20 U	
4-Isopropyltoluene		20 U	18 U	20 U	
4-Methyl-2-Pentanone		20 U	18 U	20 U	
Acetone	3210	45	82	79	
Benzene	5	5 U	4.3 U	4.8 U	
Bromobenzene		5 U	4.3 U	4.8 U	
Bromochloromethane		5 U	4.3 U	4.8 U	
Bromodichloromethane		5 U	4.3 U	4.8 U	
Bromoform		5 U	4.3 U	4.8 U	
Bromomethane	52	5 U	4.3 U	4.8 U	
Freon 11		5 U	4.3 U	4.8 U	
Freon 12		5 U	4.3 U	4.8 U	
Carbon Disulfide	5600	0.41 T	0.48 T	0.18 T	
Carbon Tetrachloride		5 U	4.3 U	4.8 U	
Chlorobenzene		5 U	4.3 U	4.8 U	
Chloroethane		5 U	4.3 U	4.8 U	
Chloroform	38	5 U	4.3 U	4.8 U	
Chloromethane	22	5 U	4.3 U	4.8 U	
Cis-1,2-Dichloroethene		5 U	4.3 U	4.8 U	
Cis-1,3-Dichloropropene		5 U	4.3 U	4.8 U	
Dibromochloromethane		5 U	4.3 U	4.8 U	

Table 6-6 - Analytical Results for 2008 Field-Constructed Tanks Test Pit Soil Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	FCT-TP-11 Bottom 7/03/2008 2 to 3	FCT-TP-12 Bottom 7/03/2008 10 to 11	FCT-TP-13 S-2 7/03/2008 6 to 7	FCT-TP-13 Bottom 7/03/2008 10 to 11
Dibromomethane		5 U	4.3 U	4.8 U	
Ethylbenzene	5990	5 U	4.3 U	4.8 U	
Hexachlorobutadiene		20 U	18 U	20 U	
Isopropylbenzene(Cumene)		20 U	18 U	20 U	
Methylene Chloride	22	3.3 T	4.7 T	2.6 T	
N-Butylbenzene	19500	20 U	18 U	20 U	
N-Propylbenzene	19500	20 U	18 U	20 U	
Naphthalene	4490	20 U	18 U	20 U	
Sec-Butylbenzene	15800	20 U	18 U	20 U	
Styrene	33	5 U	4.3 U	4.8 U	
Tert-Butylbenzene	15600	20 U	18 U	20 U	
Tetrachloroethene	0.9	5 U	4.3 U	4.8 U	
Toluene	4650	5 U	4.3 U	4.8 U	
Trans-1,2-Dichloroethene		5 U	4.3 U	4.8 U	
Trans-1,3-Dichloropropene		5 U	4.3 U	4.8 U	
Trichloroethene (TCE)		5 U	4.3 U	4.8 U	
Vinyl Chloride		5 U	4.3 U	4.8 U	
m,p-Xylenes	8520	5 U	4.3 U	0.27 JT	
o-Xylene	916	5 U	4.3 U	4.8 U	

U = Not detected at the reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protectior as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 6-7 - Analytical Results for Subsurface Soil Samples - 1989 through 1991 IWT Investigation in Area of Hoffman Tank

Sample ID	Screening	WW-MW-4/S-1 (b)	WW-MW-4/S-2	WW-MW-4/S-3	WW-MW-4/S-4	WW-MW-4/S-5	WW-MW-4/S-6	WW-MW-4/S-7
Sampling Date	Level (a)	11/14/89	11/14/89	11/14/89	11/14/89	11/14/89	11/14/89	11/15/89
Depth in Feet		5 to 7	8.5 to 10.5	13.5 to 15.5	28.5 to 30.5	48 to 50	48 to 50	68.5 to 70
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Sat
							Dup of WW-MW-4/S-5	
pH		8.2				8.3	8.3	
Total Metals in mg/kg								
Arsenic	0.03/0.0017	3.7				0.7	1.1	
Cadmium	0.7/0.0349	1 U				1 U	1 U	
Chromium	2000/100	190	64	65	33	250	170	39
Hexavalent Chromium	18/0.926	0.1 U	1 U	1 U	0.1 U	6.2		0.1 U
Lead	250/250	40				23	24	
EP Toxicity Metals in mg/L								
Arsenic		0.005 U				0.005 U	0.005 U	
Cadmium		0.01				0.02	0.01	
Chromium		0.02 U				0.02 U	0.02 U	
Lead		0.1 U				0.1 U	0.1 U	
Volatiles in ug/kg								
1,1,1-Trichloroethane	1610/85	0.5 UJ				0.05 U	0.05 U	
1,1-Dichloroethane	8730/543	0.5 UJ				0.05 U	0.05 U	
2-Butanone (MEK)	20000/1400	5 UJ				0.5 U	0.5 U	
Benzene	5/0.3	0.5 UJ				0.05 U	0.05 U	
Chloroform	38/2	0.5 UJ				0.05 U	0.05 U	
Ethylbenzene	5990/341	0.5 UJ				0.05 U	0.05 U	
Toluene	4650/273	0.5 UJ				0.05 U	0.05 U	
Total Organic Halides		4 U				4 U	4 U	
Total Xylenes	14500/827	0.5 UJ				0.05 U	0.05 U	
TPH (418.1) in mg/kg	2000	650				2800	1200	

Table 6-7 - Analytical Results for Subsurface Soil Samples - 1989 through 1991 IWT Investigation in Area of Hoffman Tank

Sample ID	Screening	WW-SB-4/S-1 (b)		WW-SB-4/S-2 (b)	
Sampling Date	Level (a)	11/04/89		11/04/89	
Depth in Feet		5 to 7		9 to 11	
Unsat/Sat		Unsat		Unsat	
pH		10.3		7.9	
Total Metals in mg/kg					
Arsenic	0.03/0.0017	$\boxed{2.9}$		$\boxed{6.7}$	
Cadmium	0.7/0.0349	1	U	1	U
Chromium	2000/100	33		42	
Hexavalent Chromium	18/0.926				
Lead	250/250	10	U	41	
EP Toxicity Metals in mg/L					
Arsenic		0.005	U	0.005	U
Cadmium		0.01	U	0.01	U
Chromium		0.02		0.02	U
Lead		0.1	U	0.1	U
Volatiles in ug/kg					
1,1,1-Trichloroethane	1610/85	0.5	UR	0.05	U
1,1-Dichloroethane	8730/543	0.5	UR	0.05	U
2-Butanone (MEK)	20000/1400	5	UR	0.5	U
Benzene	5/0.3	0.5	UR	0.05	U
Chloroform	38/2	0.5	UR	0.05	U
Ethylbenzene	5990/341	0.5	UR	0.05	U
Toluene	4650/273	0.5	UR	0.05	U
Total Organic Halides		4	U	4	U
Total Xylenes	14500/827	0.5	UR	0.05	U
TPH (418.1) in mg/kg	2000	$\boxed{28000}$		$\boxed{6300}$	

U = Not detected at the reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening limit.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Soil representative of this sample subsequently excavated and disposed of off site during removal of the former Hoffman Tank.

Table 6-8 - Analytical Results for Hoffman Tank Soil Verification Samples

Sample ID	Sampling Date	Total Petroleum Hydrocarbons (418.1) in mg/kg
Screening Level (a)		2,000
HTE1	5/01/91	1800
HTE2	5/01/91	140
HTE3	5/01/91	1300
HTE4	5/01/91	1600
HTE5	5/01/91	$\boxed{4400}$
HTE6	5/01/91	$\boxed{33000}$
HTE7	4/29/91	$\boxed{5000}$
HTE8	4/29/91	1100
HTE9	4/29/91	100
HTE10	4/29/91	260
HTE11	4/29/91	410

Table 6-8 - Analytical Results for Hoffman Tank Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	HTE4 5/01/91	HTE6 5/01/91	HTE6B 5/24/91
Total Metals in mg/kg				
Antimony	5.42	0.5 U	0.5 U	
Arsenic	0.03	8.7	12	
Beryllium	63	0.33	0.19	
Cadmium	0.7	3.8	3.7	
Chromium	2000	14	25	
Copper	260	16	79	
Lead	250	13	58	
Mercury	2	0.15 U	0.54	
Nickel	130	8.8	11	
Selenium	5	0.5 U	0.5 U	
Silver	14	0.16 U	0.15 U	
Thallium	2	0.5 U	0.5 U	
Zinc	5970	49	56	
PCBs in ug/kg				
Aroclor 1016		33 U	660 U	
Aroclor 1221		33 U	660 U	
Aroclor 1232		33 U	660 U	
Aroclor 1242		33 U	660 U	
Aroclor 1248		520	660 U	
Aroclor 1254		33 U	660 U	
Aroclor 1260		33 U	660 U	
Total PCBs	270	520	660 U	
Semivolatiles in ug/kg				
Acenaphthene	98000	1700 U	17000 U	8300 U
Acenaphthylene		1700 U	17000 U	8300
Anthracene	2200000	1700 U	17000 U	420 U
Benzo(a)anthracene	See BaP (c)	1700 U	17000 U	830 U
Benzo(a)pyrene	233	1700 U	17000 U	830 U
Benzo(b)fluoranthene	See BaP (c)	1700 U	17000 U	830 U
Benzo(g,h,i)perylene		1700 U	17000 U	830 U
Benzo(k)fluoranthene	See BaP (c)	1700 U	17000 U	830 U
Chrysene	See BaP (c)	1700 U	17000 U	830 U
Dibenz(a,h)anthracene	See BaP (c)	1700 U	17000 U	1700 U
Fluoranthene	630000	1700 U	17000 U	830 U
Fluorene	100000	1700 U	17000 U	830 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	1700 U	17000 U	830 U
Naphthalene	4490	1700 U	17000 U	4200 U
Phenanthrene		1700 U	17000 U	420 U
Pyrene	660000	1700 U	17000 U	830 U
1,2,4-Trichlorobenzene		1700 U	17000 U	
1,2-Dichlorobenzene		1700 U	17000 U	
1,3-Dichlorobenzene		1700 U	17000 U	
1,4-Dichlorobenzene		1700 U	17000 U	
2,4,5-Trichlorophenol		8500 U	85000 U	
2,4,6-Trichlorophenol		1700 U	17000 U	
2,4-Dichlorophenol		1700 U	17000 U	
2,4-Dimethylphenol		1700 U	17000 U	
2,4-Dinitrophenol		8500 U	85000 U	
2,4-Dinitrotoluene		1700 U	17000 U	
2,6-Dinitrotoluene		1700 U	17000 U	

Table 6-8 - Analytical Results for Hoffman Tank Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	HTE4 5/01/91	HTE6 5/01/91	HTE6B 5/24/91
2-Chloronaphthalene		1700 U	17000 U	
2-Chlorophenol		1700 U	17000 U	
2-Methylnaphthalene	2190	1700 U	17000 U	
2-Methylphenol		1700 U	17000 U	
2-Nitroaniline		8500 U	85000 U	
2-Nitrophenol		1700 U	17000 U	
3,3'-Dichlorobenzidine		3400 U	34000 U	
3-Nitroaniline		8500 U	85000 U	
4,6-Dinitro-2-methyphenol		8500 U	85000 U	
4-Bromophenyl-Phenylether		1700 U	17000 U	
4-Chloro-3-methylphenol		1700 U	17000 U	
4-Chloroaniline		1700 U	17000 U	
4-Chlorophenyl-phenylether		1700 U	17000 U	
4-Methylphenol		1700 U	17000 U	
4-Nitroaniline		8500 U	85000 U	
4-Nitrophenol		8500 U	85000 U	
Aniline		1700 U	17000 U	
Benzidine		17000 U	170000 U	
Benzoic Acid		8500 U	85000 U	
Benzyl Alcohol		1700 U	17000 U	
Bis(2-Chloroethoxy)Methane		1700 U	17000 U	
Bis(2-Chloroethyl)Ether		1700 U	17000 U	
Bis(2-Ethylhexyl)Phthalate	13000	1700 U	17000 U	
Bis(2-chloroisopropyl) Ether		1700 U	17000 U	
Butylbenzylphthalate		1700 U	17000 U	
Di-N-Butylphthalate	57000	1700 U	17000 U	
Di-n-octyl Phthalate		1700 U	17000 U	
Dibenzofuran	5090	1700 U	17000 U	
Diethylphthalate		1700 U	17000 U	
Dimethyl Phthalate		1700 U	17000 U	
Hexachlorobenzene		1700 U	17000 U	
Hexachlorobutadiene		1700 U	17000 U	
Hexachlorocyclopentadiene		1700 U	17000 U	
Hexachloroethane		1700 U	17000 U	
Isophorone		1700 U	17000 U	
N-Nitroso-di-n-propylamine		1700 U	17000 U	
N-Nitrosodimethylamine		1700 U	17000 U	
N-Nitrosodiphenylamine	536	1700 U	17000 U	
Nitrobenzene		1700 U	17000 U	
Pentachlorophenol		8500 U	85000 U	
Phenol	22000	1700 U	7000 J	
TEQ Equivalent (b)	See BaP (c)	1700 U	17000 U	830 U

Table 6-8 - Analytical Results for Hoffman Tank Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	HTE4 5/01/91	HTE6 5/01/91	HTE6B 5/24/91
Volatiles in ug/kg				
1,1,1-Trichloroethane	1610	50 U	50 U	
1,1,2,2-Tetrachloroethane		50 U	50 U	
1,1,2-Trichloroethane		50 U	50 U	
1,1-Dichloroethane	8730	50 U	50 U	
1,1-Dichloroethene		50 U	50 U	
1,2-Dichloroethane		50 U	50 U	
1,2-Dichloroethene (Total)		50 U	50 U	
1,2-Dichloropropane		50 U	50 U	
2-Butanone (MEK)	20000	500 U	500 U	
2-Hexanone		500 U	500 U	
4-Methyl-2-Pentanone		500 U	500 U	
Acetone	3210	1000 U	630 J	
Benzene	5	50 U	50 U	
Bromodichloromethane		50 U	50 U	
Bromoform		250 U	250 U	
Bromomethane	52	500 U	500 U	
Carbon Disulfide	5600	50 U	50 U	
Carbon Tetrachloride		50 U	50 U	
Chlorobenzene		50 U	50 U	
Chloroethane		50 U	50 U	
Chloroform	38	50 U	50 U	
Chloromethane	22	500 U	500 U	
Cis-1,3-Dichloropropene		50 U	50 U	
Dibromochloromethane		50 U	50 U	
Ethylbenzene	5990	50 U	50 U	
Methylene Chloride	22	390 U	390 U	
Styrene	33	50 U	50 U	
Tetrachloroethene	0.9	50 U	50 U	
Toluene	4650	50 U	50 U	
Total Xylenes	14500	50 U	50 U	
Trans-1,3-Dichloropropene		50 U	50 U	
Trichloroethene (TCE)		50 U	50 U	
Vinyl Acetate		500 U	500 U	
Vinyl Chloride		50 U	50 U	

U = Not detected at reporting limit indicated.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 6-9 - Analytical Results for Soil Samples from Boring HT-SB-1

Sample ID Sampling Date Sample Depth in Feet Unsat/Sat	Screening Level (a)	HT-SB-1-S1 8/12/2008 10 to 11 Unsat	HT-SB-1-S2 8/12/2008 19 to 20 Unsat	HT-SB-1-S-20 8/12/2008 19 to 20 Unsat Dup of HT-SB-1-S2	HT-SB-1-S3 8/12/2008 31 to 32 Unsat	HT-SB-1-S4 8/12/2008 38 to 39 (est.) Unsat	HT-SB-1-S5 8/12/2008 48 to 49 Unsat	HT-SB-1-S6 8/12/2008 59 to 60 Sat	HT-SB-1-S7 8/12/2008 65 to 66 Sat
Moisture in %		7.8	5.3	5.9	7.3	5.7	8.0	8.9	11
NWTPH-HCID in mg/kg									
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	2,300	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	8,000	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	880	100 U
NWTPH-Dx in mg/kg									
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	2,800	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	8,800	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	1,100	50 U
NWTPH-Gx in mg/kg									
Mineral spirits/Stoddard	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Gasoline	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Table 6-9 - Analytical Results for Soil Samples from Boring HT-SB-1

Sample ID	Screening	HT-SB-1-S2	HT-SB-1-S-20	HT-SB-1-S4	HT-SB-1-S6
Sampling Date	Level (a)	8/12/2008	8/12/2008	8/12/2008	8/12/2008
Sample Depth in Feet		19 to 20	19 to 20	38 to 39 (est.)	59 to 60
Unsat/Sat		Unsat	Unsat Dup of HT-SB-1-S2	Unsat	Sat
Total Solids in %		94	99.8	95.1	93.5
Metals in mg/kg					
Antimony	5.42/0.272	0.16 J	0.13 J	0.24 J	0.11 J
Arsenic	0.0341/0.0017	$\boxed{20.3}$	$\boxed{6.77}$	$\boxed{12}$	$\boxed{7.82}$
Barium	1650/82.6	58.6	100	521	30.9
Cadmium	0.7/0.0349	0.083	0.042	0.342	$\boxed{0.055}$
Chromium	2000/100	11.4	14.7	8.01	5.29
Lead	250/250	10.6	9.15	9	7.09
Mercury	2/0.105	0.002 T	0.017 U	0.019 U	0.003 T
Selenium	5/0.264	0.9 U	1 U	0.9 U	0.9 U
Silver	14/0.687	0.14	0.09	0.06	0.04
PCBs in ug/kg					
Aroclor 1016		9.9 U	9.9 U	9.6 U	9.6 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		9.9 U	9.9 U	9.6 U	9.6 U
Aroclor 1242		9.9 U	9.9 U	9.6 U	9.6 U
Aroclor 1248		9.9 U	9.9 U	9.6 U	11
Aroclor 1254		9.9 U	9.9 U	9.6 U	9.6 U
Aroclor 1260		9.9 U	9.9 U	9.6 U	9.6 U
Total PCBs	270/14	20 U	20 U	20 U	11
Semivolatiles(SIM) in ug/kg					
2-Methylnaphthalene	2190/112	2.7 U	2.5 U	2.6 U	$\boxed{120}$
Acenaphthene	98000/4980	2.7 U	2.5 U	2.6 U	850
Acenaphthylene		2.7 U	2.5 U	2.6 U	200 U
Anthracene	2.2E+06/112000	2.7 U	2.5 U	2.6 U	130 U
Benzo(a)anthracene	See BaP (c)	2.7 U	2.5 U	2.6 U	3.1 U
Benzo(a)pyrene	233/12	2.7 U	2.5 U	2.6 U	2.7 U
Benzo(b)fluoranthene	See BaP (c)	2.7 U	2.5 U	2.6 U	2.7 U
Benzo(g,h,i)perylene		2.7 U	2.5 U	2.6 U	0.73 T
Benzo(k)fluoranthene	See BaP (c)	2.7 U	2.5 U	2.6 U	2.7 U
Chrysene	See BaP (c)	2.7 U	2.5 U	2.6 U	14 U
Dibenz(a,h)anthracene	See BaP (c)	2.7 U	2.5 U	2.6 U	2.7 U
Dibenzofuran	5090/257	2.7 U	2.5 U	2.6 U	$\boxed{780}$
Fluoranthene	630000/31500	2.7 U	2.5 U	2.6 U	55
Fluorene	100000/5110	2.7 U	2.5 U	2.6 U	1700
Indeno(1,2,3-cd)pyrene	See BaP (c)	2.7 U	2.5 U	2.6 U	2.7 U
Naphthalene	4490/238	2.7 U	2.5 U	2.6 U	$\boxed{430}$
Phenanthrene		2.7 U	2.5 U	2.6 U	3400
Pyrene	660000/32800	2.7 U	2.5 U	2.6 U	160
TEQ Equivalent (b)	See BaP (c)	2.7 U	2.5 U	2.6 U	2.7 U

Table 6-9 - Analytical Results for Soil Samples from Boring HT-SB-1

Sample ID Sampling Date Sample Depth in Feet Unsat/Sat	Screening Level (a)	HT-SB-1-S2 8/12/2008 19 to 20 Unsat	HT-SB-1-S-20 8/12/2008 19 to 20 Unsat Dup of HT-SB-1-S2	HT-SB-1-S4 8/12/2008 38 to 39 (est.) Unsat	HT-SB-1-S6 8/12/2008 59 to 60 Sat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		4.6 U	4.6 U	4.8 U	47 U
1,1,1-Trichloroethane	1610/85	4.6 U	4.6 U	4.8 U	47 U
1,1,2,2-Tetrachloroethane		4.6 U	4.6 U	4.8 U	47 U
1,1,2-Trichloroethane		4.6 U	4.6 U	4.8 U	47 U
1,1-Dichloroethane	8730/543	4.6 U	4.6 U	4.8 U	47 U
1,1-Dichloroethene		4.6 U	4.6 U	4.8 U	47 U
1,1-Dichloropropene		4.6 U	4.6 U	4.8 U	47 U
1,2,3-Trichlorobenzene		19 U	19 U	19 U	190 U
1,2,3-Trichloropropane		4.6 U	4.6 U	4.8 U	47 U
1,2,4-Trichlorobenzene		19 U	19 U	19 U	190 U
1,2,4-Trimethylbenzene	31000/1590	0.13 T	19 U	19 U	$\boxed{3300}$
1,2-Dibromo-3-Chloropropane		19 U	19 U	19 U	190 U
1,2-Dibromoethane(EDB)		19 U	19 U	19 U	190 U
1,2-Dichlorobenzene		4.6 U	4.6 U	4.8 U	47 U
1,2-Dichloroethane(EDC)		4.6 U	4.6 U	4.8 U	47 U
1,2-Dichloropropane		4.6 U	4.6 U	4.8 U	47 U
1,3,5-Trimethylbenzene	8380/443	19 U	19 U	19 U	190 U
1,3-Dichlorobenzene		4.6 U	4.6 U	4.8 U	47 U
1,3-Dichloropropane		4.6 U	4.6 U	4.8 U	47 U
1,4-Dichlorobenzene		4.6 U	4.6 U	4.8 U	47 U
2,2-Dichloropropane		4.6 U	4.6 U	4.8 U	47 U
2-Butanone (MEK)	20000/1400	19 U	19 U	2.8 T	1900 U
2-Chlorotoluene	2400/143	19 U	19 U	19 U	190 U
2-Hexanone		19 U	1.3 T	0.7 T	1900 U
4-Chlorotoluene	4180/250	19 U	19 U	19 U	190 U
4-Isopropyltoluene		19 U	19 U	19 U	210 J
4-Methyl-2-Pentanone		19 U	19 U	19 U	1900 U
Acetone	3210/230	4 JT	3.7 JT	8 JT	1900 U
Benzene	5/0.3	4.6 U	4.6 U	4.8 U	47 U
Bromobenzene		4.6 U	4.6 U	4.8 U	190 U
Bromochloromethane		4.6 U	4.6 U	4.8 U	47 U
Bromodichloromethane		4.6 U	4.6 U	4.8 U	47 U
Bromoform		4.6 U	4.6 U	4.8 U	47 U
Bromomethane	52/3	4.6 U	4.6 U	4.8 U	47 U
Freon 11		4.6 U	4.6 U	4.8 U	47 U
Freon 12		4.6 U	4.6 U	4.8 U	47 U
Carbon Disulfide	5600/266	11	4.6 T	0.52 T	47 U
Carbon Tetrachloride		4.6 U	4.6 U	4.8 U	47 U
Chlorobenzene		4.6 U	4.6 U	4.8 U	47 U
Chloroethane		4.6 U	4.6 U	4.8 U	47 U

Table 6-9 - Analytical Results for Soil Samples from Boring HT-SB-1

Sample ID Sampling Date Sample Depth in Feet Unsat/Sat	Screening Level (a)	HT-SB-1-S2 8/12/2008 19 to 20 Unsat	HT-SB-1-S-20 8/12/2008 19 to 20 Unsat Dup of HT-SB-1-S2	HT-SB-1-S4 8/12/2008 38 to 39 (est.) Unsat	HT-SB-1-S6 8/12/2008 59 to 60 Sat
Chloroform	38/2	4.6 U	4.6 U	4.8 U	47 U
Chloromethane	22/1	4.6 U	4.6 U	4.8 U	47 U
Cis-1,2-Dichloroethene		4.6 U	4.6 U	4.8 U	47 U
Cis-1,3-Dichloropropene		4.6 U	4.6 U	4.8 U	47 U
Dibromochloromethane		4.6 U	4.6 U	4.8 U	47 U
Dibromomethane		4.6 U	4.6 U	4.8 U	47 U
Ethylbenzene	5990/341	4.6 U	4.6 U	4.8 U	47 U
Hexachlorobutadiene		19 U	19 U	19 U	190 U
Isopropylbenzene(Cumene)		19 U	19 U	19 U	240
Methylene Chloride	22/2	9.1 U	9.2 U	9.5 U	190 U
N-Butylbenzene	19500/988	19 U	19 U	19 U	930 J
N-Propylbenzene	19500/988	19 U	19 U	19 U	560
Naphthalene	4490/238	19 U	19 U	19 U	190 U
Sec-Butylbenzene	15800/796	19 U	19 U	19 U	$\boxed{1300}$
Styrene	33/2	4.6 U	4.6 U	4.8 U	47 U
Tert-Butylbenzene	15600/796	19 U	19 U	19 U	51 T
Tetrachloroethene	0.9/0.05	4.6 U	4.6 U	4.8 U	47 U
Toluene	4650/273	4.6 U	4.6 U	4.8 U	47 U
Trans-1,2-Dichloroethene		4.6 U	4.6 U	4.8 U	47 U
Trans-1,3-Dichloropropene		4.6 U	4.6 U	4.8 U	47 U
Trichloroethene (TCE)		4.6 U	4.6 U	4.8 U	47 U
Vinyl Chloride		4.6 U	4.6 U	4.8 U	47 U
m,p-Xylenes	8520/487	0.31 T	4.6 U	0.24 T	44 T
o-Xylene	916/53	4.6 U	4.6 U	4.8 U	24 T

Non-detect results are reported on a wet weight basis.
U = Not detected at the reporting limit indicated.
J = Estimated value.
T = Value is between the MDL and MRL.
Boxed value exceeds screening limit.
Blank indicates sample not analyzed for specific analyte or no screening level established.

(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 6-10 - Analytical Results for Hydrogen Sulfide Scrubber Building Excavation Soil Verification Samples

Sample ID Station Sampling Date	Screening Level (a)	WW-T-OS-S-1 (d) Bottom Center 4/02/98	WW-T-OS-S-2 (d) Bottom Composite 4/02/98	WW-T-OS-S-3 South Side Wall 4/02/98	WW-T-O-SCRUB-COMP Bottom Composite 4/28/98
Total Metals in mg/kg					
Arsenic	0.03	10	11		
Barium	1650	90	180		
Cadmium	0.7	0.29 U	1.4		
Chromium	2000	31	220		
Lead	250	47 J	320 J		
Mercury	2	0.12	0.24		
Selenium	5	0.55 UJ	0.64 UJ		
Silver	14	0.9	4.9		
PCBs in ug/kg					
Aroclor 1016		36 U	79 U		
Aroclor 1221		36 U	79 U		
Aroclor 1232		36 U	79 U		
Aroclor 1242		36 U	79 U		
Aroclor 1248		20 J	290		
Aroclor 1254		39	240		
Aroclor 1260		36 U	79 U		
Total PCBs	270	59	530		
Semivolatiles in ug/kg					
1,2,4-Trichlorobenzene		1800 U	9900 U		
1,2-Dichlorobenzene		1800 U	9900 U		
1,3-Dichlorobenzene		1800 U	9900 U		
1,4-Dichlorobenzene		1800 U	9900 U		
2,2'Oxybis(1-chloropropane)		1800 U	9900 U		
2,4,5-Trichlorophenol		9100 U	50000 U		
2,4,6-Trichlorophenol		1800 U	9900 U		
2,4-Dichlorophenol		1800 U	9900 U		
2,4-Dimethylphenol		1800 U	9900 U		
2,4-Dinitrophenol		9100 U	50000 U		
2,4-Dinitrotoluene		1800 U	9900 U		
2,6-Dinitrotoluene		1800 U	9900 U		
2-Chloronaphthalene		1800 U	9900 U		
2-Chlorophenol		1800 U	9900 U		
2-Methylnaphthalene	2190	150 J	2400 J		300
2-Methylphenol		1800 U	9900 U		
2-Nitroaniline		9100 U	50000 U		
2-Nitrophenol		1800 U	9900 U		
3,3'-Dichlorobenzidine		3600 U	20000 U		
3,4-Methylphenol (m,p-cresol)		1800 U	9900 U		
3-Nitroaniline		9100 U	50000 U		
4,6-Dinitro-2-methylphenol		9100 U	50000 U		
4-Bromophenyl-Phenylether		1800 U	9900 U		
4-Chloro-3-methylphenol		1800 U	9900 U		
4-Chloroaniline		1800 U	9900 U		
4-Chlorophenyl-phenylether		1800 U	9900 U		
4-Nitroaniline		9100 U	50000 U		
4-Nitrophenol		9100 U	50000 U		

Table 6-10 - Analytical Results for Hydrogen Sulfide Scrubber Building Excavation Soil Verification Samples

Sample ID Station Sampling Date	Screening Level (a)	WW-T-OS-S-1 (d) Bottom Center 4/02/98	WW-T-OS-S-2 (d) Bottom Composite 4/02/98	WW-T-OS-S-3 South Side Wall 4/02/98	WW-T-O-SCRUB-COMP Bottom Composite 4/28/98
Acenaphthene	98000	1800 U	2200 J		520
Acenaphthylene		1800 U	9900 U		25 U
Aniline		1800 U	9900 U		
Anthracene	2200000	1800 U	3200 J		3000
Benzidine		18000 U	99000 U		
Benzo(a)anthracene	See BaP (c)	100 J	900 J		10 U
Benzo(a)pyrene	233	120 J	550 J		9.7 U
Benzo(b)fluoranthene	See BaP (c)	1800 U	9900 U		13 U
Benzo(g,h,i)Perylene		110 J	9900 U		15 U
Benzo(k)fluoranthene	See BaP (c)	1800 U	9900 U		18 U
Benzoic Acid		9100 U	50000 U		
Benzyl Alcohol		1800 U	9900 U		
Bis(2-chloroethoxy)methane		1800 U	9900 U		
Bis(2-chloroethyl)ether		1800 U	9900 U		
Bis(2-Ethylhexyl)Phthalate	13000	1000 J	1900 J		
Butylbenzylphthalate		1800 U	9900 U		
Chrysene	See BaP (c)	160 J	1100 J		13 U
Dibenz(a,h)anthracene	See BaP (c)	1800 U	9900 U		14 U
Dibenzofuran	5090	1800 U	2000 J		
Diethylphthalate		1800 U	9900 U		
Dimethyl Phthalate		1800 U	9900 U		
Di-n-butylphthalate	57000	1800 U	9900 U		
Di-n-octylphthalate	530000000	1800 U	9900 U		
Fluoranthene	630000	350 J	4500 J		3000
Fluorene	100000	250 J	5200 J		2400
Hexachlorobenzene		1800 U	9900 U		
Hexachlorobutadiene		1800 U	9900 U		
Hexachlorocyclopentadiene		1800 U	9900 U		
Hexachloroethane		1800 U	9900 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)	96 J	9900 U		17 U
Isophorone		1800 U	9900 U		
Naphthalene	4490	1800 U	410 J		750
Nitrobenzene		1800 U	9900 U		
N-Nitrosodimethylamine		1800 U	9900 U		
N-Nitroso-di-n-propylamine		1800 U	9900 U		
N-Nitrosodiphenylamine	536	1800 U	9900 U		
Pentachlorophenol		9100 U	50000 U		
Phenanthrene		790 J	15000 J		4900
Phenol	22000	1800 U	9900 U		
Pyrene	660000	280 J	2600 J		5000
TEQ Equivalent (b)	See BaP (c)	141.2	651		9.7 U
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		2 U	12 U		
1,1,1-Trichloroethane	1610	2 U	12 U		
1,1,2,2-Tetrachloroethane		2 U	12 U		
1,1,2-Trichloroethane		2 U	12 U		
1,1-Dichloroethane	8730	2 U	12 U		

Table 6-10 - Analytical Results for Hydrogen Sulfide Scrubber Building Excavation Soil Verification Samples

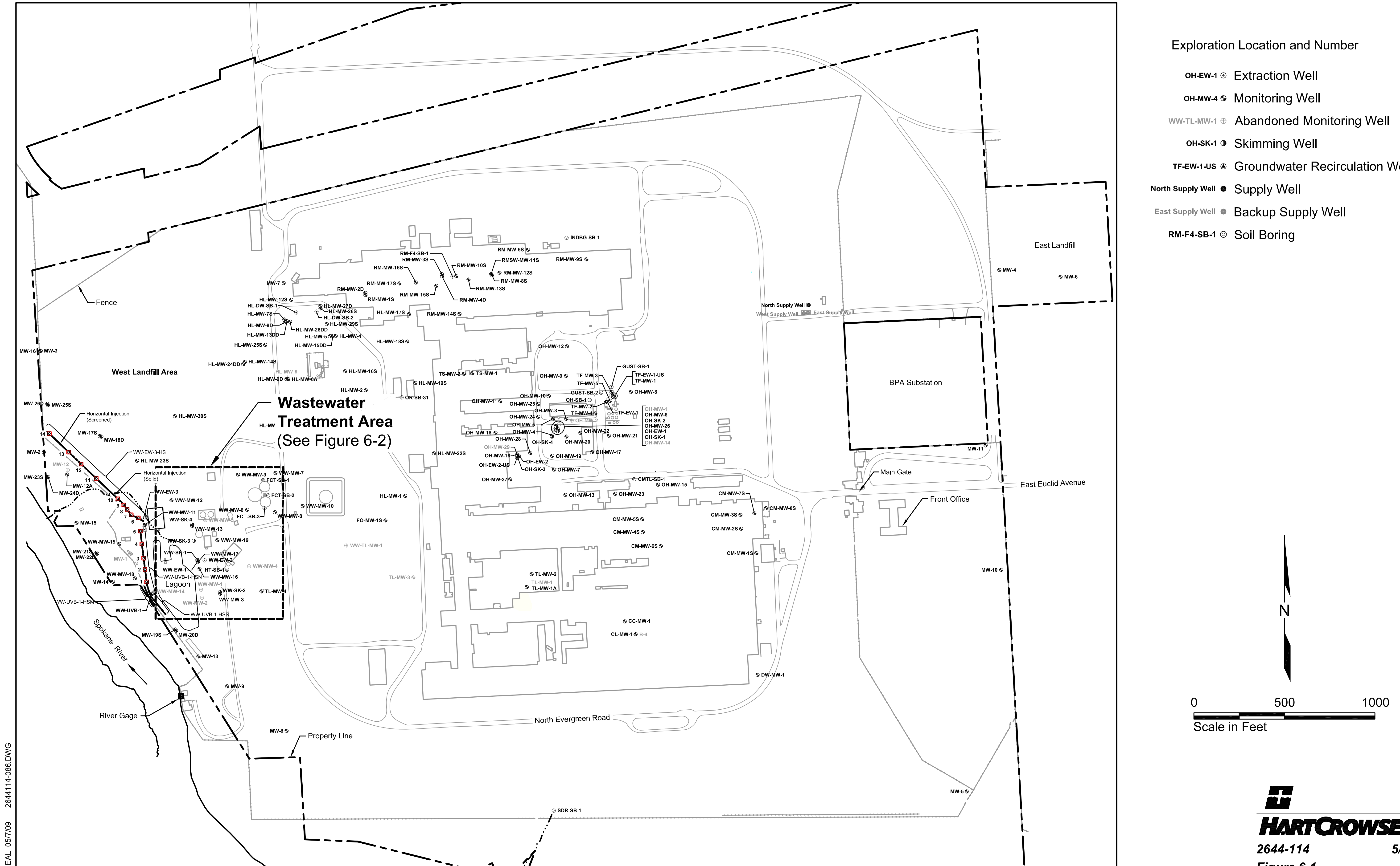
Sample ID Station Sampling Date	Screening Level (a)	WW-T-OS-S-1 (d) Bottom Center 4/02/98	WW-T-OS-S-2 (d) Bottom Composite 4/02/98	WW-T-OS-S-3 South Side Wall 4/02/98	WW-T-O-SCRUB-COMP Bottom Composite 4/28/98
1,1-Dichloroethene		2 U	12 U		
1,1-Dichloropropene		2 U	12 U		
1,2,3-Trichlorobenzene		5 U	30 U		
1,2,3-Trichloropropane		2 U	12 U		
1,2,4-Trichlorobenzene		5 U	30 U		
1,2,4-Trimethylbenzene	31000	12	1000 J		
1,2-Dibromo-3-Chloropropane		5 U	30 U		
1,2-Dibromoethane(EDB)		2 U	12 U		
1,2-Dichlorobenzene		2 U	12 U		
1,2-Dichloroethane		2 U	12 U		
1,2-Dichloropropane		2 U	12 U		
1,3,5-Trimethylbenzene	8380	12	340 J		
1,3-Dichlorobenzene		2 U	12 U		
1,3-Dichloropropane		2 U	12 U		
1,4-Dichlorobenzene		2 U	12 U		
2,2-Dichloropropane		2 U	12 U		
2-Chlorotoluene	2400	2 U	12 U		
4-Chlorotoluene	4180	2 U	12 U		
Benzene	5	2 U	12 U		
Bromobenzene		2 U	12 U		
Bromochloromethane		2 U	12 U		
Bromodichloromethane		2 U	12 U		
Bromoform		2 U	12 U		
Bromomethane	52	5 U	30 U		
Carbon Tetrachloride		2 U	12 U		
Chlorobenzene		2 U	12 U		
Chloroethane		2 U	12 U		
Chloroform	38	2 U	12 U		
Chloromethane	22	5 U	30 U		
Cis-1,3-Dichloropropene		2 U	12 U		
Dibromochloromethane		2 U	12 U		
Dibromomethane		2 U	12 U		
Dichlorodifluoromethane	47000	2 U	12 U		
Ethylbenzene	5990	2 U	12 U		
Hexachlorobutadiene		5 U	30 U		
Isopropylbenzene	7370	2 U	12 U		
Isopropyltoluene		5	200 J		
Methylene Chloride	22	11 U	60 U		
N-Butylbenzene	19500	4	210 J		
N-Propylbenzene	19500	2 U	12 U		
Naphthalene	4490	5 U	30 U		
Sec-Butylbenzene	15800	5 U	30 U		
Styrene	33	2 U	12 U		
Tert-Butylbenzene	15600	2 U	12 U		
Tetrachloroethene	0.9	2 U	12 U		
Toluene	4650	2 U	12 U		
Total Xylenes	14500	2 U	26 J		

Table 6-10 - Analytical Results for Hydrogen Sulfide Scrubber Building Excavation Soil Verification Samples

Sample ID Station Sampling Date	Screening Level (a)	WW-T-OS-S-1 (d) Bottom Center 4/02/98	WW-T-OS-S-2 (d) Bottom Composite 4/02/98	WW-T-OS-S-3 South Side Wall 4/02/98	WW-T-O-SCRUB-COMP Bottom Composite 4/28/98
Trans-1,2-Dichloroethene		2 U	12 U		
Trans-1,3-Dichloropropene		2 U	12 U		
Trichloroethene	3	2 U	12 U		
Trichlorofluoromethane		2 U	12 U		
Vinyl Chloride		2 U	12 U		
cis-1,2-Dichloroethene		2 U	12 U		
EPH in mg/kg					
C10-C12 Aliphatics					52 U
C10-C12 Aromatics					2.6 U
C12-C16 Aliphatics					1900
C12-C16 Aromatics					82
C16-C21 Aliphatics					8400
C16-C21 Aromatics					2000
C21-C34 Aliphatics					16000
C21-C34 Aromatics					2300
C8-C10 Aliphatics					52 U
VPH in mg/kg					
Aliphatic C5-C6					1.3 U
Aliphatic C6-C8					1.7 U
Aliphatic C8-C10					2.6 U
Aromatic C8-C10					3.4
Benzene					0.43 U
Ethylbenzene					0.43 U
MTBE					0.43 U
Toluene					0.43 U
m,p-Xylenes					0.87 U
o-Xylene					0.43 U
WTPH-Dx in mg/kg					
Diesel	2000	1700	$\boxed{20000}$	39	
Heavy Oil	2000	1600	$\boxed{22000}$	160	

U = Not detected at reporting limit indicated.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).
(d) Soil representative of this sample was overexcavated and removed from the site for off-site disposal.

Wastewater Treatment Area Location Map

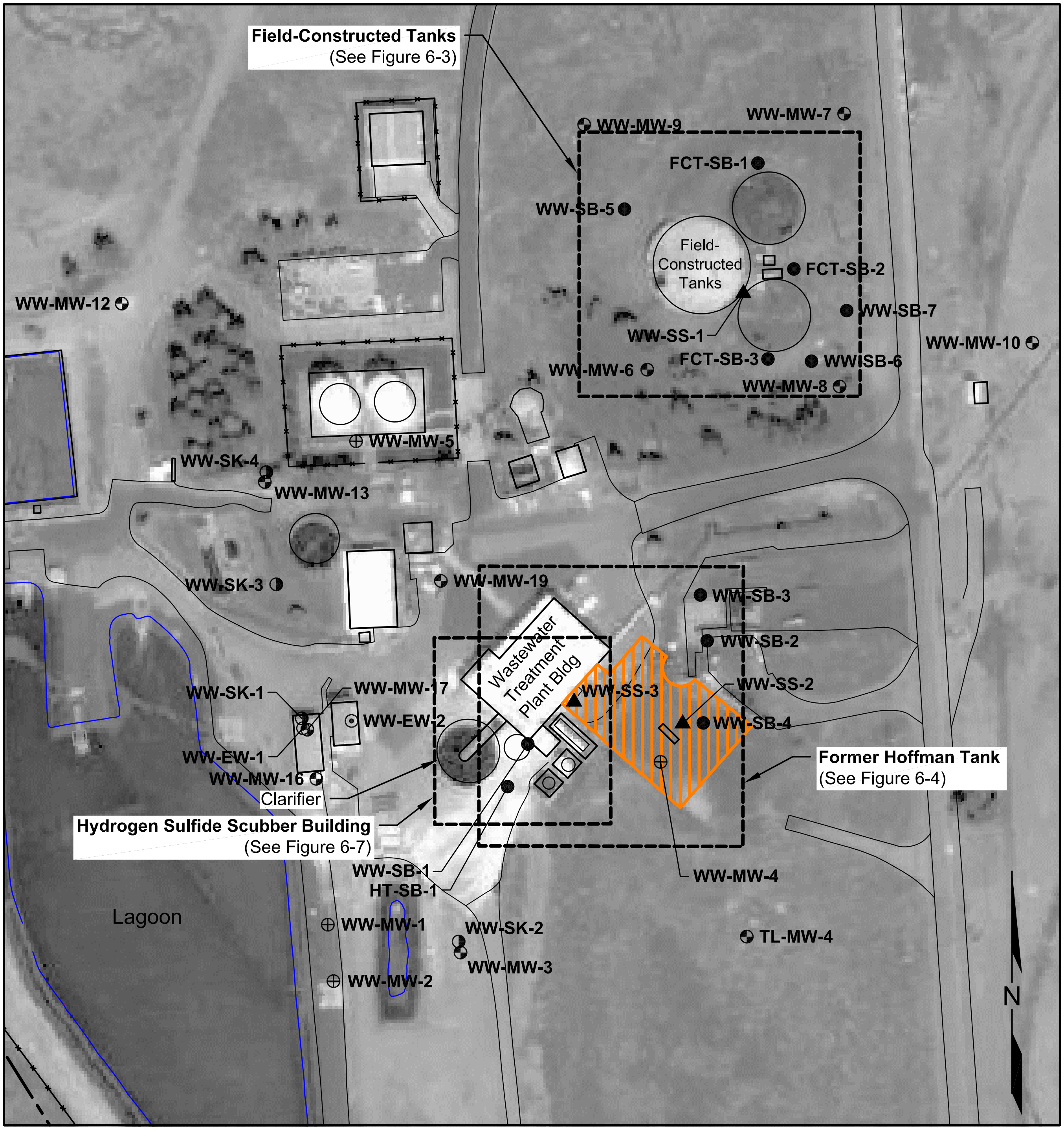


HARTCROWSER

2644-114 5/09

Figure 6-1

Wastewater Treatment Area Index Map



EAL 04/7/09 2644114-108.DWG

Source: Base map prepared from Kaiser base map (2008) and imagery from Google Maps, 2008.

Exploration Location and Number

WW-SS-1 ▲	Surface Soil Sample
WW-SB-1 ●	Soil Boring
WW-SK-2 ◑	Skimming Well
WW-EW-2 ⊙	Extraction Well
WW-MW-3	Existing Monitoring Well
WW-MW-2 ⊕	Abandoned Well

Former Hoffman Tank Excavation and Cover Area

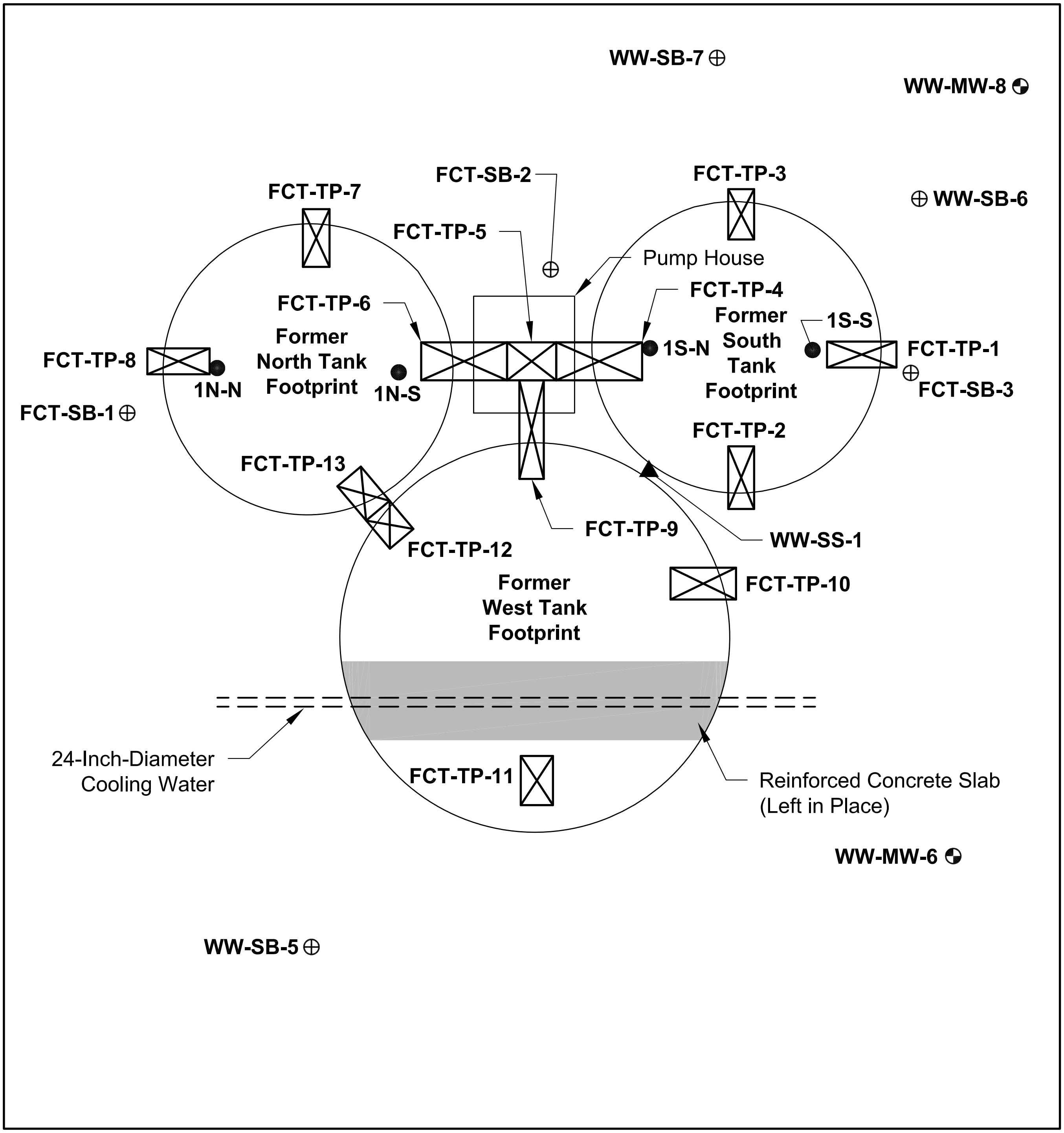
0 120 240
Scale in Feet

HARTCROWSER

2644-114 ***5/09***

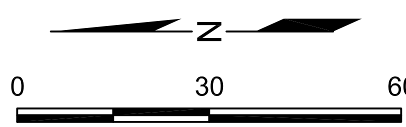
Figure 6-2

Exploration Location Plan
Field-Constructed Tanks



Exploration Location and Number

FCT-TP-1	⊠	Test Pit
FCT-SB-1	⊕	Soil Boring
WW-MW-6	◕	Monitoring Well
WW-SS-1	▲	Surface Soil Sample
1S-N	●	Near-Surface Soil Sample

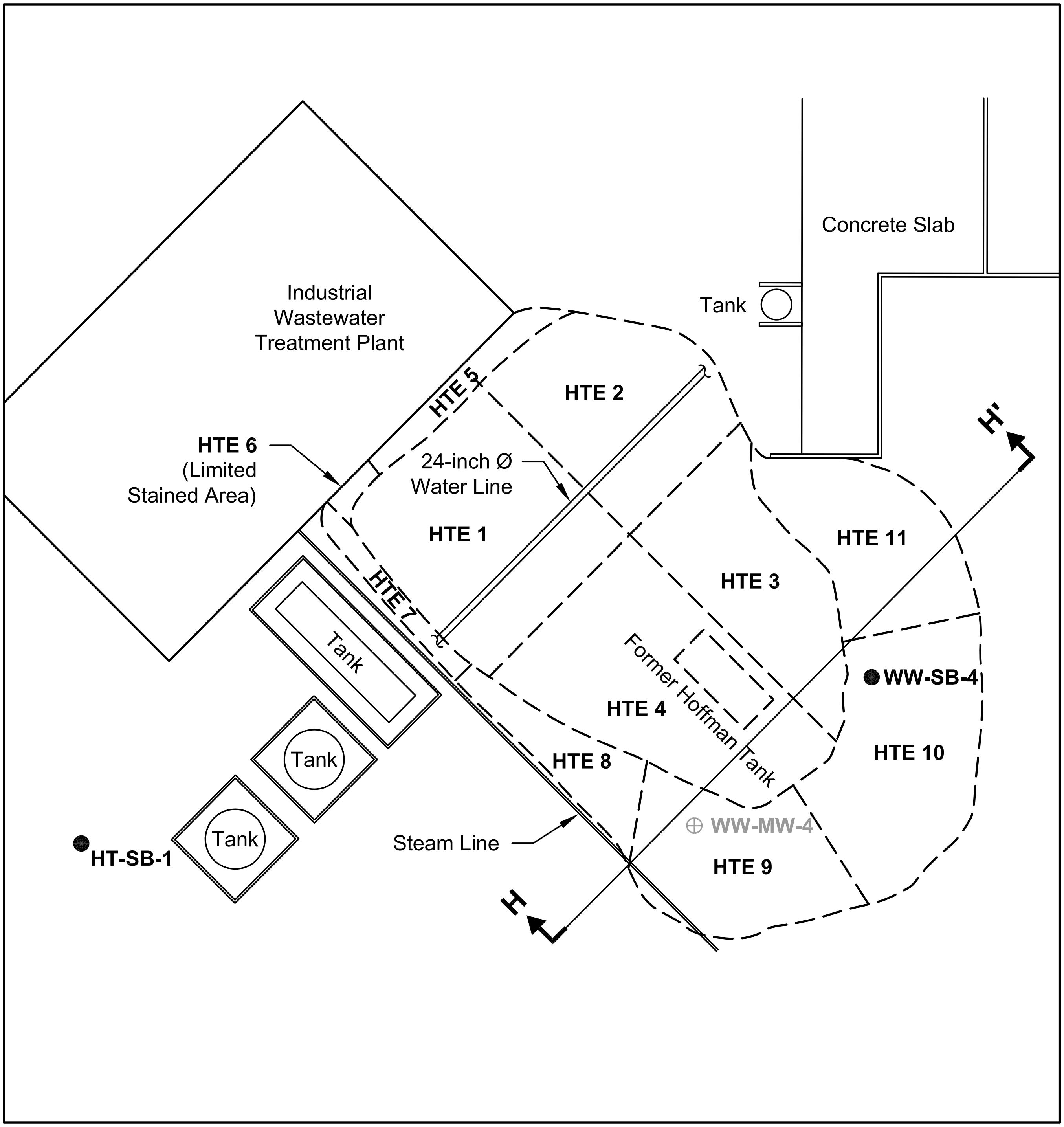


HARTCROWSER

2644-114 *5/09*

Figure 6-3

Exploration Location Plan
Hoffman Tank Excavation



Exploration Location and Number

● **HT-SB-1**	Soil Boring
⊕ **WW-MW-4**	Monitoring Well (Abandoned)
HTE 9	Composite Soil Sample
— — —	Approximate Limits of Soil Excavation
H H'	Cross Section Location and Designation (See Figure 6-6)

N

0 30 60

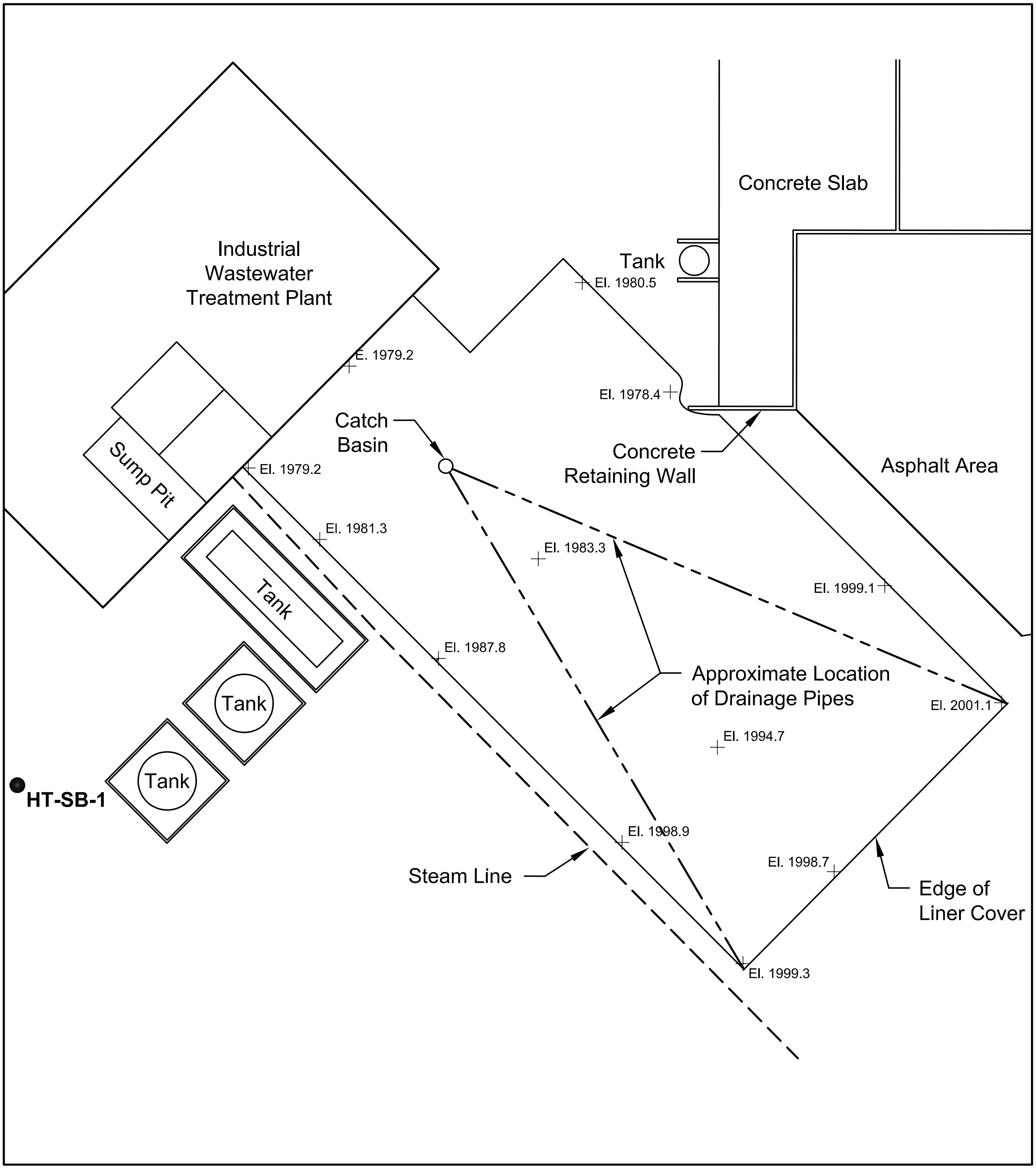
Scale in Feet

HARTCROWSER

2644-114 ***5/09***

Figure 6-4

Hoffman Tank Cover Design



El. 1994.7 + Rough Grade Elevation in Feet

HT-SB-1 ● Soil Boring Location and Number

N

0 30 60

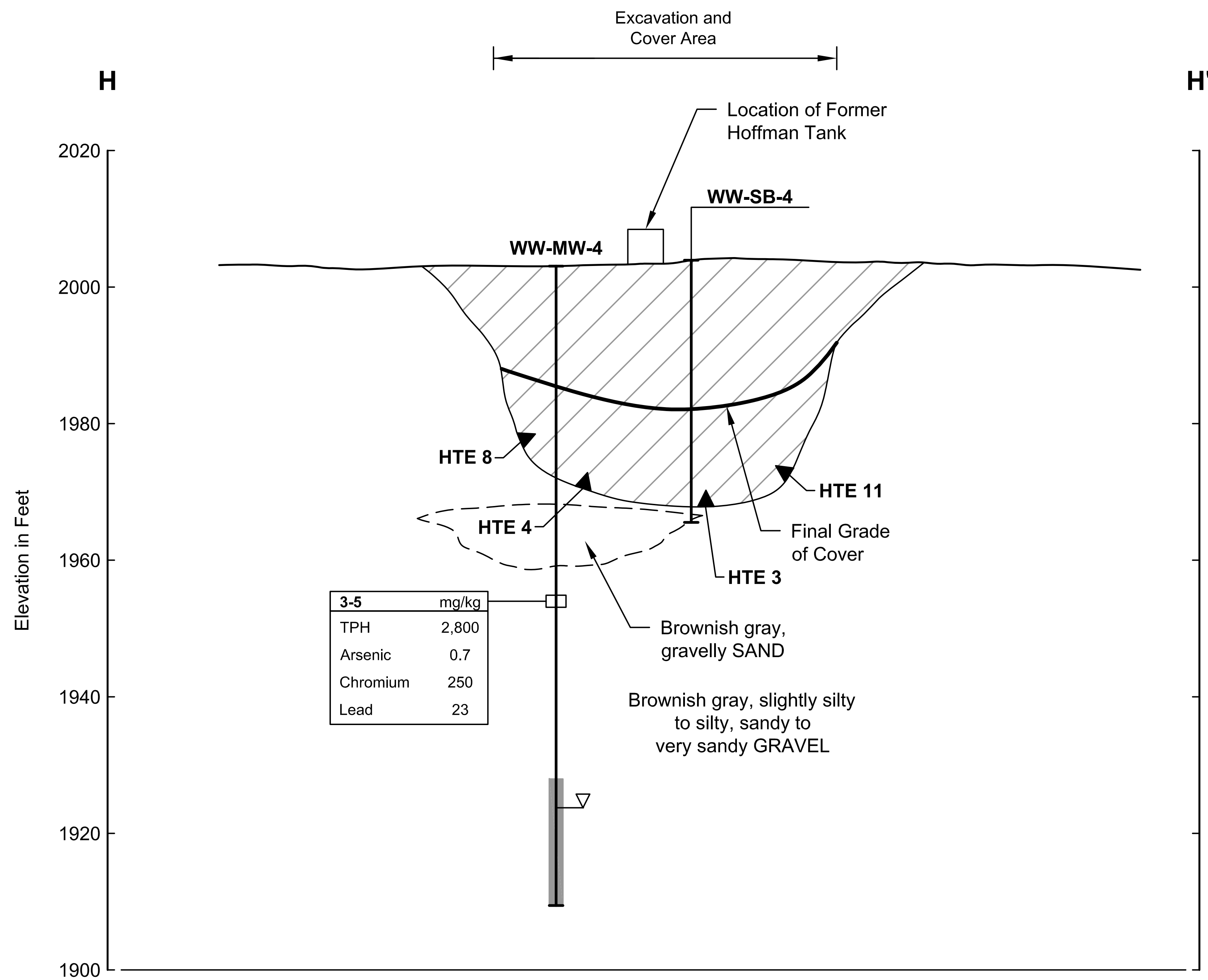
Scale in Feet

HARTCROWSER

2644-114 ***5/09***

Figure 6-5

Subsurface Cross Section H-H'
Former Hoffman Tank Remediation Area in Wastewater Treatment Area



Excavated Area

HTE 8 ▲ Excavation Soil Verification Sample Location and Number

Subsurface Soil Sample Location

WW-MW-4 Exploration Number

Exploration Location

Water Level

Screened Interval

Excavation Soil Verification Samples	
Sample ID	TPH Concentration in mg/kg
HTE 3	1,300
HTE 4	1,600
HTE 8	1,100
HTE 11	410

Horizontal Scale in Feet 0 40 80

0 20 40 Vertical Scale in Feet

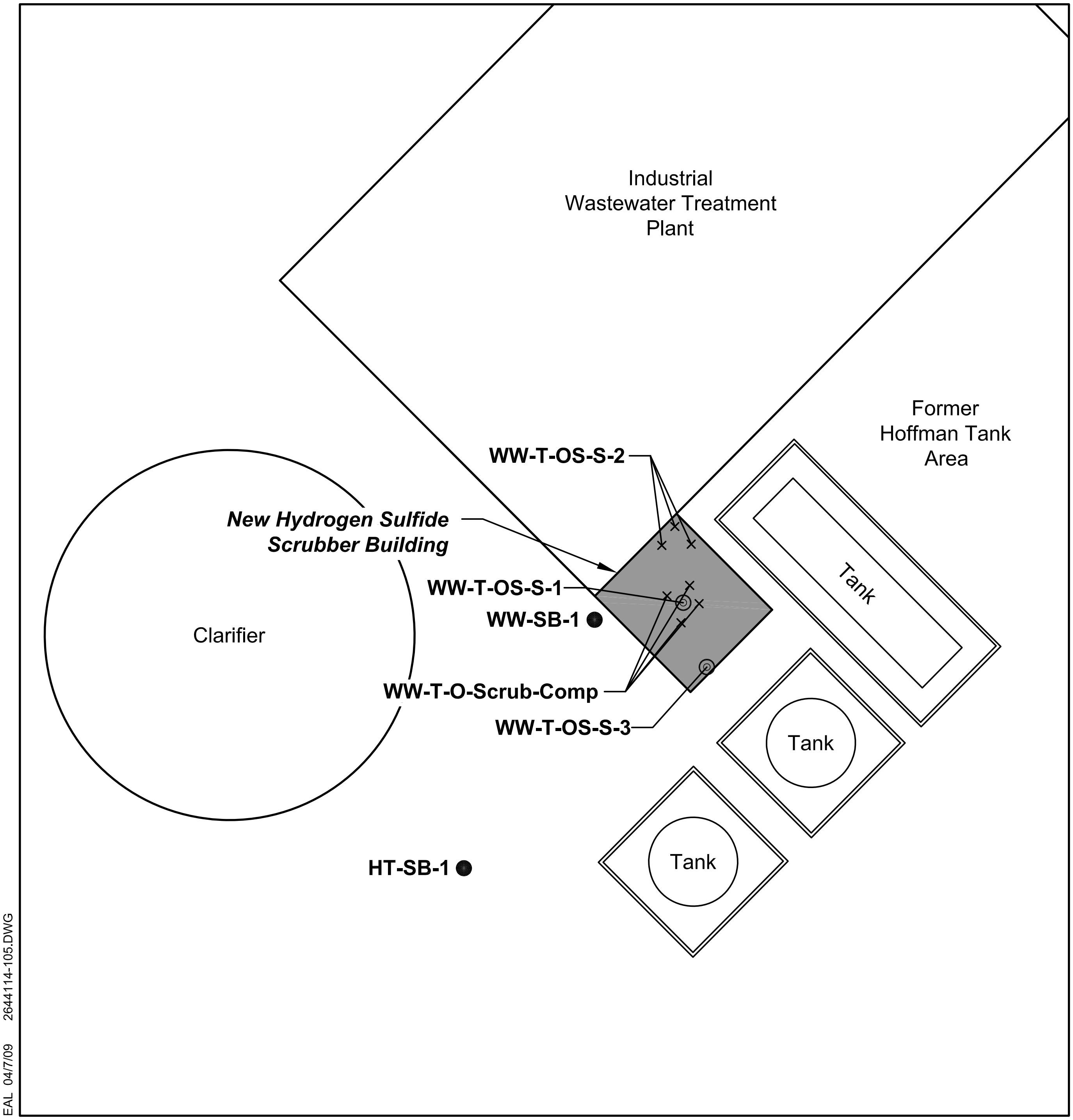
Vertical Exaggeration x 2

HARTCROWSER

2644-114 *5/09*

Figure 6-6

Excavation and Exploration Location Plan
Hydrogen Sulfide Scrubber Building



Source: Base map prepared from Jeddeloh, Hays, Inc. titled "General Plant Lites", dated December 11, 1998.

Exploration Location and Number

WW-T-OS-S-3 ◎ Discrete Soil Sample

WW-T-OS-S-2 × Composite Soil Sample

HT-SB-1 ● Soil Boring

Excavated Area

N

0 20 40

Scale in Feet

HARTCROWSER

2644-114 ***5/09***

Figure 6-7

CONTENTS Page

TABLES

FIGURES

7.0 TRUCK SHOP AREA

7.1 INTRODUCTION

Soil and groundwater investigations in the Truck Shop area began in the spring of 2005 when it was suspected that a release from an underground tank had occurred. This section summarizes the investigation work conducted near the tank immediately after discovery of the release (spring 2005) and the Phase I work conducted in March 2006.

7.1.1 Purpose

The objectives of the investigation activities conducted at the Truck Shop area in 2005 were to characterize the liquid and sludge that had accumulated in the bottom of the tank and to assess groundwater and soil quality in the vicinity of the tank. Additionally, PCB wipe samples from the adjacent cleaning pad area were collected and analyzed to gain information about what may be entering the tank. The objectives of the investigation activities conducted in March 2006 were to obtain additional information on the groundwater quality in the vicinity of the tank and to determine whether a potential risk to human health from VOCs in soil gas exists in the vicinity of the tank release.

7.1.2 Location

The Truck Shop area of the plant is located to the east of the Hot Line area and south of the Remelt area (Figure 7-1). The area is used for vehicle maintenance and consists of an enclosed steam-cleaning room, an equipment repair area (inside the main plant building), and an office structure. The tank is located east of the steam-cleaning room and is connected to the pad through a pipe running east beneath the office structure (Figure 7-2). The tank was taken out of service but remains in-place and is an approximately 2,000-gallon concrete septic-type tank with access through a manhole at the surface. According to measurements obtained at the time of the release, the bottom of the tank is estimated to be at approximately 13 feet below grade.

7.2 TRUCK SHOP

7.2.1 Previous Investigations

On April 22, 2005, Kaiser pumped, cleaned, and inspected the tank located in the Truck Shop cleaning area. The function of the tank was to accumulate and hold wastewater, oil, and cleaning-related material from the Truck Shop area. The tank system was designed to pump fluid, based on a float controlled pump, from the Truck Shop area to the ORB. The tank was inspected during cleaning, and cracks were observed near the bottom of the east wall of the tank. Both the cleaning pad and the tank were taken off-line on April 23, 2005 (after the release was confirmed).

Figure 7-2 shows the location of the soil gas push-probe exploration and the monitoring wells advanced and sampled during both sampling events. Analytical results from the samples collected during the 2005 investigation are presented in Tables 7-1 through 7-5.

Soil Sampling and Analysis

Four sludge samples were collected from the tank and analyzed for characterization and disposal purposes. The samples were submitted for analysis of PCBs, TPH (NWTPH-HCID, NWTPH-Gx, and NWTPH-Dx), total metals, VOCs, and SVOCs. Based on analytical results, the samples were further analyzed for toxicity characteristic leaching procedure (TCLP) VOCs and for TCLP lead and chromium.

Sludge sample results are summarized in Table 7-1. These samples had elevated concentrations of mineral spirit/Stoddard- and diesel-range petroleum hydrocarbons at concentrations ranging from 5,500 to 14,000 and 17,000 and 25,000 mg/kg, respectively. Elevated concentrations of heavy oil-range petroleum hydrocarbons were detected at concentrations ranging between 220,000 and 370,000 mg/kg.

PCBs were not detected in the sludge samples.

Arsenic, chromium, and lead were detected in the four sludge samples. The highest chromium and lead concentrations were detected in the composite sample of the tank fluid/sludge contents. TCLP chromium analysis on the four samples measured leachable chromium concentrations ranging from 0.03 to 0.05 mg/L, while TCLP lead analysis had concentrations ranging from 0.004 to 0.010 mg/L.

Twenty VOCs were detected in the four sludge samples including chlorinated solvents (1,1-DCE, cis-1,2-DCE, TCE, PCE) and petroleum constituents (BTEX, 1,2,4-trimethylbenzene, isopropylbenzene, and naphthalene) with the highest VOC concentrations detected in the sludge sample collected from the south end of the tank bottom. TCLP analysis of the four sludge samples had estimated leachable concentrations of fifteen VOCs. The highest TCLP value from the sludge samples was for PCE at 200 ug/L.

SVOCs detected in the sludge samples were primarily PAHs including acenaphthylene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluroanthene, fluorene, phenanthrene, and pyrene. N-nitrosodiphenylamine was also detected. Concentrations of these SVOCs ranged between 2.8 and 36 mg/kg.

Based on the analytical results, the sludge material was disposed of off site at an appropriate disposal facility.

Approximately 2.2 cy of soil were excavated from the area surrounding the tank and visually evaluated for evidence of areas that may have leaked. Due to physical constraints with adjacent utilities and other structures, the excavation was restricted to the area immediately north, east, and south of the tank (Figure 7-2). These soils were disposed of off site at an appropriate disposal facility. After completion, the excavation was backfilled with clean soil prior to installing the groundwater monitoring wells.

Seven wipe samples were collected from the cleaning pad floor of the Truck Shop area to determine whether PCBs were present in this area. Analytical result of the wipe samples indicate Aroclor 1248 was detected in the seven PCB wipe samples at concentrations between 2.6 and 8 υg/100 cm^2 (Table 7-2). Note that the original template size for the wipe samples was 464.5 cm^2 and the resulting values had to be converted to 100 cm^2 as shown in Table 7-2. These concentrations are below the EPA Toxic Substance Control Act (TSCA) acceptance criteria of 10 ug/100 cm^2 of Total PCBs for unrestricted use.

Although PCBs were detected on the wipe samples collected from the cleaning pad, no PCBs were detected in the sludge samples collected from the tank.

In May 2005, two soil borings (TS-MW-1 and TS-MW-2) were each advanced to a total depth of approximately 86 feet below ground surface. Thirteen soil samples were collected from each boring, and one sample of the stockpiled soil for analysis. The soil samples collected during drilling were submitted for analysis of PCBs and TPH (NWTPH-HCID). Select soil samples from the borings were also submitted for analysis of total metals, TPH (NWTPH-Gx and NWTPH-Dx), VOCs, and SVOCs.

Heavy oil-range petroleum hydrocarbons at concentrations ranging between 300 to 5,800 mg/kg were detected in eight of the thirteen soil samples analyzed from boring TS-MW-1S. The heavy oil-range petroleum hydrocarbon concentrations exceeding screening level were detected in sample TSMW-1S/S-3, TSMW-1S/S-4, and TSMW-1S/S-5 at 5,800, 4,400, and 2,300, respectively. These exceedences of the heavy oil-range petroleum hydrocarbons were between the approximated bottom of the tank (15 feet) and 25 feet below ground surface. Mineral spirit/Stoddard-range petroleum hydrocarbons were also identified in four of the soil samples collected, but their concentrations were not quantified. However, the NWTPH-Gx analysis conducted on sample S-3 measured mineral spirit/Stoddard-range petroleum hydrocarbons exceeding screening level at a concentration of 700 mg/kg. Detections of both diesel- and mineral spirit/Stoddard-range petroleum hydrocarbons were located between depths of 10 and 25 feet below ground surface.

Heavy oil- and diesel-range petroleum hydrocarbons were not detected in the soil samples collected from boring TS-MW-2S (Table 7-3). Mineral spirit/ Stoddard-range petroleum hydrocarbons were identified using the NWTPH-HCID in one of the soil samples collected at a depth of 50 feet below ground surface, but its concentration was not quantified. In addition, castor oil was detected in four of the soil samples analyzed from TS-MW-2S between the depths of 50 and 85 feet below ground surface at concentrations ranging from 140 to 2,000 mg/kg (Table 7-3). Castor oil is a vegetable (non-petroleum)-based oil.

No PCBs were detected in the soil samples analyzed.

Three soil samples from boring TS-MW-1 were analyzed for total metals. Arsenic was detected in soil samples at concentrations exceeding the screening level. However, these arsenic detections are within the expected background range for Spokane Basin soils of 1.1 to 10.3 mg/kg and do not indicate a release from the Truck Shop area (Ecology 1994).

Nine VOCs were detected in the four soil samples analyzed from boring TS-MW-1 (Table 7-3). Three of these samples, collected between depths of 10 and 30 feet below ground surface, had detections of 1,2,4-trimethylbenzene, 2-chlorotoluene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and total xylenes (most of these compounds are common petroleum constituents). The soil sample (S-2) collected at a depth of 10 feet also had ethylbenzene, tert-butylbenzene, and toluene detections. The deepest soil sample S-10 (60 feet below ground surface), from TS-MW-1 analyzed for VOCs, had only 1,2,4-trimethylbenzene detected. Three samples from boring TS-MW-2 were analyzed for VOCs. The samples analyzed were at depths of 15, 35, and 50 feet below ground surface. These three samples had detections of 1,2,4-trimethylbenzene and the upper two samples also had n-butylbenzene detected. The concentrations of these VOCs were below screening levels.

Two samples from boring TS-MW-1 were analyzed for SVOCs (Table 7-3). The soil sample (S-7) collected at a depth of 35 feet below ground surface was non-detect for SVOCs. The soil sample (S-3) collected 15 feet below ground surface had estimated detections of acenaphthylene, benzo(a)anthracene, chrysene, fluoranthene, fluorene, n-nitrosodiphenylamine, phenanthrene, and pyrene. The concentrations of these SVOCs was below screening levels. No soil samples from boring TS-MW-2 were analyzed for SVOCs.

Groundwater Sampling and Analysis

The Phase I investigation at the Truck Shop included groundwater sampling and analysis of the monitoring wells and soil gas sampling and analysis. Groundwater sampling and analysis of both wells were conducted quarterly since their installation and initial sampling. Quarterly sampling and analysis were conducted in 2005 and 2006. Semi-annual groundwater sampling and analysis were conducted in 2007 and 2008. Analytical results for the groundwater samples collected during these events are presented in Table 7-4.

Soil borings TS-MW-1S and TS-MW-2S were completed as monitoring wells in May 2005. Groundwater was encountered at approximately 73 feet below grade during drilling. The wells were screened between depths of 60 and 85 feet.

Selected groundwater samples were collected from both wells and submitted for analysis of TPH (NWTPH-HCID, NWTPH-Gx, and NWTPH-Dx), PCBs, VOCs, SVOCs, and TSS.

Arsenic was measured in the samples collected at concentrations exceeding screening levels. The arsenic concentrations ranged from 3.02 to 6.96 ug/L. VOCs, TPH, and PCBs were not detected in the groundwater samples analyzed in any of these events. However, several SVOCs were detected at concentrations below screening levels.

Soil Gas Sampling and Analysis

In addition to the groundwater sampling and analysis events, one soil gas sample was collected from probe TS-S6-1 advanced on March 15, 2006, in the vicinity of the tank (Figure 7-2). The soil gas sample was collected from a depth between 9 and 10 feet below grade. The soil gas sample was collected to determine the presence of VOCs in soil gas and evaluate whether detected analytes were at concentrations that may potentially affect indoor air quality and may pose a risk to human health. The analytical results for the soil gas sample are presented in Table 7-5.

Analytical results for the soil gas sample indicate nine VOCs including 1,1,1-trichloroethane, benzene, chloroethane, ethylbenzene, m,p-xylenes, o-xylene, PCE, toluene, and TCE are present in this sample. The compounds detected indicate that two classes of VOCs are present in soil gas in the vicinity of the tank—petroleum fuel or solvent constituents, and chlorinated solvents. The concentrations of these VOCS are very low and well below calculated permissible exposure limits (PELs) using OSHA and NIOSH guidelines. EPA Vapor Intrusion Guidelines (EPA 2002) recommend an attenuation factor of 0.1 for shallow soil gas samples (collected less than 5 feet below building foundation) and a factor of 0.01 for deeper soil gas samples (collected more than 5 feet below building foundations). When an attenuation factor of 0.01 is applied to the concentrations of VOCs detected in the soil gas the resulting predicting indoor air concentrations fall below MTCA Method B calculated ambient air cleanup levels. See the Site-Specific Human Health and Terrestrial Ecological Risk Assessments for additional discussion of soil gas risks in the Truck Shop area (Pioneer 2012). PCE and TCE were not detected in groundwater or soil samples collected from TS-MW-1S and TS-MW-2S.

Soil gas sample analytical results suggest that migration of soil gas vapors into Truck Shop area buildings would not result in unacceptable impacts to workers.

7.2.2 Proposed Phase II (RI) Work

No additional investigation was recommended for the Truck Shop area in the Phase II RI Work Plan (Hart Crowser 2007). Results of the six rounds of groundwater monitoring and 26 soil samples submitted for analysis indicate that the Truck Shop area is not a significant source of contamination.

7.2.3 Summary of Current Conditions

Approximately 2.2 cy of soil were excavated from the area surrounding the tank and visually evaluated for areas where leaks may have occurred. Due to physical constraints with adjacent utilities and other structures, the excavation was restricted to the area immediately north, east, and south of the tank. The excavated soil and sludge from the tank was disposed of off site at an appropriate disposal facility. After completion, the excavation was backfilled with clean soil prior to installing the groundwater monitoring wells.

Soil sample analytical results from TSMW-1S indicated heavy oil-range petroleum hydrocarbon concentrations exceed screening levels in the 15-, 20-, and 25-foot soil samples. Arsenic was detected in the 15-, 35-, and 60-foot soil samples at concentrations exceeding screening levels. However, the arsenic detections are within the expected background range for Spokane Basin soils and do not indicate a release from the Truck Shop area. The other soil sample analytical results indicate that constituents were non-detect or detected at concentrations below screening levels.

Most of these SVOCs were detected in the groundwater samples collected during 2005. The estimated concentrations for these non-carcinogenic PAHs were all below Practical Quantification Limits (PQLs) and screening levels.

The results of the groundwater samples collected within the Truck Shop area indicate that dissolved metal concentrations encountered in groundwater are fairly consistent. Arsenic concentrations are above screening levels based on protection of the river but below the state and federal drinking water MCL of 10 ug/L. Analytical results for other metals are well below screening levels. Refer to the Site-Wide Groundwater RI (Hart Crowser 2012) for further discussion of groundwater conditions.

Soil gas sample analytical results suggest that migration of soil gas vapors into Truck Shop area buildings would not result in unacceptable impacts to workers.

Investigation results from the Truck Shop area do not indicate releases that pose a significant risk to human health and the environment.

The need for additional remedial action will be evaluated in the FS.

7.3 REFERENCES FOR SECTION 7.0

EPA 2002. OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). U.S. Environmental Protection Agency, Office of Emergency Response, Washington D.C., November 2002.

Hart Crowser 2007a. Phase II Remedial Investigation/Feasibility Study Work Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-103. November 30, 2007.

Hart Crowser 2012. Final Site-Wide Groundwater Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington, LLC by Hart Crowser, Inc. May 2012.

Pioneer 2012. Final Human Health and Ecological Risk Assessments, Kaiser Trentwood Facility, Spokane Valley, Washington. Pioneer Technologies Corporation. May 2012.

Washington State Department of Ecology (Ecology) 1994. Natural Background Soil Metals Concentrations in Washington State. Prepared by the Washington State Department of Ecology Toxics Cleanup Program. Publication No. 94-115. October 1994.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 7 0.doc

Table 7-1 - Analytical Results for the Truck Shop Sludge Samples

Sample ID Sampling Date	Screening Level (a)	Center #1 4/22/2005	North Bottom #3 4/22/2005	South Bottom #2 4/22/2005	Inside Sump Comp of Trench 4/26/2005
Moisture in %		45	23	24	48
Metals in mg/kg					
Arsenic	0.03	$\boxed{3.5}$	$\boxed{4.7}$	$\boxed{2.5}$	$\boxed{5.7}$
Barium	1650	10 U	10 U	10 U	10 U
Cadmium	0.7	1 U	1 U	1 U	1 U
Chromium	2000	7.8	1.8	7.5	1.8
Lead	250	35	8.1	9.5	8.1
Mercury	2	0.5 U	0.5 U	0.5 U	0.5 U
Selenium	5	10 U	10 U	10 U	10 U
Silver	14	1 U	1 U	1 U	1 U
PCBs in ug/kg					
Aroclor 1221		200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U
Aroclor 1242 (Aroclor 1016)		200 U	200 U	200 U	200 U
Aroclor 1248		200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Total PCBs	270	200 U	200 U	200 U	200 U
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		50 U	50 U	50 U	50 U
1,1,1-Trichloroethane	1610	50 U	50 U	50 U	50 U
1,1,2,2-Tetrachloroethane		50 U	50 U	50 U	50 U
1,1,2-Trichloroethane		50 U	50 U	50 U	50 U
1,1-Dichloroethane	8730	50 U	50 U	50 U	50 U
1,1-Dichloroethene		50 U	670	2400	50 U
1,1-Dichloropropene		50 U	50 U	50 U	50 U
1,2,3-Trichlorobenzene		50 U	50 U	50 U	50 U
1,2,3-Trichloropropane		50 U	50 U	50 U	50 U
1,2,4-Trichlorobenzene		50 U	50 U	50 U	50 U
1,2,4-Trimethylbenzene	31000	3500	13000	15000	1500
1,2-Dibromo-3-Chloropropane		50 U	50 U	50 U	50 U
1,2-Dibromoethane(EDB)		5 U	5 U	5 U	5 U
1,2-Dichlorobenzene		50 U	50 U	50 U	50 U
1,2-Dichloroethane		20 U	20 U	20 U	20 U
1,2-Dichloropropane		50 U	50 U	50 U	50 U
1,3,5-Trimethylbenzene	8380	50 U	2000	2400	50 U
1,3-Dichlorobenzene		50 U	50 U	50 U	50 U
1,3-Dichloropropane		50 U	50 U	50 U	50 U
1,4-Dichlorobenzene		50 U	50 U	50 U	50 U
2,2-Dichloropropane		50 U	50 U	50 U	50 U
2-Chlorotoluene	2400	270	1100	1200	200
4-Chlorotoluene	4180	94	310	50 U	50 U
Benzene	5	50 U	$\boxed{50}$	$\boxed{53}$	50 U
Bromobenzene		50 U	50 U	50 U	50 U
Bromodichloromethane		50 U	50 U	50 U	50 U

Table 7-1 - Analytical Results for the Truck Shop Sludge Samples

Sample ID Sampling Date	Screening Level (a)	Center #1 4/22/2005	North Bottom #3 4/22/2005	South Bottom #2 4/22/2005	Inside Sump Comp of Trench 4/26/2005
Bromoform		50 U	50 U	50 U	50 U
Bromomethane	52	50 U	50 U	50 U	50 U
Carbon Tetrachloride		50 U	50 U	50 U	50 U
Chlorobenzene		50 U	50 U	50 U	50 U
Chloroethane		50 U	50 U	50 U	50 U
Chloroform	38	50 U	50 U	50 U	310
Chloromethane	22	50 U	50 U	50 U	50 U
Cis-1,2-Dichloroethene		88	2800	3500	59
Cis-1,3-Dichloropropene		50 U	50 U	50 U	50 U
Dibromochloromethane		20 U	20 U	20 U	20 U
Dibromomethane		50 U	50 U	50 U	50 U
Dichlorodifluoromethane	47000	50 U	50 U	50 U	50 U
Ethylbenzene	5990	1100	1000	1500	2200
Hexachloro-1,3-butadiene		50 U	50 U	50 U	50 U
Isopropylbenzene	7370	170	480	540	110
Isopropyltoluene		50 U	50 U	50 U	50 U
Methylene Chloride	22	20 U	20 U	20 U	20 U
N-Butylbenzene	19500	1200	1300	1600	650
N-Propylbenzene	19500	540	2100	2100	350
Naphthalene	4490	2400	2700	4500	930
Sec-Butylbenzene	15800	320	470	610	110
Styrene	33	94	50 U	50 U	50 U
Tert-Butylbenzene	15600	59	50 U	50 U	50 U
Tetrachloroethene	0.9	11000	13000	26000	82000
Toluene	4650	610	3300	5100	820
Total Xylenes	14500	2100	8200	11000	8200
Trans-1,2-Dichloroethene		50 U	50 U	50 U	50 U
Trans-1,3-Dichloropropene		50 U	50 U	50 U	50 U
Trichloroethene (TCE)		20 U	640	1400	210
Trichlorofluoromethane		50 U	50 U	50 U	50 U
Vinyl Chloride		50 U	50 U	50 U	50 U
Semivolatiles in ug/kg					
1,2,4,5-Tetrachlorobenzene		500 U	500 U	500 U	500 U
1,2,4-Trichlorobenzene		100 U	100 U	100 U	100 U
1,2-Dichlorobenzene		100 U	100 U	100 U	100 U
1,3-Dichlorobenzene		100 U	100 U	100 U	100 U
1,4-Dichlorobenzene		100 U	100 U	100 U	100 U
2,3,4,6-Tetrachlorophenol		500 U	500 U	500 U	500 U
2,4,5-Trichlorophenol		500 U	500 U	500 U	500 U
2,4,6-Tribromophenol		500 U	500 U	500 U	500 U
2,4,6-Trichlorophenol		500 U	500 U	500 U	500 U
2,4-Dichlorophenol		500 U	500 U	500 U	500 U
2,4-Dimethylphenol		500 U	500 U	500 U	500 U
2,4-Dinitrophenol		500 U	500 U	500 U	500 U
2,6-Dichlorophenol		500 U	500 U	500 U	500 U
2-Chloronaphthalene		100 U	100 U	100 U	100 U

Table 7-1 - Analytical Results for the Truck Shop Sludge Samples

Sample ID Sampling Date	Screening Level (a)	Center #1 4/22/2005	North Bottom #3 4/22/2005	South Bottom #2 4/22/2005	Inside Sump Comp of Trench 4/26/2005
2-Chlorophenol		500 U	500 U	500 U	500 U
2-Methylphenol		100 U	100 U	100 U	100 U
2-Nitrophenol		500 U	500 U	500 U	500 U
2-sec-Butyl-4,6-dinitrophenol		500 U	500 U	500 U	500 U
3,4-Methylphenol (m,p-cresol)		100 U	100 U	100 U	100 U
4-Bromophenyl-phenylether		100 U	100 U	100 U	100 U
4-Chloro-3-methylphenol		500 U	500 U	500 U	500 U
4-Chlorophenyl-phenylether		500 U	500 U	500 U	500 U
4-Nitrophenol		500 U	500 U	500 U	500 U
Acenaphthene	98000	100 U	100 U	100 U	100 U
Acenaphthylene		11000	100 U	100 U	100 U
Anthracene	2200000	100 U	100 U	100 U	100 U
Benzo(a)anthracene	See BaP (c)	6000	11000	6500	7000
Benzo(a)pyrene	233	100 U	100 U	100 U	100 U
Benzo(b)fluoranthene	See BaP (c)	100 U	8300	100 U	100 U
Benzo(ghi)perylene		100 U	100 U	100 U	100 U
Benzo(k)fluoranthene	See BaP (c)	100 U	10000	6300	7000
Bis(2-chloroethoxy)methane		100 U	100 U	100 U	100 U
Bis(2-chloroethyl)ether		500 U	500 U	500 U	500 U
Bis(2-chloroisopropyl)ether		100 U	100 U	100 U	100 U
Bis(2-ethylhexyl)ether		100 U	100 U	100 U	100 U
Butylbenzylphthalate		500 U	500 U	500 U	500 U
Chrysene	See BaP (c)	5800	8500	6000	6300
Di-n-butylphthalate	57000	100 U	100 U	100 U	100 U
Di-n-octylphthalate	530000000	500 U	500 U	500 U	500 U
Dibenz(a,h)anthracene	See BaP (c)	100 U	100 U	100 U	100 U
Diethylphthalate		100 U	100 U	100 U	100 U
Dimethyl Phthalate		100 U	100 U	100 U	100 U
Fluoranthene	630000	16000	36000	19000	28000
Fluorene	100000	4000	3500	100 U	2800
Hexachlorobenzene		100 U	100 U	100 U	100 U
Hexachlorobutadiene		500 U	500 U	500 U	500 U
Hexachlorocyclopentadiene		100 U	100 U	100 U	100 U
Hexachloroethane		100 U	100 U	100 U	100 U
Hexachloropropylene		500 U	500 U	500 U	500 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	100 U	100 U	100 U	100 U
N-Nitrosodiphenylamine	536	11000	24000	14000	11000
Pentachlorobenzene		500 U	500 U	500 U	500 U
Pentachlorophenol		500 U	500 U	500 U	500 U
Phenanthrene		15000	22000	13000	22000
Phenol	22000	500 U	500 U	500 U	500 U
Pyrene	660000	16000	26000	15000	20000
TEQ Equivalent (b)	See BaP (c)	$\boxed{658}$	$\boxed{3015}$	$\boxed{1340}$	$\boxed{1463}$

Table 7-1 - Analytical Results for the Truck Shop Sludge Samples

Sample ID Sampling Date	Screening Level (a)	Center #1 4/22/2005	North Bottom #3 4/22/2005	South Bottom #2 4/22/2005	Inside Sump Comp of Trench 4/26/2005
NWTPH-HCID in mg/kg					
Bunker C		50 U	50 U	50 U	50 U
Castor oil	2000	100 U	100 U	100 U	100 U
Diesel/Fuel oil/Creosote	2000	$\boxed{25000}$	$\boxed{28000}$	$\boxed{21000}$	$\boxed{29000}$
Gasoline	100	20 U	20 U	20 U	20 U
Heavy oil	2000	$\boxed{330000}$	$\boxed{370000}$	$\boxed{270000}$	$\boxed{440000}$
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 D	20 D	20 D	20 D
NWTPH-Dx in mg/kg					
Diesel/Fuel oil	2000	$\boxed{20000}$	$\boxed{24000}$	$\boxed{17000}$	$\boxed{25000}$
Heavy oil	2000	$\boxed{260000}$	$\boxed{330000}$	$\boxed{220000}$	$\boxed{370000}$
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
NWTPH-Gx in mg/kg					
Gasoline	100	5 U	5 U	5 U	5 U
Mineral spirits/Stoddard	100	$\boxed{5500}$	$\boxed{11000}$	$\boxed{14000}$	$\boxed{6900}$
TCLP Metals in mg/L					
Chromium	5	0.03	0.05	0.03	0.03
Lead	5	0.004	0.004	0.004	0.01
TCLP Volatiles in ug/L					
1,1,1,2-Tetrachloroethane		1 UJ	1 UJ	1 UJ	1 UJ
1,1,1-Trichloroethane	1610	1 UJ	1 UJ	1 UJ	1 UJ
1,1,2,2-Tetrachloroethane		1 UJ	1 UJ	1 UJ	1 UJ
1,1,2-Trichloroethane		1 UJ	1 UJ	1 UJ	1 UJ
1,1-Dichloroethane	8730	1 UJ	32 J	160 J	8.2 J
1,1-Dichloroethene		1 UJ	1 UJ	1.8 J	1 UJ
1,1-Dichloropropene		1 UJ	1 UJ	1 UJ	1 UJ
1,2,3-Trichlorobenzene		1 UJ	1 UJ	1 UJ	1 UJ
1,2,3-Trichloropropane		1 UJ	1 UJ	1 UJ	1 UJ
1,2,4-Trichlorobenzene		1 UJ	1 UJ	1 UJ	1 UJ
1,2,4-Trimethylbenzene	31000	11 J	18 J	27 J	3.1 J
1,2-Dibromo-3-Chloropropane		1 UJ	1 UJ	1 UJ	1 UJ
1,2-Dibromoethane(EDB)		0.01 UJ	0.01 UJ	0.01 UJ	0.01 UJ
1,2-Dichlorobenzene		1 UJ	1 UJ	1 UJ	1 UJ
1,2-Dichloroethane		1 UJ	1 UJ	1 UJ	1 UJ
1,2-Dichloropropane		1 UJ	1 UJ	1 UJ	1 UJ
1,3,5-Trimethylbenzene	8380	1 UJ	1 UJ	1 UJ	1 UJ
1,3-Dichlorobenzene		1 UJ	1 UJ	1 UJ	1 UJ
1,3-Dichloropropane		1 UJ	1 UJ	1 UJ	1 UJ
1,4-Dichlorobenzene		1 UJ	1 UJ	1 UJ	1 UJ
2,2-Dichloropropane		1 UJ	1 UJ	1 UJ	1 UJ
2-Chlorotoluene	2400	1 UJ	2.4 J	3.8 J	1 UJ
4-Chlorotoluene	4180	1 UJ	1 UJ	1 UJ	1 UJ
Benzene	5	1 UJ	3 J	3.7 J	1 UJ
Bromobenzene		1 UJ	1 UJ	1 UJ	1 UJ
Bromodichloromethane		1 UJ	1 UJ	1 UJ	1 UJ

Table 7-1 - Analytical Results for the Truck Shop Sludge Samples

Sample ID Sampling Date	Screening Level (a)	Center #1 4/22/2005	North Bottom #3 4/22/2005	South Bottom #2 4/22/2005	Inside Sump Comp of Trench 4/26/2005
Bromoform		1 UJ	1 UJ	1 UJ	1 UJ
Bromomethane	52	1 UJ	1 UJ	1 UJ	1 UJ
Carbon Tetrachloride		1 UJ	1 UJ	1 UJ	1 UJ
Chlorobenzene		1 UJ	1 UJ	1 UJ	1 UJ
Chloroethane		1 UJ	1 UJ	1 UJ	1 UJ
Chloroform	38	1 UJ	1 UJ	1 UJ	23 J
Chloromethane	22	1 UJ	1 UJ	1 UJ	1 UJ
Cis-1,2-Dichloroethene		2.9 J	120 J	160 J	1 UJ
Cis-1,3-Dichloropropene		1 UJ	1 UJ	1 UJ	1 UJ
Dibromochloromethane		1 UJ	1 UJ	1 UJ	1 UJ
Dibromomethane		1 UJ	1 UJ	1 UJ	1 UJ
Dichlorodifluoromethane	47000	1 UJ	1 UJ	1 UJ	1 UJ
Ethylbenzene	5990	5.2 J	4.2 J	14 J	8.8 J
Hexachloro-1,3-butadiene		1 UJ	1 UJ	1 UJ	1 UJ
Isopropylbenzene	7370	1 UJ	1 UJ	1 UJ	1 UJ
Isopropyltoluene		1 UJ	1 UJ	1 UJ	1 UJ
Methylene Chloride	22	1 UJ	1 UJ	1 UJ	1 UJ
N-Butylbenzene	19500	2.4 J	1 UJ	3.6 J	1 UJ
N-Propylbenzene	19500	1 UJ	4.2 J	5.9 J	1.9 J
Naphthalene	4490	1 UJ	1 UJ	1 UJ	11 J
Sec-Butylbenzene	15800	1 UJ	1 UJ	1 UJ	1 UJ
Styrene	33	1 UJ	1 UJ	1 UJ	1 UJ
Tert-Butylbenzene	15600	1 UJ	1 UJ	1 UJ	1 UJ
Tetrachloroethene	0.9	$\boxed{18}$ J	$\boxed{100}$ J	$\boxed{69}$ J	$\boxed{200}$ J
Toluene	4650	10 J	31 J	60 J	17 J
Total Xylenes	14500	39 J	2.8 J	90 J	52 J
Trans-1,2-Dichloroethene		1 UJ	1 UJ	1 UJ	1 UJ
Trans-1,3-Dichloropropene		1 UJ	1 UJ	1 UJ	1 UJ
Trichloroethene (TCE)		1 UJ	2.6 J	13 J	1.2 J
Trichlorofluoromethane		1 UJ	1 UJ	1 UJ	1 UJ
Vinyl Chloride		0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ

U = Not detected at reporting limit indicated. J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8)
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173 340-708(8).
Materials representative of these samples were disposed of off site at an appropriate disposal facility

Table 7-2 - Analytical Results for the Truck Shop Cleaning Pad PCB Wipe Samples

Sample ID	MS-1F	MS-1F	MS-2F	MS-2F	MS-3F	MS-3F	MS-4F	MS-4F
Sampling Date	4/24/05	4/24/05	4/24/05	4/24/05	4/24/05	4/24/05	4/24/05	4/24/05
Wipe Area in cm^2	464.5	100	464.5	100	464.5	100	464.5	100
PCBs in µg								
Aroclor 1221	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor 1232	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor 1242 (A1016)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor 1248	12	2.6	21	4.5	37	8.0	27	5.8
Aroclor 1254	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor 1260	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Sample ID	MS-5F	MS-5F	MS-6F	MS-6F	MS-7F	MS-7F
Sampling Date	4/24/05	4/24/05	4/24/05	4/24/05	4/24/05	4/24/05
Wipe Area in cm^2	464.5	100	464.5	100	464.5	100
PCBs in µg						
Aroclor 1221	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor 1232	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor 1242 (A1016)	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor 1248	31	6.7	15	3.2	37	8.0
Aroclor 1254	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor 1260	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

U = Not detected at the reporting limit indicated.
Note: Wipe samples collected and analyzed using 8- by 9-inch template (464.5 cm^2). Laboratory analytical results were converted to 100 cm^2 concentrations.

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening	TSMW-1S/S-1	TSMW-1S/S-2	TSMW-1S/S-3	TSMW-1S/S-4	TSMW-1S/S-5	TSMW-1S/S-6
Sampling Date	Level (a)	5/18/2005	5/18/2005	5/18/2005	5/18/2005	5/18/2005	5/18/2005
Depth in Feet		5	10	15	20	25	30
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in %							
Moisture		7	19	20	4	4	6
Metals in mg/kg							
Arsenic	0.0341/0.0017			3.2			
Barium	1650/82.6			10 U			
Cadmium	0.7/0.0349			1 U			
Chromium	2000/100			6			
Lead	250/250			6.7			
Mercury	2/0.105			0.5 U			
Selenium	5/0.264			10 U			
Silver	14/0.687			1 U			
PCBs in µg/kg							
Aroclor 1221		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1232		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1242 (Aroclor 1016)		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1248		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1254		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1260		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total PCBs	270/14	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 D	20 D	20 D	20 D	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote		50 U	260	760	670	370	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	1800	5800	4400	2300	480
Castor oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000			20 U			
Diesel/Fuel oil	2000			700			
Heavy oil	2000			5400			
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100			700			
Gasoline	100			5 U			

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening	TSMW-1S/S-7	TSMW-1S/S-8	TSMW-1S/S-9	TSMW-1S/S-10	TSMW-1S/S-11	TSMW-1S/S-12
Sampling Date	Level (a)	5/18/2005	5/18/2005	5/18/2005	5/18/2005	5/19/2005	5/19/2005
Depth in Feet		35	40	50	60	75	85
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat
Conventionals in %							
Moisture		5	5	6	5	6	5
Metals in mg/kg							
Arsenic	0.0341/0.0017	$\boxed{3.9}$			$\boxed{2.6}$		
Barium	1650/82.6	10 U			10 U		
Cadmium	0.7/0.0349	1 U			1 U		
Chromium	2000/100	3.6			3		
Lead	250/250	2.3			1.3		
Mercury	2/0.105	0.5 U			0.5 U		
Selenium	5/0.264	10 U			10 U		
Silver	14/0.687	1 U			1 U		
PCBs in µg/kg							
Aroclor 1221		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1232		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1242 (Aroclor 1016)		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1248		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1254		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1260		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total PCBs	270/14	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote		50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	340	310	300	100 U	100 U	100 U
Castor oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000	20 U			20 U		
Diesel/Fuel oil	2000	50 U			50 U		
Heavy oil	2000	290			100 U		
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100	5 U			5 U		
Gasoline	100	5 U			5 U		

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening	TSMW-2S/S-1	TSMW-2S/S-2	TSMW-2S/S-3	TSMW-2S/S-4	TSMW-2S/S-5	TSMW-2S/S-6
Sampling Date	Level (a)	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005
Depth in Feet		5	10	15	20	25	30
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in %							
Moisture		10	9	7	6	5	6
Metals in mg/kg							
Arsenic	0.0341/0.0017						
Barium	1650/82.6						
Cadmium	0.7/0.0349						
Chromium	2000/100						
Lead	250/250						
Mercury	2/0.105						
Selenium	5/0.264						
Silver	14/0.687						
PCBs in µg/kg							
Aroclor 1221		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1232		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1242 (Aroclor 1016)		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1248		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1254		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1260		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total PCBs	270/14	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote		50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000						
Diesel/Fuel oil	2000						
Heavy oil	2000						
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100						
Gasoline	100						

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening	TSMW-2S/S-7	TSMW-2S/S-8	TSMW-2S/S-9	TSMW-2S/S-10	TSMW-2S/S-11	TSMW-2S/S-12
Sampling Date	Level (a)	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005	5/20/2005
Depth in Feet		35	40	50	60	75	85
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat
Conventionals in %							
Moisture		7	6	8	5	4	6
Metals in mg/kg							
Arsenic	0.0341/0.0017						
Barium	1650/82.6						
Cadmium	0.7/0.0349						
Chromium	2000/100						
Lead	250/250						
Mercury	2/0.105						
Selenium	5/0.264						
Silver	14/0.687						
PCBs in µg/kg							
Aroclor 1221		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1232		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1242 (Aroclor 1016)		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1248		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1254		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Aroclor 1260		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Total PCBs	270/14	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 D	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote		50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil	2000	100 U	100 U	140	2000	1700	770
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000						
Diesel/Fuel oil	2000						
Heavy oil	2000						
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100						
Gasoline	100						

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening	TSMW-1S/S-3	TSMW-1S/S-7	TSMW-1S/S-10
Sampling Date	Level (a)	5/18/2005	5/18/2005	5/18/2005
Depth in Feet		15	35	60
Unsat/Sat		Unsat	Unsat	Unsat
Semivolatiles in mg/kg				
1,2,4,5-Tetrachlorobenzene		500 UJ	500 UJ	500 UJ
1,2,4-Trichlorobenzene		100 UJ	100 UJ	100 UJ
1,2-Dichlorobenzene		100 UJ	100 UJ	100 UJ
1,3-Dichlorobenzene		100 UJ	100 UJ	100 UJ
1,4-Dichlorobenzene		100 UJ	100 UJ	100 UJ
2,3,4,6-Tetrachlorophenol		500 UJ	500 UJ	500 UJ
2,4,5-Trichlorophenol		500 UJ	500 UJ	500 UJ
2,4,6-Tribromophenol		500 UJ	500 UJ	500 UJ
2,4,6-Trichlorophenol		500 UJ	500 UJ	500 UJ
2,4-Dichlorophenol		500 UJ	500 UJ	500 UJ
2,4-Dimethylphenol		500 UJ	500 UJ	500 UJ
2,4-Dinitrophenol		500 UJ	500 UJ	500 UJ
2,6-Dichlorophenol		500 UJ	500 UJ	500 UJ
2-Chloronaphthalene		100 UJ	100 UJ	100 UJ
2-Chlorophenol		500 UJ	500 UJ	500 UJ
2-Methylphenol		100 UJ	100 UJ	100 UJ
2-Nitrophenol		500 UJ	500 UJ	500 UJ
2-sec-Butyl-4,6-dinitrophenol		500 UJ	500 UJ	500 UJ
3,4-Methylphenol (m,p-cresol)		100 UJ	100 UJ	100 UJ
4-Bromophenyl-Phenylether		100 UJ	100 UJ	100 UJ
4-Chloro-3-methylphenol		500 UJ	500 UJ	500 UJ
4-Chlorophenyl-phenylether		500 UJ	500 UJ	500 UJ
4-Nitrophenol		500 UJ	500 UJ	500 UJ
Acenaphthene	98000/4980	100 UJ	100 UJ	100 UJ
Acenaphthylene		300 J	100 UJ	100 UJ
Anthracene	2.2E+06/112000	100 UJ	100 UJ	100 UJ
Benzo(a)anthracene	See BaP (c)	770 J	100 UJ	100 UJ
Benzo(a)pyrene	233/12	100 UJ	100 UJ	100 UJ
Benzo(b)fluoranthene	See BaP (c)	100 UJ	100 UJ	100 UJ
Benzo(g,h,i)perylene		100 UJ	100 UJ	100 UJ
Benzo(k)fluoranthene	See BaP (c)	100 UJ	100 UJ	100 UJ
Bis(2-Chloroethoxy)Methane		100 UJ	100 UJ	100 UJ
Bis(2-Chloroethyl)Ether		500 UJ	500 UJ	500 UJ
Bis(2-chloroisopropyl) Ether		100 UJ	100 UJ	100 UJ
Bis(2-ethylhexyl)ether		100 UJ	100 UJ	100 UJ
Butylbenzylphthalate		500 UJ	500 UJ	500 UJ
Chrysene	See BaP (c)	620 J	100 UJ	100 UJ
Di-N-Butylphthalate	57000/3020	100 UJ	100 UJ	100 UJ
Di-n-octyl Phthalate		500 UJ	500 UJ	500 UJ
Dibenz(a,h)anthracene	See BaP (c)	100 UJ	100 UJ	100 UJ
Diethylphthalate		100 UJ	100 UJ	100 UJ
Dimethyl Phthalate		100 UJ	100 UJ	100 UJ
Fluoranthene	630000/31500	870 J	100 UJ	100 UJ
Fluorene	100000/5110	250 J	100 UJ	100 UJ

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID Sampling Date Depth in Feet Unsat/Sat	Screening Level (a)	TSMW-1S/S-3 5/18/2005 15 Unsat		TSMW-1S/S-7 5/18/2005 35 Unsat		TSMW-1S/S-10 5/18/2005 60 Unsat	
Hexachlorobenzene		100	UJ	100	UJ	100	UJ
Hexachlorobutadiene		500	UJ	500	UJ	500	UJ
Hexachlorocyclopentadiene		100	UJ	100	UJ	100	UJ
Hexachloroethane		100	UJ	100	UJ	100	UJ
Hexachloropropylene		500	UJ	500	UJ	500	UJ
Indeno(1,2,3-cd)pyrene	See BaP (c)	100	UJ	100	UJ	100	UJ
N-Nitrosodiphenylamine	536/28	440	J	100	UJ	100	UJ
Pentachlorobenzene		500	UJ	500	UJ	500	UJ
Pentachlorophenol		500	UJ	500	UJ	500	UJ
Phenanthrene		920	J	100	UJ	100	UJ
Phenol	22000/1520	500	UJ	500	UJ	500	UJ
Pyrene	660000/32800	760	J	100	UJ	100	UJ
TEQ Equivalent (b)	See BaP (c)	83.2	J	100	UJ	100	UJ

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening Level (a)	TSMW-1S/S-2	TSMW-1S/S-3	TSMW-1S/S-6	TSMW-1S/S-10
Sampling Date		5/18/2005	5/18/2005	5/18/2005	5/18/2005
Depth in Feet		10	15	30	60
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		50 U	50 U	50 U	50 U
1,1,1-Trichloroethane	1610/85	50 U	50 U	50 U	50 U
1,1,2,2-Tetrachloroethane		50 U	50 U	50 U	50 U
1,1,2-Trichloroethane		50 U	50 U	50 U	50 U
1,1-Dichloroethane	8730/543	50 U	50 U	50 U	50 U
1,1-Dichloroethene		50 U	50 U	50 U	50 U
1,1-Dichloropropene		50 U	50 U	50 U	50 U
1,2,3-Trichlorobenzene		50 U	50 U	50 U	50 U
1,2,3-Trichloropropane		50 U	50 U	50 U	50 U
1,2,4-Trichlorobenzene		50 U	50 U	50 U	50 U
1,2,4-Trimethylbenzene	31000/1590	2200	530	1500	160
1,2-Dibromo-3-Chloropropane		50 U	50 U	50 U	50 U
1,2-Dibromoethane(EDB)		5 U	5 U	5 U	5 U
1,2-Dichlorobenzene		50 U	50 U	50 U	50 U
1,2-Dichloroethane		20 U	20 U	20 U	20 U
1,2-Dichloropropane		50 U	50 U	50 U	50 U
1,3,5-Trimethylbenzene	8380/443	50 U	50 U	50 U	50 U
1,3-Dichlorobenzene		50 U	50 U	50 U	50 U
1,3-Dichloropropane		50 U	50 U	50 U	50 U
1,4-Dichlorobenzene		50 U	50 U	50 U	50 U
2,2-Dichloropropane		50 U	50 U	50 U	50 U
2-Chlorotoluene	2400/143	160	280	71	50 U
4-Chlorotoluene	4180/250	50 U	50 U	50 U	50 U
Benzene	5/0.3	50 U	50 U	50 U	50 U
Bromobenzene		50 U	50 U	50 U	50 U
Bromodichloromethane		50 U	50 U	50 U	50 U
Bromoform		50 U	50 U	50 U	50 U
Bromomethane	52/3	50 U	50 U	50 U	50 U
Carbon Tetrachloride		50 U	50 U	50 U	50 U
Chlorobenzene		50 U	50 U	50 U	50 U
Chloroethane		50 U	50 U	50 U	50 U
Chloroform	38/2	50 U	50 U	50 U	50 U
Chloromethane	22/1	50 U	50 U	50 U	50 U
Cis-1,2-Dichloroethene		50 U	50 U	50 U	50 U
Cis-1,3-Dichloropropene		50 U	50 U	50 U	50 U
Dibromochloromethane		20 U	20 U	20 U	20 U
Dibromomethane		50 U	50 U	50 U	50 U
Dichlorodifluoromethane	47000/551	50 U	50 U	50 U	50 U
Ethylbenzene	5990/341	55	50 U	50 U	50 U
Hexachloro-1,3-butadiene		50 U	50 U	50 U	50 U
Isopropylbenzene	7370/405	50 U	50 U	50 U	50 U
Isopropyltoluene		50 U	50 U	50 U	50 U
Methylene Chloride	22/2	20 U	20 U	20 U	20 U
N-Butylbenzene	19500/988	340	940	200	50 U

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening	TSMW-1S/S-2	TSMW-1S/S-3	TSMW-1S/S-6	TSMW-1S/S-10
Sampling Date	Level (a)	5/18/2005	5/18/2005	5/18/2005	5/18/2005
Depth in Feet		10	15	30	60
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
N-Propylbenzene	19500/988	190	350	120	50 U
Naphthalene	4490/238	50 U	50 U	50 U	50 U
Sec-Butylbenzene	15800/796	120	350	88	50 U
Styrene	33/2	50 U	50 U	50 U	50 U
Tert-Butylbenzene	15600/796	290	50 U	50 U	50 U
Tetrachloroethene	0.9/0.05	50 U	50 U	50 U	50 U
Toluene	4650/273	62	50 U	50 U	50 U
Total Xylenes	14500/827	470	350	130	50 U
Trans-1,2-Dichloroethene		50 U	50 U	50 U	50 U
Trans-1,3-Dichloropropene		50 U	50 U	50 U	50 U
Trichloroethene (TCE)		20 U	20 U	20 U	20 U
Trichlorofluoromethane		50 U	50 U	50 U	50 U
Vinyl Chloride		50 U	50 U	50 U	50 U

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening	TSMW-2S/S-3	TSMW-2S/S-7	TSMW-2S/S-9
Sampling Date	Level (a)	5/20/2005	5/20/2005	5/20/2005
Depth in Feet		15	35	50
Unsat/Sat		Unsat	Unsat	Unsat
Volatiles in ug/kg				
1,1,1,2-Tetrachloroethane		50 U	50 U	50 U
1,1,1-Trichloroethane	1610/85	50 U	50 U	50 U
1,1,2,2-Tetrachloroethane		50 U	50 U	50 U
1,1,2-Trichloroethane		50 U	50 U	50 U
1,1-Dichloroethane	8730/543	50 U	50 U	50 U
1,1-Dichloroethene		50 U	50 U	50 U
1,1-Dichloropropene		50 U	50 U	50 U
1,2,3-Trichlorobenzene		50 U	50 U	50 U
1,2,3-Trichloropropane		50 U	50 U	50 U
1,2,4-Trichlorobenzene		50 U	50 U	50 U
1,2,4-Trimethylbenzene	31000/1590	390	160	120
1,2-Dibromo-3-Chloropropane		50 U	50 U	50 U
1,2-Dibromoethane(EDB)		5 U	5 U	5 U
1,2-Dichlorobenzene		50 U	50 U	50 U
1,2-Dichloroethane		20 U	20 U	20 U
1,2-Dichloropropane		50 U	50 U	50 U
1,3,5-Trimethylbenzene	8380/443	50 U	50 U	50 U
1,3-Dichlorobenzene		50 U	50 U	50 U
1,3-Dichloropropane		50 U	50 U	50 U
1,4-Dichlorobenzene		50 U	50 U	50 U
2,2-Dichloropropane		50 U	50 U	50 U
2-Chlorotoluene	2400/143	50 U	50 U	50 U
4-Chlorotoluene	4180/250	50 U	50 U	50 U
Benzene	5/0.3	50 U	50 U	50 U
Bromobenzene		50 U	50 U	50 U
Bromodichloromethane		50 U	50 U	50 U
Bromoform		50 U	50 U	50 U
Bromomethane	52/3	50 U	50 U	50 U
Carbon Tetrachloride		50 U	50 U	50 U
Chlorobenzene		50 U	50 U	50 U
Chloroethane		50 U	50 U	50 U
Chloroform	38/2	50 U	50 U	50 U
Chloromethane	22/1	50 U	50 U	50 U
Cis-1,2-Dichloroethene		50 U	50 U	50 U
Cis-1,3-Dichloropropene		50 U	50 U	50 U
Dibromochloromethane		20 U	20 U	20 U
Dibromomethane		50 U	50 U	50 U
Dichlorodifluoromethane	47000/551	50 U	50 U	50 U
Ethylbenzene	5990/341	50 U	50 U	50 U
Hexachloro-1,3-butadiene		50 U	50 U	50 U
Isopropylbenzene	7370/405	50 U	50 U	50 U
Isopropyltoluene		50 U	50 U	50 U
Methylene Chloride	22/2	20 U	20 U	20 U
N-Butylbenzene	19500/988	59	65	50 U

Table 7-3 - Analytical Results for the Truck Shop Subsurface Soil Samples

Sample ID	Screening	TSMW-2S/S-3	TSMW-2S/S-7	TSMW-2S/S-9
Sampling Date	Level (a)	5/20/2005	5/20/2005	5/20/2005
Depth in Feet		15	35	50
Unsat/Sat		Unsat	Unsat	Unsat
N-Propylbenzene	19500/988	50 U	50 U	50 U
Naphthalene	4490/238	50 U	50 U	50 U
Sec-Butylbenzene	15800/796	50 U	50 U	50 U
Styrene	33/2	50 U	50 U	50 U
Tert-Butylbenzene	15600/796	50 U	50 U	50 U
Tetrachloroethene	0.9/0.05	50 U	50 U	50 U
Toluene	4650/273	50 U	50 U	50 U
Total Xylenes	14500/827	50 U	50 U	50 U
Trans-1,2-Dichloroethene		50 U	50 U	50 U
Trans-1,3-Dichloropropene		50 U	50 U	50 U
Trichloroethene (TCE)		20 U	20 U	20 U
Trichlorofluoromethane		50 U	50 U	50 U
Vinyl Chloride		50 U	50 U	50 U

U = Not detected at the detection limit indicated.
J = Estimated value.
Boxed value exceeds screening limit.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-1S 6/16/2005	TS-MW-2S 6/16/2005	TS-MW-1S 7/28/2005	TS-MW-2S 7/28/2005	TS-MW-1S 10/28/2005
Total Susp. Solids in mg/L		66	4	13	13	5
Dissolved Metals in ug/L						
Antimony	6			0.172 J	0.178 J	0.14
Arsenic	0.018			3.7	3.7	3.2
Barium				37.4	37.4	37.8
Cadmium	0.25			0.02 J	0.007 J	0.144 UJ
Chromium	50			0.67	0.61	1.2
Iron	300			20 UJ	20 UJ	5 J
Lead	0.54			0.05	0.061	0.018 U
Manganese	50			0.75	2.05	1.51
Mercury	0.012			0.2 U	0.2 U	0.2 U
Selenium	5			1 U	0.2 J	0.2 J
Silver	80			0.003 J	0.006 J	0.02 U
PCBs in ug/L						
Aroclor 1016		0.005 U	0.005 U	0.0049 U	0.005 U	0.0048 U
Aroclor 1221		0.01 U	0.01 U	0.0097 U	0.01 U	0.0096 U
Aroclor 1232		0.005 U	0.005 U	0.0049 U	0.005 U	0.0048 U
Aroclor 1242		0.005 U	0.005 U	0.0049 U	0.005 U	0.0048 U
Aroclor 1242 (Aroclor 1016)						
Aroclor 1248		0.005 U	0.005 U	0.0049 U	0.005 U	0.0048 U
Aroclor 1254		0.005 U	0.005 U	0.0049 U	0.005 U	0.0048 U
Aroclor 1260		0.005 U	0.005 U	0.0049 U	0.005 U	0.0048 U
Total PCBs	0.000064	0.01 U	0.01 U	0.0097 U	0.01 U	0.0096 U
Semivolatiles in ug/L						
1,2,4-Trichlorobenzene	35	0.19 U	0.2 U	0.2 U	0.2 U	
1,2-Dichlorobenzene	420	0.19 U	0.2 U	0.2 U	0.2 U	
1,3-Dichlorobenzene	320	0.19 U	0.2 U	0.2 U	0.2 U	
1,4-Dichlorobenzene	1.8	0.19 U	0.2 U	0.2 U	0.2 U	
2,4,5-Trichlorophenol	800	0.48 U	0.48 U	0.49 U	0.48 U	
2,4,6-Trichlorophenol	1.4	0.48 U	0.48 U	0.49 U	0.48 U	
2,4-Dichlorophenol	24	0.48 U	0.48 U	0.49 U	0.48 U	
2,4-Dimethylphenol	160	1.9 U	2 U	2 U	2 U	
2,4-Dinitrophenol	32	3.8 U	3.9 U	3.9 U	3.9 U	
2,4-Dinitrotoluene	0.11	0.19 U	0.2 U	0.2 U	0.2 U	
2,6-Dinitrotoluene	16	0.19 U	0.2 U	0.2 U	0.2 U	
2-Chloronaphthalene		0.19 U	0.2 U	0.2 U	0.2 U	
2-Chlorophenol	40	0.48 U	0.48 U	0.49 U	0.48 U	
2-Methylnaphthalene		0.19 U	0.2 U	0.2 U	0.2 U	0.03 U
2-Methylphenol		0.48 U	0.48 U	0.49 U	0.48 U	
2-Nitroaniline		0.19 U	0.2 U	0.2 U	0.2 U	
2-Nitrophenol		0.48 U	0.48 U	0.49 U	0.48 U	
3,3'-Dichlorobenzidine	0.021	1.9 U	2 U	2 U	2 U	
3-Nitroaniline		0.95 U	0.96 U	0.97 U	0.96 U	
4,6-Dinitro-2-methyphenol		1.9 U	2 U	2 U	2 U	
4-Bromophenyl-Phenylether		0.19 U	0.2 U	0.2 U	0.2 U	
4-Chloro-3-methylphenol		0.48 U	0.48 U	0.49 U	0.48 U	

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-1S 6/16/2005	TS-MW-2S 6/16/2005	TS-MW-1S 7/28/2005	TS-MW-2S 7/28/2005	TS-MW-1S 10/28/2005
4-Chloroaniline		0.19 U	0.2 U	0.2 U	0.2 U	
4-Chlorophenyl-phenylether				0.2 U	0.2 U	
4-Methylphenol		0.48 U	0.48 U	0.49 U	0.48 U	
4-Nitroaniline		0.95 U	0.96 U	0.97 U	0.96 U	
4-Nitrophenol		1.9 U	2 U	2 U	2 U	
Acenaphthene	640	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Acenaphthylene		0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Anthracene	4800	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Benzo(a)anthracene	See BaP (c)	0.19 U	0.014 J	0.2 U	0.2 U	0.02 U
Benzo(a)pyrene	0.0028	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Benzo(g,h,i)perylene		0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Benzoic Acid	64000	4.8 U	4.8 U	4.9 U	4.8 U	
Benzyl Alcohol	2400	4.8 U	4.8 U	4.9 U	4.8 U	
Bis(2-Chloroethoxy)Methane		0.19 U	0.2 U	0.2 U	0.2 U	
Bis(2-Chloroethyl)Ether	0.03	0.19 U	0.2 U	0.2 U	0.2 U	
Bis(2-Ethylhexyl)Phthalate	1.2	1.9 U	2 U	2 U	2 U	
Bis(2-chloroisopropyl) Ether	320	0.19 U	0.2 U	0.2 U	0.2 U	
Butylbenzylphthalate	1300	0.19 U	0.2 U	0.2 U	0.2 U	
Chrysene	See BaP (c)	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Di-N-Butylphthalate		0.19 U	0.2 U	0.2 U	0.2 U	
Di-n-octyl Phthalate	320	0.19 U	0.2 U	0.2 U	0.2 U	
Dibenz(a,h)anthracene	See BaP (c)	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Dibenzofuran	32	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Diethylphthalate		0.05 J	0.029 J	0.2 U	0.036 J	
Dimethyl Phthalate	16000	0.049 J	0.2 U	0.2 U	0.2 U	
Fluoranthene	90	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Fluorene	640	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Hexachlorobenzene	0.00028	0.19 U	0.2 U	0.2 U	0.2 U	
Hexachlorobutadiene	0.44	0.19 U	0.2 U	0.2 U	0.2 U	
Hexachlorocyclopentadiene	40	0.95 U	0.96 U	0.97 U	0.96 U	
Hexachloroethane	1.4	0.19 U	0.2 U	0.2 U	0.2 U	
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
Isophorone	8.4	0.19 U	0.2 U	0.2 U	0.2 U	
N-Nitroso-di-n-propylamine	0.005	0.19 U	0.2 U	0.2 U	0.2 U	
N-Nitrosodiphenylamine	3.3	0.19 U	0.2 U	0.2 U	0.2 U	
Naphthalene	160	0.055 J	0.03 J	0.2 U	0.2 U	0.028 U
Nitrobenzene	4	0.19 U	0.2 U	0.2 U	0.2 U	
Pentachlorophenol	0.27	0.95 U	0.96 U	0.97 U	0.96 U	
Phenanthrene		0.19 U	0.2 U	0.2 U	0.023 J	0.02 U
Phenol	4800	0.48 U	0.48 U	0.49 U	0.48 U	
Pyrene	480	0.19 U	0.2 U	0.2 U	0.2 U	0.02 U
TEQ Equivalent (b)	See BaP (c)	0.19 U	0.0014 J	0.2 U	0.2 U	0.02 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-1S 6/16/2005	TS-MW-2S 6/16/2005	TS-MW-1S 7/28/2005	TS-MW-2S 7/28/2005	TS-MW-1S 10/28/2005
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7			0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200			0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17			0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59			0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600			0.5 U	0.5 U	0.5 U
1,1-Dichloroethene				0.5 U	0.5 U	0.5 U
1,1-Dichloropropene				0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene				2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063			0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35			2 U	2 U	2 U
1,2,4-Trimethylbenzene	400			2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031			2 U	2 U	2 U
1,2-Dibromoethane(EDB)				2 U	2 U	2 U
1,2-Dichlorobenzene	420			0.5 U	0.5 U	0.5 U
1,2-Dichloroethane				0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5			0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400			2 U	2 U	2 U
1,3-Dichlorobenzene	320			0.5 U	0.5 U	0.5 U
1,3-Dichloropropane				0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8			0.5 U	0.5 U	0.5 U
2,2-Dichloropropane				0.5 U	0.5 U	0.5 U
2-Butanone (MEK)				20 U	20 U	20 U
2-Chlorotoluene				2 U	2 U	2 U
2-Hexanone				20 U	20 U	20 U
4-Chlorotoluene				2 U	2 U	2 U
4-Isopropyltoluene				2 U	2 U	2 U
4-Methyl-2-Pentanone				20 U	20 U	20 U
Acetone	800			20 U	20 U	20 U
Benzene	0.8			0.5 U	0.5 U	0.5 U
Bromobenzene				2 U	2 U	2 U
Bromochloromethane				0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27			0.5 U	0.5 U	0.5 U
Bromoform	4.3			0.5 U	0.5 U	0.5 U
Bromomethane	11			0.5 U	0.5 U	0.5 U
Carbon Disulfide	800			0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23			0.5 U	0.5 U	0.5 U
Chlorobenzene	100			0.5 U	0.5 U	0.5 U
Chloroethane				0.5 U	0.5 U	0.5 U
Chloroform	5.7			0.5 U	0.5 U	0.5 U
Chloromethane	3.4			0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene				0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.4			0.5 U	0.5 U	0.5 U
Dibromomethane				0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane				0.5 U	0.5 U	0.5 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-1S 6/16/2005	TS-MW-2S 6/16/2005	TS-MW-1S 7/28/2005	TS-MW-2S 7/28/2005	TS-MW-1S 10/28/2005
Ethylbenzene	530			0.5 U	0.5 U	0.5 U
Freon 11						
Freon 12						
Hexachlorobutadiene	0.44			2 U	2 U	2 U
Isopropylbenzene				2 U	2 U	2 U
Methylene Chloride	4.6			2 U	2 U	2 U
Naphthalene	160			2 U	2 U	2 U
N-Butylbenzene				2 U	2 U	2 U
N-Propylbenzene				2 U	2 U	2 U
Sec-Butylbenzene				2 U	2 U	2 U
Styrene	1.5			0.5 U	0.5 U	0.5 U
Tert-Butylbenzene				2 U	2 U	2 U
Tetrachloroethene	0.081			0.5 U	0.5 U	0.5 U
Toluene	640			0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene				0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene				0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49			0.5 U	0.5 U	0.5 U
Trichlorofluoromethane				0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025			0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000			0.5 U	0.5 U	0.5 U
o-Xylene	16000			0.5 U	0.5 U	0.5 U
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diesel/Fuel oil/Creosote						
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Castor oil						
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID	Screening	TS-MW-2S	TS-MW-1S	TS-MW-2S	TS-MW-1S	TS-MW-2S
Sampling Date	Level (a)	10/24/2005	1/26/2006	1/26/2006	4/23/2006	4/23/2006
Total Susp. Solids in mg/L		1 U	2	2	2	2
Dissolved Metals in ug/L						
Antimony	6	0.17	0.14	0.14	0.15	0.15
Arsenic	0.018	$\boxed{3.18}$	$\boxed{3.15}$	$\boxed{3.47}$	$\boxed{3.02}$	$\boxed{3.25}$
Barium		37.7	49	49.7	45.4	46.5
Cadmium	0.25	0.054 U	0.04	0.04	0.02 U	0.02
Chromium	50	1.42	1.38	1.56	1.49	1.65
Iron	300	4.6 J	4.2 J	20 U	20 U	20 U
Lead	0.54	0.02	0.02 U	0.02 U	0.03 U	0.03 U
Manganese	50	1.13	0.79 U	0.47 U	0.06 U	0.31 U
Mercury	0.012	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Selenium	5	0.3 J	0.6 J	0.7 J	0.7 J	0.9 J
Silver	80	0.02 UJ	0.02 U	0.02 U	0.02 U	0.02 U
PCBs in ug/L						
Aroclor 1016		0.0049 U	0.0049 U	0.0049 U	0.0049 U	0.0049 U
Aroclor 1221		0.0097 U	0.0097 U	0.0097 U	0.0098 U	0.0098 U
Aroclor 1232		0.0049 U	0.0049 U	0.0049 U	0.0049 U	0.0049 U
Aroclor 1242		0.0049 U	0.0049 U	0.0049 U	0.0049 U	0.0049 U
Aroclor 1242 (Aroclor 1016)						
Aroclor 1248		0.0049 U	0.0049 U	0.0049 U	0.0049 U	0.0049 U
Aroclor 1254		0.0049 U	0.0049 U	0.0049 U	0.0049 U	0.0049 U
Aroclor 1260		0.0049 U	0.0049 U	0.0049 U	0.0049 U	0.0049 U
Total PCBs	0.000064	0.0097 U	0.0097 U	0.0097 U	0.0098 U	0.0098 U
Semivolatiles in ug/L						
1,2,4-Trichlorobenzene	35	0.2 U	0.2 UJ	0.2 U		
1,2-Dichlorobenzene	420	0.2 U	0.2 UJ	0.2 U		
1,3-Dichlorobenzene	320	0.2 U	0.2 UJ	0.2 U		
1,4-Dichlorobenzene	1.8	0.2 U	0.2 UJ	0.2 U		
2,4,5-Trichlorophenol	800	0.48 U	0.48 U	0.49 U		
2,4,6-Trichlorophenol	1.4	0.48 U	0.48 U	0.49 U		
2,4-Dichlorophenol	24	0.48 U	0.48 U	0.49 U		
2,4-Dimethylphenol	160	2 U	2 U	2 U		
2,4-Dinitrophenol	32	3.9 U	3.9 U	3.9 U		
2,4-Dinitrotoluene	0.11	0.2 U	0.2 UJ	0.2 U		
2,6-Dinitrotoluene	16	0.2 U	0.2 UJ	0.2 U		
2-Chloronaphthalene		0.2 U	0.2 UJ	0.2 U		
2-Chlorophenol	40	0.48 U	0.48 U	0.49 U		
2-Methylnaphthalene		0.029 J	0.2 UJ	0.2 U	0.02 U	0.02 U
2-Methylphenol		0.48 U	0.48 U	0.49 U		
2-Nitroaniline		0.2 U	0.2 UJ	0.2 U		
2-Nitrophenol		0.48 U	0.48 U	0.49 U		
3,3'-Dichlorobenzidine	0.021	2 U	2 UJ	2 U		
3-Nitroaniline		0.96 U	0.96 UJ	0.97 U		
4,6-Dinitro-2-methyphenol		2 U	2 U	2 U		
4-Bromophenyl-Phenylether		0.2 U	0.2 UJ	0.2 U		
4-Chloro-3-methylphenol		0.48 U	0.48 U	0.49 U		

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-2S 10/24/2005	TS-MW-1S 1/26/2006	TS-MW-2S 1/26/2006	TS-MW-1S 4/23/2006	TS-MW-2S 4/23/2006
4-Chloroaniline		0.2 U	0.2 UJ	0.2 U		
4-Chlorophenyl-phenylether		0.2 U	0.2 UJ	0.2 U		
4-Methylphenol		1	0.48 U	0.49 U		
4-Nitroaniline		0.96 U	0.96 UJ	0.97 U		
4-Nitrophenol		2 U	2 U	2 U		
Acenaphthene	640	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Acenaphthylene		0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Anthracene	4800	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Benzo(a)anthracene	See BaP (c)	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Benzo(a)pyrene	0.0028	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Benzo(g,h,i)perylene		0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Benzoic Acid	64000	4.8 U	4.8 U	4.9 U		
Benzyl Alcohol	2400	4.8 U	4.8 U	4.9 U		
Bis(2-Chloroethoxy)Methane		0.2 U	0.2 UJ	0.2 U		
Bis(2-Chloroethyl)Ether	0.03	0.2 U	0.2 UJ	0.2 U		
Bis(2-Ethylhexyl)Phthalate	1.2	0.56 J	2 UJ	2 U		
Bis(2-chloroisopropyl) Ether	320	0.2 U	0.2 UJ	0.2 U		
Butylbenzylphthalate	1300	1	0.2 UJ	0.2 U		
Chrysene	See BaP (c)	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Di-N-Butylphthalate		0.16 J	0.2 UJ	0.2 U		
Di-n-octyl Phthalate	320	0.2 U	0.2 UJ	0.2 U		
Dibenz(a,h)anthracene	See BaP (c)	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Dibenzofuran	32	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Diethylphthalate		0.089 J	0.2 UJ	0.2 U		
Dimethyl Phthalate	16000	0.018 J	0.2 UJ	0.2 U		
Fluoranthene	90	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Fluorene	640	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Hexachlorobenzene	0.00028	0.2 U	0.2 UJ	0.2 U		
Hexachlorobutadiene	0.44	0.2 U	0.2 UJ	0.2 U		
Hexachlorocyclopentadiene	40	0.96 U	0.96 UJ	0.97 U		
Hexachloroethane	1.4	0.2 U	0.2 UJ	0.2 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Isophorone	8.4	0.2 U	0.2 UJ	0.2 U		
N-Nitroso-di-n-propylamine	0.005	0.2 U	0.2 UJ	0.2 U		
N-Nitrosodiphenylamine	3.3	0.2 U	0.2 UJ	0.2 U		
Naphthalene	160	0.024 J	0.2 UJ	0.019 J	0.02 U	0.02 U
Nitrobenzene	4	0.2 U	0.2 UJ	0.2 U		
Pentachlorophenol	0.27	0.96 U	0.96 U	0.97 U		
Phenanthrene		0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
Phenol	4800	0.48 U	0.48 U	0.49 U		
Pyrene	480	0.2 U	0.2 UJ	0.2 U	0.02 U	0.02 U
TEQ Equivalent (b)	See BaP (c)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-2S 10/24/2005	TS-MW-1S 1/26/2006	TS-MW-2S 1/26/2006	TS-MW-1S 4/23/2006	TS-MW-2S 4/23/2006
Volatiles in ug/L						
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	2 U	2 U	2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-2S 10/24/2005	TS-MW-1S 1/26/2006	TS-MW-2S 1/26/2006	TS-MW-1S 4/23/2006	TS-MW-2S 4/23/2006
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11						
Freon 12						
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U	2 U
Isopropylbenzene		2 U	2 U	2 U	2 U	2 U
Methylene Chloride	4.6	2 U	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-HCID in mg/L						
Gasoline	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diesel/Fuel oil/Creosote						
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Castor oil						
NWTPH-Dx in mg/L						
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Gx in mg/L						
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-1S 7/20/2006	TS-MW-2S 7/20/2006	TS-MW-1S 10/26/2006	TS-MW-2S 10/27/2006
Total Susp. Solids in mg/L		3	2	1	1 UJ
Dissolved Metals in ug/L					
Antimony	6	0.16 U	0.15 U	0.16	0.16
Arsenic	0.018	3.5	3.5	3.3	3.42
Barium		39.9	39	40.6	38.7
Cadmium	0.25	0.02 U	0.02 U	0.02 U	0.02 U
Chromium	50	1.34	1.21	1.22	1.22
Iron	300	20 U	4.3 J	20 U	4.8 J
Lead	0.54	0.02 U	0.044 U	0.029 U	0.038
Manganese	50	0.37 U	0.69 U	0.858 U	0.15
Mercury	0.012	0.2 U	0.2 U	0.2 U	0.2 U
Selenium	5	0.2 J	0.2 J	0.3 J	1 U
Silver	80	0.02 UJ	0.02 UJ	0.02 U	0.034
PCBs in ug/L					
Aroclor 1016		0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1221		0.0096 U	0.0096 U	0.0096 U	0.0096 U
Aroclor 1232		0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1242		0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1242 (Aroclor 1016)					
Aroclor 1248		0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1254		0.0048 U	0.0048 U	0.0048 U	0.0048 U
Aroclor 1260		0.0048 U	0.0048 U	0.0048 U	0.0048 U
Total PCBs	0.000064	0.0096 U	0.0096 U	0.0096 U	0.0096 U
Semivolatiles in ug/L					
1,2,4-Trichlorobenzene	35				
1,2-Dichlorobenzene	420				
1,3-Dichlorobenzene	320				
1,4-Dichlorobenzene	1.8				
2,4,5-Trichlorophenol	800				
2,4,6-Trichlorophenol	1.4				
2,4-Dichlorophenol	24				
2,4-Dimethylphenol	160				
2,4-Dinitrophenol	32				
2,4-Dinitrotoluene	0.11				
2,6-Dinitrotoluene	16				
2-Chloronaphthalene					
2-Chlorophenol	40				
2-Methylnaphthalene		0.0084 J	0.0081 J	0.02 U	0.0089 J
2-Methylphenol					
2-Nitroaniline					
2-Nitrophenol					
3,3'-Dichlorobenzidine	0.021				
3-Nitroaniline					
4,6-Dinitro-2-methyphenol					
4-Bromophenyl-Phenylether					
4-Chloro-3-methylphenol					

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-1S 7/20/2006	TS-MW-2S 7/20/2006	TS-MW-1S 10/26/2006	TS-MW-2S 10/27/2006
4-Chloroaniline					
4-Chlorophenyl-phenylether					
4-Methylphenol					
4-Nitroaniline					
4-Nitrophenol					
Acenaphthene	640	0.02 U	0.02 U	0.02 U	0.02 U
Acenaphthylene		0.02 U	0.02 U	0.02 U	0.0034 J
Anthracene	4800	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(a)anthracene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(a)pyrene	0.0028	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(b)fluoranthene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Benzo(g,h,i)perylene		0.02 U	0.02 U	0.02 U	0.02 U
Benzo(k)fluoranthene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Benzoic Acid	64000				
Benzyl Alcohol	2400				
Bis(2-Chloroethoxy)Methane					
Bis(2-Chloroethyl)Ether	0.03				
Bis(2-Ethylhexyl)Phthalate	1.2				
Bis(2-chloroisopropyl) Ether	320				
Butylbenzylphthalate	1300				
Chrysene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Di-N-Butylphthalate					
Di-n-octyl Phthalate	320				
Dibenz(a,h)anthracene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Dibenzofuran	32	0.02 U	0.02 U	0.02 U	0.02 U
Diethylphthalate					
Dimethyl Phthalate	16000				
Fluoranthene	90	0.02 U	0.02 U	0.02 U	0.02 U
Fluorene	640	0.02 U	0.02 U	0.02 U	0.02 U
Hexachlorobenzene	0.00028				
Hexachlorobutadiene	0.44				
Hexachlorocyclopentadiene	40				
Hexachloroethane	1.4				
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U
Isophorone	8.4				
N-Nitroso-di-n-propylamine	0.005				
N-Nitrosodiphenylamine	3.3				
Naphthalene	160	0.03 U	0.03 U	0.025 U	0.025 U
Nitrobenzene	4				
Pentachlorophenol	0.27				
Phenanthrene		0.02 U	0.02 U	0.02 U	0.02 U
Phenol	4800				
Pyrene	480	0.02 U	0.02 U	0.02 U	0.02 U
TEQ Equivalent (b)	See BaP (c)	0.02 U	0.02 U	0.02 U	0.02 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-1S 7/20/2006	TS-MW-2S 7/20/2006	TS-MW-1S 10/26/2006	TS-MW-2S 10/27/2006
Volatiles in ug/L					
1,1,1,2-Tetrachloroethane	1.7	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	200	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.17	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.59	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	1600	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	0.0063	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	35	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	400	2 U	2 U	2 U	2 U
1,2-Dibromo-3-Chloropropane	0.031	2 U	2 U	2 U	2 U
1,2-Dibromoethane(EDB)		2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	420	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	400	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	320	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	1.8	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane		0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone (MEK)		20 U	20 U	20 U	20 U
2-Chlorotoluene		2 U	2 U	2 U	2 U
2-Hexanone		20 U	20 U	20 U	20 U
4-Chlorotoluene		2 U	2 U	2 U	2 U
4-Isopropyltoluene		2 U	2 U	2 U	2 U
4-Methyl-2-Pentanone		20 U	20 U	20 U	20 U
Acetone	800	20 U	20 U	20 U	20 U
Benzene	0.8	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene		2 U	2 U	2 U	2 U
Bromochloromethane		0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.27	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	4.3	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	11	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	800	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.23	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	100	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	5.7	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	3.4	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.4	0.5 U	0.5 U	2 U	2 U
Dibromomethane		0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane		0.5 U	0.5 U	0.5 U	0.5 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID / Sampling Date	Screening Level (a)	TS-MW-1S 7/20/2006	TS-MW-2S 7/20/2006	TS-MW-1S 10/26/2006	TS-MW-2S 10/27/2006
Ethylbenzene	530	0.5 U	0.5 U	0.5 U	0.5 U
Freon 11				0.5 U	0.5 U
Freon 12				0.5 U	0.5 U
Hexachlorobutadiene	0.44	2 U	2 U	2 U	2 U
Isopropylbenzene		2 U	2 U		
Methylene Chloride	4.6	2 U	2 U	2 U	2 U
Naphthalene	160	2 U	2 U	2 U	2 U
N-Butylbenzene		2 U	2 U	2 U	2 U
N-Propylbenzene		2 U	2 U	2 U	2 U
Sec-Butylbenzene		2 U	2 U	2 U	2 U
Styrene	1.5	0.5 U	0.5 U	0.5 U	0.5 U
Tert-Butylbenzene		2 U	2 U	2 U	2 U
Tetrachloroethene	0.081	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	640	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene (TCE)	0.49	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane		0.5 U	0.5 U		
Vinyl Chloride	0.025	0.5 U	0.5 U	0.5 U	0.5 U
m,p-Xylenes	16000	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	16000	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-HCID in mg/L					
Gasoline	0.8	0.2 U	0.2 U	0.2 UJ	0.2 U
Stoddard/Mineral spirits	0.8	0.2 U	0.2 U	0.2 UJ	0.2 U
Kensol	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Diesel/Fuel oil/Creosote					
Bunker C	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Castor oil					
NWTPH-Dx in mg/L					
Kerosene/Jet fuel	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Diesel/Fuel oil	0.5	0.2 U	0.2 U	0.2 U	0.2 U
Heavy oil	0.5	0.5 U	0.5 U	0.5 U	0.5 U
NWTPH-Gx in mg/L					
Mineral spirits/Stoddard	0.8	0.1 U	0.1 U	0.1 U	0.1 U
Gasoline	0.8	0.1 U	0.1 U	0.1 U	0.1 U

Table 7-4 - Analytical Results for the Truck Shop Groundwater Samples

Sample ID Sampling Date	Screening Level (a)	TS-MW-1S 4/18/2007	TS-MW-2S 4/18/2007	TS-MW-1S 10/24/2007	TS-MW-2S 10/25/2007	TS-MW-1S 4/23/2008	TS-MW-2S 4/23/2008	TS-MW-1S 10/20/2008	TS-MW-2S 10/20/2008
Dissolved Metals in ug/L									
Antimony	6	0.16 J	0.15	0.14	0.14	0.209	0.155	0.146	0.157
Arsenic	0.018	$\boxed{3.96}$ J	$\boxed{3.78}$	$\boxed{3.16}$	$\boxed{3.02}$	$\boxed{6.96}$	$\boxed{3.62}$	$\boxed{3.7}$	$\boxed{3.6}$
Iron	300	7.8 J	20 U	7 T	4.9 T	164	4.5 T	18 T	82.2
Manganese	50	0.2 J	0.44	0.62	0.29	11.1	0.15	0.5	19.3
PAHs in ug/L									
2-Methylnaphthalene		0.0045 J	0.02 U	0.012 T	0.019 U	0.0032 T	0.019 U	0.0032 T	0.0025 T
Acenaphthene	640	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Acenaphthylene		0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Anthracene	4800	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Benzo(a)anthracene	See BaP (c)	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Benzo(a)pyrene	0.0028	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Benzo(b)fluoranthene	See BaP (c)	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Benzo(g,h,i)perylene		0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Benzo(k)fluoranthene	See BaP (c)	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Chrysene	See BaP (c)	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Dibenz(a,h)anthracene	See BaP (c)	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Dibenzofuran	32	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Fluoranthene	90	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Fluorene	640	0.0046 J	0.02 U	0.0042 T	0.019 U	0.019 U	0.019 U	0.0054 T	0.019 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
Naphthalene	160	0.089	0.02 U	0.024	0.023 U	0.029 U	0.019 U	0.089	0.047
Phenanthrene		0.01 J	0.02 U	0.0064 T	0.019 U	0.006 T	0.019 U	0.011 T	0.0082 T
Pyrene	480	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U
TEQ Equivalent (b)	See BaP (c)	0.02 U	0.02 U	0.019 U	0.019 U	0.019 U	0.019 U	0.02 U	0.019 U

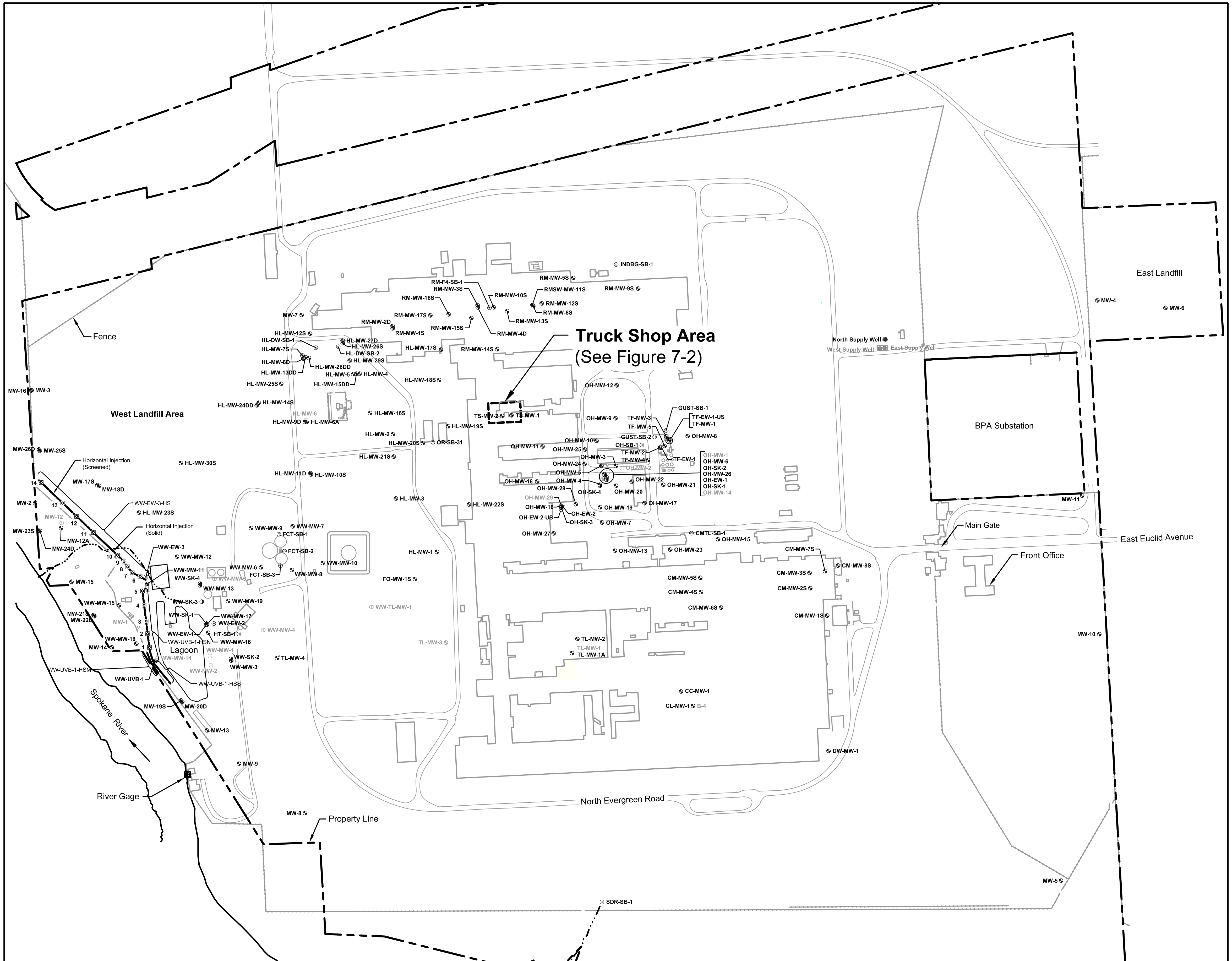
U = Not detected at the reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
T = Value is between the MDL and MRL.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Based on groundwater screening level developed in the Groundwater RI (Hart Crowser 2012).
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 7-5 - Analytical Results for the Truck Shop Soil Gas Data

Sample ID	TS-SG-1	
Sampling Date	3/15/2006	
TO14 in µg/m^3		
1,1,1-Trichloroethane	4.4	
1,1,2,2-Tetrachloroethane	1.3	U
1,1,2-Trichloroethane	1.3	U
1,1-Dichloroethane	1.3	U
1,1-Dichloroethene	1.3	U
1,2-Dichloroethane	1.3	U
Benzene	6.2	
Chloroethane	2.2	
Cis-1,2-Dichloroethene	1.3	U
Ethylbenzene	2.5	
m,p-Xylenes	10	
Methyl tert-Butyl Ether	1.3	U
o-Xylene	5.6	
Styrene	1.3	U
Tetrachloroethene	24	
Toluene	19	
Trans-1,2-Dichloroethene	1.3	U
Trichloroethene	3.1	
Vinyl Chloride	1.3	U
TO14 in ppbV		
1,1,1-Trichloroethane	0.81	
1,1,2,2-Tetrachloroethane	0.18	U
1,1,2-Trichloroethane	0.23	U
1,1-Dichloroethane	0.31	U
1,1-Dichloroethene	0.32	U
1,2-Dichloroethane	0.31	U
Benzene	2	
Chloroethane	0.84	
Cis-1,2-Dichloroethene	0.32	U
Ethylbenzene	0.59	
m,p-Xylenes	2.4	
Methyl tert-Butyl Ether	0.35	U
o-Xylene	1.3	
Styrene	0.29	U
Tetrachloroethene	3.5	
Toluene	5	
Trans-1,2-Dichloroethene	0.32	U
Trichloroethene	0.58	
Vinyl Chloride	0.49	U

ppbV = parts per billion by Volume

Truck Shop Area Location Map



Exploration Location and Number

OH-EW-1 Extraction Well

OH-MW-4 Monitoring Well

WW-TL-MW-1 Abandoned Monitoring Well

OH-SK-1 Skimming Well

TF-EW-1-US Groundwater Recirculation Well

North Supply Well Supply Well

East Supply Well Backup Supply Well

RM-F4-SB-1 Soil Boring

N

0 500 1000

Scale in Feet

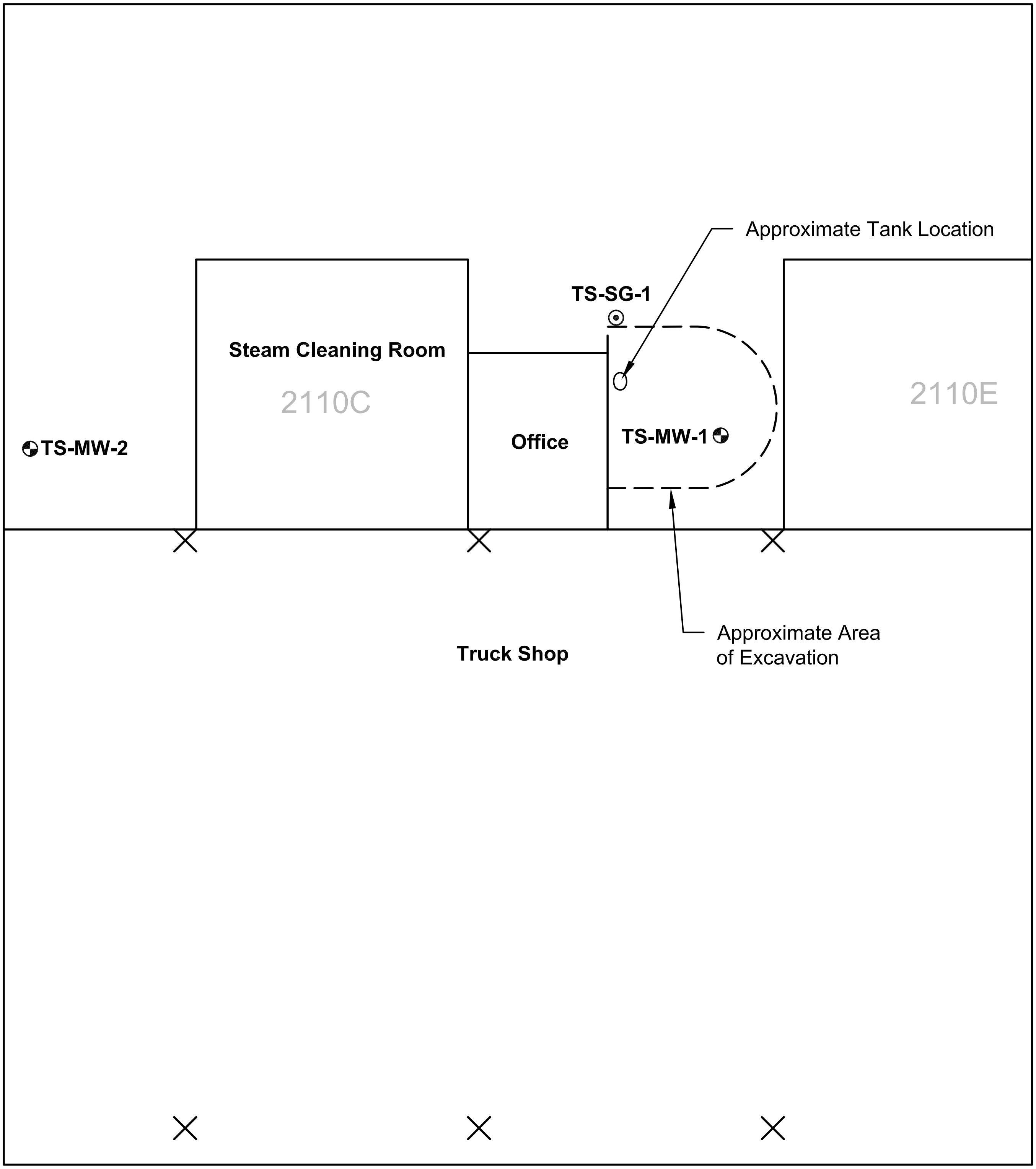
HARTCROWSER

2644-114 *5/09*

Figure 7-1

EAL 05/7/09 2644114-077.DWG

Exploration Location Plan
Truck Shop Tank Area

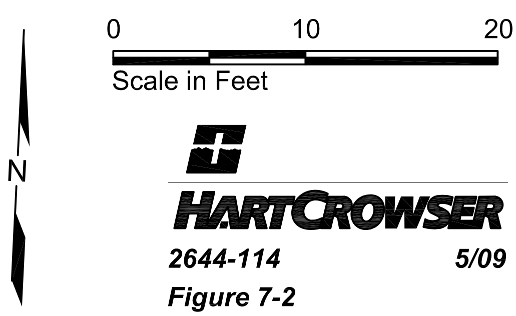


EAL 04/16/09 2644114-078.DWG

Exploration Location and Number

TS-MW-1 Monitoring Well

TS-SG-1 Soil Gas Probe



HARTCROWSER

2644-114 ***5/09***

Figure 7-2

CONTENTS

Page

TABLES

CONTENTS (Continued)

Page

FIGURES

8.0 FORMER DISCHARGE RAVINES

8.1 INTRODUCTION

Prior to construction of the Industrial Wastewater Treatment (IWT) plant in 1973, wastewater discharges from the Trentwood Facility were handled by two discharge ravines located west and south of the plant. These areas were investigated during Phase I of the RI and the results of those efforts are presented in this section.

8.1.1 Purpose

The objectives of the Phase I investigation activities conducted at the discharge ravines was to characterize the quality of the soil along these ravines and to help assess PCB and petroleum quantity and distribution in the ravines. The samples collected during the Phase I activities also aided in determining whether additional investigations were needed along the ravines. Based on the results of Phase I investigations, Kaiser conducted an Interim Action under MTCA, with concurrence from Ecology, to remediate the former discharge ravines. The results of the initial Phase I investigation, additional characterization to help focus the Interim Action, and a summary of the Interim Action are reported herein. Note that the cleanup goal of the Interim Action for PCBs differ from the conservative screening levels used to evaluate data in this RI report. The cleanup goal established for the Interim Action for PCBs was 1,000 ug/kg whereas the screening level, conservatively based on protection of groundwater, is 270 ug/kg. In addition, the cleanup level goal and RI screening levels for petroleum hydrocarbons in both the diesel- and heavy oil-range are the same (2,000 mg/kg).

8.1.2 Location

The approximate location of both ravines is shown on Figure 8-1. The west discharge ravine (WDR) is located north and northwest of the wastewater lagoon and started near the former sanitary wastewater treatment plant (Figure 8-2). The WDR trends north and west toward the Spokane River and when operational went through a diversion structure (spillway) located about 80 feet from the river's edge. The Kaiser property line extends into the middle of the Spokane River to encompass the WDR and the associated diffuser line. A buried pipe carried discharges from the diversion structure to a buried diffuser line located in the Spokane River below the normal low water line.

The south discharge ravine (SDR) is located directly south of the plant (Figure 8-1). The open channel section of the ravine starts at the south fence line and runs generally north-south through Washington State Department of Parks property toward the Spokane River (Figure 8-18).

8.2 WEST DISCHARGE RAVINE

8.2.1 Introduction

Prior to 1973, the WDR handled wastewaters originating from the casting operation, the ORB, the Hot Line, and associated processes on the north and west areas of the plant. After 1973, wastewater discharges from these areas were rerouted to the new IWT plant and lagoon, and the ravine was no longer used. The upper reaches of the ravine were filled-in starting in 1972 to accommodate the Emergency Bypass Basin and buildings for the new treatment plant, therefore, portions of the upper reaches are no longer discernable. Also, another section was filled-in to accommodate a roadway (Access Road) heading north of the wastewater treatment plant paralleling the Kaiser fence-line (Figure 8-2). The section of the ravine between the fence and the spillway appears to remain in its original configuration. The buried pipe and diffuser were constructed in 1971 and operated for a short period of time before the IWT system was placed in line in 1973.

Since the discharges to the WDR were stopped in 1973, water does not typically flows through the ravine. There may be instances when water does flow in the ravines, such as when it rains on top of snow or frozen ground. However, there is no documentation of water flowing in the WDR since the process discharges stopped in 1973.

8.2.2 Previous Investigations

Three major remedial efforts have been conducted along the WDR. These include the Phase I investigation work (Hart Crowser 2007a), a Pre-Interim Action Sampling and Analysis Event, and an Interim Cleanup Action (Hart Crowser 2008a). The following sections present the results of the investigations and the Interim Action.

Phase I Remedial Investigation

The Phase I Investigation conducted along the WDR consisted of collecting surface soil samples at regularly spaced intervals along the length of the ravine. Phase I field activities were conducted on May 10 and 11, 2006. Figure 8-2 presents the exploration locations for this round of soil sampling. Analytical results from the surface soil samples collected during the Phase I investigation are presented in Table 8-1.

For the purpose of the Phase I investigation, the WDR was divided in two sections (Figure 8-2). The Upper Ravine consisted of the portion of the ravine to the east of the Access Road. The Lower Ravine was the portion of the ravine to the west of the Access Road and extending to the Spokane River.

Surface soil samples (0 to 1 foot below grade) were collected at 18 locations (WDR-SS-1 through WDR-SS-18) along the centerline of the bottom of the WDR (Figure 8-2). Surface soils encountered during sampling consisted of light to dark brown, silty, fine to coarse sandy Gravel with cobbles and organics. No sheens or odors were detected in the samples collected, and the ravine was dry. The surface samples were submitted for analysis of PCBs, TPH (NWTPH-HCID), and TOC (selected samples only). Soil surface sample descriptions for these samples are presented in Appendix A

Analytical results for the surface soil samples indicated that Aroclor 1248 was detected in each of the 18 surface soil samples exceeded the Interim Action cleanup goal at concentrations ranging from 3,200 (WDR-SS-11) to 650,000 ug/kg (WDR-SS-13). In addition, heavy oil- and diesel-range petroleum hydrocarbons were also detected in the ravine surface soils (Table 8-1). Heavy oil-range petroleum hydrocarbons were detected in each of the surface soil samples collected from the ravine at concentrations ranging from 120 to 12,000 mg/kg. Diesel-range petroleum hydrocarbons were detected in 13 of the 18 surface soil samples at concentrations ranging from 140 to 3,400 mg/kg.

Based on these analytical results, concentrations of PCBs, heavy oil, and diesel were detected above the Interim Action cleanup goals (Table 8-1). PCBs above the cleanup goal of 1,000 ug/kg were detected along the majority of the ravine with the highest concentrations on the Lower Ravine upgradient from the spillway. Concentrations of heavy oil- and diesel-range petroleum hydrocarbons above the cleanup goals of 2,000 mg/kg were also present primarily in this area of the Lower Ravine and in one sample (WDR-SS-5) from the Upper Ravine.

Pre-Interim Action Surface Soil Sampling and Analysis

On May 9, 2007, an additional 17 surface soil samples (0 to 1 foot below grade) were collected and analyzed prior to starting the Interim Action to characterize the portion of the ravine below the diversion structure and to estimate the width of contamination in the Lower and Upper Ravines. The portion of the ravine below the diversion structure is approximately 125 feet long and had not been sampled previously during Phase I work. Samples (WDR-PIA-1 through WDR-PIA-5) were collected from the concrete diversion structure along the centerline of the ravine to the Spokane River on about 25-foot intervals (Figure 8-3).

In addition, three transects across the ravine were sampled and the soil samples analyzed to evaluate the lateral extent of PCB contamination in a north/south direction from the ravine centerline. Samples were collected at approximately 10-foot intervals perpendicular to the centerline of the ravine. These transects consist of:

- **Lower Transect.** Perpendicular to the centerline at WDR-PIA-3 (samples WDR-PIA-6 through WDR-PIA-9);
- **Middle Transect.** At the location for previously collected sample WDR-SS-13 in the lower ravine (samples WDR-PIA-10 through WDR-PIA-13); and
- **Upper Transect.** Located at the mid-point of the upper ravine in the vicinity of Phase I surface soil sampling location WDR-SS-3 (samples WDR-PIA-14 through WDR-PIA-17).

The sample locations are shown on Figure 8-3. The surface soil samples were submitted for laboratory analysis of PCBs and TPH by NWTPH-Dx.

Only one of the transect soil samples (WDR-PIA-08) contained heavy-oil range petroleum hydrocarbons exceeding the cleanup goal at 2,100 mg/kg. The other samples were below this cleanup goal. PCBs in the 35 samples ranged from 6.4J to 109,000 ug/kg. Twenty-four samples had PCBs concentrations above the cleanup goal of 1,000 ug/kg.

The only area with heavy oil-range petroleum hydrocarbons above the cleanup goal (2,000 mg/kg) was sample WDR-PIA-8, on the Lower Transect. Figure 8-3 graphically presents the TPH and PCB concentrations detected during the initial Phase I investigation and pre-Interim Action sampling and analysis.

Interim Action

Based on the soil data collected from the WDR during the Phase I investigation, Kaiser and Ecology determined that the WDR was in need of cleanup to reduce potential risks to human health and the environment. As allowed under the Agreed Order, this work was accomplished as a MTCA Interim Action per WAC 173-340-430 and was completed through a Work Plan reviewed and approved by Ecology in 2007 (Hart Crowser 2007b).

The primary purpose of the Interim Action was to address PCB- and petroleum-contaminated soil along the bottom of the WDR to prevent its migration to the Spokane River. The Interim Action primarily consisted of excavation of impacted soils above cleanup level goals to the extent practicable, verification sampling and analysis to document soil quality, site restoration to prevent erosion and enhance habitat, and physical screening and disposal of the excavated soil. The Interim Action cleanup goals selected for this work were based on the MTCA Method A unrestricted land use regulations and consisted of the removal of impacted soil with PCB concentrations above 1,000 ug/kg and diesel- and heavy oil-range petroleum hydrocarbon concentrations above 2,000 mg/kg.

After conducting a cultural resource assessment of the WDR and obtaining the required state and federal permits, the Interim Action and site restoration were accomplished between July 19 and October 23, 2007. Pre-construction/site preparation activities consisted of the following:

- Installation of best management practice (BMP) stormwater controls;
- Construction of a ramp access to the lower ravine;
- Construction and setup of the soil stockpile and screening area;
- Vegetation grubbing and debris removal; and
- Diversion structure and outfall removal.

The lower ravine diversion structure, located approximately 150 feet from the Spokane River, was a large reinforced concrete structure extending across the ravine. Integral with the diversion structure was the former outfall pipe, which extended from the structure to the approximate mid-channel of the Spokane River. From the diversion structure, the 24-inch-diameter corrugated aluminum pipe extended from approximately 2 feet to up to 12 feet below ground surface before day lighting at the river bank. The former outfall was removed from the diversion structure to the point where it day lighted on the river bank. The upper 3 feet of the remaining pipe on the river bank, which leads to the diffuser at mid-channel was plugged with 1,560 pounds of concrete.

After these activities were concluded, the excavation of impacted soil and characterization were completed as described below.

Excavation and Screening

On July 31, 2007, excavation of the impacted soil above the cleanup goals began. The WDR was divided into 22 excavation cells. These 22 excavation cells were grouped into three main sections as presented on Figure 8-4. Cells 1 through 5 were located between the Spokane River and the former diversion structure, Cells 7 through 16 were located between the former diversion structure and the access road, and Cells 17 through 23 were located from the access road to near the northwest corner of the Emergency Bypass Basin (Figure 8-4).

This work consisted of excavating a 2-foot lift approximately 20 feet wide through all the cells. Following the initial 2-foot lift, PCBs field screening of the soil remaining in cells 1 through 4 was conducted with an Ensys PCB field test system calibrated to 1 mg/kg of PCB Aroclor 1248. Since the Ensys analysis confirmed that 95 percent of the initial verification samples for Cells 1 through 4 were greater than 1 mg/kg for Aroclor 1248, it was determined that an additional excavation was likely required to meet the cleanup goal in these cells and along the length of the WDR.

Additional cycles of excavation and field PCB screening were conducted along the length of the ravine. Excavations were halted in cells where Ensys field screening results indicated that the 1 mg/kg PCB cleanup level goal was met. In cells where field screening results indicated that soil concentrations continued to exceed the cleanup level goal, excavations proceeded to remove soil to the extent practicable based on maintaining the stability of the ravine side walls and adjacent site features located above the ravine such as access roads and Kaiser's river discharge line and deaerate structure located south of the ravine (Figure 8-3).

The results of the field screening and additional information are presented in the West Discharge Ravine Interim Action Completion report presented to Ecology in 2008 (Hart Crowser 2008a).

Characterization Sampling and Soil Quality Results

After the removal of the diversion structure and outfall were completed, and once excavation of each cell was complete to either below cleanup level goals (based on the results of the field screening) or to the excavation limitations, soil verification samples were collected from each cell and sent to the contract laboratory for PCB analysis by EPA Method 8082. Sampling grids were laid over each excavation cell with verification samples collected at 5-foot intervals. The field compositing techniques specified in TSCA 40 CFR 761.289(b)(i) were used to collect verification samples within each excavation cell. One sample per cell was also analyzed for diesel- and oil-range petroleum hydrocarbons by NWTPH-Dx. In total, 92 soil verification samples were submitted to the laboratory from the base of the excavation cells following the maximum extent of the excavations. The sampling grid layout for each of the 22 excavation cells in the ravine are shown on Figures 8-6 through 8-16. Analytical results of these samples are presented in Table 8-2.

Of the 92 soil verification samples submitted for laboratory analysis, 41 samples (45 percent) met the cleanup goal established in the Work Plan for the Interim Action of 1,000 ug/kg for Total PCBs and 80 percent of the verification samples met the MTCA Method A industrial cleanup level for Total PCBs (10,000 ug/kg). Of the remaining 20 percent of the soil verification samples (18 samples), seven samples (7.6 percent) are above the TSCA limit (25,000 ug/kg PCBs) for low occupancy unrestricted use. Two verification soil samples (2 percent) exceed the TSCA trigger for soil of 50,000 ug/kg PCBs. Both of these samples were collected from Cell 4, which had been excavated to a depth of up to 6 feet below original grade (Table 8-2). Seventy-two samples exceeded the conservative screening level for PCBs of 270 ug/kg.

Analytical results for the 22 samples submitted for TPH analysis by NWTPH-Dx indicate that the cleanup level goal for TPH was met in these samples (Table 8-2). That is, detections of heavy oil and diesel were below the MTCA Method A soil cleanup level of 2,000 mg/kg. This Interim Action cleanup goal is also the screening level used for this RI data evaluation.

Soil Disposal

When the excavation was completed, depths of excavation extended up to 11 feet below original grade rather than the planned 2-foot excavation (Figure 8-5). The Work Plan prepared for this Interim Action assumed that less than 950 cubic yards of soil would require excavation to achieve PCB cleanup goals. In the end, approximately 2,500 cubic yards soil were excavated during the Interim Action. Following soil screening to remove cobbles greater than 2 inches in diameter, 1,768 tons of PCB-impacted soil were excavated and disposed of at Waste Management's TSCA landfill in Arlington, Oregon.

Near-River Backfilling

The approved construction plans specified the backfill material to be used within 100 feet of the river was to consist of 6 inches of sand with larger cobbles placed above the sand layer. The intent of the sand layer is to provide a long-term means to minimize potential for possible residual PCBs from migrating toward the river, assuming that PCBs will have a greater affinity for finer-grained soil. The purpose of the larger cobbles is to provide additional armor protection from river flows.

Backfilling of Cells 1 through 5 consisted of the following:

- Starting in Cell 1 a poly-fabric indicator layer was installed across the width of excavation and extending to the east edge of Cell 5. The indicator layer defines the lower extent of excavations conducted in Cells 1 through 5;

- An approximate 6- to 8-inch layer of imported washed sand was placed on top of the indicator fabric. The sand layer completely covered the poly-fabric to the width of excavation;

- Imported cobbles (riprap) filled the remainder of the excavation and incorporated the stormwater control rock berm; and

- Unscreened imported topsoil was applied to the sides of the excavation and smoothed into the pre-existing ravine side slopes. Additionally, unscreened topsoil was applied to the area between the rock berm and the silt fence to provide a suitable base for vegetation.

With the exception of the imported cobbles, imported materials were tested for the presence of PCB and TPH. Results of the backfill materials testing, the imported sand (sample designation WDR-SAND-1) and the unscreened topsoil (sample designation WDR-Screened Top Soil-1), are provided in Table 8-3.

Backfilling in Remainder of Lower Ravine

Because of the unexpected depth of PCB contamination, the excavation above the former diversion structure was advanced as deep as practicable without undermining ravine side slopes. With excavations extending up to 11 feet below original grade, it was necessary to immediately backfill cells following the Ensys-guided excavations and the collection of soil verification samples.

Cells 7 through 16 in the lower ravine above the former diversion structure were backfilled with the imported unscreened topsoil. The edges of excavations were also smoothed into the existing side slopes with topsoil.

Upper Ravine Backfilling

Prior to the construction activities for the Interim Action, the upper ravine existed as a depression surrounded by gravel roadways on three sides.

Placement of fill to create the roadways at some time in the past effectively cut the ravine in two and made the upper ravine discontinuous with the lower ravine. Along the north edge of the upper ravine, soil berms had been placed as a safety measure to prevent vehicles from entering the ravine, particularly during winter driving conditions. It was determined that the complete filling of the upper ravine would remove the potential safety hazard and provide for additional capping of any residual contaminated soil that may remain after excavation. A key design feature for the complete filling of the upper ravine was to slope the final grade to allow precipitation to runoff from the area and reduce infiltration in the immediate area.

The complete filling of the upper ravine required more backfill material than was originally specified. Three on-site sources were identified for use to make up the volume of material required; the screened oversized material removed from the ravine, the berm material that was placed above the east edge of the ravine, and material recently excavated from an area under Kaiser structures for new building footings. The material excavated for new building footings was from an area known to be unimpacted from previous releases of contamination. The material from the berm above the upper ravine [sample designations WDR-SS-1 (Stake 1) through WDR-SS-4 (Stake 4)] and the soil excavated for building footings (sample designations “Potential Stockpile” and “Door 4 Stockpile”) were analyzed for PCBs and diesel contamination prior to their use. Details of the upper ravine backfill material testing are presented in Table 8-3.

Backfilling of the upper ravine consisted of the following:

- The first material added to the base of the excavated ravine was the greater than 2-inch river rock material screened from the material excavated from the ravine;

- The material from the berm next to the upper ravine was placed over the screened river rock. The finer fractions of this material filled the void spaces in the layer of river rock on the base of the excavation;

- The material from building footings (Door 4) stockpile was used to fill the remainder of the ravine and bring the finished grade up to match the surrounding grade and to slope the area to reduce infiltration through the ravine area; and

- An approximate 6-inch layer of the unscreened imported topsoil was applied to the surface of the filled ravine to provide a base for vegetation.

Site Restoration

The upper and lower ravines were restored in October 2007 following the completion of backfilling activities. Restoration included hydroseeding of disturbed areas with native grasses and plantings of native trees and shrubs. Restoration of the riparian area within the lower ravine also included installation of willow live stakes. Refer to Figure 8-17 for a map showing these areas.

Monitoring of the site was specified to be conducted for a 3-year period following completion of construction. Performance standards include survival of planted trees, shrubs, and live stakes; areal coverage of native plantings; and areal coverage of invasive plants. The Year 1 inspection of the site was conducted during September 2008 (Hart Crowser 2008b). Results of the inspection indicated the following:

- Native grasses installed by hydroseeding are well established throughout the ravine;

- High mortality of riparian area vegetation due to exceptionally high river levels during the spring/early summer runoff of 2008;

- Some stress and mortality of the upland native plants that were installed and appears to be primarily a result of low water conditions during the summer months; and

- Some encroachment of invasive species in the restoration areas.

The recommendation of the Year 1 inspection report included additional plantings to replace those lost during the first year, control of invasive species by periodic removal, and increased watering of the area during the dry months. Additional plantings of live stake willows in the riparian area and trees/shrubs in the remainder of the ravine will be conducted during the late spring of 2009. Kaiser is currently evaluating the installation of an irrigation system for the ravine.

8.2.3 Proposed Phase II (RI) Work

Since a substantial cleanup of the WDR was accomplished during implementation of the Interim Action, additional investigation of the WDR was not deemed necessary during the Phase II RI. Therefore, the Phase II RI Work Plan (Hart Crowser 2007c) did not recommend any work in this area.

8.2.4 Summary of Current Conditions

A rough estimate of the mass of PCBs removed during the Interim Action conducted in the WDR was calculated using average concentrations of PCBs in soil from data collected during the Phase I RI, Pre-Interim Action, and Interim Action soil characterization sampling and analysis. To make this mass estimate, the soil removed from the three excavation cells associated with the highest pre-excavation PCB results were separated out and the mass of PCBs removed from these cells was calculated separately. The remaining data points were averaged and this PCB concentration was applied to the soil removed from the remaining cells. Based on this rough approximation, about 250 pounds of PCBs were removed during implementation of the Interim Action.

The soil verification samples collected during the Interim Action were below the cleanup goal for diesel- or heavy oil-range petroleum hydrocarbons of 2,000 mg/kg. Although PCBs concentrations above the cleanup level goal and the screening level used to evaluate data in this RI report are still present in the ravine, these materials are located below several feet of clean imported material and vegetative cover.

The Interim Action at the WDR was effective at removing a significant amount of PCB-impacted soil. The excavations proceeded well beyond envisioned limits and continued to the extent practicable based on proximity to the Spokane River and ravine side slope stability throughout the entire length of the WDR. Residual contamination in the ravine resides below several feet of clean imported material. Reestablishment of native vegetation in the riparian zone and throughout the WDR will improve habitat quality and provide stability to newly imported fill materials on the slopes of the ravine.

Because of residual PCBs left in-place above screening levels after completion of the Interim Action, this area will be further evaluated for possible additional action in the FS.

8.3 SOUTH DISCHARGE RAVINE

8.3.1 Introduction

As presented in Section 8.1, prior to the construction of the IWT plant, wastewater discharges from the Trentwood Facility were handled by two discharge ravines located west and south of the plant (Figure 8-1). The South Discharge Ravine (SDR) was located directly south of the plant (Figure 8-1). The open channel section of the ravine starts at the south fence line and runs generally north-south through Washington State Department of Parks property toward the Spokane River (Figure 8-18).

Prior to 1973, the SDR handled wastewater discharges from areas of the plant located east of the Hot Line and the southern areas of the plant. Historical aerial photographs indicate a ponded area appeared to exist just north of the fence line (Figure 8-18). This area is currently filled-in and is level with the surrounding grade. The remainder of the ravine, including the discharge structure and diffuser, appears to remain in its 1973 configuration when its use was discontinued. The Kaiser property line is located approximately 200 feet south of the fence line.

Since the discharges to the SDR were curtailed in 1973, no water typically flows through the ravine. There may be instances when water does flow in the ravines, such as when it rains on top of snow or frozen ground. However, there is no documentation of water flowing in either ravine since the process discharges stopped in 1973.

8.3.2 Previous Investigations

Previous investigations along the SDR were conducted as part of the Phase I Investigation in 2006. The Phase I work consisted of collecting surface and subsurface soil samples along the ravine and installation of one soil boring in a ponded area observed in historical aerial photographs. The following sections present the findings of the Phase I work. Figure 8-18 presents the exploration locations, and Figure 8-19 presents cross sections along three test trenches excavated along the SDR during the Phase I work. Analytical results for the subsurface soil samples collected from the soil boring and test trenches advanced in February and May 2006 are presented in Tables 8-4 and 8-6, respectively. Table 8-5 presents a summary of the analytical results for the surface soil samples collected along the SDR in March 2006.

Phase I Remedial Investigation

Field activities for the Phase I Investigation conducted along the SDR were conducted during three separate events on February 23, March 1, and May 23, 2006. One soil boring was advanced in the upgradient reaches of the ravine during the February 2006 sampling event. On March 1, surface soil samples (SDR-SS-1 through SDR-SS-9) were collected from nine locations along the ravine directly south from the Kaiser fence line. In May 2006, three test trenches were excavated at surface sample locations SDR-SS-1, SDR-SS-7, and SDR-SS-9 to provide data on the lateral and vertical extent of PCB and petroleum contamination identified in areas of the ravine during the first sampling round.

Soil Boring

On February 23, 2006, one soil boring (SDR-SB-1) was advanced in the upper reaches of the SDR to a total depth of approximately 61 feet below ground surface (Figure 8-18). The soil boring was located in the general area where ponded water was observed in historical aerial photographs just north of Kaiser's fence line. Groundwater was not encountered during drilling and soil cuttings from the boring consisted of dark brown to brown, sandy Gravel with scattered granitic cobbles.

Ten subsurface soil samples were collected from the soil boring and submitted for analyses of PCBs, TPH (NWTPH-HCID) and NWTPH-Dx), moisture content, and total solids (Table 8-4). Analytical results of these samples indicated the only constituents detected were Aroclor 1260 and diesel fuel within 20 feet from the surface (Table 8-4).

Aroclor 1260 was detected at a low concentration of 11 ug/kg in one sample from a depth of about 20 feet below ground surface (Table 8-4). A low estimated concentration of diesel-range petroleum hydrocarbons (32 mg/kg) was detected only in the soil sample collected from 10 to 15 feet below ground surface (Table 8-4). None of these samples contained PCBs or petroleum above the screening levels. No other PCBs or petroleum hydrocarbons were detected in the samples collected from this boring.

Surface Soil Sampling

On March 1, 2006, nine surface soil samples (SDR-SS-1 through SDR-SS-9) were collected from depths of 0 to 1 foot along the SDR at approximately 25-foot intervals (Figure 8-18). Refer to Appendix A for a log of soil descriptions for these samples. Surface soils encountered during sampling consisted of brown, slightly silty, fine to coarse sandy Gravel with cobbles and abundant organic material. No sheens or odors were detected in the samples collected, and the ravine was dry.

The surface soil samples were submitted for analyses of PCBs, TPH (NWTPH-HCID), and TOC. Analytical results for these samples indicated that Aroclor 1248, 1254, and 1260 were detected in one or more of the soil samples analyzed (Table 8-5). Total PCB concentrations ranged from 193 ug/kg (SDR-SS-6) to 9,100 ug/kg (SDR-SS-1). Seven of the nine samples contained PCBs above the screening levels. The highest PCB concentrations were detected in surface soil sample SDR-SS-1 located near the fence line at the northern end of the ravine (Figure 8-18). PCB concentrations gradually decrease with distance from the fence line and south toward the property line.

Kensol- and heavy oil-range hydrocarbons were also detected in the SDR surface soil samples except SDR-SS-1 (Table 8-5). The petroleum hydrocarbon concentrations were below the screening level of 2,000 mg/kg.

Test Trench Sampling and Analysis

In May 2006, three test trenches were excavated along the SDR to investigate the lateral and vertical extent of PCB and petroleum identified in the surface soil samples. The trenches were excavated across the SDR in the general area of surface soil sampling locations SDR-SS-1, SDR-SS-7, and SDR-SS-9 (Figure 8-5). The three test trenches were excavated to fulfill a request from Ecology to conduct supplemental sampling and analysis of those initial sampling locations representing the range of PCB detections (high, medium, and low) detected in surface soil.

A set of soil samples was collected from several equidistant locations along the length of each trench. The total number of locations per trench depended on the length of the trench at each particular sampling location, which in turn depended on the width of the ravine at that location. A set of samples collected at each location consisted of three soil horizons; 0 to 6 inches, 12 to 18 inches, and from the 24 to 30 inches below ground surface. Refer to Appendix A for the trench logs for these explorations.

The length of the trenches along the three sampling locations ranged between 21 and 25 feet and the soils encountered consisted of brown to brownish gray, silty to sandy Gravel. Four sets of samples were collected along SDR-SS-1, three along SDR-SS-7, and three along SDR-SS-9. Soil samples collected along each trench are presented on Figure 8-19. Each soil sample was analyzed for PCBs and TPH (NWTPH-HCID).

Analytical results of these samples indicate that PCBs as Aroclors 1248, 1254, 1260, and 1262 were detected in these trenches (Table 8-6). Total PCB concentrations ranged from 3.3 to 71,000 ug/kg (Table 8-6). In general, the highest PCB concentrations were detected in the shallowest samples and decreased with depth. Also, the highest concentrations were detected toward the center of the ravine along each of the trenches. The highest overall PCB concentrations were observed along SDR-SS-1 (Table 8-6 and Figure 8-19). Four of 30 soil samples had PCB detections above the screening level.

Kensol- and heavy oil-range petroleum hydrocarbons were also detected along trenches SDR-SS-1 and SDR-SS-7 (Figure 8-19). Kensol was detected at concentrations ranging from 120 to 1,300 mg/kg in both SDR-SS-1 and SDR-SS-7. Heavy oil-range petroleum hydrocarbons were detected at concentrations ranging from 1,200 and 13,000 mg/kg only along SDR-SS-1. This highest detection is the only test trench sample that exceeds the screening level for heavy oil-range petroleum hydrocarbons (Table 8-6). As with the PCBs, TPH concentrations decrease with depth and were higher toward the center of the ravine (Figure 8-19).

8.3.3 Proposed Phase II (RI) Work

Since the lateral and vertical nature and extent of PCBs and petroleum hydrocarbons along the SDR was well defined during the Phase I investigation efforts, no additional investigation was proposed in the Phase II RI Work Plan (Hart Crowser 2007c).

8.3.4 Summary of Current Conditions

Soil with concentrations of Total PCBs above the screening level remain in subsurface soil. Four of 30 soil samples had PCB detections above the screening level. The exceedances are limited to two locations; near the ravine centerline for the test trenches excavated at surface soil sampling locations SDR-SS-1 and SDR-SS-7 (Figure 8-19). These PCB concentrations decline rapidly with depth.

In trench SDR-SS-1, sample SDR-SS1-PH2-3-S1, collected in the upper 6 inches, Total PCBs were detected at 71,000 ug/kg. The Total PCB concentration in sample SDR-SS1-PH2-3-S3, collected approximately 2 feet below SDR-SS1-PH2-3-S1, was 650 ug/kg and is less than 1 percent of the near-surface concentration.

In trench SDR-SS-7, sample SDR-SS7-PH2-2-S1, collected in the upper 6 inches, Total PCBs were detected at 7,100 ug/kg. The estimated total PCB concentration in sample SDR-SS7-PH2-2-S3, collected approximately 2 feet below SDR-SS7-PH2-2-S1, was 5.9 J ug/kg.

Petroleum hydrocarbons detected in the SDR during the Phase I Investigation included Kensol and heavy oil. Relatively low concentrations of Kensol and heavy oil were detected in the surface soil samples except SDR-SS-9. The surface soil detections were below the screening level for Kensol and heavy oil, both set at 2,000 mg/kg.

Only one trench sample, sample SDR-SS-PH2-3-S1, exceeded the screening level with a detection of heavy oil-range petroleum hydrocarbons of 13,000 mg/kg. This sample, located near the surface also contained the highest concentration of Total PCBs as discussed above.

The soil boring advanced through the ponded area showed only minor impacts to soil with depth. The minor detections of PCBs and petroleum hydrocarbons were between the 10- and 20-foot-depth intervals, which may have been the elevation of the apparent pond observed in historical aerial photographs. The results from samples analyzed from boring SDR-SB-1 did not exceed the screening level for PCBs or petroleum hydrocarbons.

Based on this information, impacted soil above the screening levels is present primarily within the top 2.5 feet and along the center of the ravine in locations closer to fence line. The need for additional remedial action in this area will be evaluated during the FS.

8.4 REFERENCES FOR SECTION 8.0

Hart Crowser 2007a. Phase I Technical Memorandum, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-104. February 27, 2007.

Hart Crowser 2007b. Draft West Discharge Ravine Interim Action Work Plan, Kaiser Trentwood Facility, Spokane Valley Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-105. May 21, 2007.

Hart Crowser 2007c. Phase II Remedial Investigation/Work Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-103. November 30, 2007.

Hart Crowser 2008a. West Discharge Ravine Interim Action Completion Report, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-110. February 25, 2008.

Hart Crowser 2008b. 2008 (Year 1) Monitoring Report Former West Discharge Ravine Restoration Project Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-110. December 8, 2008.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 8.0.doc

Table 8-1 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID	Screening	WDR-SS-1	WDR-SS-100	WDR-SS-2	WDR-SS-3	WDR-SS-4	WDR-SS-101	WDR-SS-5
Sampling Date	Level (a)	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006
Depth in Feet			Dup of WDR-SS-1				Dup of WDR-SS-4	
Conventionals in %								
Moisture		17	17	16	6	15	14	15
Total Organic Carbon						1.18	1.51	
Total Solids		84.9	83.9	94.6	96.8	94.9	95.1	94.2
PCBs in ug/kg								
Aroclor 1016		1000 U	1000 U	1000 U	1000 U	100 U	100 U	1000 U
Aroclor 1221		2000 U	2000 U	2000 U	2000 U	200 U	200 U	2000 U
Aroclor 1232		1000 U	1000 U	1000 U	1000 U	100 U	100 U	1000 U
Aroclor 1242		1000 U	1000 U	1000 U	1000 U	100 U	100 U	1000 U
Aroclor 1248		38000 J	41000 J	73000 J	23000 J	4000	3600	54000
Aroclor 1254		1000 U	1000 U	1000 U	1000 U	100 U	100 U	1000 U
Aroclor 1260		1000 U	1000 U	1000 U	1000 U	100 U	100 U	1000 U
Total PCBs	270	$\boxed{38000}$ J	$\boxed{41000}$ J	$\boxed{73000}$ J	$\boxed{23000}$ J	$\boxed{4000}$	$\boxed{3600}$	$\boxed{54000}$
NWTPH HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	370	140	50 U	50 U	920
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	150	120	670	730	300	190	2000
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000							
Diesel/Fuel oil	2000							
Heavy oil	2000							
Kensol	2000							

Table 8-1 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID	Screening	WDR-SS-6	WDR-SS-7	WDR-SS-8	WDR-SS-9	WDR-SS-10	WDR-SS-11	WDR-SS-12
Sampling Date	Level (a)	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006	5/10/2006
Depth in Feet								
Conventionals in %								
Moisture		7	9	14	18	14	15	16
Total Organic Carbon		1.07		1.08				
Total Solids		98.4	97.7	97.6	90.8	93.8	88.1	94.5
PCBs in ug/kg								
Aroclor 1016		1000 U	1000 U	1000 U	1000 U	100 U	100 U	10000 U
Aroclor 1221		2000 U	2000 U	2000 U	2000 U	200 U	200 U	20000 U
Aroclor 1232		1000 U	1000 U	1000 U	1000 U	100 U	100 U	10000 U
Aroclor 1242		1000 U	1000 U	1000 U	1000 U	100 U	100 U	10000 U
Aroclor 1248		85000	28000	43000	29000	5200	3200	300000 J
Aroclor 1254		1000 U	1000 U	1000 U	1000 U	100 U	100 U	10000 U
Aroclor 1260		1000 U	1000 U	1000 U	1000 U	100 U	100 U	10000 U
Total PCBs	270	$\boxed{85000}$	$\boxed{28000}$	$\boxed{43000}$	$\boxed{29000}$	$\boxed{5200}$	$\boxed{3200}$	$\boxed{300000}$ J
NWTPH HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	640	180	170	50 U	50 U	50 U	1900
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	1400	630	530	220	290	150	$\boxed{3200}$
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000							
Diesel/Fuel oil	2000							
Heavy oil	2000							
Kensol	2000							

Table 8-1 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID	Screening	WDR-SS-13	WDR-SS-14	WDR-SS-15	WDR-SS-16	WDR-SS-17	WDR-SS-18	WDR-PIA-01
Sampling Date	Level (a)	5/11/2006	5/11/2006	5/11/2006	5/11/2006	5/11/2006	5/11/2006	5/09/2007
Depth in Feet								0 to 1
Conventionals in %								
Moisture		17	14	9	15	8	6	25
Total Organic Carbon								
Total Solids		93.2	84.5	98.5	92.3	98.7	97.7	55.1
PCBs in ug/kg								
Aroclor 1016		10000 U	1000 U	1000 U	20000 U	1000 U	1000 U	10 U
Aroclor 1221		20000 U	2000 U	2000 U	40000 U	2000 U	2000 U	20 U
Aroclor 1232		10000 U	1000 U	1000 U	20000 U	1000 U	1000 U	10 U
Aroclor 1242		10000 U	1000 U	1000 U	20000 U	1000 U	1000 U	10 U
Aroclor 1248		650000 J	53000	63000	360000 J	66000	41000	430 JP
Aroclor 1254		10000 U	1000 U	1000 U	20000 U	1000 U	1000 U	350
Aroclor 1260		10000 U	1000 U	1000 U	20000 U	1000 U	1000 U	10 U
Total PCBs	270	650000 J	53000	63000	360000 J	66000	41000	780 JP
NWTPH HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	
Diesel/Fuel oil	2000	3400	140	740	1800	400	190	
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	
Heavy oil	2000	12000	620	3100	5800	1600	440	
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000							20 U
Diesel/Fuel oil	2000							20 U
Heavy oil	2000							50 U
Kensol	2000							20 U

Table 8-1 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-PIA-02 5/09/2007 0 to 1	WDR-PIA-03 5/09/2007 0 to 1	WDR-PIA-04 5/09/2007 0 to 1	WDR-PIA-05 5/09/2007 0 to 1	WDR-PIA-06 5/09/2007 0 to 1	WDR-PIA-07 5/09/2007 0 to 1	WDR-PIA-08 5/09/2007 0 to 1
Conventionals in %								
Moisture		3.9	6.4	4.6	3.2	3.2	3.9	9.3
Total Organic Carbon		1.83						
Total Solids		95.5	91.6	95.4	97.4	96.2	96.1	89.6
PCBs in ug/kg								
Aroclor 1016		9.9 U	99 U	990 U	990 U	9.9 U	9.8 U	1000 U
Aroclor 1221		20 U	200 U	2000 U	2000 U	20 U	20 U	2000 U
Aroclor 1232		9.9 U	99 U	990 U	990 U	9.9 U	9.8 U	1000 U
Aroclor 1242		9.9 U	99 U	990 U	990 U	9.9 U	9.8 U	1000 U
Aroclor 1248		360	2900	41000	29000	160 JP	42 JP	18000
Aroclor 1254		260	2400	19000	14000	310	86	13000
Aroclor 1260		9.9 U	99 U	990 U	990 U	9.9 U	9.8 U	1000 U
Total PCBs	270	620	5300	60000	43000	470 JP	128 JP	31000
NWTPH HCID in mg/kg								
Gasoline	100							
Stoddard/Mineral spirits	100							
Kensol	2000							
Kerosene/Jet fuel	2000							
Diesel/Fuel oil	2000							
Bunker C								
Heavy oil	2000							
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	1600	700	50 U	50 U	2100
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U

Table 8-1 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-PIA-09 5/09/2007 0 to 1	WDR-PIA-10 5/09/2007 0 to 1	WDR-PIA-11 5/09/2007 0 to 1	WDR-PIA-12 5/09/2007 0 to 1	WDR-PIA-13 5/09/2007 0 to 1	WDR-PIA-14 5/09/2007 0 to 1	WDR-PIA-15 5/09/2007 0 to 1
Conventionals in %								
Moisture		5.1	10	11	7.8	3.9	11	4.5
Total Organic Carbon		0.62						1.43
Total Solids		96	88.5	88.4	92.8	97.3	87.9	96
PCBs in ug/kg								
Aroclor 1016		9.9 U	9.8 U	10000 U	9.8 U	9.9 U	9.9 U	980 U
Aroclor 1221		20 U	20 U	20000 U	20 U	20 U	20 U	2000 U
Aroclor 1232		9.9 U	9.8 U	10000 U	9.8 U	9.9 U	9.9 U	980 U
Aroclor 1242		9.9 U	9.8 U	10000 U	17 JP	9.9 U	9.9 U	980 U
Aroclor 1248		9.9 U	9.8 U	320000	9.8 U	15	400	77000
Aroclor 1254		7 J	6.4 J	120000	120	8.6 J	550	32000
Aroclor 1260		9.9 U	9.8 U	10000 U	44	9.9 U	320	980 U
Total PCBs	270	7 J	6.4 J	$\boxed{440000}$	181 JP	23.6 J	$\boxed{1270}$	$\boxed{109000}$
NWTPH HCID in mg/kg								
Gasoline	100							
Stoddard/Mineral spirits	100							
Kensol	2000							
Kerosene/Jet fuel	2000							
Diesel/Fuel oil	2000							
Bunker C								
Heavy oil	2000							
NWTPH-Dx in mg/kg								
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	830	50 U	50 U	50 U	1800
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U

Table 8-1 - Analytical Results for Soil Samples from the West Discharge Ravine

Sample ID	Screening	WDR-PIA-16	WDR-PIA-17	WDR-PIA-18
Sampling Date	Level (a)	5/09/2007	5/09/2007	5/09/2007
Depth in Feet		0 to 1	0 to 1	0 to 1
Conventionals in %				
Moisture		4.8	3	2
Total Organic Carbon				
Total Solids		95.9	98.3	98.4
PCBs in ug/kg				
Aroclor 1016		1000 U	9.7 U	9.9 U
Aroclor 1221		2000 U	20 U	20 U
Aroclor 1232		1000 U	9.7 U	9.9 U
Aroclor 1242		1000 U	9.7 U	9.9 U
Aroclor 1248		12000	9.7 U	9.9 U
Aroclor 1254		5600	11	13 JP
Aroclor 1260		1000 U	9.7 U	9.9 U
Total PCBs	270	$\boxed{17600}$	11	13 JP
NWTPH HCID in mg/kg				
Gasoline	100			
Stoddard/Mineral spirits	100			
Kensol	2000			
Kerosene/Jet fuel	2000			
Diesel/Fuel oil	2000			
Bunker C				
Heavy oil	2000			
NWTPH-Dx in mg/kg				
Kerosene/Jet fuel	2000	20 U	20 U	20 U
Diesel/Fuel oil	2000	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U
Kensol	2000	20 U	20 U	20 U

U = Not detected at the reporting limit indicated. J = Estimated value.
P = The relative percent difference is greater than 40% between the GC primary and confirmation column results
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
The MTCA cleanup goals for the Interim Action are 1,000 ug/kg for Total PCBs and 2,000 mg/kg for diesel- and heavy oil-range petroleum hydrocarbons.

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID	Screening Level (a)	WDR-EC1-C1	WDR-EC1-C2	WDR-EC1-D1	WDR-EC1-D2	WDR-EC2-C1	WDR-EC2-C2	WDR-EC2-C3
Sampling Date		8/09/2007	8/09/2007	8/09/2007	8/09/2007	8/09/2007	8/09/2007	8/09/2007
Depth in Feet		8	7 to 8	7 to 8	7 to 8	7 to 8	7 to 8	7 to 8
Total Solids in %		95.8	96.9	98.6	98.5	92	92.7	96.7
PCBs in ug/kg								
Aroclor 1016		1000 U	100 U	10 U	9.5 U	100 U	1000 U	100 U
Aroclor 1221		2000 U	200 U	20 U	19 U	200 U	2000 U	200 U
Aroclor 1232		1000 U	100 U	10 U	9.5 U	100 U	1000 U	100 U
Aroclor 1242		1000 U	100 U	10 U	9.5 U	100 U	1000 U	100 U
Aroclor 1248		24000	5100	10 U	9.5 U	3100	17000	6900
Aroclor 1254		1000 U	100 U	16	21	100 U	9600	100 U
Aroclor 1260		1000 U	100 U	10 U	9.5 U	100 U	1000 U	100 U
Total PCBs	270	24000	5100	16	21	3100	26600	6900

Sample ID	Screening Level (a)	WDR-EC2-D13	WDR-EC2-D17	WDR-EC3-C1	WDR-EC3-C2	WDR-EC3-C3	WDR-EC3-C4	WDR-EC3-D1
Sampling Date		8/09/2007	8/09/2007	8/09/2007	8/09/2007	8/09/2007	8/09/2007	8/09/2007
Depth in Feet		7 to 8	7 to 8	6 to 7	6 to 7	6 to 7	6 to 7	6 to 7
Total Solids in %		92.3	95.9	95.4	93.5	92.8	94	90.2
PCBs in ug/kg								
Aroclor 1016		1000 U	10 U	100 U	1000 U	990 U	100 U	100 U
Aroclor 1221		2000 U	20 U	200 U	2000 U	2000 U	200 U	200 U
Aroclor 1232		1000 U	10 U	100 U	1000 U	990 U	100 U	100 U
Aroclor 1242		1000 U	10 U	100 U	1000 U	990 U	100 U	100 U
Aroclor 1248		12000	10 U	1900	12000	31000	6600	6200
Aroclor 1254		1000 U	300	1300	1000 U	990 U	4600	100 U
Aroclor 1260		1000 U	10 U	100 U	1000 U	990 U	100 U	100 U
Total PCBs	270	12000	300	3200	12000	31000	11200	6200

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID	Screening	WDR-EC3-D2	WDR-EC4-C1	WDR-EC4-C2	WDR-EC4-C3	WDR-EC4-C4	WDR-EC4-D1	WDR-EC4-D6
Sampling Date	Level (a)	8/09/2007	8/10/2007	8/10/2007	8/10/2007	8/10/2007	8/10/2007	8/10/2007
Depth in Feet		6 to 7	4 to 5	4 to 6	4 to 6	4 to 6	4 to 6	4 to 6
Total Solids in %		87.6	92.9	89.7	94.7	89.9	97.7	94.3
PCBs in ug/kg								
Aroclor 1016		990 U	1000 U	1000 U	1000 U	100 U	99 U	1000 U
Aroclor 1221		2000 U	2000 U	2000 U	2000 U	200 U	200 U	2000 U
Aroclor 1232		990 U	1000 U	1000 U	1000 U	100 U	99 U	1000 U
Aroclor 1242		990 U	1000 U	1000 U	1000 U	100 U	99 U	1000 U
Aroclor 1248		21000	72000	51000	14000	7900	99 U	16000
Aroclor 1254		990 U	1000 U	1000 U	1000 U	100 U	1200	1000 U
Aroclor 1260		990 U	1000 U	1000 U	1000 U	100 U	99 U	1000 U
Total PCBs	270	21000	72000	51000	14000	7900	1200	16000

Sample ID	Screening	WDR-EC5-C1	WDR-EC5-C2	WDR-EC5-C3	WDR-EC5-C4	WDR-EC5-C5	WDR-EC5-D4	WDR-EC7-C1
Sampling Date	Level (a)	8/10/2007	8/10/2007	8/10/2007	8/10/2007	8/10/2007	8/10/2007	8/17/2007
Depth in Feet		4	4	4	4	4	4	4 to 9
Total Solids in %		93.9	91.7	94	95	96.6	95.4	95.6
PCBs in ug/kg								
Aroclor 1016		1000 U	100 U	980 U	1000 U	1000 U	100 U	420 U
Aroclor 1221		2000 U	200 U	2000 U	2000 U	2000 U	200 U	830 U
Aroclor 1232		1000 U	100 U	980 U	1000 U	1000 U	100 U	420 U
Aroclor 1242		1000 U	100 U	980 U	1000 U	1000 U	100 U	420 U
Aroclor 1248		15000	2500	19000	34000	29000	2400	5500
Aroclor 1254		1000 U	100 U	980 U	1000 U	1000 U	100 U	420 U
Aroclor 1260		1000 U	100 U	980 U	1000 U	1000 U	100 U	420 U
Total PCBs	270	15000	2500	19000	34000	29000	2400	5500

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID	Screening	WDR-EC7-C2	WDR-EC7-C3	WDR-EC7-D1	WDR-EC8-C1	WDR-EC8-C2	WDR-EC8-D1	WDR-EC8-D2
Sampling Date	Level (a)	8/17/2007	8/17/2007	8/16/2007	8/17/2007	8/17/2007	8/16/2007	8/16/2007
Depth in Feet		4 to 5	4 to 5	4 to 5	6.5 to 7.5	6.5 to 7.5	6.5 to 7.5	6.5 to 7.5
Total Solids in %		98	96.3	96.7	95.5	97.2	95.1	96.6
PCBs in ug/kg								
Aroclor 1016		400 U	420 U	8.2 U	420 U	410 U	420 U	410 U
Aroclor 1221		800 U	830 U	17 U	840 U	820 U	840 U	820 U
Aroclor 1232		400 U	420 U	8.2 U	420 U	410 U	420 U	410 U
Aroclor 1242		400 U	420 U	8.2 U	420 U	410 U	420 U	410 U
Aroclor 1248		1100	2900	350	1900	1300	1400	1600
Aroclor 1254		400 U	420 U	8.2 U	420 U	410 U	420 U	410 U
Aroclor 1260		400 U	420 U	8.2 U	420 U	410 U	420 U	410 U
Total PCBs	270	1100	2900	350	1900	1300	1400	1600

Sample ID	Screening	WDR-EC9-C1	WDR-EC9-C2	WDR-EC9-C3	WDR-EC9-C4	WDR-EC9-D1	WDR-EC10-C1	WDR-EC10-C2
Sampling Date	Level (a)	8/17/2007	8/17/2007	8/22/2007	8/22/2007	8/16/2007	8/22/2007	8/23/2007
Depth in Feet		6.5 to 7.5	6.5 to 7.5	8	8 Dup of WDR-EC9-C3	6.5 to 7.5	9 to 10	9 to 10
Total Solids in %		96.4	95.5	97.3	97.1	96.7	96	95.8
PCBs in ug/kg								
Aroclor 1016		420 U	8.4 UJ	250 U	250 U	8.2 U	500 U	250 U
Aroclor 1221		830 U	17 UJ	500 U	500 U	17 U	1000 U	500 U
Aroclor 1232		420 U	8.4 UJ	250 U	250 U	8.2 U	500 U	250 U
Aroclor 1242		420 U	8.4 UJ	250 U	250 U	8.2 U	500 U	250 U
Aroclor 1248		2300	290 J	4400	4100	170	11000	5100
Aroclor 1254		420 U	8.4 UJ	250 U	250 U	8.2 U	500 U	250 U
Aroclor 1260		420 U	8.4 UJ	250 U	250 U	8.2 U	500 U	250 U
Total PCBs	270	2300	290 J	4400	4100	170	11000	5100

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID	Screening	WDR-EC10-C3	WDR-EC10-C4	WDR-EC10-D4	WDR-EC11-C1	WDR-EC11-C2	WDR-EC11-D3	WDR-EC11-D7
Sampling Date	Level (a)	8/23/2007	8/22/2007	8/20/2007	8/23/2007	8/30/2007	8/22/2007	8/22/2007
Depth in Feet		9 to 10	9 to 10 Dup of WDR-EC10-C1	9 to 10	8	9	8	8
Total Solids in %		89.2	95.5	97.3	93.4	95.8	95.5	96.3
PCBs in ug/kg								
Aroclor 1016		490 U	500 U	25 U	25 U	6.7 U	25 U	25 U
Aroclor 1221		980 U	1000 U	50 U	50 U	14 U	49 U	50 U
Aroclor 1232		490 U	500 U	25 U	25 U	6.7 U	25 U	25 U
Aroclor 1242		490 U	500 U	25 U	25 U	6.7 U	25 U	25 U
Aroclor 1248		7700	11000	1700	1600	230	830	980
Aroclor 1254		490 U	500 U	25 U	25 U	6.7 U	25 U	25 U
Aroclor 1260		490 U	500 U	25 U	25 U	6.7 U	25 U	25 U
Total PCBs	270	$\boxed{7700}$	$\boxed{11000}$	$\boxed{1700}$	$\boxed{1600}$	230	$\boxed{830}$	$\boxed{980}$

Sample ID	Screening	WDR-EC12-C1	WDR-EC12-C2	WDR-EC12-D14	WDR-EC12-D15	WDR-EC13-C1	WDR-EC13-C2	WDR-EC13-C4
Sampling Date	Level (a)	8/30/2007	8/30/2007	8/30/2007	8/30/2007	8/30/2007	8/30/2007	8/30/2007
Depth in Feet		7 to 8	7 to 8	7 to 8	7 to 8	7	7 to 9	7 to 9 Dup of WDR-EC13-C2
Total Solids in %		95.8	96.5	97.2	96.4	95.6	93.1	93.5
PCBs in ug/kg								
Aroclor 1016		6.7 U	330 U	6.7 U	6.7 U	6.9 U	7 U	6.8 U
Aroclor 1221		14 U	650 U	14 U	14 U	14 U	14 U	14 U
Aroclor 1232		6.7 U	330 U	6.7 U	6.7 U	6.9 U	7 U	6.8 U
Aroclor 1242		6.7 U	330 U	6.7 U	6.7 U	6.9 U	7 U	6.8 U
Aroclor 1248		110	540	320	180	90	100	120
Aroclor 1254		6.7 U	330 U	6.7 U	6.7 U	6.9 U	7 U	6.8 U
Aroclor 1260		6.7 U	330 U	6.7 U	6.7 U	6.9 U	7 U	6.8 U
Total PCBs	270	110	$\boxed{540}$	$\boxed{320}$	180	90	100	120

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC13-D1 8/30/2007 7	WDR-EC13-D2 8/29/2007 7	WDR-EC14-C1 8/24/2007 4 to 6	WDR-EC14-C2 8/30/2007 6 to 8	WDR-EC14-D2 8/27/2007 6 to 7	WDR-EC14-D7 8/27/2007 6 to 7	WDR-EC15-C1 8/23/2007 4 to 9
Total Solids in %		95.3	96.1	92.2	90.9	89.8	93.2	95.4
PCBs in ug/kg								
Aroclor 1016		6.7 U	6.6 U	480 U	370 U	7.3 U	7.1 U	25 U
Aroclor 1221		14 U	14 U	960 U	730 U	15 U	15 U	50 U
Aroclor 1232		6.7 U	6.6 U	480 U	370 U	7.3 U	7.1 U	25 U
Aroclor 1242		6.7 U	6.6 U	480 U	370 U	7.3 U	7.1 U	25 U
Aroclor 1248		46	10	11000	730	72	380	1000
Aroclor 1254		6.7 U	6.6 U	480 U	370 U	7.3 U	7.1 U	25 U
Aroclor 1260		6.7 U	6.6 U	480 U	370 U	7.3 U	7.1 U	25 U
Total PCBs	270	46	10	$\boxed{11000}$	$\boxed{730}$	72	$\boxed{380}$	$\boxed{1000}$

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC15-C2 8/23/2007 4 to 9	WDR-EC15-C3 8/23/2007 6 to 9	WDR-EC15-C4 8/23/2007 4 to 9 Dup of WDR-EC15-C2	WDR-EC15-D19 8/21/2007 4 to 5	WDR-EC15-D20 8/21/2007 4 to 5	WDR-EC16-D1 8/23/2007 9	WDR-EC16-D2 8/23/2007 9
Total Solids in %		95.3	94.6	94.9	96.3	93	96.6	92.8
PCBs in ug/kg								
Aroclor 1016		490 U	250 U	500 U	25 U	25 U	250 U	250 U
Aroclor 1221		980 U	500 U	1000 U	50 U	50 U	490 U	500 U
Aroclor 1232		490 U	250 U	500 U	25 U	25 U	250 U	250 U
Aroclor 1242		490 U	250 U	500 U	25 U	25 U	250 U	250 U
Aroclor 1248		8600	4200	8000	200	380	9800	6800
Aroclor 1254		490 U	250 U	500 U	25 U	25 U	250 U	250 U
Aroclor 1260		490 U	250 U	500 U	25 U	25 U	250 U	250 U
Total PCBs	270	$\boxed{8600}$	$\boxed{4200}$	$\boxed{8000}$	200	$\boxed{380}$	$\boxed{9800}$	$\boxed{6800}$

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC17-C1 9/07/2007 8	WDR-EC17-C2 9/07/2007 8	WDR-EC17-D1 9/05/2007 8	WDR-EC17-1D 9/05/2007 8 Dup of WDR-EC17-D1	WDR-EC18-C1 9/07/2007 8	WDR-EC18-D1 9/06/2007 8	WDR-EC18-D2 9/06/2007 8
Total Solids in %		96.1	96.9	97.2	97.1	94.3	95.6	94.8
PCBs in ug/kg								
Aroclor 1016		70 U	6.9 U	6.9 U	6.9 U	7.1 U	7 U	7.1 U
Aroclor 1221		140 U	14 U	14 U	14 U	15 U	14 U	15 U
Aroclor 1232		70 U	6.9 U	6.9 U	6.9 U	7.1 U	7 U	7.1 U
Aroclor 1242		70 U	6.9 U	6.9 U	6.9 U	7.1 U	7 U	7.1 U
Aroclor 1248		1200	300	250	290	380	130	160
Aroclor 1254		70 U	6.9 U	6.9 U	6.9 U	7.1 U	7 U	7.1 U
Aroclor 1260		70 U	6.9 U	6.9 U	6.9 U	7.1 U	7 U	7.1 U
Total PCBs	270	1200	300	250	290	380	130	160

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC18-2D 9/06/2007 8 Dup of WDR-EC18-D2	WDR-EC19-C1 9/07/2007 8	WDR-EC19-C2 9/07/2007 8 to 9	WDR-EC19-D1 9/06/2007 8	WDR-EC19-3D 9/06/2007 8 Dup of WDR-EC19-D1	WDR-EC20-C1 9/07/2007 7 to 9	WDR-EC20-C2 9/07/2007 8 to 9
Total Solids in %		94.9	94.9	96.2	92.5	90.9	94.9	94.3
PCBs in ug/kg								
Aroclor 1016		7 U	70 U	69 U	7.2 U	7.3 U	7 U	7.1 U
Aroclor 1221		14 U	140 U	140 U	15 U	15 U	14 U	15 U
Aroclor 1232		7 U	70 U	69 U	7.2 U	7.3 U	7 U	7.1 U
Aroclor 1242		7 U	70 U	69 U	7.2 U	7.3 U	7 U	7.1 U
Aroclor 1248		420	1300	1300	39	43	420	500
Aroclor 1254		7 U	70 U	69 U	7.2 U	7.3 U	7 U	7.1 U
Aroclor 1260		7 U	70 U	69 U	7.2 U	7.3 U	7 U	7.1 U
Total PCBs	270	420	1300	1300	39	43	420	500

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC20-D1 9/07/2007 8 to 9	WDR-EC21-C1 9/07/2007 5 to 6	WDR-EC21-C2 9/07/2007 5 to 6	WDR-EC21-D1 9/07/2007 5 to 6	WDR-EC22-C1 9/07/2007 5 to 6	WDR-EC22-D1 9/07/2007 5 to 6	WDR-EC22-3D 9/07/2007 5 to 6 Dup of WDR-EC22-D1
Total Solids in %		95.4	94.1	92.7	91.7	89.4	89.9	91.1
PCBs in ug/kg								
Aroclor 1016		7 U	54 U	54 U	5.5 U	5.6 U	5.6 U	5.5 U
Aroclor 1221		14 U	110 U	110 U	11 U	12 U	12 U	11 U
Aroclor 1232		7 U	54 U	54 U	5.5 U	5.6 U	5.6 U	5.5 U
Aroclor 1242		7 U	54 U	54 U	5.5 U	5.6 U	5.6 U	5.5 U
Aroclor 1248		250	960	1700	420	430	280	260
Aroclor 1254		7 U	54 U	54 U	5.5 U	5.6 U	5.6 U	5.5 U
Aroclor 1260		7 U	54 U	54 U	5.5 U	5.6 U	5.6 U	5.5 U
Total PCBs	270	250	$\boxed{960}$	$\boxed{1700}$	$\boxed{420}$	$\boxed{430}$	$\boxed{280}$	260

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC23-D1 9/05/2007 11	Screening Stockpile Sub Grade 9/21/2007 Below Screening Area Liner
Total Solids in %		94	94.2
PCBs in ug/kg			
Aroclor 1016		150 U	71 U
Aroclor 1221		290 U	150 U
Aroclor 1232		150 U	71 U
Aroclor 1242		150 U	71 U
Aroclor 1248		9400	4200
Aroclor 1254		150 U	71 U
Aroclor 1260		150 U	71 U
Total PCBs	270	$\boxed{9400}$	$\boxed{4200}$

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC1-C1 8/9/2007 8 Composite	WDR-EC2-C1 8/9/2007 7 to 8 Composite	WDR-EC3-C1 8/9/2007 6 to 7 Composite	WDR-EC4-C1 8/10/2007 4 to 5 Composite	WDR-EC5-C3 8/10/2007 4 Composite	WDR-EC7-C3 8/17/2007 4 to 5 Composite	WDR-EC8-C1 8/17/2007 6.5 to 7.5 Composite
Total Moisture in %		15			14	16		
NWTPH-Dx in mg/kg								
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	380	50 U	50 U	1500	530	50 U	50 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC9-C1 8/17/2007 9 Composite	WDR-EC10-C1 8/22/2007 9 to 10 Composite	WDR-EC11-C1 8/23/2007 8 Composite	WDR-EC12-C2 8/30/2007 7 to 8 Composite	WDR-EC13-C2 8/30/2007 7 to 9 Composite	WDR-EC13-C4 8/30/2007 7 to 9 Composite Duplicate of WDR-EC13-C2	WDR-EC14-C1 8/24/2007 4 to 6 Composite
Total Moisture in %								
NWTPH-Dx in mg/kg								
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U

Table 8-2 - Analytical Results for Excavation Cell Soil Verification Samples

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC15-C2 8/23/2007 4 to 9 Composite	WDR-EC16-C1 8/24/2007 9 Composite	WDR-EC17-C1 9/7/2007 8 Composite	WDR-EC18-C1 9/7/2007 8 Composite	WDR-EC19-C1 9/7/2007 8 Composite	WDR-EC20-C1 9/7/2007 7 to 9 Composite	WDR-EC21-C1 9/7/2007 5 to 6 Composite
Total Moisture in %								
NWTPH-Dx in mg/kg								
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U

Sample ID Sampling Date Depth in Feet	Screening Level (a)	WDR-EC22-C1 9/7/2007 5 to 6 Composite
Total Moisture in %		
NWTPH-Dx in mg/kg		
Diesel/Fuel oil	2000	20 U
Heavy oil	2000	50 U
Kensol	2000	20 U
Kerosene/Jet fuel	2000	20 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
The MTCA cleanup goals for the Interim Action are 1,000 ug/kg for Total PCBs and 2,000 mg/kg for diesel- and heavy oil-range petroleum hydrocarbons

Table 8-3 - Analytical Results for Ravine Backfill Material

Sample ID	Screening Level (a)	WDR-SS-1 (Stake 1)	WDR-SS-2 (Stake 2)	WDR-SS-3 (Stake 3)	WDR-SS-4 (Stake 4)	WDR-SAND-1
Sampling Date		9/07/2007	9/07/2007	9/07/2007	9/07/2007	7/26/2007
Description		Berm Stockpile	Berm Stockpile	Berm Stockpile	Berm Stockpile	Sand backfill
Total Solids in %		96.5	95.9	96.5	97	99.4
PCBs in ug/kg						
Aroclor 1016		6.9 U	7 U	6.9 U	6.9 U	10 U
Aroclor 1221		14 U	14 U	14 U	14 U	20 U
Aroclor 1232		6.9 U	7 U	6.9 U	6.9 U	10 U
Aroclor 1242		6.9 U	7 U	6.9 U	6.9 U	10 U
Aroclor 1248		460	13	39	42	10 U
Aroclor 1254		6.9 U	12 U	6.9 U	6.9 U	10 U
Aroclor 1260		6.9 U	7 U	6.9 U	6.9 U	10 U
Total PCBs	270	$\boxed{460}$	13	39	42	20 U

Sample ID	Screening Level (a)	WDR-Screened Top Soil-1	Potential Stockpile	Door 4 Stockpile (500yds)
Sampling Date		8/03/2007	9/07/2007	9/15/2007
Description		Topsoil backfill	Stockpile	Stockpile
Total Solids in %		95.3	97.8	93.5
PCBs in ug/kg				
Aroclor 1016		5.3 U	6.8 U	7.1 U
Aroclor 1221		11 U	14 U	15 U
Aroclor 1232		5.3 U	6.8 U	7.1 U
Aroclor 1242		5.3 U	6.8 U	7.1 U
Aroclor 1248		5.3 U	6.8 U	7.1 U
Aroclor 1254		5.3 U	6.8 U	37
Aroclor 1260		5.3 U	8.8	7.1 U
Total PCBs	270	11 U	8.8	37

Table 8-3 - Analytical Results for Ravine Backfill Material

Sample ID	Screening	WDR-SS-1 (Stake 1)	WDR-SS-2 (Stake 2)	WDR-SS-3 (Stake 3)	WDR-SS-4 (Stake 4)	Potential Stockpile
Sampling Date	Level (a)	9/07/2007	9/07/2007	9/07/2007	9/07/2007	9/07/2007
SDG		A70911-1	A70911-1	A70911-1	A70911-1	A70911-1
Description		Berm Stockpile	Berm Stockpile	Berm Stockpile	Berm Stockpile	Stockpile
NWTPH-Dx in mg/kg						
Diesel/Fuel oil	2000	20 U	20 U	20 U	20 U	20 U
Heavy oil	2000	50 U	50 U	50 U	50 U	50 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
The MTCA cleanup goals for the Interim Action are 1,000 ug/kg for Total PCBs and 2,000 mg/kg for diesel- and heavy oil-range petroleum hydrocarbons

Table 8-4 - Analytical Results for Soil Samples from the South Discharge Ravine Boring

Sample ID	Screening Level (a)	SDR-SB-1-S1	SDR-SB-1-S11	SDR-SB-1-S2	SDR-SB-1-S3	SDR-SB-1-S4	SDR-SB-1-S5
Sampling Date		2/23/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Depth in Feet		10 to 15	10 to 15	18 to 20.2	23 to 26.5	28 to 30.5	33 to 35
			Dup of SDR-SB-1-S1				
Conventionals in %							
Moisture		10	11	10	9	7	7
Total Solids		91.8	96.6	94.4	95.4	94.2	94.6
PCBs in ug/kg							
Aroclor 1016		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	11	10 U	10 U	10 U
Total PCBs	270	20 U	20 U	11	20 U	20 U	20 U
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creoso	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000	20 U	20 U				20 U
Diesel/Fuel oil	2000	32 J	50 U				50 U
Heavy oil	2000	100 U	100 U				100 U

Table 8-4 - Analytical Results for Soil Samples from the South Discharge Ravine Boring

Sample ID	Screening	SDR-SB-1-S6	SDR-SB-1-S7	SDR-SB-1-S8	SDR-SB-1-S9	SDR-SB-1-S10
Sampling Date	Level (a)	2/23/2006	2/23/2006	2/23/2006	2/23/2006	2/23/2006
Depth in Feet		38 to 40	43 to 45.4	48 to 51	53 to 55.25	58 to 60.8
Conventionals in %						
Moisture		6	8	7	7	7
Total Solids		96.1	95.8	94.8	94.9	94.9
PCBs in ug/kg						
Aroclor 1016		10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	10 U	10 U	10 U
Total PCBs	270	20 U	20 U	20 U	20 U	20 U
NWTPH HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creoso	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000					20 U
Diesel/Fuel oil	2000					50 U
Heavy oil	2000					100 U

U = Not detected at the reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
The MTCA cleanup goals for the Interim Action are 1,000 ug/kg for Total PCBs and 2,000 mg/kg for diesel- and heavy oil-range petroleum hydrocarbons.

Table 8-5 - Analytical Results for Surface Soil Samples from the South Discharge Ravine

Sample ID / Sampling Date	Screening Level (a)	SDR-SS-1 3/01/2006	SDR-SS-2 3/01/2006	SDR-SS-3 3/01/2006	SDR-SS-4 3/01/2006	SDR-SS-5 3/01/2006	SDR-SS-6 3/01/2006
Conventionals in %							
Moisture		16	18	17	26	22	33
Total Organic Carbon						2.1	
Total Solids		86	91.5	91.7	92.4	87.5	64.4
PCBs in ug/kg							
Aroclor 1016		100 U	100 U	100 U	100 U	100 U	10 U
Aroclor 1221		200 U	200 U	200 U	200 U	200 U	20 U
Aroclor 1232		100 U	100 U	100 U	100 U	100 U	10 U
Aroclor 1242		100 U	100 U	100 U	100 U	100 U	10 U
Aroclor 1248		4400	4100	3900	1700	850	10 U
Aroclor 1254		3500	2700	2300	1700	530	120
Aroclor 1260		1200	660	600	460	140	73
Total PCBs	270	9100	7460	6800	3860	1520	193
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	830	1100	300	410	38	85
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000						
Diesel/Fuel oil/Creoso	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	130	110	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U

Table 8-5 - Analytical Results for Surface Soil Samples from the South Discharge Ravine

Sample ID	Screening	SDR-SS-7	SDR-SS-100	SDR-SS-8	SDR-SS-9
Sampling Date	Level (a)	3/01/2006	3/01/2006	3/01/2006	3/01/2006
			Dup of SDR-SS-7		
Conventionals in %					
Moisture		25	15	26	19
Total Organic Carbon		4.97	5.72		2.77
Total Solids		80.6	88.4	88.7	92.1
PCBs in ug/kg					
Aroclor 1016		100 U	100 U	100 U	10 U
Aroclor 1221		200 U	200 U	200 U	20 U
Aroclor 1232		100 U	100 U	100 U	10 U
Aroclor 1242		100 U	100 U	100 U	10 U
Aroclor 1248		1600	2900	1500	10 U
Aroclor 1254		1300	2000	1100	130
Aroclor 1260		310	470	270	79
Total PCBs	270	$\boxed{3210}$	$\boxed{5370}$	$\boxed{2870}$	209
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U
Kensol	2000	390	500	54	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000				
Diesel/Fuel oil/Creoso	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	120	180	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U

These surface soil samples were collected from depths of 0 to 1 foot.
U = Not detected at the reporting limit indicated.
Blank indicates sample not analyzed for specific analyte or no screening level established
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Basec on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protectior as specified in WAC 173-340-747, unless otherwise specified.

Table 8-6 - Analytical Results for Soil Samples from the South Discharge Ravine Test Trenches

Sample ID Sampling Date Depth in Feet	Screening Level (a)	SDR-SS1-PH2-1-S1 5/23/2006 0.5 to 1.0	SDR-SS1-PH2-1-S2 5/23/2006 1.0 to 1.5	SDR-SS1-PH2-1-S3 5/23/2006 2.0 to 2.5	SDR-SS1-PH2-2-S1 5/23/2006 0.5 to 1.0	SDR-SS1-PH2-2-S2 5/23/2006 1.0 to 1.5
Conventionals in %						
Total Solids		91.5	97.3	95.8	95.8	84.4
PCBs in ug/kg						
Aroclor 1016		10 U	10 U	9.9 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	9.9 U	10 U	10 U
Aroclor 1242		10 U	10 U	9.9 U	10 U	10 U
Aroclor 1248		10 U	10 U	9.9 U	10 U	10 U
Aroclor 1254		70 JP	10 U	9.9 U	60	29
Aroclor 1260		120	10 U	9.9 U	10 U	20
Aroclor 1262		10 U	10 U	9.9 U	10 U	10 U
Aroclor 1268		10 U	10 U	9.9 U	10 U	10 U
Total PCBs	270	190 JP	20 U	20 U	60	49
NWTPH HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creoso	2000					
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil						

Table 8-6 - Analytical Results for Soil Samples from the South Discharge Ravine Test Trenches

Sample ID	Screening Level (a)	SDR-SS1-PH2-2-S3	SDR-SS1-PH2-3-S1	SDR-SS1-PH2-3-S2	SDR-SS1-PH2-3-S3	SDR-SS1-PH2-4-S1
Sampling Date		5/23/2006	5/23/2006	5/23/2006	5/23/2006	5/23/2006
Depth in Feet		2.0 to 2.5	0 to 0.5	1.0 to 1.5	2.0 to 2.5	0 to 0.5
Conventionals in %						
Total Solids		92.3	91.5	92.8	94.3	97
PCBs in ug/kg						
Aroclor 1016		10 U	1300 U	100 U	10 U	10 U
Aroclor 1221		20 U	2500 U	200 U	20 U	20 U
Aroclor 1232		10 U	1300 U	100 U	10 U	10 U
Aroclor 1242		10 U	1300 U	100 U	10 U	10 U
Aroclor 1248		10 U	71000	360	130	10 U
Aroclor 1254		10 U	1300 U	100 U	10 U	10 U
Aroclor 1260		10 U	1300 U	1100	10 U	3.3 J
Aroclor 1262		58	1300 U	100 U	520	10 U
Aroclor 1268		10 U	1300 U	100 U	10 U	10 U
Total PCBs	270	58	$\boxed{71000}$	$\boxed{1460}$	$\boxed{650}$	3.3 J
NWTPH HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	1300	140	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creoso	2000					
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	$\boxed{13000}$	1200	100 U	100 U
Castor oil						

Table 8-6 - Analytical Results for Soil Samples from the South Discharge Ravine Test Trenches

Sample ID Sampling Date Depth in Feet	Screening Level (a)	SDR-SS1-PH2-4-S2 5/23/2006 1.0 to 1.5	SDR-SS1-PH2-4-S3 5/23/2006 2.0 to 2.5	SDR-SS7-PH2-1-S1 5/23/2006 0 to 0.5	SDR-SS7-PH2-1-S2 5/23/2006 1.0 to 1.5	SDR-SS7-PH2-1-S3 5/23/2006 2.0 to 2.5
Conventionals in %						
Total Solids		90.4	95.4	96.1	96.2	93.3
PCBs in ug/kg						
Aroclor 1016		10 U	9.9 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	9.9 U	10 U	10 U	10 U
Aroclor 1242		10 U	9.9 U	10 U	10 U	10 U
Aroclor 1248		10 U	9.9 U	10 U	10 U	10 U
Aroclor 1254		10 U	9.9 U	10 U	10 U	10 U
Aroclor 1260		10 U	9.9 U	10 U	10 U	10 U
Aroclor 1262		10 U	9.9 U	10 U	10 U	10 U
Aroclor 1268		10 U	9.9 U	10 U	10 U	10 U
Total PCBs	270	20 U	20 U	20 U	20 U	20 U
NWTPH HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	120	690	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creoso	2000					
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil						

Table 8-6 - Analytical Results for Soil Samples from the South Discharge Ravine Test Trenches

Sample ID Sampling Date Depth in Feet	Screening Level (a)	SDR-SS7-PH2-100-S3 5/23/2006 2.0 to 2.5 Dup of SDR-SS7-PH2-1-S3	SDR-SS7-PH2-2-S1 5/23/2006 0 to 0.5	SDR-SS7-PH2-2-S2 5/23/2006 1.0 to 1.5	SDR-SS7-PH2-2-S3 5/23/2006 2.0 to 2.5	SDR-SS7-PH2-3-S1 5/23/2006 0 to 0.5
Conventionals in %						
Total Solids		92.6	95.2	91.9	96.1	91.9
PCBs in ug/kg						
Aroclor 1016		9.9 U	250 U	10 U	10 U	10 U
Aroclor 1221		20 U	500 U	20 U	20 U	20 U
Aroclor 1232		9.9 U	250 U	10 U	10 U	10 U
Aroclor 1242		9.9 U	250 U	10 U	10 U	10 U
Aroclor 1248		9.9 U	7100	10 U	10 U	10 U
Aroclor 1254		9.9 U	250 U	10 U	3.5 J	10 U
Aroclor 1260		9.9 U	250 U	10 U	2.4 J	5.6 J
Aroclor 1262		9.9 U	250 U	19	10 U	10 U
Aroclor 1268		9.9 U	250 U	10 U	10 U	10 U
Total PCBs	270	20 U	$\boxed{7100}$	19	5.9 J	5.6 J
NWTPH HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	1100	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creoso	2000					
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	1300	100 U	100 U	100 U
Castor oil						

Table 8-6 - Analytical Results for Soil Samples from the South Discharge Ravine Test Trenches

Sample ID	Screening	SDR-SS7-PH2-3-S2	SDR-SS7-PH2-3-S3	SDR-SS9-PH2-1-S1	SDR-SS9-PH2-1-S2	SDR-SS9-PH2-1-S3
Sampling Date	Level (a)	5/23/2006	5/23/2006	5/23/2006	5/23/2006	5/23/2006
Depth in Feet		1.0 to 1.5	2.0 to 2.5	0 to 0.5	1.0 to 1.5	2.0 to 2.5
Conventionals in %						
Total Solids		92.1	91.7	90.2	91.8	91
PCBs in ug/kg						
Aroclor 1016		10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	3.5 J	10 U	10 U
Aroclor 1262		10 U	10 U	10 U	10 U	10 U
Aroclor 1268		10 U	10 U	10 U	10 U	10 U
Total PCBs	270	20 U	20 U	3.5 J	20 U	20 U
NWTPH HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creoso	2000					
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil						

Table 8-6 - Analytical Results for Soil Samples from the South Discharge Ravine Test Trenches

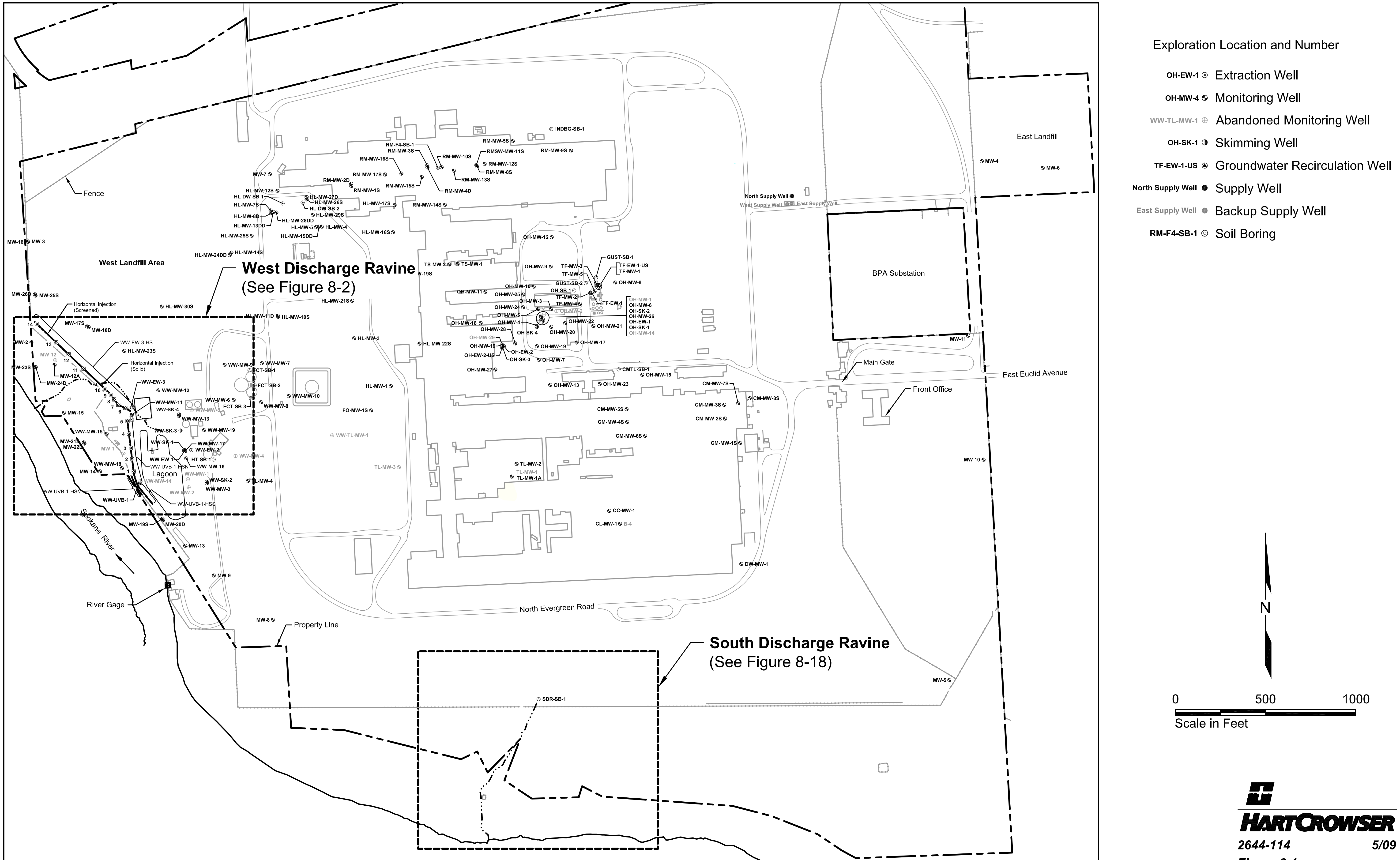
Sample ID Sampling Date Depth in Feet	Screening Level (a)	SDR-SS9-PH2-100-S3 5/23/2006 2.0 to 2.5 Dup of SDR-SS9-PH2-1-3	SDR-SS9-PH2-2-S1 5/23/2006 0 to 0.5	SDR-SS9-PH2-2-S2 5/23/2006 1.0 to 1.5	SDR-SS9-PH2-2-S3 5/23/2006 2.0 to 2.5	SDR-SS9-PH2-3-S1 5/23/2006 0 to 0.5
Conventionals in %						
Total Solids		95.4	94.8	96.3	94.4	93.1
PCBs in ug/kg						
Aroclor 1016		10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	10 U	10 U	10 U
Aroclor 1262		10 U	150	10 U	10 U	10 U
Aroclor 1268		10 U	10 U	10 U	10 U	10 U
Total PCBs	270	20 U	150	20 U	20 U	20 U
NWTPH HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creoso	2000					
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil						

Table 8-6 - Analytical Results for Soil Samples from the South Discharge Ravine Test Trenches

Sample ID Sampling Date Depth in Feet	Screening Level (a)	SDR-SS9-PH2-3-S2 5/23/2006 1.0 to 1.5	SDR-SS9-PH2-3-S3 5/23/2006 2.0 to 2.5
Conventionals in %			
Total Solids		95	94.9
PCBs in ug/kg			
Aroclor 1016		10 U	10 U
Aroclor 1221		20 U	20 U
Aroclor 1232		10 U	10 U
Aroclor 1242		10 U	10 U
Aroclor 1248		10 U	10 U
Aroclor 1254		10 U	10 U
Aroclor 1260		10 U	10 U
Aroclor 1262		10 U	10 U
Aroclor 1268		10 U	10 U
Total PCBs	270	20 U	20 U
NWTPH HCID in mg/kg			
Gasoline	100	20 U	20 U
Stoddard/Mineral spiri	100	20 U	20 U
Kensol	2000	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U
Diesel/Fuel oil/Creoso	2000		
Bunker C		50 U	50 U
Heavy oil	2000	100 U	100 U
Castor oil			

U = Not detected at the reporting limit indicated. J = Estimated value.
P = GC confirmation criteria exceeded.
Blank indicates sample not analyzed for specific analyte or no screening level established.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Discharge Ravines Location Map

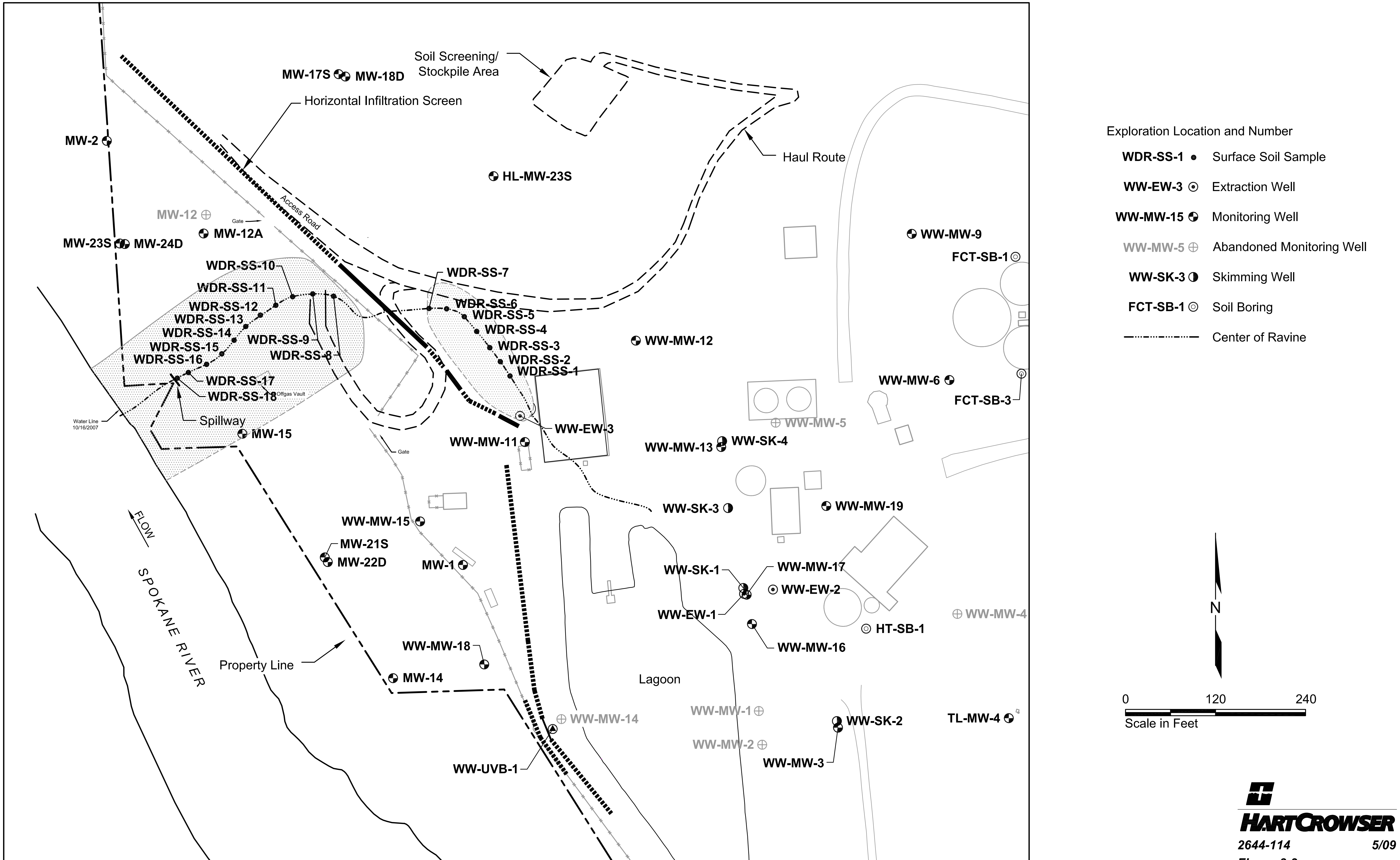


HARTCROWSER

2644-114 5/09

Figure 8-1

Exploration Location Plan
Former West Discharge Ravine



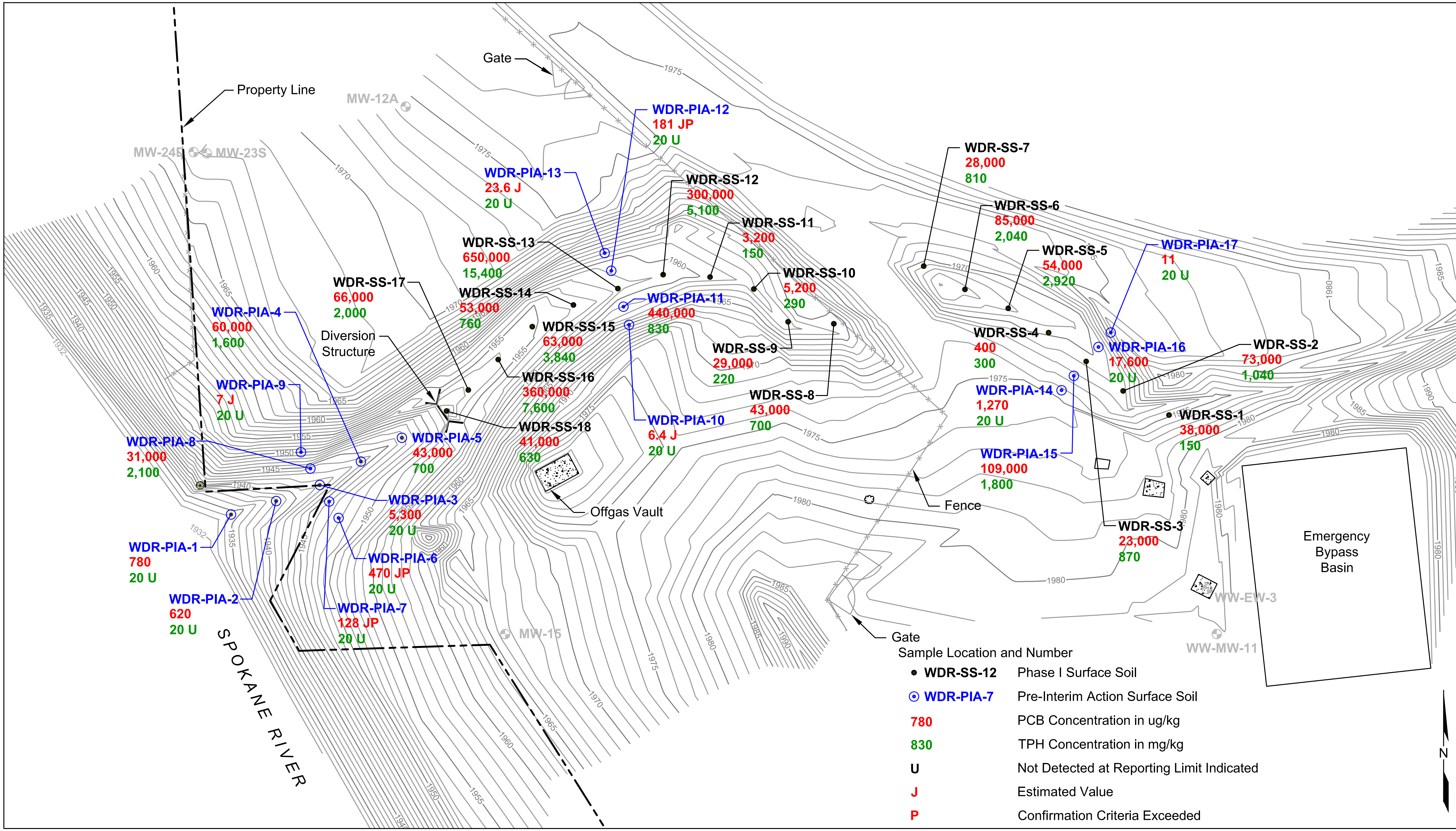
EAL 05/7/09 2644114-063.DWG

HARTCROWSER

2644-114 5/09

Figure 8-2

Phase I RI and Pre-Interim Action Exploration Location Plan



Sample Location and Number

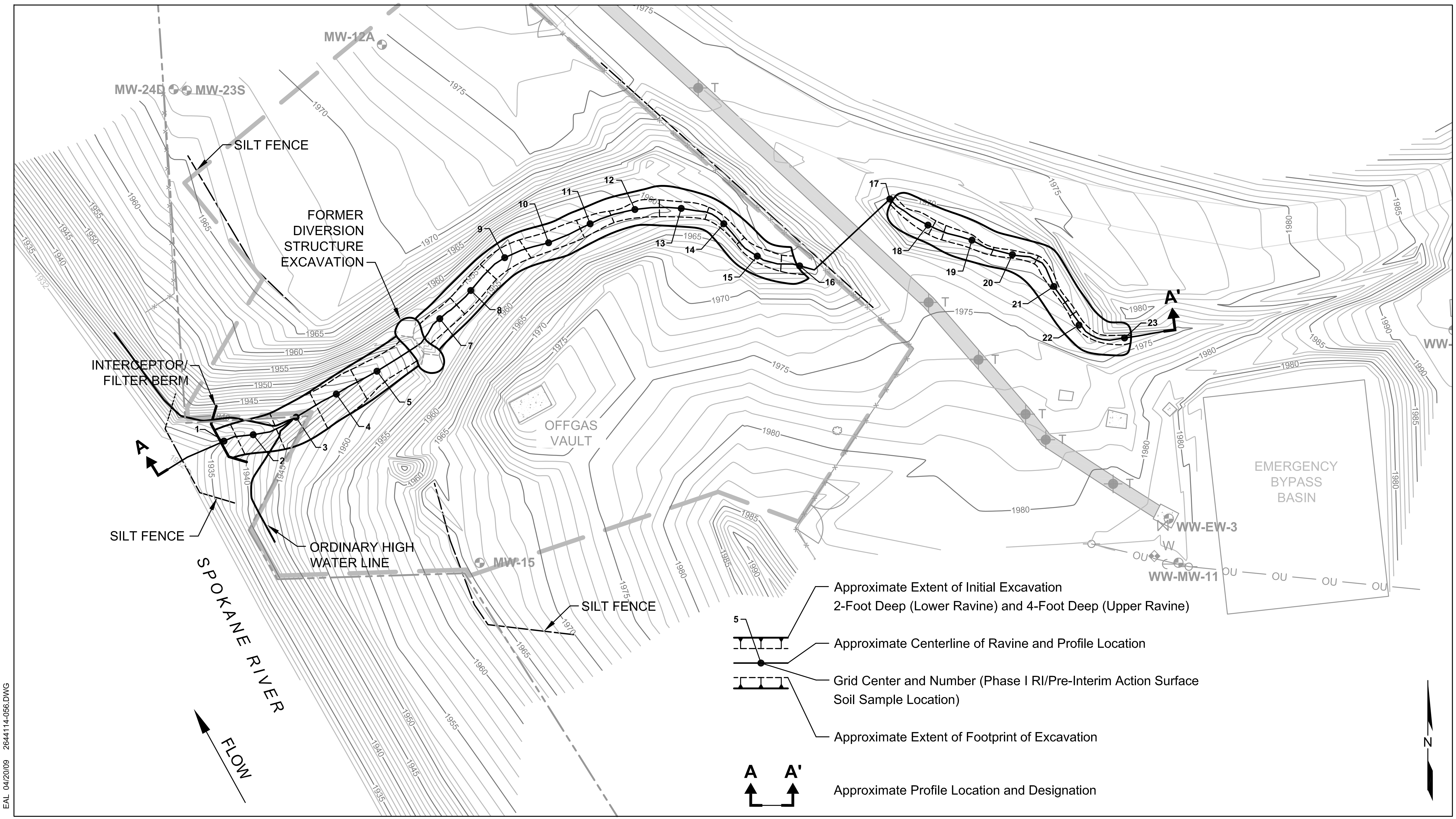
• WDR-SS-12	Phase I Surface Soil
⦿ WDR-PIA-7	Pre-Interim Action Surface Soil
780	PCB Concentration in ug/kg
830	TPH Concentration in mg/kg
U	Not Detected at Reporting Limit Indicated
J	Estimated Value
P	Confirmation Criteria Exceeded

0 50 100
Scale in Feet

EAL 04/20/09 2644114-055.DWG

HARTCROWSER
2644-114 5/09
Figure 8-3

Final WDR Excavation

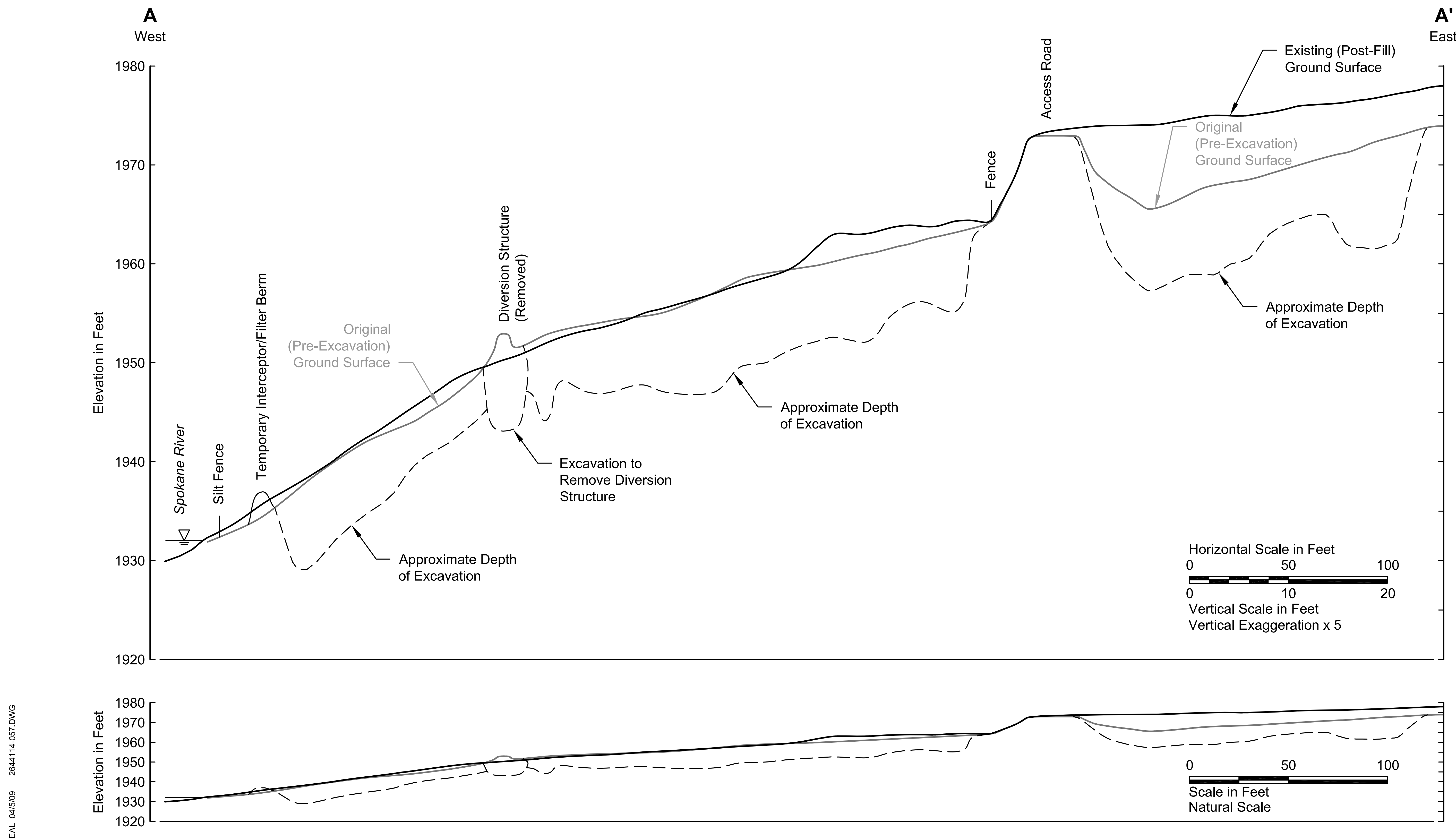


HARTCROWSER

2644-114 *5/09*

Figure 8-4

Generalized Profile A-A'

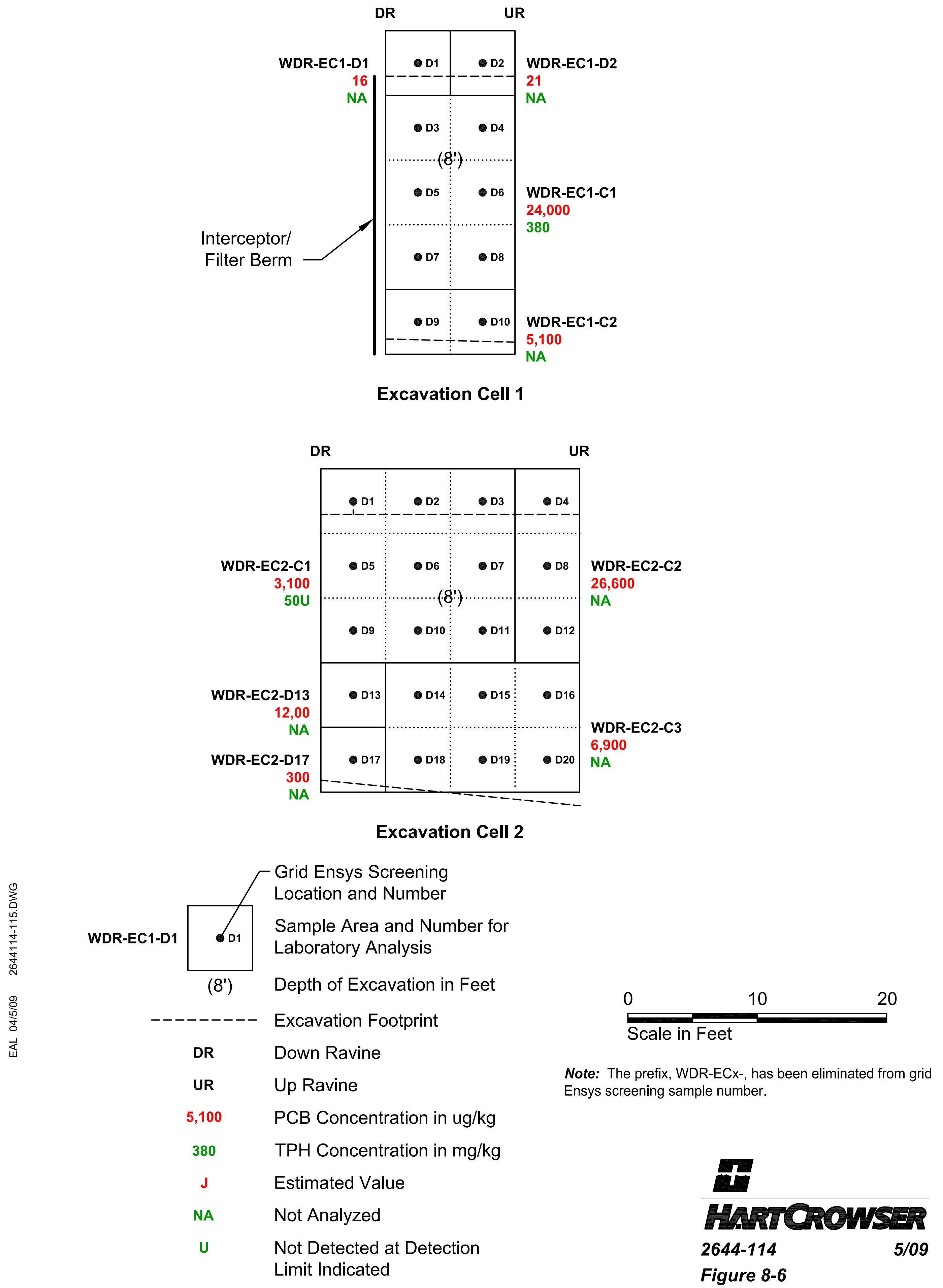


HARTCROWSER

2644-114 5/09

Figure 8-5

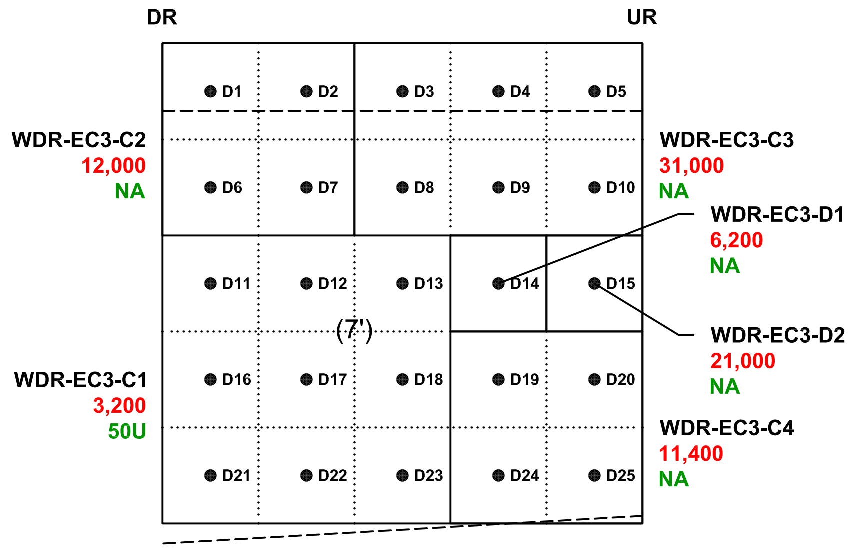
Excavation Cells 1 and 2 Sample Grid Layout



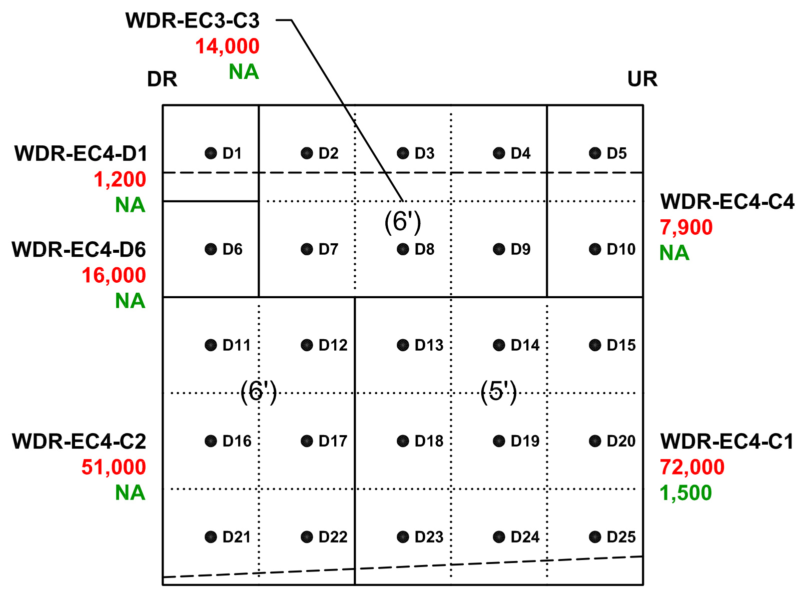
2644-114 *5/09*

Figure 8-6

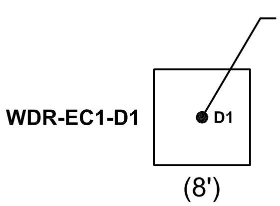
Excavation Cells 3 and 4 Sample Grid Layout



Excavation Cell 3



Excavation Cell 4



Grid Ensys Screening Location and Number

Sample Area and Number for Laboratory Analysis

Depth of Excavation in Feet

Excavation Footprint

DR	Down Ravine
UR	Up Ravine
5,100	PCB Concentration in ug/kg
380	TPH Concentration in mg/kg
J	Estimated Value
NA	Not Analyzed
U	Not Detected at Detection Limit Indicated

0 10 20

Scale in Feet

Note: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.

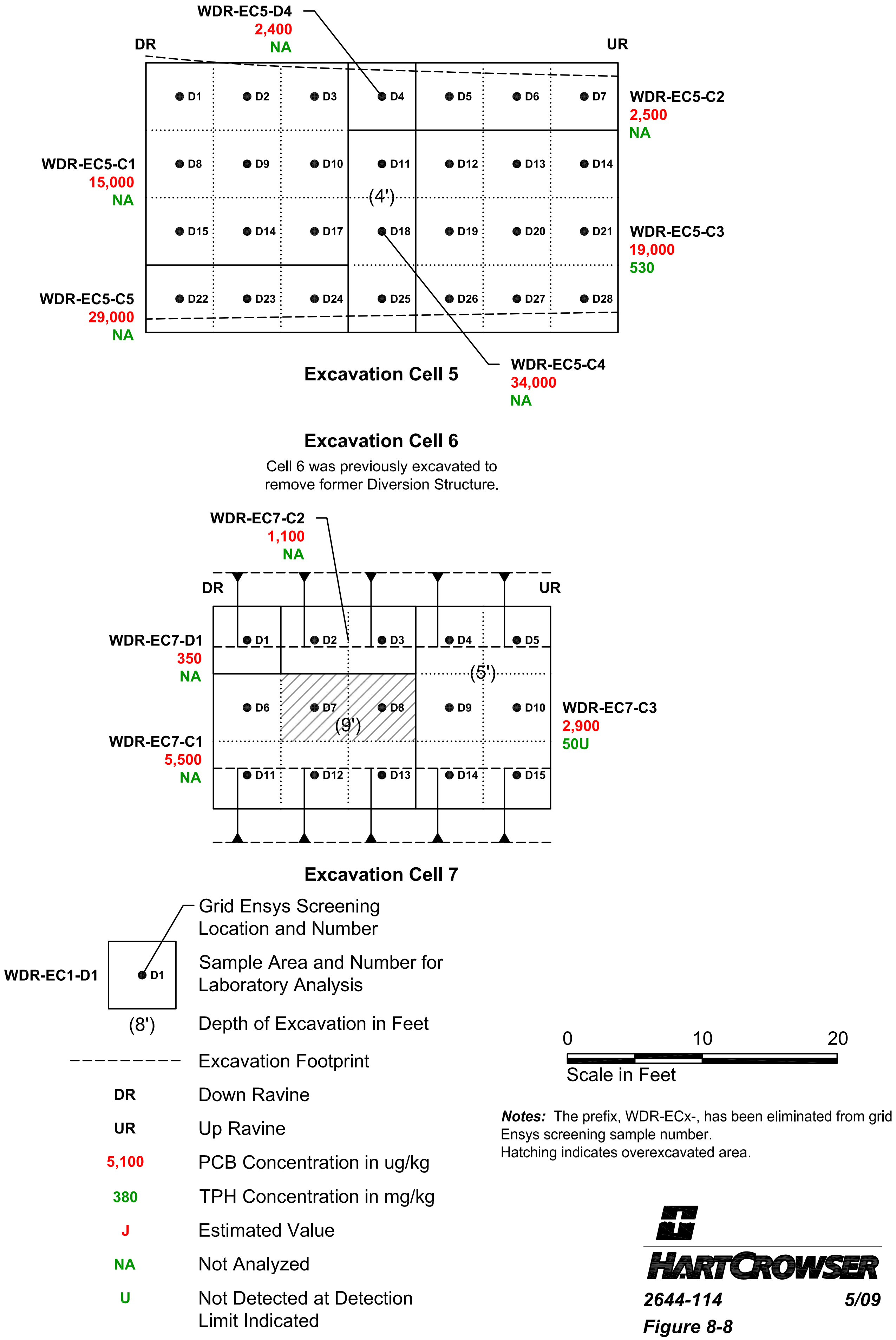
EAL 04/5/09 2644114-116.DWG

HARTCROWSER

2644-114 ***5/09***

Figure 8-7

Excavation Cells 5 and 7 Sample Grid Layout



EAL 04/5/09 2644114-117.DWG

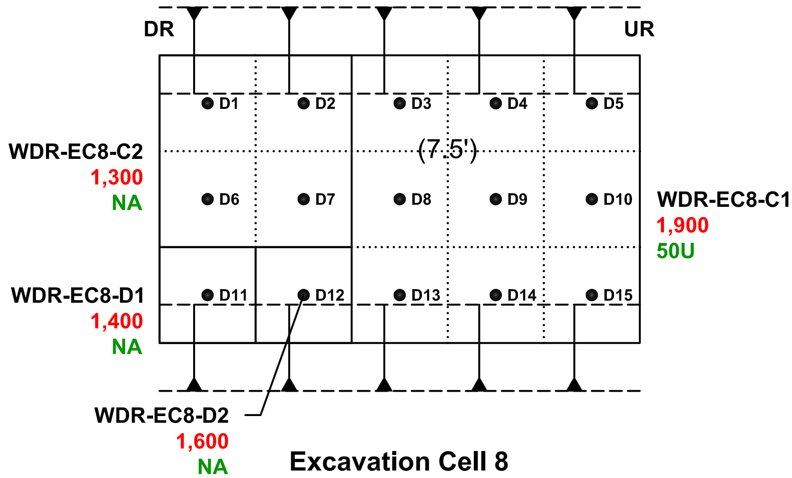
Notes: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.
Hatching indicates overexcavated area.

HARTCROWSER

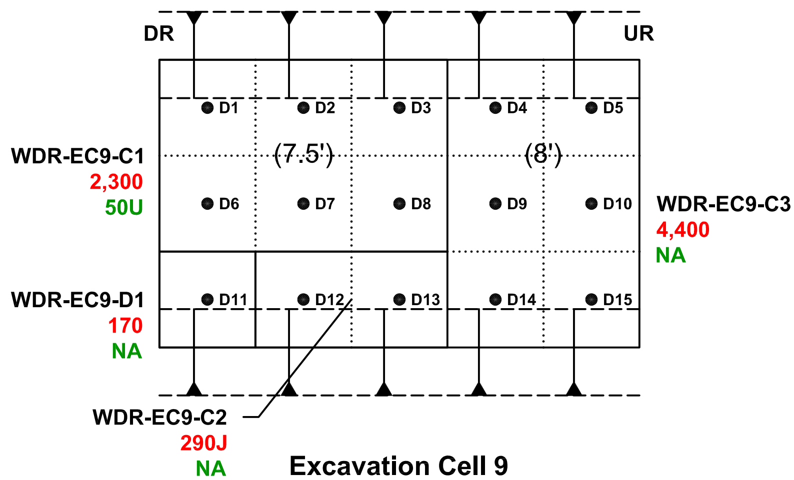
2644-114 ***5/09***

Figure 8-8

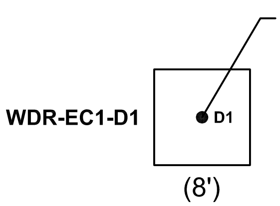
Excavation Cells 8 and 9 Sample Grid Layout



Excavation Cell 8



Excavation Cell 9

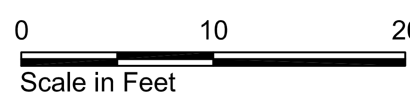


Grid Ensys Screening Location and Number

Sample Area and Number for Laboratory Analysis

Depth of Excavation in Feet

- - - - - - - - -	Excavation Footprint
DR	Down Ravine
UR	Up Ravine
5,100	PCB Concentration in ug/kg
380	TPH Concentration in mg/kg
J	Estimated Value
NA	Not Analyzed
U	Not Detected at Detection Limit Indicated



Note: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.

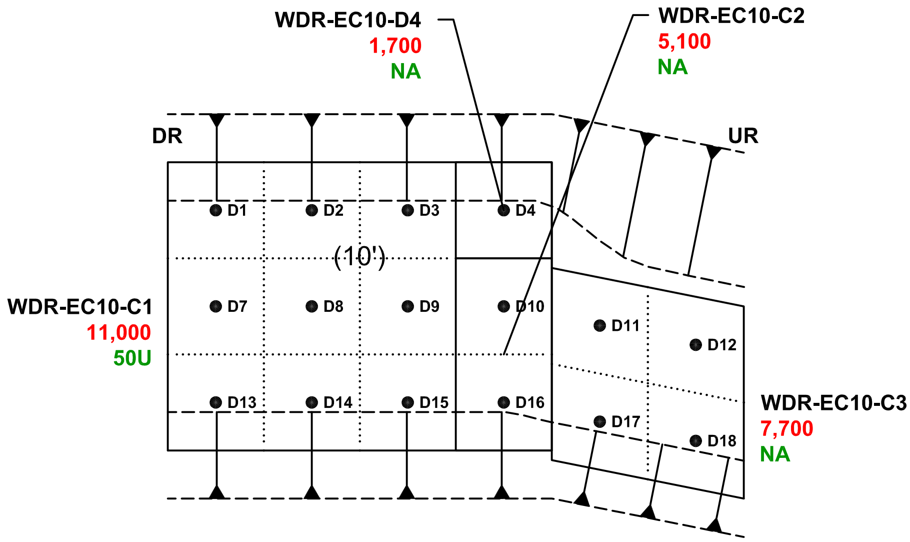
EAL 04/5/09 2644114-118.DWG

HARTCROWSER

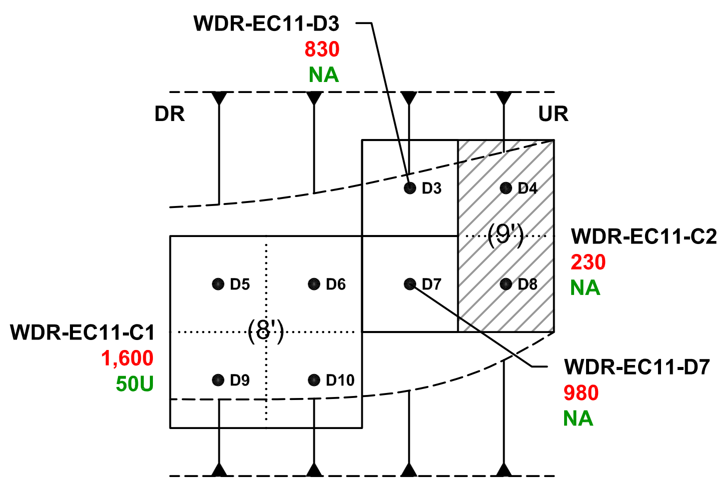
2644-114 ***5/09***

Figure 8-9

Excavation Cells 10 and 11 Sample Grid Layout



Excavation Cell 10



Excavation Cell 11

WDR-EC1-D1 — D1 — Grid Ensys Screening Location and Number

Sample Area and Number for Laboratory Analysis

(8') — Depth of Excavation in Feet

- - - - - - - - — Excavation Footprint

DR — Down Ravine

UR — Up Ravine

5,100 — PCB Concentration in ug/kg

380 — TPH Concentration in mg/kg

J — Estimated Value

NA — Not Analyzed

U — Not Detected at Detection Limit Indicated

0 10 20
Scale in Feet

Notes: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.
Hatching indicates overexcavated area.

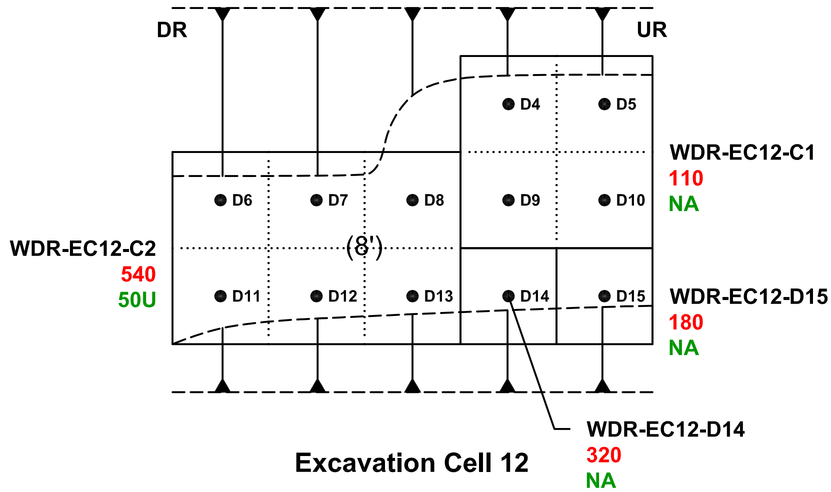
EAL 04/5/09 2644114-119.DWG

HARTCROWSER

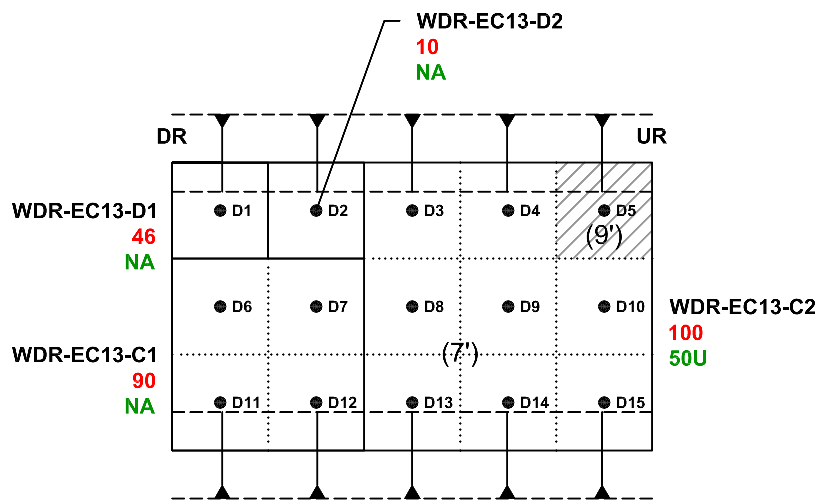
2644-114 ***5/09***

Figure 8-10

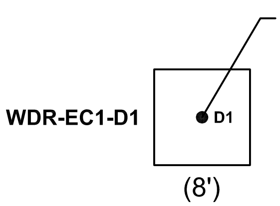
Excavation Cells 12 and 13 Sample Grid Layout



Excavation Cell 12



Excavation Cell 13



Grid Ensys Screening Location and Number

Sample Area and Number for Laboratory Analysis

(8') Depth of Excavation in Feet

- - - - - - - - - Excavation Footprint

DR Down Ravine

UR Up Ravine

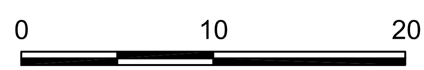
5,100 PCB Concentration in ug/kg

380 TPH Concentration in mg/kg

J Estimated Value

NA Not Analyzed

U Not Detected at Detection Limit Indicated



Scale in Feet

Notes: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.
Hatching indicates overexcavated area.

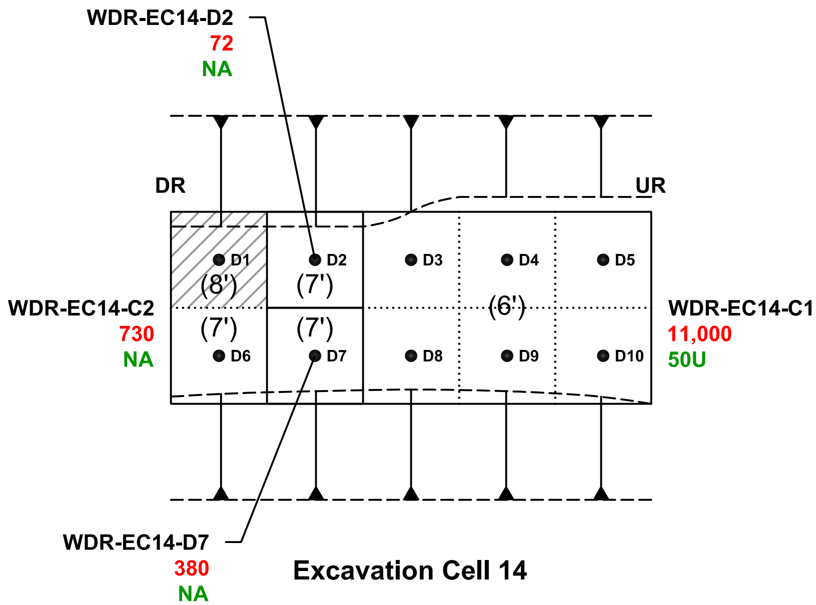
HARTCROWSER

2644-114 ***5/09***

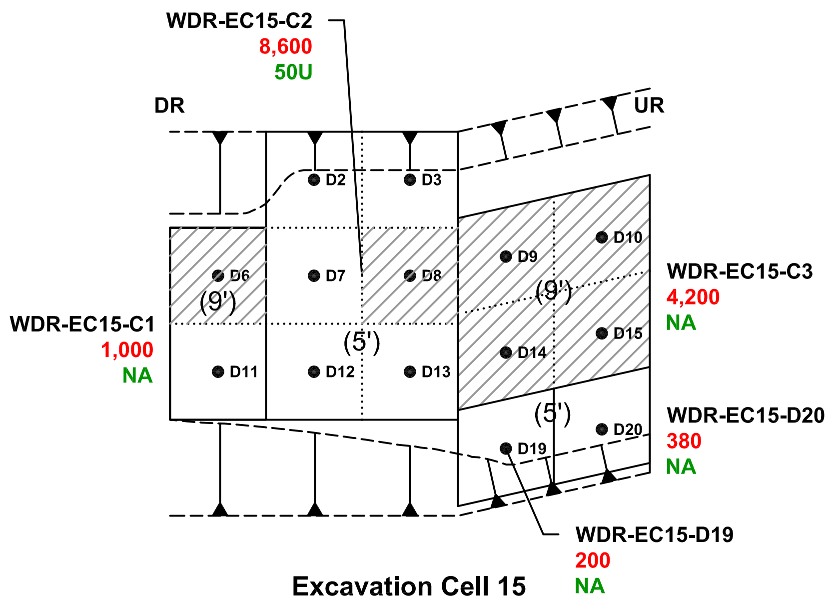
Figure 8-11

EAL 04/5/09 2644114-120.DWG

Excavation Cells 14 and 15 Sample Grid Layout



Excavation Cell 14



Excavation Cell 15

WDR-EC1-D1 (D1)	Grid Ensys Screening Location and Number
	Sample Area and Number for Laboratory Analysis
(8')	Depth of Excavation in Feet
- - - - - - - - -	Excavation Footprint
DR	Down Ravine
UR	Up Ravine
5,100	PCB Concentration in ug/kg
380	TPH Concentration in mg/kg
J	Estimated Value
NA	Not Analyzed
U	Not Detected at Detection Limit Indicated

0 10 20
Scale in Feet

Notes: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.
Hatching indicates overexcavated area.

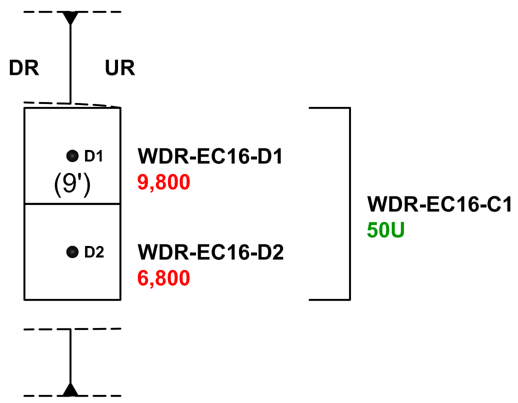
EAL 04/5/09 2644114-121.DWG

HARTCROWSER

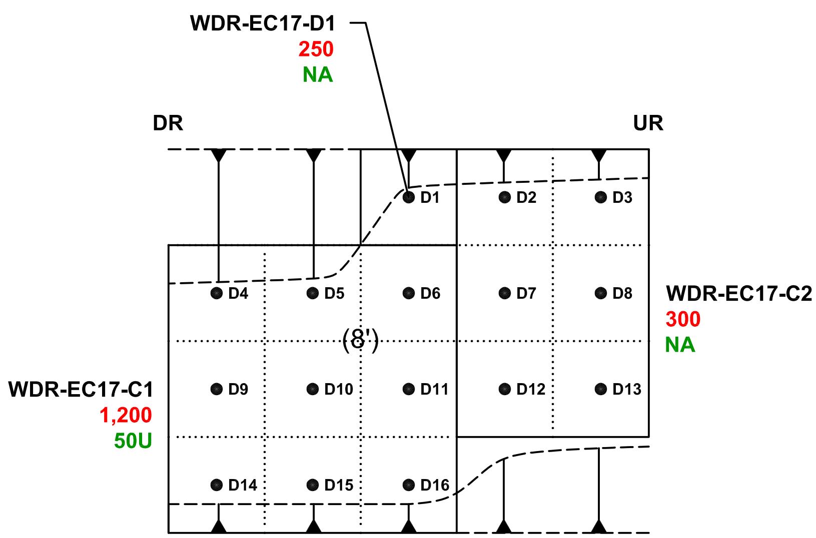
2644-114 *5/09*

Figure 8-12

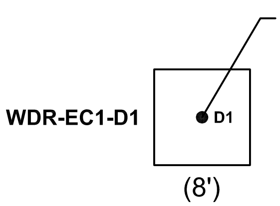
Excavation Cells 16 and 17 Sample Grid Layout



Excavation Cell 16



Excavation Cell 17



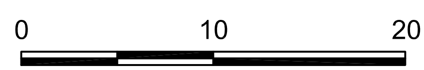
Grid Ensys Screening Location and Number

Sample Area and Number for Laboratory Analysis

(8') Depth of Excavation in Feet

- - - - - - - - - Excavation Footprint

DR	Down Ravine
UR	Up Ravine
5,100	PCB Concentration in ug/kg
380	TPH Concentration in mg/kg
J	Estimated Value
NA	Not Analyzed
U	Not Detected at Detection Limit Indicated



Scale in Feet

Note: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.

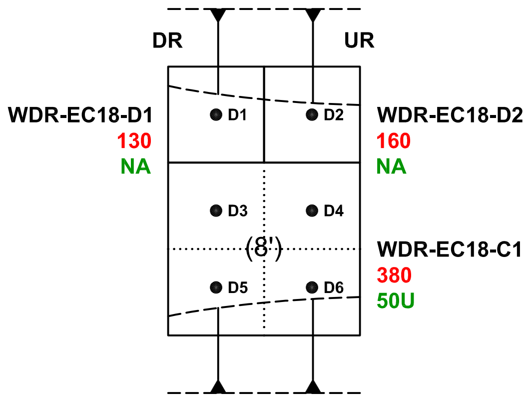
EAL 04/5/09 2644114-122.DWG

HARTCROWSER

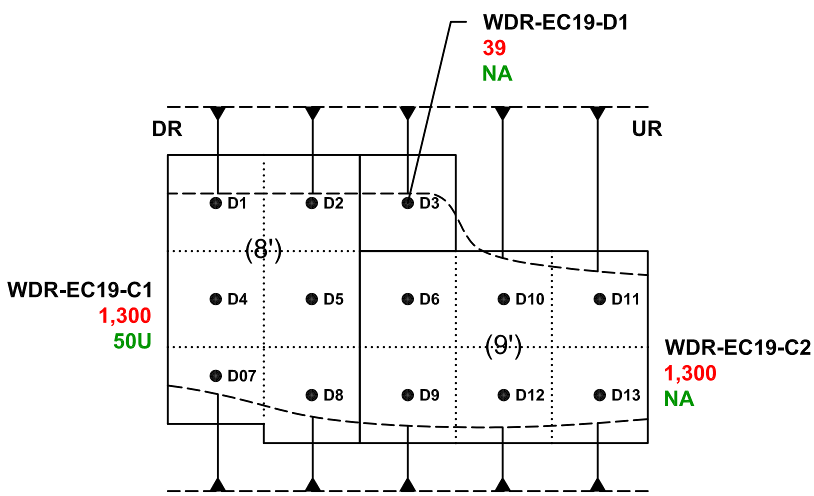
2644-114 ***5/09***

Figure 8-13

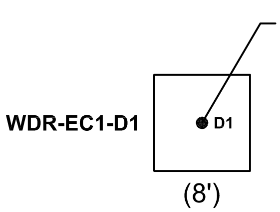
Excavation Cells 18 and 19 Sample Grid Layout



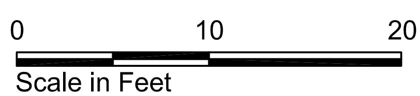
Excavation Cell 18



Excavation Cell 19



- Grid Ensys Screening Location and Number
- WDR-EC1-D1 — Sample Area and Number for Laboratory Analysis
- (8') — Depth of Excavation in Feet
- - - - - - — Excavation Footprint
- **DR** — Down Ravine
- **UR** — Up Ravine
- **5,100** — PCB Concentration in ug/kg
- **380** — TPH Concentration in mg/kg
- **J** — Estimated Value
- **NA** — Not Analyzed
- **U** — Not Detected at Detection Limit Indicated



Note: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.

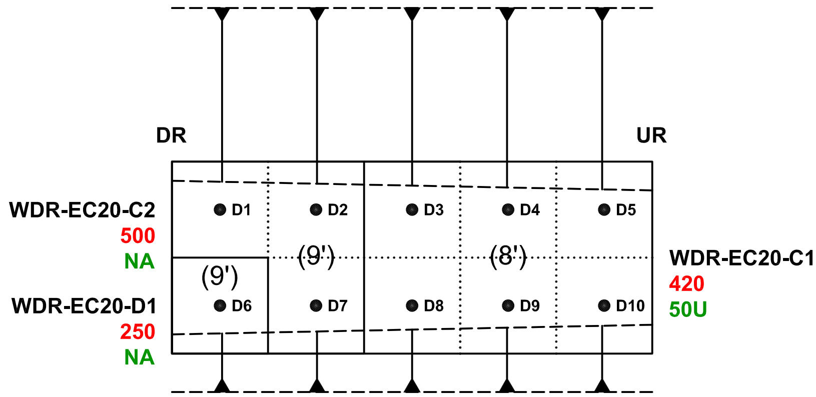
EAL 04/5/09 2644114-123.DWG

HARTCROWSER

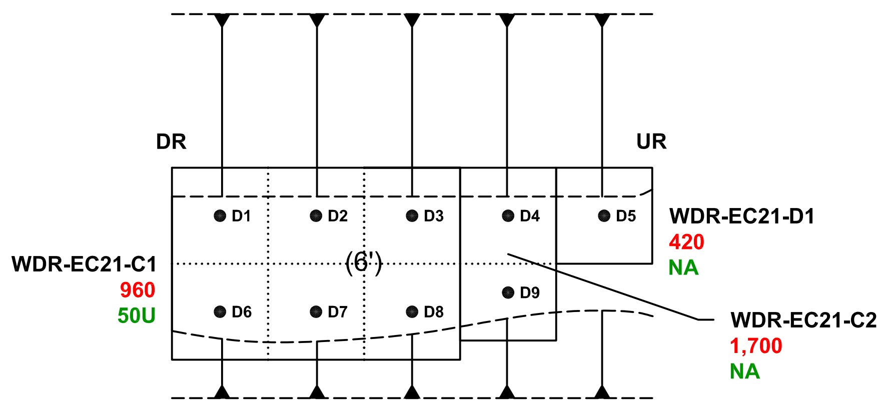
2644-114 ***5/09***

Figure 8-14

Excavation Cells 20 and 21 Sample Grid Layout



Excavation Cell 20



Excavation Cell 21

WDR-EC1-D1 — D1 — Grid Ensys Screening Location and Number

Sample Area and Number for Laboratory Analysis

(8') Depth of Excavation in Feet

- - - - - - Excavation Footprint

DR Down Ravine

UR Up Ravine

5,100 PCB Concentration in ug/kg

380 TPH Concentration in mg/kg

J Estimated Value

NA Not Analyzed

U Not Detected at Detection Limit Indicated

0 10 20
Scale in Feet

Note: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.

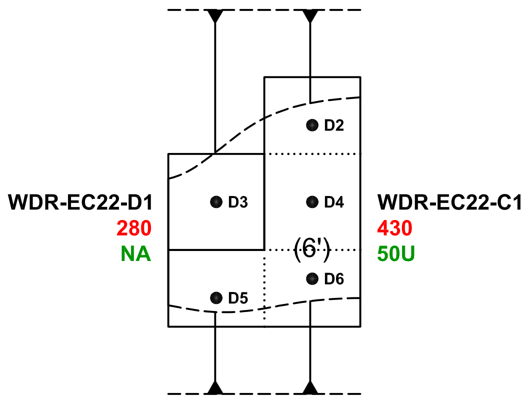
EAL 04/5/09 2644114-124.DWG

HARTCROWSER

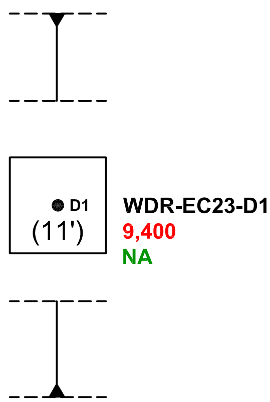
2644-114 ***5/09***

Figure 8-15

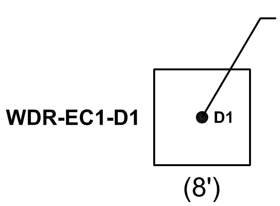
Excavation Cells 22 and 23 Sample Grid Layout



Excavation Cell 22



Excavation Cell 23
Pot Hole Sample from Bucket



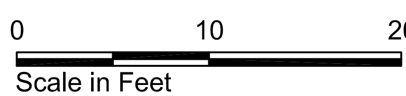
Grid Ensys Screening Location and Number

Sample Area and Number for Laboratory Analysis

Depth of Excavation in Feet

– – – – – – – – – Excavation Footprint

DR	Down Ravine
UR	Up Ravine
5,100	PCB Concentration in ug/kg
380	TPH Concentration in mg/kg
J	Estimated Value
NA	Not Analyzed
U	Not Detected at Detection Limit Indicated



Note: The prefix, WDR-ECx-, has been eliminated from grid Ensys screening sample number.

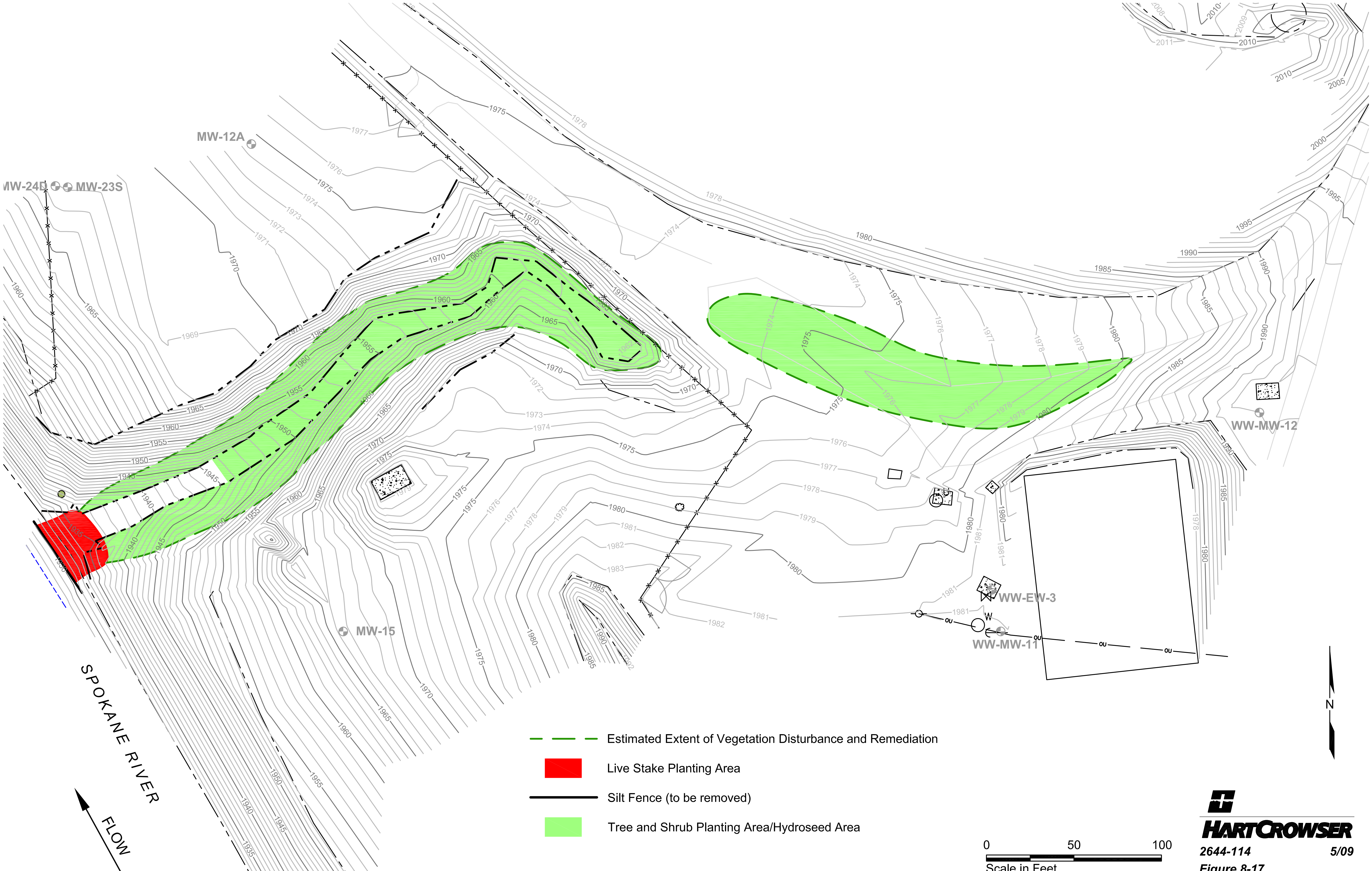
EAL 04/5/09 2644114-125.DWG

HARTCROWSER

2644-114 ***5/09***

Figure 8-16

WDR As-Built Planting Plan

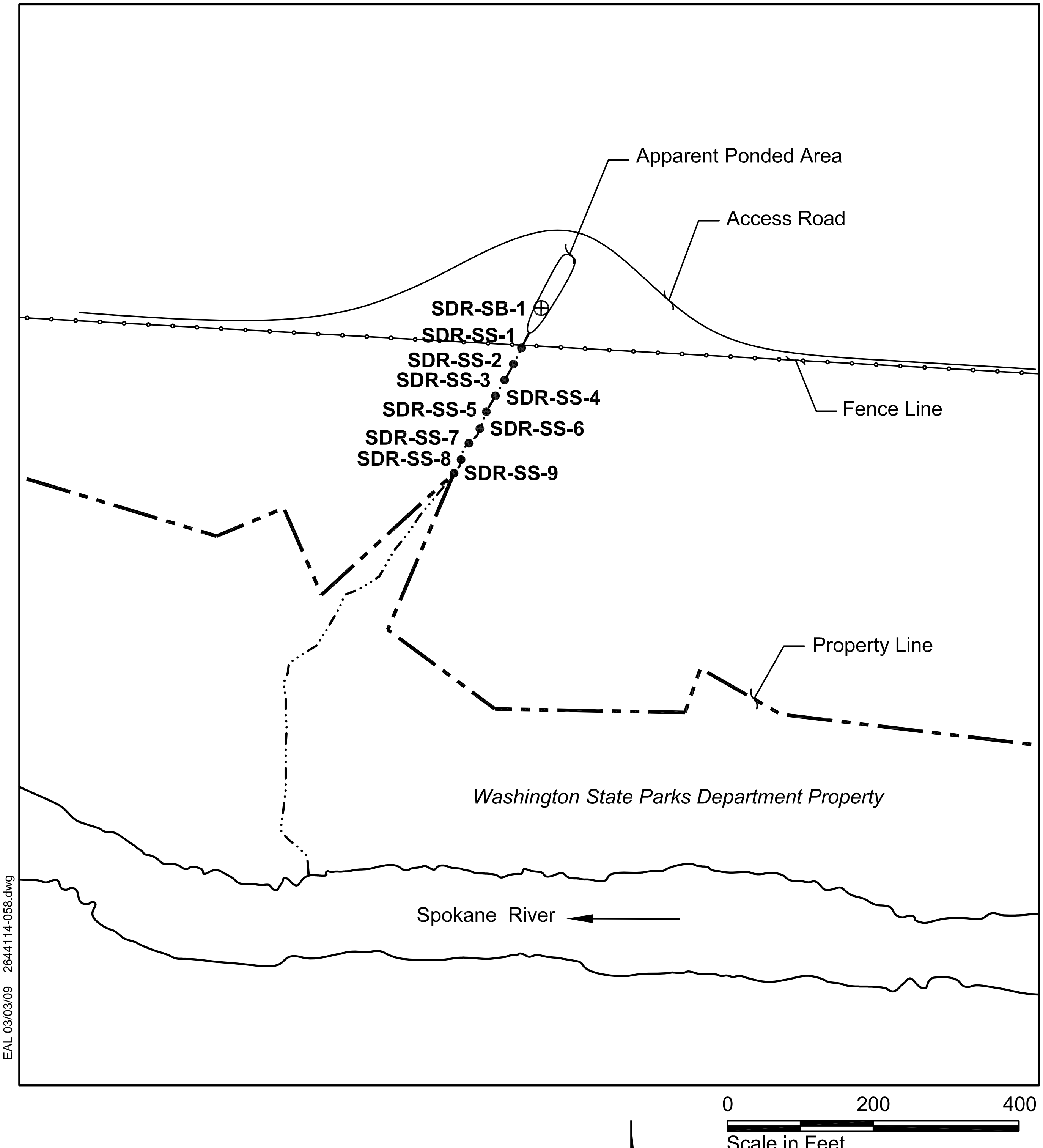


HARTCROWSER

2644-114 5/09

Figure 8-17

Exploration Location Plan
Former South Discharge Ravine



Exploration Location and Number

SDR-SB-1 ⊕ Boring

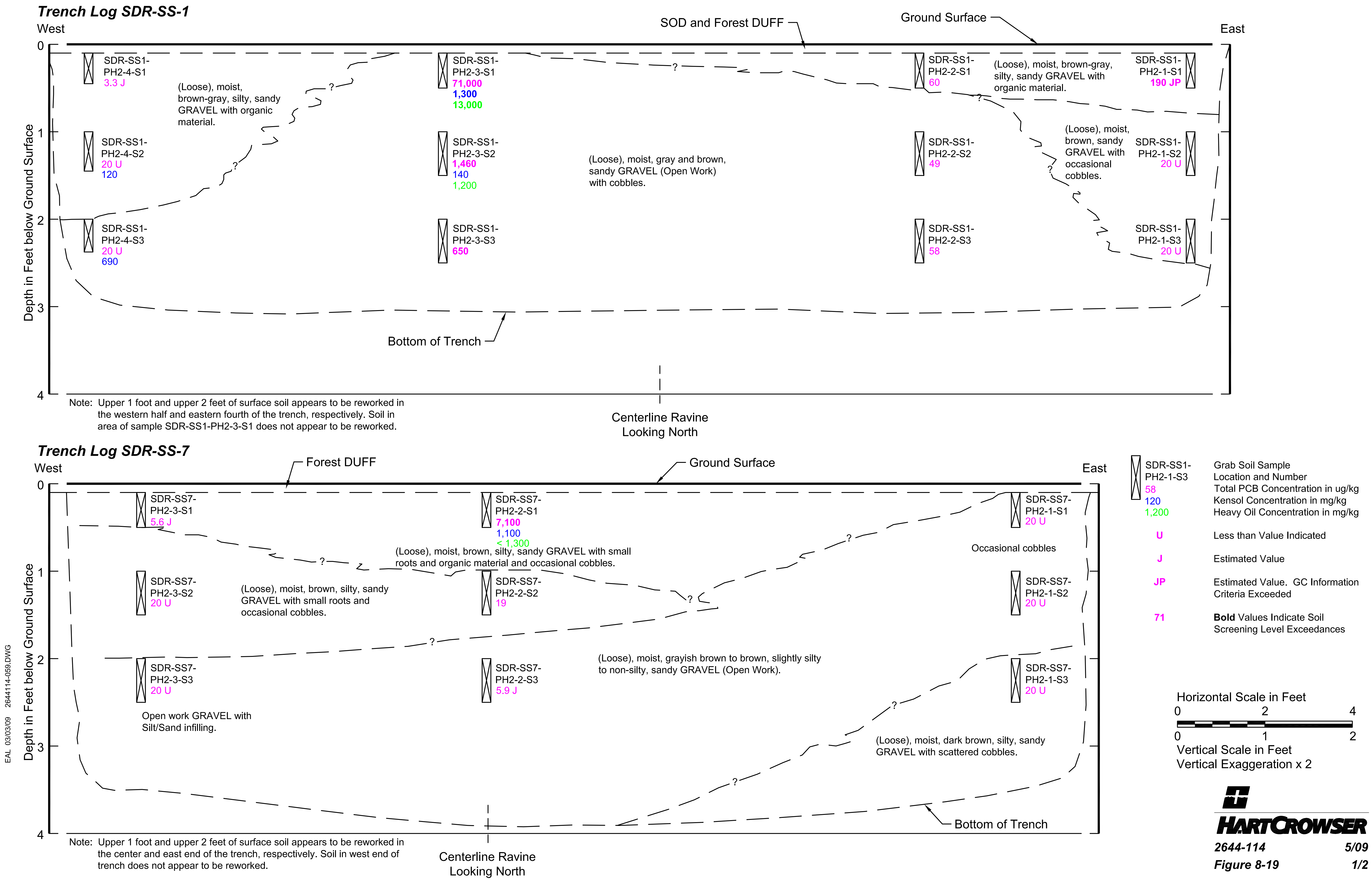
SDR-SS-1 • Surface Soil Sample

HARTCROWSER

2644-114 ***5/09***

Figure 8-18

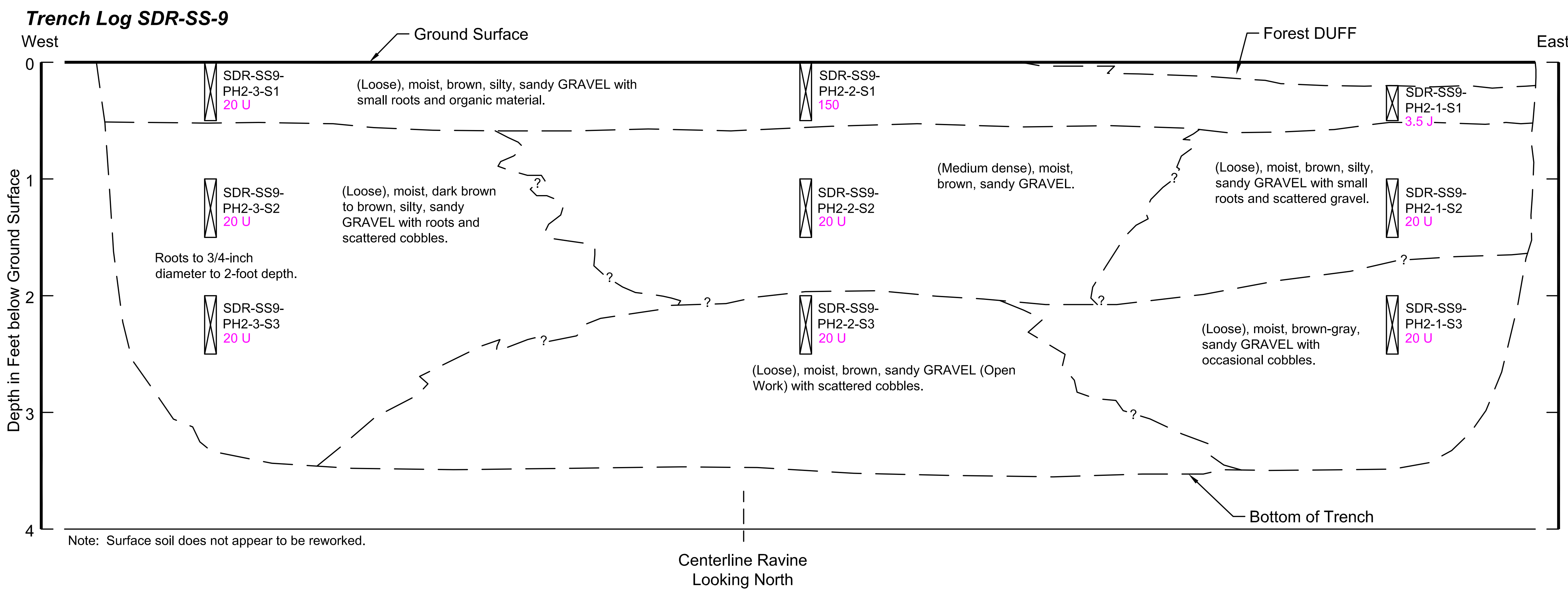
Trench Log SDR-SS-1, SDR-SS-7, and SDR-SS-9



HARTCROWSER

2644-114 5/09

Figure 8-19 1/2



EAL 03/03/09 2644114-059.DWG

SDR-SS1-PH2-1-S3 58	Grab Soil Sample Location and Number Total PCB Concentration in ug/kg	
U	Less than Value Indicated	
J	Estimated Value	
JP	Estimated Value. GC Information Criteria Exceeded	

Horizontal Scale in Feet
0 2 4

0 1 2
Vertical Scale in Feet
Vertical Exaggeration x 2

HARTCROWSER

2644-114 3/09

Figure 8-19 2/2

CONTENTS

Page

TABLES

FIGURES

PLATE

9.0 REMELT (CASTING)/HOT LINE AREA

9.1 INTRODUCTION

There have been significant historical characterization and cleanup activities associated within the Remelt/Hot Line area, which identified a groundwater PCB plume as presented in the 2003 Draft Groundwater RI/FS (Hart Crowser 2003). Section 9.2.1 presents historical actions conducted at the Remelt/Hot Line area to investigate the groundwater PCB plume, to fill data gaps and propose actions for the Phase II investigation. Analytical results of the samples collected during the Phase I investigation are also summarized. Results of Phase II RI activities are presented in Section 9.2.3. Refer to the Site-Wide Groundwater RI report (Hart Crowser 2012) for details on the nature and extent of groundwater contamination in the Remelt/Hot Line area.

9.1.1 Purpose

The purpose of the Phase I investigation was to gather sufficient information to characterize the subsurface soil and groundwater beneath the Remelt/Hot Line area. The results of this Phase I work as well as previous investigations of the Remelt/Hot Line area are presented herein.

9.1.2 Location

The Remelt/Hot Line area of the Kaiser Trentwood Facility is located within the north and central areas of the Facility (Figure 9-1). The Remelt Department runs east-west and is the northernmost portion of the plant. The Hot Line section runs north-south and is located the central area of the plant (Figure 9-1). The Remelt area is where primary (virgin) or recycled aluminum is melted and cast into ingots for later processing within the plant. This operation is alternatively called “Casting.” The Hot Line is the area of the plant where the aluminum ingots are rolled into sheets in the hot rolling mills to reduce their thickness.

In the Remelt area, the aluminum is heated in several 100,000- to 160,000-pound capacity melting furnaces at temperatures between 1,350 and 1,450 degrees Fahrenheit. During melting, other metals such as manganese, copper, and zinc are incorporated into the melted aluminum to create different alloys depending on the customer’s specifications.

After the alloys reach the desired specifications, the mixture is filtered to remove impurities and cast into ingots in molds. After casting, the surface of the ingots is mechanically shaved (scalped) to create a flat surface for rolling and to remove oxides from the surface formed during cooling. Following scalping, the ingots are placed in large furnaces called "soaking pits" to be reheated in preparation for rolling. Overhead cranes transport the reheated ingots into the Hot Line where they are rolled (flattened) into different thicknesses depending on the customer's specifications. The rolled aluminum is either rolled into coils or sent to the shears where it is cut into plates.

Historically, PCB-containing hydraulic oil was used in the Remelt area for various equipment. In the late 1980s to early 1990s, low concentrations of PCBs were detected in effluent wastewater and sludge from the IWT lagoon. Therefore, in 1994 Kaiser began an investigation to identify the source of PCBs within the lagoon sludge (Hart Crowser 2003). During the investigation, a PCB plume was identified in groundwater beneath the Remelt/Hot Line area (Hart Crowser 1996). Residue from the hydraulic oil used in the casting equipment was determined to be the likely source of the PCB contamination in the IWT and site groundwater. The type of PCBs historically added to the hydraulic oil used during casting was primarily characterized as Aroclor 1242 and 1248.

Other oils are also used in the Remelt area. In particular, castor oil, oil from the castor bean, is used as a releasing agent to aid in the casting process. This oil has been identified in soil samples in the vicinity of the casting pits. In that castor oil is a vegetable oil, it is not a petroleum hydrocarbon and does not have toxicity characteristics similar to petroleum hydrocarbons.

9.2 REMELT/HOT LINE AREA

9.2.1 Previous Investigations

Throughout the early 1990s soil characterization work in the vicinity of the Remelt/Hot Line area mainly consisted of sampling and analyzing soil collected during the installation of monitoring wells or borings (Figure 9-2). In addition to the monitoring wells and borings installations, two soil removal and sampling and analysis actions were conducted in the Remelt area during 2005 and 2006. These actions were conducted in conjunction with furnace upgrades and are discussed below. In addition, Kaiser has expended significant effort to reduce the potential for water leaks from the casting and furnace areas to transport PCBs located in vadose zone soil to the water table. These activities are detailed in the Site-Wide Groundwater RI (Hart Crowser 2012).

During the early to mid-1990s, wells HL-MW-01 through HL-MW-06 were installed downgradient of the Remelt/Hot Line area. Limited soil sampling and analysis were conducted on wells HL-MW-01 through HL-MW-05 with samples collected from at or near the water table. HL-MW-06 was sampled from near the surface and at select intervals to the termination of drilling at 64 feet below ground surface to aid in characterization of the soil in the vicinity of the Oil Reclamation Building (ORB). With the exception of both samples collected from HL-MW-02, which were tested for TPH, constituents in soil samples collected from the soil borings for wells HL-MW-01 through HL-MW-06 were below screening levels. The two samples collected from HL-MW-02 at depth intervals of 74 to 76 and 79 to 81 feet exceeded the screening level for TPH. The apparent smear zone in HL-MW-02 is directly downgradient of the ORB (see Section 2.0).

To further delineate the lateral and vertical extent of PCBs detected in the groundwater, monitoring wells HL-MW-7S, HL-MW-8D, HL-MW-9D, HL-MW-10S, and HL-MW-11D were installed in 2001. The S and D in the well numbers denote the shallow (i.e., water table completions) and deep wells (i.e., screened below the water table), respectively. No soil samples were collected during the installation of these wells in 2001. Details of the early characterization work in the Remelt/Hot Line area up through 2001 are provided in previous reports that have been supplied to Ecology and summarized in the Draft Groundwater Remedial Investigation/Feasibility Study Hart Crowser (2003). Therefore, data from these investigations are not repeated in this report.

Between 2003 and 2007, 17 additional monitoring wells were installed downgradient of the Hotline area and 15 monitoring wells were installed in the Remelt area. During 2004 and 2005, two soil borings were advanced in the Remelt area (RM-F4-SB-1 and INDBG-SB-1) and two soil borings were advanced in two dry wells located downgradient of the Remelt/Hot Line area (HC-DW-SB-1 and HC-DW-SB-2, Figure 9-2) in 2007, as discussed below.

The following sections summarize the investigations conducted since 2003. The focus of this discussion are the soil samples collected and analyzed during monitoring well installation and those collected from the four borings installed in 2004, 2005, and 2007. This section of the report presents data that are known about potential sources of contaminants to the groundwater in this area, and the groundwater PCB plume in particular. Although groundwater sampling and analysis events also occurred during this period, they are not discussed herein but rather in the companion Site-Wide Groundwater RI, which presents our groundwater conceptual site model and fate and transport discussions (Hart Crowser 2012). In addition, the 2003 Groundwater RI/FS presents more comprehensive information on the site-wide groundwater investigations completed prior to 2003. Additional information on the investigations conducted between 2003 and 2006 are provided in the Phase I Technical Memorandum (Hart Crowser 2007a) and the Phase II RI Work Plan (Hart Crowser 2007b).

Figure 9-1 presents the location of the Remelt/Hot Line area as well as the groundwater monitoring wells and exploration locations. Figure 9-2 presents an Index Map of activities in the Remelt/Hot Line area, highlights wells and borings installed since 2003, and shows the location of Cross Section P-P′ presented on Plate 9-1. Figure 9-3 presents the excavations conducted near the DC-1 Furnace in 2005. Figure 9-4 presents a site plan for the soil investigation conducted around the DC-4 Furnace in 2006.

Monitoring Well Installation, and Soil Sampling and Analysis

Between 2003 and 2005 numerous monitoring well installations and soil sampling and analysis events were conducted throughout the Remelt/Hot Line area. See the Groundwater RI Report for a presentation of the results of groundwater sampling and analysis that occurred throughout this same time period. These events consist of:

- October 2003 monitoring well installation and soil sampling and analysis;
- September 2004 DC-4 Furnace (Remelt area) monitoring well/soil boring installation and soil sampling and analysis;
- January 2005 Hot Line area monitoring well installation and soil sampling and analysis;
- March 2005 Induction Furnace area (Remelt area) dry well soil boring and soil sampling and analysis; and
- March and April 2005 Remelt area monitoring well installation and soil sampling and analysis.

These activities resulted in installation of the following soil borings (SB prefix), most of which were converted to monitoring wells (MW prefix) in the Remelt (RM prefix)/Hot Line (HL prefix) area. Note that for convenience the explorations are listed in numerical order with their installation dates, which correspond to the activities defined above.

Hot Line Monitoring Wells

Number	Installation Date
HL-MW-12S	10/03
HL-MW-13DD	10/03
HL-MW-14S	10/03
HL-MW-15DD	10/03
HL-MW-16S	10/03
HL-MW-17S	10/03
HL-MW-18S	1/05
HL-MW-19S	1/05
HL-MW-22S	1/05

Remelt Monitoring Wells and Borings

Number	Installation Date
RM-MW-1S	10/03
RM-MW-2D	10/03
RM-MW-3S	10/03
RM-MW-4D	10/03
RM-MW-5S	10/03
RM-MW-8S	3/05
RM-MW-9S	3/05
RM-MW-10S	9/04
RMSW-MW-11S	4/05
RM-MW-12S	4/05
RM-MW-13S	4/05
RM-F4-SB-1	9/04
INDBG-SB-1	3/05

2003 to 2005 Well/Boring Installation Objectives

In October 2003, additional monitoring wells were installed, and soil and groundwater samples were collected and analyzed (Hart Crowser 2004). The objectives of work performed were to further delineate the occurrence of PCBs in groundwater in Remelt/Hot Line area wells, investigate potential source areas upgradient of the Hot Line wells, and to further characterize hydrogeologic conditions at the Facility.

Eleven new wells were installed; five in the Remelt building and six downgradient of Hot Line operations (as listed above). Shallow water table wells have an S suffix, while deeper wells have a D or DD suffix.

The well (RM-MW-10S) and boring (RM-F4-SB-1) located in the vicinity of the DC-4 furnace area of the Remelt building were installed in September 2004 to characterize soil and groundwater near the furnace and to provide additional PCB source area information. The purpose of the three monitoring wells installed in the Hot Line area in January 2005 was to provide soil and groundwater data in the vicinity of the Induction Furnace (RM-MW-9S), upgradient of the furnaces (RM-MW-12S), and in the vicinity of furnaces DC-1 through DC-4 (RM-MW-8S, RMSW-MW-11S, and RM-MW-13S). The objectives of the soil boring (INDBG-SB-1) advanced in March 2005 near the Induction Furnace bag house was to characterize soil and groundwater from the vicinity of the Induction Furnace bag house prior to restarting operations, to provide additional PCB source area information, and to possibly define the upgradient edge of the groundwater PCB plume. Boring INDBG-SB-1 was advanced through a dry well upgradient of the Induction Furnace that collects and infiltrates runoff from the Induction Furnace bag house area and was installed to provide soil quality data below the dry well. The wells installed in March and April 2005 in the Remelt area provided additional soil data beneath the furnaces. This included one slant boring (RMSW-MW-11S) drilled beneath the caisson for the DC-1 furnace.

Soil Sampling and Analysis and Analytical Results

Approximately 111 soil samples and 7 duplicates were collected from the wells/borings installed between October 2003 and June 2005 in the Remelt/Hot Line area (Table 9-1). At a minimum, one soil sample near the water table was collected from each boring and submitted for chemical analysis.

Soil samples collected from these wells/borings were submitted for chemical analysis of metals, PCBs, and TPH (NWTPH-HCID and EPA Method 8015 modified) (Table 9-1).

In addition, selected soil samples were also analyzed for TPH (NWTPH-Gx and NWTPH-Dx), VOCs, and SVOCs.

Analytical results for these soil samples indicate that several metals (arsenic, cadmium, chromium, and lead), PCBs, TPH (gasoline-, diesel-, and heavy oil-range petroleum hydrocarbons), and several PAHs (chrysene, fluoranthene, phenanthrene, and pyrene) were detected. However, only some of these constituents were present at concentrations above their respective screening levels in soil, as described below. Note the analytical data in Table 9-1 are arranged in numerical order (not necessarily chronologically) for convenience in data presentation.

TPH. TPH exceedances of the screening levels were only identified in soil boring INDBG-SB-1, advanced near the Induction Furnace bag house. Heavy oil concentrations exceeding screening levels were observed from the surface to approximately 15 feet below ground surface (bottom soil sample collected) with the highest concentrations detected at the surface. No other petroleum hydrocarbons were detected at concentrations exceeding screening levels.

PCBs. PCB concentrations exceeding the screening levels as both Aroclors 1248 and 1254 (2.7 to 1,800,000 ug/kg) were only detected in soil borings in the immediate vicinity of the DC-1, DC-4, and the Induction Furnace. The highest concentrations were detected in wells RM-MW-8S, RM-MW-9S, and RMSW-MW-11S in the immediate vicinity of the DC-1 and the Induction Furnace (Figure 9-2). PCB exceedances from these wells ranged from 420 to 1,800,000 ug/kg. Although several exceedances were detected in soil boring RM-F4-SB-1 located within the area of the DC-4 Furnace, these concentrations were generally significantly lower, ranging from 59 to 14,000 ug/kg (Table 9-1).

PCBs were detected in samples from boring RM-F4-SB-1 between the ground surface and the bottom of the boring at 86 feet below ground surface. Except for two, the unsaturated zone soil samples exceed the PCB screening level. This boring was advanced in the immediate vicinity of the DC-4 Furnace. Groundwater in this boring was identified at 73 feet below ground surface. In addition, PCBs exceeding the saturated zone screening level were detected at a depth of 76 feet in this boring.

By contrast, the wells (RM-MW-8S and RMSW-MW-11S) adjacent to the DC-1 Furnace show PCBs exceeding screening levels in different soil horizons. PCB screening level exceedances in RM-MW-8S were detected at 15 feet and between 30 and 50 feet below ground surface and PCBs were not detected below 50 feet. Exceedances of the PCB screening level in RMSW-MW-11S were identified between 25 feet below ground surface to below the water table at a depth of about 71 feet. Well RM-MW-8S is located hydraulically upgradient of the DC-1 Furnace (Figure 9-2). Well RMSW-MW-11S was a directional well (angled to the north at a 73 degree angle) drilled to allow data collection below and north of the DC-1 casing pit and caisson. The last two samples from this boring did not contain PCBs. These samples were collected on the north side of the casting pit and caisson, and indicate that PCBs in soil from this location are generally associated with furnace and casting operations and do not extend to the north of the furnace area.

Soil boring INDBG-SB-1 advanced near the Induction Furnace bag house had only one PCB exceedance to the screening level at a depth of 5 feet below ground surface. Well RM-MW-9S was installed through a dry well that was historically used to discharge water from the Induction Furnace basement (electrical and mechanical rooms). Soil samples had PCB exceedances from 15 to 77 feet below ground surface; through the water table (66 feet), and to a depth of about 76 feet. The bottom soil sample from this boring at a depth of about 85 feet did not contain detectable PCBs.

Metals. Arsenic and cadmium (1.5 mg/kg) were detected at concentrations above the screening levels. Arsenic was detected in three soil samples collected from RM-MW-8S, one from RM-MW-9S, and one from INDBG-SB-1. The arsenic concentrations ranged from 2.5 to 4.7 mg/kg. The cadmium exceedance was detected within 1.5 feet of the surface in the soil sample collected from soil boring INDBG-SB-1 (Table 9-1). The arsenic detection in INDBG-SB-1 of 1.5 mg/kg is slightly above the upper end of the expected soil background range for the Spokane Basin of 0.7 mg/kg. The arsenic concentrations are within the expected natural background concentrations for the Spokane Basin (Ecology 1994).

SVOCs and VOCs. The SVOCs and VOCs were non-detect or detected at concentrations below screening levels (Table 9-1).

DC-1 Furnace Soil Investigation and Cleanup

Soil samples were collected from two excavation pits advanced near the DC-1 Furnace on March 2005 (Figure 9-3). The East Excavation was located just southeast of the furnace where former hydraulic lines form a 90 degree angle. The West Excavation was located directly south of the furnace. The purpose of these excavations was to assess the status of the hydraulic lines and characterize soil located near the hydraulic lines directly below the mill floor in the DC-1 Furnace area. Soil analytical results are presented in Table 9-2.

East Excavation, Soil Sampling and Analysis, and Analytical Results

Excavation activities in the DC-1 Furnace East Excavation were conducted in March 2005. The excavation covered approximately 81 square feet and reached a depth of 5.5 feet below ground surface (Figure 9-3). The hydraulic lines crossing the area were located at a depth of 4 feet below ground surface.

Two soil samples (RM-OE-1 and RM-OE-2) were collected from the East Excavation on March 2, 2005 (Figure 9-3 inset). Sample RM-OE-1 was a side wall sample that consisted of a five-point composite of the upper 4 feet of the excavated soils, while sample RM-OE-2 was a five-point composite of the excavation base and side walls below the hydraulic lines. A third sample, RM-

OE-3, was also collected of the oil leaking from the lines. The three samples were submitted for chemical analyses of PCBs and TPH (NWTPH-HCID).

Analytical results of these soil and product samples indicated that the product sample (RM-OE-3) collected from the hydraulic lines was characteristic of heavy oil-range petroleum hydrocarbons (Table 9-2). The composite soil samples collected above (RM-OE-1) and below (RM-OE-2) the hydraulic lines had heavy oil-range petroleum hydrocarbon concentrations of 3,800 and 67,000 mg/kg, respectively. Aroclor 1248 (650 ug/kg) was also detected in the composite sample (RM-OE-1) collected above the lines. The petroleum hydrocarbon and PCB concentrations detected in these samples were above their respective screening levels.

Based on the results of the composite samples, additional soil was removed from the East Excavation on March 15 and 16, 2005. The excavation was approximately 128 square feet in area and had a final depth of 7 to 9 feet below ground surface. Three side wall samples (S-1, S-3, and S-4) and three bottom samples (B-1, B-2, and B-4) were collected from the excavation on March 15, 2005 (Figure 9-3). Samples B-1 and S-4 were collected as three-point composite samples while the remaining bottom and side wall samples were discrete. The soil samples were submitted for chemical analyses of PCBs and TPH (NWTPH-HCID). Based on information provided by Kaiser, castor oil is typically used as a release agent for its casting operations. Castor oil is a vegetable (non-petroleum)-based oil and the analytical laboratory obtained a castor oil hydrocarbon standard from Kaiser to use for comparison to the hydrocarbon detections in the soil.

Analytical results of the overexcavation samples indicate the petroleum hydrocarbon concentrations were below screening levels. However, four of the six East Excavation soil samples analyzed had castor oil concentrations ranging from 1,100 to 14,000 mg/kg (Table 9-2). Since castor oil is a non-petroleum-based hydrocarbon, a screening level is not applicable. Soil samples collected from the bottom southwest corner of the excavation (B-1 and B-2; 7 and 8 feet below surface, respectively) had castor oil concentrations ranging from 12,000 to 14,000 mg/kg. The soil sample from the bottom northeast corner of the excavation (B-4; 9 feet below surface) was non-detect for TPH. Since side wall sample S-1 had a castor oil concentration of 11,000 mg/kg, additional soil was overexcavated in this area and two additional side wall samples (S-3 and S-4) were collected from the overexcavated area. Analytical results from these final soil verification samples indicate castor oil concentrations in these two samples were non-detect and 1,100 mg/kg, respectively (Table 9-2).

Aroclor 1248 was detected in samples B-2 and S-1 at concentrations exceeding the Total PCB screening levels at concentrations of 780 and 530 ug/kg, respectively. The soil represented by sample S-1 was overexcavated and does not remain at the site.

West Excavation, Soil Sampling and Analysis, and Analytical Results

Excavation activities in the DC-1 Furnace area West Excavation were conducted in March 2005. Six samples (WT1 through WT6) were collected from the West Excavation on March 7, 2005. Analytical results of these soil samples indicate soil sample WT6 contained heavy oil-range petroleum hydrocarbons exceeding screening levels at 41,000 mg/kg (Table 9-2). Aroclor 1248 was detected above the screening levels in three of the samples (WT2, WT3, and WT6) at concentrations ranging from 390 (WT6) to 1,500 ug/kg (WT3).

Based on these analytical results, additional soil was removed on the south side and bottom of the excavation expanding the excavation to approximately 12 square feet and approximately 5 feet deep. Two additional soil verification samples (S-2 and B-3) were collected from the West Excavation. The soil verification samples were submitted for analysis of PCBs and TPH (NWTPH-HCID).

Analytical results of bottom and side wall samples B-3 and S-2 indicate that castor oil was detected in these samples at concentrations of 2,100 and 3,400 mg/kg, respectively (Table 9-2). In addition, these soil samples contained Aroclor 1248 at concentrations of 430 and 630 ug/kg, respectively; above the screening level for Total PCBs.

Based on the results of both excavations, it is likely that TPH concentrations detected during the initial sampling events were castor oil, rather than heavy oil-range petroleum hydrocarbons, as initially thought. Therefore, we do not believe petroleum hydrocarbons are present in the area of DC-1 Furnace.

Phase I Investigation Activities

Additional field work in the Remelt/Hot Line area was conducted during the Phase I RI to fill data gaps identified in the groundwater Remelt/Hot Line PCB plume. (Note this plume was formerly referred to as the Casting PCB plume.) This included the installation and sampling of additional wells in the Remelt/Hot Line area as well as a soil removal action at the DC-4 Furnace. The following sections summarize this work. Figure 9-2 presents the locations of additional wells installed in the Remelt/Hot Line area, and Table 9-3 presents the results of soil samples collected during the Phase I investigations.

Hot Line Area Monitoring Well Installation

Five new monitoring wells (HL-MW-23S, HL-MW-24DD, HL-MW-25S, HL-MW-26S, and HL-MW-27D) were installed from February 9 through 21, 2006, in the groundwater Remelt/Hot Line PCB plume area downgradient of the Remelt/Hot Line area during the Phase I RI Investigation (Figure 9-2). In addition, monitoring well HL-MW-28DD was installed on September 5 and 6, 2006. The purpose and installation details for this wells follows:

- Monitoring well HL-MW-23S was installed with the screen across the water table to provide soil and groundwater data downgradient of the PCB plume and the West Landfill. This well was drilled to a depth of 94 feet below ground surface.

- Monitoring well HL-MW-24DD was installed next to existing well HL-MW-14S to provide groundwater quality information downgradient of HL-MW-13DD and upgradient of the West Landfill. This well was drilled to a depth of 150 feet below ground surface.

- Monitoring well HL-MW-25S was installed between well HL-MW-14S and the HL-MW-13DD cluster to assess whether the PCB detections in HL-MW-14S are part of the plume from the Remelt/Hot Line area or whether it may be from a separate source. This well was drilled to a depth of 91.5 feet below ground surface.

- Shallow (HL-MW-26S) and deep (HL-MW-27D) wells were installed to provide information on the lateral and vertical extent of PCBs within the Remelt/Hot Line PCB plume. The wells are also located downgradient of the cleaning pad that may have existed south of RM-MW-1S and RM-MW-2D. HL-MW-26S was drilled to a depth of 91 feet below ground surface. HL-MW-27D was drilled to a depth of 130.9 feet below ground surface.

- Monitoring well HL-MW-28DD was installed adjacent to and slightly upgradient of existing well HL-MW-13DD to corroborate elevated PCB concentrations observed in HL-MW-13DD. This well was not part of the Phase I RI Work Plan but was recommended by Kaiser and approved by Ecology. The boring for this well was drilled to a depth of 150 feet below ground surface.

Boring logs and well installation diagrams are provided in Appendix A of this report. The soil samples collected from these borings were submitted for analysis of TPH (NWTPH-HCID). Select soil samples were also submitted for analysis of TPH (NWTPH-Dx and NWTPH-Gx), PCBs, VOCs, PAHs, and metals.

The percent solids and moisture content were determined at selected depths for each boring. In addition, grain size analysis was conducted on soil samples collected from the bottom of borings HL-MW-24DD and HL-MW-28DD.

In general, soil samples were collected on 10-foot-depth intervals during drilling. Shallow water table borings were analyzed for petroleum hydrocarbons at 10-foot-depth intervals during drilling. The deep well installation HL-MW-24DD was sampled for petroleum hydrocarbons at 10-foot-depth intervals to about the water table.

Soil Sample Analytical Results. PAHs and VOCs were generally non-detect or detected at very low concentrations significantly below the screening levels (Table 9-3). Castor oil was detected in soil samples from boring HL-MW-24DD down to the water table at about 80 feet below ground surface at concentrations ranging between 180 to 490 mg/kg (30 to 36 feet deep). No petroleum hydrocarbons were detected in these samples.

Several soil samples (unsaturated and saturated) had detections of arsenic between 1.8 and 9.9 mg/kg, which exceed the screening levels, but are below the natural background concentration for the Spokane Basin (Ecology 1994) (Table 9-3).

The samples tested for manganese had concentrations between 148 and 481 mg/kg, above its respective screening levels, though these concentrations are below the natural background concentration for the Spokane Basin (Ecology 1994) (Table 9-3).

Several samples collected and analyzed for cadmium had concentrations between 0.052 and 0.083 mg/kg, which exceed the screening level. The detected concentrations of cadmium in these samples are well below the natural background concentration for the Spokane Basin (Ecology 1994) (Table 9-4).

Total PCBs were detected at low concentrations only in soil samples collected from HL-MW-27D and HL-MW-28DD (Table 9-3). Boring HL-MW-27D had a detectable total PCBs concentration below screening level at a depth of about 120 feet below ground surface (230 ug/kg) and one estimated detection in soil from a depth of about 90 feet (5.3J ug/kg). Detections of Aroclor 1242 were frequent in soil samples from well HL-MW-28DD from 60 feet to the bottom of the boring at 150 feet. Detections ranged from non-detect to 28 ug/kg at 110 feet deep, which is above the saturated screening level of 14 ug/kg for PCBs.

The PCB detections in these wells were generally below the screening levels (Table 9-3). However, the presence of PCBs this deep in soils below the water table was a new occurrence, which required further investigation. It is also important to note that petroleum hydrocarbons were not detected in any of the deeper soil samples that had PCB detections.

The grain size determination data are presented in Table 9-4. Based on the determination, the soil sample from HL-MW-24DD classifies as gravelly SAND. The soil sample for HL-MW-28DD classifies as silty, fine to medium SAND.

Remelt Well Installations

Four monitoring wells, RM-MW-14S through RM-MW-17S, were installed in the Remelt area to assess the source and transport rate of PCB contamination from the Remelt area (Figure 9-2). Field work was conducted between September 14 and 20, 2006.

The monitoring wells were drilled using air rotary methods to depths of up to 91.5 feet below ground surface. Boring logs and well installation diagrams for these wells are presented in Appendix A of this report.

Ten subsurface soil samples, including one field duplicate, were collected from each soil boring and submitted for analysis of PCBs, TPH (NWTPH-HCID), moisture content, and percent solids. One soil sample from boring RM-MW-16S was also submitted for grain size analysis. Chemical analytical results for soil samples from the Remelt well installations are presented in Table 9-5.

Soil Sample Analytical Results. The boring for well RM-MW-14S is the only boring with detectable petroleum hydrocarbons in soil. Petroleum quantified as heavy oil above screening level was detected at a depths of 70 feet below ground surface at a concentration of 6,700 mg/kg (Table 9-5). These data are indicative of the petroleum smear zone at the water table typically observed in other areas of the Facility.

Detectable concentrations of Aroclor 1248 (2.9 to 100 ug/kg) and Aroclor 1254 (37 ug/kg) were detected in the four wells near the water table as follows (Table 9-5):

- Soil from boring RM-MW-14S, installed south of the soaking pits, had detections of Aroclor 1254 (37 ug/kg) at a depth of 70 feet and a detection of Aroclor 1242 (13 ug/kg) at a depth of 80 feet. The sample collected at 70 feet exceeds the saturated Total PCB screening level of 14 ug/kg. This PCB detection also contained 6,700 mg/kg as heavy oil-range petroleum hydrocarbons.

- Soil from boring RM-MW-15S, located south of DC-5 on the south side of the crane aisle, had detections of Aroclor 1248 from 10 to 81 feet in depth. PCB detections ranged from 2.9J to 28JP ug/kg. These detections did not exceed the screening levels for Total PCBs. No petroleum hydrocarbons were detected in these soil samples.

- Soil samples from boring RM-MW-16S, located south of and between DC-6 and DC-7, had detections of Aroclor 1248 between 60 and 80 feet below ground surface. PCB concentrations ranged from 5.6 to 61 ug/kg. The detection of 61 ug/kg in the sample collected at the 70-foot-depth interval exceeded the saturated screening level for Total PCBs. No petroleum hydrocarbons were detected in these soil samples.

- Soil from boring RM-MW-17S, located south of and between DC-7 and DC-8 and adjacent to the intersection of the east/west and north/south trending sewer lines, had detections of Aroclor 1248 in the samples except sample S-6 (60-foot-deep). PCB detections ranged from 9.8 to 100 ug/kg. None of the unsaturated zone soil samples exceeded the unsaturated screening level of 270 ug/kg. The 70- and 80-foot-deep samples had the highest PCB concentrations detected and were the only concentrations in exceedance of the screening levels of 14 ug/kg for saturated soils.

The grain size determination data are presented in Table 9-4. Based on this determination, the soil sample classifies as slightly silty, sandy GRAVEL.

DC-4 Vent Investigation and Cleanup

In June 2006, Kaiser removed the DC-4 casting pit vent as part of upgrades to restart the furnace and conducted a soil quality investigation under the concrete vent. The work was performed in accordance with an EPA-approved work plan per TSCA requirements (Hart Crowser 2006). Figure 9-2 shows the location of the DC-4 Vent investigation and cleanup, and Figure 9-4 shows the excavation and sample locations. Table 9-6 presents the analytical results from soil verification samples collected from the bottom of the vent trench.

During the pit vent removal, Kaiser excavated an L-shaped trench approximately 24-foot-long and located adjacent to and south of the DC-4 casting pit. The trench was between 3 to 4 feet wide and approximately 5 feet deep. Prior to collecting the soil verification samples from the bottom of the trench, a vacuum truck was used to remove a layer of dust observed overlying the soil on the bottom of the trench. Eight soil verification samples (TB-1 through TB-8) were collected from the bottom of the trench on June 14, 2006 (Figure 9-4). The soil verification samples were only collected from the bottom of the trench (0 to 5 inches) since the walls were made of concrete. The soil samples were submitted for PCB analysis.

Analytical results for these samples indicate Total PCB concentrations above the screening level. Aroclor 1248 was detected at concentrations ranging from 1,300 to 13,000 ug/kg, while Aroclor 1254 was detected at concentrations ranging from 300 to 7,900 ug/kg (Table 9-5).

Based on this information, an additional 4 to 8 inches of soil were overexcavated from the bottom of the trench in this area to a final depth of approximately 5.5 feet in July 2006. Two additional soil verification samples (DC#4-N and DC#4-S) were collected from the overexcavated area on July 13, 2006, and submitted for chemical analyses of PCBs. Analytical results of these soil samples indicate Total PCBs above the screening level at concentrations of 12,800 and 19,200 ug/kg, respectively. These results were comparable to the shallower samples collected earlier in the eastern portion of the trench.

9.2.2 Proposed Phase II (RI) Work

Kaiser provided the results of the Phase I RI with recommendations for additional work to Ecology. Although not included in prior Work Plans, Kaiser determined this additional work was necessary to further understanding of the conceptual site model in the plume area. This iterative process is ongoing and will continue. At a minimum the following are areas where Kaiser proposed additional data analysis, and possible additional explorations:

- PCB detections in deep wells HL-MW-13DD and HL-MW-28DD;
- Possible source areas in the historical Remelt/Hot Line laydown area and the West Landfill; and
- PCB fate and transport mechanisms (e.g., partitioning, dissolved transport, colloidal transport, etc.).

To accomplish this goal, two additional groundwater monitoring wells and two soil borings to the aquifer were proposed downgradient from the Hot Line. The following sections present these explorations and their results.

9.2.3 Phase II RI Field Activities and Analytical Results

The first time that PCBs had been detected in deep groundwater at the Kaiser Facility was the first groundwater round conducted on well HL-MW-13DD (Figure 9-2). PCB detections in groundwater from this well and HL-MW-8D (both screened below the water table) were thought to be anomalous. In 2005, Kaiser conducted a video survey of well HL-MW-13DD to determine whether the PCB detection resulted from damage to the well casing allowing water from shallower portions of the aquifer (and impacted with PCBs) to leak into the well. The survey did not identify any breaks or damage to the well casing.

Since then, PCB detections in soil and/or groundwater from some other deep wells have been identified. Primarily, these wells are HL-MW-27D and HL-MW-28DD. These occurrences may indicate that other PCB source areas may be present west of the Remelt/Hot Line area. The West Landfill and dry wells located west of Remelt (see Figure 9-2) were identified as two possible sources.

Based on this information, the Phase II field activities conducted on the Remelt/ Hot Line area included installation of two monitoring wells (HL-MW-29S and HL-MW-30S) and two deep soil borings (HL-DW-SB-1 and HL-DW-SB-2) in dry wells located just upgradient of well HL-MW-13DD. Monitoring well HL-MW-29S was located near the center of the Remelt/Hot Line PCB plume to evaluate the composition of the PCBs encountered. Monitoring well HL-MW-30S was located downgradient of the Remelt/Hot Line area within the former West Landfill to assess the extent of the PCB plume and to assess whether the former landfill may be a source of PCBs to groundwater. The soil borings were installed at the location of dry wells DW-1 and DW-2 (Figure 9-2). The dry wells are used in the Kaiser Facility to collect and infiltrate runoff water from the southwest portion of the Remelt building which has been and still is used as a lay down area for the Remelt operations. Figure 9-2 presents the exploration locations and Table 9-7 presents the analytical results of soil samples collected and analyzed from these explorations.

Dry Well Soil Borings

The area just west of Remelt has historically been used as a laydown area for the Casting area (Figure 9-2). Two soil borings (HL-DW-SB-1 and HL-DW-SB-2) were advanced through dry wells DW-1 and DW-2, respectively, to 150 feet below ground surface in January 2007 to investigate whether the dry well locations may be a source of PCBs to groundwater (Figure 9-2).

Soil samples were collected at 10-foot-depth intervals, from each boring and submitted for chemical analyses of TPH (NWTPH-HCID) and PCBs. Analytical results of the samples collected from these soil borings indicated that low concentrations of PCBs (Aroclors 1242, 1248, 154, 1260, and 1268) were detected in both wells in two horizons; within 12 feet from the surface and between 130 and 150 feet below ground surface (Table 9-7). In addition, the soil sample from HL-DW-SB-2 had low PCB detections in an additional horizon between 79 to 112 feet below ground surface (Table 9-7). The PCB detections above the water table in these soil borings were below the screening level. However, except for one sample, the PCB detections (14 to 57 ug/kg) in the deeper soil samples exceed the Total PCB screening level of 14 ug/kg for saturated soils (Table 9-7).

Only one sample had detectable TPH concentrations (3,500 mg/kg) for heavy oil-range petroleum hydrocarbons between 59 and 63 feet below ground surface in soil boring HL-DW-SB-2. This concentration is above the screening level. PCBs were not detected in this sample.

Hot Line Monitoring Wells

The former West Landfill is located in the western portion of the Facility, north of IWT and west of wells HL-MW-25S and HL-MW-14S (Figure 9-2). The landfill had historically been used for disposal of various types of plant wastes including during time periods when hydraulic fluid used in the Remelt area contained PCBs. In addition to general plant refuse, oil, coater line solvents, and demolition waste from upgrades to the historical furnace casting pits/caissons were disposed of in the West Landfill.

Monitoring well HL-MW-29S was installed upgradient of well HL-MW-13DD and downgradient of Remelt along the center line of the PCB plume. Groundwater monitoring well HL-MW-30S was installed downgradient from the Dry Wells and the Hot Line to investigate the landfill as a potential PCB source (Figure 9-2). Wells HL-MW-29S and HL-MW-30S were installed in June 2007 to a final depth of 92 and 90 feet below ground surface, respectively. Ten soil samples were collected from each well and submitted for analysis of total metals, PCBs, and TPH (NWTPH-HCID and EPA Method 8015 modified).

In addition, selected soil samples were also analyzed for TPH (NWTPH-Gx and NWTPH-Dx), VOCs, and SVOCs.

Analytical results for the samples collected from these wells indicate low concentrations of PCBs (Aroclors 1242, 1248, and 1254) were detected in these wells in two horizons; at 80 feet below ground surface only in HL-MW-29S and between 5 and 7.5 feet below ground surface only in HL-MW-30S. The PCB detections were below the screening levels. TPH was not detected in either well.

Very low concentrations of several PAHs and VOCs, below the screening levels, were detected in the four soil samples analyzed for these constituents from HL-MW-30S (Table 9-7). Although several metals were detected, only arsenic (4.19 to 11.2 mg/kg) and manganese (309 to 478 mg/kg) concentrations were above their respective screening levels in HL-MW-30S at 10, 40, and 70 feet below ground surface (Table 9-7). However, these arsenic and manganese concentrations are within the expected natural background concentrations for the Spokane Basin (Ecology 1994).

9.2.4 Summary of Current Conditions

Additional soil and groundwater data from explorations in the Remelt/Hot Line PCB plume area have helped formulate our current groundwater conceptual site model for this area. PCB source areas to groundwater may include the casting pit areas beginning at the DC-1 Furnace on the east and extending to the DC-8 Furnace on the west side of Remelt.

Three potential migration routes are thought to be occurring simultaneously in this area:

- Potential releases of water from leaks in water supply lines, sewer lines, or casting pits could contact PCBs in vadose zone soil and carry them down to groundwater.

- With the large fluctuations in groundwater elevation (i.e., up to 15 feet annually), high water table conditions could come into contact with PCBs in soil located within the seasonal high water table. Because of the low organic carbon content in the soil, these PCBs could partition into groundwater during high groundwater conditions.

- Site data indicate that some soils with PCBs are likely to be below the water table throughout the entire year. Low organic carbon in the soil would encourage the partitioning of PCBs into groundwater.

Due to their high Koc, dissolved PCBs will preferentially partition into both petroleum and non-petroleum based oils. Depending upon aquifer conditions several possibilities could occur:

- If free phase oil were present in the aquifer, PCBs could preferentially partition from soil and dissolve into the oil phase. If this free phase oil was mobile, the dissolved PCBs would migrate with the oil.

- If free phase oil is not present, i.e., oil is adsorbed to soil, PCBs would preferentially partition into the adsorbed oil and PCB solubility and mobility would be reduced.

In both cases above, the water solubility of individual PCB congeners would be reduced according to Raoult's Law which states that water solubility for a compound in a nonaqueous solution is equal to the water solubility of the pure compound times its mole fraction in the nonaqueous solution.

If dissolved oil is present in groundwater, in theory, the dissolved oil potentially could have a cosolvent effect on PCBs thereby increasing their solubility and mobility. However, since the solubility of most oils is approximately only 10 to 15 mg/L, cosolvent effects would be negligible.

Kaiser has taken an aggressive approach to finding and mitigating water leaks and to reduce the potential for migration of PCBs to groundwater. These actions include:

- Completing testing of the integrity of the casting pits and caissons associated with furnaces DC-2, DC-3, DC-4, DC-5, and DC-6;
- Installing waterless skim doors on the furnaces at DC-4, DC-6, and DC-7;
- Rerouting drains to the casting pits at DC-1, DC-2, DC-3, and DC-5;
- Eliminating embedded water supply lines on the eight furnaces so that the water supply lines are now about the floor of the Remelt area;
- Providing containment for hydraulic and lubrication lines associated with the furnaces except for DC-2 and a small portion of DC-8;
- Ensuring the integrity of overflow lines to the sewer at DC-1 and DC-2; and
- Slip lining the main sewer in the Remelt area between manholes MH-3B to MH-3 (between column line Ux and the DC8/DC7 control room) and between manholes MH-7B and MH-6 (east of DC-1 to DC-4).

Kaiser continues to address remaining areas that have not been addressed as the various areas in Remelt area are taken off line for maintenance or repairs.

In addition to addressing leaks from the area, investigations were conducted during this Phase II RI to address other suspected PCB source areas such as the West Landfill and Dry Wells (see Figure 9-2). There have been PCBs detected from deep soil in wells HL-MW-8D, HL-MW-13DD, HL-MW-27D, and HL-MW-28DD, as well as soil borings HL-DW-SB-1, and HL-DW-SB-2 and in the near-surface soil in the new well HL-MW-30S, although the detections in HL-MW-30S soil samples are below screening level for Total PCBs. The only positively identified sources of PCBs to groundwater have been the casting pit areas associated with the furnaces. None of the areas outside of the Remelt building have been positively identified as PCB sources to groundwater.

Plate 9-1 presents Cross Section P-P′, which presents soil data from wells and borings crossing from the Remelt (Casting) area, though the Hot Line, and southwest toward the Spokane River through the center line of the groundwater PCB plume. The cross section location is shown on Figure 9-2. PCB and TPH data from these wells/borings clearly define the vertical and horizontal extent of impacts in soils. Through the cross section, soil data are presented from each well analyzed from the surface to below the seasonal groundwater table (where data are available for a particular well/boring).

The cross section illustrates how concentrations in the heavy oil-, gasoline-, and diesel-range petroleum hydrocarbons in soils are mostly restricted to the vicinity of the DC-1 and DC-4 Furnaces and a small area near between the Dry Wells and the West Landfill (Plate 9-1). Gasoline-range petroleum hydrocarbon concentrations below the screening levels were only observed in soil samples from boring RM-F4-SB-1 within 20 feet of the surface near the DC-4 Furnace and are not detected anywhere else within the Remelt/Hot Line area. Similarly, diesel- and heavy oil-range petroleum hydrocarbons were only detected in the immediate vicinity of the DC-4 Furnace; however, their impacts were observed down to the water table and below it. Also, well RM-MW-14S, located south of the reheat furnaces also had detection of heavy oil at the water table.

In addition, castor oil was also detected from the surface to the water table and slightly below it in well HL-MW-24D located downgradient from the Hot Line and the Dry Wells but upgradient from the West Landfill (Figure 9-2).

PCBs were observed in most wells within the plant building from the surface to depths below the water table (Plate 9-1). PCB detections above the screening levels were observed for the most part in the wells located in the immediate vicinity of the Induction Furnace and the DC-1 and DC-4 Furnaces. In addition, some wells west of the plant building have PCBs in soils below the water table to a maximum depth of 155 feet below surface (Plate 9-1).

See the Site-Wide Groundwater RI for further discussion of PCB fate and transport in the groundwater PCB plume area (Hart Crowser 2012).

The need for additional remedial actions will be evaluated in the FS.

9.3 REFERENCES FOR SECTION 9.0

Hart Crowser 1996. Draft Groundwater Remedial Investigation/Feasibility Study, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-58. September 1996.

Hart Crowser 2003. Draft Groundwater Remedial Investigation/Feasibility Study Kaiser – Trentwood Facility. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-76. Modified July 2003.

Hart Crowser 2004. Kaiser Hot Line Data Report, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum and Chemical Corporation. J-2644-78. February 25, 2004.

Hart Crowser 2007a. Phase II Remedial Investigation/Work Plan, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-103. November 30, 2007.

Hart Crowser 2007b. Phase I Technical Memorandum, Kaiser Trentwood Facility, Spokane, Washington. Prepared for Kaiser Aluminum Fabricated Products, LLC. J-2644-104. February 27, 2007.

Hart Crowser 2012. Final Site-Wide Groundwater Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington, LLC by Hart Crowser, Inc. May 2012.

Washington State Department of Ecology (Ecology) 1994. Natural Background Soil Metals Concentrations in Washington State, Publication #94-115. October 1994.

L:\Jobs\2644114\Soil RI\Final\Volume I\Section 9 0.doc

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		HL-MW-12S S-1	HL-MW-13DD S-1B	HL-MW-13DD S-2	HL-MW-14S S-1	HL-MW-14S S-2	HL-MW-15DD S-1
Depth in Feet:	Screening	77 to 78	77 to 78.5	144 to 144.5	78 to 79	83 to 84	73.5 to 76
Sampling Date:	Level (a)	10/7/2003	9/30/2003	9/30/2003	10/7/2003	10/7/2003	10/3/2003
Unsat/Sat		Sat	Sat	Sat	Sat	Sat	Sat
Total Solids in %		94.5	98.6	97	88	95.6	95.2
Metals in mg/kg							
Arsenic	0.0341/0.0017						
Barium	1650/82.6						
Cadmium	0.7/0.0349						
Chromium	2000/100						
Lead	250/250						
Mercury	2/0.105						
Selenium	5/0.264						
Silver	14/0.687						
PCBs in ug/kg							
Aroclor 1016		96 U	89 U	110 UJ	70 U	73 UJ	100 U
Aroclor 1221		200 U	180 U	210 UJ	140 U	150 UJ	200 U
Aroclor 1232		96 U	89 U	110 UJ	70 U	73 UJ	100 U
Aroclor 1242		96 U	89 U	110 UJ	70 U	73 UJ	100 U
Aroclor 1242/1016							
Aroclor 1248		96 U	89 U	110 UJ	11 J	73 UJ	100 U
Aroclor 1254		96 U	89 U	110 UJ	70 U	73 UJ	100 U
Aroclor 1260		96 U	89 U	110 UJ	70 U	73 UJ	100 U
Total PCBs	270/14	200 U	180 U	210 UJ	11 J	150 UJ	200 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 UJ	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 UJ	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 UJ	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 UJ	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 UJ	50 U
Bunker C		50 U	50 U	50 U	50 U	50 UJ	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 UJ	100 U
Gasoline-Range Organics	2000						
Diesel-Range Organics	2000						
Residual-Range Organics	2000						

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		HL-MW-15DD S-2	HL-MW-16S S-1	HL-MW-X S-1	HL-MW-17S S-1	HL-MW-18S S-1	HL-MW-18S S-2
Depth in Feet:	Screening	144.5 to 145.5	76 to 77	Dup of HL-MW-16S S-1	78 to 78.9	75 to 75.8	85 to 86
Sampling Date:	Level (a)	10/3/2003	10/8/2003	10/8/2003	9/26/2003	1/4/2005	1/4/2005
Unsat/Sat		Sat	Sat	Sat	Sat	Sat	Sat
Total Solids in %		90.6	94.6	94.9	98.6		
Metals in mg/kg							
Arsenic	0.0341/0.0017						
Barium	1650/82.6						
Cadmium	0.7/0.0349						
Chromium	2000/100						
Lead	250/250						
Mercury	2/0.105						
Selenium	5/0.264						
Silver	14/0.687						
PCBs in ug/kg							
Aroclor 1016		100 U	96 U	96 U	91 U		
Aroclor 1221		200 U	200 U	200 U	190 U	200 U	
Aroclor 1232		100 U	96 U	96 U	91 U	200 U	
Aroclor 1242		100 U	96 U	96 U	91 U	200 U	
Aroclor 1242/1016							
Aroclor 1248		100 U	96 U	96 U	91 U	200 U	
Aroclor 1254		100 U	96 U	96 U	91 U	200 U	
Aroclor 1260		100 U	96 U	96 U	91 U	200 U	
Total PCBs	270/14	200 U	200 U	200 U	190 U	200 U	
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	1500	1500	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	1800	1800	100 U	100 U	100 U
Gasoline-Range Organics	2000						
Diesel-Range Organics	2000						
Residual-Range Organics	2000						

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		HL-MW-19S S-1	HL-MW-19S S-2	HL-MW-22S S-1	HL-MW-22S S-2	HL-MW-22S S-3	RM-MW-1S S-1
Depth in Feet:	Screening	75 to 76.5	85 to 85.4	75 to 75.4	85 to 85.8	50 to 51	75 to 80
Sampling Date:	Level (a)	1/3/2005	1/3/2005	1/5/2005	1/5/2005	1/5/2005	10/6/2003
Unsat/Sat		Sat	Sat	Sat	Sat	Unsat	Sat
Total Solids in %							95.4
Metals in mg/kg							
Arsenic	0.0341/0.0017						
Barium	1650/82.6						
Cadmium	0.7/0.0349						
Chromium	2000/100						
Lead	250/250						
Mercury	2/0.105						
Selenium	5/0.264						
Silver	14/0.687						
PCBs in ug/kg							
Aroclor 1016							99 U
Aroclor 1221		200 U		200 U		200 U	200 U
Aroclor 1232		200 U		200 U		200 U	99 U
Aroclor 1242		200 U		200 U		200 U	99 U
Aroclor 1242/1016							
Aroclor 1248		200 U		200 U		200 U	22 J
Aroclor 1254		200 U		200 U		200 U	99 U
Aroclor 1260		200 U		200 U		200 U	99 U
Total PCBs	270/14	200 U		200 U		200 U	22 J
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	180	190	240	120	110	100 U
Gasoline-Range Organics	2000						
Diesel-Range Organics	2000						
Residual-Range Organics	2000						

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		RM-MW-2D S-1	RM-MW-2D S-2	RM-MW-3S S-1	RM-MW-3S S-3B	RM-MW-3S S-5	RM-MW-3S S-6B
Depth in Feet:	Screening	75 to 80	141 to 145	10 to 10.5	41 to 41.8	75 to 75.9	87 to 87.5
Sampling Date:	Level (a)	10/5/2003	10/5/2003	9/27/2003	9/27/2003	9/27/2003	9/28/2003
Unsat/Sat		Sat	Sat	Unsat	Unsat	Sat	Sat
Total Solids in %		89.9	92.9	99.3	98.2	98	83.8
Metals in mg/kg							
Arsenic	0.0341/0.0017						
Barium	1650/82.6						
Cadmium	0.7/0.0349						
Chromium	2000/100						
Lead	250/250						
Mercury	2/0.105						
Selenium	5/0.264						
Silver	14/0.687						
PCBs in ug/kg							
Aroclor 1016		97 U	100 U	65 U	92 U	92 U	88 U
Aroclor 1221		200 U	200 U	130 U	190 U	190 U	180 U
Aroclor 1232		97 U	100 U	65 U	92 U	92 U	88 U
Aroclor 1242		97 U	100 U	65 U	92 U	92 U	88 U
Aroclor 1242/1016							
Aroclor 1248		97 U	100 U	65 U	92 U	92 U	88 U
Aroclor 1254		97 U	100 U	65 U	92 U	92 U	88 U
Aroclor 1260		97 U	100 U	65 U	92 U	92 U	88 U
Total PCBs	270/14	200 U	200 U	130 U	190 U	190 U	180 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	280	100 U	100 U	100 U
Gasoline-Range Organics	2000						
Diesel-Range Organics	2000						
Residual-Range Organics	2000						

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		RM-MW-4D S-1	RM-MW-4D S-2	RM-MW-4D S-4	RM-MW-4D S-5	RM-MW-4D S-6	RM-MW-5S S-1	RM-MW-8S S-1
Depth in Feet:	Screening	20 to 21.1	60 to 60.5	100 to 100.5	120 to 121	145 to 146.5	74.5 to 75.5	5 to 6.5
Sampling Date:	Level (a)	10/4/2003	10/4/2003	10/4/2003	10/4/2003	10/5/2003	10/14/2003	3/1/2005
Unsat/Sat		Unsat	Unsat	Sat	Sat	Sat	Sat	Sat
Total Solids in %		97.8	95.2	97.6	96.7	98.6	94.4	
Metals in mg/kg								
Arsenic	0.0341/0.0017							
Barium	1650/82.6							
Cadmium	0.7/0.0349							
Chromium	2000/100							
Lead	250/250							
Mercury	2/0.105							
Selenium	5/0.264							
Silver	14/0.687							
PCBs in ug/kg								
Aroclor 1016		110 U	100 U	110 U	100 U	84 U	96 U	
Aroclor 1221		210 U	200 U	210 U	200 U	170 U	200 U	200 U
Aroclor 1232		110 U	100 U	110 U	100 U	84 U	96 U	200 U
Aroclor 1242		110 U	100 U	110 U	100 U	84 U	96 U	
Aroclor 1242/1016								200 U
Aroclor 1248		34 J	8.8 JP	110 U	100 U	84 U	96 U	200 U
Aroclor 1254		110 U	100 U	110 U	100 U	84 U	96 U	200 U
Aroclor 1260		110 U	100 U	110 U	100 U	84 U	96 U	200 U
Total PCBs	270/14	34 J	8.8 JP	210 U	200 U	170 U	200 U	200 U
NWTPH-HCID in mg/kg								
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Gasoline-Range Organics	2000							
Diesel-Range Organics	2000							
Residual-Range Organics	2000							

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		RM-MW-8S S-2	RM-MW-8S S-3	RM-MW-8S S-4	RM-MW-8S S-5	RM-MW-8S S-6	RM-MW-8S S-7	RM-MW-8S S-8	RM-MW-8S S-9
Depth in Feet:	Screening	10 to 11.5	15 to 16.2	20 to 21	25 to 26.5	30 to 30.3	35 to 35.9	40 to 40.4	50 to 50.3
Sampling Date:	Level (a)	3/1/2005	3/1/2005	3/1/2005	3/1/2005	3/1/2005	3/1/2005	3/1/2005	3/2/2005
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Total Solids in %									
Metals in mg/kg									
Arsenic	0.0341/0.0017		3.5			2.5			
Barium	1650/82.6		10 U			10 U			
Cadmium	0.7/0.0349		1.0 U			1.0 U			
Chromium	2000/100		7.8			7.5			
Lead	250/250		35			9.5			
Mercury	2/0.105		0.5 U			0.5 U			
Selenium	5/0.264		10 U			10 U			
Silver	14/0.687		1.0 U			1.0 U			
PCBs in ug/kg									
Aroclor 1016									
Aroclor 1221		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1242									
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1248		200 U	580	200 U	200 U	1000000	40000	54000	13000
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	580	200 U	200 U	1000000	40000	54000	13000
NWTPH-HCID in mg/kg									
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Gasoline-Range Organics	2000								
Diesel-Range Organics	2000								
Residual-Range Organics	2000								

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		RM-MW-8S	RM-MW-8S	RM-MW-8S	RM-MW-8S	RM-MW-9S	RM-MW-9S	RM-MW-9S	RM-MW-9S
		S-10	S-11	Dup of S-11	S-12	S-1	S-2	S-3	S-4
Depth in Feet:	Screening	60 to 61	75 to 75.8	75 to 76.5	85 to 85.9	5 to 5.5	10 to 11.5	15 to 16.5	20 to 21.5
Sampling Date:	Level (a)	3/2/2005	3/2/2005	3/2/2005	3/2/2005	3/3/2005	3/3/2005	3/3/2005	3/3/2005
Unsat/Sat		Unsat	Sat	Sat	Sat	Unsat	Unsat	Unsat	Unsat
Total Solids in %									
Metals in mg/kg									
Arsenic	0.0341/0.0017	4.7				2.0 U			
Barium	1650/82.6	10 U				10 U			
Cadmium	0.7/0.0349	1.0 U				1.0 U			
Chromium	2000/100	1.8				7.6			
Lead	250/250	8.1				5.5			
Mercury	2/0.105	0.5 U				0.5 U			
Selenium	5/0.264	10 U				10 U			
Silver	14/0.687	1.0 U				1.0 U			
PCBs in ug/kg									
Aroclor 1016									
Aroclor 1221		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1242									
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U	200 U	89000	63000
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	200 U	200 U	200 U	200 U	200 U	89000	63000
NWTPH-HCID in mg/kg									
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	1100	100 U	100 U	100 U
Gasoline-Range Organics	2000								
Diesel-Range Organics	2000								
Residual-Range Organics	2000								

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		RM-MW-9S S-5	RM-MW-9S S-6	RM-MW-9S S-7	RM-MW-9S S-8	RM-MW-9S S-9	RM-MW-9S Dup of S-9	RM-MW-9S S-10	RM-MW-9S S-11
Depth in Feet:	Screening	25 to 25.4	30 to 30.4	35 to 35.6	40 to 40.4	50 to 51.3	50 to 51.3	60 to 60.9	75 to 76.2
Sampling Date:	Level (a)	3/3/2005	3/3/2005	3/3/2005	3/3/2005	3/3/2005	3/3/2005	3/3/2005	3/4/2005
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Sat
Total Solids in %									
Metals in mg/kg									
Arsenic	0.0341/0.0017		2.0 U					3.1	
Barium	1650/82.6		10 U					10 U	
Cadmium	0.7/0.0349		1.0 U					1.0 U	
Chromium	2000/100		26					5.3	
Lead	250/250		8.8					12	
Mercury	2/0.105		0.5 U					0.5 U	
Selenium	5/0.264		10 U					10 U	
Silver	14/0.687		1.0 U					1.0 U	
PCBs in ug/kg									
Aroclor 1016									
Aroclor 1221		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1242									
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1248		260000	1200000	1400000	820000	84000	66000	39000	420
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	260000	1200000	1400000	820000	84000	66000	39000	420
NWTPH-HCID in mg/kg									
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Gasoline-Range Organics	2000								
Diesel-Range Organics	2000								
Residual-Range Organics	2000								

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		RM-MW-9S S-12	RM-MW-10S S-1	RM-MW-10S S-2	RM-MW-10S S-3	RM-MW-10S S-4	RM-MW-10S S-5
Depth in Feet:	Screening	85 to 86.5	10 to 10.5	20.3 to 21	40 to 41.4	70.5 to 71	85 to 86.5
Sampling Date:	Level (a)	3/4/2005	9/20/2004	9/20/2004	9/20/2004	9/20/2004	9/20/2004
Unsat/Sat		Sat	Unsat	Unsat	Unsat	Sat	Sat
Total Solids in %			98.3	99.1	97.1	96.3	87.8
Metals in mg/kg							
Arsenic	0.0341/0.0017						
Barium	1650/82.6						
Cadmium	0.7/0.0349						
Chromium	2000/100						
Lead	250/250						
Mercury	2/0.105						
Selenium	5/0.264						
Silver	14/0.687						
PCBs in ug/kg							
Aroclor 1016			10 U	10 U	10 U	10 U	10 U
Aroclor 1221		200 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		200 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1242			10 U	10 U	10 U	10 U	10 U
Aroclor 1242/1016		200 U					
Aroclor 1248		200 U	12	120	4.6 J	110	23
Aroclor 1254		200 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1260		200 U	10 U	10 U	10 U	10 U	10 U
Total PCBs	270/14	200 U	12	120	4.6 J	$\boxed{110}$	$\boxed{23}$
NWTPH-HCID in mg/kg							
Gasoline	100	20 U					
Stoddard/Mineral spirits	100	20 U					
Kensol	2000	20 U					
Kerosene/Jet fuel	2000	20 U					
Diesel/Fuel oil	2000	50 U					
Bunker C		50 U					
Heavy oil	2000	100 U					
Gasoline-Range Organics	2000		9.2 UJ	9.1 UJ	8.8 UJ	8.5 UJ	8.2 UJ
Diesel-Range Organics	2000		9.2 UJ	9.1 UJ	8.8 UJ	8.8 J	8.2 UJ
Residual-Range Organics	2000		5.3 J	8.4 J	14 J	21 J	8.4 J

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		RM-F4-SB-1 S-1	RM-F4-SB-1 S-2	RM-F4-SB-1 S-3	RM-F4-SB-1 S-4	RM-F4-SB-1 S-5	RM-F4-SB-1 S-6
Depth in Feet:	Screening	4 to 5	10 to 11.5	15 to 16.5	20 to 21.5	25 to 26.5	30 to 30.9
Sampling Date:	Level (a)	9/15/2004	9/15/2004	9/15/2004	9/15/2004	9/16/2004	9/16/2004
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Total Solids in %		96.2	94.4	94.8	95.5	98.5	96.0
Metals in mg/kg							
Arsenic	0.0341/0.0017						
Barium	1650/82.6						
Cadmium	0.7/0.0349						
Chromium	2000/100						
Lead	250/250						
Mercury	2/0.105						
Selenium	5/0.264						
Silver	14/0.687						
PCBs in ug/kg							
Aroclor 1016		110 U	110 U	1100 U	1100 U	5.1 U	52 U
Aroclor 1221		210 U	220 U	2200 U	2100 U	11 U	110 U
Aroclor 1232		110 U	110 U	1100 U	1100 U	5.1 U	52 U
Aroclor 1242		110 U	110 U	1100 U	1100 U	5.1 U	52 U
Aroclor 1242/1016							
Aroclor 1248		4700	6800	19000	14000	140	590
Aroclor 1254		4500	5400	1100 U	1100 U	5.1 U	52 U
Aroclor 1260		110 U	110 U	1100 U	1100 U	5.1 U	52 U
Total PCBs	270/14	$\boxed{9200}$	$\boxed{12200}$	$\boxed{19000}$	$\boxed{14000}$	140	$\boxed{590}$
NWTPH-HCID in mg/kg							
Gasoline	100						
Stoddard/Mineral spirits	100						
Kensol	2000						
Kerosene/Jet fuel	2000						
Diesel/Fuel oil	2000						
Bunker C							
Heavy oil	2000						
Gasoline-Range Organics	2000	5.7 J	10 U	8.4 J	4.5 J	9.5 U	9.8 U
Diesel-Range Organics	2000	10 U	28	39	25	7.9 J	8.3 J
Residual-Range Organics	2000	13 J	59	72	47	24	18 J

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		RM-F4-SB-1 S-8	RM-F4-SB-1 S-10	RM-F4-SB-1 S-11	RM-F4-SB-1 S-12	RM-F4-SB-1 S-13
Depth in Feet:	Screening	40 to 41	60 to 60.5	76 to 76.5	85 to 85.6	85 to 85.6
Sampling Date:	Level (a)	9/16/2004	9/16/2004	9/16/2004	9/16/2004	9/16/2004
Unsat/Sat		Unsat	Unsat	Sat	Sat	Duplicate
Total Solids in %		97.5	95.9	92.5	89.1	94.3
Metals in mg/kg						
Arsenic	0.0341/0.0017					
Barium	1650/82.6					
Cadmium	0.7/0.0349					
Chromium	2000/100					
Lead	250/250					
Mercury	2/0.105					
Selenium	5/0.264					
Silver	14/0.687					
PCBs in ug/kg						
Aroclor 1016		52 U	5.3 U	5.4 U	5.6 U	5.3 U
Aroclor 1221		110 U	11 U	11 U	12 U	11 U
Aroclor 1232		52 U	5.3 U	5.4 U	5.6 U	5.3 U
Aroclor 1242		52 U	5.3 U	5.4 U	5.6 U	5.3 U
Aroclor 1242/1016						
Aroclor 1248		1000	61	59	2.7 J	4.7 J
Aroclor 1254		52 U	5.3 U	5.4 U	5.6 U	5.3 U
Aroclor 1260		52 U	5.3 U	5.4 U	5.6 U	5.3 U
Total PCBs	270/14	1000	61	59	2.7 J	4.7 J
NWTPH-HCID in mg/kg						
Gasoline	100					
Stoddard/Mineral spirits	100					
Kensol	2000					
Kerosene/Jet fuel	2000					
Diesel/Fuel oil	2000					
Bunker C						
Heavy oil	2000					
Gasoline-Range Organics	2000	9.6 U	9.2 U	9.2 U	11 U	9.8 U
Diesel-Range Organics	2000	12	9.2 U	16	11 U	9.8 U
Residual-Range Organics	2000	26	12 J	29	12 J	9.1 J

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:		INDBG-SB-1 S-1	INDBG-SB-1 S-2	INDBG-SB-1 S-3	INDBG-SB-1 Dup of S-3
Depth in Feet:	Screening	0 to 1.5	5 to 5.3	15 to 15.4	15 to 15.4
Sampling Date:	Level (a)	3/4/2005	3/4/2005	3/4/2005	3/4/2005
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Total Solids in %					
Metals in mg/kg					
Arsenic	0.0341/0.0017	2.0 U		3.4	
Barium	1650/82.6	10 U		10 U	
Cadmium	0.7/0.0349	1.5		1.0 U	
Chromium	2000/100	16		4.2	
Lead	250/250	91		5.5	
Mercury	2/0.105	0.5 U		0.5 U	
Selenium	5/0.264	10 U		10 U	
Silver	14/0.687	1.0 U		1.0 U	
PCBs in ug/kg					
Aroclor 1016					
Aroclor 1221		200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U
Aroclor 1242					
Aroclor 1242/1016		200 U	200 U	200 U	200 U
Aroclor 1248		200 U	440	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	440	200 U	200 U
NWTPH-HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	9900	1800	2400	2500
Gasoline-Range Organics	2000				
Diesel-Range Organics	2000				
Residual-Range Organics	2000				

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:	Screening	RMSW-MW-11S-S1	RMSW-MW-11S-S2	RMSW-MW-11S-S3	RMSW-MW-11S-S4	RMSW-MW-11S-S5
Sampling Date:	Level (a)	4/22/2005	4/22/2005	4/22/2005	4/22/2005	4/22/2005
Depth in Feet:		10 to 11	20 to 21	25 to 27	30 to 32	35 to 35.4
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat
Moisture in %		14	8	8	7	7
PCBs in ug/kg						
Aroclor 1221		200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U
Aroclor 1248		200 U	200 U	220000	1800000	1400000
Aroclor 1254		200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	200 U	220000	1800000	1400000
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000					
Diesel/Fuel oil	2000					
Heavy Oil	2000					
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100					
Gasoline	100					

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:	Screening	RMSW-MW-11S-S6	RMSW-MW-11S-S7	RMSW-MW-11S-S8	RMSW-MW-11S-S9	RMSW-MW-11S-S10
Sampling Date:	Level (a)	4/22/2005	4/22/2005	4/23/2005	4/23/2005	4/23/2005
Depth in Feet:		40 to 41.5	45 to 45.9	50 to 51	60 to 61	70 to 71
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat
Moisture in %					8	
PCBs in ug/kg						
Aroclor 1221		200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U
Aroclor 1248		22000	2700	4100	910	550
Aroclor 1254		200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	$\boxed{22000}$	$\boxed{2700}$	$\boxed{4100}$	$\boxed{910}$	$\boxed{550}$
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil		350	200	430	100 U	100 U
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000					
Diesel/Fuel oil	2000					
Heavy Oil	2000					
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100					
Gasoline	100					

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:	Screening	RMSW-MW-11S Dup	RMSW-MW-11S-S11	RMSW-MW-11S-S12	RM-MW-12S-S1	RM-MW-12S-S2
Sampling Date:	Level (a)	4/23/2005	4/23/2005	4/23/2005	4/25/2005	4/25/2005
Depth in Feet:		70 to 71	80 to 81	90 to 91	2.5 to 3.4	10 to 11
Unsat/Sat		Sat	Sat	Sat	Unsat	Unsat
		Dup of S10				
Moisture in %		15	20	18		9
PCBs in ug/kg						
Aroclor 1221		200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U
Aroclor 1248		480	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	480	200 U	200 U	200 U	200 U
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000					
Diesel/Fuel oil	2000					
Heavy Oil	2000					
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100					
Gasoline	100					

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:	Screening	RM-MW-12S-S3	RM-MW-12S-S4	RM-MW-12S-S5	RM-MW-12S-S6	RM-MW-12S-S7
Sampling Date:	Level (a)	4/25/2005	4/25/2005	4/25/2005	4/25/2005	4/25/2005
Depth in Feet:		15 to 16	20 to 21	25 to 26	30 to 31	35 to 35.8
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat
Moisture in %		9		7	6	
PCBs in ug/kg						
Aroclor 1221		200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	200 U	200 U	200 U	200 U
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000		20 U			
Diesel/Fuel oil	2000		20 U			
Heavy Oil	2000		50 U			
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100		5 U			
Gasoline	100		5 U			

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:	Screening	RM-MW-12S-S8	RM-MW-12S-S9	RM-MW-12S-S10	RM-MW-12S-S11	RM-MW-12S Dup
Sampling Date:	Level (a)	4/25/2005	4/25/2005	4/25/2005	4/26/2005	4/26/2005
Depth in Feet:		44 to 45	50 to 50.4	60 to 61	75 to 77	75 to 77
Unsat/Sat		Unsat	Unsat	Unsat	Sat	Sat
						Dup of S11
Moisture in %					19	19
PCBs in ug/kg						
Aroclor 1221		200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	200 U	200 U	200 U	200 U
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000		20 U			
Diesel/Fuel oil	2000		20 U			
Heavy Oil	2000		50 U			
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100		5 U			
Gasoline	100		5 U			

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:	Screening	RM-MW-12S-S12	RM-MW-13S-S1	RM-MW-13S-S2	RM-MW-13S-S3	RM-MW-13S-S4
Sampling Date:	Level (a)	4/26/2005	4/27/2005	4/27/2005	4/27/2005	4/27/2005
Depth in Feet:		85 to 85.9	5 to 6	10 to 12	15 to 17	20 to 21.5
Unsat/Sat		Sat	Unsat	Unsat	Unsat	Unsat
Moisture in %		21	10	6	7	5
PCBs in ug/kg						
Aroclor 1221		200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	200 U	200 U	200 U	200 U
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	1700	1300
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000	20 U				
Diesel/Fuel oil	2000	20 U				
Heavy Oil	2000	50 U				
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100	5 U				
Gasoline	100	5 U				

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:	Screening	RM-MW-13S-S5	RM-MW-13S-S6	RM-MW-13S-S7	RM-MW-13S-S8	RM-MW-13S-S9
Sampling Date:	Level (a)	4/27/2005	4/27/2005	4/27/2005	4/27/2005	4/27/2005
Depth in Feet:		25 to 26	30 to 31	35 to 36	40 to 43	50 to 51.5
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat
Moisture in %		5	5	6	4	8
PCBs in ug/kg						
Aroclor 1221		200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U
Aroclor 1242/1016		200 U	200 U	200 U	200 U	200 U
Aroclor 1248		200 U	200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	200 U	200 U	200 U	200 U
NWTPH-HCID in mg/kg						
Gasoline	100	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U
Castor oil		920	550	360	1600	1300
NWTPH-Dx in mg/kg						
Kerosene/Jet fuel	2000				20 U	
Diesel/Fuel oil	2000				20 U	
Heavy Oil	2000				50 U	
NWTPH-Gx in mg/kg						
Mineral spirits/Stoddard	100				5 U	
Gasoline	100				5 U	

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID:	Screening	RM-MW-13S-S10	RM-MW-13S Dup	RM-MW-13S-S11	RM-MW-13S-S12
Sampling Date:	Level (a)	4/27/2005	4/27/2005	4/27/2005	4/27/2005
Depth in Feet:		60 to 61.5	60 to 61.5	75 to 76.5	85 to 86
Unsat/Sat		Unsat	Unsat	Sat	Sat
			Dup of S10		
Moisture in %				20	22
PCBs in ug/kg					
Aroclor 1221		200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U
Aroclor 1242/1016		200 U	200 U	200 U	200 U
Aroclor 1248		200 U	200 U	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U
Total PCBs	270/14	200 U	200 U	200 U	200 U
NWTPH-HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		840	730	520	290
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000			20 U	
Diesel/Fuel oil	2000			20 U	
Heavy Oil	2000			50 U	
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100			5 U	
Gasoline	100			5 U	

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID	Screening Level (a)	RM-MW-8S S-3	RM-MW-8S S-6	RM-MW-8S S-10	RM-MW-9S S-1
Depth in Feet		15 to 16.2	30 to 30.3	60 to 61	5 to 5.5
Sampling Date		3/1/05	3/1/05	3/2/05	3/3/05
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Semivolatiles in ug/kg					
Phenol	22000/1520	500 U	500 U	500 U	500 U
2-Chlorophenol		500 U	500 U	500 U	500 U
Bis(2-chloroethyl)ether		500 U	500 U	500 U	500 U
1,3-Dichlorobenzene		100 U	100 U	100 U	100 U
1,4-Dichlorobenzene		100 U	100 U	100 U	100 U
1,2-Dichlorobenzene		100 U	100 U	100 U	100 U
2-Methylphenol (o-cresol)		100 U	100 U	100 U	100 U
Bis(2-chloroisopropyl)ether		100 U	100 U	100 U	100 U
3,4-Methylphenol (m,p-cresol)		100 U	100 U	100 U	100 U
Hexachloroethane		100 U	100 U	100 U	100 U
2-Nitrophenol		500 U	500 U	500 U	500 U
2,4-Dimethylphenol		500 U	500 U	500 U	500 U
Bis(2-chloroethoxy)methane		100 U	100 U	100 U	100 U
2,4-Dichlorophenol		500 U	500 U	500 U	500 U
1,2,4-Trichlorobenzene		100 U	100 U	100 U	100 U
Naphthalene	4490/238	100 U	100 U	100 U	100 U
2,6-Dichlorophenol		500 U	500 U	500 U	500 U
Hexachloropropylene		500 U	500 U	500 U	500 U
Hexachlorobutadiene		500 U	500 U	500 U	500 U
4-Chloro-3-methylphenol		500 U	500 U	500 U	500 U
1,2,4,5-Tetrachlorobenzene		500 U	500 U	500 U	500 U
Hexachlorocyclopentadiene		100 U	100 U	100 U	100 U
2,4,6-Trichlorophenol		500 U	500 U	500 U	500 U
2,4,5-Trichlorophenol		500 U	500 U	500 U	500 U
2-Chloronaphthalene		100 U	100 U	100 U	100 U
Dimethylphthalate		100 U	100 U	100 U	100 U
Acenaphthylene		100 U	100 U	100 U	100 U
Acenaphthene	98000/4980	100 U	100 U	100 U	100 U
2,4-Dinitrophenol		500 U	500 U	500 U	500 U
4-Nitrophenol		500 U	500 U	500 U	500 U
Pentachlorobenzene		500 U	500 U	500 U	500 U
2,3,4,6-Tetrachlorophenol		500 U	500 U	500 U	500 U
Fluorene	100000/5110	100 U	100 U	100 U	100 U
2,4,6-Tribromophenol		500 U	500 U	500 U	500 U
Diethylphthalate		100 U	100 U	100 U	100 U
4-Chlorophenylphenylether		500 U	500 U	500 U	500 U
N-Nitrosodiphenylamine	536/28	100 U	100 U	100 U	100 U
4-Bromophenylphenylether		100 U	100 U	100 U	100 U
Hexachlorobenzene		100 U	100 U	100 U	100 U
Pentachlorophenol		500 U	500 U	500 U	500 U
Phenanthrene		100 U	100 U	100 U	100 U
Anthracene	2.2E+06/112000	100 U	100 U	100 U	100 U
2-sec-Butyl-4,6-dinitrophenol		500 U	500 U	500 U	500 U
Di-n-butylphthalate	57000/3020	100 U	100 U	100 U	100 U
Fluoranthene	630000/31500	100 U	100 U	100 U	100 U
Pyrene	660000/32800	100 U	100 U	100 U	100 U
Butylbenzylphthalate		500 U	500 U	500 U	500 U
Benzo(a)anthracene	See BaP (c)	100 U	100 U	100 U	100 U

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID	Screening Level (a)	RM-MW-8S S-3	RM-MW-8S S-6	RM-MW-8S S-10	RM-MW-9S S-1
Depth in Feet		15 to 16.2	30 to 30.3	60 to 61	5 to 5.5
Sampling Date		3/1/05	3/1/05	3/2/05	3/3/05
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Chrysene	See BaP (c)	100 U	100 U	100 U	100 U
Bis(2-ethylhexyl)ether		100 U	100 U	100 U	100 U
Di-n-octylphthalate	5.3E+08/2.7E+07	500 U	500 U	500 U	500 U
Benzo(b)fluoranthene	See BaP (c)	100 U	100 U	100 U	100 U
Benzo(k)fluoranthene	See BaP (c)	100 U	100 U	100 U	100 U
Benzo(a)pyrene	233/12	100 U	100 U	100 U	100 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	100 U	100 U	100 U	100 U
Dibenz(a,h)anthracene	See BaP (c)	100 U	100 U	100 U	100 U
Benzo(g,h,i)perylene		100 U	100 U	100 U	100 U
TEQ Equivalent (b)	See BaP (c)	100 U	100 U	100 U	100 U
Volatiles in ug/kg					
Dibromochloromethane		50 U	50 U	50 U	50 U
Chloromethane	22/1	50 U	50 U	50 U	50 U
Vinyl Chloride		50 U	50 U	50 U	50 U
Bromomethane	52/3	50 U	50 U	50 U	50 U
Chloroethane		50 U	50 U	50 U	50 U
Trichlorofluoromethane		50 U	50 U	50 U	50 U
1,1-Dichloroethene		50 U	50 U	50 U	50 U
Methylene Chloride	22/2	20 U	20 U	20 U	20 U
Trans-1,2-Dichloroethene		50 U	50 U	50 U	50 U
1,1-Dichloroethane	8730/543	50 U	50 U	50 U	50 U
2,2-Dichloropropane		50 U	50 U	50 U	50 U
Cis-1,2-Dichloroethene		50 U	50 U	50 U	50 U
Chloroform	38/2	50 U	50 U	50 U	50 U
1,1,1-Trichloroethane	1610/85	50 U	50 U	50 U	50 U
Carbon Tetrachloride		50 U	50 U	50 U	50 U
1,1-Dichloropropylene		50 U	50 U	50 U	50 U
Benzene	5/0.3	50 U	50 U	50 U	50 U
1,2-Dichloroethane		20 U	20 U	20 U	20 U
Trichloroethene (TCE)		20 U	20 U	20 U	20 U
1,2-Dichloropropane		50 U	50 U	50 U	50 U
Dibromomethane		50 U	50 U	50 U	50 U
Bromodichloromethane		50 U	50 U	50 U	50 U
Cis-1,3-Dichloropropene		50 U	50 U	50 U	50 U
Toluene	4650/273	50 U	50 U	50 U	50 U
Trans-1,3-Dichloropropene		50 U	50 U	50 U	50 U
1,1,2-Trichloroethane		50 U	50 U	50 U	50 U
Tetrachloroethene	0.9/0.05	50 U	50 U	50 U	50 U
1,3-Dichloropropane		50 U	50 U	50 U	50 U
Dibromochloromethane		20 U	20 U	20 U	20 U
1,2-Dibromoethane(EDB)		5 U	5 U	5 U	5 U
Chlorobenzene		50 U	50 U	50 U	50 U
1,1,1,2-Tetrachloroethane		50 U	50 U	50 U	50 U
Ethylbenzene	5990/341	50 U	50 U	50 U	50 U
Xylenes		50 U	50 U	50 U	50 U
Styrene	33/2	50 U	50 U	50 U	50 U
Bromoform		50 U	50 U	50 U	50 U
Isopropylbenzene	7370/405	50 U	50 U	50 U	50 U
1,2,3-Trichloropropane		50 U	50 U	50 U	50 U

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID	Screening Level (a)	RM-MW-8S S-3	RM-MW-8S S-6	RM-MW-8S S-10	RM-MW-9S S-1
Depth in Feet		15 to 16.2	30 to 30.3	60 to 61	5 to 5.5
Sampling Date		3/1/05	3/1/05	3/2/05	3/3/05
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Bromobenzene		50 U	50 U	50 U	50 U
1,1,2,2-Tetrachloroethane		50 U	50 U	50 U	50 U
N-Propylbenzene	19500/988	50 U	50 U	50 U	50 U
2-Chlorotoluene	2400/143	50 U	50 U	50 U	50 U
4-Chlorotoluene	4180/250	50 U	50 U	50 U	50 U
1,3,5-Trimethylbenzene	8380/443	50 U	50 U	50 U	50 U
Tert-Butylbenzene	15600/796	50 U	50 U	50 U	50 U
1,2,4-Trimethylbenzene	31000/1590	50 U	50 U	50 U	50 U
Sec-Butylbenzene	15800/796	50 U	50 U	50 U	50 U
1,3-Dichlorobenzene		50 U	50 U	50 U	50 U
Isopropyltoluene		50 U	50 U	50 U	50 U
1,4-Dichlorobenzene		50 U	50 U	50 U	50 U
1,2-Dichlorobenzene		50 U	50 U	50 U	50 U
N-Butylbenzene	19500/988	50 U	50 U	50 U	50 U
1,2-Dibromo-3-Chloropropane		50 U	50 U	50 U	50 U
1,2,4-Trichlorobenzene		50 U	50 U	50 U	50 U
Hexachloro-1,3-butadiene		50 U	50 U	50 U	50 U
Naphthalene	4490/238	50 U	50 U	50 U	50 U
1,2,3-Trichlorobenzene		50 U	50 U	50 U	50 U

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID	Screening Level (a)	RM-MW-9S S-6	RM-MW-9S S-10	INDBG-SB-1 S-1	INDBG-SB-1 S-3
Depth in Feet		30 to 30.4	60 to 60.9	0 to 1.5	15 to 15.4
Sampling Date		3/3/05	3/3/05	3/4/05	3/4/05
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Semivolatiles in mg/kg					
Phenol	22000/1520	500 U	500 U	500 U	500 U
2-Chlorophenol		500 U	500 U	500 U	500 U
Bis(2-chloroethyl)ether		500 U	500 U	500 U	500 U
1,3-Dichlorobenzene		100 U	100 U	100 U	100 U
1,4-Dichlorobenzene		100 U	100 U	100 U	100 U
1,2-Dichlorobenzene		100 U	100 U	100 U	100 U
2-Methylphenol (o-cresol)		100 U	100 U	100 U	100 U
Bis(2-chloroisopropyl)ether		100 U	100 U	100 U	100 U
3,4-Methylphenol (m,p-cresol)		100 U	100 U	100 U	100 U
Hexachloroethane		100 U	100 U	100 U	100 U
2-Nitrophenol		500 U	500 U	500 U	500 U
2,4-Dimethylphenol		500 U	500 U	500 U	500 U
Bis(2-chloroethoxy)methane		100 U	100 U	100 U	100 U
2,4-Dichlorophenol		500 U	500 U	500 U	500 U
1,2,4-Trichlorobenzene		100 U	100 U	100 U	100 U
Naphthalene	4490/238	100 U	100 U	100 U	100 U
2,6-Dichlorophenol		500 U	500 U	500 U	500 U
Hexachloropropylene		500 U	500 U	500 U	500 U
Hexachlorobutadiene		500 U	500 U	500 U	500 U
4-Chloro-3-methylphenol		500 U	500 U	500 U	500 U
1,2,4,5-Tetrachlorobenzene		500 U	500 U	500 U	500 U
Hexachlorocyclopentadiene		100 U	100 U	100 U	100 U
2,4,6-Trichlorophenol		500 U	500 U	500 U	500 U
2,4,5-Trichlorophenol		500 U	500 U	500 U	500 U
2-Chloronaphthalene		100 U	100 U	100 U	100 U
Dimethylphthalate		100 U	100 U	100 U	100 U
Acenaphthylene		100 U	100 U	100 U	100 U
Acenaphthene	98000/4980	100 U	100 U	100 U	100 U
2,4-Dinitrophenol		500 U	500 U	500 U	500 U
4-Nitrophenol		500 U	500 U	500 U	500 U
Pentachlorobenzene		500 U	500 U	500 U	500 U
2,3,4,6-Tetrachlorophenol		500 U	500 U	500 U	500 U
Fluorene	100000/5110	100 U	100 U	100 U	100 U
2,4,6-Tribromophenol		500 U	500 U	500 U	500 U
Diethylphthalate		100 U	100 U	100 U	100 U
4-Chlorophenylphenylether		500 U	500 U	500 U	500 U
N-Nitrosodiphenylamine	536/28	100 U	100 U	100 U	100 U
4-Bromophenylphenylether		100 U	100 U	100 U	100 U
Hexachlorobenzene		100 U	100 U	100 U	100 U
Pentachlorophenol		500 U	500 U	500 U	500 U
Phenanthrene		100 U	100 U	160	100 U
Anthracene	2.2E+06/112000	100 U	100 U	100 U	100 U
2-sec-Butyl-4,6-dinitrophenol		500 U	500 U	500 U	500 U
Di-n-butylphthalate	57000/3020	100 U	100 U	100 U	100 U
Fluoranthene	630000/31500	100 U	100 U	290	100 U
Pyrene	660000/32800	100 U	100 U	430	100 U
Butylbenzylphthalate		500 U	500 U	500 U	500 U
Benzo(a)anthracene	See BaP (c)	100 U	100 U	100 U	100 U

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID	Screening Level (a)	RM-MW-9S S-6	RM-MW-9S S-10	INDBG-SB-1 S-1	INDBG-SB-1 S-3
Depth in Feet		30 to 30.4	60 to 60.9	0 to 1.5	15 to 15.4
Sampling Date		3/3/05	3/3/05	3/4/05	3/4/05
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Chrysene	See BaP (c)	100 U	100 U	180	100 U
Bis(2-ethylhexyl)ether		100 U	100 U	100 U	100 U
Di-n-octylphthalate	5.3E+08/27000000	500 U	500 U	500 U	500 U
Benzo(b)fluoranthene	See BaP (c)	100 U	100 U	100 U	100 U
Benzo(k)fluoranthene	See BaP (c)	100 U	100 U	100 U	100 U
Benzo(a)pyrene	233/12	100 U	100 U	100 U	100 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	100 U	100 U	100 U	100 U
Dibenz(a,h)anthracene	See BaP (c)	100 U	100 U	100 U	100 U
Benzo(g,h,i)perylene		100 U	100 U	100 U	100 U
TEQ Equivalent (b)	See BaP (c)	100 U	100 U	1.8	100 U
Volatiles in ug/kg					
Dibromochloromethane		50 U	50 U	50 U	50 U
Chloromethane	22/1	50 U	50 U	50 U	50 U
Vinyl Chloride		50 U	50 U	50 U	50 U
Bromomethane	52/3	50 U	50 U	50 U	50 U
Chloroethane		50 U	50 U	50 U	50 U
Trichlorofluoromethane		50 U	50 U	50 U	50 U
1,1-Dichloroethene		50 U	50 U	50 U	50 U
Methylene Chloride	22/2	20 U	20 U	20 U	20 U
Trans-1,2-Dichloroethene		50 U	50 U	50 U	50 U
1,1-Dichloroethane	8730/543	50 U	50 U	50 U	50 U
2,2-Dichloropropane		50 U	50 U	50 U	50 U
Cis-1,2-Dichloroethene		50 U	50 U	50 U	50 U
Chloroform	38/2	50 U	50 U	50 U	50 U
1,1,1-Trichloroethane	1610/85	50 U	50 U	50 U	50 U
Carbon Tetrachloride		50 U	50 U	50 U	50 U
1,1-Dichloropropylene		50 U	50 U	50 U	50 U
Benzene	5/0.3	50 U	50 U	50 U	50 U
1,2-Dichloroethane		20 U	20 U	20 U	20 U
Trichloroethene (TCE)		20 U	20 U	20 U	20 U
1,2-Dichloropropane		50 U	50 U	50 U	50 U
Dibromomethane		50 U	50 U	50 U	50 U
Bromodichloromethane		50 U	50 U	50 U	50 U
Cis-1,3-Dichloropropene		50 U	50 U	50 U	50 U
Toluene	4650/273	50 U	50 U	50 U	50 U
Trans-1,3-Dichloropropene		50 U	50 U	50 U	50 U
1,1,2-Trichloroethane		50 U	50 U	50 U	50 U
Tetrachloroethene	0.9/0.05	50 U	50 U	50 U	50 U
1,3-Dichloropropane		50 U	50 U	50 U	50 U
Dibromochloromethane		20 U	20 U	20 U	20 U
1,2-Dibromoethane(EDB)		5 U	5 U	5 U	5 U
Chlorobenzene		50 U	50 U	50 U	50 U
1,1,1,2-Tetrachloroethane		50 U	50 U	50 U	50 U
Ethylbenzene	5990/341	50 U	50 U	50 U	50 U
Xylenes		50 U	50 U	50 U	50 U
Styrene	33/2	50 U	50 U	50 U	50 U
Bromoform		50 U	50 U	50 U	50 U
Isopropylbenzene	7370/405	50 U	50 U	50 U	50 U
1,2,3-Trichloropropane		50 U	50 U	50 U	50 U

Table 9-1 - Analytical Results for Soil Samples from Hot Line and Remelt Borings - 2003 to 2005

Sample ID	Screening Level (a)	RM-MW-9S S-6	RM-MW-9S S-10	INDBG-SB-1 S-1	INDBG-SB-1 S-3
Depth in Feet		30 to 30.4	60 to 60.9	0 to 1.5	15 to 15.4
Sampling Date		3/3/05	3/3/05	3/4/05	3/4/05
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Bromobenzene		50 U	50 U	50 U	50 U
1,1,2,2-Tetrachloroethane		50 U	50 U	50 U	50 U
N-Propylbenzene	19500/988	50 U	50 U	50 U	50 U
2-Chlorotoluene	2400/143	50 U	50 U	50 U	50 U
4-Chlorotoluene	4180/250	50 U	50 U	50 U	50 U
1,3,5-Trimethylbenzene	8380/443	50 U	50 U	50 U	50 U
Tert-Butylbenzene	15600/796	50 U	50 U	50 U	50 U
1,2,4-Trimethylbenzene	31000/1590	50 U	50 U	50 U	50 U
Sec-Butylbenzene	15800/796	50 U	50 U	50 U	50 U
1,3-Dichlorobenzene		50 U	50 U	50 U	50 U
Isopropyltoluene		50 U	50 U	50 U	50 U
1,4-Dichlorobenzene		50 U	50 U	50 U	50 U
1,2-Dichlorobenzene		50 U	50 U	50 U	50 U
N-Butylbenzene	19500/988	50 U	50 U	50 U	50 U
1,2-Dibromo-3-Chloropropane		50 U	50 U	50 U	50 U
1,2,4-Trichlorobenzene		50 U	50 U	50 U	50 U
Hexachloro-1,3-butadiene		50 U	50 U	50 U	50 U
Naphthalene	4490/238	50 U	50 U	50 U	50 U
1,2,3-Trichlorobenzene		50 U	50 U	50 U	50 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
P = Confirmation criteria exceeded. Relative percent difference is greater than 40 percent between the two analytical results.
Boxed value exceeds screening limit.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).
(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 9-2 - Analytical Results for DC-1 Furnace Excavation Soil Samples

Sample ID Location Sampling Date	Screening Level (a)	RM-OE-1 Stockpile 3/2/2005	RM-OE-2 East Exc. 3/2/2005	RM-OE-3 Oil Sample 3/2/2005	WT1 (b) West Exc. 3/7/2005	WT2 (b) West Exc. 3/7/2005	WT3 (b) West Exc. 3/7/2005	WT4 (b) West Exc. 3/7/2005	WT5 (b) West Exc. 3/7/2005
NWTPH-HCID in mg/kg									
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	3800	67000	100 D	100 U	100 U	100 U	1800	560
Castor oil									
PCBs in ug/kg									
Aroclor 1221		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1242 (Aroclor 1016)		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1248		650	200 U	200 U	200 U	570	1500	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270	650	200 U	200 U	200 U	570	1500	200 U	200 U

Table 9-2 - Analytical Results for DC-1 Furnace Excavation Soil Samples

Sample ID	Screening	WT6 (b)	B1	B2	B3	B4	S1 (b)	S2	S3	S4
Location	Level (a)	West Exc.	East Exc.	East Exc.	West Exc.	East Exc.	East Exc.	West Exc.	East Exc.	East Exc.
Sampling Date		3/7/2005	3/15/2005	3/15/2005	3/15/2005	3/16/2005	3/15/2005	3/15/2005	3/16/2005	3/16/2005
NWTPH-HCID in mg/kg										
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	41000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil			14000	12000	2100	100 U	11000	3400	1100	100 U
PCBs in ug/kg										
Aroclor 1221		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1232		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1242 (Aroclor 1016)		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1248		390	200 U	780	430	200 U	530	630	200 U	200 U
Aroclor 1254		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor 1260		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Total PCBs	270	390	200 U	780	430	200 U	530	630	200 U	200 U

U = Not detected at the reporting limit indicated.
D = Detected at or above the reporting limit indicated.
RM-0E-3 is an oil sample collected from hydraulic lines in excavation area.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Soil representative of this sample was removed during excavation.

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S1	HL-MW-23S-S2	HL-MW-23S-S3	HL-MW-23S-S4
Sampling Date	Level (a)	2/13/2006	2/13/2006	2/13/2006	2/13/2006
Depth in Feet		8 to 11.2	18 to 20.3	28 to 31.5	38 to 40.5
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Conventionals in %					
Moisture		9	7	6	6
Total Organic Carbon					
Total Solids		90.3			97.2
Metals in mg/kg					
Arsenic	0.0341/0.0017	$\boxed{4.7}$			$\boxed{6.3}$
Barium	1650/82.6	114			46
Cadmium	0.7/0.0349	0.139			0.184
Chromium	2000/100	11.8			13.5
Lead	250/250	11.7			28.4
Manganese	52.2/3	$\boxed{481}$			$\boxed{339}$
Mercury	2/0.105	0.012 J			0.02 U
Selenium	5/0.264	1.1 U			1 U
Silver	14/0.687	0.055			0.161
PCBs in ug/kg					
Aroclor 1016		10 U			10 U
Aroclor 1221		20 U			20 U
Aroclor 1232		10 U			10 U
Aroclor 1242		10 U			10 U
Aroclor 1248		10 U			10 U
Aroclor 1254		10 U			10 U
Aroclor 1260		10 U			10 U
Total PCBs	270/14	20 U			20 U
PAHs in ug/kg					
2-Methylnaphthalene	2190/112	5 U			5 U
Acenaphthene	98000/4980	5 U			5 U
Acenaphthylene		5 U			5 U
Anthracene	2.2E+06/112000	5 U			5 U
Benzo(a)anthracene	See BaP (c)	5 U			5 U
Benzo(a)pyrene	233/12	5 U			5 U
Benzo(b)fluoranthene	See BaP (c)	5 U			5 U
Benzo(g,h,i)perylene		5 U			5 U
Benzo(k)fluoranthene	See BaP (c)	5 U			5 U
Chrysene	See BaP (c)	5 U			5 U
Dibenz(a,h)anthracene	See BaP (c)	5 U			5 U
Dibenzofuran	5090/257	0.26 J			5 U
Fluoranthene	630000/31500	5 U			5 U
Fluorene	100000/5110	0.23 J			0.28 J
Indeno(1,2,3-cd)pyrene	See BaP (c)	5 U			5 U
Naphthalene	4490/238	5 U			5 U
Phenanthrene		5 U			5 U
Pyrene	660000/32800	5 U			5 U
TEQ Equivalent (b)	See BaP (c)	5 U			5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S1	HL-MW-23S-S2	HL-MW-23S-S3	HL-MW-23S-S4
Sampling Date	Level (a)	2/13/2006	2/13/2006	2/13/2006	2/13/2006
Depth in Feet		8 to 11.2	18 to 20.3	28 to 31.5	38 to 40.5
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		9.2 U			5.8 U
1,1,1-Trichloroethane	1610/85	9.2 U			5.8 U
1,1,2,2-Tetrachloroethane		9.2 U			5.8 U
1,1,2-Trichloroethane		9.2 U			5.8 U
1,1-Dichloroethane	8730/543	9.2 U			5.8 U
1,1-Dichloroethene		9.2 U			5.8 U
1,1-Dichloropropene		9.2 U			5.8 U
1,2,3-Trichlorobenzene		37 U			24 U
1,2,3-Trichloropropane		9.2 U			5.8 U
1,2,4-Trichlorobenzene		37 U			24 U
1,2,4-Trimethylbenzene	31000/1590	37 U			24 U
1,2-Dibromo-3-Chloropropane		37 U			24 U
1,2-Dibromoethane(EDB)		37 U			24 U
1,2-Dichlorobenzene		9.2 U			5.8 U
1,2-Dichloroethane		9.2 U			5.8 U
1,2-Dichloropropane		9.2 U			5.8 U
1,3,5-Trimethylbenzene	8380/443	37 U			24 U
1,3-Dichlorobenzene		9.2 U			5.8 U
1,3-Dichloropropane		9.2 U			5.8 U
1,4-Dichlorobenzene		9.2 U			5.8 U
2,2-Dichloropropane		9.2 U			5.8 U
2-Butanone (MEK)	20000/1400	37 U			24 U
2-Chlorotoluene	2400/143	37 U			24 U
2-Hexanone		37 U			24 U
4-Chlorotoluene	4180/250	37 U			24 U
4-Isopropyltoluene		37 U			24 U
4-Methyl-2-Pentanone		37 U			24 U
Acetone	3210/230	46			17 J
Benzene	5/0.3	9.2 U			5.8 U
Bromobenzene		9.2 U			5.8 U
Bromochloromethane		9.2 U			5.8 U
Bromodichloromethane		9.2 U			5.8 U
Bromoform		9.2 U			5.8 U
Bromomethane	52/3	9.2 U			5.8 U
Carbon Disulfide	5600/266	9.2 U			7.8
Carbon Tetrachloride		9.2 U			5.8 U
Chlorobenzene		9.2 U			5.8 U
Chloroethane		9.2 U			5.8 U
Chloroform	38/2	9.2 U			5.8 U
Chloromethane	22/1	9.2 U			5.8 U
Cis-1,2-Dichloroethene		9.2 U			5.8 U
Cis-1,3-Dichloropropene		9.2 U			5.8 U
Dibromochloromethane		9.2 U			5.8 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S1	HL-MW-23S-S2	HL-MW-23S-S3	HL-MW-23S-S4
Sampling Date	Level (a)	2/13/2006	2/13/2006	2/13/2006	2/13/2006
Depth in Feet		8 to 11.2	18 to 20.3	28 to 31.5	38 to 40.5
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Dibromomethane		9.2 U			5.8 U
Dichlorodifluoromethane	47000/551	9.2 U			5.8 U
Ethylbenzene	5990/341	9.2 U			5.8 U
Hexachlorobutadiene		37 U			24 U
Isopropylbenzene	7370/405	37 U			24 U
Methylene Chloride	22/2	19 U			12 U
N-Butylbenzene	19500/988	37 U			24 U
N-Propylbenzene	19500/988	37 U			24 U
Naphthalene	4490/238	37 U			24 U
Sec-Butylbenzene	15800/796	37 U			24 U
Styrene	33/2	9.2 U			5.8 U
Tert-Butylbenzene	15600/796	37 U			24 U
Tetrachloroethene	0.9/0.05	9.2 U			5.8 U
Toluene	4650/273	1.8 J			2.1 J
Trans-1,2-Dichloroethene		9.2 U			5.8 U
Trans-1,3-Dichloropropene		9.2 U			5.8 U
Trichloroethene (TCE)		9.2 U			5.8 U
Trichlorofluoromethane		9.2 U			5.8 U
Vinyl Chloride		9.2 U			5.8 U
m,p-Xylenes	8520/487	9.2 U			5.8 U
o-Xylene	916/53	9.2 U			5.8 U
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000	20 U			20 U
Diesel/Fuel oil		50 U			50 U
Heavy oil	2000	100 U			100 U
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100	5 U			5 U
Gasoline	100	5 U			5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S5	HL-MW-23S-S6	HL-MW-23S-S7	HL-MW-23S-S8
Sampling Date	Level (a)	2/13/2006	2/13/2006	2/13/2006	2/13/2006
Depth in Feet		48 to 50	58 to 60.7	68 to 70.75	78 to 81.5
Unsat/Sat		Unsat	Sat	Sat	Sat
Conventionals in %					
Moisture		7	5	6	9
Total Organic Carbon					
Total Solids				98.5	
Metals in mg/kg					
Arsenic	0.0341/0.0017			3.5	
Barium	1650/82.6			47	
Cadmium	0.7/0.0349			0.052	
Chromium	2000/100			13.5	
Lead	250/250			6.86	
Manganese	52.2/3			328	
Mercury	2/0.105			0.019 U	
Selenium	5/0.264			1 U	
Silver	14/0.687			0.03	
PCBs in ug/kg					
Aroclor 1016				10 U	
Aroclor 1221				20 U	
Aroclor 1232				10 U	
Aroclor 1242				10 U	
Aroclor 1248				10 U	
Aroclor 1254				10 U	
Aroclor 1260				10 U	
Total PCBs	270/14			20 U	
PAHs in ug/kg					
2-Methylnaphthalene	2190/112			5 U	
Acenaphthene	98000/4980			5 U	
Acenaphthylene				5 U	
Anthracene	2.2E+06/112000			5 U	
Benzo(a)anthracene	See BaP (c)			5 U	
Benzo(a)pyrene	233/12			5 U	
Benzo(b)fluoranthene	See BaP (c)			5 U	
Benzo(g,h,i)perylene				5 U	
Benzo(k)fluoranthene	See BaP (c)			5 U	
Chrysene	See BaP (c)			5 U	
Dibenz(a,h)anthracene	See BaP (c)			5 U	
Dibenzofuran	5090/257			5 U	
Fluoranthene	630000/31500			5 U	
Fluorene	100000/5110			5 U	
Indeno(1,2,3-cd)pyrene	See BaP (c)			5 U	
Naphthalene	4490/238			5 U	
Phenanthrene				5 U	
Pyrene	660000/32800			5 U	
TEQ Equivalent (b)	See BaP (c)			5 U	

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S5	HL-MW-23S-S6	HL-MW-23S-S7	HL-MW-23S-S8
Sampling Date	Level (a)	2/13/2006	2/13/2006	2/13/2006	2/13/2006
Depth in Feet		48 to 50	58 to 60.7	68 to 70.75	78 to 81.5
Unsat/Sat		Unsat	Sat	Sat	Sat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane				5.5 U	
1,1,1-Trichloroethane	1610/85			5.5 U	
1,1,2,2-Tetrachloroethane				5.5 U	
1,1,2-Trichloroethane				5.5 U	
1,1-Dichloroethane	8730/543			5.5 U	
1,1-Dichloroethene				5.5 U	
1,1-Dichloropropene				5.5 U	
1,2,3-Trichlorobenzene				22 U	
1,2,3-Trichloropropane				5.5 U	
1,2,4-Trichlorobenzene				22 U	
1,2,4-Trimethylbenzene	31000/1590			22 U	
1,2-Dibromo-3-Chloropropane				22 U	
1,2-Dibromoethane(EDB)				22 U	
1,2-Dichlorobenzene				5.5 U	
1,2-Dichloroethane				5.5 U	
1,2-Dichloropropane				5.5 U	
1,3,5-Trimethylbenzene	8380/443			22 U	
1,3-Dichlorobenzene				5.5 U	
1,3-Dichloropropane				5.5 U	
1,4-Dichlorobenzene				5.5 U	
2,2-Dichloropropane				5.5 U	
2-Butanone (MEK)	20000/1400			22 U	
2-Chlorotoluene	2400/143			22 U	
2-Hexanone				22 U	
4-Chlorotoluene	4180/250			22 U	
4-Isopropyltoluene				22 U	
4-Methyl-2-Pentanone				22 U	
Acetone	3210/230			16 J	
Benzene	5/0.3			5.5 U	
Bromobenzene				5.5 U	
Bromochloromethane				5.5 U	
Bromodichloromethane				5.5 U	
Bromoform				5.5 U	
Bromomethane	52/3			5.5 U	
Carbon Disulfide	5600/266			7.8	
Carbon Tetrachloride				5.5 U	
Chlorobenzene				5.5 U	
Chloroethane				5.5 U	
Chloroform	38/2			5.5 U	
Chloromethane	22/1			5.5 U	
Cis-1,2-Dichloroethene				5.5 U	
Cis-1,3-Dichloropropene				5.5 U	
Dibromochloromethane				5.5 U	

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S5	HL-MW-23S-S6	HL-MW-23S-S7	HL-MW-23S-S8
Sampling Date	Level (a)	2/13/2006	2/13/2006	2/13/2006	2/13/2006
Depth in Feet		48 to 50	58 to 60.7	68 to 70.75	78 to 81.5
Unsat/Sat		Unsat	Sat	Sat	Sat
Dibromomethane				5.5 U	
Dichlorodifluoromethane	47000/551			5.5 U	
Ethylbenzene	5990/341			5.5 U	
Hexachlorobutadiene				22 U	
Isopropylbenzene	7370/405			22 U	
Methylene Chloride	22/2			11 U	
N-Butylbenzene	19500/988			22 U	
N-Propylbenzene	19500/988			22 U	
Naphthalene	4490/238			22 U	
Sec-Butylbenzene	15800/796			22 U	
Styrene	33/2			5.5 U	
Tert-Butylbenzene	15600/796			22 U	
Tetrachloroethene	0.9/0.05			5.5 U	
Toluene	4650/273			1.9 J	
Trans-1,2-Dichloroethene				5.5 U	
Trans-1,3-Dichloropropene				5.5 U	
Trichloroethene (TCE)				5.5 U	
Trichlorofluoromethane				5.5 U	
Vinyl Chloride				5.5 U	
m,p-Xylenes	8520/487			5.5 U	
o-Xylene	916/53			5.5 U	
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000			20 U	
Diesel/Fuel oil				50 U	
Heavy oil	2000			100 U	
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100			5 U	
Gasoline	100			5 U	

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S9	HL-MW-24DD-S1	HL-MW-24DD-S2	HL-MW-24DD-S3
Sampling Date	Level (a)	2/13/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		88 to 90	10 to 11	19 to 21	30 to 36
Unsat/Sat		Sat	Unsat	Unsat	Unsat
Conventionals in %					
Moisture		8	1	1	2
Total Organic Carbon					
Total Solids			98		
Metals in mg/kg					
Arsenic	0.0341/0.0017		$\boxed{2}$ J		
Barium	1650/82.6		37.4 J		
Cadmium	0.7/0.0349		0.043 J		
Chromium	2000/100		6.95		
Lead	250/250		4.55		
Manganese	52.2/3		$\boxed{97.1}$ J		
Mercury	2/0.105		0.019 U		
Selenium	5/0.264		1 U		
Silver	14/0.687		0.028		
PCBs in ug/kg					
Aroclor 1016			10 U		
Aroclor 1221			20 U		
Aroclor 1232			10 U		
Aroclor 1242			10 U		
Aroclor 1248			10 U		
Aroclor 1254			10 U		
Aroclor 1260			10 U		
Total PCBs	270/14		20 U		
PAHs in ug/kg					
2-Methylnaphthalene	2190/112		5 U		
Acenaphthene	98000/4980		5 U		
Acenaphthylene			5 U		
Anthracene	2.2E+06/112000		5 U		
Benzo(a)anthracene	See BaP (c)		5 U		
Benzo(a)pyrene	233/12		5 U		
Benzo(b)fluoranthene	See BaP (c)		5 U		
Benzo(g,h,i)perylene			5 U		
Benzo(k)fluoranthene	See BaP (c)		5 U		
Chrysene	See BaP (c)		5 U		
Dibenz(a,h)anthracene	See BaP (c)		5 U		
Dibenzofuran	5090/257		5 U		
Fluoranthene	630000/31500		5 U		
Fluorene	100000/5110		5 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)		5 U		
Naphthalene	4490/238		5.5 U		
Phenanthrene			5 U		
Pyrene	660000/32800		5 U		
TEQ Equivalent (b)	See BaP (c)		5 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S9	HL-MW-24DD-S1	HL-MW-24DD-S2	HL-MW-24DD-S3
Sampling Date	Level (a)	2/13/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		88 to 90	10 to 11	19 to 21	30 to 36
Unsat/Sat		Sat	Unsat	Unsat	Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane			8.6 U		
1,1,1-Trichloroethane	1610/85		8.6 U		
1,1,2,2-Tetrachloroethane			8.6 U		
1,1,2-Trichloroethane			8.6 U		
1,1-Dichloroethane	8730/543		8.6 U		
1,1-Dichloroethene			8.6 U		
1,1-Dichloropropene			8.6 U		
1,2,3-Trichlorobenzene			35 U		
1,2,3-Trichloropropane			8.6 U		
1,2,4-Trichlorobenzene			35 U		
1,2,4-Trimethylbenzene	31000/1590		35 U		
1,2-Dibromo-3-Chloropropane			35 U		
1,2-Dibromoethane(EDB)			35 U		
1,2-Dichlorobenzene			8.6 U		
1,2-Dichloroethane			8.6 U		
1,2-Dichloropropane			8.6 U		
1,3,5-Trimethylbenzene	8380/443		35 U		
1,3-Dichlorobenzene			8.6 U		
1,3-Dichloropropane			8.6 U		
1,4-Dichlorobenzene			8.6 U		
2,2-Dichloropropane			8.6 U		
2-Butanone (MEK)	20000/1400		35 U		
2-Chlorotoluene	2400/143		35 U		
2-Hexanone			35 U		
4-Chlorotoluene	4180/250		35 U		
4-Isopropyltoluene			35 U		
4-Methyl-2-Pentanone			35 U		
Acetone	3210/230		35 U		
Benzene	5/0.3		8.6 U		
Bromobenzene			8.6 U		
Bromochloromethane			8.6 U		
Bromodichloromethane			8.6 U		
Bromoform			8.6 U		
Bromomethane	52/3		8.6 U		
Carbon Disulfide	5600/266		3.7 J		
Carbon Tetrachloride			8.6 U		
Chlorobenzene			8.6 U		
Chloroethane			8.6 U		
Chloroform	38/2		8.6 U		
Chloromethane	22/1		8.6 U		
Cis-1,2-Dichloroethene			8.6 U		
Cis-1,3-Dichloropropene			8.6 U		
Dibromochloromethane			8.6 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-23S-S9	HL-MW-24DD-S1	HL-MW-24DD-S2	HL-MW-24DD-S3
Sampling Date	Level (a)	2/13/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		88 to 90	10 to 11	19 to 21	30 to 36
Unsat/Sat		Sat	Unsat	Unsat	Unsat
Dibromomethane			8.6 U		
Dichlorodifluoromethane	47000/551		1.3 J		
Ethylbenzene	5990/341		8.6 U		
Hexachlorobutadiene			35 U		
Isopropylbenzene	7370/405		35 U		
Methylene Chloride	22/2		18 U		
N-Butylbenzene	19500/988		35 U		
N-Propylbenzene	19500/988		35 U		
Naphthalene	4490/238		35 U		
Sec-Butylbenzene	15800/796		35 U		
Styrene	33/2		8.6 U		
Tert-Butylbenzene	15600/796		35 U		
Tetrachloroethene	0.9/0.05		8.6 U		
Toluene	4650/273		8.6 U		
Trans-1,2-Dichloroethene			8.6 U		
Trans-1,3-Dichloropropene			8.6 U		
Trichloroethene (TCE)			8.6 U		
Trichlorofluoromethane			8.6 U		
Vinyl Chloride			8.6 U		
m,p-Xylenes	8520/487		8.6 U		
o-Xylene	916/53		8.6 U		
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	180	450	490
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000		20 U		
Diesel/Fuel oil			50 U		
Heavy oil	2000		100 U		
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100		5 U		
Gasoline	100		5 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-24DD-S4	HL-MW-24DD-S5	HL-MW-24DD-S6	HL-MW-24DD-S7
Sampling Date	Level (a)	2/08/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		40.3 to 43	50.4 to 52	59 to 60	69 to 71.5
Unsat/Sat		Unsat	Unsat	Unsat	Sat
Conventionals in %					
Moisture		2	1	2	3
Total Organic Carbon					
Total Solids		97.2			96.6
Metals in mg/kg					
Arsenic	0.0341/0.0017	11.5 J			5 J
Barium	1650/82.6	40.2 J			31.1 J
Cadmium	0.7/0.0349	0.076			0.058
Chromium	2000/100	8.14			10.6
Lead	250/250	9.79			6.42
Manganese	52.2/3	241 J			239 J
Mercury	2/0.105	0.019 U			0.02 U
Selenium	5/0.264	0.2 J			1 U
Silver	14/0.687	0.053			0.06
PCBs in ug/kg					
Aroclor 1016		10 U			10 U
Aroclor 1221		20 U			20 U
Aroclor 1232		10 U			10 U
Aroclor 1242		10 U			10 U
Aroclor 1248		10 U			10 U
Aroclor 1254		10 U			10 U
Aroclor 1260		10 U			10 U
Total PCBs	270/14	20 U			20 U
PAHs in ug/kg					
2-Methylnaphthalene	2190/112	5 U			5 U
Acenaphthene	98000/4980	5 U			5 U
Acenaphthylene		5 U			5 U
Anthracene	2.2E+06/112000	5 U			5 U
Benzo(a)anthracene	See BaP (c)	5 U			5 U
Benzo(a)pyrene	233/12	5 U			5 U
Benzo(b)fluoranthene	See BaP (c)	5 U			5 U
Benzo(g,h,i)perylene		5 U			5 U
Benzo(k)fluoranthene	See BaP (c)	5 U			5 U
Chrysene	See BaP (c)	5 U			5 U
Dibenz(a,h)anthracene	See BaP (c)	5 U			5 U
Dibenzofuran	5090/257	5 U			5 U
Fluoranthene	630000/31500	5 U			5 U
Fluorene	100000/5110	0.21 J			5 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	5 U			5 U
Naphthalene	4490/238	5 U			5 U
Phenanthrene		5 U			5 U
Pyrene	660000/32800	5 U			5 U
TEQ Equivalent (b)	See BaP (c)	5 U			5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-24DD-S4	HL-MW-24DD-S5	HL-MW-24DD-S6	HL-MW-24DD-S7
Sampling Date	Level (a)	2/08/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		40.3 to 43	50.4 to 52	59 to 60	69 to 71.5
Unsat/Sat		Unsat	Unsat	Unsat	Sat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		5.3 U			5.5 U
1,1,1-Trichloroethane	1610/85	5.3 U			5.5 U
1,1,2,2-Tetrachloroethane		5.3 U			5.5 U
1,1,2-Trichloroethane		5.3 U			5.5 U
1,1-Dichloroethane	8730/543	5.3 U			5.5 U
1,1-Dichloroethene		5.3 U			5.5 U
1,1-Dichloropropene		5.3 U			5.5 U
1,2,3-Trichlorobenzene		22 U			22 U
1,2,3-Trichloropropane		5.3 U			5.5 U
1,2,4-Trichlorobenzene		22 U			22 U
1,2,4-Trimethylbenzene	31000/1590	22 U			22 U
1,2-Dibromo-3-Chloropropane		22 U			22 U
1,2-Dibromoethane(EDB)		22 U			22 U
1,2-Dichlorobenzene		5.3 U			5.5 U
1,2-Dichloroethane		5.3 U			5.5 U
1,2-Dichloropropane		5.3 U			5.5 U
1,3,5-Trimethylbenzene	8380/443	22 U			22 U
1,3-Dichlorobenzene		5.3 U			5.5 U
1,3-Dichloropropane		5.3 U			5.5 U
1,4-Dichlorobenzene		5.3 U			5.5 U
2,2-Dichloropropane		5.3 U			5.5 U
2-Butanone (MEK)	20000/1400	22 U			22 U
2-Chlorotoluene	2400/143	22 U			22 U
2-Hexanone		22 U			22 U
4-Chlorotoluene	4180/250	22 U			22 U
4-Isopropyltoluene		22 U			22 U
4-Methyl-2-Pentanone		22 U			22 U
Acetone	3210/230	30 U			22 U
Benzene	5/0.3	5.3 U			5.5 U
Bromobenzene		5.3 U			5.5 U
Bromochloromethane		5.3 U			5.5 U
Bromodichloromethane		5.3 U			5.5 U
Bromoform		5.3 U			5.5 U
Bromomethane	52/3	5.3 U			5.5 U
Carbon Disulfide	5600/266	7.1			5.7
Carbon Tetrachloride		5.3 U			5.5 U
Chlorobenzene		5.3 U			5.5 U
Chloroethane		5.3 U			5.5 U
Chloroform	38/2	5.3 U			5.5 U
Chloromethane	22/1	5.3 U			5.5 U
Cis-1,2-Dichloroethene		5.3 U			5.5 U
Cis-1,3-Dichloropropene		5.3 U			5.5 U
Dibromochloromethane		5.3 U			5.5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-24DD-S4	HL-MW-24DD-S5	HL-MW-24DD-S6	HL-MW-24DD-S7
Sampling Date	Level (a)	2/08/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		40.3 to 43	50.4 to 52	59 to 60	69 to 71.5
Unsat/Sat		Unsat	Unsat	Unsat	Sat
Dibromomethane		5.3 U			5.5 U
Dichlorodifluoromethane	47000/551	5.3 U			5.5 U
Ethylbenzene	5990/341	5.3 U			5.5 U
Hexachlorobutadiene		22 U			22 U
Isopropylbenzene	7370/405	22 U			22 U
Methylene Chloride	22/2	11 U			11 U
N-Butylbenzene	19500/988	22 U			22 U
N-Propylbenzene	19500/988	22 U			22 U
Naphthalene	4490/238	22 U			22 U
Sec-Butylbenzene	15800/796	22 U			22 U
Styrene	33/2	5.3 U			5.5 U
Tert-Butylbenzene	15600/796	22 U			22 U
Tetrachloroethene	0.9/0.05	5.3 U			5.5 U
Toluene	4650/273	0.9 J			5.5 U
Trans-1,2-Dichloroethene		5.3 U			5.5 U
Trans-1,3-Dichloropropene		5.3 U			5.5 U
Trichloroethene (TCE)		5.3 U			5.5 U
Trichlorofluoromethane		5.3 U			5.5 U
Vinyl Chloride		5.3 U			5.5 U
m,p-Xylenes	8520/487	5.3 U			5.5 U
o-Xylene	916/53	5.3 U			5.5 U
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		430	260	210	280
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000	20 U			20 U
Diesel/Fuel oil		50 U			50 U
Heavy oil	2000	100 U			100 U
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100	5 U			5 U
Gasoline	100	5 U			5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-24DD-S8	HL-MW-24DD-S9	HL-MW-24DD-S10	HL-MW-24DD-S11
Sampling Date	Level (a)	2/08/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		78 to 80	89 to 91.5	110 to 110.7	130 to 131.2
Unsat/Sat		Sat	Sat	Sat	Sat
Conventionals in %					
Moisture		1	2	5	5
Total Organic Carbon					
Total Solids			90.9		
Metals in mg/kg					
Arsenic	0.0341/0.0017				
Barium	1650/82.6				
Cadmium	0.7/0.0349				
Chromium	2000/100				
Lead	250/250				
Manganese	52.2/3				
Mercury	2/0.105				
Selenium	5/0.264				
Silver	14/0.687				
PCBs in ug/kg					
Aroclor 1016			10 U		
Aroclor 1221			20 U		
Aroclor 1232			10 U		
Aroclor 1242			10 U		
Aroclor 1248			10 U		
Aroclor 1254			10 U		
Aroclor 1260			10 U		
Total PCBs	270/14		20 U		
PAHs in ug/kg					
2-Methylnaphthalene	2190/112				
Acenaphthene	98000/4980				
Acenaphthylene					
Anthracene	2.2E+06/112000				
Benzo(a)anthracene	See BaP (c)				
Benzo(a)pyrene	233/12				
Benzo(b)fluoranthene	See BaP (c)				
Benzo(g,h,i)perylene					
Benzo(k)fluoranthene	See BaP (c)				
Chrysene	See BaP (c)				
Dibenz(a,h)anthracene	See BaP (c)				
Dibenzofuran	5090/257				
Fluoranthene	630000/31500				
Fluorene	100000/5110				
Indeno(1,2,3-cd)pyrene	See BaP (c)				
Naphthalene	4490/238				
Phenanthrene					
Pyrene	660000/32800				
TEQ Equivalent (b)	See BaP (c)				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-24DD-S8	HL-MW-24DD-S9	HL-MW-24DD-S10	HL-MW-24DD-S11
Sampling Date	Level (a)	2/08/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		78 to 80	89 to 91.5	110 to 110.7	130 to 131.2
Unsat/Sat		Sat	Sat	Sat	Sat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane					
1,1,1-Trichloroethane	1610/85				
1,1,2,2-Tetrachloroethane					
1,1,2-Trichloroethane					
1,1-Dichloroethane	8730/543				
1,1-Dichloroethene					
1,1-Dichloropropene					
1,2,3-Trichlorobenzene					
1,2,3-Trichloropropane					
1,2,4-Trichlorobenzene					
1,2,4-Trimethylbenzene	31000/1590				
1,2-Dibromo-3-Chloropropane					
1,2-Dibromoethane(EDB)					
1,2-Dichlorobenzene					
1,2-Dichloroethane					
1,2-Dichloropropane					
1,3,5-Trimethylbenzene	8380/443				
1,3-Dichlorobenzene					
1,3-Dichloropropane					
1,4-Dichlorobenzene					
2,2-Dichloropropane					
2-Butanone (MEK)	20000/1400				
2-Chlorotoluene	2400/143				
2-Hexanone					
4-Chlorotoluene	4180/250				
4-Isopropyltoluene					
4-Methyl-2-Pentanone					
Acetone	3210/230				
Benzene	5/0.3				
Bromobenzene					
Bromochloromethane					
Bromodichloromethane					
Bromoform					
Bromomethane	52/3				
Carbon Disulfide	5600/266				
Carbon Tetrachloride					
Chlorobenzene					
Chloroethane					
Chloroform	38/2				
Chloromethane	22/1				
Cis-1,2-Dichloroethene					
Cis-1,3-Dichloropropene					
Dibromochloromethane					

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-24DD-S8	HL-MW-24DD-S9	HL-MW-24DD-S10	HL-MW-24DD-S11
Sampling Date	Level (a)	2/08/2006	2/08/2006	2/08/2006	2/08/2006
Depth in Feet		78 to 80	89 to 91.5	110 to 110.7	130 to 131.2
Unsat/Sat		Sat	Sat	Sat	Sat
Dibromomethane					
Dichlorodifluoromethane	47000/551				
Ethylbenzene	5990/341				
Hexachlorobutadiene					
Isopropylbenzene	7370/405				
Methylene Chloride	22/2				
N-Butylbenzene	19500/988				
N-Propylbenzene	19500/988				
Naphthalene	4490/238				
Sec-Butylbenzene	15800/796				
Styrene	33/2				
Tert-Butylbenzene	15600/796				
Tetrachloroethene	0.9/0.05				
Toluene	4650/273				
Trans-1,2-Dichloroethene					
Trans-1,3-Dichloropropene					
Trichloroethene (TCE)					
Trichlorofluoromethane					
Vinyl Chloride					
m,p-Xylenes	8520/487				
o-Xylene	916/53				
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U		
Stoddard/Mineral spirits		20 U	20 U		
Kensol	2000	20 U	20 U		
Kerosene/Jet fuel	2000	20 U	20 U		
Diesel/Fuel oil/Creosote	2000	50 U	50 U		
Bunker C		50 U	50 U		
Heavy oil	2000	100 U	100 U		
Castor oil		250	100 U		
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000				
Diesel/Fuel oil					
Heavy oil	2000				
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100				
Gasoline	100				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-25S-S1	HL-MW-25S-S2	HL-MW-25S-S3	HL-MW-25S-S4
Sampling Date	Level (a)	2/15/2006	2/15/2006	2/15/2006	2/15/2006
Depth in Feet		8 to 10.75	18 to 20	28 to 30.25	38 to 42
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Conventionals in %					
Moisture		7	6	5	5
Total Organic Carbon					
Total Solids		98.4			98.7
Metals in mg/kg					
Arsenic	0.0341/0.0017	4			1.8
Barium	1650/82.6	33.5			17.9
Cadmium	0.7/0.0349	0.062			0.052
Chromium	2000/100	5.58			4.93
Lead	250/250	3.09			3.78
Manganese	52.2/3	148			155
Mercury	2/0.105	0.02 U			0.019 U
Selenium	5/0.264	1 U			1 U
Silver	14/0.687	0.032			0.02 U
PCBs in ug/kg					
Aroclor 1016		10 U			10 U
Aroclor 1221		20 U			20 U
Aroclor 1232		10 U			10 U
Aroclor 1242		10 U			10 U
Aroclor 1248		10 U			10 U
Aroclor 1254		10 U			10 U
Aroclor 1260		10 U			20 U
Total PCBs	270/14	20 U			20 U
PAHs in ug/kg					
2-Methylnaphthalene	2190/112	5 U			5 U
Acenaphthene	98000/4980	5 U			5 U
Acenaphthylene		5 U			5 U
Anthracene	2.2E+06/112000	5 U			5 U
Benzo(a)anthracene	See BaP (c)	5 U			5 U
Benzo(a)pyrene	233/12	5 U			5 U
Benzo(b)fluoranthene	See BaP (c)	5 U			5 U
Benzo(g,h,i)perylene		5 U			5 U
Benzo(k)fluoranthene	See BaP (c)	5 U			5 U
Chrysene	See BaP (c)	5 U			5 U
Dibenz(a,h)anthracene	See BaP (c)	5 U			5 U
Dibenzofuran	5090/257	5 U			5 U
Fluoranthene	630000/31500	5 U			5 U
Fluorene	100000/5110	5 U			5 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	5 U			5 U
Naphthalene	4490/238	5 U			5 U
Phenanthrene		5 U			5 U
Pyrene	660000/32800	5 U			5 U
TEQ Equivalent (b)	See BaP (c)	5 U			5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-25S-S1	HL-MW-25S-S2	HL-MW-25S-S3	HL-MW-25S-S4
Sampling Date	Level (a)	2/15/2006	2/15/2006	2/15/2006	2/15/2006
Depth in Feet		8 to 10.75	18 to 20	28 to 30.25	38 to 42
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		5.9 U			5 U
1,1,1-Trichloroethane	1610/85	5.9 U			5 U
1,1,2,2-Tetrachloroethane		5.9 U			5 U
1,1,2-Trichloroethane		5.9 U			5 U
1,1-Dichloroethane	8730/543	5.9 U			5 U
1,1-Dichloroethene		5.9 U			5 U
1,1-Dichloropropene		5.9 U			5 U
1,2,3-Trichlorobenzene		24 U			20 U
1,2,3-Trichloropropane		5.9 U			5 U
1,2,4-Trichlorobenzene		24 U			20 U
1,2,4-Trimethylbenzene	31000/1590	24 U			20 U
1,2-Dibromo-3-Chloropropane		24 U			20 U
1,2-Dibromoethane(EDB)		24 U			20 U
1,2-Dichlorobenzene		5.9 U			5 U
1,2-Dichloroethane		5.9 U			5 U
1,2-Dichloropropane		5.9 U			5 U
1,3,5-Trimethylbenzene	8380/443	24 U			20 U
1,3-Dichlorobenzene		5.9 U			5 U
1,3-Dichloropropane		5.9 U			5 U
1,4-Dichlorobenzene		5.9 U			5 U
2,2-Dichloropropane		5.9 U			5 U
2-Butanone (MEK)	20000/1400	24 U			20 U
2-Chlorotoluene	2400/143	24 U			20 U
2-Hexanone		24 U			20 U
4-Chlorotoluene	4180/250	24 U			20 U
4-Isopropyltoluene		24 U			20 U
4-Methyl-2-Pentanone		24 U			20 U
Acetone	3210/230	17 J			14 J
Benzene	5/0.3	5.9 U			5 U
Bromobenzene		5.9 U			5 U
Bromochloromethane		5.9 U			5 U
Bromodichloromethane		5.9 U			5 U
Bromoform		5.9 U			5 U
Bromomethane	52/3	5.9 U			5 U
Carbon Disulfide	5600/266	5.9 U			16
Carbon Tetrachloride		5.9 U			5 U
Chlorobenzene		5.9 U			5 U
Chloroethane		5.9 U			5 U
Chloroform	38/2	5.9 U			5 U
Chloromethane	22/1	5.9 U			5 U
Cis-1,2-Dichloroethene		5.9 U			5 U
Cis-1,3-Dichloropropene		5.9 U			5 U
Dibromochloromethane		5.9 U			5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-25S-S1	HL-MW-25S-S2	HL-MW-25S-S3	HL-MW-25S-S4
Sampling Date	Level (a)	2/15/2006	2/15/2006	2/15/2006	2/15/2006
Depth in Feet		8 to 10.75	18 to 20	28 to 30.25	38 to 42
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Dibromomethane		5.9 U			5 U
Dichlorodifluoromethane	47000/551	5.9 U			5 U
Ethylbenzene	5990/341	5.9 U			5 U
Hexachlorobutadiene		24 U			20 U
Isopropylbenzene	7370/405	24 U			20 U
Methylene Chloride	22/2	12 U			10 U
N-Butylbenzene	19500/988	24 U			20 U
N-Propylbenzene	19500/988	24 U			20 U
Naphthalene	4490/238	24 U			20 U
Sec-Butylbenzene	15800/796	24 U			20 U
Styrene	33/2	5.9 U			5 U
Tert-Butylbenzene	15600/796	24 U			20 U
Tetrachloroethene	0.9/0.05	5.9 U			5 U
Toluene	4650/273	1.8 J			5 U
Trans-1,2-Dichloroethene		5.9 U			5 U
Trans-1,3-Dichloropropene		5.9 U			5 U
Trichloroethene (TCE)		5.9 U			5 U
Trichlorofluoromethane		5.9 U			5 U
Vinyl Chloride		5.9 U			5 U
m,p-Xylenes	8520/487	5.9 U			5 U
o-Xylene	916/53	5.9 U			5 U
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000	20 U			20 U
Diesel/Fuel oil		50 U			50 U
Heavy oil	2000	100 U			100 U
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100	5 U			5 U
Gasoline	100	5 U			5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-25S-S10	HL-MW-25S-S5	HL-MW-25S-S6	HL-MW-25S-S7
Sampling Date	Level (a)	2/15/2006	2/15/2006	2/15/2006	2/15/2006
Depth in Feet		38 to 42	48 to 51	58 to 60	68 to 70
Unsat/Sat		Unsat	Unsat	Unsat	Sat
		Dup of HL-MW-25S-S4			
Conventionals in %					
Moisture			4	5	6
Total Organic Carbon					
Total Solids		98.7			97
Metals in mg/kg					
Arsenic	0.0341/0.0017	$\boxed{9.9}$			$\boxed{7.6}$
Barium	1650/82.6	40.6			35.2
Cadmium	0.7/0.0349	0.078			$\boxed{0.083}$
Chromium	2000/100	5.63			6.52
Lead	250/250	6.46			6.62
Manganese	52.2/3	$\boxed{306}$			$\boxed{377}$
Mercury	2/0.105	0.02 U			0.02 U
Selenium	5/0.264	1 U			1 U
Silver	14/0.687	0.013 J			0.034
PCBs in ug/kg					
Aroclor 1016					10 U
Aroclor 1221					20 U
Aroclor 1232					10 U
Aroclor 1242					10 U
Aroclor 1248					10 U
Aroclor 1254					10 U
Aroclor 1260					20 U
Total PCBs	270/14				20 U
PAHs in ug/kg					
2-Methylnaphthalene	2190/112				5 U
Acenaphthene	98000/4980				5 U
Acenaphthylene					5 U
Anthracene	2.2E+06/112000				5 U
Benzo(a)anthracene	See BaP (c)				5 U
Benzo(a)pyrene	233/12				5 U
Benzo(b)fluoranthene	See BaP (c)				5 U
Benzo(g,h,i)perylene					5 U
Benzo(k)fluoranthene	See BaP (c)				5 U
Chrysene	See BaP (c)				5 U
Dibenz(a,h)anthracene	See BaP (c)				5 U
Dibenzofuran	5090/257				5 U
Fluoranthene	630000/31500				5 U
Fluorene	100000/5110				5 U
Indeno(1,2,3-cd)pyrene	See BaP (c)				5 U
Naphthalene	4490/238				5 U
Phenanthrene					5 U
Pyrene	660000/32800				5 U
TEQ Equivalent (b)	See BaP (c)				5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID Sampling Date Depth in Feet Unsat/Sat	Screening Level (a)	HL-MW-25S-S10 2/15/2006 38 to 42 Unsat Dup of HL-MW-25S-S4	HL-MW-25S-S5 2/15/2006 48 to 51 Unsat	HL-MW-25S-S6 2/15/2006 58 to 60 Unsat	HL-MW-25S-S7 2/15/2006 68 to 70 Sat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane					6.4 U
1,1,1-Trichloroethane	1610/85				6.4 U
1,1,2,2-Tetrachloroethane					6.4 U
1,1,2-Trichloroethane					6.4 U
1,1-Dichloroethane	8730/543				6.4 U
1,1-Dichloroethene					6.4 U
1,1-Dichloropropene					6.4 U
1,2,3-Trichlorobenzene					26 U
1,2,3-Trichloropropane					6.4 U
1,2,4-Trichlorobenzene					26 U
1,2,4-Trimethylbenzene	31000/1590				26 U
1,2-Dibromo-3-Chloropropane					26 U
1,2-Dibromoethane(EDB)					26 U
1,2-Dichlorobenzene					6.4 U
1,2-Dichloroethane					6.4 U
1,2-Dichloropropane					6.4 U
1,3,5-Trimethylbenzene	8380/443				26 U
1,3-Dichlorobenzene					6.4 U
1,3-Dichloropropane					6.4 U
1,4-Dichlorobenzene					6.4 U
2,2-Dichloropropane					6.4 U
2-Butanone (MEK)	20000/1400				26 U
2-Chlorotoluene	2400/143				26 U
2-Hexanone					26 U
4-Chlorotoluene	4180/250				26 U
4-Isopropyltoluene					26 U
4-Methyl-2-Pentanone					26 U
Acetone	3210/230				17 J
Benzene	5/0.3				6.4 U
Bromobenzene					6.4 U
Bromochloromethane					6.4 U
Bromodichloromethane					6.4 U
Bromoform					6.4 U
Bromomethane	52/3				6.4 U
Carbon Disulfide	5600/266				7.7
Carbon Tetrachloride					6.4 U
Chlorobenzene					6.4 U
Chloroethane					6.4 U
Chloroform	38/2				6.4 U
Chloromethane	22/1				6.4 U
Cis-1,2-Dichloroethene					6.4 U
Cis-1,3-Dichloropropene					6.4 U
Dibromochloromethane					6.4 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening Level (a)	HL-MW-25S-S10	HL-MW-25S-S5	HL-MW-25S-S6	HL-MW-25S-S7
Sampling Date		2/15/2006	2/15/2006	2/15/2006	2/15/2006
Depth in Feet		38 to 42	48 to 51	58 to 60	68 to 70
Unsat/Sat		Unsat Dup of HL-MW-25S-S4	Unsat	Unsat	Sat
Dibromomethane					6.4 U
Dichlorodifluoromethane	47000/551				6.4 U
Ethylbenzene	5990/341				6.4 U
Hexachlorobutadiene					26 U
Isopropylbenzene	7370/405				26 U
Methylene Chloride	22/2				13 U
N-Butylbenzene	19500/988				26 U
N-Propylbenzene	19500/988				26 U
Naphthalene	4490/238				26 U
Sec-Butylbenzene	15800/796				26 U
Styrene	33/2				6.4 U
Tert-Butylbenzene	15600/796				26 U
Tetrachloroethene	0.9/0.05				6.4 U
Toluene	4650/273				2.4 J
Trans-1,2-Dichloroethene					6.4 U
Trans-1,3-Dichloropropene					6.4 U
Trichloroethene (TCE)					6.4 U
Trichlorofluoromethane					6.4 U
Vinyl Chloride					6.4 U
m,p-Xylenes	8520/487				6.4 U
o-Xylene	916/53				6.4 U
NWTPH HCID in mg/kg					
Gasoline	100		20 U	20 U	20 U
Stoddard/Mineral spirits			20 U	20 U	20 U
Kensol	2000		20 U	20 U	20 U
Kerosene/Jet fuel	2000		20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000		50 U	50 U	50 U
Bunker C			50 U	50 U	50 U
Heavy oil	2000		100 U	100 U	100 U
Castor oil			100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000				20 U
Diesel/Fuel oil					50 U
Heavy oil	2000				100 U
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100				5 U
Gasoline	100				5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-25S-S8	HL-MW-25S-S9	HL-MW-26S-S1	HL-MW-26S-S2
Sampling Date	Level (a)	2/15/2006	2/15/2006	2/16/2006	2/16/2006
Depth in Feet		78 to 81.5	88 to 91.5	8 to 10.75	18 to 20.5
Unsat/Sat		Sat	Sat	Unsat	Unsat
Conventionals in %					
Moisture		8	8	8	6
Total Organic Carbon					
Total Solids				94.4 J	
Metals in mg/kg					
Arsenic	0.0341/0.0017			$\boxed{5.92}$	
Barium	1650/82.6			53.3	
Cadmium	0.7/0.0349			0.064	
Chromium	2000/100			10.1	
Lead	250/250			7.91	
Manganese	52.2/3			$\boxed{418}$ J	
Mercury	2/0.105			0.022 U	
Selenium	5/0.264			0.3 J	
Silver	14/0.687			0.058	
PCBs in ug/kg					
Aroclor 1016				10 U	
Aroclor 1221				20 U	
Aroclor 1232				10 U	
Aroclor 1242				10 U	
Aroclor 1248				10 U	
Aroclor 1254				10 U	
Aroclor 1260				20 U	
Total PCBs	270/14			20 U	
PAHs in ug/kg					
2-Methylnaphthalene	2190/112			2.7 U	
Acenaphthene	98000/4980			2.7 U	
Acenaphthylene				2.7 U	
Anthracene	2.2E+06/112000			2.7 U	
Benzo(a)anthracene	See BaP (c)			2.7 U	
Benzo(a)pyrene	233/12			2.7 U	
Benzo(b)fluoranthene	See BaP (c)			2.7 U	
Benzo(g,h,i)perylene				2.7 U	
Benzo(k)fluoranthene	See BaP (c)			2.7 U	
Chrysene	See BaP (c)			2.7 U	
Dibenz(a,h)anthracene	See BaP (c)			2.7 U	
Dibenzofuran	5090/257			2.7 U	
Fluoranthene	630000/31500			2.7 U	
Fluorene	100000/5110			2.7 U	
Indeno(1,2,3-cd)pyrene	See BaP (c)			2.7 U	
Naphthalene	4490/238			2.7 U	
Phenanthrene				2.7 U	
Pyrene	660000/32800			2.7 U	
TEQ Equivalent (b)	See BaP (c)			2.7 U	

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-25S-S8	HL-MW-25S-S9	HL-MW-26S-S1	HL-MW-26S-S2
Sampling Date	Level (a)	2/15/2006	2/15/2006	2/16/2006	2/16/2006
Depth in Feet		78 to 81.5	88 to 91.5	8 to 10.75	18 to 20.5
Unsat/Sat		Sat	Sat	Unsat	Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane				6.2 U	
1,1,1-Trichloroethane	1610/85			6.2 U	
1,1,2,2-Tetrachloroethane				6.2 U	
1,1,2-Trichloroethane				6.2 U	
1,1-Dichloroethane	8730/543			6.2 U	
1,1-Dichloroethene				6.2 U	
1,1-Dichloropropene				6.2 U	
1,2,3-Trichlorobenzene				25 U	
1,2,3-Trichloropropane				6.2 U	
1,2,4-Trichlorobenzene				25 U	
1,2,4-Trimethylbenzene	31000/1590			25 U	
1,2-Dibromo-3-Chloropropane				25 U	
1,2-Dibromoethane(EDB)				25 U	
1,2-Dichlorobenzene				6.2 U	
1,2-Dichloroethane				6.2 U	
1,2-Dichloropropane				6.2 U	
1,3,5-Trimethylbenzene	8380/443			25 U	
1,3-Dichlorobenzene				6.2 U	
1,3-Dichloropropane				6.2 U	
1,4-Dichlorobenzene				6.2 U	
2,2-Dichloropropane				6.2 U	
2-Butanone (MEK)	20000/1400			25 U	
2-Chlorotoluene	2400/143			25 U	
2-Hexanone				25 U	
4-Chlorotoluene	4180/250			25 U	
4-Isopropyltoluene				25 U	
4-Methyl-2-Pentanone				25 U	
Acetone	3210/230			29 J	
Benzene	5/0.3			6.2 U	
Bromobenzene				6.2 U	
Bromochloromethane				6.2 U	
Bromodichloromethane				6.2 U	
Bromoform				6.2 U	
Bromomethane	52/3			6.2 U	
Carbon Disulfide	5600/266			3.7 J	
Carbon Tetrachloride				6.2 U	
Chlorobenzene				6.2 U	
Chloroethane				6.2 U	
Chloroform	38/2			6.2 U	
Chloromethane	22/1			6.2 U	
Cis-1,2-Dichloroethene				6.2 U	
Cis-1,3-Dichloropropene				6.2 U	
Dibromochloromethane				6.2 U	

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-25S-S8	HL-MW-25S-S9	HL-MW-26S-S1	HL-MW-26S-S2
Sampling Date	Level (a)	2/15/2006	2/15/2006	2/16/2006	2/16/2006
Depth in Feet		78 to 81.5	88 to 91.5	8 to 10.75	18 to 20.5
Unsat/Sat		Sat	Sat	Unsat	Unsat
Dibromomethane				6.2 U	
Dichlorodifluoromethane	47000/551			6.2 U	
Ethylbenzene	5990/341			6.2 U	
Hexachlorobutadiene				25 U	
Isopropylbenzene	7370/405			25 U	
Methylene Chloride	22/2			13 U	
N-Butylbenzene	19500/988			25 U	
N-Propylbenzene	19500/988			25 U	
Naphthalene	4490/238			2.7 J	
Sec-Butylbenzene	15800/796			25 U	
Styrene	33/2			6.2 U	
Tert-Butylbenzene	15600/796			25 U	
Tetrachloroethene	0.9/0.05			6.2 U	
Toluene	4650/273			6.2 U	
Trans-1,2-Dichloroethene				6.2 U	
Trans-1,3-Dichloropropene				6.2 U	
Trichloroethene (TCE)				6.2 U	
Trichlorofluoromethane				6.2 U	
Vinyl Chloride				6.2 U	
m,p-Xylenes	8520/487			6.2 U	
o-Xylene	916/53			6.2 U	
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000			20 U	
Diesel/Fuel oil				50 U	
Heavy oil	2000			100 U	
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100			5 U	
Gasoline	100			5 U	

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-26S-S3	HL-MW-26S-S4	HL-MW-26S-S5	HL-MW-26S-S6
Sampling Date	Level (a)	2/16/2006	2/16/2006	2/16/2006	2/16/2006
Depth in Feet		28 to 30	38 to 42	50 to 53	58 to 60
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Conventionals in %					
Moisture		6	4	5	5
Total Organic Carbon					
Total Solids			99.1 J		
Metals in mg/kg					
Arsenic	0.0341/0.0017		2.52		
Barium	1650/82.6		32		
Cadmium	0.7/0.0349		0.033 J		
Chromium	2000/100		3.84		
Lead	250/250		3.63		
Manganese	52.2/3		204 J		
Mercury	2/0.105		0.019 U		
Selenium	5/0.264		1 U		
Silver	14/0.687		0.024		
PCBs in ug/kg					
Aroclor 1016			10 U		
Aroclor 1221			20 U		
Aroclor 1232			10 U		
Aroclor 1242			10 U		
Aroclor 1248			10 U		
Aroclor 1254			10 U		
Aroclor 1260			10 U		
Total PCBs	270/14		20 U		
PAHs in ug/kg					
2-Methylnaphthalene	2190/112		2.6 U		
Acenaphthene	98000/4980		2.6 U		
Acenaphthylene			2.6 U		
Anthracene	2.2E+06/112000		2.6 U		
Benzo(a)anthracene	See BaP (c)		2.6 U		
Benzo(a)pyrene	233/12		2.6 U		
Benzo(b)fluoranthene	See BaP (c)		2.6 U		
Benzo(g,h,i)perylene			2.6 U		
Benzo(k)fluoranthene	See BaP (c)		2.6 U		
Chrysene	See BaP (c)		2.6 U		
Dibenz(a,h)anthracene	See BaP (c)		2.6 U		
Dibenzofuran	5090/257		2.6 U		
Fluoranthene	630000/31500		2.6 U		
Fluorene	100000/5110		2.6 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)		2.6 U		
Naphthalene	4490/238		2.6 U		
Phenanthrene			2.6 U		
Pyrene	660000/32800		2.6 U		
TEQ Equivalent (b)	See BaP (c)		2.6 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-26S-S3	HL-MW-26S-S4	HL-MW-26S-S5	HL-MW-26S-S6
Sampling Date	Level (a)	2/16/2006	2/16/2006	2/16/2006	2/16/2006
Depth in Feet		28 to 30	38 to 42	50 to 53	58 to 60
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane			6.6 U		
1,1,1-Trichloroethane	1610/85		6.6 U		
1,1,2,2-Tetrachloroethane			6.6 U		
1,1,2-Trichloroethane			6.6 U		
1,1-Dichloroethane	8730/543		6.6 U		
1,1-Dichloroethene			6.6 U		
1,1-Dichloropropene			6.6 U		
1,2,3-Trichlorobenzene			27 U		
1,2,3-Trichloropropane			6.6 U		
1,2,4-Trichlorobenzene			27 U		
1,2,4-Trimethylbenzene	31000/1590		27 U		
1,2-Dibromo-3-Chloropropane			27 U		
1,2-Dibromoethane(EDB)			27 U		
1,2-Dichlorobenzene			6.6 U		
1,2-Dichloroethane			6.6 U		
1,2-Dichloropropane			6.6 U		
1,3,5-Trimethylbenzene	8380/443		27 U		
1,3-Dichlorobenzene			6.6 U		
1,3-Dichloropropane			6.6 U		
1,4-Dichlorobenzene			6.6 U		
2,2-Dichloropropane			6.6 U		
2-Butanone (MEK)	20000/1400		27 U		
2-Chlorotoluene	2400/143		27 U		
2-Hexanone			27 U		
4-Chlorotoluene	4180/250		27 U		
4-Isopropyltoluene			27 U		
4-Methyl-2-Pentanone			27 U		
Acetone	3210/230		27 U		
Benzene	5/0.3		6.6 U		
Bromobenzene			6.6 U		
Bromochloromethane			6.6 U		
Bromodichloromethane			6.6 U		
Bromoform			6.6 U		
Bromomethane	52/3		6.6 U		
Carbon Disulfide	5600/266		6.9 J		
Carbon Tetrachloride			6.6 U		
Chlorobenzene			6.6 U		
Chloroethane			6.6 U		
Chloroform	38/2		6.6 U		
Chloromethane	22/1		6.6 U		
Cis-1,2-Dichloroethene			6.6 U		
Cis-1,3-Dichloropropene			6.6 U		
Dibromochloromethane			6.6 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-26S-S3	HL-MW-26S-S4	HL-MW-26S-S5	HL-MW-26S-S6
Sampling Date	Level (a)	2/16/2006	2/16/2006	2/16/2006	2/16/2006
Depth in Feet		28 to 30	38 to 42	50 to 53	58 to 60
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Dibromomethane			6.6 U		
Dichlorodifluoromethane	47000/551		6.6 U		
Ethylbenzene	5990/341		6.6 U		
Hexachlorobutadiene			27 U		
Isopropylbenzene	7370/405		27 U		
Methylene Chloride	22/2		14 U		
N-Butylbenzene	19500/988		27 U		
N-Propylbenzene	19500/988		27 U		
Naphthalene	4490/238		1.6 J		
Sec-Butylbenzene	15800/796		27 U		
Styrene	33/2		6.6 U		
Tert-Butylbenzene	15600/796		27 U		
Tetrachloroethene	0.9/0.05		6.6 U		
Toluene	4650/273		6.6 U		
Trans-1,2-Dichloroethene			6.6 U		
Trans-1,3-Dichloropropene			6.6 U		
Trichloroethene (TCE)			6.6 U		
Trichlorofluoromethane			6.6 U		
Vinyl Chloride			6.6 U		
m,p-Xylenes	8520/487		6.6 U		
o-Xylene	916/53		6.6 U		
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000		20 U		
Diesel/Fuel oil			50 U		
Heavy oil	2000		100 U		
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100		5 U		
Gasoline	100		5 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-26S-S10	HL-MW-26S-S7	HL-MW-26S-S8	HL-MW-26S-S9
Sampling Date	Level (a)	2/16/2006	2/16/2006	2/16/2006	2/16/2006
Depth in Feet		58 to 60	68 to 70.5	78 to 80.75	88 to 90
Unsat/Sat		Unsat Dup of HL-MW-26S-S6	Sat	Sat	Sat
Conventionals in %					
Moisture			7	5	8
Total Organic Carbon					
Total Solids			95.4 J		
Metals in mg/kg					
Arsenic	0.0341/0.0017		$\boxed{5.09}$		
Barium	1650/82.6		25.2		
Cadmium	0.7/0.0349		0.03 J		
Chromium	2000/100		4.44		
Lead	250/250		4.56		
Manganese	52.2/3		$\boxed{130}$ J		
Mercury	2/0.105		0.02 U		
Selenium	5/0.264		1 U		
Silver	14/0.687		0.048		
PCBs in ug/kg					
Aroclor 1016			10 U		
Aroclor 1221			20 U		
Aroclor 1232			10 U		
Aroclor 1242			10 U		
Aroclor 1248			10 U		
Aroclor 1254			10 U		
Aroclor 1260			10 U		
Total PCBs	270/14		20 U		
PAHs in ug/kg					
2-Methylnaphthalene	2190/112		2.7 U		
Acenaphthene	98000/4980		2.7 U		
Acenaphthylene			2.7 U		
Anthracene	2.2E+06/112000		2.7 U		
Benzo(a)anthracene	See BaP (c)		2.7 U		
Benzo(a)pyrene	233/12		2.7 U		
Benzo(b)fluoranthene	See BaP (c)		2.7 U		
Benzo(g,h,i)perylene			2.7 U		
Benzo(k)fluoranthene	See BaP (c)		2.7 U		
Chrysene	See BaP (c)		2.7 U		
Dibenz(a,h)anthracene	See BaP (c)		2.7 U		
Dibenzofuran	5090/257		2.7 U		
Fluoranthene	630000/31500		2.7 U		
Fluorene	100000/5110		2.7 U		
Indeno(1,2,3-cd)pyrene	See BaP (c)		2.7 U		
Naphthalene	4490/238		2.7 U		
Phenanthrene			2.7 U		
Pyrene	660000/32800		2.7 U		
TEQ Equivalent (b)	See BaP (c)		2.7 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-26S-S10	HL-MW-26S-S7	HL-MW-26S-S8	HL-MW-26S-S9
Sampling Date	Level (a)	2/16/2006	2/16/2006	2/16/2006	2/16/2006
Depth in Feet		58 to 60	68 to 70.5	78 to 80.75	88 to 90
Unsat/Sat		Unsat	Sat	Sat	Sat
		Dup of HL-MW-26S-S6			
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane			6 U		
1,1,1-Trichloroethane	1610/85		6 U		
1,1,2,2-Tetrachloroethane			6 U		
1,1,2-Trichloroethane			6 U		
1,1-Dichloroethane	8730/543		6 U		
1,1-Dichloroethene			6 U		
1,1-Dichloropropene			6 U		
1,2,3-Trichlorobenzene			24 U		
1,2,3-Trichloropropane			6 U		
1,2,4-Trichlorobenzene			24 U		
1,2,4-Trimethylbenzene	31000/1590		24 U		
1,2-Dibromo-3-Chloropropane			24 U		
1,2-Dibromoethane(EDB)			24 U		
1,2-Dichlorobenzene			6 U		
1,2-Dichloroethane			6 U		
1,2-Dichloropropane			6 U		
1,3,5-Trimethylbenzene	8380/443		24 U		
1,3-Dichlorobenzene			6 U		
1,3-Dichloropropane			6 U		
1,4-Dichlorobenzene			6 U		
2,2-Dichloropropane			6 U		
2-Butanone (MEK)	20000/1400		24 U		
2-Chlorotoluene	2400/143		24 U		
2-Hexanone			24 U		
4-Chlorotoluene	4180/250		24 U		
4-Isopropyltoluene			24 U		
4-Methyl-2-Pentanone			24 U		
Acetone	3210/230		24 U		
Benzene	5/0.3		6 U		
Bromobenzene			6 U		
Bromochloromethane			6 U		
Bromodichloromethane			6 U		
Bromoform			6 U		
Bromomethane	52/3		6 U		
Carbon Disulfide	5600/266		7.8 J		
Carbon Tetrachloride			6 U		
Chlorobenzene			6 U		
Chloroethane			6 U		
Chloroform	38/2		6 U		
Chloromethane	22/1		6 U		
Cis-1,2-Dichloroethene			6 U		
Cis-1,3-Dichloropropene			6 U		
Dibromochloromethane			6 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-26S-S10	HL-MW-26S-S7	HL-MW-26S-S8	HL-MW-26S-S9
Sampling Date	Level (a)	2/16/2006	2/16/2006	2/16/2006	2/16/2006
Depth in Feet		58 to 60	68 to 70.5	78 to 80.75	88 to 90
Unsat/Sat		Unsat	Sat	Sat	Sat
		Dup of HL-MW-26S-S6			
Dibromomethane			6 U		
Dichlorodifluoromethane	47000/551		6 U		
Ethylbenzene	5990/341		6 U		
Hexachlorobutadiene			24 U		
Isopropylbenzene	7370/405		24 U		
Methylene Chloride	22/2		12 U		
N-Butylbenzene	19500/988		24 U		
N-Propylbenzene	19500/988		24 U		
Naphthalene	4490/238		24 U		
Sec-Butylbenzene	15800/796		24 U		
Styrene	33/2		6 U		
Tert-Butylbenzene	15600/796		24 U		
Tetrachloroethene	0.9/0.05		6 U		
Toluene	4650/273		6 U		
Trans-1,2-Dichloroethene			6 U		
Trans-1,3-Dichloropropene			6 U		
Trichloroethene (TCE)			6 U		
Trichlorofluoromethane			6 U		
Vinyl Chloride			6 U		
m,p-Xylenes	8520/487		6 U		
o-Xylene	916/53		6 U		
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000		20 U		
Diesel/Fuel oil			50 U		
Heavy oil	2000		100 U		
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100		5 U		
Gasoline	100		5 U		

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S1	HL-MW-27D-S-1	HL-MW-27D-S2	HL-MW-27D-S3
Sampling Date	Level (a)	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Depth in Feet		8 to 10.4	8 to 10.4	18 to 20.2	28 to 30.5
Unsat/Sat		Unsat	Unsat Reanalysis	Unsat	Unsat
Conventionals in %					
Moisture		12		9	5
Total Organic Carbon			0.29 J		
Total Solids		94.5	97.1 J		
Metals in mg/kg					
Arsenic	0.0341/0.0017	$\boxed{4.11}$			
Barium	1650/82.6	89.5			
Cadmium	0.7/0.0349	0.124			
Chromium	2000/100	11			
Lead	250/250	13.4			
Manganese	52.2/3	$\boxed{389}$ J			
Mercury	2/0.105	0.052 U			
Selenium	5/0.264	0.3 J			
Silver	14/0.687	0.284			
PCBs in ug/kg					
Aroclor 1016		10 U	9.8 UJ		
Aroclor 1221		20 U	20 UJ		
Aroclor 1232		10 U	9.8 UJ		
Aroclor 1242		10 U	9.8 UJ		
Aroclor 1248		10 U	9.8 UJ		
Aroclor 1254		230	83 J		
Aroclor 1260		10 U	9.8 UJ		
Total PCBs	270/14	230	83 J		
PAHs in ug/kg					
2-Methylnaphthalene	2190/112	0.7 J			
Acenaphthene	98000/4980	0.28 J			
Acenaphthylene		2.7 U			
Anthracene	2.2E+06/112000	0.66 J			
Benzo(a)anthracene	See BaP (c)	3.3			
Benzo(a)pyrene	233/12	2.8			
Benzo(b)fluoranthene	See BaP (c)	4.1			
Benzo(g,h,i)perylene		3.3			
Benzo(k)fluoranthene	See BaP (c)	2.6 J			
Chrysene	See BaP (c)	4.6			
Dibenz(a,h)anthracene	See BaP (c)	0.64 J			
Dibenzofuran	5090/257	0.28 J			
Fluoranthene	630000/31500	7.3			
Fluorene	100000/5110	0.3 J			
Indeno(1,2,3-cd)pyrene	See BaP (c)	3			
Naphthalene	4490/238	2.7 U			
Phenanthrene		4.6			
Pyrene	660000/32800	7.9			
TEQ Equivalent (b)	See BaP (c)	4.21			

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID Sampling Date Depth in Feet Unsat/Sat	Screening Level (a)	HL-MW-27D-S1 2/21/2006 8 to 10.4 Unsat	HL-MW-27D-S-1 2/21/2006 8 to 10.4 Unsat Reanalysis	HL-MW-27D-S2 2/21/2006 18 to 20.2 Unsat	HL-MW-27D-S3 2/21/2006 28 to 30.5 Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		7.3 U			
1,1,1-Trichloroethane	1610/85	7.3 U			
1,1,2,2-Tetrachloroethane		7.3 U			
1,1,2-Trichloroethane		7.3 U			
1,1-Dichloroethane	8730/543	7.3 U			
1,1-Dichloroethene		7.3 U			
1,1-Dichloropropene		7.3 U			
1,2,3-Trichlorobenzene		30 U			
1,2,3-Trichloropropane		7.3 U			
1,2,4-Trichlorobenzene		30 U			
1,2,4-Trimethylbenzene	31000/1590	30 U			
1,2-Dibromo-3-Chloropropane		30 U			
1,2-Dibromoethane(EDB)		30 U			
1,2-Dichlorobenzene		7.3 U			
1,2-Dichloroethane		7.3 U			
1,2-Dichloropropane		7.3 U			
1,3,5-Trimethylbenzene	8380/443	30 U			
1,3-Dichlorobenzene		7.3 U			
1,3-Dichloropropane		7.3 U			
1,4-Dichlorobenzene		7.3 U			
2,2-Dichloropropane		7.3 U			
2-Butanone (MEK)	20000/1400	30 U			
2-Chlorotoluene	2400/143	30 U			
2-Hexanone		30 U			
4-Chlorotoluene	4180/250	30 U			
4-Isopropyltoluene		30 U			
4-Methyl-2-Pentanone		30 U			
Acetone	3210/230	36 J			
Benzene	5/0.3	7.3 U			
Bromobenzene		7.3 U			
Bromochloromethane		7.3 U			
Bromodichloromethane		7.3 U			
Bromoform		7.3 U			
Bromomethane	52/3	7.3 U			
Carbon Disulfide	5600/266	7.3 U			
Carbon Tetrachloride		7.3 U			
Chlorobenzene		7.3 U			
Chloroethane		7.3 U			
Chloroform	38/2	7.3 U			
Chloromethane	22/1	7.3 U			
Cis-1,2-Dichloroethene		7.3 U			
Cis-1,3-Dichloropropene		7.3 U			
Dibromochloromethane		7.3 U			

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S1	HL-MW-27D-S-1	HL-MW-27D-S2	HL-MW-27D-S3
Sampling Date	Level (a)	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Depth in Feet		8 to 10.4	8 to 10.4	18 to 20.2	28 to 30.5
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
			Reanalysis		
Dibromomethane		7.3 U			
Dichlorodifluoromethane	47000/551	7.3 U			
Ethylbenzene	5990/341	7.3 U			
Hexachlorobutadiene		30 U			
Isopropylbenzene	7370/405	30 U			
Methylene Chloride	22/2	15 U			
N-Butylbenzene	19500/988	30 U			
N-Propylbenzene	19500/988	30 U			
Naphthalene	4490/238	30 U			
Sec-Butylbenzene	15800/796	30 U			
Styrene	33/2	7.3 U			
Tert-Butylbenzene	15600/796	30 U			
Tetrachloroethene	0.9/0.05	7.3 U			
Toluene	4650/273	7.3 U			
Trans-1,2-Dichloroethene		7.3 U			
Trans-1,3-Dichloropropene		7.3 U			
Trichloroethene (TCE)		7.3 U			
Trichlorofluoromethane		7.3 U			
Vinyl Chloride		7.3 U			
m,p-Xylenes	8520/487	7.3 U			
o-Xylene	916/53	7.3 U			
NWTPH HCID in mg/kg					
Gasoline	100	20 U		20 U	20 U
Stoddard/Mineral spirits		20 U		20 U	20 U
Kensol	2000	20 U		20 U	20 U
Kerosene/Jet fuel	2000	20 U		20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U		50 U	50 U
Bunker C		50 U		50 U	50 U
Heavy oil	2000	100 U		100 U	100 U
Castor oil		100 U		100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000	20 U			
Diesel/Fuel oil		50 U			
Heavy oil	2000	100 U			
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100	5 U			
Gasoline	100	5 U			

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S4	HL-MW-27D-S5	HL-MW-27D-S6	HL-MW-27D-S7
Sampling Date	Level (a)	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Depth in Feet		38 to 40.4	50 to 55	58 to 60	68 to 70
Unsat/Sat		Unsat	Unsat	Unsat	Sat
Conventionals in %					
Moisture		3	4	7	8
Total Organic Carbon					
Total Solids		98.5			97.1
Metals in mg/kg					
Arsenic	0.0341/0.0017	$\boxed{3.77}$			$\boxed{6.14}$
Barium	1650/82.6	16.3			37.7
Cadmium	0.7/0.0349	0.05 J			0.025 J
Chromium	2000/100	3.24			7.27
Lead	250/250	7.25			5.22
Manganese	52.2/3	$\boxed{223}$ J			$\boxed{181}$ J
Mercury	2/0.105	0.019 U			0.019 U
Selenium	5/0.264	1 U			1 U
Silver	14/0.687	0.026			0.043
PCBs in ug/kg					
Aroclor 1016		10 U			10 U
Aroclor 1221		20 U			20 U
Aroclor 1232		10 U			10 U
Aroclor 1242		10 U			10 U
Aroclor 1248		10 U			10 U
Aroclor 1254		10 U			10 U
Aroclor 1260		10 U			10 U
Total PCBs	270/14	20 U			20 U
PAHs in ug/kg					
2-Methylnaphthalene	2190/112	0.48 J			2.6 U
Acenaphthene	98000/4980	2.6 U			2.6 U
Acenaphthylene		2.6 U			2.6 U
Anthracene	2.2E+06/112000	2.6 U			2.6 U
Benzo(a)anthracene	See BaP (c)	2.6 U			2.6 U
Benzo(a)pyrene	233/12	2.6 U			2.6 U
Benzo(b)fluoranthene	See BaP (c)	2.6 U			2.6 U
Benzo(g,h,i)perylene		2.6 U			2.6 U
Benzo(k)fluoranthene	See BaP (c)	2.6 U			2.6 U
Chrysene	See BaP (c)	2.6 U			2.6 U
Dibenz(a,h)anthracene	See BaP (c)	2.6 U			2.6 U
Dibenzofuran	5090/257	2.6 U			2.6 U
Fluoranthene	630000/31500	2.6 U			2.6 U
Fluorene	100000/5110	2.6 U			2.6 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	2.6 U			2.6 U
Naphthalene	4490/238	2.6 U			2.6 U
Phenanthrene		0.47 J			0.36 J
Pyrene	660000/32800	2.6 U			2.6 U
TEQ Equivalent (b)	See BaP (c)	2.6 U			2.6 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S4	HL-MW-27D-S5	HL-MW-27D-S6	HL-MW-27D-S7
Sampling Date	Level (a)	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Depth in Feet		38 to 40.4	50 to 55	58 to 60	68 to 70
Unsat/Sat		Unsat	Unsat	Unsat	Sat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		5.7 U			5.7 U
1,1,1-Trichloroethane	1610/85	5.7 U			5.7 U
1,1,2,2-Tetrachloroethane		5.7 U			5.7 U
1,1,2-Trichloroethane		5.7 U			5.7 U
1,1-Dichloroethane	8730/543	5.7 U			5.7 U
1,1-Dichloroethene		5.7 U			5.7 U
1,1-Dichloropropene		5.7 U			5.7 U
1,2,3-Trichlorobenzene		23 U			23 U
1,2,3-Trichloropropane		5.7 U			5.7 U
1,2,4-Trichlorobenzene		23 U			23 U
1,2,4-Trimethylbenzene	31000/1590	23 U			23 U
1,2-Dibromo-3-Chloropropane		23 U			23 U
1,2-Dibromoethane(EDB)		23 U			23 U
1,2-Dichlorobenzene		5.7 U			5.7 U
1,2-Dichloroethane		5.7 U			5.7 U
1,2-Dichloropropane		5.7 U			5.7 U
1,3,5-Trimethylbenzene	8380/443	23 U			23 U
1,3-Dichlorobenzene		5.7 U			5.7 U
1,3-Dichloropropane		5.7 U			5.7 U
1,4-Dichlorobenzene		5.7 U			5.7 U
2,2-Dichloropropane		5.7 U			5.7 U
2-Butanone (MEK)	20000/1400	23 U			23 U
2-Chlorotoluene	2400/143	23 U			23 U
2-Hexanone		23 U			23 U
4-Chlorotoluene	4180/250	23 U			23 U
4-Isopropyltoluene		23 U			23 U
4-Methyl-2-Pentanone		23 U			23 U
Acetone	3210/230	23 U			23 U
Benzene	5/0.3	1.2 J			5.7 U
Bromobenzene		5.7 U			5.7 U
Bromochloromethane		5.7 U			5.7 U
Bromodichloromethane		5.7 U			5.7 U
Bromoform		5.7 U			5.7 U
Bromomethane	52/3	5.7 U			5.7 U
Carbon Disulfide	5600/266	22			6.8 J
Carbon Tetrachloride		5.7 U			5.7 U
Chlorobenzene		5.7 U			5.7 U
Chloroethane		5.7 U			5.7 U
Chloroform	38/2	5.7 U			5.7 U
Chloromethane	22/1	5.7 U			5.7 U
Cis-1,2-Dichloroethene		5.7 U			5.7 U
Cis-1,3-Dichloropropene		5.7 U			5.7 U
Dibromochloromethane		5.7 U			5.7 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S4	HL-MW-27D-S5	HL-MW-27D-S6	HL-MW-27D-S7
Sampling Date	Level (a)	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Depth in Feet		38 to 40.4	50 to 55	58 to 60	68 to 70
Unsat/Sat		Unsat	Unsat	Unsat	Sat
Dibromomethane		5.7 U			5.7 U
Dichlorodifluoromethane	47000/551	5.7 U			5.7 U
Ethylbenzene	5990/341	5.7 U			5.7 U
Hexachlorobutadiene		23 U			23 U
Isopropylbenzene	7370/405	23 U			23 U
Methylene Chloride	22/2	12 U			12 U
N-Butylbenzene	19500/988	23 U			23 U
N-Propylbenzene	19500/988	23 U			23 U
Naphthalene	4490/238	23 U			23 U
Sec-Butylbenzene	15800/796	23 U			23 U
Styrene	33/2	5.7 U			5.7 U
Tert-Butylbenzene	15600/796	23 U			23 U
Tetrachloroethene	0.9/0.05	5.7 U			5.7 U
Toluene	4650/273	1.1 J			5.7 U
Trans-1,2-Dichloroethene		5.7 U			5.7 U
Trans-1,3-Dichloropropene		5.7 U			5.7 U
Trichloroethene (TCE)		5.7 U			5.7 U
Trichlorofluoromethane		5.7 U			5.7 U
Vinyl Chloride		5.7 U			5.7 U
m,p-Xylenes	8520/487	5.7 U			5.7 U
o-Xylene	916/53	5.7 U			5.7 U
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000	20 U			20 U
Diesel/Fuel oil		50 U			50 U
Heavy oil	2000	100 U			100 U
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100	5 U			5 U
Gasoline	100	5 U			5 U

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S12	HL-MW-27D-S8	HL-MW-27D-S9	HL-MW-27D S-9
Sampling Date	Level (a)	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Depth in Feet		68 to 70	78 to 80	88 to 90.9	88 to 90.9
Unsat/Sat		Sat	Sat	Sat	Sat
		Dup of HL-MW-27D-S7			Reanalysis
Conventionals in %					
Moisture			8	8	
Total Organic Carbon					0.09 J
Total Solids		97.1		91.6	93.5 J
Metals in mg/kg					
Arsenic	0.0341/0.0017				
Barium	1650/82.6				
Cadmium	0.7/0.0349				
Chromium	2000/100				
Lead	250/250				
Manganese	52.2/3				
Mercury	2/0.105				
Selenium	5/0.264				
Silver	14/0.687				
PCBs in ug/kg					
Aroclor 1016		10 U		10 U	9.8 UJ
Aroclor 1221		20 U		20 U	20 UJ
Aroclor 1232		10 U		10 U	9.8 UJ
Aroclor 1242		10 U		5.3 J	9.8 UJ
Aroclor 1248		10 U		10 U	9.8 UJ
Aroclor 1254		10 U		10 U	9.8 UJ
Aroclor 1260		10 U		10 U	9.8 UJ
Total PCBs	270/14	20 U		5.3 J	20 UJ
PAHs in ug/kg					
2-Methylnaphthalene	2190/112				
Acenaphthene	98000/4980				
Acenaphthylene					
Anthracene	2.2E+06/112000				
Benzo(a)anthracene	See BaP (c)				
Benzo(a)pyrene	233/12				
Benzo(b)fluoranthene	See BaP (c)				
Benzo(g,h,i)perylene					
Benzo(k)fluoranthene	See BaP (c)				
Chrysene	See BaP (c)				
Dibenz(a,h)anthracene	See BaP (c)				
Dibenzofuran	5090/257				
Fluoranthene	630000/31500				
Fluorene	100000/5110				
Indeno(1,2,3-cd)pyrene	See BaP (c)				
Naphthalene	4490/238				
Phenanthrene					
Pyrene	660000/32800				
TEQ Equivalent (b)	See BaP (c)				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S12	HL-MW-27D-S8	HL-MW-27D-S9	HL-MW-27D S-9
Sampling Date	Level (a)	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Depth in Feet		68 to 70	78 to 80	88 to 90.9	88 to 90.9
Unsat/Sat		Sat	Sat	Sat	Sat
		Dup of HL-MW-27D-S7			Reanalysis
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane		6.4 U			
1,1,1-Trichloroethane	1610/85	6.4 U			
1,1,2,2-Tetrachloroethane		6.4 U			
1,1,2-Trichloroethane		6.4 U			
1,1-Dichloroethane	8730/543	6.4 U			
1,1-Dichloroethene		6.4 U			
1,1-Dichloropropene		6.4 U			
1,2,3-Trichlorobenzene		26 U			
1,2,3-Trichloropropane		6.4 U			
1,2,4-Trichlorobenzene		26 U			
1,2,4-Trimethylbenzene	31000/1590	26 U			
1,2-Dibromo-3-Chloropropane		26 U			
1,2-Dibromoethane(EDB)		26 U			
1,2-Dichlorobenzene		6.4 U			
1,2-Dichloroethane		6.4 U			
1,2-Dichloropropane		6.4 U			
1,3,5-Trimethylbenzene	8380/443	26 U			
1,3-Dichlorobenzene		6.4 U			
1,3-Dichloropropane		6.4 U			
1,4-Dichlorobenzene		6.4 U			
2,2-Dichloropropane		6.4 U			
2-Butanone (MEK)	20000/1400	26 U			
2-Chlorotoluene	2400/143	26 U			
2-Hexanone		26 U			
4-Chlorotoluene	4180/250	26 U			
4-Isopropyltoluene		26 U			
4-Methyl-2-Pentanone		26 U			
Acetone	3210/230	31			
Benzene	5/0.3	6.4 U			
Bromobenzene		6.4 U			
Bromochloromethane		6.4 U			
Bromodichloromethane		6.4 U			
Bromoform		6.4 U			
Bromomethane	52/3	1.4 J			
Carbon Disulfide	5600/266	2.2 J			
Carbon Tetrachloride		6.4 U			
Chlorobenzene		6.4 U			
Chloroethane		6.4 U			
Chloroform	38/2	6.4 U			
Chloromethane	22/1	6.4 U			
Cis-1,2-Dichloroethene		6.4 U			
Cis-1,3-Dichloropropene		6.4 U			
Dibromochloromethane		6.4 U			

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S12	HL-MW-27D-S8	HL-MW-27D-S9	HL-MW-27D S-9
Sampling Date	Level (a)	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Depth in Feet		68 to 70	78 to 80	88 to 90.9	88 to 90.9
Unsat/Sat		Sat	Sat	Sat	Sat
		Dup of HL-MW-27D-S7			Reanalysis
Dibromomethane		6.4 U			
Dichlorodifluoromethane	47000/551	6.4 U			
Ethylbenzene	5990/341	6.4 U			
Hexachlorobutadiene		26 U			
Isopropylbenzene	7370/405	26 U			
Methylene Chloride	22/2	13 U			
N-Butylbenzene	19500/988	26 U			
N-Propylbenzene	19500/988	26 U			
Naphthalene	4490/238	26 U			
Sec-Butylbenzene	15800/796	26 U			
Styrene	33/2	6.4 U			
Tert-Butylbenzene	15600/796	26 U			
Tetrachloroethene	0.9/0.05	6.4 U			
Toluene	4650/273	6.4 U			
Trans-1,2-Dichloroethene		6.4 U			
Trans-1,3-Dichloropropene		6.4 U			
Trichloroethene (TCE)		6.4 U			
Trichlorofluoromethane		6.4 U			
Vinyl Chloride		6.4 U			
m,p-Xylenes	8520/487	6.4 U			
o-Xylene	916/53	6.4 U			
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	
Stoddard/Mineral spirits		20 U	20 U	20 U	
Kensol	2000	20 U	20 U	20 U	
Kerosene/Jet fuel	2000	20 U	20 U	20 U	
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	
Bunker C		50 U	50 U	50 U	
Heavy oil	2000	100 U	100 U	100 U	
Castor oil		100 U	100 U	100 U	
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000				
Diesel/Fuel oil					
Heavy oil	2000				
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100	5 U			
Gasoline	100	5 U			

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S10	HL-MW-28DD/S-1	HL-MW-28DD/S-2	HL-MW-28DD/S-3
Sampling Date	Level (a)	2/21/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		108 to 111.2	2 to 2.5	2.5 to 3	5
Unsat/Sat		Sat	Unsat	Unsat	Unsat
Conventionals in %					
Moisture		9	7.2	4.3	7.8
Total Organic Carbon			0.31	0.04 J	0.03 J
Total Solids			94.8	96.6	93.8
Metals in mg/kg					
Arsenic	0.0341/0.0017				
Barium	1650/82.6				
Cadmium	0.7/0.0349				
Chromium	2000/100				
Lead	250/250				
Manganese	52.2/3				
Mercury	2/0.105				
Selenium	5/0.264				
Silver	14/0.687				
PCBs in ug/kg					
Aroclor 1016			9.9 U	9.9 U	9.9 U
Aroclor 1221			20 U	20 U	20 U
Aroclor 1232			9.9 U	9.9 U	9.9 U
Aroclor 1242			9.9 U	9.9 U	9.9 U
Aroclor 1248			9.9 U	9.9 U	9.9 U
Aroclor 1254			9.9 U	9.9 U	9.9 U
Aroclor 1260			9.9 U	9.9 U	9.9 U
Total PCBs	270/14		20 U	20 U	20 U
PAHs in ug/kg					
2-Methylnaphthalene	2190/112				
Acenaphthene	98000/4980				
Acenaphthylene					
Anthracene	2.2E+06/112000				
Benzo(a)anthracene	See BaP (c)				
Benzo(a)pyrene	233/12				
Benzo(b)fluoranthene	See BaP (c)				
Benzo(g,h,i)perylene					
Benzo(k)fluoranthene	See BaP (c)				
Chrysene	See BaP (c)				
Dibenz(a,h)anthracene	See BaP (c)				
Dibenzofuran	5090/257				
Fluoranthene	630000/31500				
Fluorene	100000/5110				
Indeno(1,2,3-cd)pyrene	See BaP (c)				
Naphthalene	4490/238				
Phenanthrene					
Pyrene	660000/32800				
TEQ Equivalent (b)	See BaP (c)				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S10	HL-MW-28DD/S-1	HL-MW-28DD/S-2	HL-MW-28DD/S-3
Sampling Date	Level (a)	2/21/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		108 to 111.2	2 to 2.5	2.5 to 3	5
Unsat/Sat		Sat	Unsat	Unsat	Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane					
1,1,1-Trichloroethane	1610/85				
1,1,2,2-Tetrachloroethane					
1,1,2-Trichloroethane					
1,1-Dichloroethane	8730/543				
1,1-Dichloroethene					
1,1-Dichloropropene					
1,2,3-Trichlorobenzene					
1,2,3-Trichloropropane					
1,2,4-Trichlorobenzene					
1,2,4-Trimethylbenzene	31000/1590				
1,2-Dibromo-3-Chloropropane					
1,2-Dibromoethane(EDB)					
1,2-Dichlorobenzene					
1,2-Dichloroethane					
1,2-Dichloropropane					
1,3,5-Trimethylbenzene	8380/443				
1,3-Dichlorobenzene					
1,3-Dichloropropane					
1,4-Dichlorobenzene					
2,2-Dichloropropane					
2-Butanone (MEK)	20000/1400				
2-Chlorotoluene	2400/143				
2-Hexanone					
4-Chlorotoluene	4180/250				
4-Isopropyltoluene					
4-Methyl-2-Pentanone					
Acetone	3210/230				
Benzene	5/0.3				
Bromobenzene					
Bromochloromethane					
Bromodichloromethane					
Bromoform					
Bromomethane	52/3				
Carbon Disulfide	5600/266				
Carbon Tetrachloride					
Chlorobenzene					
Chloroethane					
Chloroform	38/2				
Chloromethane	22/1				
Cis-1,2-Dichloroethene					
Cis-1,3-Dichloropropene					
Dibromochloromethane					

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-27D-S10	HL-MW-28DD/S-1	HL-MW-28DD/S-2	HL-MW-28DD/S-3
Sampling Date	Level (a)	2/21/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		108 to 111.2	2 to 2.5	2.5 to 3	5
Unsat/Sat		Sat	Unsat	Unsat	Unsat
Dibromomethane					
Dichlorodifluoromethane	47000/551				
Ethylbenzene	5990/341				
Hexachlorobutadiene					
Isopropylbenzene	7370/405				
Methylene Chloride	22/2				
N-Butylbenzene	19500/988				
N-Propylbenzene	19500/988				
Naphthalene	4490/238				
Sec-Butylbenzene	15800/796				
Styrene	33/2				
Tert-Butylbenzene	15600/796				
Tetrachloroethene	0.9/0.05				
Toluene	4650/273				
Trans-1,2-Dichloroethene					
Trans-1,3-Dichloropropene					
Trichloroethene (TCE)					
Trichlorofluoromethane					
Vinyl Chloride					
m,p-Xylenes	8520/487				
o-Xylene	916/53				
NWTPH HCID in mg/kg					
Gasoline	100		20 U	20 U	20 U
Stoddard/Mineral spirits			20 U	20 U	20 U
Kensol	2000		20 U	20 U	20 U
Kerosene/Jet fuel	2000		20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000		50 U	50 U	50 U
Bunker C			50 U	50 U	50 U
Heavy oil	2000		100 U	100 U	100 U
Castor oil			100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000				
Diesel/Fuel oil					
Heavy oil	2000				
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100				
Gasoline	100				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-4	HL-MW-28DD/S-5	HL-MW-28DD/S-6	HL-MW-28DD/S-7
Sampling Date	Level (a)	9/05/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		10	20	28	40
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Conventionals in %					
Moisture		4.2	5.1	3.6	6.5
Total Organic Carbon		0.04 J	0.06	0.06	0.07
Total Solids		97.3	94.9	96.2	94.7
Metals in mg/kg					
Arsenic	0.0341/0.0017				
Barium	1650/82.6				
Cadmium	0.7/0.0349				
Chromium	2000/100				
Lead	250/250				
Manganese	52.2/3				
Mercury	2/0.105				
Selenium	5/0.264				
Silver	14/0.687				
PCBs in ug/kg					
Aroclor 1016		10 U	9.9 U	9.9 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	9.9 U	9.9 U	10 U
Aroclor 1242		10 U	9.9 U	9.9 U	10 U
Aroclor 1248		10 U	9.9 U	9.9 U	10 U
Aroclor 1254		10 U	9.9 U	9.9 U	10 U
Aroclor 1260		10 U	9.9 U	9.9 U	10 U
Total PCBs	270/14	20 U	20 U	20 U	20 U
PAHs in ug/kg					
2-Methylnaphthalene	2190/112				
Acenaphthene	98000/4980				
Acenaphthylene					
Anthracene	2.2E+06/112000				
Benzo(a)anthracene	See BaP (c)				
Benzo(a)pyrene	233/12				
Benzo(b)fluoranthene	See BaP (c)				
Benzo(g,h,i)perylene					
Benzo(k)fluoranthene	See BaP (c)				
Chrysene	See BaP (c)				
Dibenz(a,h)anthracene	See BaP (c)				
Dibenzofuran	5090/257				
Fluoranthene	630000/31500				
Fluorene	100000/5110				
Indeno(1,2,3-cd)pyrene	See BaP (c)				
Naphthalene	4490/238				
Phenanthrene					
Pyrene	660000/32800				
TEQ Equivalent (b)	See BaP (c)				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-4	HL-MW-28DD/S-5	HL-MW-28DD/S-6	HL-MW-28DD/S-7
Sampling Date	Level (a)	9/05/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		10	20	28	40
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane					
1,1,1-Trichloroethane	1610/85				
1,1,2,2-Tetrachloroethane					
1,1,2-Trichloroethane					
1,1-Dichloroethane	8730/543				
1,1-Dichloroethene					
1,1-Dichloropropene					
1,2,3-Trichlorobenzene					
1,2,3-Trichloropropane					
1,2,4-Trichlorobenzene					
1,2,4-Trimethylbenzene	31000/1590				
1,2-Dibromo-3-Chloropropane					
1,2-Dibromoethane(EDB)					
1,2-Dichlorobenzene					
1,2-Dichloroethane					
1,2-Dichloropropane					
1,3,5-Trimethylbenzene	8380/443				
1,3-Dichlorobenzene					
1,3-Dichloropropane					
1,4-Dichlorobenzene					
2,2-Dichloropropane					
2-Butanone (MEK)	20000/1400				
2-Chlorotoluene	2400/143				
2-Hexanone					
4-Chlorotoluene	4180/250				
4-Isopropyltoluene					
4-Methyl-2-Pentanone					
Acetone	3210/230				
Benzene	5/0.3				
Bromobenzene					
Bromochloromethane					
Bromodichloromethane					
Bromoform					
Bromomethane	52/3				
Carbon Disulfide	5600/266				
Carbon Tetrachloride					
Chlorobenzene					
Chloroethane					
Chloroform	38/2				
Chloromethane	22/1				
Cis-1,2-Dichloroethene					
Cis-1,3-Dichloropropene					
Dibromochloromethane					

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-4	HL-MW-28DD/S-5	HL-MW-28DD/S-6	HL-MW-28DD/S-7
Sampling Date	Level (a)	9/05/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		10	20	28	40
Unsat/Sat		Unsat	Unsat	Unsat	Unsat
Dibromomethane					
Dichlorodifluoromethane	47000/551				
Ethylbenzene	5990/341				
Hexachlorobutadiene					
Isopropylbenzene	7370/405				
Methylene Chloride	22/2				
N-Butylbenzene	19500/988				
N-Propylbenzene	19500/988				
Naphthalene	4490/238				
Sec-Butylbenzene	15800/796				
Styrene	33/2				
Tert-Butylbenzene	15600/796				
Tetrachloroethene	0.9/0.05				
Toluene	4650/273				
Trans-1,2-Dichloroethene					
Trans-1,3-Dichloropropene					
Trichloroethene (TCE)					
Trichlorofluoromethane					
Vinyl Chloride					
m,p-Xylenes	8520/487				
o-Xylene	916/53				
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000				
Diesel/Fuel oil					
Heavy oil	2000				
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100				
Gasoline	100				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-8	HL-MW-28DD/S-9	HL-MW-28DD/S-10	HL-MW-28DD/S-11
Sampling Date	Level (a)	9/05/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		50	60	70	80
Unsat/Sat		Unsat	Unsat	Sat	Sat
Conventionals in %					
Moisture		5.7	6.4	4.1	7.5
Total Organic Carbon		0.04 J	0.05	0.04 J	0.07
Total Solids		95.5	95.8	95.9	94.5
Metals in mg/kg					
Arsenic	0.0341/0.0017				
Barium	1650/82.6				
Cadmium	0.7/0.0349				
Chromium	2000/100				
Lead	250/250				
Manganese	52.2/3				
Mercury	2/0.105				
Selenium	5/0.264				
Silver	14/0.687				
PCBs in ug/kg					
Aroclor 1016		10 U	9.9 U	9.9 U	9.8 U
Aroclor 1221		20 U	20 U	20 U	20 U
Aroclor 1232		10 U	9.9 U	9.9 U	9.8 U
Aroclor 1242		10 U	16	6.8 J	6.8 J
Aroclor 1248		10 U	9.9 U	9.9 U	9.8 U
Aroclor 1254		10 U	9.9 U	9.9 U	9.8 U
Aroclor 1260		10 U	9.9 U	9.9 U	9.8 U
Total PCBs	270/14	20 U	16	6.8 J	6.8 J
PAHs in ug/kg					
2-Methylnaphthalene	2190/112				
Acenaphthene	98000/4980				
Acenaphthylene					
Anthracene	2.2E+06/112000				
Benzo(a)anthracene	See BaP (c)				
Benzo(a)pyrene	233/12				
Benzo(b)fluoranthene	See BaP (c)				
Benzo(g,h,i)perylene					
Benzo(k)fluoranthene	See BaP (c)				
Chrysene	See BaP (c)				
Dibenz(a,h)anthracene	See BaP (c)				
Dibenzofuran	5090/257				
Fluoranthene	630000/31500				
Fluorene	100000/5110				
Indeno(1,2,3-cd)pyrene	See BaP (c)				
Naphthalene	4490/238				
Phenanthrene					
Pyrene	660000/32800				
TEQ Equivalent (b)	See BaP (c)				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-8	HL-MW-28DD/S-9	HL-MW-28DD/S-10	HL-MW-28DD/S-11
Sampling Date	Level (a)	9/05/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		50	60	70	80
Unsat/Sat		Unsat	Unsat	Sat	Sat
Volatiles in ug/kg					
1,1,1,2-Tetrachloroethane					
1,1,1-Trichloroethane	1610/85				
1,1,2,2-Tetrachloroethane					
1,1,2-Trichloroethane					
1,1-Dichloroethane	8730/543				
1,1-Dichloroethene					
1,1-Dichloropropene					
1,2,3-Trichlorobenzene					
1,2,3-Trichloropropane					
1,2,4-Trichlorobenzene					
1,2,4-Trimethylbenzene	31000/1590				
1,2-Dibromo-3-Chloropropane					
1,2-Dibromoethane(EDB)					
1,2-Dichlorobenzene					
1,2-Dichloroethane					
1,2-Dichloropropane					
1,3,5-Trimethylbenzene	8380/443				
1,3-Dichlorobenzene					
1,3-Dichloropropane					
1,4-Dichlorobenzene					
2,2-Dichloropropane					
2-Butanone (MEK)	20000/1400				
2-Chlorotoluene	2400/143				
2-Hexanone					
4-Chlorotoluene	4180/250				
4-Isopropyltoluene					
4-Methyl-2-Pentanone					
Acetone	3210/230				
Benzene	5/0.3				
Bromobenzene					
Bromochloromethane					
Bromodichloromethane					
Bromoform					
Bromomethane	52/3				
Carbon Disulfide	5600/266				
Carbon Tetrachloride					
Chlorobenzene					
Chloroethane					
Chloroform	38/2				
Chloromethane	22/1				
Cis-1,2-Dichloroethene					
Cis-1,3-Dichloropropene					
Dibromochloromethane					

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-8	HL-MW-28DD/S-9	HL-MW-28DD/S-10	HL-MW-28DD/S-11
Sampling Date	Level (a)	9/05/2006	9/05/2006	9/05/2006	9/05/2006
Depth in Feet		50	60	70	80
Unsat/Sat		Unsat	Unsat	Sat	Sat
Dibromomethane					
Dichlorodifluoromethane	47000/551				
Ethylbenzene	5990/341				
Hexachlorobutadiene					
Isopropylbenzene	7370/405				
Methylene Chloride	22/2				
N-Butylbenzene	19500/988				
N-Propylbenzene	19500/988				
Naphthalene	4490/238				
Sec-Butylbenzene	15800/796				
Styrene	33/2				
Tert-Butylbenzene	15600/796				
Tetrachloroethene	0.9/0.05				
Toluene	4650/273				
Trans-1,2-Dichloroethene					
Trans-1,3-Dichloropropene					
Trichloroethene (TCE)					
Trichlorofluoromethane					
Vinyl Chloride					
m,p-Xylenes	8520/487				
o-Xylene	916/53				
NWTPH HCID in mg/kg					
Gasoline	100	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg					
Kerosene/Jet fuel	2000				
Diesel/Fuel oil					
Heavy oil	2000				
NWTPH-Gx in mg/kg					
Mineral spirits/Stoddard	100				
Gasoline	100				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-12	HL-MW-28DD/S-13	HL-MW-28DD/S-14
Sampling Date	Level (a)	9/06/2006	9/06/2006	9/06/2006
Depth in Feet		88	100	110
Unsat/Sat		Sat	Sat	Sat
Conventionals in %				
Moisture		14	14	5.1
Total Organic Carbon		0.02 J	0.02 J	0.05
Total Solids		92.7	95.2	94.2
Metals in mg/kg				
Arsenic	0.0341/0.0017			
Barium	1650/82.6			
Cadmium	0.7/0.0349			
Chromium	2000/100			
Lead	250/250			
Manganese	52.2/3			
Mercury	2/0.105			
Selenium	5/0.264			
Silver	14/0.687			
PCBs in ug/kg				
Aroclor 1016		10 U	9.9 U	9.9 U
Aroclor 1221		20 U	20 U	20 U
Aroclor 1232		10 U	9.9 U	9.9 U
Aroclor 1242		5.1 J	9.9 U	28
Aroclor 1248		10 U	9.9 U	9.9 U
Aroclor 1254		10 U	9.9 U	9.9 U
Aroclor 1260		10 U	9.9 U	9.9 U
Total PCBs	270/14	5.1 J	20 U	$\boxed{28}$
PAHs in ug/kg				
2-Methylnaphthalene	2190/112			
Acenaphthene	98000/4980			
Acenaphthylene				
Anthracene	2.2E+06/112000			
Benzo(a)anthracene	See BaP (c)			
Benzo(a)pyrene	233/12			
Benzo(b)fluoranthene	See BaP (c)			
Benzo(g,h,i)perylene				
Benzo(k)fluoranthene	See BaP (c)			
Chrysene	See BaP (c)			
Dibenz(a,h)anthracene	See BaP (c)			
Dibenzofuran	5090/257			
Fluoranthene	630000/31500			
Fluorene	100000/5110			
Indeno(1,2,3-cd)pyrene	See BaP (c)			
Naphthalene	4490/238			
Phenanthrene				
Pyrene	660000/32800			
TEQ Equivalent (b)	See BaP (c)			

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-12	HL-MW-28DD/S-13	HL-MW-28DD/S-14
Sampling Date	Level (a)	9/06/2006	9/06/2006	9/06/2006
Depth in Feet		88	100	110
Unsat/Sat		Sat	Sat	Sat
Volatiles in ug/kg				
1,1,1,2-Tetrachloroethane				
1,1,1-Trichloroethane	1610/85			
1,1,2,2-Tetrachloroethane				
1,1,2-Trichloroethane				
1,1-Dichloroethane	8730/543			
1,1-Dichloroethene				
1,1-Dichloropropene				
1,2,3-Trichlorobenzene				
1,2,3-Trichloropropane				
1,2,4-Trichlorobenzene				
1,2,4-Trimethylbenzene	31000/1590			
1,2-Dibromo-3-Chloropropane				
1,2-Dibromoethane(EDB)				
1,2-Dichlorobenzene				
1,2-Dichloroethane				
1,2-Dichloropropane				
1,3,5-Trimethylbenzene	8380/443			
1,3-Dichlorobenzene				
1,3-Dichloropropane				
1,4-Dichlorobenzene				
2,2-Dichloropropane				
2-Butanone (MEK)	20000/1400			
2-Chlorotoluene	2400/143			
2-Hexanone				
4-Chlorotoluene	4180/250			
4-Isopropyltoluene				
4-Methyl-2-Pentanone				
Acetone	3210/230			
Benzene	5/0.3			
Bromobenzene				
Bromochloromethane				
Bromodichloromethane				
Bromoform				
Bromomethane	52/3			
Carbon Disulfide	5600/266			
Carbon Tetrachloride				
Chlorobenzene				
Chloroethane				
Chloroform	38/2			
Chloromethane	22/1			
Cis-1,2-Dichloroethene				
Cis-1,3-Dichloropropene				
Dibromochloromethane				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-12	HL-MW-28DD/S-13	HL-MW-28DD/S-14
Sampling Date	Level (a)	9/06/2006	9/06/2006	9/06/2006
Depth in Feet		88	100	110
Unsat/Sat		Sat	Sat	Sat
Dibromomethane				
Dichlorodifluoromethane	47000/551			
Ethylbenzene	5990/341			
Hexachlorobutadiene				
Isopropylbenzene	7370/405			
Methylene Chloride	22/2			
N-Butylbenzene	19500/988			
N-Propylbenzene	19500/988			
Naphthalene	4490/238			
Sec-Butylbenzene	15800/796			
Styrene	33/2			
Tert-Butylbenzene	15600/796			
Tetrachloroethene	0.9/0.05			
Toluene	4650/273			
Trans-1,2-Dichloroethene				
Trans-1,3-Dichloropropene				
Trichloroethene (TCE)				
Trichlorofluoromethane				
Vinyl Chloride				
m,p-Xylenes	8520/487			
o-Xylene	916/53			
NWTPH HCID in mg/kg				
Gasoline	100	20 U	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U
NWTPH-Dx in mg/kg				
Kerosene/Jet fuel	2000			
Diesel/Fuel oil				
Heavy oil	2000			
NWTPH-Gx in mg/kg				
Mineral spirits/Stoddard	100			
Gasoline	100			

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-15	HL-MW-28DD/S-16	HL-MW-28DD/S-17
Sampling Date	Level (a)	9/06/2006	9/06/2006	9/06/2006
Depth in Feet		120	130	140
Unsat/Sat		Sat	Sat	Sat
Conventionals in %				
Moisture		8.7	16	20
Total Organic Carbon		0.1	0.05	0.05 U
Total Solids		98.4	94.8	82.7
Metals in mg/kg				
Arsenic	0.0341/0.0017			
Barium	1650/82.6			
Cadmium	0.7/0.0349			
Chromium	2000/100			
Lead	250/250			
Manganese	52.2/3			
Mercury	2/0.105			
Selenium	5/0.264			
Silver	14/0.687			
PCBs in ug/kg				
Aroclor 1016		9.8 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U
Aroclor 1232		9.8 U	10 U	10 U
Aroclor 1242		15	23	10 U
Aroclor 1248		9.8 U	10 U	10 U
Aroclor 1254		9.8 U	10 U	10 U
Aroclor 1260		9.8 U	10 U	10 U
Total PCBs	270/14	15	23	20 U
PAHs in ug/kg				
2-Methylnaphthalene	2190/112			
Acenaphthene	98000/4980			
Acenaphthylene				
Anthracene	2.2E+06/112000			
Benzo(a)anthracene	See BaP (c)			
Benzo(a)pyrene	233/12			
Benzo(b)fluoranthene	See BaP (c)			
Benzo(g,h,i)perylene				
Benzo(k)fluoranthene	See BaP (c)			
Chrysene	See BaP (c)			
Dibenz(a,h)anthracene	See BaP (c)			
Dibenzofuran	5090/257			
Fluoranthene	630000/31500			
Fluorene	100000/5110			
Indeno(1,2,3-cd)pyrene	See BaP (c)			
Naphthalene	4490/238			
Phenanthrene				
Pyrene	660000/32800			
TEQ Equivalent (b)	See BaP (c)			

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-15	HL-MW-28DD/S-16	HL-MW-28DD/S-17
Sampling Date	Level (a)	9/06/2006	9/06/2006	9/06/2006
Depth in Feet		120	130	140
Unsat/Sat		Sat	Sat	Sat
Volatiles in ug/kg				
1,1,1,2-Tetrachloroethane				
1,1,1-Trichloroethane	1610/85			
1,1,2,2-Tetrachloroethane				
1,1,2-Trichloroethane				
1,1-Dichloroethane	8730/543			
1,1-Dichloroethene				
1,1-Dichloropropene				
1,2,3-Trichlorobenzene				
1,2,3-Trichloropropane				
1,2,4-Trichlorobenzene				
1,2,4-Trimethylbenzene	31000/1590			
1,2-Dibromo-3-Chloropropane				
1,2-Dibromoethane(EDB)				
1,2-Dichlorobenzene				
1,2-Dichloroethane				
1,2-Dichloropropane				
1,3,5-Trimethylbenzene	8380/443			
1,3-Dichlorobenzene				
1,3-Dichloropropane				
1,4-Dichlorobenzene				
2,2-Dichloropropane				
2-Butanone (MEK)	20000/1400			
2-Chlorotoluene	2400/143			
2-Hexanone				
4-Chlorotoluene	4180/250			
4-Isopropyltoluene				
4-Methyl-2-Pentanone				
Acetone	3210/230			
Benzene	5/0.3			
Bromobenzene				
Bromochloromethane				
Bromodichloromethane				
Bromoform				
Bromomethane	52/3			
Carbon Disulfide	5600/266			
Carbon Tetrachloride				
Chlorobenzene				
Chloroethane				
Chloroform	38/2			
Chloromethane	22/1			
Cis-1,2-Dichloroethene				
Cis-1,3-Dichloropropene				
Dibromochloromethane				

Table 9-3 - Analytical Results for Soil Samples from Remelt/Hot Line Groundwater PCB Plume Area Borings

Sample ID	Screening	HL-MW-28DD/S-16	HL-MW-28DD/S-17
Sampling Date	Level (a)	9/06/2006	9/06/2006
Depth in Feet		130	140
Unsat/Sat		Sat	Sat
Dibromomethane			
Dichlorodifluoromethane	47000/551		
Ethylbenzene	5990/341		
Hexachlorobutadiene			
Isopropylbenzene	7370/405		
Methylene Chloride	22/2		
N-Butylbenzene	19500/988		
N-Propylbenzene	19500/988		
Naphthalene	4490/238		
Sec-Butylbenzene	15800/796		
Styrene	33/2		
Tert-Butylbenzene	15600/796		
Tetrachloroethene	0.9/0.05		
Toluene	4650/273		
Trans-1,2-Dichloroethene			
Trans-1,3-Dichloropropene			
Trichloroethene (TCE)			
Trichlorofluoromethane			
Vinyl Chloride			
m,p-Xylenes	8520/487		
o-Xylene	916/53		
NWTPH HCID in mg/kg			
Gasoline	100	20 U	20 U
Stoddard/Mineral spirits		20 U	20 U
Kensol	2000	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U
Diesel/Fuel oil/Creosote		50 U	50 U
Bunker C		50 U	50 U
Heavy oil	2000	100 U	100 U
Castor oil		100 U	100 U
NWTPH-Dx in mg/kg			
Kerosene/Jet fuel	2000		
Diesel/Fuel oil			
Heavy oil	2000		
NWTPH-Gx in mg/kg			
Mineral spirits/Stoddard	100		
Gasoline	100		

U = Not detected at reporting limit indicated. J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.

(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Table 9-4 - Grain Size Distribution Data for HL-MW-24DD, HL-MW-28DD, and RM-MW-16S

Sample ID	HL-MW-24DD-S12	HL-MW-28DD-S17	RM-MW-16S-S9
Sampling Date	2/8/2006	9/26/2006	9/26/2006
Particle Distribution			
Cobbles in %	0	0	0
Gravel in %	23.6	2.1	76.2
Sand in %	73.4	80.4	18.8
Silt/Clay in %	3.0	17.5	5.0
D85	6.28	0.766	26.1
D60	2.86	0.464	17
D50	2.07	0.384	13.2
D30	0.917	0.248	7.14
D15	0.358		2.58
D10	0.265		1.57
Cc	1.11		1.91
Cu	10.81		10.84
Description	Gravelly SAND	Silty, fine to medium SAND	Slightly silty, sandy GRAVEL
USCS	SW	SM	GW-GM
Mechanical Analysis			
Sieve	Percent Finer by Weight	Percent Finer by Weight	Percent Finer by Weight
1.5 inch			100
1 inch			83.5
0.75 inch	100		65.7
0.50 inch	99.6	100	48.4
0.375 inch	95.2	99.3	37.4
# 4	76.4	97.9	23.8
# 10	49.0	96.3	12.0
# 20	28.6	89.9	7.5
# 40	17.9	55.4	6.1
# 60	9.2	30.3	5.6
# 100	4.7	22.7	5.3
# 200	3.0	17.5	5.0

Table 9-5 - Analytical Results for Soil Samples from Remelt Area Borings

Sample ID	Screening	RM-MW-14S/S-1	RM-MW-14S/S-10	RM-MW-14S/S-2	RM-MW-14S/S-3	RM-MW-14S/S-4	RM-MW-14S/S-5
Sampling Date	Level (a)	9/20/2006	9/20/2006	9/20/2006	9/20/2006	9/20/2006	9/20/2006
Depth in Feet		10 to 11.5	10 to 11.5	20 to 20.6	30 to 30.9	40 to 40.9	50 to 51.4
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
			Dup of RM-MW-14S/S-1				
Conventionals in %							
Moisture		4.3	4.9	3.1	3.9	3.9	3.1
Total Solids		97.1	95.4	97.2	96.9	97.4	99
PCBs in µg/kg							
Aroclor 1016		10 U	9.8 U	9.9 U	10 U	9.8 U	9.9 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	9.8 U	9.9 U	10 U	9.8 U	9.9 U
Aroclor 1242		10 U	9.8 U	9.9 U	10 U	9.8 U	9.9 U
Aroclor 1248		10 U	9.8 U	9.9 U	10 U	9.8 U	9.9 U
Aroclor 1254		10 U	9.8 U	9.9 U	10 U	9.8 U	9.9 U
Aroclor 1260		10 U	9.8 U	9.9 U	10 U	9.8 U	9.9 U
Total PCBs	270/14	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U

Table 9-5 - Analytical Results for Soil Samples from Remelt Area Borings

Sample ID	Screening	RM-MW-14S/S-6	RM-MW-14S/S-7	RM-MW-14S/S-8	RM-MW-14S/S-9	RM-MW-15S/S-1	RM-MW-15S/S-2
Sampling Date	Level (a)	9/20/2006	9/20/2006	9/20/2006	9/20/2006	9/18/2006	9/18/2006
Depth in Feet		60 to 60.9	70 to 71.5	80 to 81.5	90 to 91.5	10 to 11.5	20 to 20.8
Unsat/Sat		Unsat	Sat	Sat	Sat	Unsat	Unsat
Conventionals in %							
Moisture		5	6.3	9	13	3.7	1.9
Total Solids		95.2	95.8	93.1	91	97.3	98.4
PCBs in µg/kg							
Aroclor 1016		10 U	10 U	9.8 U	9.8 U	9.8 U	9.4 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	19 U
Aroclor 1232		10 U	10 U	9.8 U	9.8 U	9.8 U	9.4 U
Aroclor 1242		10 U	10 U	9.8 U	9.8 U	9.8 U	9.4 U
Aroclor 1248		10 U	10 U	13	9.8 U	2.9 J	5.7 J
Aroclor 1254		10 U	37	9.8 U	9.8 U	9.8 U	9.4 U
Aroclor 1260		10 U	10 U	9.8 U	9.8 U	9.8 U	9.4 U
Total PCBs	270/14	20 U	37	13	20 U	2.9 J	5.7 J
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	6700	1400	1700	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U

Table 9-5 - Analytical Results for Soil Samples from Remelt Area Borings

Sample ID	Screening	RM-MW-15S/S-3	RM-MW-15S/S-10	RM-MW-15S/S-4	RM-MW-15S/S-5	RM-MW-15S/S-6	RM-MW-15S/S-7
Sampling Date	Level (a)	9/18/2006	9/18/2006	9/18/2006	9/18/2006	9/18/2006	9/18/2006
Depth in Feet		30 to 31.3	30 to 31.3	40 to 41.5	50 to 51.4	60 to 61.5	70 to 71.5
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Sat
			Dup of RM-MW-15S/S-3				
Conventionals in %							
Moisture		5.7	4.1	4.2	7.5	4.4	4.9
Total Solids		97.8	97.4	96.2	97.7	94.5	95.9
PCBs in µg/kg							
Aroclor 1016		9.1 U	9.1 U	9.8 U	9.6 U	9.5 U	9.7 U
Aroclor 1221		19 U	19 U	20 U	20 U	19 U	20 U
Aroclor 1232		9.1 U	9.1 U	9.8 U	9.6 U	9.5 U	9.7 U
Aroclor 1242		9.1 U	9.1 U	9.8 U	9.6 U	9.5 U	9.7 U
Aroclor 1248		12 JP	12 JP	20 JP	28 JP	9.9	12
Aroclor 1254		9.1 U	9.1 U	9.8 U	9.6 U	9.5 U	9.7 U
Aroclor 1260		9.1 U	9.1 U	9.8 U	9.6 U	9.5 U	9.7 U
Total PCBs	270/14	12 JP	12 JP	20 JP	28 JP	9.9	12
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U

Table 9-5 - Analytical Results for Soil Samples from Remelt Area Borings

Sample ID	Screening	RM-MW-15S/S-8	RM-MW-15S/S-9	RM-MW-16S/S-1	RM-MW-16S/S-10	RM-MW-16S/S-2	RM-MW-16S/S-3
Sampling Date	Level (a)	9/18/2006	9/19/2006	9/15/2006	9/15/2006	9/15/2006	9/15/2006
Depth in Feet		80 to 81.5	90 to 91.5	10 to 11.3	10 to 11.3	20 to 20.4	30 to 31.5
Unsat/Sat		Sat	Sat	Unsat	Unsat	Unsat	Unsat
					Dup of RM-MW-16S/S-1		
Conventionals in %							
Moisture		11	11	4.4	6.1	3.2	3.7
Total Solids		93.1	88.9	97.9	97.4	98.6	96
PCBs in µg/kg							
Aroclor 1016		9.5 U	9.5 U	10 U	9.8 U	10 U	10 U
Aroclor 1221		19 U	19 U	20 U	20 U	20 U	20 U
Aroclor 1232		9.5 U	9.5 U	10 U	9.8 U	10 U	10 U
Aroclor 1242		9.5 U	9.5 U	10 U	9.8 U	10 U	10 U
Aroclor 1248		12	9.5 U	10 U	9.8 U	10 U	10 U
Aroclor 1254		9.5 U	9.5 U	10 U	9.8 U	10 U	10 U
Aroclor 1260		9.5 U	9.5 U	10 U	9.8 U	10 U	10 U
Total PCBs	270/14	12	19 U	20 U	20 U	20 U	20 U
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U

Table 9-5 - Analytical Results for Soil Samples from Remelt Area Borings

Sample ID	Screening	RM-MW-16S/S-4	RM-MW-16S/S-5	RM-MW-16S/S-6	RM-MW-16S/S-7	RM-MW-16S/S-8	RM-MW-16S/S-9
Sampling Date	Level (a)	9/15/2006	9/15/2006	9/15/2006	9/15/2006	9/15/2006	9/18/2006
Depth in Feet		40 to 41.5	50 to 51.5	60 to 60.9	70 to 70.6	80 to 81.5	90 to 91.5
Unsat/Sat		Unsat	Unsat	Unsat	Sat	Sat	Sat
Conventionals in %							
Moisture		6.3	3.6	7.2	5.6	11	14
Total Solids		97.8	93.6	96.3	96	93	92.6
PCBs in µg/kg							
Aroclor 1016		10 U	9.7 U	9.9 U	9.8 U	9.6 U	9.5 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	19 U
Aroclor 1232		10 U	9.7 U	9.9 U	9.8 U	9.6 U	9.5 U
Aroclor 1242		10 U	9.7 U	9.9 U	9.8 U	9.6 U	9.5 U
Aroclor 1248		10 U	9.7 U	8 J	61	5.6 J	9.5 U
Aroclor 1254		10 U	9.7 U	9.9 U	9.8 U	9.6 U	9.5 U
Aroclor 1260		10 U	9.7 U	9.9 U	9.8 U	9.6 U	9.5 U
Total PCBs	270/14	20 U	20 U	8 J	61	5.6 J	19 U
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U

Table 9-5 - Analytical Results for Soil Samples from Remelt Area Borings

Sample ID	Screening	RM-MW-17S/S-1	RM-MW-17S/S-2	RM-MW-17S/S-3	RM-MW-17S/S-4	RM-MW-17S/S-5	RM-MW-17S/S-6
Sampling Date	Level (a)	9/14/2006	9/14/2006	9/14/2006	9/14/2006	9/14/2006	9/14/2006
Depth in Feet		10 to 11.5	20 to 21.5	30 to 31.4	40 to 40.9	50 to 51.5	60 to 60.4
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in %							
Moisture		4	3.1	4.1	6.7	3	8.7
Total Solids		96.7	95.1	95.1	93.8	97.7	93.6
PCBs in µg/kg							
Aroclor 1016		9.8 U	9.4 U	9.7 U	9.7 U	9.7 U	9.5 U
Aroclor 1221		20 U	19 U	20 U	20 U	20 U	19 U
Aroclor 1232		9.8 U	9.4 U	9.7 U	9.7 U	9.7 U	9.5 U
Aroclor 1242		9.8 U	9.4 U	9.7 U	9.7 U	9.7 U	9.5 U
Aroclor 1248		62	32	18	26	10	9.5 U
Aroclor 1254		9.8 U	9.4 U	9.7 U	9.7 U	9.7 U	9.5 U
Aroclor 1260		9.8 U	9.4 U	9.7 U	9.7 U	9.7 U	9.5 U
Total PCBs	270/14	62	32	18	26	10	19 U
NWTPH HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U

Table 9-5 - Analytical Results for Soil Samples from Remelt Area Borings

Sample ID	Screening	RM-MW-17S/S-7	RM-MW-17S/S-8	RM-MW-17S/S-9
Sampling Date	Level (a)	9/14/2006	9/14/2006	9/14/2006
Depth in Feet		70 to 71.5	80 to 81.5	90 to 91.5
Unsat/Sat		Sat	Sat	Sat
Conventionals in %				
Moisture		6.1	15	12
Total Solids		95.7	93.8	91.8
PCBs in µg/kg				
Aroclor 1016		9.9 U	9.6 U	9.4 U
Aroclor 1221		20 U	20 U	19 U
Aroclor 1232		9.9 U	9.6 U	9.4 U
Aroclor 1242		9.9 U	9.6 U	9.4 U
Aroclor 1248		72	100	9.8
Aroclor 1254		9.9 U	9.6 U	9.4 U
Aroclor 1260		9.9 U	9.6 U	9.4 U
Total PCBs	270/14	$\boxed{72}$	$\boxed{100}$	9.8
NWTPH HCID in mg/kg				
Gasoline	100	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U

U = Not detected at the reporting limit indicated.
J = Estimated value.
Boxed value exceeds screening level.
Blank indicates sample not analyzed for specific analyte or no screening level established.
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.

Table 9-6 - Analytical Results for DC-4 Furnace Vent Soil Verification Samples

Sample ID / Sampling Date	Screening Level (a)	TB-1 (b) 6/14/2006	TB-2 (b) 6/14/2006	TB-3 (b) 6/14/2006	TB-4 (b) 6/14/2006	TB-5 6/14/2006	TB-6 6/14/2006	TB-7 6/14/2006
Total Solids in %		94.5	92.1	96.5	92.8	94	94.9	97.7
PCBs in ug/kg								
Aroclor 1016		100 U	100 U	200 U	200 U	200 U	100 U	100 U
Aroclor 1221		200 U	200 U	400 U	400 U	400 U	200 U	200 U
Aroclor 1232		100 U	100 U	200 U	200 U	200 U	100 U	100 U
Aroclor 1242		100 U	100 U	200 U	200 U	200 U	100 U	100 U
Aroclor 1248		6700	5600	13000	12000	5700	3400	1300
Aroclor 1254		5100	3000	7900	200 U	200 U	100 U	100 U
Aroclor 1260		100 U	100 U	200 U	200 U	200 U	100 U	100 U
Total PCBs	270	$\boxed{11800}$	$\boxed{8600}$	$\boxed{20900}$	$\boxed{12000}$	$\boxed{5700}$	$\boxed{3400}$	$\boxed{1300}$

Table 9-6 - Analytical Results for DC-4 Furnace Vent Soil Verification Samples

Sample ID Sampling Date	Screening Level (a)	TB-8 6/14/2006	DC#4-N (c) 7/13/2006	DC#4-S (c) 7/13/2006
Total Solids in %		93.6	96.6	94.7
PCBs in ug/kg				
Aroclor 1016		200 U	100 U	200 U
Aroclor 1221		400 U	200 U	400 U
Aroclor 1232		200 U	100 U	200 U
Aroclor 1242		200 U	100 U	200 U
Aroclor 1248		8000	7100	12000
Aroclor 1254		200 U	5700	7200
Aroclor 1260		200 U	100 U	200 U
Total PCBs	270	$\boxed{8000}$	$\boxed{12800}$	$\boxed{19200}$

U = Not detected at reporting limit indicated.
Boxed value exceeds screening level.
(a) As these samples are from the unsaturated zone, only unsaturated screening levels are presented. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Soil representative of this sample was overexcavated.
(c) Samples collected following overexcavation.

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-DW-SB-1/S-1	HL-DW-SB-1/S-2	HL-DW-SB-1/S-3	HL-DW-SB-1/S-4	HL-DW-SB-1/S-5	HL-DW-SB-1/S-6
Sampling Date	Level (a)	1/03/2007	1/03/2007	1/03/2007	1/03/2007	1/03/2007	1/03/2007
Depth in Feet		8 to 10	10 to 12	20 to 22	30 to 32	40 to 42	50 to 52
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in %							
Moisture		17	7.8	3.2	2	4	2.2
Total Solids		79.6	82.7	91.4	96.2	93.3	94.3
PCBs in µg/kg							
Aroclor 1016		10 U	10 U	10 U	10 U	10 U	9.9 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U	9.9 U
Aroclor 1242		10 U	10 U	10 U	10 U	10 U	9.9 U
Aroclor 1248		10 U	10 U	10 U	10 U	10 U	9.9 U
Aroclor 1254		7 J	11	10 U	10 U	10 U	9.9 U
Aroclor 1260		10 U	10 U	10 U	10 U	10 U	9.9 U
Aroclor 1268		5.9 J	24				
Total PCBs	270/14	12.9 J	35	20 U	20 U	20 U	20 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000						
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000						
Diesel/Fuel oil	2000						
Heavy oil	2000						
Kensol	2000						
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100						
Gasoline	100						

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-DW-SB-1/S-7	HL-DW-SB-1/S-8	HL-DW-SB-1/S-9	HL-DW-SB-1/S-10	HL-DW-SB-1/S-11	HL-DW-SB-1/S-12
Sampling Date	Level (a)	1/03/2007	1/03/2007	1/03/2007	1/04/2007	1/04/2007	1/04/2007
Depth in Feet		60 to 62	70 to 73	78 to 82	88 to 90	98 to 108	108 to 112
Unsat/Sat		Unsat	Sat	Sat	Sat	Sat	Sat
Conventionals in %							
Moisture		6.5	6.9	5.5	5.1	18	12
Total Solids		91.2	93.2	96.3	96	84.2	90.5
PCBs in µg/kg							
Aroclor 1016		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1242		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1248		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1268							
Total PCBs	270/14	20 U	20 U	20 U	20 U	20 U	20 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000						
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000						
Diesel/Fuel oil	2000						
Heavy oil	2000						
Kensol	2000						
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100						
Gasoline	100						

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-DW-SB-1/S-13	HL-DW-SB-1/S-14	HL-DW-SB-1/S-15	HL-DW-SB-1/S-16	HL-DW-SB-2/S-1	HL-DW-SB-2/S-2
Sampling Date	Level (a)	1/04/2007	1/04/2007	1/04/2007	1/04/2007	1/05/2007	1/05/2007
Depth in Feet		118 to 120	128 to 130	140 to 142	148 to 150	7 to 10	19 to 22
Unsat/Sat		Sat	Sat	Sat	Sat	Unsat	Unsat
Conventionals in %							
Moisture		6.5	5.6	9.1	4.7	19	4.6
Total Solids		93.8	75.5	86.6	95.8	84.1	93.9
PCBs in µg/kg							
Aroclor 1016		9.9 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		9.9 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1242		9.9 U	13	5.8 J	14	10 U	10 U
Aroclor 1248		9.9 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1254		9.9 U	10 U	10 U	10 U	35	10 U
Aroclor 1260		9.9 U	10 U	10 U	10 U	22	10 U
Aroclor 1268							
Total PCBs	270/14	20 U	13	5.8 J	14	57	20 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000						
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	$\boxed{4400}$	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000						
Diesel/Fuel oil	2000						
Heavy oil	2000						
Kensol	2000						
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100						
Gasoline	100						

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-DW-SB-2/S-3	HL-DW-SB-2/S-4	HL-DW-SB-2/S-5	HL-DW-SB-2/S-6	HL-DW-SB-2/S-7	HL-DW-SB-2/S-8
Sampling Date	Level (a)	1/05/2007	1/05/2007	1/05/2007	1/05/2007	1/05/2007	1/05/2007
Depth in Feet		30 to 32	40 to 44	49 to 52	59 to 63	79 to 81	90 to 91
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Sat	Sat
Conventionals in %							
Moisture		13	9.8	7.8	11	12	2.1
Total Solids		90.6	97.7	97.8	90	86.8	98.4
PCBs in µg/kg							
Aroclor 1016		10 U	10 U	9.9 U	10 U	10 U	9.9 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	9.9 U	10 U	10 U	9.9 U
Aroclor 1242		10 U	10 U	9.9 U	10 U	3.2 J	7.5 J
Aroclor 1248		10 U	10 U	9.9 U	10 U	10 U	9.9 U
Aroclor 1254		10 U	10 U	9.9 U	10 U	10 U	9.9 U
Aroclor 1260		10 U	10 U	9.9 U	10 U	10 U	9.9 U
Aroclor 1268							
Total PCBs	270/14	20 U	20 U	20 U	20 U	3.2 J	7.5 J
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000						
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	$\boxed{3500}$	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000						
Diesel/Fuel oil	2000						
Heavy oil	2000						
Kensol	2000						
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100						
Gasoline	100						

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-DW-SB-2/S-9	HL-DW-SB-2/S-10	HL-DW-SB-2/S-11	HL-DW-SB-2/S-12	HL-DW-SB-2/S-13	HL-DW-SB-2/S-14
Sampling Date	Level (a)	1/05/2007	1/06/2007	1/06/2007	1/06/2007	1/06/2007	1/06/2007
Depth in Feet		99 to 101	110 to 111	120 to 121	130 to 132	130 to 132	137 to 140
Unsat/Sat		Sat	Sat	Sat	Sat	Sat	Sat
						Dup of HL-DW-SB-2/S-12	
Conventionals in %							
Moisture		5.4	3.8	11	6.8	3.9	4.2
Total Solids		95.9	96.2	93.1	94.7	94.8	93.9
PCBs in µg/kg							
Aroclor 1016		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1242		9.7 J	7.6 J	10 U	35	23	20
Aroclor 1248		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1254		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1260		10 U	10 U	10 U	10 U	10 U	10 U
Aroclor 1268							
Total PCBs	270/14	9.7 J	7.6 J	20 U	$\boxed{35}$	$\boxed{23}$	$\boxed{20}$
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000						
Diesel/Fuel oil/Creosote	2000	50 U	50 U	50 U	50 U	50 U	50 U
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U	100 U	100 U	100 U	100 U	100 U
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000						
Diesel/Fuel oil	2000						
Heavy oil	2000						
Kensol	2000						
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100						
Gasoline	100						

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-DW-SB-2/S-15	HL-MW-29S 5'	HL-MW-29S 10'	HL-MW-29S 20'	HL-MW-29S 30'	HL-MW-29S 40'
Sampling Date	Level (a)	1/06/2007	6/07/2007	6/07/2007	6/07/2007	6/07/2007	6/07/2007
Depth in Feet		148 to 150	5 to 6	10 to 11	20 to 21	30 to 31	40 to 41
Unsat/Sat		Sat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in %							
Moisture		7	5.3	8.2	6.4	4	3.7
Total Solids		96.1	91.4	95	96.3	96.8	95.4
PCBs in µg/kg							
Aroclor 1016		10 U	9.8 U	9.5 U	9.6 U	9.5 U	9.7 U
Aroclor 1221		20 U	20 U	19 U	20 U	19 U	20 U
Aroclor 1232		10 U	9.8 U	9.5 U	9.6 U	9.5 U	9.7 U
Aroclor 1242		3.3 J	9.8 U	9.5 U	9.6 U	9.5 U	9.7 U
Aroclor 1248		10 U	9.8 U	9.5 U	9.6 U	9.5 U	9.7 U
Aroclor 1254		10 U	9.8 U	9.5 U	9.6 U	9.5 U	9.7 U
Aroclor 1260		10 U	9.8 U	9.5 U	9.6 U	9.5 U	9.7 U
Aroclor 1268							
Total PCBs	270/14	3.3 J	20 U	19 U	20 U	19 U	20 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000		50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creosote	2000	50 U					
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil		100 U					
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000		20 U			20 U	
Diesel/Fuel oil	2000		20 U			20 U	
Heavy oil	2000		50 U			50 U	
Kensol	2000		20 U			20 U	
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100		5 U			5 U	
Gasoline	100		5 U			5 U	

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-MW-29S 50'	HL-MW-29S 60'	HL-MW-29S 70'	HL-MW-29S 80'	HL-MW-29S 90'	HL-MW-30S 5'
Sampling Date	Level (a)	6/07/2007	6/07/2007	6/07/2007	6/07/2007	6/07/2007	6/08/2007
Depth in Feet		50 to 51	60 to 61	70 to 71	80 to 81	90 to 91	5 to 6
Unsat/Sat		Unsat	Unsat	Sat	Sat	Sat	Unsat
Conventionals in %							
Moisture		16	6.1	6.9	9.2	8.5	5.6
Total Solids		85.2	87.5	94.2	92.2	91.5	95.4
PCBs in µg/kg							
Aroclor 1016		9.5 U	9.9 U	9.8 U	9.7 U	9.6 U	10 U
Aroclor 1221		19 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		9.5 U	9.9 U	9.8 U	9.7 U	9.6 U	10 U
Aroclor 1242		9.5 U	9.9 U	9.8 U	12	9.6 U	10 U
Aroclor 1248		9.5 U	9.9 U	9.8 U	9.7 U	9.6 U	72
Aroclor 1254		9.5 U	9.9 U	9.8 U	9.7 U	9.6 U	76
Aroclor 1260		9.5 U	9.9 U	9.8 U	9.7 U	9.6 U	10 U
Aroclor 1268							
Total PCBs	270/14	19 U	20 U	20 U	12	20 U	148
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creosote	2000						
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil							
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000	20 U		20 U			
Diesel/Fuel oil	2000	20 U		20 U			
Heavy oil	2000	50 U		50 U			
Kensol	2000	20 U		20 U			
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100	5 U		5 U			
Gasoline	100	5 U		5 U			

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-MW-30S 7 1/2'	HL-MW-30S 10'	HL-MW-30S 15'	HL-MW-30S 20'	HL-MW-30S 25'	HL-MW-30S 40'
Sampling Date	Level (a)	6/08/2007	6/08/2007	6/08/2007	6/08/2007	6/08/2007	6/08/2007
Depth in Feet		7.5	10 to 11	15 to 16	20 to 21	25 to 26	40 to 41
Unsat/Sat		Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
Conventionals in %							
Moisture		4.4	6.8	4.6	4	4.4	3.9
Total Solids		94.9	94.9	95.2	96	93.8	95.2
PCBs in µg/kg							
Aroclor 1016		9.7 U	9.9 U	9.8 U	9.8 U	9.6 U	9.9 U
Aroclor 1221		20 U	20 U	20 U	20 U	20 U	20 U
Aroclor 1232		9.7 U	9.9 U	9.8 U	9.8 U	9.6 U	9.9 U
Aroclor 1242		9.7 U	9.9 U	9.8 U	9.8 U	9.6 U	9.9 U
Aroclor 1248		79	9.9 U	9.8 U	9.8 U	9.6 U	9.9 U
Aroclor 1254		74 JP	9.9 U	9.8 U	9.8 U	9.6 U	9.9 U
Aroclor 1260		9.7 U	9.9 U	9.8 U	9.8 U	9.6 U	9.9 U
Aroclor 1268							
Total PCBs	270/14	153 JP	20 U	20 U	20 U	20 U	20 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creosote	2000						
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil							
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000		20 U				20 U
Diesel/Fuel oil	2000		20 U				20 U
Heavy oil	2000		50 U				50 U
Kensol	2000		20 U				20 U
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100	5 U	5 U				5 U
Gasoline	100	5 U	5 U				5 U

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-MW-30S 50'	HL-MW-30S 55'	HL-MW-30S 60'	HL-MW-30S 70'	HL-MW-30S 75'	HL-MW-30S 80'
Sampling Date	Level (a)	6/08/2007	6/08/2007	6/08/2007	6/08/2007	6/08/2007	6/08/2007
Depth in Feet		50 to 51	50 to 51	60 to 61	70 to 71	70 to 71	80 to 81
Unsat/Sat		Unsat	Unsat	Sat	Sat	Sat	Sat
			Dup of HL-MW-30S 50'			Dup of HL-MW-30S 70'	
Conventionals in %							
Moisture		4.7	5.4	8	6.1	6.4	7.8
Total Solids		94.5		90	95.4	91.3	90.8
PCBs in µg/kg							
Aroclor 1016		9.7 U		9.8 U	9.6 U	9.8 U	9.7 U
Aroclor 1221		20 U		20 U	20 U	20 U	20 U
Aroclor 1232		9.7 U		9.8 U	9.6 U	9.8 U	9.7 U
Aroclor 1242		9.7 U		9.8 U	9.6 U	9.8 U	9.7 U
Aroclor 1248		9.7 U		9.8 U	9.6 U	9.8 U	9.7 U
Aroclor 1254		9.7 U		9.8 U	9.6 U	9.8 U	9.7 U
Aroclor 1260		9.7 U		9.8 U	9.6 U	9.8 U	9.7 U
Aroclor 1268							
Total PCBs	270/14	20 U		20 U	20 U	20 U	20 U
NWTPH-HCID in mg/kg							
Gasoline	100	20 U	20 U	20 U	20 U	20 U	20 U
Stoddard/Mineral spirits	100	20 U	20 U	20 U	20 U	20 U	20 U
Kensol	2000	20 U	20 U	20 U	20 U	20 U	20 U
Kerosene/Jet fuel	2000	20 U	20 U	20 U	20 U	20 U	20 U
Diesel/Fuel oil	2000	50 U	50 U	50 U	50 U	50 U	50 U
Diesel/Fuel oil/Creosote	2000						
Bunker C		50 U	50 U	50 U	50 U	50 U	50 U
Heavy oil	2000	100 U	100 U	100 U	100 U	100 U	100 U
Castor oil							
NWTPH-Dx in mg/kg							
Kerosene/Jet fuel	2000				20 U	20 U	
Diesel/Fuel oil	2000				20 U	20 U	
Heavy oil	2000				50 U	50 U	
Kensol	2000				20 U	20 U	
NWTPH-Gx in mg/kg							
Mineral spirits/Stoddard	100				5 U		5 U
Gasoline	100				5 U		5 U

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

Sample ID	Screening	HL-MW-30S 10'	HL-MW-30S 40'	HL-MW-30S 70'	HL-MW-30S 75'
Sampling Date	Level (a)	6/08/2007	6/08/2007	6/08/2007	6/08/2007
Depth in Feet		10 to 11	40 to 41	70 to 71	70 to 71
Unsat/Sat		Unsat	Unsat	Sat	Sat
					Dup of HL-MW-30S 70'
Metals in mg/kg					
Arsenic	0.0341/0.0017	7.12 J	11.2	4.19	5.19
Barium	1650/82.6	49.6	48.7	44.8	34.7
Cadmium	0.7/0.0349	0.141	0.156	0.063	0.067
Chromium	2000/100	10.8	8.92	6.05	7.06
Lead	250/250	9.82	14.6	5.09	4.97
Manganese	52.2/3	389	478	353	309
Mercury	2/0.105	0.02 U	0.007 J	0.018 U	0.018 U
Selenium	5/0.264	0.4 J	1 U	1 U	1.1 U
Silver	14/0.687	0.07	0.04	0.07	0.07
PAHs in µg/kg					
2-Methylnaphthalene	2190/112	5 U	5 U	4.9 U	5 U
Acenaphthene	98000/4980	5 U	5 U	4.9 U	5 U
Acenaphthylene		5 U	5 U	4.9 U	5 U
Anthracene	2.2E+06/112000	5 U	5 U	4.9 U	5 U
Benzo(a)anthracene	See BaP (c)	0.71 J	0.62 J	4.9 U	5 U
Benzo(a)pyrene	233/12	5 U	5 U	4.9 U	5 U
Benzo(b)fluoranthene	See BaP (c)	5 U	5 U	4.9 U	5 U
Benzo(g,h,i)perylene		5 U	5 U	4.9 U	5 U
Benzo(k)fluoranthene	See BaP (c)	5 U	5 U	4.9 U	5 U
Chrysene	See BaP (c)	0.43 J	0.3 J	4.9 U	5 U
Dibenz(a,h)anthracene	See BaP (c)	5 U	5 U	4.9 U	5 U
Dibenzofuran	5090/257	5 U	5 U	4.9 U	5 U
Fluoranthene	630000/31500	5 U	5 U	4.9 U	5 U
Fluorene	100000/5110	5 U	5 U	4.9 U	5 U
Indeno(1,2,3-cd)pyrene	See BaP (c)	5 U	5 U	4.9 U	5 U
Naphthalene	4490/238	5 U	5 U	5 U	5 U
Phenanthrene		5 U	5 U	4.9 U	5 U
Pyrene	660000/32800	0.46 J	0.49 J	4.9 U	5 U
TEQ Equivalent (b)	See BaP (c)	4.3253 J	4.315 J	4.9 U	5 U
Volatiles in µg/kg					
1,1,1,2-Tetrachloroethane		4.5 U	5 U	4.3 U	4.9 U
1,1,1-Trichloroethane	1610/85	4.5 U	5 U	4.3 U	4.9 U
1,1,2,2-Tetrachloroethane		4.5 U	5 U	4.3 U	4.9 U
1,1,2-Trichloroethane		4.5 U	5 U	4.3 U	4.9 U
1,1-Dichloroethane	8730/543	4.5 U	5 U	4.3 U	4.9 U
1,1-Dichloroethene		4.5 U	5 U	4.3 U	4.9 U
1,1-Dichloropropene		4.5 U	5 U	4.3 U	4.9 U
1,2,3-Trichlorobenzene		18 U	20 U	17 U	20 U
1,2,3-Trichloropropane		4.5 U	5 U	4.3 U	4.9 U
1,2,4-Trichlorobenzene		18 U	20 U	17 U	20 U
1,2,4-Trimethylbenzene	31000/1590	0.12 J	0.12 J	17 U	20 U
1,2-Dibromo-3-Chloropropane		18 U	20 U	17 U	20 U
1,2-Dibromoethane(EDB)		18 U	20 U	17 U	20 U
1,2-Dichlorobenzene		4.5 U	5 U	4.3 U	4.9 U
1,2-Dichloroethane		4.5 U	5 U	4.3 U	4.9 U
1,2-Dichloropropane		4.5 U	5 U	4.3 U	4.9 U
1,3,5-Trimethylbenzene	8380/443	18 U	20 U	17 U	20 U
1,3-Dichlorobenzene		4.5 U	5 U	4.3 U	4.9 U
1,3-Dichloropropane		4.5 U	5 U	4.3 U	4.9 U
1,4-Dichlorobenzene		4.5 U	5 U	4.3 U	4.9 U
2,2-Dichloropropane		4.5 U	5 U	4.3 U	4.9 U
2-Butanone (MEK)	20000/1400	2.9 J	20 U	17 U	20 U
2-Chlorotoluene	2400/143	18 U	20 U	17 U	20 U
2-Hexanone		18 U	20 U	17 U	20 U

Table 9-7 - Analytical Results for Soil Samples from Hot Line Borings - 2007

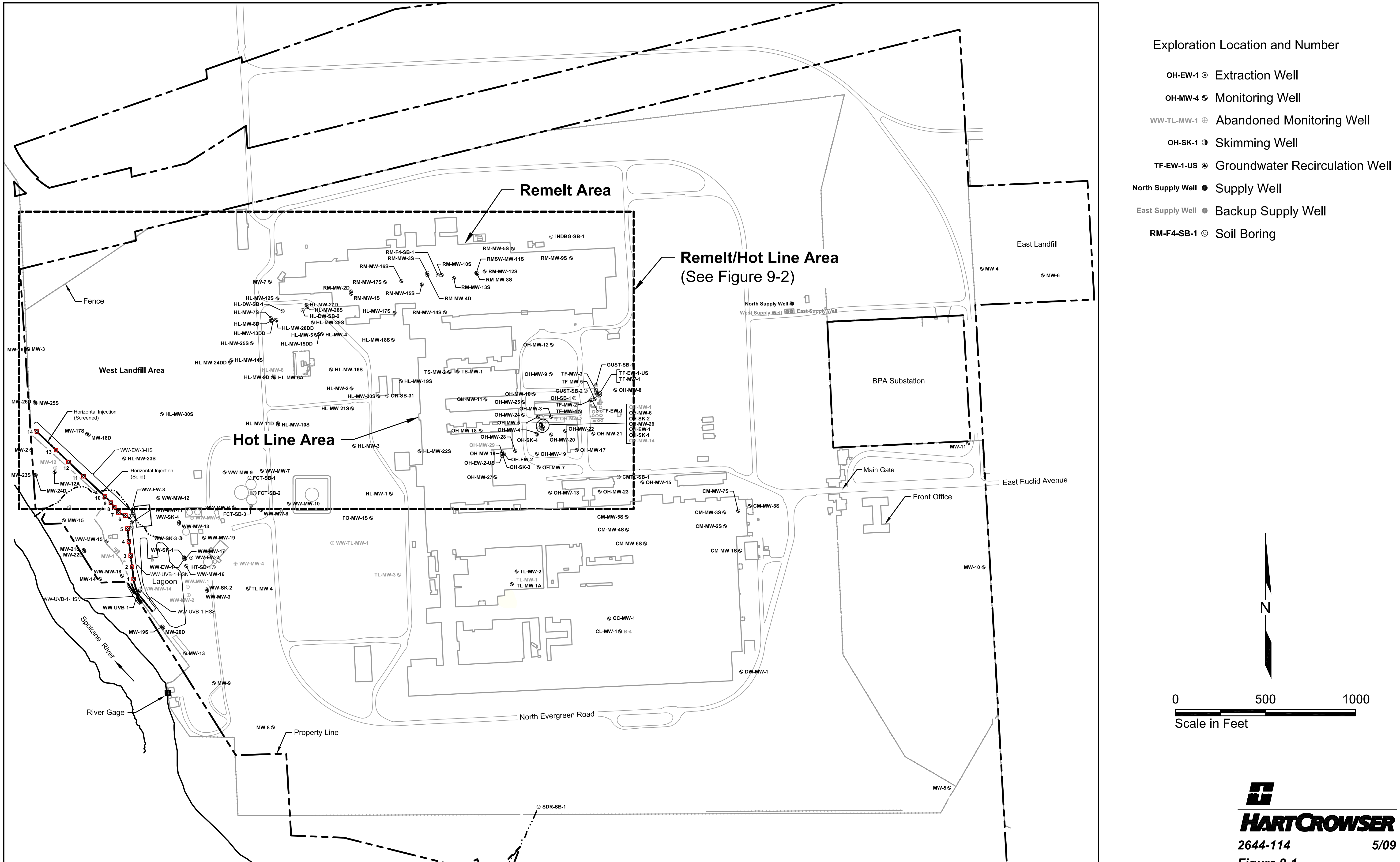
Sample ID Sampling Date Depth in Feet Unsat/Sat	Screening Level (a)	HL-MW-30S 10' 6/08/2007 10 to 11 Unsat	HL-MW-30S 40' 6/08/2007 40 to 41 Unsat	HL-MW-30S 70' 6/08/2007 70 to 71 Sat	HL-MW-30S 75' 6/08/2007 70 to 71 Sat Dup of HL-MW-30S 70'
4-Chlorotoluene	4180/250	0.12 J	20 U	17 U	20 U
4-Isopropyltoluene		18 U	20 U	17 U	20 U
4-Methyl-2-Pentanone		18 U	20 U	17 U	20 U
Acetone	3210/230	21 U	20 U	17 U	20 U
Benzene	5/0.3	4.5 U	5 U	4.3 U	4.9 U
Bromobenzene		4.5 U	5 U	4.3 U	4.9 U
Bromochloromethane		4.5 U	5 U	4.3 U	4.9 U
Bromodichloromethane		4.5 U	5 U	4.3 U	4.9 U
Bromoform		4.5 U	5 U	4.3 U	4.9 U
Bromomethane	52/3	4.5 U	5 U	4.3 U	4.9 U
Freon 11		4.5 U	5 U	4.3 U	4.9 U
Freon 12		4.5 U	5 U	4.3 U	4.9 U
Carbon Disulfide	5600/266	1.5 J	1.3 J	2.8 J	1.5 J
Carbon Tetrachloride		4.5 U	5 U	4.3 U	4.9 U
Chlorobenzene		4.5 U	5 U	4.3 U	4.9 U
Chloroethane		4.5 U	5 U	4.3 U	4.9 U
Chloroform	38/2	4.5 U	5 U	4.3 U	4.9 U
Chloromethane	22/1	4.5 U	5 U	4.3 U	4.9 U
Cis-1,2-Dichloroethene		4.5 U	5 U	4.3 U	4.9 U
Cis-1,3-Dichloropropene		4.5 U	5 U	4.3 U	4.9 U
Dibromochloromethane		4.5 U	5 U	4.3 U	4.9 U
Dibromomethane		4.5 U	5 U	4.3 U	4.9 U
Ethylbenzene	5990/341	4.5 U	5 U	4.3 U	4.9 U
Hexachlorobutadiene		18 U	20 U	17 U	20 U
Isopropylbenzene	7370/405	18 U	20 U	17 U	20 U
Methylene Chloride	22/2	8.9 U	10 U	8.5 U	9.8 U
N-Butylbenzene	19500/988	18 U	20 U	17 U	20 U
N-Propylbenzene	19500/988	18 U	20 U	17 U	20 U
Naphthalene	4490/238	18 U	20 U	17 U	20 U
Sec-Butylbenzene	15800/796	18 U	20 U	17 U	20 U
Styrene	33/2	4.5 U	5 U	4.3 U	4.9 U
Tert-Butylbenzene	15600/796	18 U	20 U	17 U	20 U
Tetrachloroethene	0.9/0.05	0.52 J	0.38 J	$\boxed{0.33}$ J	$\boxed{0.38}$ J
Toluene	4650/273	4.5 U	5 U	4.3 U	4.9 U
Trans-1,2-Dichloroethene		4.5 U	5 U	4.3 U	4.9 U
Trans-1,3-Dichloropropene		4.5 U	5 U	4.3 U	4.9 U
Trichloroethene (TCE)		4.5 U	5 U	4.3 U	4.9 U
Vinyl Chloride		4.5 U	5 U	4.3 U	4.9 U
m,p-Xylenes	8520/487	0.25 J	0.3 J	0.16 J	4.9 U
o-Xylene	916/53	4.5 U	5 U	4.3 U	4.9 U

U = Not detected at the reporting limit indicated. J = Estimated value.
Boxed value exceeds screening limit.
Blank indicates sample not analyzed for specific analyte or no screening level established.

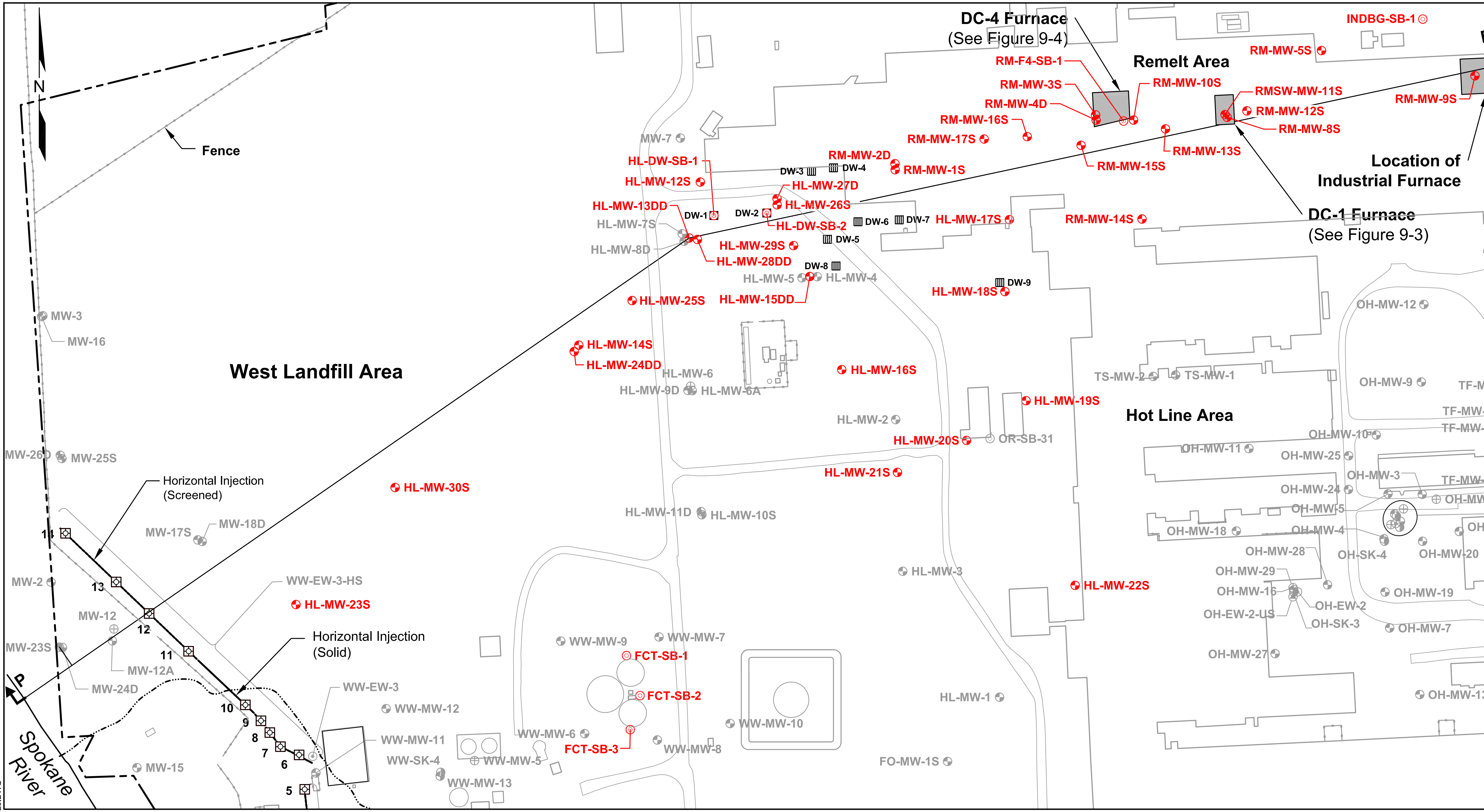
(a) Screening levels presented for unsaturated/saturated soil conditions. Based on a Fixed Parameter 3-Phase Partitioning Model for deriving soil concentrations for groundwater protection as specified in WAC 173-340-747, unless otherwise specified.
(b) Calculated total carcinogenic PAH equivalent for benzo(a)pyrene (BaP) per procedures in WAC173-340-708(8).

(c) Screening level for carcinogenic PAHs based on the BaP toxicity equivalency methodology specified in WAC 173-340-708(8).

Remelt/Hot Line Area Location Map



Remelt/Hot Line Area Index Map
Highlighting Explorations since 2003



2644114-129.DWG

EAL 05/7/09

Exploration Location and Number

OH-EW-1	Extraction Well
OH-MW-4	Monitoring Well
WW-TL-MW-1	Abandoned Monitoring Well
OH-SK-1	Skimming Well
TF-EW-1-US	Groundwater Recirculation Well
North Supply Well	Supply Well
East Supply Well	Backup Supply Well
RM-F4-SB-1	Soil Boring
DW-1	Dry Well

P P' Cross Section Location and Designation
(See Plate 9-1)

Note: Post-2003 RI/FS explorations shown in red.

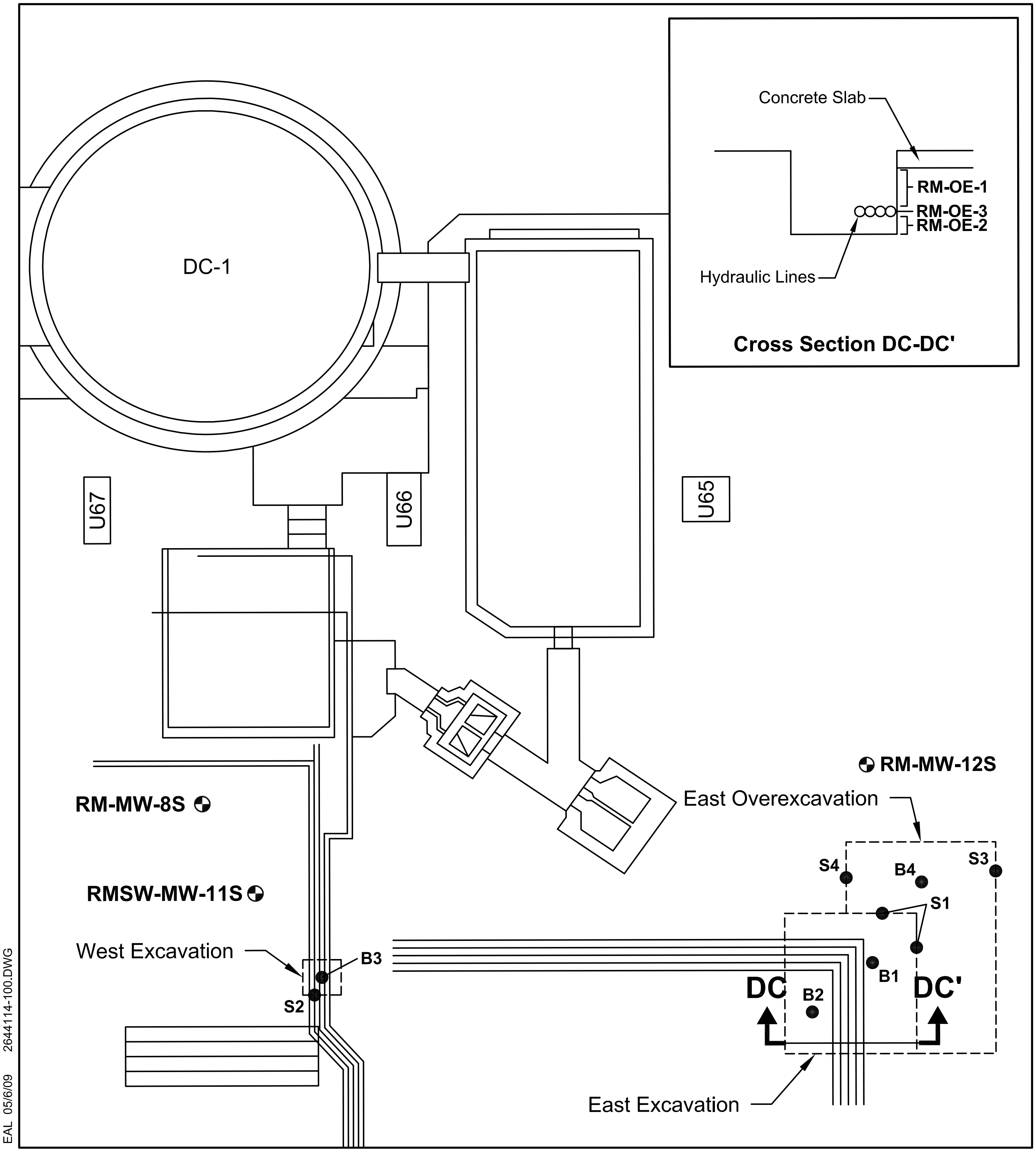
0 200 400
Scale in Feet

HARTCROWSER

2644-114 *5/09*

Figure 9-2

Sample Location Plan
DC-1 Furnace Area



B1 ● Soil Sample Location and Number

RM-MW-8S Monitoring Well Location and Number

DC DC' Cross Section Location and Designation

Note: Samples WT1 through WT6 collected in West Excavation prior to overexcavation.

N

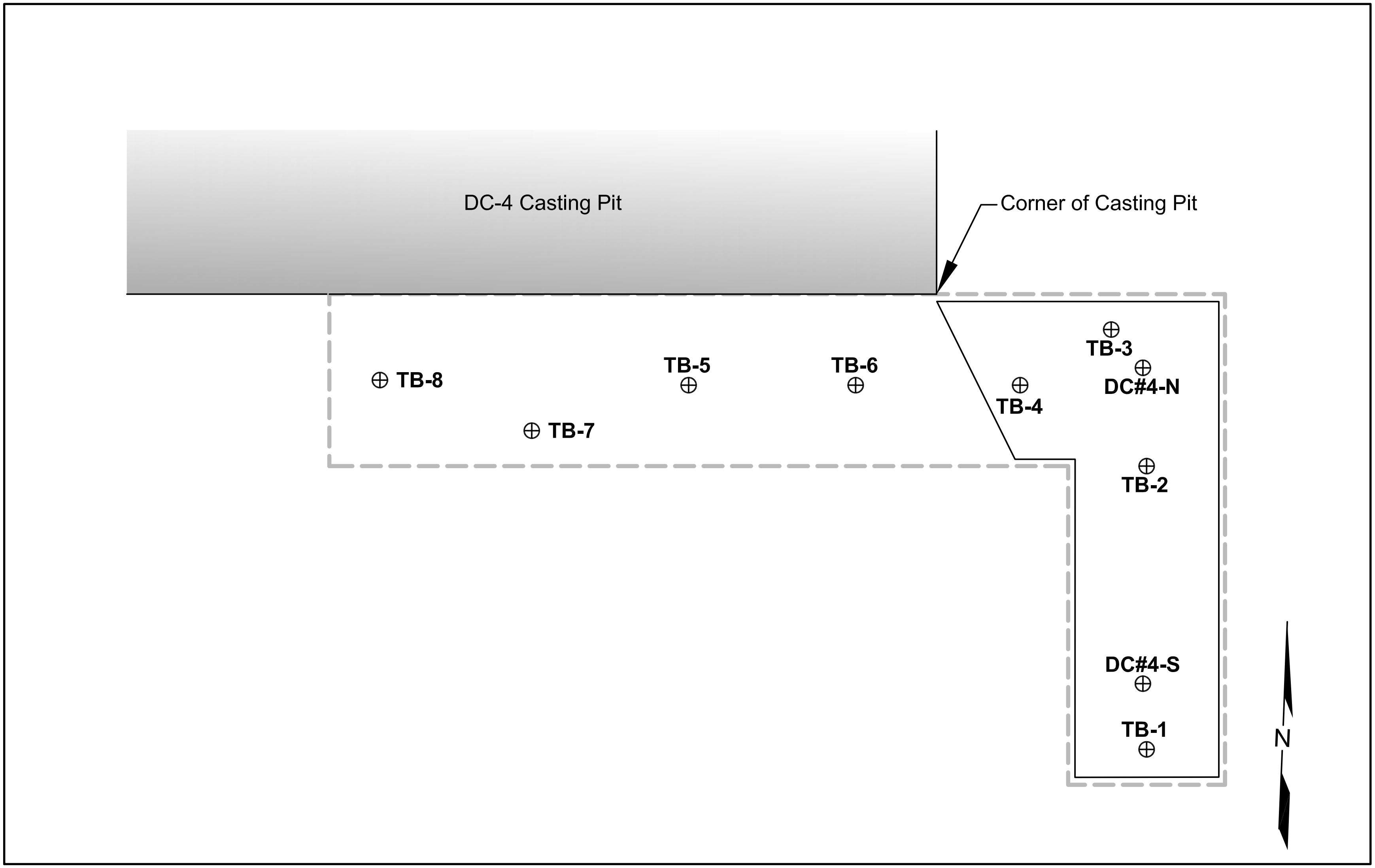
0 10 20
Scale in Feet

HARTCROWSER

2644-114 ***5/09***

Figure 9-3

Sample Location Plan
DC-4 Furnace Vent Trench



Source: Base map prepared from field drawings completed 06/19/06.

Note: Samples DC#4-N and DC#4-S collected following overexcavation.

Approximate Trench Limits

Overexcavation Area

⊕ **TB-1** Soil Verification Sample Location and Number

0 3 6

Scale in Feet

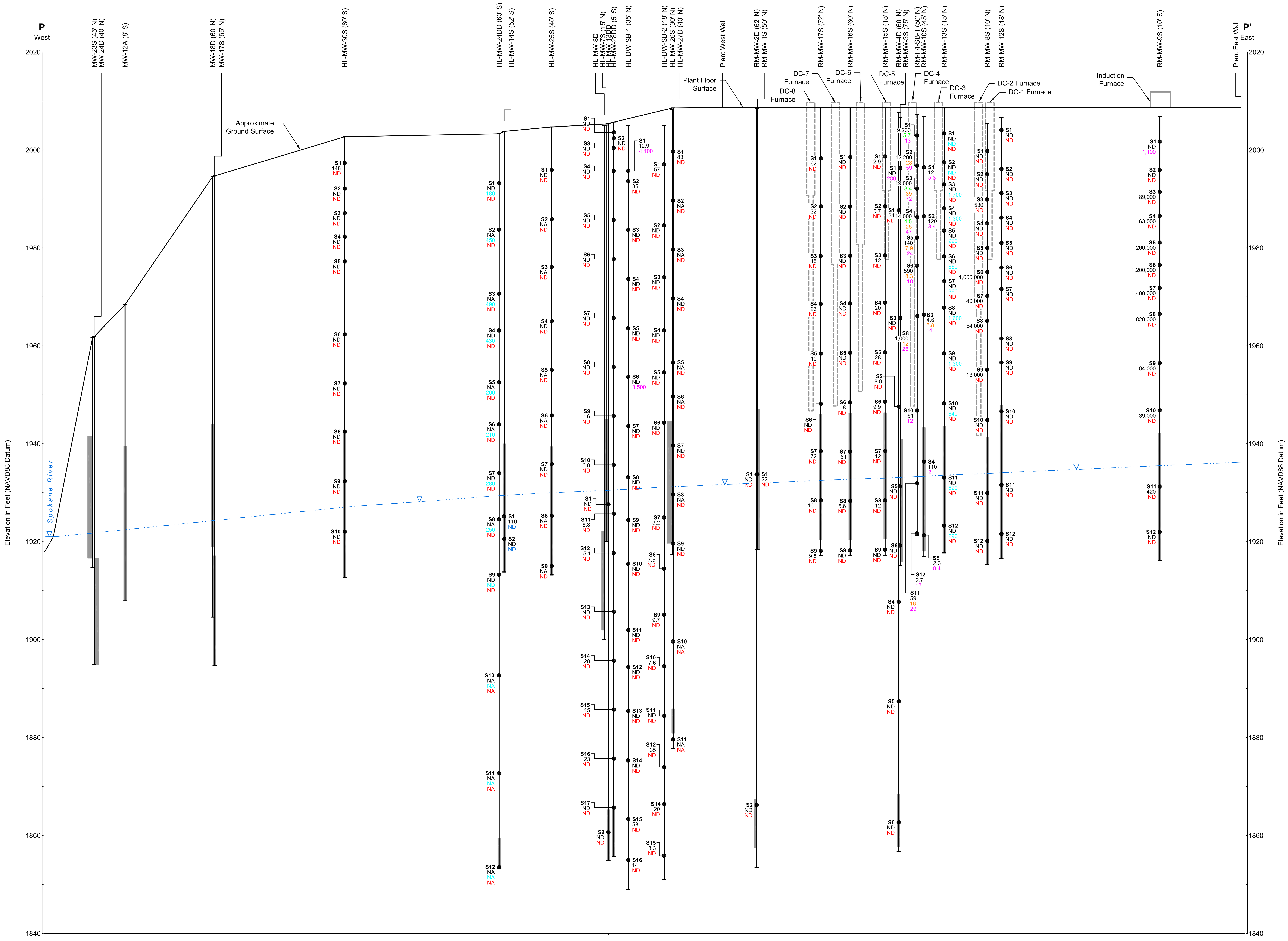
EAL 05/6/09 2644114-106.DWG

HARTCROWSER

2644-114 **5/09**

Figure 9-4

Generalized Subsurface Cross Section P-P'
Showing Concentrations in Soil Samples



HL-MW-30S (80' S) Exploration Number (Offset Distance and Direction)

Exploration Location

S1 Soil Sample Number

Screened Interval

Groundwater Level (October 2008)

0.62 Total PCB Concentration in ug/kg

840 Castor Oil in mg/kg

ND Total Petroleum Hydrocarbon

8.4 Gasoline-Range Petroleum Hydrocarbons in mg/kg

12 Diesel-Range Petroleum Hydrocarbons in mg/kg

18 Heavy Oil-Range Petroleum Hydrocarbons in mg/kg

ND Not Detected

NA Not Analyzed

Notes:
1. Where TPH is indicated as ND, none of the various ranges of petroleum hydrocarbons were detected. Where specific-range petroleum hydrocarbon concentrations are shown, if less than three concentrations are presented, other specific-range petroleum hydrocarbons were non-detect or not analyzed.
2. Castor oil concentrations only shown were indentified as such.
3. HL-MW-27D data were plotted, not HL-MW-26S.
4. No chemical data shown for wells HL-MW-7S and HL-MW-8D.

Horizontal Scale in Feet
0 150 300

Vertical Scale in Feet
0 10 20

Vertical Exaggeration x 15

HARTCROWSER
2644-114 5/09
Plate 9-1

EAL 05/6/09 2644114-114.DWG