FINAL

Kaiser Trentwood Facility Human Health and Ecological Risk Assessment

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ACRONYMS AND ABBREVIATIONS

Acronym	Explanation
95% UCL	Ninety Five Percent Upper Confidence Limit
Agreed Order	Agreed Order No. DE 2692
bgs	below ground surface
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbon
DW	Dry Weight
DW/kg body weight-day	Dry Weight per kilogram of Body Weight per day
Ecology	Washington State Department of Ecology
ERA	Ecological Risk Assessment
FS	Feasibility Study
HHERA	Human Health and Ecological Risk Assessments
HHRA	Human Health Risk Assessment
Kaiser	Kaiser Aluminum Washington
MEK	Methyl Ethyl Ketone
mg/kg	Milligrams per kilogram
MTCA	Model Toxics Control Act
NWTPH	Northwest Total Petroleum Hydrocarbons
NWTPH-Dx	Northwest Total Petroleum Hydrocarbons Diesel-Range Constituents
NWTPH-Gx	Northwest Total Petroleum Hydrocarbons Gasoline-Range Constituents
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PLP	Potentially Liable Person
QA/QC	Quality Assessment/Quality Control
RBSC	Risk-Based Screening Concentration
RI	Remedial Investigation
SVOC	Semi-Volatile Organic Constituent
TPH	Total Petroleum Hydrocarbons
Trentwood Facility	Kaiser Trentwood Facility
VOC	Volatile Organic Constituent
UCL	Upper Confidence Limit
WAC	Washington Administrative Code

EXECUTIVE SUMMARY

ES.1 Introduction

Kaiser Aluminum Washington (Kaiser) owns and operates a flat-rolled aluminum mill located in Spokane Valley, Washington (Trentwood Facility), approximately 10 miles east of Spokane. Kaiser is investigating potential soil and groundwater contamination at the Trentwood Facility resulting from accidental releases from historical practices, under Agreed Order No. DE 2692 (Agreed Order) between Kaiser and the Washington State Department of Ecology (Ecology) dated August 16, 2005.

As part of the Agreed Order, Kaiser is conducting a Remedial Investigation (RI) and Feasibility Study (FS) to address cleanup of residual contamination present at the Trentwood Facility. This human health and ecological risk assessment (HHERA) is a component of the RI and is being conducted to satisfy requirements stipulated in the Agreed Order.

The purpose of this HHERA is to evaluate potential risks to human and ecological receptors that may be exposed to constituents present in soil at the Trentwood Facility. This HHERA does not consider the impacts to groundwater from soil, which will be evaluated as part of separate soil and groundwater RI reports. Results of the HHERA will be used to determine whether or not there is a need for additional action under the Washington Administrative Code (WAC) 173-340-360.

ES.2 Data Used in HHERA

The soil data used in the HHERA 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 RIs. The soil samples included in the HHERA were collected at a depth of 15 feet below ground surface (bgs) or shallower, which is the depth range considered when evaluating the point of compliance for human and ecological exposure based on direct contact with soil, as specified in WAC 173-340-740 (6)(d). There are nine general areas within the Trentwood Facility that have been included in soil and groundwater investigations. Eight of these areas have been associated with historical releases of constituents, and the remaining area is a general area where soil samples were collected as part of the Facility-wide groundwater investigation. Within these nine general areas there are 25 sites that were evaluated in this HHERA. In addition to soil samples, soil gas samples collected in the Truck Shop Area and near the Oil Reclamation Building and Surrounding Area were evaluated in the Human Health Risk Assessment (HHRA).

ES.3 Human Health Risk Assessment

ES.3.1 Overview

The HHRA was conducted in accordance with the Model Toxics Control Act (MTCA) Cleanup Regulation WAC 173-340-745, which identifies soil cleanup standards for industrial properties. HHRAs are comprised of the following four tasks:

1. Identification of Indicator Hazardous Substances: Risk-based screening concentrations (RBSCs) are calculated and constituents with maximum-detected concentrations greater than the RBSC are identified as indicator hazardous substances.

2. Exposure Assessment: Potentially-exposed populations, exposure scenarios, exposure pathways, and exposure factors are identified.

3. Toxicity Assessment: Toxicity values are identified for constituents evaluated in the exposure assessment.

4. Risk Characterization: Noncancer hazards and incremental cancer risks are calculated.

In addition to these four HHRA tasks, a soil gas assessment was completed to evaluate potential risks to a worker who may inhale vapors from soil gas. In this evaluation, indoor air concentrations were predicted from soil gas concentrations, and these indoor air concentrations were compared to the Permissible Exposure Limits promulgated by the Washington Industrial Safety and Health Administration.

ES.3.2 Results

Of the 25 sites evaluated in the HHRA, 16 had indicator hazardous substances and were carried through the risk characterization task. Of these 16 sites, there were three with constituent concentrations that exceeded HHRA benchmark risk values; the Hoffman Tank, the Drum Storage/French Drain, and the Oil Reclamation Building. The Hoffman Tank site had a hazard index above the benchmark level of 1.0. The hazard index was 1.3 and was almost entirely (99%) associated with the assumed incidental ingestion and dermal contact with total diesel/fuel oil impacted soil. The Drum Storage/French Drain site had a cancer risk of 4.4E-04, which is above the benchmark risk level of 1.0E-05, and was associated with the assumed incidental ingestion of Aroclor 1248 in soil. The Oil Reclamation Building site had lead concentrations in two samples that exceeded Ecology's screening concentration of 1,000 mg/kg. The source of lead in these samples is unknown. Lead concentrations did not exceed the screening concentration in any other samples in any other sites at the Trentwood Facility.

The potential for adverse health effects based on inhalation of soil gas vapors was evaluated for two sites at the Trentwood Facility, the Oil Reclamation Building and the Truck Shop. Results of this evaluation showed that the estimated indoor air concentrations for detected constituents in soil gas were orders of magnitude lower than the Washington Industrial Safety and Health Administration Permissible Exposure

Limits. Therefore, potential vapor intrusion and subsequent exposure to constituents in soil gas were well below levels of concern.

ES.4 Ecological Risk Assessment

ES.4.1 Overview

The Ecological Risk Assessment (ERA) was conducted in accordance with the MTCA terrestrial ecological evaluation procedures (WAC 173-340-7490 through 7494). Since the Trentwood Facility is an active industrial facility, the terrestrial ecological evaluation goal is to protect wildlife. The terrestrial ecological evaluation included an exclusions evaluation (WAC 173-340-7491) and site-specific evaluation (WAC 173-340-7493). The exclusions evaluation considered four default criteria to identify sites that did not require further evaluation and were determined to not pose hazards to wildlife. The site-specific evaluation assessed wildlife exposure models to estimate exposures and hazards to wildlife from constituents detected in soil samples. Default MTCA wildlife exposure models were revised in the site-specific evaluation by including updated wildlife exposure factors and site-specific bioaccumulation factors.

ES.4.2 Results

The exclusions evaluation identified 19 of 25 sites as not requiring further evaluation. This determination was based primarily upon the sites being covered with a barrier that prohibited wildlife exposure to constituents in soil. Exposure barriers included buildings, pavement, and compacted mineral soil. One of the 19 sites was determined to be too small and isolated to warrant further evaluation.

Six sites were identified for inclusion in the site-specific evaluation and results of the site-specific evaluation indicated that none of the sites at the Trentwood Facility pose a hazard to wildlife. The six sites evaluated encompass areas with landscape, open field, and semi-native vegetation terrestrial cover types. The first step in the site-specific evaluation was to identify ecological indicator hazardous substances for each site by comparing the reasonable maximum soil exposure point concentration for each constituent to default MTCA wildlife indicator soil concentrations. One of the six sites had exposure point concentrations for all constituents below the indicator soil concentrations, so no further evaluation of this site was required. The second step of the site-specific evaluation included an in-depth evaluation of the extent of ecological indicator hazardous substance occurrences and comparison of exposure point concentrations to site-specific indicator soil concentrations developed using wildlife exposure models with modified exposure and bioaccumulation factors. Results of the second step showed that none of the five remaining sites pose a hazard to wildlife. Therefore, constituent concentrations in soil at the 25 sites identified at the Trentwood Facility do not pose a hazard to wildlife.

SECTION 1 – INTRODUCTION

Kaiser Aluminum Washington (Kaiser) owns and operates a flat-rolled aluminum mill located in Spokane Valley, Washington (Trentwood Facility), approximately 10 miles east of Spokane, as shown in Figure 1-1. Kaiser is investigating potential soil and groundwater contamination at the Trentwood Facility resulting from accidental releases from historical practices, under Agreed Order No. DE 2692 (Agreed Order) between Kaiser and the Washington State Department of Ecology (Ecology) dated August 16, 2005 (Ecology, 2005).

As part of the Agreed Order, Kaiser is conducting a Remedial Investigation (RI) and Feasibility Study (FS) to address cleanup of residual contamination present at the Trentwood Facility (Ecology 2007). This human health and ecological risk assessment (HHERA) is a component of the RI and is being conducted to satisfy requirements stipulated in the Agreed Order.

1.1 Purpose

The purpose of this HHERA is to evaluate potential adverse impacts to human health and ecological receptors that may be exposed to constituents present in soil at the Trentwood Facility. This HHERA does not consider the impacts to groundwater from soil, which is being evaluated as part of separate soil and groundwater RI reports. This report presents the methods, inputs, and assumptions used to identify sites at the Trentwood Facility with the potential for adverse impacts on human health and the environment that will be evaluated in the FS.

1.2 Trentwood Facility History

1.2.1 Operations History

The Trentwood Facility was originally constructed to provide aluminum for the manufacture of fighter planes and bombers used in the World War II effort. At the end of the war in 1945, the federal government placed the Trentwood Facility in mothball status until it was leased to the Kaiser Aluminum & Chemical Corporation in 1946. During the lease period Kaiser redesigned machinery throughout the plant to allow for manufacture of flat sheet, coil sheet, coring sheet, and plate aluminum products. After three years of operation, Kaiser purchased the Trentwood Facility from the federal government.

Subsequent renovations to the Trentwood Facility included expansion and modernization of manufacturing equipment including the addition of heat-treat furnaces, pollution-control equipment (e.g., bag-house air emission controls), and a wastewater treatment plant. Current plant operations are focused on production of sheet, plate, and coil aluminum for aerospace and general engineering applications.

Materials used in past aluminum production included hydraulic oil containing polychlorinated biphenyls (PCBs), petroleum products (e.g., fuel and lubricants), solvents, and chromium. Wastes generated as a result of past or present operations consisted of wastewaters, chrome sludge, paint and solvent wastes, and

black dross, which is an aluminum-containing waste product produced from an aluminum recovery process.

1.2.2 Investigative and Regulatory History

A brief investigative and regulatory history is presented in this section, and a complete discussion can be found in the Site-Wide Soil RI Report (Hart Crowser 2012). Several accidental releases of constituents to the environment occurred during historical operations at the Trentwood Facility. Kaiser conducted independent investigations and cleanup actions to address groundwater and soil contamination from these releases. The constituents found in soil, which are the focus of this HHERA, are PCBs, petroleum products, and metals.

Since 1979 Kaiser voluntarily installed over 160 monitoring wells to evaluate releases from historical operations. Results of monitoring showed free phase and dissolved petroleum, PCBs, iron, manganese, antimony, and arsenic in the groundwater in some locations at levels exceeding state standards (Ecology 2007).

In March 1995 Ecology named Kaiser as a Potentially Liable Person (PLP) responsible for cleaning up the Trentwood Facility. Kaiser entered into the Agreed Order, in 2005 to conduct an RI and FS to address cleanup of residual contamination present at the Trentwood Facility (Ecology 2005). Subsequent to signing the Agreed Order, Kaiser developed and implemented a Phase I Work Plan designed to supplement existing data on the nature and extent of soil and groundwater contamination at the Trentwood Facility. Based on the evaluation of data obtained in the Phase I investigation, a Phase II Work Plan (Hart Crowser 2007) was designed and implemented to address identified data gaps.

1.3 Trentwood Facility Description and Location

The Trentwood Facility is an aluminum manufacturing operation of approximately 512 acres of land which is located approximately 10 miles east of downtown Spokane in the Spokane River Valley at East 15000 Euclid Avenue, Spokane Valley, Washington (Figure 1-1). The Trentwood Facility is an aluminum sheet and plate rolling mill. Primary aluminum obtained from off-site sources and recycled/scrap aluminum are cast into ingots in the Remelt (Casting) Area. During melting, other metals such as copper, manganese, and zinc are incorporated into the melted aluminum to create different alloys to meet customer specifications. The aluminum ingots proceed to the Hot Line where they pass through rollers to produce a flattened sheet or plate of aluminum. Additional rolling of the aluminum sheets is conducted to achieve the desired thickness. Aluminum sheets are then trimmed and packaged for shipment in the Finishing area. Additional information on the Trentwood Facility operations can be found in the Site-Wide Soil RI report (Hart Crowser 2012).

1.4 Trentwood Facility Areas

There are nine general areas within the Trentwood Facility that have been included in soil and groundwater investigations. Eight of these areas have been associated with historical releases of constituents, and the remaining area is a general area where soil samples were collected as part of the

Facility-wide groundwater investigation. Within these nine general areas there are 25 sites that were evaluated in this HHERA. These areas and the sites within them are described below and presented in Figure 1-2. The area descriptions presented below were summarized from the Phase II Work Plan (Hart Crowser 2007).

1. Oil House Area: The Oil House Area, located in the central portion of the Trentwood Facility, has historically served as the central point where virgin oils arrive for storage for eventual distribution to the different areas within the Trentwood Facility. In the past, this area served as a central management area for storage and management of used oils. A significant amount of characterization and remediation activities have been performed in this area since 1989. There are six sites within this area which were evaluated for this HHERA: the 500-Gallon Diesel Underground Storage Tank, the Drum Storage and French Drain, the former Oil House Underground Storage Tank, the 20,000-Gallon Gasoline Underground Storage Tank, the tank farm Kensol Spill, and the former Eight Underground Storage Tanks. Currently, the Oil House Area consists of one building and an above-ground tank farm; all underground storage tanks have been removed.

2. Industrial Wastewater Treatment Area: The Industrial Wastewater Treatment Area, located in the western portion of the Trentwood Facility, consists of numerous buildings, tanks, and systems used to process waste streams generated by Trentwood Facility operations. This area has also had a significant amount of characterization and remediation activities since 1989. There are three sites within this area which were evaluated in this HHERA: the Field-Constructed Tanks, the Hoffman Tank, and the Hydrogen Sulfide Scrubber Building. Currently, the Industrial Wastewater Treatment Area has the same structures that were present at the time of initial investigation with the exception of the Field-Constructed Tanks which were removed in 2008, and the Hoffman Tank which was removed in 1991.

3. Oil Reclamation Building and Surrounding Area: The Oil Reclamation Building and Surrounding Area are located in the northwest portion of the Trentwood Facility and contain three sites which were evaluated in the HHERA: The Oil Reclamation Building, the Oil/Water Emulsion Spill, and the Fuel Oil Spill. The Oil Reclamation Building was initially used to collect, settle, and process oil/emulsion waste from the rolling mills, possibly to allow recycling and to remove some oils prior to sending it to the industrial wastewater treatment area. Currently, the Oil Reclamation Building is used to provide emulsion coolant storage/surge capacity and remove solids from oil emulsion wastewaters. The Oil/Water Emulsion Spill site was the location of a release along the G2 Transfer Lines, and the Fuel Oil Spill site was the location of a release from the fuel supply line which occurred in 1980 east of the 1,000,000 Gallon Tank.

4. Cold Mill/Finishing Area: The Cold Mill/Finishing Area is located in the southern portion of the Trentwood Facility, and contains five sites which were evaluated in the HHERA: the Continuous Can Process Line, the Chromium Transfer Line, the former Coater Line Tank, the Transformer Yard, and the Cold Mill Transfer Lines. The Continuous Can Process Line was used to pre-treat

and wash aluminum coils destined for the production of beverage can ends. Operation of the Continuous Can Process Line was discontinued in 1991. An area slightly southwest of the Continuous Can Process Line where a spill of dioctyl sebacate lubricant was investigated is also included in this site. The Chromium Transfer Line conveyed chromium-containing wastewater generated from the Continuous Can Process Line to the Industrial Wastewater Treatment Area. Chromium wastewater was generated until 1986 when the last process using chromium was shut down. The Coater Line Tank was the location of a 500-gallon underground storage tank used for short-term accumulation of used methyl ethyl ketone (MEK). This tank was removed in 1990. MEK was used as a finishing agent during the coating of aluminum coil. The Transformer Yard is the site where PCB-containing transformers were historically located. The transformers are no longer in place, but the concrete storage pads are still present. The Cold Mill Transfer Lines are no longer used, but formerly were used to transport waste oil and spent coolant from the cold mills to an accumulation tank located near the Oil House.

5. Remelt/Hot Line Area: The Remelt/Hot Line Area, located in the northern portion of the Trentwood Facility, is the area where primary or recycled aluminum is melted and cast into ingots (Remelt) and where these ingots are then processed in hot rolling mills to reduce their thickness (Hot Line). This area was considered as one site for evaluation in the HHERA, the Remelt/Hotline site. A significant amount of characterization and remediation activities have occurred in this area since 1989.

6. Oil Reclamation to Wastewater Transfer Lines Area: The Oil Reclamation to Wastewater Transfer Lines Area is located in the northwestern portion of the Trentwood Facility, and contains three sites which were evaluated in the HHERA: the G2 Lines, the G1/G3 Lines, and the Railcar Unloading. The G2 Lines and G1/G3 Lines sites include release points along wastewater transfer lines G1, G2, and G3, which were used to carry oily wastewater from the Oil Reclamation Building to the Industrial Wastewater Treatment Area. The G1 Transfer Line was the first underground transfer line installed and was likely used to transfer oily emulsion from the Oil Reclamation Building to the Industrial Wastewater Treatment Area. Because releases from this line occurred near releases from the G3 Transfer Lines, the G1 Transfer Line was combined with the G3 site for evaluation in the HHERA. The G1 Transfer Line was replaced in the mid-1980's with the G2 Transfer Lines that carried emulsion/oil and acidified wastewater generated at the Cold Mill in separate lines from the Oil Reclamation Building to the Industrial Wastewater Treatment Area. Following a leak, which was identified in the G2 Transfer Lines in 1998, the G2 Transfer Lines were replaced with the G3 Transfer Lines. Problems with leaking were also encountered with the G3 Transfer Lines, which led to their removal. The current Transfer Line (G4) is an above-ground, heat-traced piping system that was installed in 2005. The G4 Transfer Line has not been associated with any releases to the environment. The Railcar Unloading site is the location of fuel-oil spills that occurred during unloading operations.

7. Truck Shop Area: The Truck Shop Area is located in the north-central portion of the Trentwood Facility, north of the Oil House Area. This area is used for vehicle maintenance and consists of

an enclosed steam-cleaning pad, an equipment repair area, and an office structure. This area was considered as one site in the HHERA, (i.e., the Truck Shop site). Soil and groundwater investigations began here in 2005 when it was suspected that a release had occurred from an underground sump tank. Use of the sump tank was discontinued in 2005 when the release was confirmed.

8. Discharge Ravines Area: The Discharge Ravines Area consists of two sites: the West Discharge Ravine and the South Discharge Ravine, which are located on the west and south sides of the Trentwood Facility, respectively. These ravines were used to discharge wastewater from the Trentwood Facility prior to the construction of the Industrial Wastewater Treatment plant in 1973. These ravines are no longer used to transport water from the Trentwood Facility. PCB and petroleum-contaminated soil was excavated from the Western Discharge Ravine in 2007 as part of an Interim Action.

9. Buffer Area: The Buffer Area includes soil locations that were sampled as part of the Facility-wide groundwater investigation. These locations were not associated with identified releases of constituents to soil. The samples were grouped together as a site referred to as the "Buffer" in the HHERA. The samples that constitute the Buffer site are scattered across the Trentwood Facility, and appear on Figure 1-2 as individual dots. A sub-set of these samples (i.e., samples that are not covered with asphalt or compacted mineral soil) were evaluated in the ecological portion of the HHERA.

A list of the areas and sites considered in the HHERA is presented in Table 1-1.

1.5 Risk Assessment Process

Risk assessment is an established approach for evaluating the potential for impacts to human health and the environment associated with exposure to toxic constituents. Risk assessment is a management-decision tool, and does not provide absolute statements about health and environmental impacts. Risk assessments focus on constituents and exposure pathways directly related to a site, and do not address risks from other potential sources of exposure (e.g., exposure to constituents in produce purchased from a store). Risk managers use the results of risk assessments to assist in determining if a site or portion thereof, requires additional environmental actions.

1.6 Report Organization

The remaining sections of this report include a Data Evaluation section and two risk assessments, as outlined below:

- Section 2: Data Evaluation – This section describes the data used in the HHERA and the steps used to refine the data set for use in the HHERA statistical calculations.

Two risk assessments follow the Data Evaluation Section. The first is a human health risk assessment (HHRA). The HHRA is organized as follows:

- Section 3: HHRA Introduction – This section presents an overview of the HHRA process.
- Section 4: HHRA/Identification of Indicator Hazardous Substances– This section presents the screening process used to identify the IHSs, which were used to identify sites to be evaluated in the HHRA.
- Section 5: HHRA Exposure Assessment – This section identifies the receptors and exposure pathways evaluated for the HHRA.
- Section 6: HHRA Toxicity Assessment – This section identifies the toxicity factors (i.e., noncancer reference doses and cancer slope factors) used to evaluate risk.
- Section 7: HHRA Risk Characterization and Uncertainty Analysis – This section provides quantitative estimates of the noncancer hazard and cancer risk. The uncertainties associated with the risk estimates are also presented.

The second risk assessment is the ecological risk assessment (ERA), which is organized as follows:

- Section 8: ERA Terrestrial Ecological Evaluation Framework – This section describes the Model Toxics Control Act (MTCA) Terrestrial Ecological Evaluation Framework and how it applies to the Trentwood Facility.
- Section 9: ERA Setting – This section describes the terrestrial habitats, climate, soil, plant and animal species likely to inhabit the Trentwood Facility, and the occurrence of federal and state listed species on the Facility.
- Section 10: ERA Exclusions Evaluation – This section evaluates each site based on four MTCA exclusion criteria to determine which sites require further ecological evaluation.
- Section 11: ERA Site-Specific Evaluation – In this section, analytical soil data for each site that failed the exclusions evaluation was screened using MTCA default indicator soil concentrations to identify ecological constituents of interest. In addition site-specific exposure and toxicity parameters values were developed to evaluate potential impacts of soil-borne constituents to wildlife.

Throughout this report, references, tables and figures are presented at the end of the section in which they are discussed. Sections in this report are supplemented by Appendices that provide supporting, detailed documentation of items discussed in the text.

1.7 References

Ecology (Washington State Department of Ecology) 2005. Kaiser Trentwood Site – Agreed Order No. 2692. August 16, 2005.

Ecology (Washington State Department of Ecology) 2007. Kaiser Aluminum Fabricated Products Trentwood Site Interim Actions-Fact Sheet. Publication No. 07-09-24. May, 2007.

Hart Crowser 2007. Phase II Remedial Investigation Work Plan. Kaiser Trentwood Facility, Spokane Valley, Washington. November 30, 2007.

Hart Crowser 2012. Site-Wide Soil Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. May 2012.

SECTION 2 – DATA EVALUATION

2.1 Overview of Data Used in Risk Assessments

The soil data used in the HHERA 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 RIs. The soil samples included in the HHERA were collected at a depth of 15 feet or shallower, which is the depth range considered when evaluating the point of compliance for human and ecological exposure based on direct contact with soil, as specified in WAC 173-340-740 (6)(d) and WAC 173-340-7490 (4)(b). In addition to soil samples, soil gas samples collected in the Truck Shop Area and near the Oil Reclamation Building and Surrounding Area were evaluated in the HHRA.

The data set evaluated in the HHERA 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 the data preceding the Phase I RI (Hart Crowser 2005) 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 of the Site-Wide Soil RI Report (Hart Crowser 2012). The data used in this HHERA meet the QA/QC established by Hart Crowser. Analytical data used in the HHERA are presented in Appendix A.

2.2 Preliminary Data Screening

The Trentwood Facility database was evaluated to assess which samples were no longer in place due to numerous removal activities and capital improvement projects conducted over the years. The soil concentrations used in the HHERA represent current site conditions and are concentrations left in the soil after removal and interim actions were completed. Only samples located within 15 feet of the surface were included in the HHERA. Results for all constituents evaluated in these samples were reviewed, and those constituents that were not detected in any samples were eliminated from further consideration. A total of 81 constituents[1] were detected in at least one soil sample. These constituents are presented in Table 2-1.

2.3 Data Reduction

This section presents the approach that was used to evaluate and identify the soil data for use in this report. The following subsections discuss the treatment of field duplicate samples, non-detected sample results, and the process used to select constituent concentrations where there was an overlap in analytical methods.

[1] Seven of these constituents, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene, were combined to create one constituent representing the total carcinogenic polycyclic aromatic hydrocarbon (cPAH) concentration, the cPAH toxic equivalency, as specified in WAC 173-340-708(8)(e).

2.3.1 Field Duplicate Samples

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

- If both results were detected values, then the two values were averaged.
- If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
- If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

2.3.2 Non-Detected Sample Results

Any constituent that was non-detected in a sample was assigned a "U" qualifier. A "U" qualifier does not necessarily mean that the concentration was zero. The reporting limit was assigned to non-detected constituents and one half of the reporting limit was used to calculate descriptive statistics and exposure point concentrations for non-detected analytical results. This procedure was used for constituents that were detected in at least one sample. This is a conservative approach for evaluating non-detected constituents. As stated above, constituents that were non-detected in any sample were not considered in the HHERAs.

2.3.3 Analytical Overlap

In instances where analytical overlap occurred (i.e., results for a constituent were reported by different analytical methods for the same sample), the most recent method, or the method with the higher sensitivity (i.e., lowest detection limit) was given precedence.

2.4 Evaluation of Total Petroleum Hydrocarbon Data

Total petroleum hydrocarbon (TPH) concentrations in soil have been evaluated at the Trentwood Facility for over 20 years. During that time there have been many refinements to analytical techniques enabling more specific characterization of the TPH composition of soil samples. This is particularly important for the Trentwood Facility because many 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 their associated toxicity.

To provide the most accurate risk estimates and to make use of as much historical Trentwood Facility data as possible, historical TPH data (reported as "total TPH") was retrofitted to individual TPH products identified within the same site using recent Ecology-approved northwest total petroleum hydrocarbons (NWTPH) methods, which report northwest total petroleum hydrocarbons diesel-range constituents (NWTPH-Dx) and northwest total petroleum hydrocarbons gasoline-range constituents (NWTPH-Gx). Retrofitting of TPH data is allowed by MTCA, which states that if the identity of a constituent is not known or is a mixture, retrofitting may be conducted, but must be based on the composition that yields the lowest TPH cleanup level (WAC 173-340-700(8)(b)(ii)(D)). The detailed approach used to retrofit

"total TPH" data is presented in Appendix B. Retrofitting was required for 39 samples evaluated in the HHERAs.

2.5 Evaluation of Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)

Seven PAHs are generally-recognized probable human carcinogens (i.e., capable of eliciting cancer in humans). In accordance with MTCA (WAC 173-340-708 (8)(e), these seven carcinogenic PAHs (cPAHs) were combined into one concentration using a toxic equivalency approach. Using this approach, each of the seven cPAHs was assigned a benzo(a)pyrene toxicity equivalency factor value. Toxic equivalency factors are estimates of the toxicity of the different cPAHs relative to the toxicity of benzo(a)pyrene, which has been assigned a toxic equivalency factor value of 1. To derive the cPAH toxic equivalency concentration (henceforth referred to as the total cPAH TEQ) used in the HHRA, the measured concentration of each of the seven cPAHs was multiplied by its assigned toxic equivalency factor value, and then the seven concentrations were summed to derive a total cPAH TEQ concentration. Non-detected cPAHs were assigned a value of half of the detection limit for the purpose of calculating the total cPAH TEQ concentration for each sample location. The toxic equivalency factor values for the seven cPAHs are presented in Table 2-2.

2.6 Calculation of Exposure Point Concentrations

An exposure point concentration is the concentration in the medium at the location of potential contact with the receptor. In this HHERA, with the exception of the soil gas evaluation, the exposure medium of interest was soil. For risk assessment purposes, the exposure point concentration represents an upper-bound estimate of the concentration that a receptor could be exposed to over an area (e.g., such as a site at the Trentwood Facility), rather than just one sample location. The objective of the HHERA is to evaluate the risks to the reasonably maximum exposed receptor based on current and future land use at the Trentwood Facility.

The reasonable maximum exposure point concentration was estimated by calculating a 95 percent upper confidence limit (95% UCL), which was calculated in accordance with Ecology guidance (Ecology 1992, 1993). To calculate the exposure point concentration, non-detected values were assigned a value of one-half the reporting limit. In cases where the number of samples was at least three and the detection frequency was greater than 50%, a statistical test was applied to determine if the data followed a normal or lognormal distribution.

For normally distributed data, the 95% UCL for the mean is calculated as:

$$95\%UCL = \bar{x} + t_{1-\alpha,n-1}\left(\frac{s}{\sqrt{n}}\right)$$

Where:

Parameter	Description
$\overline{x}$	sample mean
s	sample standard deviation
n	number of samples
t	value of t parameter based on one-sided α of 0.05 and n-1 degrees of freedom

For lognormally distributed data, the 95% UCL is calculated by:

$$95\%UCL = \exp\left(\overline{y} + 0.5\, s_y^2 + \left(s_y\, H_{1-\alpha} \Big/ \sqrt{n-1}\right)\right)$$

Where,

Parameter	Description
exp	e raised to the indicated power
$\overline{y}$	mean of the loge-transformed data
Sy	standard deviation of the loge-transformed data
n	number of samples
$1-\alpha$	significance level of 0.05
H	tabular H value

A lognormal distribution was assumed if the distribution was lognormal or unknown. The maximum-detected concentration, rather than the 95% UCL, was used in cases where the 95% UCL or the log 95% UCL for a site was greater than the maximum-detected concentration. The exposure point concentrations used in risk calculations for HHRA and ERA evaluations are presented in Appendix D and Appendix K, respectively.

2.7 Natural Background Concentrations of Metals

Natural background is the concentration of metals consistently present in the environment that has not been influenced by localized human activity. Natural background concentrations of metals were used in the HHERA as screening concentrations for identifying IHSs. As part of the data screening evaluation, metals with maximum detected concentrations that were less than natural background concentrations were not included in the HHERA.

Ecology has derived natural background concentrations for twelve metals for the Spokane Basin in Washington State (Ecology 1994), and these concentrations were used for this evaluation. In addition, natural background concentrations were determined for four metals (antimony, barium, selenium, and silver) which were not included in Ecology's list but were detected at the Trentwood Facility. The natural background concentrations used in the HHERA, including documentation of the derivation of the natural background concentrations for antimony, barium, selenium, and silver, are presented in Appendix C.

2.8 References

Ecology (Washington State Department of Ecology). 1992. Statistical Guidance for Ecology Site Manager. Toxics Cleanup Program. Publication 92-54. August 1992.

Ecology (Washington State Department of Ecology). 1993. Supplement to Statistical Guidance for Ecology Site Manager. Carol L. Fleskes, Toxics Cleanup Program. Supplement S-6. August 11, 1993.

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

HartCrowser 2005. Phase I Remedial Investigation Work Plan, Kaiser Trentwood Facility, Spokane, Washington. December 21, 2005.

Hart Crowser 2012. Site-Wide Soil Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. May 2012.

SECTION 3 – HHRA OVERVIEW

3.1 Purpose

The HHRA was conducted to evaluate the potential for adverse human health impacts associated with exposure to constituents in soil at the Trentwood Facility. This HHRA presents the methods, inputs, and assumptions used to identify sites at the Trentwood Facility with the potential for adverse impacts on human health. In addition to the soil evaluation, soil gas samples were evaluated for their potential to cause adverse health effects based on vapor intrusion into buildings and subsequent inhalation of indoor air.

The soil samples included in the HHRA were collected at a depth of 15 feet or shallower, which is the depth range considered when evaluating the point of compliance for human and ecological exposure based on direct contact with soil, as specified in WAC 173-340-740 (6)(d) and WAC 173-340-7490 (4)(b). The methodology and resulting risk estimates were prepared in accordance with MTCA Cleanup Regulation WAC 173-340-745, which identifies soil cleanup standards for industrial properties.

3.2 Overview of the Risk Assessment Process

HHRAs are comprised of the following four tasks:

1. Identification of Indicator Hazardous Substances. Indicator hazardous substances were identified for each site considered in the HHRA by comparing the maximum detected concentration of each constituent at a site to a conservative risk-based screening concentration (RBSC). Constituents with maximum detected concentrations that were greater than the RBSC were identified as indicator hazardous substances. Those sites with at least one indicator hazardous substance were retained through the remainder of the HHRA.
2. Exposure Assessment. In this task, potentially-exposed populations at the Trentwood Facility (e.g., industrial workers), and associated exposure scenarios, exposure pathways, and exposure factors were identified.
3. Toxicity Assessment. In this task, toxicity values are identified for the constituents evaluated in the exposure assessment. Toxicity values include noncarcinogenic reference doses and carcinogenic potency factors.
4. Risk Characterization. Noncancer hazards and incremental cancer risks were calculated using the information obtained in Tasks 1, 2, and 3. This task also includes preparation of an uncertainty analysis where the key uncertainties associated with the risk estimates are discussed.

SECTION 4 – HHRA IDENTIFICATION OF INDICATOR HAZARDOUS SUBSTANCES

4.1 Introduction

The first task in the HHRA was to identify sites with indicator hazardous substances. Indicator hazardous substances are those constituents present at concentrations greater than RBSCs. Sites with at least one indicator hazardous substance were evaluated in subsequent steps of the HHRA. The processes used to develop RBSCs, identify indicator hazardous substances, and the resulting indicator hazardous substances identified for each site are presented below.

4.2 Areas and Sites Evaluated in the Human Health Risk Assessment

There were 25 sites that were evaluated in the HHRA. A list of these sites is presented in Table 4-1.

4.3 Development of Risk-Based Screening Concentrations

Site-specific RBSCs were developed using the procedures identified in MTCA. RBSCs were developed based on specific exposure scenarios, constituent-specific toxicity values, and target cancer and noncancer risk levels. The exposure and toxicity information used to calculate RBSCs is the same as that used to calculate risks, which are presented in Section 5 (Exposure Assessment) and Section 6 (Toxicity Assessment). With the exception of lead, if a toxicity value was not available and an RBSC could not be derived, then the constituent was no longer considered in the HHRA. For lead, the MTCA WAC 173-340-745 Method A industrial screening value of 1,000 mg/kg was used as the RBSC.

A list of constituents with no available toxicity information is presented in Section 6. Target cancer and noncancer risk levels are discussed in Section 7 (Risk Characterization). A step-by-step discussion of RBSC development is presented in Appendix D.

RBSCs were calculated for the Industrial Worker scenario, which is the current and projected future use of the Trentwood Facility. To derive the RBSCs, a conceptual site model was developed for an Industrial Worker. For this exposure scenario, receptors may potentially be exposed to constituents in soil through the following two direct exposure pathways:

- Ingestion of soil
- Dermal contact with soil (petroleum-related substances only)

RBSCs were developed by integrating exposure through these pathways to arrive at one protective soil concentration for each constituent. The exposure algorithms were obtained from the MTCA Cleanup Regulation WAC 173-340-745. The benchmark cancer risk used to calculate RBSCs was 1.0E-06 (i.e., one in 1,000,000), while the target noncancer hazard quotient HQ was 0.1. These target risk values were selected to take into account potential cumulative risks associated with exposure to multiple substances.

RBSCs were calculated for both cancer risks and noncancer health effects for each constituent. The lowest cancer or noncancer RBSC was used as the RBSC in the screening step. Natural background concentrations of metals were also considered in screening, and where the lowest RBSC was a lower concentration than the natural background concentration, the natural background concentration was used as the RBSC. RBSCs were calculated for all constituents with available toxicity information. The RBSCs used for screening are presented in Table 4-2.

4.4 Identification of Indicator Hazardous Substances

Indicator hazardous substances for each site were identified by comparing maximum detected constituent concentrations to their RBSCs. Tables showing the comparison of maximum detected concentrations of all detected constituents to RBSCs for each site are presented in Appendix E. The ratio of the constituent concentration to the RBSC is referred to as the exceedance factor. When the exceedance factor was greater than one, it indicated that the constituent was present at a concentration higher than the RBSC, and the constituent was identified as an indicator hazardous substance. There were a total of seven indicator hazardous substances identified across the entire Trentwood Facility, and there were 16 sites that had one or more indicator hazardous substances.

In addition to evaluating exceedance factors for individual constituents, a cumulative exceedance factor was calculated for each site by summing the individual exceedance factors for all constituents. This step was done to verify that sites with no individual constituent exceedances (and hence no indicator hazardous substances) did not have a cumulative exceedance that could exceed Ecology's cumulative benchmark risk levels. RBSCs were derived using risk benchmark levels that were one tenth of Ecology's risk benchmark levels. Therefore, a site with a cumulative exceedance factor of 10 may have risks greater than Ecology's cumulative benchmark levels and should be carried through the remainder of the HHRA.

Indicator hazardous substances, exceedance factors, and cumulative exceedance factors for each site are shown in Table 4-3. Sites with at least one indicator hazardous substance or a cumulative exceedance factor greater than 10 were carried through the remainder of the HHRA. Based on these criteria, there were 16 sites considered further in the HHRA. Sites with indicator hazardous substances are identified in Figure 4-1.

SECTION 5 – HHRA EXPOSURE ASSESSMENT

5.1 Introduction

The purpose of the exposure assessment is to determine how receptors could be exposed to constituents present in soil by identifying plausible exposure scenarios and complete exposure pathways. Once exposure scenarios and exposure pathways were identified, exposure algorithms were used to estimate daily intakes of constituents through these pathways. The current and future land use scenario, exposure pathways, and approach used for calculating the hypothetical daily intake of constituents are presented below.

5.2 Current and Future Land Use Scenario

The current and projected future use of the Trentwood Facility is for industrial purposes. Hence, the probable maximally-exposed individual under this assumed scenario is an industrial worker. This worker could be exposed to constituents via direct contact with soil. Per MTCA regulations, the direct contact with soil exposure pathways that must be evaluated include incidental soil ingestion and dermal contact with soil (only evaluated for petroleum-related constituents) (WAC 173-340-745). Potential exposure pathways associated with groundwater will be evaluated as part of the soil and groundwater RIs.

5.3 Calculation of the Daily Intake of Constituents

Incidental soil ingestion and dermal contact with soil were the assumed complete exposure pathways that were evaluated in the HHRA. For each of these assumed exposure pathways, exposure factors were incorporated into an exposure algorithm to calculate the average daily dose. The average daily dose of a constituent is estimated from at least six basic parameters: constituent concentration in soil, exposure frequency, exposure duration, contact rate, body weight, and averaging time. Each of the exposure parameters has a range of possible values. All exposure parameter values used for the industrial worker were obtained from MTCA WAC 173-340-745. The algorithm and exposure parameters for incidental soil ingestion are presented in Table 5-1. The algorithm and exposure parameters for dermal contact are presented in Table 5-2. The constituent-specific dermal absorption values used to evaluate dermal contact with soil pathway are presented in Table 5-3. The exposure parameters used for each exposure pathway are briefly described below. Average daily dose calculations for each constituent and site with indicator hazardous substances, are presented in Appendix F.

5.3.1 Exposure Parameters

The exposure parameters used to calculate intake for both the incidental soil ingestion and dermal contact pathways are as follows:

5.3.1.1 Exposure Factors Associated with Incidental Soil Ingestion and Dermal Absorption

- Exposure Duration – The exposure duration represents the number of years over which exposure is assumed to occur. The default value used for the Industrial Worker is 20 years.
- Exposure Frequency – The exposure frequency is a unitless value that represents the number of days per year that a person is exposed. The default value used for the Industrial Worker for petroleum-related constituents is 0.7. For all other constituents, the default value is 0.4
- Average Body Weight – The average body weight represents the average body weight, in kilograms, of the receptor being evaluated. The default value used for the industrial worker is 70 kilograms.
- Averaging Time – The averaging time represents the number of years over which exposure is averaged. Exposure doses for carcinogens are averaged over the lifetime of the exposed individual (i.e., 75 years), while exposure doses for noncarcinogens are averaged over the duration of exposure. Therefore, for carcinogens, the averaging time is 75 years. The averaging time for noncarcinogens is equal to the exposure duration, which is 20 years.

5.3.1.2 Exposure Factors Associated with Incidental Soil Ingestion

- Soil Ingestion Rate – The soil ingestion rate represents the amount of soil ingested per day of exposure. The default value used for the Industrial Worker is 50 mg/day.
- Soil Gastrointestinal Absorption Fraction – The gastrointestinal absorption fraction represents the percentage of a constituent that can dissociate from soil once it is ingested. The default value is 100% for the constituents evaluated in the HHRA.

5.3.1.3 Exposure Factors Associated with Dermal Contact

- Skin Surface Area – The skin surface area represents the amount of skin available for exposure via dermal contact to soil. The default value used for the Industrial Worker is 2,500 cm^2.
- Soil-to-Skin Adherence Factor – The soil-to-skin adherence factor is a value that represents the amount of soil that adheres to exposed skin per day. The default value for the Industrial Worker is 0.2 mg/cm^2-day.
- Absorbance Factor – The absorbance factor represents the fraction of a constituent that is present on the skin that is absorbed into the blood stream, and is used to evaluate the dermal contact with soil exposure pathway. Absorbance factor values are constituent-specific and are presented in Table 5-3.

SECTION 6 – HHRA TOXICITY ASSESSMENT

6.1 Introduction

The toxicity values used in this assessment include noncarcinogenic reference doses and carcinogenic potency factors. Both noncarcinogenic and carcinogenic health effects must be considered when evaluating potential human health impacts. The potential for adverse noncarcinogenic health effects can result from exposure to any constituent; conversely, the potential for producing carcinogenic effects is limited to certain constituents (i.e., carcinogens). Therefore, in many cases a constituent may only have a noncancer toxicity value and no carcinogenic toxicity value.

Noncarcinogenic reference doses and carcinogenic potency factors are derived through an evaluation of the relationship between the amount of a constituent (either administered, absorbed or believed to be effective) and changes in certain aspects of the biological system (usually toxic effects) in the exposed population (animals and/or humans) in response to that constituent. The process used to develop these values is discussed in the following sections.

6.2 Reference Doses

6.2.1 Definition

The term reference dose was developed by USEPA to refer to a daily intake of a constituent to which an individual, including sensitive subpopulations, can be exposed without any expectation of adverse noncarcinogenic health effects (e.g., organ damage, biochemical alterations, and birth defects). The USEPA has developed reference doses for subchronic (i.e., short-term exposures) and chronic exposures (multiple exposures occurring over an extended period of time). A reference dose is defined as "an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subgroups, that is likely to be without an appreciable risk of deleterious effects during a portion of the lifetime" (USEPA 1989). Reference doses are expressed in units of milligrams per kilogram per day (mg/kg-day).

6.2.2 Derivation

Noncarcinogenic constituents are thought to exhibit threshold characteristics. That is, exposures less than a specific threshold dose will not result in adverse health effects, whereas exposures exceeding the threshold dose may produce adverse health effects. The assumption of a threshold for toxicity is based on the concept that the body has certain protective mechanisms that must be overcome before adverse effects are manifest. For example, there could be a large number of cells performing the same or similar function whose population must be significantly depleted before the effect is seen.

The threshold concept is important in the regulatory context. The individual threshold hypothesis holds that a range of exposures from zero to some finite value can be tolerated by the organism without expression of the toxic effect. Further, some regulatory regimes focus on the most sensitive members of

the population; therefore, regulatory efforts are generally made to keep exposures below the population threshold, which is defined as the lowest of the thresholds of the individuals within a population (USEPA, 2008a).

In general, a reference dose is derived from a no-observed-adverse-effects-level or a lowest-observed-adverse-effects-level obtained from animal studies (however, occasionally they may be derived from human studies) by the application of standard order-of-magnitude uncertainty factors. In certain cases, an additional modifying factor is employed to account for professional assessment of scientific uncertainties in the available data (USEPA 1989).

A no-observed-adverse-effects-level is an experimentally determined dose at which there was no statistically or biologically significant indication of the toxic effect of concern. The study chosen to establish the no-observed-adverse-effects-level is based on the criterion that the measured endpoint represents the most sensitive target organ or tissue (i.e., critical organ) for that constituent. In an experiment with several no-observed-adverse-effects-levels, generally the lowest one is chosen as the critical no-observed-adverse-effects-level. Since many constituents can produce toxic effects on several organ systems, with each toxic effect possibly having a separate threshold dose, the distinction of the critical toxic effect provides added confidence that the no-observed-adverse-effects-level is protective of human health.

Once the critical no-observed-adverse-effects-level is identified, the next step is to derive the reference dose by dividing the no-observed-adverse-effects-level by safety factors and modifying factors, as follows:

$$\textit{Reference Dose (average daily dose)} = \frac{No - Observed - Adverse - Effects - Level_{\text{experimental dose}}}{Safety\ Factors + Modifying\ Factors}$$

Generally, each safety factor represents a specific area of uncertainty inherent in the available data and accounts for uncertainties, such as:

- Differences in responsiveness between humans and animals in prolonged exposure studies (factor of 10) (USEPA 2008a)
- Variation in susceptibility among individuals in the human population (factor of 10) (USEPA 2008a)
- Incomplete databases (e.g., those for which only the results of subchronic studies are available) (factor of 10) (USEPA 2008a)

In addition to the safety factors, USEPA applies a modifying factor in some instances. The modifying factor can range from zero to 10 and is included to reflect a qualitative professional assessment of additional uncertainties in the critical study and in the entire database for a constituent that is not explicitly addressed by the safety factors. The default value for the modifying factor is 1 (USEPA 1997).

6.3 Cancer Potency Factors

6.3.1 Definition

A cancer potency factor is a numerical estimate of the carcinogenic potency of a constituent. Cancer potency factors are expressed in units of the inverse of milligrams of constituent per kilogram of body weight per day (kg-day/mg). Cancer potency factors were used in this HHRA to calculate both RBSCs and risk estimates.

6.3.2 Derivation

The mechanism for carcinogenesis is considered to be a "non-threshold" process, since any level of exposure to such a constituent is assumed to pose a small, but finite, probability of generating a carcinogenic response. Since risk at low exposure levels cannot be measured directly, either by animal experiments or by epidemiologic studies, a number of mathematical models and procedures have been developed for use in extrapolating from high to low doses. Different extrapolation models or procedures, while they may reasonably fit the observed data, may lead to large differences in the projected risk at low doses. The USEPA assumes in developing cancer potency factors that a single interaction with DNA can initiate cancer, so that low-dose extrapolation can be performed to nearly zero exposure. Making zero a data point affects the slope of the extrapolation curve and, therefore affects the cancer potency factor. This means that the relatively high doses that are often used in animal studies can be extrapolated downward to extremely small doses, with some incremental risk of cancer always possible. This assumes that even a small number of molecules (possibly a single molecule) of a carcinogen may cause changes in a single cell that could result in the cell dividing in an uncontrolled manner, eventually leading to cancer.

There is some dispute as to whether linear extrapolation to zero is a valid approach since cells have a number of detoxification mechanisms, such as DNA repair enzymes, that can repair damage from carcinogens at low doses. This would result in a threshold below which damage from carcinogens could be rectified. The presence of a threshold would result in a different slope for the extrapolated dose-response curve, and would result in a different cancer potency factor.

Cancer potency factors are usually derived by the USEPA using a linearized multistage model and reflect the upper-bound limit of cancer potency of any constituent. As a result, the calculated carcinogenic risk is likely to represent a plausible upper limit to the risk. The actual risk is unknown, but is likely to be lower than the predicted risk, and may be as low as zero (USEPA 1989).

6.4 Toxicity Value Sources

The USEPA has evaluated numerous constituents and has published the corresponding toxicity values, which have undergone peer review. The following sources of toxicity information were consulted to identify toxicity values for this HHRA:

- The Integrated Risk Information System (IRIS) (USEPA 2008a).
- The Health Effects Assessment Summary Tables–Annual Update (HEAST) (USEPA 1997).

- USEPA's Regional Soil Screening Tables (USEPA 2008b)

The values presented in IRIS have been "verified" by either the USEPA Reference Dose/Reference Concentration Work Group or the USEPA Carcinogen Risk Assessment Verification Endeavor. These agency work groups conduct a verification process that leads to internal agency scientific consensus regarding risk assessment information for a constituent. All of the toxicity values presented in the HEAST document are considered "provisional" by USEPA because an agency work group has not verified them. Provisional values are not listed in IRIS. USEPA Soil Screening Tables were consulted because they frequently contain provisional values published internally within USEPA, by the National Center for Environmental Assessment. If a toxicity value was not available from these sources, then the constituent was not quantitatively evaluated in the HHRA.

Since multiple toxicity values were available for some Indicator Hazardous Substances, the sources of toxicity information were prioritized as follows to select the toxicity values used in the risk assessment:

1. IRIS
2. HEAST
3. USEPA toxicity values identified in the Regional Soil Screening Table

The toxicity of any constituent depends on its route of entry into the body. In some cases a constituent may produce toxicity only at or near a specific route of entry and may not be toxic through other routes of exposure.

6.4.1 Dermal Toxicity Values

Dermal toxicity values for petroleum-related compounds were derived by multiplying oral reference doses by constituent-specific gastrointestinal absorption rates, as described by Ecology's Workbook (Ecology 2007). Gastrointestinal absorption rates for petroleum constituents were obtained from Table F-1: Properties of Chemicals Commonly Found at Petroleum Contaminated Sites (Ecology 2007). If constituent-specific gastrointestinal absorption rates were not available, the gastrointestinal absorption was assumed to be 100 percent. The gastrointestinal absorption values used in this evaluation are presented in Table 6-1.

6.4.2 Reference Doses for TPH Compounds

Noncancer toxicity values were identified for the TPH compounds measured by Ecology's NWTPH-Dx and NWTPH-Gx analytical method (i.e., gasoline, mineral spirits/stoddard solvent, kerosene/jet fuel, diesel/fuel oil, and heavy oil). Identification of TPH compound toxicity values involved determination of the carbon-chain composition of these compounds, and application of toxicity values obtained from Ecology's Updated Reference Doses for TPH Fractions and Individual Hazardous Substances Related to TPH (Ecology 2006). The procedure for identifying these toxicity values is described in Appendix B.

6.5 Constituents with No Available Toxicity Values

Toxicity information was not available for the following constituents:

- Acenaphthylene
- Benzo(g,h,i)perylene
- Dibenzofuran
- 1,3-Dichlorobenzene
- Dimethyl phthalate
- Isopropyltoluene
- Phenanthrene
- 1,2,4-Trimethylbenzene
- 1-Phenylpropane
- 4-Chlorotoluene
- 4-Isopropyl toluene
- 2-Hexanone
- n-Butylbenzene
- sec-Butylbenzene
- tert-Butylbenzene

The effect that this lack of toxicity values might have on risk estimates is discussed in the Uncertainty Analysis portion of the Risk Characterization (Section 7-7).

In addition, a toxicity value was not available for lead. In the absence of a toxicity value the Method A Industrial screening value of 1,000 mg/kg was used to evaluate potential risk due to lead exposure.

6.6 Toxicity Values Used in the Risk Assessment

The toxicity values used in the HHRA are presented in Table 6-1.

6.7 References

Ecology (Washington State Department of Ecology) 2006. Updated Reference Doses for Petroleum Hydrocarbon (TPH) Fractions and Individual Hazardous Substances Related to TPH. January, 2006.

Ecology. (Washington State Department of Ecology) 2007. Workbook Tools for Calculating Soil and Ground Water Cleanup Levels Under the Model Toxics Control Act Cleanup Regulation. User's Guide for MTCATPH 11.1 & MTCASGL 11.0. Revised December 2007. Publication No. 01-09-073.

USEPA (United States Environmental Protection Agency). 1989. Risk Assessment Guidance for Superfund: Human Health Evaluation Manual Part A. Interim Final. Office of Emergency and Remedial Response. Washington, D.C. 9285.701A. December 1989. USEPA/540/1-89/002.

USEPA (United States Environmental Protection Agency). 1997 Health Effects Assessment Summary Tables (HEAST): FY 1997 Update (most recent version published by USEPA). USEPA/540-R-97-036. PB97-921199. July. OSWER, Washington, D.C.

USEPA (United States Environmental Protection Agency). 2008a. Integrated Risk Information System (IRIS). Environmental Criteria and Assessment Office, Cincinnati, Ohio. 4th Quarter 2008 Update.

USEPA (United States Environmental Protection Agency). 2008b. Industrial Soil Screening Values Table. http://www.epa.gov/region09/superfund/prg/pdf/indsoil_sl_table_run_12SEP2008.pdf.

SECTION 7 – HHRA RISK CHARACTERIZATION

7.1 Introduction

Risk characterization involves integrating exposure and toxicity information into a quantitative estimate of cancer risks and noncancer hazard indices. In this section the risk characterization step was performed for the 16 sites that had indicator hazardous substances identified in the risk-based screening step in Section 4.

To ensure that cumulative risks were accurately characterized, risk estimates were calculated for all detected constituents at the 16 sites. The exposure parameters and toxicity values used to calculate human health risks were identified in the Exposure Assessment (Section 5) and Toxicity Assessment (Section 6), respectively. The risks associated with each detected constituent were summed to estimate the total human-health risk for each site. The procedure used to estimate cancer risks and noncancer hazards, and the benchmark values used to put those risks into context are presented below.

7.2 Evaluation of Noncancer Risk

The potential for noncancer effects is quantitatively expressed as a hazard quotient and/or a hazard index. The hazard quotient is the ratio of the calculated average daily dose of a particular constituent to the reference dose for that constituent. The hazard index is the sum of hazard quotients for each constituent. The total noncancer risk for a site is the sum of the hazard quotients for all constituents, through all exposure pathways evaluated.

$$\textit{Hazard Quotient} = \frac{\textit{Average Daily Dose}}{\textit{Reference Dose}}$$

Hazard Index = Sum of Hazard Quotients (all Constituents and all Pathways)

7.3 Evaluation of Cancer Risk

The risk of cancer from exposure to a constituent is described in terms of the probability that an exposed individual will develop cancer during a lifetime from that exposure. The risk estimate is calculated by multiplying the average daily dose of a particular constituent by the cancer potency factor.

Cancer Risk = Average Daily Dose X Cancer Potency Factor

The cancer risks associated with each constituent were summed to yield the total cancer risk.

7.4 Evaluation of Risk Based on Lead Exposure

The potential for adverse health effects based on exposure to lead in soil was evaluated by comparing lead exposure point concentrations to the MTCA Method A industrial soil screening value for lead of 1,000 mg/kg. Lead exposure point concentrations are presented in Appendix E.

7.5 Risk Benchmark Values

Risk benchmark values are the assumed acceptable risks that are used by regulatory agencies to evaluate the significance of risks to receptors exposed to constituents.

7.5.1 Noncancer Risk Benchmark Values

A hazard index (the estimate of the total noncancer hazard) of one is typically set as the benchmark below which adverse, noncancer health effects are not expected. If the hazard index is greater than one, it is assumed that adverse health effects are possible. When the hazard index exceeds one, the noncancer risk is typically re-evaluated by segregating the constituents via their toxic endpoints (e.g., the organs to which they can cause damage) to achieve a more refined noncancer risk estimate. When this is done, separate hazard indexes are calculated for each target organ or critical effect.

When RBSCs were developed in the first task of the HHRA (Identification of Indicator Hazardous Substances – Section 4), a noncancer benchmark hazard quotient of 0.1 was established for individual constituents to ensure that the RBSCs were conservative enough to identify all constituents that could potentially be associated with adverse health effects.

Consistent with MTCA, the noncancer benchmark used as a point of departure for identifying sites that will require further evaluation, remedial action, or a no-further-action risk management decision, is a noncancer hazard index greater than 1.

7.5.2 Cancer Risk Benchmark Value

A cancer risk of 1.0E-06 (one-in-one-million) means that if one million people were exposed to a constituent under identical exposure conditions, one additional incidence of cancer would be observed within this population over a lifetime of 70 years, due to exposure to the constituent. An excess cancer risk of 1.0E-06 is typically identified as the target risk value for screening purposes. Therefore, the target cancer benchmark used to develop RBSCs in the first component of the HHRA (Identification of Indicator Hazardous Substances – Section 4) was 1.0E-06.

Consistent with MTCA, the cancer risk benchmark used as a point of departure for identifying evaluation units which will require further evaluation, remedial action, or a no-further-action risk management decision is a total cancer risk greater than 1.0E-05, which is the benchmark criterion for industrial sites.

7.6 Results of Risk Assessment

Risk estimates were prepared for the 16 sites identified in Section 4 as having at least one indicator hazardous substance, or with a cumulative exceedance factor that was greater than 10. Risk characterization results for each of these sites are summarized in Table 7-1 and discussed below. Tables with the complete HHRA results for each of these sites are presented in Appendix F. Analytical results including exposure point concentrations are presented in Appendix E.

7.6.1 Drum Storage/French Drain

7.6.1.1 Noncancer Risk Results

The hazard index for the Drum Storage/French Drain site was 0.02, which was below the benchmark hazard index of one.

7.6.1.2 Cancer Risk Results

The total cancer risk for the Drum Storage/French Drain Site was 4.4E-04, which exceeded the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties. This calculation was based on the assumed incidental ingestion of Aroclor 1248, which was detected in four of the 20 soil samples collected at this site. The four detected Aroclor 1248 concentrations were collected from locations SA-1 and SA-6, and the detected concentrations ranged from 68 mg/kg to 2,900 mg/kg. The location of these samples is presented in Figure 7-1.

7.6.1.3 Lead Evaluation

Lead was not detected in soil at the Drum Storage/French Drain site.

7.6.1.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was greater than 1.0E-05 for an industrial worker who may incidentally contact Aroclor 1248 in soil at the Drum Storage/French Drain site.

7.6.2 Oil House Underground Storage Tank

7.6.2.1 Noncancer Risk Results

The hazard index for the Oil House Underground Storage Tank site was 0.9, which was below the benchmark hazard index of one.

7.6.2.2 Cancer Risk Results

The total cancer risk for the Oil House Underground Storage Tank site was 7.1E-07, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.2.3 Lead Evaluation

The lead exposure point concentration was 34 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.2.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Oil House Underground Storage Tank site.

7.6.3 Eight Underground Storage Tanks

7.6.3.1 Noncancer Risk Results

The hazard index for the Eight Underground Storage Tanks site was 0.5, which was below the benchmark hazard index of one.

7.6.3.2 Cancer Risk Results

There were no carcinogenic constituents detected at the Eight Underground Storage Tanks site, therefore cancer risks were not calculated.

7.6.3.3 Lead Evaluation

Lead was not detected in soil at the Eight Underground Storage Tanks site.

7.6.3.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Eight Underground Storage Tanks site.

7.6.4 Kensol Spill

7.6.4.1 Noncancer Risk Results

The hazard index for the Kensol Spill site was 0.5, which was below the benchmark hazard index of one.

7.6.4.2 Cancer Risk Results

The total cancer risk for the Kensol Spill site was 2.9E-12, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.4.3 Lead Evaluation

Lead was not detected in soil at the Kensol Spill site.

7.6.4.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Kensol Spill site.

7.6.5 Field-Constructed Tanks

7.6.5.1 Noncancer Risk Results

The hazard index for the Field-Constructed Tanks site was 0.06, which was below the benchmark hazard index of one.

7.6.5.2 Cancer Risk Results

The total cancer risk for the Field-Constructed Tanks site was 1.6E-06, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.5.3 Lead Evaluation

The lead exposure point concentration was 19 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.5.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Field-Constructed Tanks site.

7.6.6 Hoffman Tank

7.6.6.1 Noncancer Risk Results

The hazard index for the Hoffman Tank site was 1.3, which was slightly above the benchmark hazard index of one. The assumed incidental ingestion and dermal contact with total diesel/fuel oil-impacted soil is responsible for 99% of the hazard index. Total diesel/fuel oil was detected in all seven of the samples evaluated for this site in concentrations ranging from 100 mg/kg to 33,000 mg/kg. The location and concentrations of the total diesel/fuel oil samples in this site are presented in Figure 7-2

7.6.6.2 Cancer Risk Results

The total cancer risk for the Hoffman Tank site was 1.4E-06, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.6.3 Lead Evaluation

The lead exposure point concentration was 58 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.6.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was slightly higher than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Hoffman Tank site.

7.6.7 Hydrogen Sulfide Scrubber Building

7.6.7.1 Noncancer Risk Results

The hazard index for the HSSB site was 0.8, which was below the benchmark hazard index of one.

7.6.7.2 Cancer Risk Results

The total cancer risk for the Hydrogen Sulfide Scrubber Building site was 1.3E-06, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.7.3 Lead Evaluation

The lead exposure point concentration was 320 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.7.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Hydrogen Sulfide Scrubber Building site.

7.6.8 Oil Reclamation Building

7.6.8.1 Noncancer Risk Results

The hazard index for the Oil Reclamation Building site was 0.08, which was below the benchmark hazard index of one.

7.6.8.2 Cancer Risk Results

The total cancer risk for the Oil Reclamation Building site was 1.9E-06, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.8.3 Lead Evaluation

The lead exposure point concentration was 1,400 mg/kg, which exceeds the MTCA Method A industrial soil screening concentration of 1,000 mg/kg. Lead was detected in the Oil Reclamation Building in 13 of 16 of samples, with detected concentrations ranging from 3.1 mg/kg to 1,400 mg/kg. Of the 16 lead samples collected at the Oil Reclamation Building site, two (05ORTP-4 and B-22/S-1) had concentrations (1,280 and 1,400) that were greater than the screening concentration. The locations of lead samples in the Oil Reclamation Building site are presented in Figure 7-3. The source of this lead is unclear, and it

should be noted that these are the only two lead concentrations across the entire Trentwood Facility that exceeded the screening concentration.

7.6.8.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Oil Reclamation Building site.

While the lead exposure point concentration exceeded the screening concentration, the exposure point concentration was based on the maximum detected concentration. The maximum detected concentration was the default exposure point concentration because the 95% UCL concentration was higher due to the small sample size and the large range of detected concentrations. There were only two samples at the Trentwood Facility with concentrations greater than the screening concentration.

7.6.9 Continuous Can Process Line

7.6.9.1 Noncancer Risk Results

The hazard index for the Continuous Can Process Line site was 0.01, which was below the benchmark hazard index of one.

7.6.9.2 Cancer Risk Results

The total cancer risk for the Continuous Can Process Line site was 1.1E-06, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.9.3 Lead Evaluation

The lead exposure point concentration was 28 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.9.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Continuous Can Process Line site.

7.6.10 Cold Mill Transfer Line

7.6.10.1 Noncancer Risk Results

The hazard index for the Cold Mill Transfer Line site was 0.09, which was below the benchmark hazard index of one.

7.6.10.2 Cancer Risk Results

The total cancer risk for the Cold Mill Transfer Line site was 1.1E-06, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.10.3 Lead Evaluation

The lead exposure point concentration was 8.0 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.10.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Cold Mill Transfer Line site.

7.6.11 Remelt/Hotline

7.6.11.1 Noncancer Risk Results

The hazard index for the Remelt/Hotline site was 0.04, which was below the benchmark hazard index of 1.0.

7.6.11.2 Cancer Risk Results

The total cancer risk for the Remelt/Hotline site was 1.7E-06, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.11.3 Lead Evaluation

The lead exposure point concentration was 91 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.11.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Remelt/Hotline site.

7.6.12 G1/G3 Lines

7.6.12.1 Noncancer Risk Results

The hazard index for the G1/G3 Lines site was 0.01, which was below the benchmark hazard index of 1.0.

7.6.12.2 Cancer Risk Results

The total cancer risk for the G1/G3 Lines site was 5.2E-07, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.12.3 Lead Evaluation

The lead exposure point concentration was 24 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.12.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the G1/G3 Lines site.

7.6.13 Railcar Unloading

7.6.13.1 Noncancer Risk Results

The hazard index for the Railcar Unloading site was 0.02, which was below the benchmark hazard index of 1.0.

7.6.13.2 Cancer Risk Results

The total cancer risk for the Railcar Unloading site was 7.6E-07, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.13.3 Lead Evaluation

The lead exposure point concentration was 29 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.13.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Railcar Unloading site.

7.6.14 South Discharge Ravine

7.6.14.1 Noncancer Risk Results

The hazard index for the South Discharge Ravine site was 0.04, which was below the benchmark hazard index of one.

7.6.14.2 Cancer Risk Results

The total cancer risk for the South Discharge Ravine site was 3.6E-06, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.14.3 Lead Evaluation

Lead was not detected in soil at the South Discharge Ravine site.

7.6.14.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the South Discharge Ravine site.

7.6.15 West Discharge Ravine

7.6.15.1 Noncancer Risk Results

The hazard index for the West Discharge Ravine site was 0.01, which was below the benchmark hazard index of one.

7.6.15.2 Cancer Risk Results

The total cancer risk for the West Discharge Ravine site was 1.0E-05, which was equal to the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties. Increased cancer risk is defined as a risk level above this benchmark level. Aroclor 1248 was responsible for approximately 99% of the estimated cancer risk.

7.6.15.3 Lead Evaluation

Lead was not detected in soil at the West Discharge Ravine site.

7.6.15.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was equal to the benchmark cancer risk of 1.0E-05 for industrial workers who may incidentally contact soil at the West Discharge Ravine site.

7.6.16 Buffer

7.6.16.1 Noncancer Risk Results

The hazard index for the Buffer site was 0.01, which was below the benchmark hazard index of one.

7.6.16.2 Cancer Risk Results

The total cancer risk for the Buffer site was 7.2E-07, which was below the benchmark cancer risk of 1.0E-05 established by MTCA for industrial properties.

7.6.16.3 Lead Evaluation

The lead exposure point concentration was 15 mg/kg, which was below the MTCA Method A industrial soil screening concentration of 1,000 mg/kg.

7.6.16.4 Summary of Risk Results

Based on the results of the HHRA, the noncancer hazard index was less than one and the cancer risk was less than 1.0E-05 for industrial workers who may incidentally contact soil at the Buffer site.

7.6.17 Summary of Risk Characterization Results

Of the 16 sites carried through the risk characterization, only one, the Hoffman Tank site, had a hazard index above the benchmark level of 1.0. The hazard index was 1.3 and was almost entirely (99%) associated with the assumed incidental ingestion and dermal contact with total diesel/fuel oil. In addition, one site, the Drum Storage/French Drain site, had a cancer risk of 4.4E-04, which is above the benchmark risk level of 1.0E-05, and was associated with the assumed incidental ingestion of Aroclor 1248 in soil.

Two samples at the Oil Reclamation Building site had lead concentrations that exceeded Ecology's screening concentration of 1,000 mg/kg. The source of lead in these samples is unknown. Lead concentrations did not exceed the screening concentration in any other samples or at any other site on the Trentwood Facility.

7.7 Uncertainty Analysis

The purpose of the Uncertainty Analysis is to identify key uncertainties associated with input parameters for the HHRA and to determine the potential impact of these uncertainties on risk estimates. The key uncertainties evaluated in this analysis are associated with the analytical data, the parameters used to estimate exposure, and the toxicity values used to quantify risk. These are discussed below.

7.7.1 Soil Analytical Data

The uncertainty and variability of soil analytical data were addressed by using upper-bound exposure point concentrations in the HHRA. The exposure point concentration is the concentration in the medium at the location of potential contact with the receptor. For risk assessment purposes, the exposure point concentration represents an upper-bound estimate of the concentration that a receptor could be exposed to over the entire site, rather than just at one sample location. Overall, the uncertainty associated with the soil analytical data are believed to be low due to the overall quality of the data and the use of upper-bound exposure point concentrations.

7.7.2 Exposure Assumptions

Because a range of parameters can be used for each assumption (e.g., how much an average adult worker weighs), uncertainty and variability are inherent to the risk assessment process. Ecology guidance incorporates more conservative (i.e., upper-bound) exposure parameters to develop RBSCs and to assess potential risks to individuals who may access the site under current and future conditions. Choosing upper-bound values for many parameters typically results in overly conservative (i.e., health protective) risk estimates. Using upper-bound values for exposure parameters and the most protective (i.e., lowest) RBSCs when characterizing sites in the HHRA minimized the possibility that a site would be incorrectly screened out of the risk assessment process or that risks would be underestimated.

7.7.3 Toxicity Values

7.7.3.1 Constituents without Available Toxicity Values

Fifteen of the 81 detected constituents were not evaluated based on a lack of toxicity information. Of these constituents, only four had a frequency of detection that was greater than 25 percent, and they were co-located with constituents that had available toxicity values. While risk estimates would have been higher if toxicity values were available it is unlikely that the overall results of the risk assessment would have changed (i.e., it is unlikely that additional sites would have been identified with hazards or risks greater than the benchmarks).

7.7.3.2 Derivation of Toxicity Values

USEPA cancer and noncancer toxicity values were used to evaluate the potential risks and hazard indices associated with exposure to constituents at the Trentwood Facility.

Since risk at low exposure levels cannot be measured directly by animal experiments or by epidemiologic studies, a number of mathematical models and procedures have been developed for use in extrapolating from high to low doses, which are most similar to potential human exposures from constituents in the environment. While different extrapolation models or procedures may reasonably fit the observed data, they may lead to large differences in the projected risk at low doses. The uncertainty associated with these toxicity values is addressed by incorporating conservative assumptions and modifying factors into the cancer and noncancer toxicity values.

The cumulative effect of these conservative assumptions used to derive toxicity values is to create conservative (i.e., health-protective) risk estimates.

7.7.4 Summary of Uncertainty Analysis

In summary, the purpose of the Uncertainty Analysis was to identify key components of the HHRA that have uncertainties associated with them that could impact the results of the evaluation. Key components were the soil analytical data, the exposure assumptions, and the toxicity values. Where uncertainty existed in the assessment, assumptions and inputs were selected to ensure that site risks were not underestimated.

7.8 Soil Gas Evaluation

The potential for adverse health effects based on inhalation of soil gas vapors was evaluated for two sites at the Trentwood Facility, the Oil Reclamation Building and the Truck Shop. To support this evaluation, soil gas samples were collected from both sites; two samples (OR-SG-1 and OR-SG-2) were collected at the Oil Reclamation Building and one (TS-SG-1) was collected at the Truck Shop. All three samples were collected at a depth of approximately nine feet bgs. The approximate location of these samples is presented in Figure 7-3. Documentation of the procedure and QA/QC associated with the collection of soil gas samples is provided in the Phase I Remedial Investigation Work Plan (Hart Crowser 2005).

7.8.1 Approach

To approximate indoor air concentrations, soil gas samples were multiplied by an attenuation factor. The attenuation factor represents the ratio of the indoor air concentration to the soil gas concentration at some depth. For screening purposes, the USEPA Vapor Intrusion Guidelines recommend an attenuation factor of 0.1 for shallow soil gas samples (defined as less than or equal to five feet below foundation level) and 0.01 for deep soil gas samples (defined as greater than five feet below foundation level) (USEPA 2002). The soil gas samples collected at the Trentwood Facility were collected at depths greater than five feet below grade. Therefore, an attenuation factor of 0.01 was applied to the soil gas samples to approximate the associated indoor air concentration that an industrial worker could be exposed to.

Estimated indoor air concentrations for constituents detected in soil gas were compared to the Washington State Industrial Safety and Health Act Permissible Exposure Levels. Because the Trentwood Facility is an operational industrial facility, the Washington State Industrial Safety and Health Act takes the lead role in addressing occupational exposures. Therefore Permissible Exposure Levels apply for addressing workplace exposure to constituents in air.

7.8.2 Results

As shown in Table 7-2, the estimated indoor air concentrations for detected constituents in all three samples were orders of magnitude lower than the Washington State Industrial Safety and Health Act Permissible Exposure Levels. Therefore, adverse health effects are not expected based on inhalation of vapors from soil gas.

7.9 References

Hart Crowser. 2005. Phase I Remedial Investigation Work Plan, Kaiser Trentwood Facility, Spokane, Washington. December 21, 2005.

USEPA (Environmental Protection Agency). 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Washington, D.C.: Office of Solid Waste and Emergency Response. Available at: www.epa.gov/correctiveaction/eis/vapor/complete.pdf.

SECTION 8 – TERRESTRIAL ECOLOGICAL EVALUATION FRAMEWORK AND TRENTWOOD FACILITY DESCRIPTION

This terrestrial ecological evaluation was conducted at the Trentwood Facility pursuant to requirements of the Agreed Order (No. DE 2692). This Terrestrial Ecological Evaluation is a component of the Site-Wide Soil RI Report (Hart Crowser 2012) and complies with MTCA requirements (WAC 173-340-7490 through 7494). This section presents an overview of the MTCA Terrestrial Ecological Evaluation framework and relevant physical features of the Trentwood Facility.

8.1 Evaluation Framework

The MTCA Terrestrial Ecological Evaluation framework for evaluating constituent concentrations in soil includes three tiers (Figure 8-1). Tier 1 (Exclusions from Evaluation in the Terrestrial Ecological Evaluation) consists of a set of criteria that are used to determine if a site can be excluded from further consideration. If results of the Tier 1 assessment indicate the site requires further evaluation, criteria are provided to determine if it should be evaluated using either Tier 2 or Tier 3 procedures. Tier 2 (Simplified Terrestrial Ecological Evaluation) consists of an evaluation of potential ecological exposures, an exposure pathway analysis, and a comparison of constituent concentrations in site soil to default screening concentrations protective of plants and/or animals. If the site passes all Tier 2 criteria (i.e., environmental impacts are not expected), no further evaluation is required. If the site does not pass Tier 2 criteria, it can either proceed toward a feasibility study or a Tier 3 evaluation. Tier 3 (Site-Specific Terrestrial Ecological Evaluation) consists of a detailed ecological evaluation. MTCA provides a general framework for conducting a Tier 3 evaluation, but because of the nature of a site-specific evaluation, MTCA does not provide explicit details for the evaluation.

MTCA defines two goals for a Terrestrial Ecological Evaluation, depending on land use. For land uses other than industrial or commercial, the goal is protection of plants, soil invertebrates, and wildlife. For industrial or commercial land uses, the goal is protection of wildlife. Since the current and potential future land use at the Trentwood Facility is industrial, the goal of this Terrestrial Ecological Evaluation is protection of wildlife.

8.2 Physical Features of the Trentwood Facility

The Trentwood Facility consists of nine areas with 25 sites (see Figure 1-2 and Table 1-1) that were the subject of past environmental investigations. A description of the physical features in each area is provided below.

1. Oil House Area – This area is located on the east side of the Trentwood Facility. Although this area is largely covered by buildings or paved with asphalt, one site (i.e., the Oil House Underground Storage Tank) has a small area of open ground consisting of compacted gravel.
2. Industrial Wastewater Treatment Area – This area is located on the west side of the Trentwood Facility. It consists of a mixture of open and covered ground. Several buildings occupy large

portions if the area. Asphalt paving surrounds many of the structures. The Industrial Wastewater Treatment Area lagoon is found west of the Industrial Wastewater Treatment Area Building. Open ground found adjacent to buildings and paved surfaces consists of landscaping and open fields.

3. Oil Reclamation Building and Surrounding Area – This area is located in the northwest portion of the Trentwood Facility. Although several structures and asphalt pavement occur in the area, the majority of the land surface is open ground. The soil surface is characterized as compacted mineral soil.
4. Cold Mill/Finishing Area – This area occupies the southern portion of the Trentwood Facility and consists primarily of buildings with concrete floors. The area does include several open courtyards with open ground ranging from compacted mineral soil to landscaping.
5. RM/HL Area – This area occupies the north (Remelt) and central (Hot Line) portions of the Trentwood Facility. The area consists of large buildings with concrete floors
6. Oil Reclamation to Wastewater Reclamation Lines Area – This area is located south of the Oil Reclamation Building and Surrounding Area. Open ground is found over most of this area with soil surfaces characterized by compacted mineral soil devoid of vegetation.
7. Truck Shop Area – This area is located north of the Oil House Area. The ground surface consists of compacted gravel and asphalt paving.
8. Discharge Ravines Area – Located northwest of the Industrial Wastewater Treatment Area, the West Discharge Ravine is unique in that it consists of a less-disturbed natural habitat. PCB and petroleum affected soil was excavated from the West Discharge Ravine in 2007 as part of an interim action. Following excavation, the ravine was backfilled with clean soil and the area re-vegetated with native species. The South Discharge Ravine area is located on the south side of the Trentwood Facility and is similar to the West Discharge Ravine area in terms of physical/biological setting.
9. Buffer Area – The Buffer Area includes soil locations that were sampled as part of the Facility-wide groundwater investigation. These locations were not associated with identified releases of constituents to soil. These samples were grouped together as a site referred to as the "Buffer" in the HHERA. The Terrestrial Ecological Evaluation evaluated a subset of samples from the Buffer Area, which were located in unpaved locations near the Industrial Wastewater Treatment Area. This subset of samples is termed the Industrial Wastewater Treatment Area Buffer site for the Terrestrial Ecological Evaluation.

8.3 References

Hart Crowser. 2012. Site-Wide Soil Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. May 2012.

SECTION 9 – ECOLOGICAL SETTING

9.1 Introduction

The 512 acre Trentwood Facility is located on relatively flat terrain with a mild gradient sloping toward the Spokane River (Figure 9-1). The northeast corner of the Trentwood Facility has an elevation of approximately 2,020 feet that drops to below 1,940 feet on the banks of the Spokane River. The Spokane River lies to the south and west of the Trentwood Facility, commercial industrial developments to the east, and the community of Trentwood to the north. The Washington State Parks Department owns much of the land between the Spokane River and Kaiser Property.

Several parks occur in the general vicinity, but not adjacent to the Trentwood Facility. Mirabeau Point Park is a developed park occupying 42 acres on the south bank of the Spokane River west of the Trentwood Facility[2] (Figure 9-1). Sullivan Park is a developed park with natural areas occupying 16 acres on the north shore of the Spokane River approximately one-half mile south east of the Trentwood Facility. Myrtle Point Park is an undeveloped natural area occupying 31 acres on the south bank of the Spokane River approximately one mile northwest of the Trentwood Facility. Plante's Ferry Park occupies the north shore of the Spokane River located opposite Myrtle Point Park and is a popular sports complex. Mirabeau Point Park and Myrtle Point Park connect with the Spokane Centennial Trail that runs along the south shore of the Spokane River in this area.

The Trentwood Facility is located at approximately river mile (RM 86) of the Spokane River. Designated uses of the Spokane River from Nine Mile Bridge (RM 58.0) to the Idaho border (RM 96.5) include spawning/rearing of aquatic life, primary recreational contact, and use as domestic, industrial, agricultural, and stock water supplies[3]. The river supports a variety of fish including rainbow trout and largescale suckers (Serdar and Johnson 2006). Numerous species of birds (e.g., mallard duck, great blue heron, and Canada goose) and semi-aquatic mammals (e.g., beaver and river otter) use the river.

Prior to construction of the Trentwood Facility in 1942, the property was used for agriculture. An historical aerial photograph indicates that hay was grown on the property, and to produce hay in this area irrigation was required[4]. A large portion of the Trentwood Facility property is presently covered by buildings and pavement. Landscaped areas can be found in various locations and include managed lawns with tree and shrub plantings. Extensive open areas virtually free of vegetation occur adjacent to some of the main buildings. Open fields occupy much of the Trentwood Facility perimeter. Land adjacent to the Spokane River contains semi-native plant communities.

Apart from the lagoon located in the Industrial Wastewater Treatment area, no permanent surface water bodies occur on the Trentwood Facility. Since discharges to the West Discharge Ravine and South

[2] City of Spokane Valley Park and Recreation Plan (April 2006) available online at http://www.spokanevalley.org/sub.aspx?id=121.
[3] Water Quality Standards for Surface Waters of Washington State (WAC 173-201A).
[4] Personal communication with Mr. Scott Bare, Natural Resources Conservation Service, Spokane, WA on February 17, 2009.

Discharge Ravine ceased in 1973, water does not typically flow through the ravines. There may be instances when water does flow in the ravines, such as when it rains on top of snow or frozen ground, but there is no documentation of such flow since the process discharges ceased in 1973. There was an area of ponded water historically located at the top of the South Discharge Ravine. This area was filled level with the surrounding grade sometime after the ravine was taken out of service.

U.S. Fish and Wildlife Service National Wetland Inventory[5] shows two wetland areas located within the Trentwood Facility property boundary. The Spokane River is designated a riverine wetland (R3UBH – riverine, upper perennial, unconsolidated bottom, permanent waterway). The wastewater lagoon is designated an impounded pond (palustrine, unconsolidated bottom, semi-permanently flooded, diked impoundment).

9.2 Terrestrial Habitats

Native habitats on the Trentwood Facility property have been altered by many years of agricultural and industrial use.

Two native wildlife habitats historically dominated the Trentwood property: Eastside Grasslands and Ponderosa Pine Woodlands (Johnson and O'Neil 2001). The native Eastside Grassland habitat is dominated by short to medium tall grasses (less than 3.3 feet high) such as bluebunch wheatgrass and Idaho fescue. A variety of other perennial and annual grasses are associated with this habitat. Forbs (e.g., balsam roots, buckwheat, and lupine) and shrubs (e.g., sumac, rabbit brushes, and common snowberry) may be locally found in these grasslands. A wide variety of avian species (e.g., red-tailed hawk, western meadowlark, horned lark) and mammalian species (e.g., ground squirrels, pocket gophers, deer mouse) are associated with these grasslands.

The native Ponderosa Pine Woodland habitat is typically a woodland or savanna with tree-canopy coverage of 10-60 percent (Johnson and O'Neil 2001). This habitat generally occurs in the driest environments supporting conifers in the Pacific Northwest. Ponderosa pine and Douglas fir are the most common evergreen trees. The undergrowth can include dense stands of shrubs (e.g., common snowberry and mallowleaf ninebark), but is typically dominated by grasses (e.g., pinegrass, Idaho fescue, bluebunch wheatgrass), sedges, and/or forbs. A wide variety of avian species (e.g., great grey owl, woodpeckers, nuthatches) and mammalian species (e.g., ground squirrels, pocket gophers, deer mouse) are associated with these woodlands.

Currently, the area in and around the Trentwood Facility is largely developed and consists of two wildlife habitats: Urban/Mixed Environs and Agriculture/Pasture/Mixed Environs (Johnson and O'Neil 2001). Natural habitats are drastically altered in urban environments and are replaced by buildings, impermeable surfaces, and plantings of non-native species. Although man-made structures provide habitats similar to those of cavities, caves, fissures, cliffs, and ledges, many structural features typical of the historical vegetation (e.g., snags, dead and downed wood, brush piles) are often completely removed from the

[5] Wetland information was obtained from the U.S. Fish and Wildlife Service National Wetlands Inventory available online at http://www.fws.gov/wetlands/.

landscape. Remnant isolated blocks of native vegetation may be found scattered throughout urban landscapes. The Agriculture/Pasture/Mixed Environs habitat often dominates the landscape in flat or gently rolling terrain with access to abundant irrigation water. Although this habitat can be structurally diverse (e.g., variety of crop species, pasture intermixed with patches of native vegetation), structural diversity is low within cover types. While the Urban/Mixed Environs and Agriculture/Pasture/Mixed Environs habitats provide some of the requirements for some wildlife species, they have lost many of the functions the natural habitats historically provided.

9.3 Cover Types

For purposes of this Terrestrial Ecological Evaluation, the Trentwood Facility land was divided into five distinct terrestrial cover types: Buildings and Paved Surface, Landscape, Compacted Mineral Soil, Open Field, and Semi-Native Vegetation (Figure 9-2). Each of these cover types are discussed further in the following subsections.

9.3.1 Buildings and Paved Surface:

This cover type provides few wildlife requirements although buildings may provide nesting sites for some bird species. Paved areas include roads and a large area east of the Hot Line building used for staging equipment and material (Figure 9-3).

9.3.2 Landscape

The Landscape cover type is planted largely with exotic species of grasses, shrubs, and trees (e.g., fir, spruce, birch, maple, black locust) (Figures 9-4 and 9-5). Patches of this cover type are found primarily around buildings. This cover type may provide forage, rearing sites, and cover for some wildlife species. The Landscape cover type is managed (e.g., mowed, pruned) and must be irrigated to maintain the vegetative cover. Soil swelling invertebrates, including earthworms, are likely found in this cover type (see Section 9.6).

9.3.3 Compacted Mineral Soil

This cover type is found primarily in the western and northern portion of the Trentwood Facility. The ground surface is characterized by compacted and coarse mineral soil with little organic matter (see Section 9.4). Some of the areas with the Compacted Mineral Soil cover type also contain imported gravel which had finer gravel fractions and less sand than other areas with the Compacted Mineral Soil type (e.g., the area west of the Oil Reclamation Building). The Compacted Mineral Soil cover type is virtually devoid of vegetation. All vegetation is controlled in this cover type through the annual application of herbicides[6]. Presumably the low nutrient content, low water-holding capacity, and compacted nature of the substrate contributes to the lack of vegetation (Figures 9-6 and 9-7). Soil invertebrates are expected to

[6] Personal communication with Mr. Bernard Leber, Environmental Engineering Manager, Kaiser Aluminum – Trentwood Works on 4/2/2009.

be nearly absent from this cover type (see Section 9.6). Wildlife usage of this habitat is expected to be minimal due to the absence of food and cover.

9.3.4 Open Field

This cover type occupies most of the remaining Trentwood Facility property. Current industrial use of this cover type is limited. However, prior to construction of the Trentwood Facility in 1942 the property was used for agriculture. The soil is characterized as coarse-grained with low organic matter content (see Section 9.4). Vegetation is sparse consisting of a mixture of grasses and forbs, of which many are exotic, weedy species (e.g., knapweed, crested wheatgrass, pigweed, horseweed, and cheatgrass) (Figures 9-8 and 9-9). The presence of many exotic plant species that typically have low forage value suggests the Open Field cover type would provide low value to wildlife. Herbicides are periodically applied to control noxious weeds[7]. Soil-dwelling invertebrates (e.g., beetles, ants, isopods) are expected to be present, but earthworms are absent (see Section 9.6).

9.3.5 Semi-Native Vegetation

A relatively narrow band of Semi-Native Vegetation cover type occurs on land sloping toward the Spokane River, including portions of the West Discharge Ravine and South Discharge Ravine. This cover type shows relatively little anthropogenic disturbance and has a more natural soil with a topsoil horizon (see Section 9.4). Soil on the floors on the West Discharge Ravine and South Discharge Ravine differ from those typical of the Semi-Native Vegetation cover type. The West Discharge Ravine was the subject of a 2007 Interim Action where soil affected by PCB and petroleum was excavated and the excavation backfilled with clean material. The excavation area was replanted with native species. The floor of the South Discharge Ravine has been affected by historical use and consists of fairly coarse grained material and cobbles. This cover type has relatively-high structural diversity due to the presence of trees (e.g., Ponderosa pine, Douglas fir, black cottonwood), shrubs (e.g., blackberry, low Oregon-grape, rose, snowberry), and herbaceous plant layers (Figures 9-10 and 9-11). A riparian zone borders the Spokane River dominated by black cottonwood, hardhack, and a variety of willows. The Semi-Native Vegetation cover type is of relatively high value to wildlife because it provides a variety of food sources, cover, and rearing sites. However, this cover type has been affected by anthropogenic influences (Figure 9-12). The West Discharge Ravine and South Discharge Ravine connect to the Spokane River corridor which provides connectivity for wildlife passage along the river.

9.4 Soil

The Natural Resource Conservation Service soil survey[8] for Spokane County shows the Garrison soil series dominating the Trentwood Facility property (Appendix G). Garrison gravelly loam with a zero to five percent slope occurs over most of the property. Soil changes to Garrison very stony loam with a zero

[7] Personal communication with Mr. Bernard Leber, Environmental Engineering Manager, Kaiser Aluminum – Trentwood Works on 4/2/2009.

[8] Soil survey information was obtained from the Natural Resources Conservation Service available online at http://websoilsurvey.nrcs.usda.gov/app/.

to twenty percent slope, and then becomes riverwash as the terrain slopes to the Spokane River. The native Garrison series consists of very deep, somewhat excessively-drained soil formed on glacial outwash with a component of loess and volcanic ash in the upper part[9]. The A Horizon (i.e., topsoil) is typically 20 inches thick with a clay content of 10 to 18 percent by weight and gravel content of 30 to 55 percent. The B Horizon (i.e., weathered mineral subsoil) is typically eight inches thick with a clay content of five to 15 percent and a gravel content of 15 to 50 percent. The C Horizon (i.e., unweathered mineral soil) is typically 36 inches thick with a clay content of zero to five percent and a gravel content of 30 to 75 percent. A complex of Garrison and Opportunity series may occur at the Trentwood Facility. The Opportunity series differs from the Garrison series in having a thicker B Horizon (typically 14 inches thick). Under natural conditions the Garrison and Opportunity series would typically support a savannah ecosystem dominated by grasses (e.g., bluebunch wheatgrass and Idaho fescue) with scattered Ponderosa pine trees. The Garrison series can be used for hay and crop production, but requires irrigation[10].

Soil on the Trentwood Facility property has been modified by historic agricultural and industrial use. The A Horizon is absent from soil in open areas with Compacted Mineral Soil and Open Field cover types. The A Horizon is present in the Semi-Native Vegetation cover type because less anthropogenic disturbance has occurred there. The A Horizon contains more organic matter than deeper horizons which provide food and nutrients for soil organisms (e.g., invertebrates, fungi, bacteria) and plants.

9.5 Climate

Spokane has a continental climate that is semi-arid with warm summers and winters cold enough to maintain snow cover[11]. Summers are typically dry and mild, and winters can bring periods of cold, wet weather. The average warmest month between 1971 and 2000 was August and the average coolest month was January (Figure 9-13). The maximum/minimum monthly average temperatures ranged from 82.9° F/54.6° F in August to 33.9° F/23.5° F in January. The average monthly precipitation from 1971 to 2000 ranged from 0.82 inches in July to 3.07 inches in December. The annual average precipitation is 18.84 inches.

9.6 Soil-Dwelling Macroinvertebrates

A variety of terrestrial wildlife species depend on soil-dwelling macroinvertebrates as dietary components during part or all of the year. For example, the summer diet of nestling/fledgling robins may consist of 70 percent invertebrates of which the major components are lepidopteran larve (25 percent), earthworms (15 percent), and beetles (12 percent) (USEPA 1993). However, wildlife diets are also dependent upon prey availability. When preferred prey is scarce or unavailable in a particular locale, birds and mammals may either move to another location where the preferred prey is available or shift dietary preferences to secondary prey items.

[9] Personal communication with Mr. Scott Bare (Project Leader, Natural Resources Conservation Service, Spokane, WA) on February 17, 2009. Mr. Bare provided a draft update of the description of the Garrison series.
[10] Personal communication with Mr. Ron Myraum (State Soil Scientist, Natural Resources Conservation Service, Spokane, WA) on January 14, 2009.
[11] The climatic description for Spokane was obtained from the National Oceanic and Atmospheric Association (NOAA) National Weather Service Forecast at http://www.wrh.noaa.gov/otx/spokane.php.

The composition of the soil-dwelling macroinvertebrate population at the Trentwood Facility is of particular interest because this Terrestrial Ecological Evaluation uses the American robin and shrew (invertebrate consuming wildlife) as target wildlife receptors (Section 11.2.5).

A review of available information regarding soil-dwelling macroinvertebrates at the Trentwood Facility (Appendix H) is summarized below:

1. Soil-dwelling macroinvertebrates that are prey for birds and mammals include taxa such as earthworms (Oligocheata), ground beetles (Carabidae), true weevils (Curculionidae), termites (Isoptera), ants (Fomicidae), woodlice/pillbugs (Isopoda), centipedes (Chilopoda), and millipedes (Diplodoa).

2. Natural soil and climatic conditions found at the Trentwood Facility limit earthworms from inhabiting all cover types except the Landscape cover type. Enhanced soil quality and soil moisture associated with irrigation provide suitable habitat for earthworms that were probably introduced during landscape planting.

3. Non-earthworm taxa are largely absent from the Compacted Mineral Soil cover type, which may be due to the lack of vegetation, low soil organic matter, compacted/coarse grained nature of the substrate, and dry soil conditions during the summer.

4. Few non-earthworm taxa are present in the Open Field cover type, which may be due to the sparse vegetation, low soil organic matter, coarse grained nature of the substrate, and dry soil conditions during summer.

5. Non-earthworm taxa are present in the Semi-Native Vegetation cover type. A diverse vegetative community and presence of native soil likely provide requirements for other macroinvertebrate taxa including insects, woodlice, millipedes, centipedes, and snails.

9.7 Terrestrial Wildlife

Wildlife species observed or potentially occurring on the Trentwood Facility property are described in this section. These wildlife species may occur on the Landscaped, Open Field, and Semi-Native Vegetation cover types and may potentially become exposed to constituents in soil through consumption of plant and soil invertebrates that have accumulated constituents from the soil, as well as incidental consumption of soil. Wildlife species are unlikely to be found on the Building and Paved Areas and Compacted Mineral Soil cover types and are not exposed to constituents in soil due to physical barriers and the absence of food.

Terrestrial mammals observed or likely to occur in the Trentwood Facility property include mule deer, white-tailed deer, coyote, badger, yellow-bellied marmot, raccoon, ground squirrel, cottontail rabbit, blacktailed jackrabbit, and chipmunk (Gilpin 2007). Coyote and marmot burrows have been observed in

the vicinity of the South Discharge Ravine[12]. Other mammals with ranges encompassing the Trentwood Facility property include voles (e.g., meadow, montane, and long tailed voles), northern pocket gopher, vagrant shrew, bats (e.g., Townsend's big-eared, big brown, hoary, California myotis, Yuma myotis), deer mouse, bushy-tailed woodrat, striped skunk, bobcat, and porcupine[13].

Avian species observed using the Trentwood Facility property and adjacent areas include red-tailed hawk, red-winged blackbird, Canada goose, mourning dove, vireo, nuthatch, wren, waxwing, sparrow, warbler, magpie, finch and crossbill (Gilpin 2007). Other avian species closely associated with the Eastside Grasslands and Ponderosa Pine habitats that were historically present in the Trentwood Facility property include chukar, western meadowlark, savannah sparrow, western bluebird, and western kingbird (Johnson and O'Neil 2001).

Reptiles generally associated with the Eastside Grasslands and Ponderosa Pine Woodlands habitats include the western fence lizard, western skink, gopher snake, western terrestrial garter snake, and western rattlesnake (Johnson and O'Neil 2001). Snakes have been observed at the Trentwood Facility during environmental field sampling and soil-removal events.

9.8 Threatened and Endangered Species

Natural resources agencies[14] were contacted regarding the presence of threatened and endangered species in the vicinity of the Trentwood Facility property. No threatened or endangered species were identified as potentially occurring in the terrestrial areas on or adjacent to the Trentwood Facility.

The U.S. Fish and Wildlife Service does not provide information on the precise locations where threatened or endangered species have been observed. However, the service does provide lists of threatened and endangered species for each county in eastern Washington[15]. The Spokane County list includes one endangered species (gray wolf - *Canis lupus*) and four threatened species (bull trout - *Salvelinus confluents*, water howellia - *Howellia aquatilis*, Spalding's silene – *Silene spaldingii*, and Ute ladies'-tresses – *Spiranthes diluvialis*). The U.S. Fish and Wildlife Service indicated that the bull trout was the only threatened or endangered species likely to occur in the vicinity of the Trentwood Facility[16]. Bull trout were recently observed by Washington Department of Fish and Wildlife staff near Mirabeau Point on the Spokane River. A review of the Washington State Department of Natural Resources geographic information system data set indicated no threatened or endangered plant species occur within approximately four miles of the Trentwood Facility[17].

[12] Personal communication with Mr. Bruce McDonald (geologist, Hart Crowser, Seattle, WA) on 2/27/2009.
[13] Mammals of Washington available at the University of Washington, Burke Museum of Natural History and Culture website at http://www.washington.edu/burkemuseum/collections/mammalogy/mamwash/.
[14] U.S. Fish and Wildlife Service, Washington Department of Fish & Wildlife, Washington Department of Natural Resources (Natural Heritage Program).
[15] Lists of federally listed threatened or endangered species are available for counties in eastern Washington at: http://www.fws.gov/easternwashington/species/countySppLists.html.
[16] Personal communication with Ms. Suzanne Audet, U.S. Fish and Wildlife Service, Spokane WA, on 3/2/2009.
[17] The Washington Natural Heritage Program Geographic Information System data set was obtained from the Washington State Department of Natural Resources on compact disc on March 11, 2009.

The Washington Department of Fish and Wildlife[18] indicated three state candidate gastropod species have been observed in the Spokane River adjacent to the Trentwood Facility (i.e., California floater [*Anodonta californiensis*], giant Columbia River limpet [*Fisherola nuttalli*], and great Columbia River spire snail [*Fluminicola columbiana*]). The mountain quail (*Oreortyx pictus*) is a state candidate species and was observed at a location approximately two miles south of the Trentwood Facility. The bull trout is a state listed candidate species.

Washington Department of Fish and Wildlife also indicated the shoreline of the Spokane River near the Trentwood Facility is priority habitat. The shoreline provides winter range (moderate to heavy use) for white-tailed deer. Urban natural open space and cliff/bluff features along the river are seasonally used by bald eagles, osprey, and red-tailed hawks.

9.9 References

Gilpin, J. 2007. Cultural Resources Survey of the Proposed Kaiser Trentwood West Drainage Ravine Remediation Project, Spokane Valley, Washington. Submitted to Hart Crowser, Inc. by Historical Research Associates, Inc. June 2007.

Johnson, D.H., and T.A. O'Neil. 2001. Wildlife-habitat Relationships in Oregon and Washington. Oregon State University Press, Corvallis, OR. 736 pp.

Serdar, D., and A. Johnson. 2006. PCBs, PBDEs, and Selected Metals in Spokane River Fish, 2005. Washington Department of Ecology. Publication 06-03-025. August 2006.

USEPA (United States Environmental Protection Agency). 1993. Wildlife Exposure Factors Handbook. Volume I of II. Office of Research and Development, Washington, D.C. December 1993. EPA/600/R-93-187a.

[18] Washington Department of Fish and Wildlife habitats and species information for the Trentwood Facility area provided on 2/25/2009.

SECTION 10 – TERRESTRIAL ECOLOGICAL EXCLUSIONS EVALUATION

10.1 Introduction

The first tier in the Terrestrial Ecological Evaluation process is the exclusions evaluation, which determines if a site can be excluded from further consideration. MTCA[19] provides four criteria for determining that no further evaluation is required. If any of the four criteria are not met, it can be concluded that the ecological exposure pathways are incomplete (or de minimus) or constituent concentrations are below a level of concern. The four criteria are:

- Criterion 1: All affected soil is, or will be, located below the point of compliance.
- Criterion 2: All affected soil is, or will be, covered by buildings, paved roads, pavement, or other physical barriers that will prevent ecological exposure to the contaminated soil.
- Criterion 3: Undeveloped land on or within 500 feet of the site is less than a quarter of an acre if any highly-toxic constituents are detected in soil, or less than 1.5 acres if highly toxic constituents are not detected in soil. This criterion is only evaluated if Criterion 2 is met, to ensure that productive habitat adjacent to a site is not overlooked.
- Criterion 4: Concentrations of constituents in the soil do not exceed natural background levels.

Criterion 1 connotes ecological exposure to constituents in soil will not occur because constituents are present only in deep soils. The standard MTCA point of compliance is 15 feet below ground surface (bgs). If all detected constituents occur below 15 feet bgs, no further evaluation is required. MTCA also specifies a conditional point of compliance at six feet bgs. The zero to six foot soil strata is assumed to be the biologically active zone where most, if not all, potential ecological exposures to constituents could occur. A no further evaluation conclusion may be reached at sites where all detected constituents occur below the conditional point of compliance when institutional controls are in place to prevent excavation of soil below six feet bgs.

Criterion 2 connotes ecological exposure to constituents will not occur when those constituents are found in soils covered by a physical barrier. Although physical barriers typically include buildings and areas paved with asphalt or concrete, areas comprised of compacted soil/gravel substrate (e.g., gravel parking lot) may also provide an effective ecological exposure barrier. Surface soil in the Compacted Mineral Soil cover type (Sections 9.3.3) is composed of sandy gravel that has become highly compacted through continual industrial use. This cover type occurs near the main buildings of the Trentwood Facility (Figure 9-2). Vegetation and soil-dwelling invertebrates are absent from this cover type (Section 9.6), thus providing no cover or food for wildlife species. Wildlife exposure to constituents in soil in the Compacted Mineral Soil cover type is incomplete due to the physical nature of the soil surface. Therefore, this cover type provides a physical barrier to wildlife exposure.

[19] 173-340-7491 WAC

Criterion 3 connotes very small sites are unlikely to pose an ecological hazard because of limited ecological exposure to constituents present in the soil. MTCA provides two sub-criteria dependent upon the type of constituents found at the site. For sites with high priority organic constituents[20], the criterion is a quarter of an acre of contiguous[21]-undeveloped[22] land on or within 500 feet of any area of the site. For sites not affected by high-priority organic constituents, the criterion is 1.5 acres of contiguous-undeveloped land on or within 500 feet of any area of the site. This criterion applies to sites not covered by a physical barrier, and is only evaluated if a site passes Criterion 2.

Criterion 4 connotes that constituents in soil pose a de minimus ecological hazard when concentrations are below natural background levels. For this Terrestrial Ecological Evaluation, natural background levels were established for metals and included in this evaluation (Appendix C). Organic constituents are assumed to be present at concentrations above natural background.

This exclusions evaluation was applied to individual sites at the Trentwood Facility. Each site is a location of a known or suspected release. Many sites have undergone a removal action, so most or all of the constituents released to the soil have been removed.

Results of the exclusions evaluation are summarized in Table 10-1 for each site. Detailed descriptions of each site are provided in the Site-Wide Soil RI Report (Hart Crowser 2012). The following site descriptions provide information pertinent to the exclusions evaluation.

10.2 Industrial Wastewater Treatment Area

Three sites are located within the Industrial Wastewater Treatment Area (i.e., Hoffman Tank, Hydrogen Sulfide Scrubber Building and Field-Constructed Tanks) and soil removal actions were conducted at all three sites (Hoffman Tank site – 1990-91, Hydrogen Sulfide Scrubber Building site – 1998, Field-Constructed Tanks site – 2008) (Figure 1-2). The Hydrogen Sulfide Scrubber Building site is covered by the Hydrogen Sulfide Scrubber Building, the Hoffman Tank site is partially covered by asphalt, and Field-Constructed Tanks site is open ground.

The former above-ground Hoffman Tank site is located in the southern of the Industrial Wastewater Treatment Area (Figure 1-2). This flow-through process tank was used to filter oily water prior to entering the Industrial Wastewater Treatment process. The tank was removed in 1990. In 1991, affected soil was excavated to a depth ranging from 15 to 35 feet bgs and the excavation was backfilled. The excavation area covered approximately 0.2 acres and the portion adjacent to the Wastewater Treatment Building was paved with asphalt. A 50 mil polyvinyl chloride membrane covered with one foot of coarse

[20] High priority organic chemicals include chlorinated dioxins and furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosufan, endrin, heptachlor/heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, and pentachlorobenzene.

[21] Contiguous undeveloped land is defined as undeveloped land that is not divided into smaller areas by highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife. Roads, sidewalks, and other structures that are unlikely to reduce potential use of the area by wildlife shall not be considered to divide a contiguous area into smaller areas.

[22] Undeveloped land is defined as land not covered by buildings, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, or other food in or on the soil.

sand was installed over the remainder of the excavation. This open area was landscaped with grass and is maintained with irrigation (Figure 10-1). Several trees line the northern border of the excavation area and open fields occur to the south and east. Petroleum hydrocarbons, nine metals, and one PAH was detected in verification soil samples and borings (zero to 15 feet bgs). Wildlife exposure to residual constituents in soil present in the zero to 15 foot strata is incomplete in the portion of the excavation covered by asphalt, but is complete for the area not covered by asphalt. Therefore, further evaluation of the Hoffman Tank site is required.

The Hydrogen Sulfide Scrubber Building site is located at the southern end of the Industrial Wastewater Treatment Area (Figure 1-2). While excavating the foundations for the new Hydrogen Sulfide Scrubber Building in 1998, petroleum hydrocarbon-affected soil was discovered. The likely source was the former Hoffman Tank that was the subject of a 1991 removal action. Affected soil was excavated from four to seven feet bgs from an area of approximately 0.01 acre. The excavation was backfilled and covered by construction of a new Hydrogen Sulfide Scrubber Building. Petroleum hydrocarbons, six metals, eight PAHs, and PCBs were detected in verification soil samples (zero to 15 feet bgs). Wildlife exposure to residual soil-borne constituents present in the zero to 15 foot strata is incomplete due to the Hydrogen Sulfide Scrubber Building barrier. Therefore, further evaluation of the Hydrogen Sulfide Scrubber Building site is not required.

The Field-Constructed Tanks site is located on the northern portion of the Industrial Wastewater Treatment Area (Figure 1-2). Three Field-Constructed Tanks (two 225,000-gallon concrete above-surface tanks (AST) and one 588,000-gallon steel AST) were constructed between 1942 and 1950 to store fuel oil for plant operations until the 1970's when natural gas became available. The tanks were removed in 2008 and soil with visual/olfactory indications of petroleum hydrocarbons was removed from the site (Hart Crowser 2008a). The excavation area of approximately 0.6 acres has not been backfilled (Figure 10-2). Backfilling of the excavation will require Ecology's approval under the framework of the Agreed Order. It is possible that when the excavation is backfilled, the floor of the excavation will be below the conditional point of compliance (i.e., six feet bgs) and possibly even the standard point of compliance (i.e., 15 feet bgs). The excavation is bordered by an asphalt road to the east, landscaping to the south, and open fields to the west and north. A portion of the concrete floor of the west Field-Constructed Tank remains to protect a buried utility line traversing the site. Petroleum hydrocarbons, 10 Volatile Organic Constituents (VOCs), 15 Polycyclic Aromatic Hydrocarbons (PAHs), eight metals, one Semi-Volatile Organic Constituents (SVOC), and PCBs were detected in verification soil samples (zero to 15 foot bgs). Although the Field-Constructed Tanks excavation will be backfilled in the future, wildlife exposure to residual soil-borne constituents present in the zero to 15 foot strata is currently complete. Therefore, further evaluation of the Field-Constructed Tanks site is required.

10.3 Oil Reclamation Building and Surrounding Area

The Oil Reclamation Building and Surrounding Area is located on the western portion of the Kaiser Facility and includes three sites (Oil Reclamation Building, Oil/Water Emulsion Spill, and Fuel Oil Spill) (Figure 1-2). A portion of the Oil Reclamation Building site is covered by buildings and pavement, but

other portions are open ground consisting of compacted mineral soil. The ground surface in the Oil/Water Emulsion Spill and FOS sites is compacted mineral soil.

The Oil Reclamation Building site is located in the northern portion of the Oil Reclamation Building and Surrounding Area (Figure 1-2). A large portion of the Oil Reclamation Building site is covered by buildings and asphalt. Open ground consisting of compacted mineral soil devoid of vegetation is found in several locations including the man-made depressions (Figure 9-6). Petroleum hydrocarbons, 23 VOCs, 18 PAHs, eight metals, two SVOCs, and PCBs were detected in soil samples (zero to 15 feet bgs). Wildlife exposure to constituents in soil present in the zero to 15 foot strata is incomplete due to the presence of buildings, asphalt pavement, and compacted mineral soil surfaces. Therefore, further evaluation of the Oil Reclamation Building site is not required.

The Oil/Water Emulsion Spill site is located in the southern portion of the Oil Reclamation Building and Surrounding Area (Figure 1-2). In 1992, oil/water emulsion was inadvertently released from the G2 Transfer Line while excavating the area with a backhoe. Impacted soil was immediately excavated to a depth of 10 to 18 feet bgs. The surface of the excavation and surrounding area is compacted mineral soil devoid of vegetation. Petroleum hydrocarbons were detected in soil samples (zero to 15 feet bgs). The wildlife exposure pathway to residual soil-borne constituents present in the zero to 15 foot strata is incomplete due to the presence of compacted mineral soil surfaces. Therefore, further evaluation of the Oil/Water Emulsion Spill site is not required.

The FOS site is located in the southern portion of the Oil Reclamation Building and Surrounding Area (Figure 1-2) (Hart Crowser 2012). The ground surface in this area is compacted mineral soil devoid of vegetation. Petroleum hydrocarbons and 17 PAHs were detected in soil samples (zero to 15 feet bgs) collected in 2006 and 2008. Wildlife exposure to constituents in soil present in the zero to 15 foot strata is incomplete due to the presence of compacted mineral soil surfaces. Therefore, further evaluation of the FOS site is not required.

10.4 Oil Reclamation to Wastewater Transfer Lines Area

Three sites are located within the Oil Reclamation to Wastewater Transfer Line Area located south of the Oil Reclamation Building Area (G2 Lines, G1/G3 Lines, and the Railcar Unloading) (Figure 1-2). Releases from the G1 line were limited to a location west of the Oil Reclamation Building adjacent to the G3 line. For purposes of the ERA, the G1 line is included in the G3 line. With the exception of an exposed excavation in the Railcar Unloading site, all sites are covered by open ground consisting of compacted mineral soil. Soil removal actions have occurred at all three sites.

The G2 Lines site consists of two former below-ground lines that conveyed oily and acidified wastewater from the Oil Reclamation Building site the Industrial Wastewater Treatment Area (Figure 1-2). These lines were in operation from the mid-1980s until 1998 when they were replaced by the G3 Transfer Lines. Although portions of the G2 Lines site is covered by asphalt roads and rail lines, the majority of the site is open ground consisting of compacted mineral soil devoid of vegetation. Petroleum hydrocarbons were detected in verification soil samples (zero to 15 feet bgs). The wildlife exposure pathway to residual soil-

borne constituents present in the zero to 15 foot strata is incomplete due to the presence of compacted mineral soil surfaces. Therefore, further evaluation of the G2 site is not required.

The G1/G3 Lines site consists of two former below-ground lines that also conveyed oily and acidified wastewater from the Oil Reclamation Building site to the Industrial Wastewater Treatment Area (Figure 1-2). Although portions of the G1/G3 Lines site are covered by asphalt roads, the majority of the site is open ground consisting of compacted mineral soil devoid of vegetation. Petroleum hydrocarbons, two SVOCs, and five metals were detected in soil samples (zero to 15 feet bgs). The wildlife exposure pathway to residual soil-borne constituents present in the zero to 15 foot strata is incomplete due to the presence of asphalt and compacted mineral soil surfaces. Therefore, further evaluation of the G1/G3 Lines site is not required.

The Railcar Unloading site is located on the southeast portion of Oil Reclamation to Wastewater Transfer Line Area (Figure 1-2). A removal action was conducted in 2008 to address soil impacts at this location (Hart Crowser, 2012). The excavation area of approximately 0.1 acre was excavated to a maximum depth of eight feet bgs in 2008 (Figure 10-3). The excavation has not yet been backfilled, but Kaiser plans to backfill it in the future. Although a portion of the site is covered by a rail line, the majority is open ground consisting of compacted mineral soil devoid of vegetation. Even though the excavation will eventually be backfilled and surface conditions made comparable to those of the surrounding land (i.e., compacted mineral soil), a schedule for this activity has not been established. Therefore, it is possible that wildlife may become exposed to residual constituents present in soil on the floor of the excavation. Petroleum hydrocarbons, eight VOCs, and six metals were detected in soil samples (zero to 15 feet bgs) collected from across the entire site. The wildlife exposure pathway to constituents in soil present in the zero to 15 foot strata is incomplete over most of the site due to the presence of the rail line and compacted mineral soil surface. However, the 2008 excavation provides a potentially complete pathway for wildlife exposure. Therefore, further evaluation is required for the 2008 excavation within the southern portion Railcar Unloading site.

10.5 Remelt/Hot Line Area

The Remelt/Hotline site is located in the northern portion of the main Trentwood Facility (Figure 1-2). This site is covered by concrete flooring or compacted mineral soil. Soil removal actions have occurred at several locations within this site.

During manufacturing upgrades in 2005 and 2006, two excavations were made through the concrete floor to characterize soil directly below the mill floor. Other sampling locations within the Remelt/Hotline site are also covered by concrete flooring. One soil boring lies outside the northeast corner of the main building and is located in a drywell surrounded by an area of compacted mineral soil. Petroleum hydrocarbons, PCBs, four PAHs, and three metals were detected in soil samples (zero to 15 feet bgs). The wildlife exposure pathway to constituents present in the zero to 15 foot soil strata is incomplete due to the concrete flooring or compacted mineral soil. Therefore, further evaluation of the Remelt/Hotline site is not required.

10.6 Cold Mill/Finishing Area

The Cold Mill/Finishing Area is located in the southern portion of the Trentwood Facility (Figure 1-2) and contains five sites (i.e., the Continuous Can Process Line, Chromium Transfer Line, Coater Line Tank, Transformer Yard, and Cold Mill Transfer Lines sites). The Continuous Can Process Line is located beneath a building and is covered by concrete floors. The sites Chromium Transfer Line, Coater Line Tank, Cold Mill Transfer Lines, and Transformer Yard are located in open areas, exhibiting a variety of surface conditions. Soil removal actions have occurred at the Chromium Transfer Line, Coater Line Tank, and Continuous Can Process Line sites.

The Continuous Can Process Line site is located in the south portion of the Cold Mill/Finishing Area (Figure 1-2). Petroleum hydrocarbons, fourteen PAHs, and eight metals were detected in verification soil samples from this site (zero to 15 feet bgs). This site is currently covered by concrete flooring. The wildlife exposure pathway to residual constituents in soil present in the zero to 15 foot strata is incomplete due to the concrete flooring covering the site. Therefore, further evaluation of the Continuous Can Process Line site is not required.

The Chromium Transfer Line site is located approximately 600 feet northwest of the CCLP site in an open courtyard, which consists of compacted mineral soil devoid of vegetation (Figure 9-7). Chromium was detected in verification soil samples from this site (zero to 15 feet bgs). The wildlife exposure pathway to residual soil-borne constituents present in the zero to 15 foot strata is incomplete due to the surface of compacted mineral soil which inhibits plant establishment. Further evaluation of the Chromium Transfer Line site is not required.

The Coater Line Tank site is located in an open courtyard 350 feet west of the Continuous Can Process Line site (Figure 1-2). The excavation and surrounding area is landscaped with grass and trees (Figure 10-4). Three VOCs were detected in verification soil samples (zero to 15 feet bgs). The contiguous undeveloped area associated with the Coater Line Tank site is approximately 0.34 acres. This area is separated from the larger open courtyard to the west by the planning and data processing building. No high priority organic constituents are detected at this site, so a minimum of 1.5 acres of contiguous undeveloped land is required for further evaluation. Since less than 1.5 acres of contiguous undeveloped is associated with the Coater Line Tank site, no further evaluation is required.

The Transformer Yard site is located in the northeast corner of the Cold Mill/Finishing Area (Figure 1-2). This site is currently contained with an eight-foot chain-link fence with a surface comprised of concrete pads surrounded by coarse gravel (Figure 10-5). Surface soil samples collected from the site in 2006 did not show detections of any petroleum hydrocarbons or PCBs. Since no constituents were detected in soil samples from the Transformer Yard site, further evaluation is not required.

The Cold Mill Transfer Lines site is located in the northern portion of the Cold Mill/Finishing Area (Figure 1-2). Petroleum hydrocarbons, two VOCs, 14 PAHs, and eight metals were detected in soil samples (zero to 15 feet bgs). The wildlife exposure pathway to constituents detected in the zero to 15

foot soil strata is incomplete due to the surfaces of asphalt pavement and compacted mineral soil. Therefore, further evaluation of the Cold Mill Transfer Lines site is not required.

10.7 Oil House Area

Six sites (Oil House Underground Storage Tank, 500-Gallon Underground Storage Tank, 20,000-Gallon Underground Storage Tank, Eight Underground Storage Tanks, Drum Storage/French Drain, and Kensol Spill) are located within the Oil House Area (Figure 1-2). Five of the six sites are currently completely covered by asphalt and the Oil House Underground Storage Tank site is covered by a combination of asphalt and compacted gravel. Soil removal actions have occurred at all six sites.

The Oil House Underground Storage Tank is located in the southern portion of the Oil House Area (Figure 1-2). An asphalt road and buildings are located to the north and a gravel parking is located to the east. Landscaped areas lie west and south of the Oil House Underground Storage Tank site. The site is covered by asphalt and compacted gravel that is devoid of vegetation (Figure 10-6). Petroleum hydrocarbons, three metals, and five VOCs were detected in verification soil samples (zero to 15 foot bgs). The wildlife exposure pathway to soil-borne constituents present in the zero to 15 foot strata is incomplete because the ground surface of compacted gravel and asphalt is an effective exposure barrier. Therefore, further evaluation of the Oil House Underground Storage Tank site is not required.

The 500-Gallon Underground Storage Tank site was used for diesel storage was located north of Oil House Underground Storage Tank Site (Figure 1-2). The site is covered by asphalt bisected by a rail line of wooden ties and ballast (Figure 10-7). The area is currently used for staging equipment and materials. Petroleum hydrocarbons are the only constituents detected in verification soil samples (zero to 15 feet bgs). No constituents were detected within the terrestrial ecological conditional point of compliance (zero to six feet bgs). Exposure of wildlife to soil-borne constituents detected in the zero to 15 foot soil strata is incomplete due to the asphalt and ballast barrier. Therefore, further evaluation of the 500-Gallon Underground Storage Tank site is not required.

The 20,000-Gallon Underground Storage Tank site is located in the northeast portion of the Oil House Area (Figure 1-2). The site is covered by asphalt. Petroleum hydrocarbons and lead were the only constituents detected in verification soil samples (zero to 15 feet bgs). Wildlife exposure to constituents present in the zero to 15 foot soil strata is incomplete due to the asphalt barrier. Therefore, further evaluation of the 20,000-Gallon Underground Storage Tank site is not required.

The Eight Underground Storage Tanks site is in the northern portion of the Oil House Area (Figure 1-2). The site is covered by asphalt and is currently used as a staging area for equipment and materials (Figure 9-3). Petroleum hydrocarbons were the only constituents detected in verification soil samples (zero to 15 feet bgs). Wildlife exposure to soil-borne constituents present in the zero to 15-foot strata is incomplete due to the asphalt and building foundation/loading dock barrier. Therefore, further evaluation of the Eight Underground Storage Tanks site is not required.

The Drum Storage/French Drain site is located in the western portion of the Oil House Area (Figure 1-2). The site is currently covered by asphalt and is used as a staging area for equipment and materials. Petroleum hydrocarbons and PCBs were detected in verification and boring samples (zero to 15 feet bgs). Wildlife exposure to soil-borne constituents present in the zero to 15 foot strata is incomplete due to the asphalt barrier. Therefore, further evaluation of the Drum Storage/French Drain site is not required.

The Kensol Spill site is located in the northeast portion of the Oil House Area (Figure 1-2). The site is covered by asphalt or compacted mineral soil. Petroleum hydrocarbons were the only constituents detected in verification soil samples (zero to 15 feet bgs). Wildlife exposure to constituents in soil present in the zero to 15 foot strata is incomplete due to the asphalt barrier. Therefore, further evaluation of the Kensol Spill site is not required.

10.8 Truck Shop Area

The Truck Shop Area contains one site, which is located north of the Oil House Area (Figure 1-2). The site covers approximately 100 square feet and is bounded by asphalt pavement to the north and buildings on the other three sides. Petroleum hydrocarbons, seven PAHs, nine VOCs, and one SVOC were detected in soil samples (zero to 15 feet bgs). No high priority organic constituents were detected at this site, so a minimum of 1.5 acres of contiguous undeveloped land is required for further evaluation. Since less than 1.5 acres of contiguous undeveloped is associated with the Truck Shop site, no further evaluation is required.

10.9 Discharge Ravines Area

The Discharge Ravines Area includes two drainage ravines (i.e. the West Discharge Ravine and the South Discharge Ravine). The West Discharge Ravine site is located north of the Industrial Wastewater Treatment Area (Figure 1-2). Currently, water does not typically flow through the West Discharge Ravine. Instances of water flow may occur when it rains on top of snow or frozen ground. However, there is no documentation of water flowing in the West Discharge Ravine since process discharges ceased in 1973. An Interim Action was conducted in 2007 where soil from approximately 1.3 acres of the ravine was excavated to the maximum practical depth, which ranged from four to 11 feet bgs (Hart Crowser 2008b). Figure 10-8 shows the lateral extent of this excavation. Verification samples (92 total) were collected from the excavation, the excavation was backfilled with clean fill, and then re-vegetated with native forbs and shrubs. PCBs ranging from 0.01 to 72 mg/kg were detected in verification samples with approximately 56 percent of verification samples exceeding the cleanup goal of 1 mg/kg. Petroleum hydrocarbons (heavy oil) was detected in 3 of the 22 verification samples analyzed with all samples below the cleanup goal of 2000 mg/kg.

Backfilling of the 100 feet of excavation adjacent to the Spokane River consisted of laying a poly-fabric, application of six to eight inches of imported washed sand, and placement of cobbles as armor protection. Imported topsoil was applied to the sides of the excavation. The remainder of the excavation located west of the access road was backfilled with imported topsoil. Backfilling of the excavation located east of the access road consisted of a base layer of river rock, a layer of berm material that surrounded the ravine, a

layer of material from a building-footings stockpile, and a final six-inch layer of imported topsoil. Backfilling of the ravine generally attempted to restore the ravine to pre-Interim Action elevations. Therefore a minimum of 4 to 5 feet to a maximum of greater than 11 feet of clean fill was placed over the excavated areas of the ravine (Hart Crowser. 2008b).

Land surrounding the upper portion of the West Discharge Ravine site consists of the Open Field cover type (Figure 9-2). Land surrounding the lower portion of the West Discharge Ravine site consists of the Semi-Native Vegetation cover type (Figures (9-2 and 9-11) with a narrow riparian zone bordering the Spokane River. Wildlife species are expected to utilize this area for a variety of purposes including foraging, shelter, and breeding/rearing. Native soil from the top of the ravine has a topsoil horizon. Ecological exposure to residual soil-borne constituents present in the zero to 15 foot strata is considered complete. Therefore, further evaluation of the West Discharge Ravine site is required.

The South Discharge Ravine site is located in the southern portion of the Trentwood Facility (Figure 1-2). Currently, water does not typically flow through the South Discharge Ravine. Instances of water flow may occur when it rains on top of snow or frozen ground. However, there is no documentation of water flowing in the South Discharge Ravine since process discharges ceased in 1973. Historical aerial photographs show a ponded area located at the head of the ravine. This ponded area was historically filled and is level with the surrounding grade. The surrounding land primarily consists of the Semi-Native Vegetation cover type (Figures 9-2 and 9-10) and wildlife species are expected to utilize this area for a variety of purposes including foraging, shelter, and breeding/rearing. The soil in the upper reach of the ravine is graded into piles of differing size cobbles. A small sluicing operation was conducted in the ravine for a few years in the 1930s and the mining operation is believed responsible for the grading. Petroleum hydrocarbons and PCBs were detected in soil samples (zero to 15 feet bgs) from the South Discharge Ravine. Wildlife exposure to soil-borne constituents present in the zero to 15 foot strata is considered complete. Therefore, further evaluation of the South Discharge Ravine site is required.

10.10 Buffer Area

The Buffer Area includes soil sample locations not associated with a particular site (Section 1.4 and Figure 1-2). Many of these locations are covered by physical barriers (e.g., pavement, compacted mineral soil) that prohibit wildlife exposures to constituents in soil. However, there are several sample locations in and around the Industrial Wastewater Treatment Area that are not covered by a barrier. These locations were placed into a separate site called the Industrial Wastewater Treatment Area Buffer for purposes of this Terrestrial Ecological Evaluation.

The Industrial Wastewater Treatment Area Buffer site primarily consists of the Open Field cover type. Petroleum hydrocarbons, PCBs, six VOCs, four SVOCs, four PAHs, and nine metals were detected in soil samples (zero to 15 feet bgs) from the Industrial Wastewater Treatment Area Buffer site. Wildlife exposure to soil-borne constituents present in the zero to 15 foot strata is considered complete. Therefore, further evaluation of the Industrial Wastewater Treatment Area Buffer site is required.

10.11 Summary and Conclusions of Exclusions Evaluation

Six sites (Hoffman Tank, Field-Constructed Tanks, Railcar Unloading, West Discharge Ravine, South Discharge Ravine, and Industrial Wastewater Treatment Area Buffer) failed the ecological exclusions evaluation and will be evaluated further in the Terrestrial Ecological Evaluation. For sites that do not qualify for exclusion in the Tier 1 evaluation, MTCA provides three criteria for determining if the site should go to a Tier 2 evaluation or Tier 3. If any of the criteria apply, a Tier 3 evaluation is required:

1. The site is located on, or directly adjacent to, an area where management and land use plans will maintain or restore native or semi-native vegetation.

2. The site is used by a threatened or endangered species.

3. The site is located on property that contains at least ten acres of native vegetation within 500 feet of the site, not including vegetation beyond the property boundary.

No threatened or endangered species were identified that would potentially use the land contained in the Trentwood Facility property boundary (Section 9.8). However, the Trentwood Facility borders Washington State Parks Department property that runs along the along the north shore of the Spokane River. This land is zoned Park/Open Space by the City of Spokane Valley[23] and the municipal code states this land designation provides for and protects parks, open space, and other natural assets[24]. In addition, these six sites occur within 500 feet of at least ten acres of native vegetation, in the form of the Semi-Native Vegetation and Open Field cover types. Therefore, these six sites will proceed to Tier 3 (Site-Specific) evaluation.

10.12 References

Hart Crowser. 2008a. Tank Closure Report, South Field Constructed Tank, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington. November 12, 2008.

Hart Crowser. 2008b. West Discharge Ravine Interim Action Completion Report, Kaiser Trentwood Facility, Spokane Valley, Washington. Prepared for Kaiser Aluminum Washington. February 25, 2008.

Hart Crowser. 2012. Site-Wide Soil Remedial Investigation, Kaiser Trentwood Facility, Spokane Valley, Washington. May 2012.

[23] Spokane Valley comprehensive land use map revised January 20, 2009, available online at http://www.spokanevalley.org/sub.aspx?id=134.

[24] Spokane Valley Municipal Code Section 19.60.100 available online at http://www.codepublishing.com/WA/spokanevalley.html.

SECTION 11 – SITE-SPECIFIC ECOLOGICAL EVALUATION

11.1 Introduction

Six sites were identified for further evaluation in the exclusions evaluation (Section 10) (i.e., Field-Constructed Tanks, Hoffman Tank, Railcar Unloading, West Discharge Ravine, South Discharge Ravine, and Industrial Wastewater Treatment Area Buffer). Sample locations are shown in Figure 11-1 (Field-Constructed Tanks, Hoffman Tank, Railcar Unloading, and Industrial Wastewater Treatment Area Buffer), Figure 11-2 for the West Discharge Ravine, and Figure 11-3 for the South Discharge Ravine. Only sample locations not covered by a barrier are included in each site dataset.

This site-specific ecological evaluation is organized into the following sections:

- Problem Formulation
- Exposure Assessment
- Toxicity Assessment
- Wildlife Hazard Evaluation
- Uncertainty Analysis
- Conclusions

11.2 Problem Formulation

The steps in problem formulation presented in the following sections include:

- Ecosystem potentially at risk
- Ecological indicator hazardous substances
- Potential ecotoxicological effects from ecological indicator hazardous substances
- Conceptual site model
- Ecological receptors of concern and endpoints
- Evaluation methods and endpoints

11.2.1 Ecosystem Potentially at Risk

The six sites included in the site-specific evaluation that have residual soil constituents providing potential wildlife exposure fall into the following cover types:

- The Field-Constructed Tanks is primarily Open Field with a small Landscape area (Figures 9-2 and 11-1): The area immediately surrounding the Field-Constructed Tanks excavation is Open Field, so this is the assumed cover type for the excavated area. Sample location CS-8 is located in a landscape area approximately 100 feet southwest of the Field-Constructed Tanks excavation.
- The Hoffman Tank is primarily Landscape with a small Open Field area (Figures 9-2 and 11-1): The Hoffman Tank excavation area not covered by asphalt is landscaped with grass. Sample location RU3-S3 is located approximately 175 feet northeast of the excavation in an area of Open Field cover type.

- The Railcar Unloading is primarily Compacted Mineral Soil (Figures 9-2 and 11-1): Although the Railcar Unloading excavation is surrounded by Compacted Mineral Soil cover type, it is assumed the cover type is Open Field for purposes of this Terrestrial Ecological Evaluation.
- The West Discharge Ravine is Semi-Native Vegetation in the lower portion and Open Field in the upper portion (Figure 9-2 and 11-2)
- The South Discharge Ravine is primarily Semi-Native Vegetation (Figures 9-2 and 11-3)
- The Industrial Wastewater Treatment Area Buffer is primarily Open Field with a small Landscape area (Figures 9-2 and 11-1): The majority of the Industrial Wastewater Treatment Area Buffer site is Open Field cover type. However, sample location WW-MW-05 is located in a small landscape area.

Descriptions of the ecosystems present within each cover type are presented in Section 9.

11.2.2 Ecological Indicator Hazardous Substances

Screening of constituents in soils to identify ecological indicator hazardous substances may be conducted during the site-specific Terrestrial Ecological Evaluation[25]. Screening for ecological indicator hazardous substances for this evaluation consisted of the following steps:

- Constituents not detected in site soil samples were eliminated from further consideration.
- Constituents covered with a barrier that prohibited wildlife exposure to constituents in soil were eliminated from further consideration.
- Constituents present at a depth of greater than 15 feet bgs were eliminated from further consideration.
- Constituents with an exposure point concentration[26] less than natural background were eliminated from further consideration.
- Constituents with an exposure point concentration less than default MTCA indicator soil concentrations for wildlife were eliminated from further consideration.

An overview of soil data is presented in Section 2.1 and data screening and reduction steps are presented in Sections 2.2 and 2.3, respectively. Analytical data used in this Terrestrial Ecological Evaluation are presented in Appendix A. Sample locations used to characterize each site are shown on Figures 11-1, 11-2 and 11-3. The methods for calculating exposure point concentrations are described in Section 11.3.1. Natural soil background concentrations are presented in Appendix C.

TPH concentrations in soil have been evaluated at the Trentwood Facility for over 20 years. Over that time there have been many refinements to analytical techniques enabling more specific characterization of the TPH composition of soil samples. The approach used to evaluate TPH data is presented in Section 2 and Appendix B.

[25] WAC 173-340-7493(2)(a)(i).

[26] Methods for calculating exposure point concentrations are described in Section 11.3.1.

Wildlife indicator soil concentrations are provided in MTCA[27] for a number of constituents and those used to identify ecological indicator hazardous substances for the site-specific evaluation are shown in Table 11-1. MTCA default indicator soil concentrations are constituent concentrations in soil that are expected to be protective of the environment at any MTCA site and are provided for use in eliminating constituents from further consideration in a Terrestrial Ecological Evaluation. MTCA wildlife indicator soil concentrations were not available for all constituents detected at these six sites. In some cases, indicator soil concentrations for surrogate constituents were used for screening. The use of surrogate indicator soil concentrations is based on similarities in structural and toxicological characteristics between the surrogate and target constituents. For example, PAHs are a group of constituents with similar constituent structure and toxicological effects. MTCA provides an indicator soil concentration for only one PAH constituent (benzo(a)pyrene), which is generally considered to be the most toxic PAH. The indicator soil concentration for benzo(a)pyrene was used as a surrogate indicator soil concentration for the other PAHs. In another example, MTCA provides two different wildlife indicator soil concentrations for arsenic dependent on the constituent form. The indicator soil concentration for arsenic III is 7 mg/kg and the indicator soil concentration for arsenic V is 132 mg/kg. The arsenic III indicator soil concentration was selected for screening purposes because it is the lower of the two values even though it is not the dominant form in soil.

Screening was conducted based on two soil datasets (i.e., conditional point of compliance and standard point of compliance) at each site. The ecological conditional point of compliance is zero to six feet bgs and represents the biologically-active portion of the soil strata where plants, soil invertebrates and wildlife will potentially come into contact with soil-borne constituents. Samples with an initial soil depth of less than six feet were included in the zero to six-foot dataset. The standard point of compliance is zero to 15 feet bgs. All samples with an initial depth of less than 15 feet were included in the zero to 15 foot dataset. If there were no hazards to wildlife from exposure to constituents in soil in the zero to six-foot stratum, but there was a hazard from constituents in soil in the six to 15 foot stratum, an institutional control limiting excavation of soil below six feet bgs is a viable remedial option.

Ecological indicator hazardous substances screening results are presented in Appendix I. MTCA default indicator soil concentrations were not available for twenty-four organic constituents found at the sites. Twenty-three of these constituents were classified as VOCs and one constituent is classified as an SVOC. VOCs are rarely considered a hazard to birds and mammals in nature because VOCs generally have low ecotoxicity, low environmental persistence, and low potential to bioaccumulate into terrestrial food chains. Therefore, information on ecotoxicity and bioaccumulation for these constituents is sparse or non-existent. An evaluation of the potential impacts of these 24 constituents to wildlife is presented in Appendix J. Provisional indicator soil concentrations were calculated using default MTCA wildlife exposure factors and toxicity values primarily obtained from rat/mouse laboratory studies used to predict toxic effects to humans. Toxicity values from USEPA's IRIS were available for 12 of 24 organic constituents. The maximum-detected concentration of these organic constituents from all soil samples used in this Terrestrial Ecological Evaluation (Appendix A) were two to six orders of magnitude below

[27] MTCA Table 749-3.

the provisional indicator soil concentrations. Therefore, it is safe to conclude these 24 organic constituents are unlikely to pose a hazard to wildlife and they are not identified as environmental indicator hazardous substances.

The ecological indicator hazardous substances for each site are shown in Table 11-2. No ecological indicator hazardous substances were identified for the Hoffman Tank and Railcar Unloading sites in either the zero to six-foot or zero to 15-foot soil strata, so no further evaluation of this site was required. No ecological indicator hazardous substances were identified in the zero to six-foot soil strata for the Industrial Wastewater Treatment Area Buffer site; however, two ecological indicator hazardous substances were identified of the zero to 15-foot soil strata. Further evaluation will be conducted on the zero to 15-foot soil strata for the Industrial Wastewater Treatment Area Buffer site. The Field-Constructed Tanks, Hoffman Tank, West Discharge Ravine, and South Discharge Ravine sites were therefore retained for further evaluation.

11.2.3 Potential Ecotoxicological Effects from Ecological Indicator Hazardous Substances

The ecological indicator hazardous substances for the five remaining sites include arsenic, chromium, lead, selenium, total diesel/fuel oil, and PCBs. Detailed reviews of the ecotoxicity of these constituents (except total diesel/fuel oil) are provided by the U.S. Geological Survey in their Contaminant Hazard Reviews[28]. The National Park Service also provides ecotoxicity reviews of these constituents (except PCBs) in their Environmental Contaminants Encyclopedia[29].

11.2.4 Conceptual Site Model

The conceptual site model identifies the primary contaminant sources, release mechanisms, transport mechanisms, secondary contaminant sources, potential pathways, and exposure routes. Existing constituent data, approximations of physical transport processes occurring at the Trentwood Facility, and identification of potential ecological receptors were used to develop the model.

Ecological indicator hazardous substances were identified in four sites, the Field-Constructed Tanks, Industrial Wastewater Treatment Area Buffer, West Discharge Ravine, and South Discharge Ravine (Section 11.2.2). Detailed descriptions of the Field-Constructed Tanks, West Discharge Ravine, and South Discharge Ravine sites are presented in Section 10 and information relevant to the conceptual site model is summarized below. Information concerning the Industrial Wastewater Treatment Area Buffer site is also presented below.

Sources of contamination and release mechanisms are described below by site.

- Field-Constructed Tanks – Ecological indicator hazardous substances for the Field-Constructed Tanks site are arsenic, lead, and total diesel/fuel oil. Fuel oil and reclaimed oil from the Industrial Wastewater Treatment building (south Field-Constructed Tank only) were historically stored in above-ground tanks. Accidental historical releases impacted adjacent soils. The tanks were

[28] Available online at http://www.pwrc.usgs.gov/infobase/eisler/.
[29] Available online at http://www.nature.nps.gov/hazardssafety/toxic/index.cfm.

removed in 2008 and affected soil was removed from the site. Residual concentrations of the environmental indicator hazardous substances remain in the soil.

- Industrial Wastewater Treatment Area Buffer – Selenium and Total PCBs were the only ecological indicator hazardous substances identified at the Industrial Wastewater Treatment Area Buffer site. This site includes soil samples collected from six widely-spaced locations (Figure 11-1). Only one sample from this site had a detected concentration of selenium above natural background (0.33 mg/kg) and the MTCA default wildlife indicator soil concentration (0.3 mg/kg). A selenium concentration of 0.4 mg/kg was detected at a depth of 10 to 11 feet bgs at sample location HL-MW-30s (Figure 11-1). The source of selenium at this location is unknown. The monitoring well at location HL-MW-30s was installed to help characterize the PCB groundwater plume emanating from the Remelt/Hot Line buildings and is located within the permitted and closed industrial landfill. Only one sample at location LF-1 had a Total PCBs concentration above the MTCA default indicator soil concentration of 0.65 mg/kg. The soil sample at LF-1 was collected at six feet bgs from within the industrial landfill footprint. The source of Total PCBs at this location is unknown. No industrial activities are known to have occurred at either sample location HL-MW-30s or LF-1.
- West Discharge Ravine – PCBs were the only environmental indicator hazardous substances identified at the West Discharge Ravine. The ravine was used to convey wastewater from the Oil Reclamation Building to the Spokane River until 1973 when the Industrial Wastewater Treatment Area building was constructed. A 2007 interim action removed affected soil from the ravine to the maximum extent possible. Residual concentrations of PCBs were left in place and the excavation was covered with clean backfill and re-vegetated with native species.
- South Discharge Ravine – PCBs are the only environmental indicator hazardous substances identified at the South Discharge Ravine. The ravine was used to convey wastewater from the Cold Mill/Finishing building to the Spokane River until 1973 when the Industrial Wastewater Treatment Area building was constructed.

Arsenic, lead, and selenium are naturally-occurring elements whose environmental fate is governed by the physical and constituent properties of the soil as well as climatic conditions (Kabata-Pendias and Pendias 1984). These metals typically do not accumulate in plants or soil biota to any large degree[30].

Total diesel/fuel oil is a complex mixture of aliphatic and aromatic hydrocarbons whose individual properties govern their environmental fate (ATSDR 1995). The more volatile components of fuel oils will evaporate when released to the soil. The higher molecular-weight components have very low water solubility and will remain on the soil where they will be absorbed onto particulate organic matter. The higher molecular-weight components will eventually be biodegraded, but the rate of biodegradation is dependent on factors such as temperature, microorganisms population, concentration of aromatics components, and petroleum hydrocarbon concentrations. Although information on the bioaccumulation of total diesel/fuel oil into terrestrial biota is limited, it is assumed that weathered material, as is present at

[30] MTCA Table 749-5 shows plant and earthworm bioaccumulation factors (BAFs) for arsenic, chromium, and lead, and the plant BAF for selenium are at or below one, which signifies a low potential to bioaccumulate. The exception is the earthworm bioaccumulation factor for selenium, which is 10.5.

the Field-Constructed Tanks site, will largely consist of higher molecular-weight components with limited potential to accumulate in soil invertebrates or plants.

PCBs, such as Aroclor 1248, are mixtures of individual PCB congeners. There are 209 PCB congeners that are distinguished by the number and position of chlorine atoms on the common biphenyl structure (ATSDR 2000). PCBs have low water solubility and will strongly sorb to soils. Although PCBs will not leach extensively from soil, the tendency to leach is greater for the least-chlorinated congeners and is expected to be greatest in soil with low organic carbon. PCBs can accumulate in soil biota, but accumulation into plants is limited[31].

Birds and mammals may become exposed to environmental indicator hazardous substances present in soil at these five sites through two primary exposure routes/pathways:

- Incidental ingestion of soil during foraging or purposeful ingestion of soil to meet nutritional requirements
- Ingestion of constituents that have accumulated in food which they consume

The inhalation pathway of exposure to environmental indicator hazardous substances by wildlife at the five sites is considered to be incomplete or minimal because of the following reasons:

- The environmental indicator hazardous substances are either non-volatile or have limited volatility
- The affected soil at the Field-Constructed Tanks, Industrial Wastewater Treatment Area Buffer, and Railcar Unloading sites is all in the subsurface, so generation of fugitive dust containing constituents is unlikely to occur
- Although the West Discharge Ravine site does contain some surface soil samples, constituent concentrations in those samples were below MTCA default ISCs. Furthermore, these sites are vegetated, so generation of fugitive dust is unlikely to occur.
- Surface soils at the South Discharge Ravine contain petroleum hydrocarbons and PCBs. This site is vegetated by a mixture of native and exotic species which greatly reduces the potential generation of fugitive dust.

While dermal contact of soil by terrestrial wildlife is a complete pathway, the dermal route of exposure is considered less significant than the oral routes of exposure (USEPA 2005) and was not evaluated for this report. Both USEPA and MTCA consider the ingestion of soil and food to be the dominant pathway of exposure of wildlife to constituents in soil.

Figure 11-4 shows the conceptual site model for the terrestrial portion of the Trentwood Facility. This conceptual site model is applicable to all five sites with ecological indicator hazardous substances.

[31] MTCA Table 749-5 shows an earthworm BAF of 4.58 and a plant BAF of 0.087.

11.2.5 Ecological Receptors of Concern

As described in Section 9.7, numerous wildlife species have either been observed on the Trentwood Facility or may potentially use the Trentwood Facility. The level of use by any species depends on the ability of the site to provide food, cover, and breeding habitat.

MTCA (WAC 173-340-7493) identifies wildlife species to evaluate for assessing risks of hazardous substances in soil: the shrew (*Sorex* spp.), American robin (*Turdus migratorius*), and the vole (*Microtus* spp.). These three species are representative members of specific feeding guilds and are expected to be highly exposed to soil-borne constituents. Shrews are representative of the insectivorous mammal feeding guild. Shrews have relatively-small home ranges and consume large amounts of prey. The robin is representative of the insectivorous bird feeding guild. Invertebrates also comprise a large portion of the robin diet and robins have a relatively-small home range during the spring and summer reproduction period. In addition, birds have different sensitivities to constituents than mammals. The vole is representative of the herbivorous mammal feeding guild. The vole primarily consumes plants and, more specially, grasses. Voles also have small home ranges and consume large amounts of plant matter relative to their body weight.

Shrews have not been observed on the Trentwood Facility, but range maps for Washington State show that the vagrant shrew may inhabit the area[32]. Voles are ubiquitous throughout much of Washington State and three species have ranges that include the Trentwood Facility. Robins are ubiquitous throughout much of Washington State and they have been observed foraging in landscape areas on the Trentwood Facility[33]. The level of use of Open Field and Semi-Native Vegetation cover types by the shrew and robin is uncertain.

11.2.6 Evaluation Methods and Endpoints

MTCA (WAC 173-340-7493(3)) prescribes a set of evaluation methods that may be selected for conducting a site-specific Terrestrial Ecological Evaluation. This Terrestrial Ecological Evaluation primarily uses the food-chain model methodology for the shrew, vole, and robin. These food-chain models are used to generate indicator soil concentrations protective of wildlife. Input parameters for the food-chain models are modified to be site-specific. In addition, the site-specific evaluation examines the extent of contamination and constituent properties in soil to help understand the bioavailability and potential toxicity of ecological indicator hazardous substances.

MTCA supports the use of endpoints to help frame the approach for the site-specific Terrestrial Ecological Evaluation. An endpoint is a characteristic of an ecological component that may be affected by exposure to a hazardous substance (USEPA 1992). The USEPA defines two types of endpoints: assessment and measurement (USEPA 1997). An assessment endpoint is an explicit expression of the environmental value that is to be protected. A measurement endpoint is a measurable ecological

[32] Mammals of Washington State available at the University of Washington, Burke Museum of Natural History and Culture website at http://www.washington.edu/burkemuseum/collections/mammalogy/mamwash/.
[33] Personal communication with Mr. Bruce McDonald (geologist, Hart Crowser, Seattle, WA) on 2/27/2009.

characteristic that is related to the valued characteristics chosen as the assessment endpoint and is a measure of biological effects. The assessment and measurement endpoints for this Terrestrial Ecological Evaluation are shown in Table 11-3.

11.3 Exposure Assessment

The exposure assessment evaluates the spatial and temporal distributions of both the ecological and constituent components that are combined to produce an estimate of receptor exposure.

11.3.1 Exposure Point Concentrations for Soil

MTCA's conditional point of compliance (i.e., zero to six feet bgs) represents the biologically-active soil zone where soil invertebrates, plant root systems, and burrowing animals are likely to occur. The conditional point of compliance can be used at sites with institutional controls preventing excavation of deeper soil. Exposure point concentrations were calculated for the conditional and standard points of compliance for each site by pooling the analytical data from the appropriate soil strata.

The methods used for calculating the reasonable maximum exposure point concentrations are described in Section 2.6. In cases where the calculated 95% UCL exceeded the maximum-detected value, the maximum-detected value was used as the exposure point concentration. The exposure point concentrations calculated for each site are provided in Appendix I.

11.3.2 Wildlife Exposure Models and Exposure Parameters

For wildlife species, the ecological evaluation used site-specific indicator soil concentrations to evaluate ecological impacts from constituents. Ecological exposure models were used to derive the indicator soil concentrations. WAC 173-340-7493 identifies target receptor species (i.e., shrew, robin, and vole) for derivation of indicator soil concentrations. As described in Section 11.2.5, these same three receptors were selected for evaluating potential ecological effects at the Trentwood Facility.

The equation used to calculate the site-specific wildlife indicator soil concentrations is:

$$ISC_{hj} = (T_{hj})/[(FIR_h \times P_h \times BAF_{ij}) + (SIR_h \times RGAF_{hj})]$$

Where:

Parameter	Description
ISC_{hj}	Indicator soil concentration for the species and constituent (mg/kg soil dw)
T_{hj}	Toxicity reference value for the species and constituent (mg/kg body weight-day)
FIR_h	Food ingestion rate for the species (kg dry food/kg body weight-day)
P_h	Proportion of contaminated food in diet for the species (unitless)
BAF_{ij}	Bioaccumulation factor for the prey type and constituent (kg soil dw/kg body weight)
SIR_h	Soil ingestion rate for the species (kg soil dw/kg body weight-day)
$RGAF_{hj}$	Gut absorption factor for the species and constituent in soil expressed relative to the gut absorption factor for the constituent in food (unitless)

Wildlife exposure parameter values used in the indicator soil concentrations calculations are provided in Table 11-4.

MTCA provides a set of default wildlife exposure-parameter values in Table 749-4. These values were developed approximately 10 years ago and new scientific information has become available that justifies using alternative values for several parameters. An important source of new scientific information concerning these values is USEPA's national ecological soil screening levels which were developed through 2008[34]. The ecological soil screening levels derivation process was a collaborative effort of a multi-stakeholder workgroup consisting of federal, state, consulting, industry and academic participants led by USEPA's Office of Emergency and Remedial Response, and is considered representative of the current state of knowledge on many ERA topics. The ecological soil screening levels were based in part on food-chain models for a shrew and vole. The ecological soil screening levels protocols did not use the robin as a receptor species, but instead used the woodcock, another insectivorous ground-foraging bird. Several parameter values in Table 11-4 were modified following USEPA's ecological soil screening levels protocols as described below.

The MTCA default food-ingestion rate for the shrew is 0.450 kg dry weight (DW) food/kg body weight-day. Ecology based this estimate on studies of two shrew species, the vagrant shrew (*Sorex vagrans*) and masked shrew (*S. cinereus*) (Ecology 2000). Food-ingestion rates were reported on a wet weight basis in these studies and were converted to DW by Ecology assuming a diet consisting solely of earthworms and an earthworm moisture content of 70%. USEPA identified the short-tailed shrew (genus *Blarina*) as a surrogate for developing national ecological soil screening levels (USEPA 2007). USEPA estimated the high-end food ingestion rate of the shrew to be 0.209 kg DW/kg body weight-day based on data from several studies. USEPA's food-ingestion rate for the shrew (i.e., 0.209 kg DW/kg body weight-day) was selected for this Terrestrial Ecological Evaluation.

The MCTA default soil ingestion rate for the shrew is 0.0045 kg/kg-day assuming that soil accounted for one percent of the shrew diet (Ecology 2000). This assumption was based upon a single study reporting 0.9 percent of the stomach contents of the masked shrew consisted of inorganic matter. USEPA estimated the high-end soil ingestion rate (0.00627 kg/kg-day)[35] for the shrew to be three percent of the diet (USEPA 2007). USEPA's soil ingestion rate for the shrew was selected for this Terrestrial Ecological Evaluation.

The MTCA default food ingestion rate for the vole (*Microtus* spp.) is 0.315 kg DW/kg body weight-day. Ecology (2000) obtained this ingestion rate from USEPA's wildlife exposure factors handbook (USEPA 1993). USEPA cited a value of 0.35 kg/kg body weight-day based on a study by Ognev (1950). Ecology converted USEPA's 0.35 kg/kg-day value to a dry weight value of 0.315 kg DW/kg-day assuming the food moisture content was 10% (Ecology, 2000). USEPA used the meadow vole (*M. pennsylvanicus*) as a receptor to derive the national ecological soil screening levels (USEPA, 2007). USEPA selected a final high-end estimate food ingestion rate of 0.0875 kg DW/kg body weight-day for the vole based on analysis of data from Ognev (1950) and others. The difference in the vole food ingestion rate between MTCA and

[34] Information on USEPA ecological soil screening levels is available online at http://www.epa.gov/ecotox/ecossl/
[35] USEPA (2007) estimated the high-end food ingestion rate as the arithmetic mean of high-end estimates from each individual study

USEPA is attributable to differences in the fresh weight to dry weight conversion (USEPA 2007). USEPA's food ingestion rate for the vole was selected for this Terrestrial Ecological Evaluation.

The MCTA default soil ingestion rate for the vole is 0.0079 kg/kg-day based on Ecology assuming that soil accounted for one percent of the vole diet (Ecology 2000). This assumption was based on a study by Beyer et al. (1994) reporting 2.4 percent of the vole diet is soil. USEPA estimated the high-end soil ingestion rate[36] for the vole to be 3.2 percent of the diet (USEPA, 2007). USEPA's soil ingestion rate for the vole was selected for this Terrestrial Ecological Evaluation.

11.3.3 Bioaccumulation Factors

MTCA provides default bioaccumulation factors (BAFs) for soil-dwelling invertebrates and plants in Table 749-4 and includes BAFs for all environmental indicator hazardous substance identified in Section 11.2.2. However, the BAFs for PCBs are not considered appropriate for use at the Trentwood Facility. For example, the soil biota BAF for PCBs is based upon accumulation into earthworms. However, since earthworms are not present in most cover types at the Kaiser Facility, it would be more appropriate to use BAFs for soil biota that are present in these cover types. Site-specific BAFs are identified for PCBs in Appendix K using methods prescribed in MTCA[37].

11.4 Toxicity Assessment

The toxicity assessment evaluates the ecological toxicity of the environmental indicator hazardous substances and provides a list of toxicity values that will be used to evaluate ecological hazards. The default MTCA wildlife toxicity values provided in Table 749-5 were used in the site-specific Terrestrial Ecological Evaluation for the Trentwood Facility (Table 11-5).

11.5 Wildlife Hazard Evaluation

One or more environmental indicator hazardous substances were identified in the Field-Constructed Tanks, Industrial Wastewater Treatment Area Buffer, West Discharge Ravine, and South Discharge Ravine sites (Section 11.2.2). These four sites are evaluated further in the following sections using the methods described in Section 11.2.6.

11.5.1 Field Constructed Tanks Site

Arsenic, lead, and total diesel/fuel oil were identified as environmental indicator hazardous substances at the Field-Constructed Tanks site (Section 11.2.2).

[36] USEPA (2007) estimated the high-end soil ingestion rate as 90th percentile of Monte Carlo simulations of empirical soil ingestion measurements reported by Beyer (1994).

[37] MTCA describes procedures for developing alternative toxicity and bioaccumulation factors in WAC 173-340-7493(4) and (6).

Arsenic was identified as an environmental indicator hazardous substance in both the zero to six-foot and zero to 15-foot soil strata. The exposure point concentrations are 10.2 mg/kg in the zero to six-foot soil stratum (Table I-1 in Appendix I) and 16.8 mg/kg in the zero to 15-foot soil stratum (Table I-2 in Appendix I). These exposure point concentrations are above the natural background value of 9.0 mg/kg and the default MTCA wildlife indicator soil concentration of 7.0 mg/kg. MTCA[38] provides two different ISCs for arsenic based on its constituent form; the indicator soil concentration for arsenic III (arsenite) is 7.0 mg/kg and the indicator soil concentration for arsenic V (arsenate) is 132 mg/kg. For screening purposes (Section 11.2.2), the arsenic III indicator soil concentration was used.

The two most commonly occurring forms of arsenic in the natural environment are arsenate (As V) and arsenite (As III) (Grafe et al. 2001; Zhang and Selim, 2008). Arsenite has been found to be the more mobile and toxic species in soil environments. Arsenite dominates under reducing soil conditions (e.g., flooded soils), whereas arsenate dominates under oxidizing soil conditions (well-drained soils) (Ascar et al. 2008; Kabata-Pendias and Pendias 1984; Zhang and Selim, 2008). The long-term fate of arsenite in mineral soils under aerobic/oxidizing conditions begins with its rapid adsorption to iron oxides (Manning and Suarez 2000). The arsenite is then oxidized to arsenate by manganese oxides. Arsenate will then partition between solid and liquid phases, but most of the arsenate will become strongly adsorbed to iron oxides. Under reducing conditions, arsenate is reduced to arsenite which is more soluble than arsenate due to the dissolution of iron oxides and release of sorbed and coprecipitated arsenite (Grafe et al 2001). The distribution and transformation between arsenate and arsenite is largely controlled by the redox condition of the soil environment (Zhang and Selim, 2008)

Reduction and oxidation potential (redox potential, Eh) measurements of soils are expressed as voltage (mV). Negative voltage measurements indicate reducing conditions and positive voltage measurements indicate oxidizing conditions.

Zhang and Selim (2008) present a diagram showing the calculated equilibrium distribution of dominant aqueous arsenic species as a function of pH and Eh. This diagram shows that at redox potentials of greater than zero and a pH greater than 7.0, arsenate is the dominate form of arsenic. Since the average soil pH at the Trentwood Facility is 8.4 (n=29), arsenate should be the dominant arsenic species under oxidizing soil conditions (i.e., Eh > 0).

Two publications quantify the speciation of arsenic in soil under varying soil Eh and pH conditions. Masscheleyn et al. (1991) collected soil from the vicinity of an arsenic dipping vat and tested it under four Eh levels (-200, 0, +200, and +500 mV) and three pH levels (5, natural [uncontrolled], and 8). The different Eh levels were attained by mixing soil samples with varying amounts of deionized distilled water with final soil/water ratios ranging from 1 to 6. The lower the soil/water ratio, the greater the amount of open space between soil particles that is occupied by water which causes a decrease in soil oxygen levels creating more reducing conditions. High soil redox potentials (200 and 500 mV) decreased arsenic solubility and between 65 to 98 percent of the soluble arsenic was in the arsenate form. Low

[38] MTCA Table 749-3.

redox potentials (0 and -200 mV) increased arsenic solubility and greater than 85 percent of the soluble arsenic was in the arsenite form. Reducing the pH from 8 to 5 caused arsenic solubility to increase under reducing conditions and decrease under oxidizing conditions.

Ascar et al. (2008) investigated the influence of redox potential on the speciation of arsenic in soil impacted by mining. Soil samples (200 g) were mixed with deionized water (1000 ml) and maintained in closed systems where three redox potentials were attained (-200, 0, and +200 mV) for a period of three weeks by bubbling nitrogen and air mixtures in varying proportions through the suspension. Samples were collected weekly for determination of soluble arsenic species (arsenate, arsenite, and organic arsenic). Under reducing conditions (-200 mV), arsenite was the dominate species accounting for 54 to 63 percent of the soluble arsenic. Under oxidizing conditions (+200 mV), arsenate accounted for 100 percent of the total soluble arsenic. At 0 mV, most of the soluble arsenic was arsenate with a small proportion being arsenite. The soluble arsenic concentration increased when moving from oxidizing to reducing conditions.

Redox potential data are not available for soils at the Kaiser Trentwood Facility and redox potential data for the Morrison series (or similar series) were not available from the Natural Resource Conservation Service[39]. Moreover, redox potential is typically measured in wet soils (e.g., wetland soils, hydric soils) and not well-drained soils such as those found at the Trentwood Facility. However, since the Garrison gravelly loam soil is coarse grained and somewhat excessively well-drained (see Section 9.4), oxidizing conditions will dominate in the upper 15-feet of the soil strata throughout the year.

Masscheleyn et al. (1991) and Ascar et al. (2008) demonstrated that under oxidizing soil conditions 0 and 35 percent, respectively, of the total soluble arsenic is present as arsenite. If we assume that 35 percent of the total arsenic in soil at the Kaiser Trentwood Facility is arsenite, the soil exposure point concentrations for arsenite at the Field-Constructed Tanks site are 3.6 mg/kg for the zero to six-foot soil strata (10.2 mg total arsenic/kg x 0.35 = 3.6 mg arsenite/kg) and 5.9 mg/kg for the zero to 15-foot soil strata (16.8 mg total arsenic/kg x 0.35 = 5.9 mg arsenite/kg). Since the estimated exposure point concentrations for arsenite are below the wildlife indicator soil concentration of 7.0 mg/kg for arsenite, it is concluded that arsenite does not pose a hazard to wildlife at the Kaiser Trentwood Facility.

USEPA's ecological soil screening levels for arsenic is 43 mg/kg for birds and 46 mg/kg for mammals[40]. USEPA did not differentiate between the constituent forms of arsenic, and a review of their toxicological databases for birds and mammals did not indicate that arsenic III was consistently more toxic than arsenic V. Based upon this information, it is unlikely that arsenic poses a hazard to wildlife at the Field-Constructed Tanks site.

Lead was identified as an environmental indicator hazardous substance at the Field-Constructed Tanks site in the zero to six-foot soil stratum (Appendix I, Table I-1), but not the zero to 15-foot soil stratum (Appendix I, Table I-2). The lead exposure point concentration for the zero to six-foot stratum is 120

[39] Personal communication with Mr. Tim Riebe, NRCS, Spokane on 10/27/2009.

[40] USEPA EcoSSL for arsenic is available online at http://www.epa.gov/ecotox/ecossl/.

mg/kg, with a natural background concentration of 15 mg/kg and default MTCA wildlife indicator soil concentration of 118 mg/kg. The exposure point concentration is the maximum-detected value that occurred at sample location WW-MW-7 (Figure 11-1). All other lead detections at the site were below the natural background concentration. Since lead concentrations in all other soil samples from the Field-Constructed Tanks (zero to 15-feet bgs) were below the natural background value (15 mg/kg), the elevated detection at sample location WW-MW-7 does not appear representative of concentrations of lead at the Field-Constructed Tanks site. Based upon this evaluation, it is concluded that lead does not pose a hazard to wildlife at the Field-Constructed Tanks site.

Total diesel/fuel oil was identified as an environmental indicator hazardous substance in the zero to six-foot soil stratum at the Field-Constructed Tanks site (Appendix I, Table I-1), but not the zero to 15-foot stratum (Appendix I, Table I-2). The exposure point concentration for total diesel/fuel oil in the zero to six-foot stratum is 7,310 mg/kg, which is the maximum-detected concentration at the site (station location TP-6-S1 in Figure 11-1). This exposure point concentration is greater than the default MTCA Indicator Soil Concentration for diesel (i.e., 6,000 mg/kg). Total diesel/fuel oil was detected in 50% of the soil samples from the zero to six-foot stratum, with many samples detected concentration below 500 mg/kg. The next highest detection was 4,510 mg/kg at station location TP-6-S2 (Figure 11-1).

For the Field-Constructed Tanks zero to six-foot stratum, the total diesel/fuel oil exposure point concentration of 7,310 mg/kg was the maximum-detected concentration because the maximum detected concentration was less than the 95% UCL. This result is perplexing because there were 16 samples in the zero to six-foot stratum dataset and the detection frequency was 50%. The calculation of the exposure point concentration was cross-checked using USEPA's ProUCL statistical software[41]. USEPA's Technical Support Center in Las Vegas, Nevada, developed ProUCL to support risk assessment and cleanup decisions at contaminated sites across the United States. ProUCL is a robust statistical software package that analyzes data distributions, provides a number of UCL estimation methods, evaluates the output of those methods, and recommends the most appropriate estimate of the reasonable maximum exposure point concentration. Instead of using the substitution method to address censored data, ProUCL uses statistical methods that evaluate both the detected and non-detected data to estimate the distribution of the non-detected values (e.g., Kaplan-Meier and regression on order statistics). These methods reduce bias inherent in the substitution method and provide more accurate estimates of exposure point concentrations. The total diesel/fuel oil dataset for the zero to six-foot stratum at the Field-Constructed Tanks site was input into ProUCL and the program was run using detected and non-detected data. ProUCL output recommended use of the Kaplan-Meier 95% UCL value of 1,880 mg/kg for the exposure point concentration (Table L-1 in Appendix L). Since the ProUCL exposure point concentration is less than the MTCA default wildlife Indicator Soil Concentration for diesel of 6,000 mg/kg, it is concluded that total diesel/fuel oil in the zero to six-foot soil stratum at the Field-Constructed Tanks site does not pose a threat to wildlife.

[41] USEPA's ProUCL Version 4.00.02 is available online at http://www.epa.gov/esd/tsc/software.htm

11.5.2 Industrial Wastewater Treatment Area Buffer Site

Selenium and PCBs were identified as environmental indicator hazardous substances in the zero to 15-feet soil stratum at the Industrial Wastewater Treatment Area Buffer site, but not in the zero to six-foot stratum (Section 11.2.2). The selenium exposure point concentration for the zero to 15-foot stratum is 0.4 mg/kg and is based upon the maximum detected concentration (Appendix I, Table I-6). The natural background concentration is 0.33 mg/kg and the default MTCA wildlife indicator soil concentration is 0.3 mg/kg. Selenium was analyzed in three samples from the Industrial Wastewater Treatment Area Buffer site and was not detected in two samples[42]. Selenium was detected at sample location HL-MW-30s (Figure 11-1) in a sample collected from 10 to 11 feet bgs. As discussed in Section 11.2.4, no known industrial activities occurred at that location. In addition, selenium has no known industrial use at the Trentwood Facility. Since selenium was only detected at one location within the Industrial Wastewater Treatment Area Buffer site and is present at a depth below the ecological conditional point of compliance (zero to six feet bgs), it is unlikely that selenium poses a threat to wildlife under current land use conditions.

PCBs were detected in two of six samples in the Industrial Wastewater Treatment Area Buffer site (Appendix I, Table I-8). PCB detections occurred at locations HL-MW-30s (at five to six feet bgs) and LF-1 (six feet bgs) (Figure 11-1). As discussed in Section 11.2.4, no known industrial activities occurred at these locations. Site-specific indicator soil concentrations for PCBs were developed for the shrew, robin, and vole (Appendix K). The site-specific indicator soil concentrations for PCBs are presented along with PCB exposure point concentrations for the Industrial Wastewater Treatment Area Buffer site (zero to 15 feet bgs) in Table 11-6. Results indicated that exposure point concentrations for PCB were below all site-specific indicator soil concentrations. Therefore, it is concluded that PCBs in the Industrial Wastewater Treatment Area Buffer site do not pose a hazard to wildlife.

11.5.3 West Drainage Ravine

PCBs were identified as environmental indicator hazardous substances in the zero to six-foot and zero to 15-foot soil strata in the West Discharge Ravine site (Section 11.2.2). Two commercial mixtures of PCBs were detected at concentrations above default MTCA wildlife indicator soil concentrations (0.65 mg/kg): Aroclor 1248 and Aroclor 1254. Aroclor 1248 was more frequently detected and was detected at higher concentrations than Aroclor 1254 (Appendix I, Tables I-11 and I-12). The exposure point concentrations for Total PCBs are 72 mg/kg for the zero to six foot stratum and 38 mg/kg for the zero to 15-foot stratum and are above the default MTCA wildlife indicator soil concentration.

Site-specific indicator soil concentrations were based upon a modified soil invertebrate and plant BAFs for PCBs (Appendix K). The site-specific soil invertebrate BAF was derived from empirical studies on species of invertebrates likely to inhabit the West Discharge Ravine site. The site-specific indicator soil concentrations for the shrew, vole, and robin are also shown in Appendix K. The site-specific indicator

[42] The detection limits for the two non-detects were 1.0 mg/kg and 1.1 mg/kg.

soil concentrations for Total PCBs are 30.4 mg/kg for the shrew, 47.8 mg/kg for the robin, and 116.6 mg/kg for the vole.

Results of the site-specific evaluation of PCBs at the West Discharge Ravine site are shown in Table 11-7. Exposure point concentrations for Aroclor 1248 and total PCBs are below the site-specific indicator soil concentration for the vole, but above the site-specific indicator soil concentrations for the shrew and robin. Exposure point concentrations for Total PCBs are above the site-specific indicator soil concentrations for the shrew and robin in the zero to six-foot soil stratum, but the exposure point concentration for the zero to 15-foot stratum is only above the indicator soil concentration for the shrew.

It should be noted that the exposure point concentration for Total PCBs in the zero to six-foot soil stratum (72.0 mg/kg) is based on the maximum detected concentration (location WDR-EC4-C1, Figure 11-2). This result is anomalous considering the large number of samples and high frequency of detection (Table 11-7). A cross-check of the exposure point concentration calculation was made using USEPA's ProUCL statistical software[43]. The exposure point concentration for Total PCBs calculated using ProUCL is 22.2 mg/kg (Appendix L, Table L-2), which is less than the lowest site-specific indicator soil concentration of 30.4 mg/kg. This indicates that PCBs in the zero to six-foot stratum do not pose a hazard to wildlife.

An improved understanding of potential wildlife exposure to PCBs in soil at the West Discharge Ravine can be obtained by examining the spatial distribution of PCB concentrations in the soil. Figure 11-5 shows the spatial extent of total PCB concentrations in the zero to six-foot soil stratum (i.e., the biologically active layer) and Figure 11-6 shows the spatial extent of PCB concentrations in the zero to 15-foot soil stratum[44]. Within the zero to six-foot stratum, no samples have PCB concentrations above the site-specific indicator soil concentration for the vole (116.6 mg/kg), two samples have PCB concentrations above the site-specific indicator soil concentration for the robin (47.8 mg/kg), and four samples have PCB concentrations above the site-specific indicator soil concentration for the shrew (30.4 mg/kg). All four samples with PCB concentrations above the site-specific vole indicator soil concentration are found in the near-river portion of the lower ravine. These four samples occur at a depth ranging from four to six feet bgs. As discussed in Section 10.9, the near-river portion of the lower ravine excavation was backfilled with a layer of poly-fabric, a six to eight inch layer of sand, and an upper layer of cobbles. Cobbles were placed as armor protection against possible erosion during high water events in the Spokane River. Although some vegetation may become established in the interstitial spaces between the cobbles, this backfill will physically limit plant establishment and use by soil-dwelling invertebrates. In addition, the cobble layer will discourage burrowing by mammals.

The area of the near-river excavation of the lower ravine is approximately 20 by 100 feet (0.05 acre). The lowest site-specific indicator soil concentration for PCBs is for the shrew (Appendix K). MTCA lists the home range of the shrew at 0.1 acres[45]. So it is likely that a single shrew would not spend 100 percent of

[43] USEPA's ProUCL Version 4.00.02 is available online at http://www.epa.gov/esd/tsc/software.htm.
[44] Note that the total PCB concentration shown in Figures 11-7 and 11-8 for each sample location is the maximum detect or maximum non-detect value when more than one sample was collected from a location.
[45] MTCA Table 749-4.

its time foraging in the near-river portion of the lower ravine. This would reduce potential exposure of the shrew and other wildlife to PCBs in soil.

Since the ProUCL exposure point concentration for Total PCBs in the zero to six-foot strata is less than the site-specific wildlife indicator soil concentration and the aerial extent of soil PCB concentrations above the indicator soil concentration is relatively small, it is concluded that PCBs do not pose a hazard to wildlife at the West Discharge Ravine. This conclusion is contingent upon there being no anthropogenic activities at the site that might cause deeper soils to be brought into the biologically active zone (zero to six feet bgs).

11.5.4 South Drainage Ravine

PCBs were identified as environmental indicator hazardous substances in the zero to six-foot and zero to 15-foot soil strata in the South Discharge Ravine site (Section 11.2.2). Two commercial mixtures of PCBs (Aroclor 1248 and Aroclor 1254) were detected above the default MTCA wildlife indicator soil concentration. Although the frequency of detection is similar for these two Aroclors, the exposure point concentrations for Aroclor 1248 are approximately one order of magnitude greater than Aroclor 1254 (Appendix I, Tables I-9 and I-10). The exposure point concentrations for Total PCBs are 71.0 mg/kg for the zero to six-foot stratum and 71.0 mg/kg for the zero to 15-foot stratum. The default MTCA wildlife indicator soil concentration for PCBs is 0.65 mg/kg.

Results of the site-specific evaluation for PCBs for the South Discharge Ravine are shown in Table 11-8. The exposure point concentrations for all Aroclor mixtures are below the lowest site-specific wildlife indicator soil concentration. In addition, the exposure point concentrations for Total PCBs are below the site-specific indicator soil concentration for the vole. However, the exposure point concentrations for Total PCBs are above the site-specific indicator soil concentrations for the shrew and robin by a factor of approximately two.

The exposure point concentrations for Total PCBs (Table 11-8) are based on the maximum detected concentration. As part of the Phase II RI field investigation conducted in 2006, soil samples were collected from 20 locations in the South Discharge Ravine (Figure 11-3). Nine sample locations (SDR-SS-1 through SDR-SS-9) were collected from 0 – 0.5 feet bgs along the length of the ravine. One soil boring (SDR-SB-1) was located in the former ponded area located at the head of the ravine with one sample (10 to 15 feet bgs) in the 0 - 15 foot stratum. In additional, three test pits were established perpendicular to the ravine at surface soil locations SDR-SS-1, SDR-SS-7, and SDR-SS-9. Soil samples were collected from 0 – 0.5 feet, 1 – 1.5 feet, and 2 – 2.5 feet bgs at four locations at test pit SDR-SS-1-PH2, three locations at test pit SDR-SS-7-PH2, and three locations at test pit SDR-SS-9-PH2 to characterize the vertical extent of contamination. A total of 40 characterization soil samples were collected from the South Discharge Ravine site during the Phase II RI investigation.

Figure 11-7 shows the horizontal extent of total PCB concentrations at the South Discharge Ravine[46]. Only one sample location (SDR-SSI-PH2-3) had a total PCB concentration above a site-specific wildlife indicator soil concentration. This sample was from a test pit located at the head of the ravine. Figure 11-8 shows the vertical extent of total PCB concentration in samples collected from test pit SDR-SS1-PH2. Sample SDR-SSI-PH2-3-S1 was collected from 0 – 0.5 feet bgs and had a Total PCB concentration of 71.0 mg/kg. Sample SDR-SSI-PH2-3-S2, collected from 1.0 to 1.5 feet bgs immediately below sample SDR-SSI-PH2-3-S1, had a Total PCB concentration of 1.46 mg/kg. Test pit samples within eight to 10 feet either side of sample SDR-SSI-PH2-3-S1 had a maximum detected concentration of 0.06 mg/kg Total PCBs. In fact, the next highest Total PCB concentration detected in the 40 samples from the South Discharge Ravine is 9.1 mg/kg, which is below the lowest site-specific wildlife indicator soil concentration of 30.4 mg/kg.

The Total PCB exposure point concentrations were again cross-checked using USEPA's ProUCL software. Resulting exposure point concentrations for Total PCBs are 7.2 mg/kg for the zero to six-foot soil stratum and 6.5 mg/kg for the zero to 15-foot stratum (see Appendix L, Tables L-3 (0-6') and L-4 (0-15')). Both exposure point concentrations are well below the lowest site-specific wildlife indicator soil concentration.

Since the extent of Total PCBs concentrations above a site-specific wildlife indicator soil concentrations is limited to one sample location and the ProUCL-derived exposure point concentrations for both the zero to six-foot and zero to 15-foot soil strata are below the site-specific wildlife indicator soil concentrations, it is concluded that PCBs do not pose a hazard to wildlife at the South Discharge Ravine.

11.6 Uncertainty Analysis

Many aspects of the MTCA Terrestrial Ecological Evaluation process are defined by the regulation (WAC 173-340-7491 through 7494). These include the Tier 1 exclusions evaluation (Section 10) and the Tier 3 ecological indicator hazardous substance screen (Section 11.2.2). Therefore, this uncertainty analysis focuses on remaining portions of the Tier 3 site-specific evaluation. This qualitative uncertainty analysis identifies the major sources of uncertainty and provides estimates of the direction and magnitude of uncertainty where possible.

11.6.1 Temporal Changes in Constituent Concentrations

Most of the sites evaluated in the Terrestrial Ecological Evaluation have undergone soil removal actions. Analytical data for these sites were primarily verification samples collected to characterize residual constituent concentrations following removal actions. Although some removal actions occurred over the past few years (e.g., Western Drainage Ravine, Field-Constructed Tanks, and Railcar Unloading sites), many others occurred up to 20 years ago (e.g., Hoffman Tank, Oil/Water Emulsion Spill, and OH sites). It is likely that residual constituent concentrations in the soil will attenuate over time, reducing exposures

[46] Note that the total PCB concentration shown in Figure 11-7 for each sample location is the maximum detect or maximum non-detect value when more than one sample was collected from a location.

and potential hazards. This is particularly true for chemicals with relatively high volatility, water solubility, or potential for microbial degradation (e.g., petroleum hydrocarbons). Therefore, exposure estimates based on older soil data will likely overestimate current potential wildlife exposures.

11.6.2 Future Land Use

The Kaiser Trentwood Facility is currently used for industrial activities and will continue these activities for the foreseeable future. However, specific conditions at the Field-Constructed Tanks and Railcar Unloading sites are expected to change in the near future. The Field-Constructed Tanks and Railcar Unloading sites contain areas where soil has been excavated as part of removal actions. These areas were evaluated in this Terrestrial Ecological Evaluation because they currently provide a potentially complete exposure pathway whereby wildlife may become exposed to constituents in soil. The current plan is to backfill both excavations with native material and return them to conditions present in the surrounding land. The Field-Constructed Tanks site is surrounded by land with the Open Field cover type and the Railcar Unloading site is surrounded by land with the Compacted Mineral Soil cover type. Backfilling may result in the addition of six or more feet of soil over the Field-Constructed Tanks site which would effectively control wildlife exposure to residual constituents in soil. In addition, backfilling and bringing the Railcar Unloading excavation to conditions on the surrounding land would create a Compacted Mineral Soil cover type that would prohibit wildlife exposure to residual constituents detected in soil on the floor of the excavation. Therefore, the Terrestrial Ecological Evaluation conducted for the Field-Constructed Tanks and Railcar Unloading sites over-estimates future risks following backfilling of the excavations.

Conditions at the Western Discharge Ravine site will temporarily change during 2009 and 2010. To further promote the establishment of the native species planted following the 2007 interim action, irrigation water will be applied to selected areas of the ravine during the dry summer months of 2009 and 2010. Addition of water during the summer could potentially encourage the temporary establishment of earthworms if they were introduced with planting stock. However, only the upper portion of the lower ravine extending from soil sample location WDR-EC7-D1 east to location WDR-EC16-C1 is being irrigated (Figure 11-2). In the event that earthworms become established at the site, they will become extirpated during the summer of 2011 due to the lack of soil moisture.

The majority of earthworm species either live in the surface litter or in the shallow soil that contains high levels of organic matter (Edwards 1994). These species typically inhabit the upper foot of the soil profile. However, other species of earthworms live in permanent burrows and migrate to the surface at night to feed on organic matter. The night crawler (Lumbricus terrestris) may construct burrows up to 2.4 m (7.9 feet) deep under the right soil condition. Figure 11-5 shows that only eight samples occur in the zero to 6-foot strata within the temporary irrigation area. Two of these eight samples (WDR-PIA-10 and WDR-PIA-13) were collected from the zero to 1-foot strata and had total PCB concentrations of 0.024 and 0.006 mg/kg. Sample locations WDR-PIA-10 and WDR-PIA-13 are located on the rim of the ravine (Figure 11-2) and these areas did not need to be excavated during the 2007 interim action. The remaining six samples were collected from the four to 6-foot strata and had total PCB concentrations ranging from 0.2 to 11.0 mg/kg. Five of the eight samples in the zero to 6-foot strata in the irrigated area have total PCB

concentrations below the default MTCA wildlife indicator soil concentration of 0.65 mg/kg. Since the default wildlife indicator soil concentration for PCBs is based upon wildlife consuming earthworms, potential short-term hazards to wildlife during irrigation are below a level of concern for much of the irrigated area. It is also likely that few, if any, earthworms would become exposed to PCBs located in soils four to 6-feet below ground.

The potential establishment of earthworms at the Western Discharge Ravine site associated with temporary irrigation is not considered a significant uncertainty for the following primary reasons:

1. It is unlikely that earthworms will become established at the site.

2. Residual PCBs are relegated to soil depths of four to six feet and earthworms are unlikely to become exposed to PCBs at that depth.

3. The spatial extent of residual PCBs with concentrations above the default MTCA wildlife indicator soil concentration is limited, which would minimize potential wildlife exposures.

4. Earthworms could potentially exist at the site for only a limited period of time (maximum of two years), which would minimize potential wildlife exposures.

11.6.3 Wildlife Site Usage

The goal of this Terrestrial Ecological Evaluation is to evaluate potential hazards that constituents detected in soil pose to wildlife. Those hazards were assessed with food chain models that use exposure parameters and toxicity values to estimate potential hazards to wildlife. One of the basic assumptions in these models is that wildlife will actually become exposed to the constituents in soil.

This Terrestrial Ecological Evaluation concluded that wildlife receptors (shrew, vole, and robin) will not become exposed to soil-borne constituents on sites in the Compacted Mineral Soil cover type. This conclusion was based primarily on the absence of vegetative cover. Wildlife are unlikely to use this cover type, other than as a transient during movement between areas of usable habitat. The absence of plants will also limit the presence of invertebrate fauna. The lack of plants and invertebrates means that food-chain transfer of constituents from soil to wildlife is unlikely to occur. The uncertainty of this assumption is considered low, but would potentially underestimate hazards.

This Terrestrial Ecological Evaluation assumed that wildlife receptors will use the Open Field and Semi-native Vegetation cover types 100 percent of the time. This is potentially valid for the Semi-native Vegetation cover type (South Discharge Ravine and Western Drainage Ravine sites), but may not be valid for the Open Field cover type (Railcar Unloading, Field-Constructed Tanks, and Industrial Wastewater Treatment Area Buffer sites). This cover type was historically farmed and currently has a sparse cover of native and non-native plants. Non-native weedy plants typically provide poor forage value for wildlife. The sparse low quality vegetation provides minimal cover and food suggesting that wildlife usage will be relatively low. Therefore, exposure and hazards to wildlife on the Open Field cover type may be overestimated to a low to moderate degree.

11.6.4 Wildlife Receptors

Default MTCA receptors (shrew, vole, and robin) were used in this Terrestrial Ecological Evaluation. Although the vole and possibly the shrew may use sites that occur within the Open Field and Semi-native Vegetation cover types, potential usage of these cover types by robins is considered to be low because of the lack of preferred forage. Alternative avian receptors within the insectivorous feeding guild that would use these cover types include the western meadow lark, vireo, wrens, and warblers. The use of alternate avian receptors would result in changes to the site-specific indicator soil concentrations, but the magnitude of these changes is unlikely to be great.

MTCA uses a small insectivorous mammal (shrew), and small herbivorous mammal (vole), and a ground-foraging insectivorous bird (robin) to asses wildlife risk from constituents in soil. These receptors have small home ranges and forage on items that potentially accumulate relatively high levels of constituents from soil. MTCA does not directly evaluate exposure and risk to higher trophic level wildlife (e.g., carnivorous birds and mammals) or reptiles. Higher trophic level wildlife species typically have large home ranges that reduce their potential exposure to constituents in soil. Furthermore, potential bioaccumulation of constituents in their prey (e.g., small mammals) is typically less than it is for plants or soil biota. Therefore, use of the default MTCA wildlife receptors is assumed to be protective of higher trophic level wildlife species. There is little exposure or toxicity information available to assess reptilian exposure and risk from constituents in soil. Although this is an uncertainty, the magnitude and direction of uncertainty is largely unknown.

11.6.5 Wildlife Exposure Pathways

The MTCA Terrestrial Ecological Evaluation process assesses wildlife risks by estimating constituent exposures through the direct ingestion of food and soil. Although wildlife may also become exposed to constituents through inhalation and dermal routes, the ingestion route is considered to contribute most to overall exposure. Furthermore, information is generally lacking to estimate exposure via the inhalation or dermal routes. Although wildlife exposures via the inhalation and dermal routes were not quantified in this Terrestrial Ecological Evaluation and may result in an underestimation of exposure and risk, the magnitude of this uncertainty is considered to be small.

11.6.6 Wildlife Exposure Factors

The wildlife exposure factors used in this Terrestrial Ecological Evaluation were food and soil ingestion rates for the shrew, robin, and vole. Default MTCA exposure factors were used for the robin, but exposure factors for the shrew and vole were updated with factors developed by USEPA for their ecological soil screening levels. These values are considered representative for these species, although the actual rates in the field will vary somewhat with factors such as season, prey type, breeding status, weather conditions, and distance traveled to acquire food. Changes in exposure factors are normally expected to have little influence on indicator soil concentrations.

11.6.7 Bioaccumulation Factors

A combination of default MTCA and site-specific bioaccumulation factors were used to derive wildlife indicator soil concentrations. The default MTCA bioaccumulation factors were based on studies conducted in other geographical locations, some with characteristics that differed from those at the Trentwood Facility. However, these default bioaccumulation factors are considered to be conservative estimates of actual accumulation.

Uncertainty in the terrestrial ecological evaluation was reduced by the use of site-specific bioaccumulation factors for PCBs, the ecological indicator hazardous substance most frequently identified at sites at the Trentwood Facility. These site-specific bioaccumulation factors were selected from the literature and were chosen because they were derived using soil biota and other environmental conditions (e.g., similar soil PCB concentrations) that closely represent conditions at the Trentwood Facility. Since the bioaccumulation factors used for PCBs are representative of soil biota and conditions at the Trentwood Facility, the magnitude of the uncertainty associated with bioaccumulation factors is expected to be small.

11.6.8 Gut Absorption

This Terrestrial Ecological Evaluation conservatively assumed the gut absorption of constituents associated with ingested soil is 100 percent. This assumption will result in an overestimation of exposure and risk. Since soil ingestion typically accounts for a relatively small proportion of the ingestion exposure, the magnitude of this uncertainty is expected to be small.

11.6.9 Wildlife Toxicity Values

Default MTCA wildlife toxicity values were used in this Terrestrial Ecological Evaluation. Typically, the selected toxicity values came from the most sensitive species tested and those species may not be present at the site. Most of the available ecological toxicity data come from laboratory or domestic species and their applicability to wildlife species present at the site is uncertain. However, the fact that the wildlife toxicity values represent relatively sensitive species suggests the uncertainty associated with these values may result in the over-estimation of the sensitivity of the wildlife species present at the Trentwood Facility sites.

11.6.10 Summary of Uncertainty

The preceding sections qualitatively describe uncertainties associated with this site-specific Terrestrial Ecological Evaluation. These sources of uncertainty are common to all Terrestrial Ecological Evaluations and ecological risk assessments and result from imperfect knowledge about the ecosystem, exposure pathways, and toxicity of constituents. Although the precise magnitude and direction of uncertainties was not ascertained, reducing uncertainty through improved knowledge is unlikely to change the results of this Terrestrial Ecological Evaluation.

11.7 Conclusions

Twenty-five sites were evaluated in this Terrestrial Ecological Evaluation. The exclusions evaluation identified 19 of 25 sites as not requiring further evaluation. This was based primarily upon the sites being covered with a barrier that prohibited wildlife exposure to constituents in soil. Exposure barriers included buildings, pavement, and compacted mineral soil. One of these 19 sites was determined to be too small and isolated to warrant further evaluation.

Six sites were identified for inclusion in the site-specific evaluation and results show none of these sites pose a hazard to wildlife. These six sites encompass areas with landscape, open field, and semi-native vegetation terrestrial cover types. The first step in the site-specific evaluation was to identify ecological indicator hazardous substances for each site by comparing the reasonable maximum soil exposure point concentration for each constituent and site to default MTCA wildlife indicator soil concentrations. One of the six sites had exposure point concentrations for all constituents below the indicator soil concentrations, so no further evaluation of this site was required. Environmental indicator hazardous substances were identified at the remaining five sites, which included three metals (arsenic, lead, and selenium), PCBs, and petroleum hydrocarbons (total diesel/fuel oil).

The second step of the site-specific evaluation included an in-depth evaluation of the extent of environmental indicator hazardous substance occurrence and comparison of exposure point concentrations to site-specific indicator soil concentrations developed using wildlife exposure models with modified exposure and bioaccumulation factors. Results of this evaluation showed none of the five remaining sites pose a hazard to wildlife.

Uncertainties associated with this Terrestrial Ecological Evaluation are common to any Terrestrial Ecological Evaluation or ecological risk assessment. Reducing these uncertainties would not be expected to significantly affect the results of this Terrestrial Ecological Evaluation.

11.8 References

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Tables

Table 1-1. Facility Areas and Sites Considered in the Risk Assessments

Facility Area	Sites Located Within Area
Oil House Area	500-Gallon Diesel Underground Storage Tank
	Drum Storage and French Drain
	Oil House Underground Storage Tank
	20,000-Gallon Gasoline Underground Storage Tank
	Tank Farm Kensol Spill
	Eight Underground Storage Tanks
Industrial Wastewater Treatment Area	Field-Constructed Tanks
	Hoffman Tank
	Hydrogen Sulfide Scrubber Building
Oil Reclamation Building and Surrounding Area	Oil Reclamation Building
	Oil/Water Emulsion Spill
	Fuel Oil Spill
Cold Mill/Finishing Area	Continuous Can Process Line
	Chromium Transfer Line
	Coater Line Tank
	Transformer Yard
	Cold Mill Transfer Lines
Remelt/Hot Line Area	Remelt/Hot Line Area
Oil Reclamation to Wastewater Transfer Lines Area	G2 Lines
	G1/G3 Lines
	Railcar Unloading
Truck Shop Area	Truck Shop
Discharge Ravines Area	South Discharge Ravine
	West Discharge Ravine
Buffer Area	Buffer

Table 2-1. Constituents Evaluated in Risk Assessments

Cas Number	Constituent
Metals	
7440-36-0	Antimony (metallic)
7440-38-2	Arsenic (inorganic)
7440-39-3	Barium
7440-41-7	Beryllium
7440-43-9	Cadmium
7440-47-3	Chromium (total)
18540-29-9	Chromium (VI)
7440-50-8	Copper
7439-92-1	Lead (inorganic)
7439-96-5	Manganese
7439-97-6	Mercury (inorganic)
7440-02-0	Nickel (soluble salts)
7782-49-2	Selenium (and compounds)
7440-22-4	Silver
7440-66-6	Zinc
Petroleum-Related Constituents[1]	
TOT_DIESEL	Diesel/Fuel Oil
TOT_GASOLINE	Gasoline
TOT_HEAVYOIL	Heavy Oil
TOT_KEROSENE	Kerosene/Jet fuel
TOT_MINERALSP	Mineral spirits/Stoddard
71-43-2	Benzene
PAH_TEQ[2]	Total cPAH TEQ
191-24-2	Benzo(g,h,i)perylene
100-41-4	Ethyl Benzene
90-12-0	1-Methylnaphthalene
91-57-6	Methylnaphthalene, 2-
91-20-3	Naphthalene
108-88-3	Toluene
1330-20-7	Total Xylenes
PCBs	
12672-29-6	Aroclor 1248
11097-69-1	Aroclor 1254
11096-82-5	Aroclor 1260
37324-23-5	Aroclor 1262
11100-14-4	Aroclor 1268
Semi-Volatile Organic Constituents	
83-32-9	Acenaphthene
208-96-8	Acenaphthylene
120-12-7	Anthracene
117-81-7	Bis(2-ethylhexyl)Phthalate (DEHP)
132-64-9	Dibenzofuran
95-50-1	Dichlorobenzene, 1,2-
541-73-1	Dichlorobenzene, 1,3-
131-11-3	Dimethyl Phthalate
117-84-0	Di-n-Octylphthalate
206-44-0	Fluoranthene
86-73-7	Fluorene
25155-15-1	Isopropyltoluene
86-30-6	Nitrosodiphenylamine, N-
85-01-8	Phenanthrene
108-95-2	Phenol
129-00-0	Pyrene
120-82-1	Trichlorobenzene, 1,2,4-
Volatile Organic Constituents	
67-64-1	Acetone
74-83-9	Bromomethane
104-51-8	n-Butylbenzene
135-98-8	sec-Butylbenzene
75-15-0	Carbon Disulfide
75-71-8	CFC-12

Table 2-1. Constituents Evaluated in Risk Assessments

Cas Number	Constituent
74-87-3	Chloromethane
95-49-8	2-chlorotoluene
106-43-4	4-chlorotoluene
98-06-6	Tert-butylbenzene
98-82-8	Cumene
106-46-7	Dichlorobenzene, 1,4-
75-34-3	Dichloroethane, 1,1-
75-09-2	Dichloromethane
591-78-6	Hexanone, 2-
99-87-6	4-isopropyltoluene
78-93-3	Methyl Ethyl Ketone
103-65-1	1-Phenylpropane
100-42-5	Styrene
127-18-4	Tetrachloroethylene
71-55-6	Trichloroethane, 1,1,1-
79-01-6	Trichloroethylene
95-63-6	1,2,4-Trimethylbenzene
108-67-8	1,3,5-Trimethylbenzene

Notes:
PAH = Polycyclic Aromatic Hydrocarbon
TEQ = Toxic Equivalency Concentration
[1]Petroleum-related constituents are defined by Ecology in 173-340-900 WAC, Table 830-1.
[2]Constituent represents the sum of seven carcinogenic PAHs (benzo(a) anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene), summed after applying toxic equivalency factors, as specified in WAC 173-340-708(8)(e).

Table 2-2. Toxic Equivalency Factors (TEFs) for Carcinogenic PAHs

Cas Number	Carcinogenic PAH	TEF[1] (Unitless)
50-32-08	Benzo(a)pyrene	1
56-55-3	Benzo(a)anthracene	0.1
205-99-2	Benzo(b)fluoranthene	0.1
207-08-9	Benzo(k)fluoranthene	0.1
218-01-9	Chrysene	0.01
53-70-3	Dibenz(a,h)anthrancene	0.1
193-39-5	Indeno(1,2,3-cd)pyrene	0.1

Notes:
PAH = Polycyclic Aromatic Hydrocarbon
[1]TEFs are identified by Ecology in 173-350-900 WAC, Table 708-2

Table 4-1. Facility Areas and Sites Considered in the Human Health Risk Assessment

Facility Area	Sites Located Within Area
Oil House Area	500-Gallon Diesel Underground Storage Tank
	Drum Storage and French Drain
	Oil House Underground Storage Tank
	20,000-Gallon Gasoline Underground Storage Tank
	Tank Farm Kensol Spill
	Eight Underground Storage Tanks
Industrial Wastewater Treatment Area	Field-Constructed Tanks
	Hoffman Tank
	Hydrogen Sulfide Scrubber Building
Oil Reclamation Building and Surrounding Area	Oil Reclamation Building
	Oil/Water Emulsion Spill
	Fuel Oil Spill
Cold Mill/Finishing Area	Continuous Can Process Line
	Chromium Transfer Line
	Coater Line Tank
	Transformer Yard
	Cold Mill Transfer Lines
Remelt/Hot Line Area	Remelt/Hot Line Area
Oil Reclamation to Wastewater Transfer Lines Area	G2 Lines
	G1/G3 Lines
	Railcar Unloading
Truck Shop Area	Truck Shop
Discharge Ravines Area	South Discharge Ravine
	West Discharge Ravine
Buffer Area	Buffer

Table 4.2 Human Health Risk-Based Screening Concentrations

Cas_No	Constituent	Industrial RBSC (mg/kg)
Metals		
7440-36-0	Antimony (metallic)	140
7440-38-2	Arsenic (inorganic)[1]	9.0
7440-39-3	Barium	70,000
7440-41-7	Beryllium	700
7440-43-9	Cadmium	350
7440-47-3	Chromium (total)	525,000
18540-29-9	Chromium (VI)	1,050
7440-50-8	Copper	12,950
7439-92-1	Lead (inorganic)[2]	1,000
7439-96-5	Manganese	49,000
7439-97-6	Mercury (inorganic)	105
7440-02-0	Nickel (soluble salts)	7,000
7782-49-2	Selenium (and compounds)	1,750
7440-22-4	Silver	1,750
7440-66-6	Zinc	105,000
Petroleum-Related Constituents		
TOT_DIESEL	DieselFuel Oil	2,667
TOT_GASOLINE	Gasoline	2,909
TOT_HEAVYOIL	Heavy Oil	98,000
TOT_KEROSENE	Kerosene/Jet fuel	4,364
TOT_MINERALSP	Mineral spirits/Stoddard	3,125
71-43-2	Benzene	136
PAH_TEQ	Total cPAH TEQ	0.4
191-24-2	Benzo(g,h,i)perylene	--
100-41-4	Ethyl Benzene	15,082
90-12-0	1-Methylnaphthalene	216
91-57-6	Methylnaphthalene, 2-	667
91-20-3	Naphthalene	1,626
108-88-3	Toluene	12,308
1330-20-7	Total Xylenes	30,000
PCBs		
12672-29-6	Aroclor 1248	6.6
11097-69-1	Aroclor 1254	6.6
11096-82-5	Aroclor 1260	6.6
37324-23-5	Aroclor 1262	6.6
11100-14-4	Aroclor 1268	6.6
Semi-Volatile Organics		
83-32-9	Acenaphthene	21,000
208-96-8	Acenaphthylene	--
120-12-7	Anthracene	105,000
117-81-7	Bis(2-ethylhexyl)Phthalate (DEHP)	938
132-64-9	Dibenzofuran	--
95-50-1	Dichlorobenzene, 1,2-	31,500
541-73-1	Dichlorobenzene, 1,3-	--
131-11-3	Dimethyl Phthalate	--
117-84-0	Di-n-Octylphthalate	7,000
206-44-0	Fluoranthene	14,000
86-73-7	Fluorene	14,000
25155-15-1	Isopropyltoluene	--
86-30-6	Nitrosodiphenylamine, N-	2,679
85-01-8	Phenanthrene	--
108-95-2	Phenol	105,000
129-00-0	Pyrene	10,500
120-82-1	Trichlorobenzene, 1,2,4-	3,500

Table 4.2 Human Health Risk-Based Screening Concentrations

Cas_No	Constituent	Industrial RBSC (mg/kg)
Volatile Organics		
67-64-1	Acetone	315,000
74-83-9	Bromomethane	490
104-51-8	n-Butylbenzene	--
135-98-8	sec-Butylbenzene	--
75-15-0	Carbon Disulfide	35,000
75-71-8	CFC-12	70,000
74-87-3	Chloromethane	1,010
95-49-8	2-chlorotoluene	7,000
106-43-4	4-chlorotoluene	--
98-06-6	Tert-butylbenzene	--
98-82-8	Cumene	35,000
106-46-7	Dichlorobenzene, 1,4-	547
75-34-3	Dichloroethane, 1,1-	70,000
75-09-2	Dichloromethane	1,750
591-78-6	Hexanone, 2-	--
99-87-6	4-isopropyltoluene	--
78-93-3	Methyl Ethyl Ketone	210,000
103-65-1	1-Phenylpropane	--
100-42-5	Styrene	70,000
127-18-4	Tetrachloroethylene	3,500
71-55-6	Trichloroethane, 1,1,1-	700,000
79-01-6	Trichloroethylene	1,010
95-63-6	1,2,4-Trimethylbenzene	--
108-67-8	1,3,5-Trimethylbenzene	17,500

Notes:

"--" = Value not available due to lack of toxicity value for the constituent

cPAH = carcinogenic Polycyclic Aromatic Hydrocarbons

PCBs = Polychlorinated Biphenyls

RBSC = Risk-Based Screening Concentration

TEQ = Toxic Equivalency

[1] Value is natural background concentration, which was higher than the RBSC

[2] MTCA Method A Industrial Soil Screening Value (WAC 173-340-745)

Table 4-3. Summary of Screening for Indicator Hazardous Substances

Facility Sites	Indicator Hazardous Substance[1]	Maximum Detected Concentration (mg/kg)	Risk-Based Screening Concentration (mg/kg)	Exceedance Factor[2]	Cumulative Exceedance Factor for Site[3]
Oil House Area					
500-Gallon Diesel Underground Storage Tank	NA	--	--	--	0.003
Drum Storage and French Drain	Aroclor 1248	2,900	6.6	442	442
Oil House Underground Storage Tank	Total Diesel/Fuel Oil	22,500	2,667	8.4	9.1
20,000-Gallon Gasoline Underground Storage Tank	NA	--	--	--	0.04
Tank Farm Kensol Spill	Total Diesel/Fuel Oil	12,000	2,667	4.5	4.5
Eight Underground Storage Tanks	Total Diesel/Fuel Oil	14,005	2,667	5.3	5.3
Industrial Wastewater Treatment Area					
Field-Constructed Tanks	Arsenic	35.7	9.0	4.0	7.4
	Total Diesel/Fuel Oil	7,310	2,667	2.7	
Hoffman Tank	Arsenic	12.0	9.0	1.3	13.7
	Total Diesel/Fuel Oil	33,000	2,667	12.4	
Hydrogen Sulfide Scrubber Building	Arsenic	11.0	9.0	1.2	14.5
	cPAH TEQ	2.6	0.42	6.3	
	Total Diesel/Fuel Oil	20,000	2,667	7.5	
Oil Reclamation Building and Surrounding Area					
Oil Reclamation Building	Arsenic	17.0	9.0	1.9	22.8
	cPAH TEQ	0.71	0.42	1.7	
	Lead	1,400	1,000	1.4	
	Total Diesel/Fuel Oil	43,010	2,667	16.1	
	Total Heavy Oil	170,000	98,000	1.7	
Oil/Water Emulsion Spill	NA	--	--	--	0.02
Fuel Oil Spill	NA	--	--	--	0.05
Cold Mill/Finishing Area					
Continuous Can Process Line	Arsenic	9.2	9.0	1.0	2.2
	cPAH TEQ	0.49	0.42	1.2	
Chromium Transfer Line	NA	--	--	--	0.01
Coater Line Tank	NA	--	--	--	0.0004
Transformer Yard	NA	--	--	--	0.0
Cold Mill Transfer Lines	Arsenic	10.0	9.0	1.1	1.6
Remelt/Hot Line Area					

Table 4-3. Summary of Screening for Indicator Hazardous Substances

Facility Sites	Indicator Hazardous Substance[1]	Maximum Detected Concentration (mg/kg)	Risk-Based Screening Concentration (mg/kg)	Exceedance Factor[2]	Cumulative Exceedance Factor for Site[3]
Remelt/Hot Line Area	Aroclor 1248	12.0	6.6	1.8	3.4
	Aroclor 1254	7.2	6.6	1.1	
Oil Reclamation to Wastewater Transfer Lines Area					
G2 Lines	NA	--	--	--	0.001
G1/G3 Lines	Total Diesel/Fuel Oil	4,100	2,667	1.5	2.2
Railcar Unloading	cPAH TEQ	1.2	0.42	2.6	6.6
	Total Diesel/Fuel Oil	7,410	2,667	2.8	
Truck Shop Area					
Truck Shop	NA	--	--	--	1.4
Discharge Ravines Area					
South Discharge Ravine	Aroclor 1248	71.0	6.6	10.8	12.0
West Discharge Ravine	Aroclor 1248	72.0	6.6	11.0	12.4
	Aroclor 1254	9.6	6.6	1.5	
Buffer Area					
Buffer	Arsenic	9.4	9.0	1.0	1.3

Notes:
[1]Indicator hazardous substances are defined as constituents with a maximum detected concentration greater than the risk-based screening concentration.
[2]Exceedance Factor is the ratio of the maximum detected concentration to the risk-based screening concentration. Those constituents with an exceedance factor greater than one were identified as indicator hazardous substances.
[3]The Cumulative Exceedance Factor is the sum of the exceedance factors for all constituents detected at the site.
NA = Not applicable. No hazardous indicator substances were identified for this site.
-- = Not evaluated.
Shaded cells indicate sites with indicator hazardous substances.

Table 5-1. Incidental Soil Ingestion Algorithm and Exposure Parameters[1]

$$Average\ Daily\ Dose\left(\frac{mg}{kg-day}\right)=\frac{C_{soil}\times SIR\times AB1\times ED\times EF}{UCF\times ABW\times AT}$$

Exposure Parameters

Variable	Definition	Units	Industrial Worker
C_{soil}	Constituent Concentration in Soil	mg/kg	Constituent-specific exposure point concentration
SIR	Soil Ingestion Rate	mg/day	50
AB1	Gastrointestinal Absorption Fraction	unitless	1
ED	Exposure Duration	years	20
EF	Exposure Frequency	unitless	0.4[a]
UCF	Conversion Factor	mg/kg	1,000,000
ABW	Body Weight	kg	70
AT	Averaging Time	years	20 (noncancer dose calculation)
			75 (cancer dose calculation)

Notes:
[1]Based on standard Method C industrial soil cleanup levels for direct contact via soil ingestion (MTCA 173-340-745 (5)(b)(B)(II) WAC) – Equation 745-2.
[a]For petroleum-related constituents, consistent with MTCA Equation 745-5 a value of 0.7 was used.

Table 5-2. Dermal Contact Algorithm and Exposure Parameters1

$$Average\ Daily\ Dose\left(\frac{mg}{kg-day}\right) = \frac{C_{soil} \times AB1 \times ABS \times SA\ x\ AF\ x\ ED \times EF}{UCF \times ABW \times AT}$$

Exposure Parameters

Variable	Definition	Units	Commercial/ Industrial Worker
C_{soil}	Constituent Concentration in Soil	mg/kg	Constituent-specific exposure point concentration
AB1	Gastrointestinal Absorption Fraction	unitless	1
ABS	Dermal Absorption Fraction	unitless	Constituent-specific[2]
SA	Dermal Surface Area	cm^2	2500
AF	Adherence Factor	mg/cm^2-day	0.2
ED	Exposure Duration	years	20
EF	Exposure Frequency	unitless	0.7
UCF	Conversion Factor	mg/kg	1,000,000
ABW	Body Weight	kg	70
AT	Averaging Time	years	20 (noncancer dose calculation)
			75 (cancer dose calculation)

Notes:
[1]Based on standard Method C industrial soil cleanup levels for direct contact via exposure due to dermal contact with soil (MTCA 173-340-745 (5)(b)(B)(III) WAC) – Equation 745-5. This pathway was only evaluated for petroleum-related constituents.
[2] Constituent-specific ABS values used in dose calculations are presented in Table 5-3.

Table 5-3. Absorbance Factor Values Used to Evaluate Dermal Exposure[1]

Indicator Hazardous Substance	Dermal ABS Value[2]
Diesel/Fuel Oil[3]	0.1
Heavy Oil[4]	0.1
Kerosene/Jet Fuel[5]	0.1
Mineral Spirits/Stoddard Solvent[6]	0.03
Gasoline[6]	0.03
Benzene	0.0005
Toluene	0.03
Ethyl Benzene	0.03
Xylenes	0.03
Naphthalene	0.13
1-Methylnaphthalene	0.01
2-Methylnaphthalene	0.01
n-Hexane	0.03
Total cPAH TEQ	0.13

Notes:
ABS = Absorbance Factor
[1]Dermal exposure was only evaluated for petroleum-related constituents, as defined in Table 830-1, 173-340-900 WAC. Washington State Department of Ecology Model Toxics Control Act, Cleanup Regulation Chapter 173-340 WAC, Amended February 21, 2001.
[2] Dermal ABS values were obtained from the Washington State Department of Ecology CLARC Database Workbook Tools, Appendix F: Revised Properties of Chemicals commonly found at Petroleum Contaminated Sites, December 2007.
[3]Most conservative value for constituents with carbon chain length C12 – C24.
[4]Most conservative value for constituents with carbon chain length C24 – C36.
[5]Most conservative value for constituents with carbon chain length C10 – C16.
[6]Most conservative value for constituents with carbon chain length C_6 – C_{12}.

Table 6-1: Toxicity Values Used in the Human Health Risk Assessment

Cas_No	Constituent	Gastrointestinal Absorption Fraction[1]	Oral RfD	Oral RfD Source	Dermal RfD[2]	Oral CPF	Oral CPF Source	Dermal CPF[3]
		unitless	mg/kg-day		mg/kg-day	$(mg/kg\text{-}day)^{-1}$		$(mg/kg\text{-}day)^{-1}$
Metals								
7440-36-0	Antimony (metallic)	NC	0.0004	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-38-2	Arsenic (inorganic)	NC	0.0003	IRIS, 4th Qtr 2008	NC	1.5	IRIS, 4th Qtr 2008	NC
7440-39-3	Barium	NC	0.2	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-41-7	Beryllium	NC	0.002	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-43-9	Cadmium	NC	0.001	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-47-3	Chromium	NC	1.5	IRIS, 4th Qtr 2008	NC	--	--	NC
18540-29-9	Chromium (VI)	NC	0.003	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-50-8	Copper	NC	0.037	IRIS, 4th Qtr 2008	NC	--	--	NC
7439-92-1	Lead (inorganic)	NC	--	--	NC	--	--	NC
7439-96-5	Manganese	NC	0.14	IRIS, 4th Qtr 2008	NC	--	--	NC
7439-97-6	Mercury (inorganic)	NC	0.0003	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-02-0	Nickel (soluble salts)	NC	0.02	IRIS, 4th Qtr 2008	NC	--	--	NC
7782-49-2	Selenium (and compounds)	NC	0.005	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-22-4	Silver	NC	0.005	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-66-6	Zinc	NC	0.3	IRIS, 4th Qtr 2008	NC	--	--	NC
Petroleum-Related Constituents[4]								
TOT_DIESEL	Diesel/Fuel Oil	0.80	0.03	Derived	0.024	--	--	--
TOT_GASOLINE	Gasoline	0.80	0.02	Ecology, 2006	0.016	--	--	--
TOT_HEAVYOIL	Heavy Oil	0.50	1.47	Derived	0.74	--	--	--
TOT_KEROSENE	Kerosene/Jet fuel	0.80	0.03	Derived	0.024	--	--	--
TOT_MINERALSP	Mineral spirits/Stoddard	0.50	0.025	Derived	0.013	--	--	--
71-43-2	Benzene	0.95	0.004	IRIS, 4th Qtr 2008	0.004	0.055	IRIS, 4th Qtr 2008	0.058
PAH_TEQ	cPAH TEQ[5]	0.89	--	--	--	7.3	IRIS, 4th Qtr 2008	8.2
191-24-2	Benzo(g,h,i)perylene	0.89	--	--	--	--	--	--
100-41-4	Ethyl Benzene	0.92	0.1	IRIS, 4th Qtr 2008	0.09	--	--	--
90-12-0	1-Methylnaphthalene	0.80	--	--	--	0.029	USEPA, 2008	0.036
91-57-6	Methylnaphthalene, 2-	0.80	0.004	IRIS, 4th Qtr 2008	0.003	--	--	--
91-20-3	Naphthalene	0.89	0.02	IRIS, 4th Qtr 2008	0.018	--	--	--
108-88-3	Toluene	1.00	0.08	IRIS, 4th Qtr 2008	0.08	--	--	--
1330-20-7	Total Xylenes	0.90	0.2	IRIS, 4th Qtr 2008	0.18	--	--	--
PCBs								
12672-29-6	Aroclor 1248	NC	--	--	NC	2.00	IRIS, 4th Qtr 2008	NC
11097-69-1	Aroclor 1254	NC	0.00002	IRIS, 4th Qtr 2008	NC	2.00	IRIS, 4th Qtr 2008	NC
11096-82-5	Aroclor 1260	NC	--	--	NC	2.00	IRIS, 4th Qtr 2008	NC
37324-23-5	Aroclor 1262	NC	--	--	NC	2.00	IRIS, 4th Qtr 2008	NC
11100-14-4	Aroclor 1268	NC	--	--	NC	2.00	IRIS, 4th Qtr 2008	NC
Semi-Volatile Organic Constituents								
83-32-9	Acenaphthene	NC	0.06	IRIS, 4th Qtr 2008	NC	--	--	NC
208-96-8	Acenaphthylene	NC	--	--	NC	--	--	NC
120-12-7	Anthracene	NC	0.3	IRIS, 4th Qtr 2008	NC	--	--	NC
117-81-7	Bis(2-ethylhexyl)Phthalate (DI	NC	0.02	IRIS, 4th Qtr 2008	NC	0.014	IRIS, 4th Qtr 2008	NC
132-64-9	Dibenzofuran	NC	--	--	NC	--	--	NC
95-50-1	Dichlorobenzene, 1,2-	NC	0.09	IRIS, 4th Qtr 2008	NC	--	--	NC
541-73-1	Dichlorobenzene, 1,3-	NC	--	--	NC	--	--	NC
131-11-3	Dimethyl Phthalate	NC	--	--	NC	--	--	NC
117-84-0	Di-n-Octylphthalate	NC	0.02	IRIS, 4th Qtr 2008	NC	--	--	NC
206-44-0	Fluoranthene	NC	0.04	IRIS, 4th Qtr 2008	NC	--	--	NC
86-73-7	Fluorene	NC	0.04	IRIS, 4th Qtr 2008	NC	--	--	NC
25155-15-1	Isopropyltoluene	NC	--	--	NC	--	--	NC
86-30-6	Nitrosodiphenylamine, N-	NC	--	--	NC	0.0049	IRIS, 4th Qtr 2008	NC
85-01-8	Phenanthrene	NC	--	--	NC	--	--	NC
108-95-2	Phenol	NC	0.3	IRIS, 4th Qtr 2008	NC	--	--	NC
129-00-0	Pyrene	NC	0.03	IRIS, 4th Qtr 2008	NC	--	--	NC
120-82-1	Trichlorobenzene, 1,2,4-	NC	0.01	IRIS, 4th Qtr 2008	NC	--	--	NC
Volatile Organic Constituents								
67-64-1	Acetone	NC	0.9	IRIS, 4th Qtr 2008	NC	--	--	NC
74-83-9	Bromomethane	NC	0.0014	IRIS, 4th Qtr 2008	NC	--	--	NC
104-51-8	n-Butylbenzene	NC	--	--	NC	--	--	NC
135-98-8	sec-Butylbenzene	NC	--	--	NC	--	--	NC
75-15-0	Carbon Disulfide	NC	0.1	IRIS, 4th Qtr 2008	NC	--	--	NC
75-71-8	CFC-12	NC	0.2	IRIS, 4th Qtr 2008	NC	--	--	NC
74-87-3	Chloromethane	NC	--	--	NC	0.013	HEAST, 1997	NC
95-49-8	2-chlorotoluene	NC	0.02	IRIS, 4th Qtr 2008	NC	--	--	NC
106-43-4	4-chlorotoluene	NC	--	--	NC	--	--	NC
98-06-6	Tert-butylbenzene	NC	--	--	NC	--	--	NC
98-82-8	Cumene	NC	0.1	IRIS, 4th Qtr 2008	NC	--	--	NC
106-46-7	Dichlorobenzene, 1,4-	NC	--	--	NC	0.024	IRIS, 4th Qtr 2008	NC
75-34-3	Dichloroethane, 1,1-	NC	0.20	USEPA, 2008	NC	--	--	NC
75-09-2	Dichloromethane	NC	0.06	IRIS, 4th Qtr 2008	NC	0.0075	IRIS, 4th Qtr 2008	NC
591-78-6	Hexanone, 2-	NC	--	--	NC	--	--	NC
99-87-6	4-isopropyltoluene	NC	--	--	NC	--	--	NC
78-93-3	Methyl Ethyl Ketone	NC	0.6	IRIS, 4th Qtr 2008	NC	--	--	NC
103-65-1	1-Phenylpropane	NC	--	--	NC	--	--	NC

Table 6-1: Toxicity Values Used in the Human Health Risk Assessment

Cas_No	Constituent	Gastrointestinal Absorption Fraction[1]	Oral RfD	Oral RfD Source	Dermal RfD[2]	Oral CPF	Oral CPF Source	Dermal CPF[3]
		unitless	mg/kg-day		mg/kg-day	$(mg/kg\text{-}day)^{-1}$		$(mg/kg\text{-}day)^{-1}$
100-42-5	Styrene	NC	0.2	IRIS, 4th Qtr 2008	NC	--	--	NC
127-18-4	Tetrachloroethylene	NC	0.01	IRIS, 4th Qtr 2008	NC	--	--	NC
71-55-6	Trichloroethane, 1,1,1-	NC	2	IRIS, 4th Qtr 2008	NC	--	--	NC
79-01-6	Trichloroethylene	NC	--	--	NC	0.013	USEPA, 2009	NC
95-63-6	1,2,4-Trimethylbenzene	NC	--	--	NC	--	--	NC
108-67-8	1,3,5-Trimethylbenzene	NC	0.05	USEPA, 2008	NC	--	--	NC

Notes:

"--" = Value not available

CPF = Cancer Potency Factor

RfD = Reference Dose

NC =Not Considered. Gastrointestinal absorption was only considered for those substances evaluated for the dermal exposure pathway. In accordance with the Model Toxics Control Act (MTCA) Soil Cleanup Standards for Industrial Properties (WA 173-340-745), consideration of the dermal pathway was only necessary for petroleum-related substances.

[1]Gastrointestinal absorption values were taken from Ecology's Workbook for Calculating Cleanup Levels for Petroleum Contaminated Sites Table F-1 *Revised Properties of Chemicals commonly found at Petroleum Contaminated Sites, December 2007*. http://www.ecy.wa.gov/programs/tcp/tools/toolmain.html

[2]The Dermal RfD is calculated by multiplying the Oral RfD by the Gastrointestinal Absorption Fraction

[3]The Dermal CSF is calculated by dividing the Oral CSF by the Gastrointestinal Absorption Fraction

[4]Petroleum-related compounds are defined by Ecology in WAC 173-340-900, Table 830-1.

[5] Toxicity values used for total cPAH TEQ are those for benzo(a)pyrene

USEPA, 2009. Memorandum from Susan Parker Bodine to Regional USEPA Administrators, RE: Interim Recommended Trichloroethylene (TCE) Toxicity Values to Assess Human Health Risk and Recommendations for the Vapor Intrusion Pathway Analysis. January 15, 2009.

USEPA, 2008. Values are Provisional Toxicity Values presented in the USEPA Soil Screening Table: http://www.epa.gov/region09/superfund/prg/pdf/indsoil_sl_table_run_12SEP2008.pdf

IRIS = USEPA Integrated Risk Information System On-Line Database: http://cfpub.epa.gov/ncea/iris/index.cfm

HEAST = USEPA Health Effects Assessment Summary Tables, 1997.

Table 7-1. Summary of Human Health Risk Assessment Results

Facility Areas and Sites	Noncancer Hazard Index	Cancer Risk	Lead EF
Oil House Area			
Drum Storage and French Drain	0.02	4.4E-04	--
Oil House Underground Storage Tank	0.9	7.1E-07	0.03
Eight Underground Storage Tanks	0.5	--	--
Tank Farm Kensol Spill	0.5	2.9E-12	--
Industrial Wastewater Treatment Area			
Field-Constructed Tanks	0.06	1.6E-06	0.02
Hoffman Tank	1.3	1.4E-06	0.06
Hydrogen Sulfide Scrubber Building	0.8	1.3E-06	0.3
Oil Reclamation Building and Surrounding Area			
Oil Reclamation Building	0.08	1.9E-06	1.4
Cold Mill/Finishing Area			
Continuous Can Process Line	0.01	1.1E-06	0.03
Cold Mill Transfer Lines	0.09	1.1E-06	0.008
Remelt/Hot Line Area			
Remelt/Hot Line Area	0.04	1.7E-06	0.09
Oil Reclamation to Wastewater Transfer Lines Area			
G1/G3 Lines	0.01	5.2E-07	0.02
Railcar Unloading	0.02	7.6E-07	0.03
Discharge Ravines Area			
South Discharge Ravine	0.04	3.6E-06	--
West Discharge Ravine	0.01	1.0E-05	--
Buffer Area			
Buffer	0.01	7.2E-07	0.02

Notes:
EF= Exceedance Factor. The exceedance factor is the ratio of the lead EPC to the screening concentration of 1,000 mg/kg.
Shaded cells indicate sites with a noncancer hazard index greater than the benchmark level of 1.0; a cancer risk greater than the benchmark level of 1.0E-05, or an EF greater than 1.0.
-- = Not evaluated for this site. Either carcinogens were not detected resulting in no estimate of cancer risk, or lead was not detected, resulting in no EF value.

Table 7-2: Comparison of Soil Gas Analytical Results to Occupational Exposure Standards

	Area	Oil Reclamation Building and Surrounding Area				Truck Shop Area		
	Sample ID	OR-SG-1		OR-SG-2		TS-SG-1		
CAS No	Constituent	Soil Gas ug/m^3	Approximate Indoor Air[1] ug/m^3	Soil Gas ug/m^3	Approximate Indoor Air[1] ug/m^3	Soil Gas ug/m^3	Approximate Indoor Air[1] ug/m^3	WISHA PEL[2] ug/m^3
Petroleum-Related Constituents								
71-43-2	Benzene	6.3	0.06	13	0.13	6.2	0.06	3,000
100-41-4	Ethyl Benzene	14	0.14	2.6	0.03	2.5	0.03	435,000
1330-20-7	m,p-Xylenes	32	0.32	9.2	0.09	10	0.10	435,000
1634-04-4	Methyl tert-Butyl Ether	1.3 U	--	1.3 U	--	1.3 U	--	--
108-38-3	o-Xylene	16	0.16	2.4	0.02	5.6	0.06	435,000
108-88-3	Toluene	42	0.42	32	0.32	19	0.19	753,600
Volatile Constituents								
75-00-3	Chloroethane	1.3 U	--	1.3 U	--	2.2	0.02	2,600,000
156-59-2	cis-1,2-Dichloroethene	1.3 U	--	1.3 U	--	1.3 U	--	--
75-34-3	Dichloroethane, 1,1-	1.3 U	--	1.3 U	--	1.3 U	--	--
107-06-2	Dichloroethane,1,2-	1.3 U	--	1.3 U	--	1.3 U	--	--
75-35-4	Dichloroethene, 1,1-	1.3 U	--	1.3 U	--	1.3 U	--	--
100-42-5	Styrene	1.3 U	--	1.3 U	--	1.3 U	--	--
79-34-5	Tetrachloroethane,1,1,2,2-	1.3 U	--	1.3 U	--	1.3 U	--	--
127-18-4	Tetrachloroethylene	3.5	0.04	2.6	0.03	24	0.24	678,300
156-60-5	trans-1,2-Dichloroethene	1.3 U	--	1.3 U	--	1.3 U	--	--
71-55-6	Trichloroethane, 1,1,1-	1.3 U	--	1.3 U	--	4.4	0.04	1,900,000
79-00-5	Trichloroethane,1,1,2-	1.3 U	--	1.3 U	--	1.3 U	--	--
79-01-6	Trichloroethylene	1.8	0.02	1.3 U	--	3.1	0.03	537,400
75-01-4	Vinyl chloride	1.3 U	--	1.3 U	--	1.3 U	--	--

Notes:

1. Indoor air concentrations were approximated by applying an attenuation factor of 0.01. See Section 7.8.

2. WISHA PEL= Washington Industrial Safety and Health Act Permissible Exposure Limit. This value is a time-weighted exposure limit, averaged over an 8-hour work day.

Values were taken from the Permissible Exposure Limits (PELs) for Airborne Contaminants Table. Chapter 296-841 WAC, Table 3. April, 2007. Values in this table were converted from ppm to ug/m3 using the following equation:

$$\frac{\text{ppm x molecular weight}}{24.5} = \text{mg/m}^3 \text{ x } 1{,}000 = \text{ug/m}^3$$

Table 10-1. Summary of Terrestrial Ecological Exclusions Evaluation

Area	Site	**Criterion 1**: Affected soil is present above 15 feet bgs[1]	**Criterion 2:** Affected soil is available for contact with wildlife[2]	**Criterion 3:** Sufficient area of contiguous undeveloped land is present within 500 feet of the site[3]	**Criterion 4:** Constituent concentrations are above natural background concentrations[4]
Oil House	Oil House Underground Storage Tank	YES	NO	na	YES
	500-Gallon Diesel Underground Storage Tank	NO	NO	na	YES
	20,000 Gallon Gasoline Underground Storage Tank	YES	NO	na	YES
	Eight Underground Storage Tanks	YES	NO	na	YES
	Drum Storage and French Drain	YES	NO	na	YES
	Tank Farm Kensol Spill	YES	NO	na	YES
Industrial Wastewater Treatment	Field Constructed Tanks	YES	YES	YES	YES
	Hoffman Tank	YES	YES	YES	YES
	Hydrogen Sulfide Scrubber Building	YES	NO	na	YES
Oil Reclamation Building Area and Surrounding Area	Oil Reclamation Building	YES	NO	na	YES
	Oil/Water Emulsion Spill	YES	NO	na	YES
	Fuel Oil Spill	YES	NO	na	YES
Cold Mill/Finishing	Continuous Can Process Line	YES	NO	na	YES
	Chromium Transfer Line	YES	NO	na	YES
	Coater Line Tank	YES	YES	NO	YES
	Transformer Yard Investigation	YES	NO	na	NO[5]
	Cold Mill Transfer Lines	YES	NO	na	YES
Remelt /Hot Line	Remelt/Hot Line Area	YES	NO	na	YES
Oil Reclamation to Wastewater Transfer Lines	G2 Lines	YES	NO	na	YES
	G1/G3 TLines	YES	NO	na	YES
	Rail Car Unloading	YES	YES[6]	YES	YES
Truck Shop	Truck Shop	YES	NO	na	YES
Discharge Ravines	West Drainage Ravine	YES	YES	YES	YES
	South Drainage Ravine	YES	YES	YES	YES
Buffer Area	Industrial Wastewater Treatment Area Buffer	YES	YES	YES	YES

Notes:

Shaded cells indicate sites that failed the exclusions evaluation and were carried to the site-specific evaluation

[1] All sites had affected soil within the standard point of compliance (zero to 15 feet bgs). The 500 Gallon Diesel Tank Removal site was the only site not having affected soil within the terrestrial ecological conditional point of compliance (zero to six feet bgs).

[2] Physical barriers include buildings, pavement (asphalt/concrete), and compacted mineral soil/gravel.

[3] Undeveloped land is defined as land that is not covered by buildings, roads, paved areas, or other barriers that wouild prevent wildlife from feeding on plants, earthworms, insects or other food in or on the soil. Contiguous land is defined as land not divided into smaller areas by highways, extensive paving or similar structures that are likely to reduce the potential use of the overall area by wildlife. Roads, sidewalks and other structures that are unlikely to reduce potential use of the area by wildlife shall not be considered to divide a contiguous area into smaller areas. This criteria is not applicable to sites with a physical barrier.

[4] Natural background concentrations are available for inorganic analytes (Appendix C). Although some persistent organic compounds (e.g., polycyclic aromatic hydrocarbons) are considered to occur at natural background levels in soils, natural background concentrations were not developled for these compounds. Since all sites (except the Cold Mill Electrical Grounding Pit) had organic compounds detected in soil samples (0 to 15 foot bgs), these sites were assumed to have chemical concentrations above natural background levels.

[5] Nine soil samples were collected from the Transformer Yard Investigation site in 2006 and analyzed for the presence of petroleum hydrocarbons (NWTPH-HCID, EPA Method 8015 modified) and PCBs (EPA Method 8082). Since no chemicals were detected in any soil samples, further evaluation of the Transformer Yard Investigation site within the TEE process is not required.

[6] Although the ground surface of most of the RCU site is compacted mineral soil, the uncompacted floor of the 2008 removal action excavation may permit wildlife to become exposed to residual petroleum hydrocarbons.

na - not applicable; Criterion 3 is applied only when Criterion 2 is met

Table 11-1. Wildlife Soil Screening Values[a]

MTCA Constituent Name	Kaiser Constituent Name	Cas Number	Screening Value (mg/kg)	Comments
Arsenic	Arsenic	7440-38-2	7	Used lower of MTCA ISCs for Arsenic III (7 ppm) or Arsenic V (132 ppm) as surrogate
Barium	Barium	7440-39-3	102	
Cadmium	Cadmium	7440-43-9	14	
Chromium (total)	Chromium	7440-47-3	67	
	Chromium (VI)	18540-29-9	67	Used MTCA ISC for Chromium (total) as a surrogate
Lead	Lead	7439-92-1	118	
Manganese	Manganese	7439-96-5	1,500	
Mercury	Mercury	7439-97-6	0.4	Used lower of MTCA ISCs for Mercury, inorganic (5.5 ppm) or Mercury, organic (0.4 ppm) as surrogate
Nickel	Nickel	7440-02-0	980	
Selenium	Selenium	7782-49-2	0.3	
PCB mixtures (total)	Aroclor 1016	12674-11-2	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Aroclor 1221	11104-28-2	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Aroclor 1232	11141-16-5	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Aroclor 1242	53469-21-9	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Aroclor 1248	12672-29-6	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Aroclor 1254	11097-69-1	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Aroclor 1260	11096-82-5	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Aroclor 1262	37324-23-5	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Aroclor 1268	11100-14-4	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
	Total PCBs	TOT_PCBs	0.65	Used MTCA ISC for PCB mixtures (total) as a surrogate
Benzo(a)pyrene	Benzo(a)pyrene	50-32-8	12	
	Acenaphthene	83-32-9	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Acenaphthylene	208-96-8	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Anthracene	120-12-7	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Benzo(a)anthracene	56-55-3	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Benzo(b)fluoranthene	205-99-2	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Benzo(g,h,i)perylene	191-24-2	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Benzo(k)fluoranthene	207-08-9	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Chrysene	218-01-9	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Dibenz(a,h)anthracene	53-70-3	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Fluoranthene	206-44-0	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Fluorene	86-73-7	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Indeno(1,2,3-cd)pyrene	193-39-5	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Naphthalene	91-20-3	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Phenanthrene	85-01-8	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Pyrene	129-00-0	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
	Total Naphthalene	NAPHTH_TEQ	12	Used MTCA ISC for benzo(a)pyrene as a surrogate
Gasoline Range Organics	Total Gasoline	TPH_GRO	5,000	
	Total Stoddard/Mineral Spirits	8052-41-3	5,000	Used MTCA ISC for Gasoline Range Organics as a surrogate
Diesel Range Organics	Total Diesel/Fuel Oil	TPH_DRO	6,000	
	Total Kerosene/Jet Fuel	KEROSENE_JETFUE	6,000	Used MTCA ISC for Diesel Range Organics as a surrogate
	Total Heavy Oil	TPH_HEAVYOIL	6,000	Used MTCA ISC for Diesel Range Organics as a surrogate

Notes:

ISC = Indicator Soil Concentration

MTCA = Model Toxics Control Act

PCB = Polychlorinated Biphenyl

[a] Screening values are wildlife ISCs from MTCA Table 749-3.

Table 11-2. Ecological Indicator Hazardous Substances

Site	Soil Strata	EIHS
Field-Constructed Tanks	0 - 6' bgs	arsenic, lead, total diesel/fuel oil
	0 - 15' bgs	arsenic
Hoffman Tank	0 - 6' bgs	--
	0 - 15' bgs	--
Railcar Unloading	0 - 6' bgs	--
	0 - 15' bgs	--
Industrial Wastewater Treatment Area Buffer	0 - 6' bgs	--
	0 - 15' bgs	selenium, PCBs
West Discharge Ravine	0 - 6' bgs	PCBs
	0 - 15' bgs	PCBs
South Discharge Ravine	0 - 6' bgs	PCBs
	0 - 15' bgs	PCBs

Notes:
-- = no EIHS identified
EIHS = Ecological Indicator Hazardous Substance
bgs = gelow ground surface
PCBs = Polychlorinated Biphenyls
' = feet

Table 11-3. Endpoints for the Site-Specific Terrestrial Ecological Evaluation

Assessment Endpoint	Measurement Endpoint
Maintain survival and reproductive success of birds	Compare concentrations of ecological indicator hazardous substances in soil to: a) site-specific indicator soil concentrations for the robin b) soil background concentrations
Maintain survival and reproductive success of mammals	Compare concentrations of ecological indicator hazardous substances in soil to: a) site-specific indicator soil concentrations for the shrew and vole b) soil background concentrations

Table 11-4. Wildlife Exposure Parameter Values

Species	Proportion of Contaminated Food in Diet (unitless) (P_h)	Food Ingestion Rate (kg DW/kg body weight-day) (FIR_h)	Soil Ingestion Rate (kg DW/kg body weight-day) (SIR_h)	Home Range (acres)
Shrew	0.5	0.209	0.00627	0.1
Vole	1.0	0.0875	0.0028	0.08
Robin	0.52	0.207	0.0215	0.6

Notes:
Highlighted parameter values are modified from the default values from MTCA (Table 749-4) as explained in Section 11.3.2.
DW – dry weight
kg – kilogram

Table 11-5. Wildlife Toxicity Reference Values[a]

Constituent	Toxicity Value (mg/kg/day)		
	Shrew	Vole	Robin
Arsenic III	1.89	1.15	--
Arsenic V	35	35	22
Chromium	35.2	29.6	5
Lead	20	20	11.3
Selenium	0.725	0.55	1
Total diesel/fuel oil	--	--	--
PCB mixtures	0.668	0.51	1.8

Notes:

[a] Toxicity values from MTCA Table 749-5.

"--" toxicity value not provided in MTCA Table 749-5.

Ecology (2000) indicates the toxicity values for diesel are 1,260 mg/kg/day for mammals and 1,000 mg/kg/day for birds.

Table 11-6. Site-Specific Evaluation of Polychlorinated Biphenyls at the Industrial Wastewater Treatment Area Buffer Site

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	EPC[1]	Distribution Type[2]	Site-specific ISC_{shrew}[3]	Site-specific ISC_{robin}[3]	Site-specific ISC_{vole}[3]
0 - 15 feet											
Aroclor 1248	6	33	9.90E-03 - 2.00E-01	7.20E-02	5.50E-01	1.23E-01	5.50E-01	Lognormal	3.04E+01	4.78E+01	1.17E+02
Aroclor 1254	6	33	9.90E-03 - 2.00E-01	7.60E-02	3.50E-01	9.02E-02	3.50E-01	Lognormal	3.04E+01	4.78E+01	1.17E+02
Aroclor 1260	6	0	9.90E-03 - 2.00E-01	--	--	--	--	--	--	--	--
Aroclor 1262	1	0	2.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--
Aroclor 1268	1	0	2.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--
Total PCBs	6	33	9.90E-03 - 2.00E-01	1.48E-01	9.00E-01	1.94E-01	9.00E-01	Lognormal	3.04E+01	4.78E+01	1.17E+02

Notes:

EPC = Exposure point concentration

ISC - Indicator soil concentration

PCBs = Polychlorinated Biphenyls

[1] EPCs were calculated using a series of decision rules: (1) Use the 95% Upper Confidence Limit (UCL) if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[2] The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[3] Site-specific ISC from Appendix K.

Table 11-7. Site-Specific Evaluation of Polychlorinated Biphenyls at the Western Discharge Ravine Site

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	EPC[1]	Distribution Type[2]	Site-specific ISC_{shrew}[3]	Site-specific ISC_{robin}[3]	Site-specific ISC_{vole}[3]
0 - 6 feet											
Aroclor 1248	29	79	9.70E-03 - 9.90E-02	1.50E-02	7.20E+01	1.15E+01	7.20E+01	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1254	29	28	8.20E-03 - 1.00E+00	6.40E-03	1.20E+00	2.86E-01	1.20E+00	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1260	29	0	8.20E-03 - 1.00E+00	--	--	--	--	--	--	--	--
Total PCBs	29	100	--	6.40E-03	7.20E+01	1.16E+01	7.20E+01	Unknown	3.04E+01	4.78E+01	1.17E+02
0 - 15 feet											
Aroclor 1248	89	90	9.50E-03 - 9.90E-02	1.00E-02	7.20E+01	6.75E+00	6.78E+01	Lognormal	3.04E+01	4.78E+01	1.17E+02
Aroclor 1254	89	16	5.50E-03 - 1.00E+00	6.40E-03	9.60E+00	3.39E-01	1.00E+00	Lognormal	3.04E+01	4.78E+01	1.17E+02
Aroclor 1260	89	0	5.50E-03 - 1.00E+00	--	--	--	--	--	--	--	--
Total PCBs	89	100	--	6.40E-03	7.20E+01	6.95E+00	3.80E+01	Lognormal	3.04E+01	4.78E+01	1.17E+02

Notes:

EPC = Exposure point concentration

ISC - Indicator soil concentration

Biphenyls

Shaded cells indicate constituents with EPCs above ISCs

[1] EPCs were calculated using a series of decision rules: (1) Use the 95% Upper Confidence Limit (UCL) if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[2] The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[3] Site-specific ISC from Appendix K.

Table 11-8. Site-Specific Evaluation of Polychlorinated Biphenyls at the South Discharge Ravine Site

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	EPC[1]	Distribution Type[2]	Site-specific ISC_{shrew}[3]	Site-specific ISC_{robin}[3]	Site-specific ISC_{vole}[3]
0 - 6 Feet											
Aroclor 1248	38	29	9.90E-03 - 1.00E-02	1.30E-01	7.10E+01	2.56E+00	2.57E+01	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1254	38	34	9.90E-03 - 1.30E+00	3.50E-03	3.50E+00	3.90E-01	2.29E+00	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1260	38	42	9.90E-03 - 1.30E+00	2.40E-03	1.20E+00	1.58E-01	6.36E-01	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1262	29	14	9.90E-03 - 1.30E+00	1.90E-02	5.20E-01	5.80E-02	8.07E-02	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1268	29	0	9.90E-03 - 1.30E+00	--	--	--	--	--	--	--	--
Total PCBs	38	61	9.90E-03 - 1.00E-02	3.30E-03	7.10E+01	3.08E+00	7.10E+01	Unknown	3.04E+01	4.78E+01	1.17E+02
0 - 15 Feet											
Aroclor 1248	39	28	9.90E-03 - 1.00E-02	1.30E-01	7.10E+01	2.50E+00	2.11E+01	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1254	39	33	9.90E-03 - 1.30E+00	3.50E-03	3.50E+00	3.80E-01	2.01E+00	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1260	39	41	9.90E-03 - 1.30E+00	2.40E-03	1.20E+00	1.54E-01	5.72E-01	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1262	29	14	9.90E-03 - 1.30E+00	1.90E-02	5.20E-01	5.80E-02	8.07E-02	Unknown	3.04E+01	4.78E+01	1.17E+02
Aroclor 1268	29	0	9.90E-03 - 1.30E+00	--	--	--	--	--	--	--	--
Total PCBs	39	59	9.90E-03 - 1.00E-02	3.30E-03	7.10E+01	3.00E+00	7.10E+01	Unknown	3.04E+01	4.78E+01	1.17E+02

Notes:

EPC = Exposure point concentration

ISC - Indicator soil concentration

Biphenyls

Shaded cells indicate constituents with EPCs above ISCs

[1] EPCs were calculated using a series of decision rules: (1) Use the 95% Upper Confidence Limit (UCL) if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[2] The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[3] Site-specific ISC from Appendix K.

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Figures

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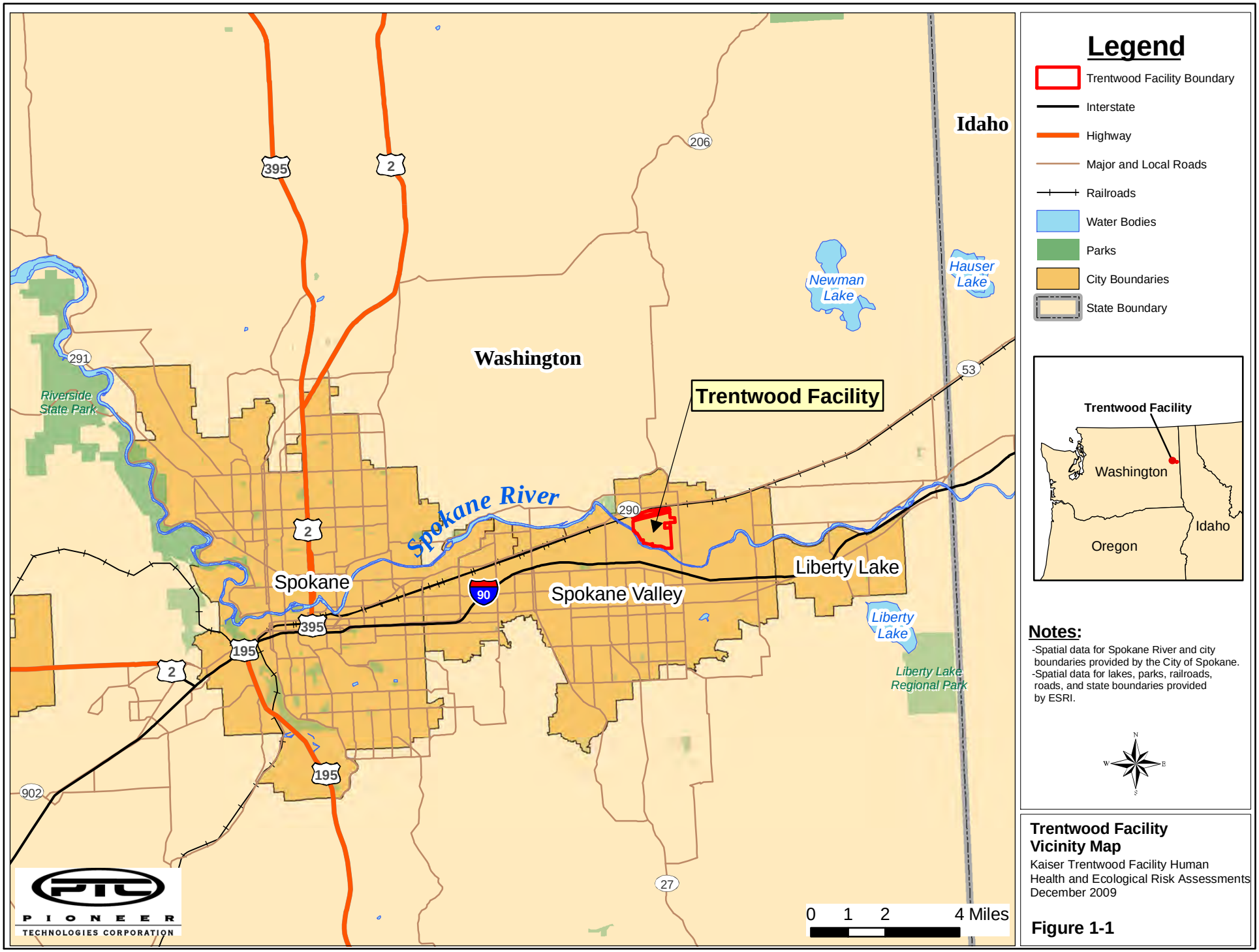
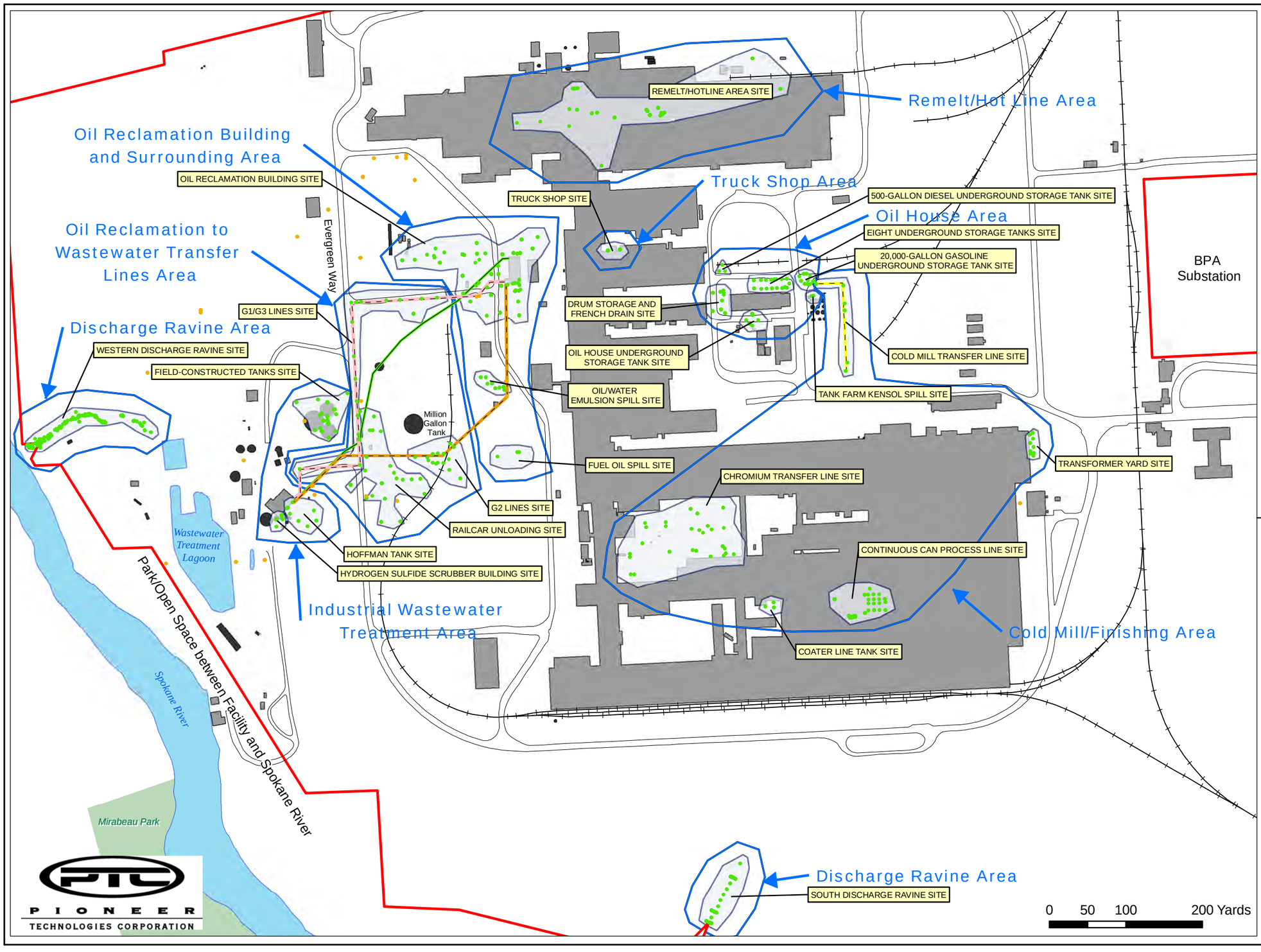
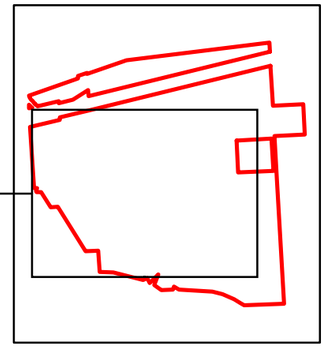

Legend
Trentwood Facility Boundary
Interstate
Highway
Major and Local Roads
Railroads
Water Bodies
Parks
City Boundaries
State Boundary
Idaho
Washington
Trentwood Facility
Spokane River
Spokane
Spokane Valley
Liberty Lake
Newman Lake
Hauser Lake
Riverside State Park
Liberty Lake Regional Park
Trentwood Facility
Washington
Idaho
Oregon
Notes:
-Spatial data for Spokane River and city boundaries provided by the City of Spokane.
-Spatial data for lakes, parks, railroads, roads, and state boundaries provided by ESRI.
0 1 2 4 Miles
PIONEER TECHNOLOGIES CORPORATION
Trentwood Facility Vicinity Map
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009
Figure 1-1



PIONEER TECHNOLOGIES CORPORATION

Legend

- Buffer Area Sample Locations
- Sample Locations
- Roads
- RailRoad
- G1 Transfer Line
- G2 Transfer Lines
- G3 Transfer Lines
- Cold Mill Transfer Line
- Trentwood Facility Boundary
- Area Boundaries
- Sites
- Parks
- Water Bodies
- Buildings
- Tanks and Former Tanks



Notes:

-Bonneville Power Administration (BPA)
-Spokane River spatial data provided by the City of Spokane.
-Parks spatial data provided by ESRI.

N W E S

Areas and Sites at the Trentwood Facility

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 1-2

Oil Reclamation Building and Surrounding Area

OIL RECLAMATION BUILDING SITE

Oil Reclamation to Wastewater Transfer Lines Area

Discharge Ravine Area

WESTERN DISCHARGE RAVINE SITE

FIELD-CONSTRUCTED TANKS SITE

G1/G3 LINES SITE

Evergreen Way

REMELT/HOTLINE AREA SITE

Remelt/Hot Line Area

Truck Shop Area

TRUCK SHOP SITE

Oil House Area

500-GALLON DIESEL UNDERGROUND STORAGE TANK SITE

EIGHT UNDERGROUND STORAGE TANKS SITE

20,000-GALLON GASOLINE UNDERGROUND STORAGE TANK SITE

DRUM STORAGE AND FRENCH DRAIN SITE

OIL HOUSE UNDERGROUND STORAGE TANK SITE

COLD MILL TRANSFER LINE SITE

OIL/WATER EMULSION SPILL SITE

TANK FARM KENSOL SPILL SITE

Million Gallon Tank

FUEL OIL SPILL SITE

CHROMIUM TRANSFER LINE SITE

TRANSFORMER YARD SITE

BPA Substation

G2 LINES SITE

RAILCAR UNLOADING SITE

HOFFMAN TANK SITE

HYDROGEN SULFIDE SCRUBBER BUILDING SITE

Wastewater Treatment Lagoon

Industrial Wastewater Treatment Area

CONTINUOUS CAN PROCESS LINE SITE

Cold Mill/Finishing Area

COATER LINE TANK SITE

Park/Open Space between Facility and Spokane River

Spokane River

Mirabeau Park

Discharge Ravine Area

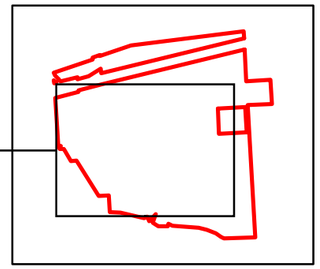
SOUTH DISCHARGE RAVINE SITE

0 50 100 200 Yards

PIONEER TECHNOLOGIES CORPORATION

Legend

- Buffer Area Sample Location with IHSs
- Buffer Area Sample Locations without IHSs
- Sample Locations
- Roads
- RailRoad
- G1 Transfer Line
- G2 Transfer Lines
- G3 Transfer Lines
- Cold Mill Transfer Line
- Trentwood Facility Boundary
- Area Boundaries
- HHRA Sites without IHSs
- HHRA Sites with IHSs
- Parks
- Water Bodies
- Buildings
- Tanks and Former Tanks



Notes:

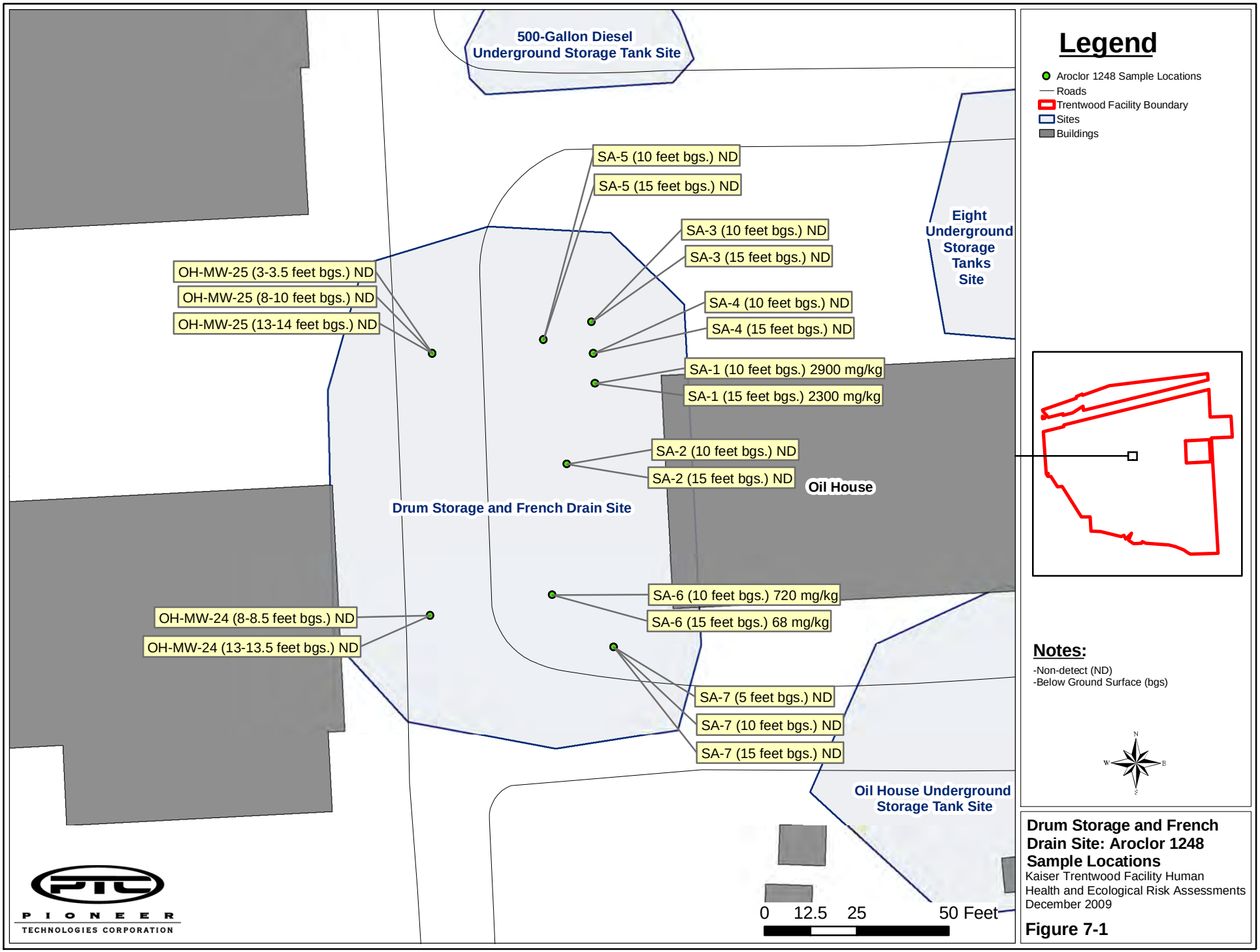
-Bonneville Power Administration (BPA)
-Human Health Risk Assessment (HHRA)
-Indicator Hazardous Substance (IHS)
-Spokane River spatial data provided by the City of Spokane.
-Parks spatial data provided by ESRI.

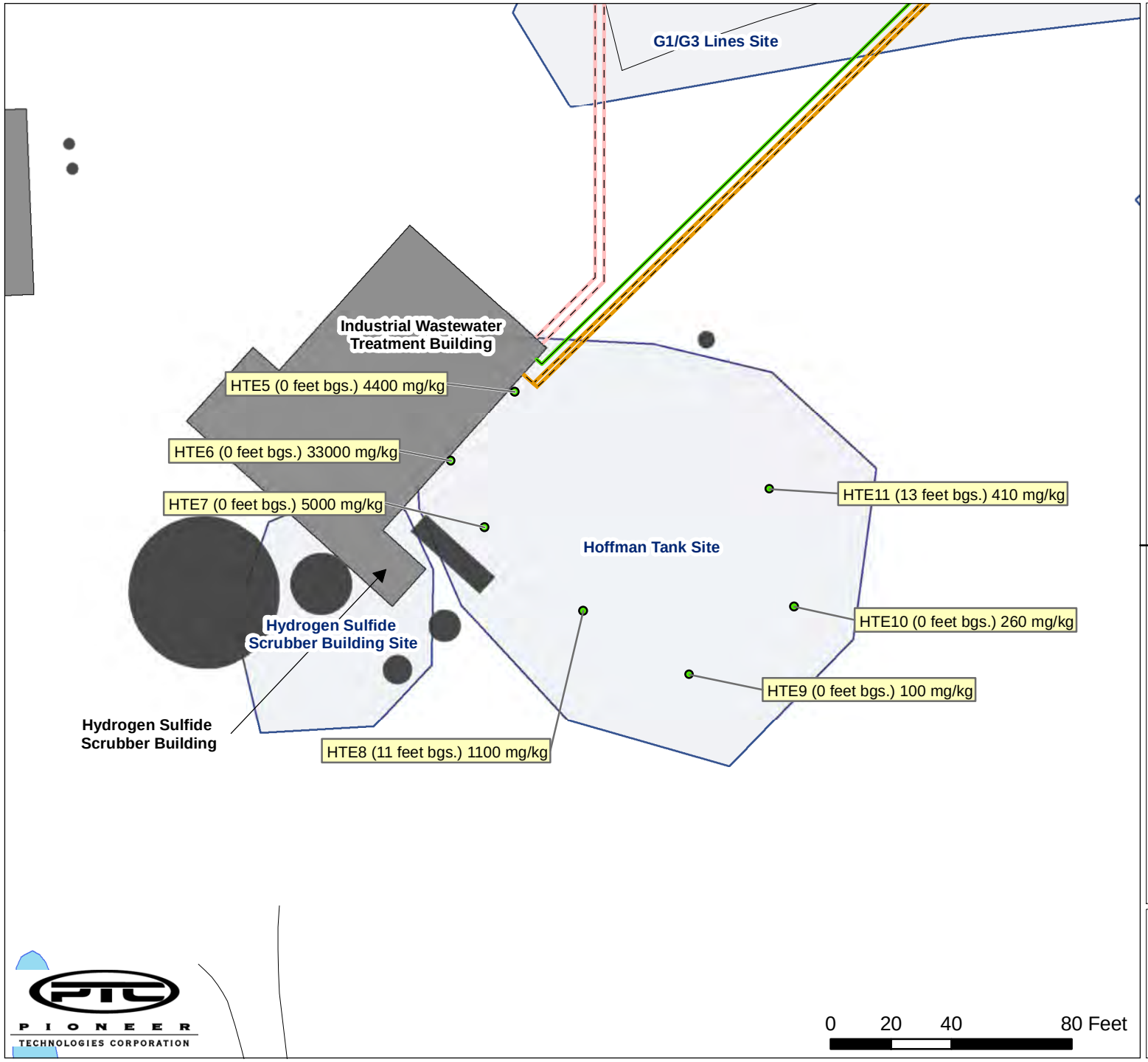
N W E S

Sites at the Trentwood Facility with Indicator Hazardous Substances

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

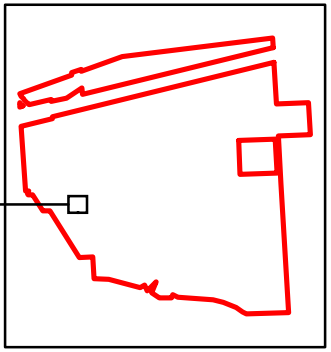
Figure 4-1


500-Gallon Diesel Underground Storage Tank Site
SA-5 (10 feet bgs.) ND
SA-5 (15 feet bgs.) ND
SA-3 (10 feet bgs.) ND
SA-3 (15 feet bgs.) ND
Eight Underground Storage Tanks Site
OH-MW-25 (3-3.5 feet bgs.) ND
OH-MW-25 (8-10 feet bgs.) ND
OH-MW-25 (13-14 feet bgs.) ND
SA-4 (10 feet bgs.) ND
SA-4 (15 feet bgs.) ND
SA-1 (10 feet bgs.) 2900 mg/kg
SA-1 (15 feet bgs.) 2300 mg/kg
SA-2 (10 feet bgs.) ND
SA-2 (15 feet bgs.) ND
Oil House
Drum Storage and French Drain Site
SA-6 (10 feet bgs.) 720 mg/kg
SA-6 (15 feet bgs.) 68 mg/kg
OH-MW-24 (8-8.5 feet bgs.) ND
OH-MW-24 (13-13.5 feet bgs.) ND
SA-7 (5 feet bgs.) ND
SA-7 (10 feet bgs.) ND
SA-7 (15 feet bgs.) ND
Oil House Underground Storage Tank Site
0 12.5 25 50 Feet
Legend
Aroclor 1248 Sample Locations
Roads
Trentwood Facility Boundary
Sites
Buildings
Notes:
-Non-detect (ND)
-Below Ground Surface (bgs)
N
W
E
S
PIONEER TECHNOLOGIES CORPORATION
Drum Storage and French Drain Site: Aroclor 1248 Sample Locations
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009
Figure 7-1



Legend

- Total Diesel/Fuel Oil Sample Locations
- Roads
- G1 Transfer Line
- G2 Transfer Lines
- G3 Transfer Lines
- Trentwood Facility Boundary
- Sites
- Water Bodies
- Buildings
- Tanks and Former Tanks



Notes:

-Below Ground Surface (bgs)

N W E S

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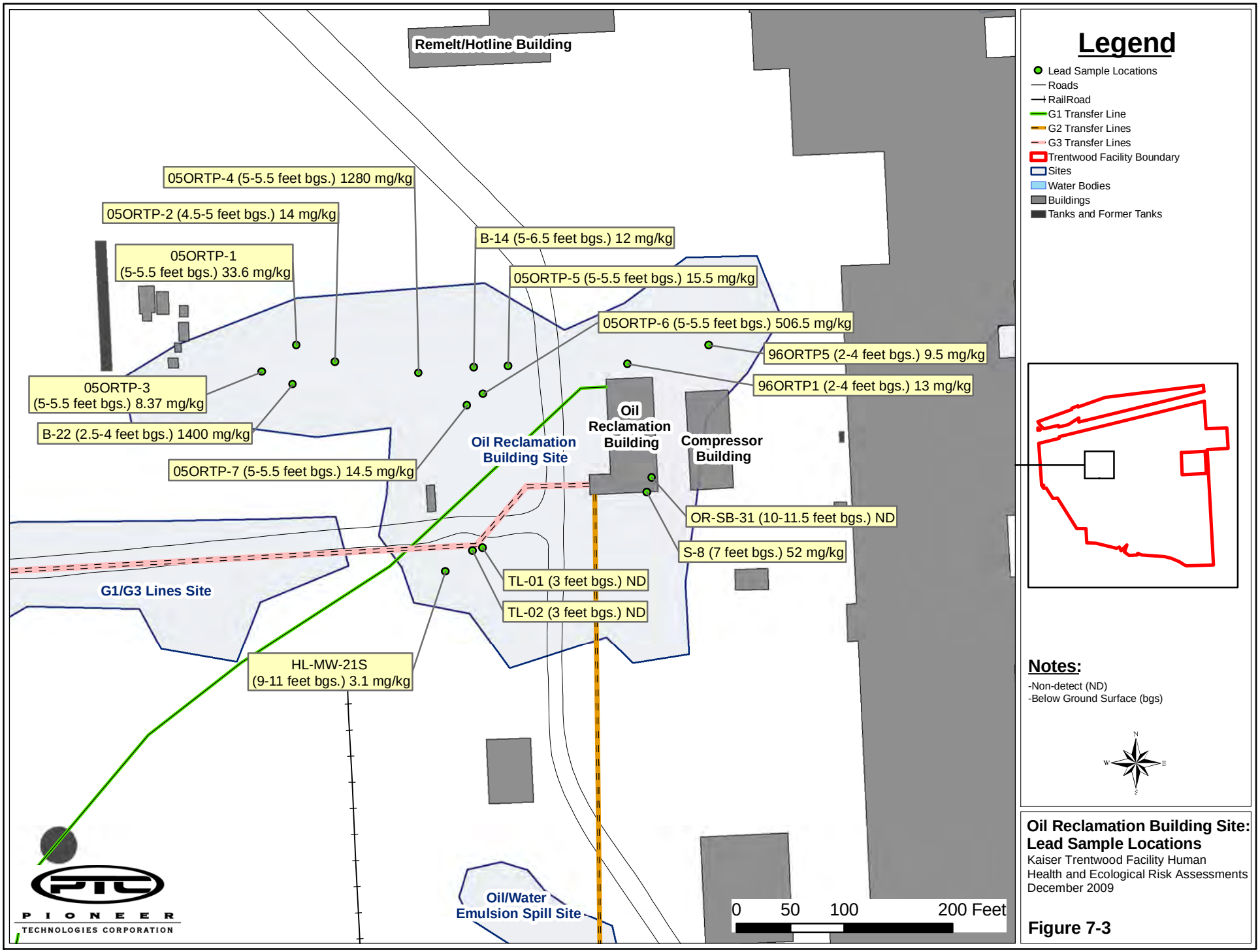
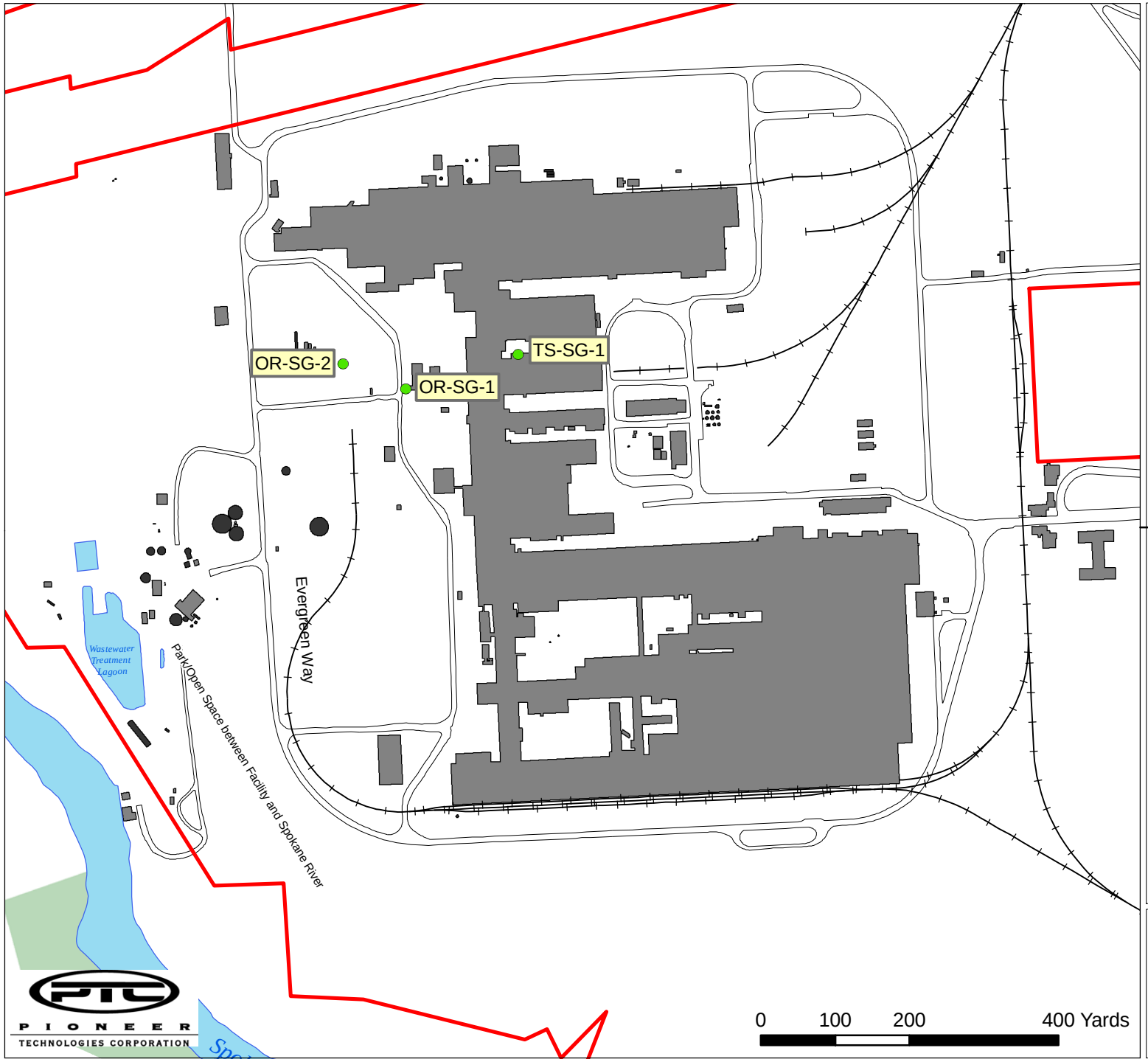
Hoffman Tank Site: Total Diesel/Fuel Oil Sample Locations

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

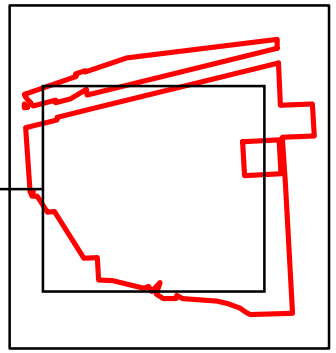
Figure 7-2


Remelt/Hotline Building
05ORTP-4 (5-5.5 feet bgs.) 1280 mg/kg
05ORTP-2 (4.5-5 feet bgs.) 14 mg/kg
05ORTP-1
(5-5.5 feet bgs.) 33.6 mg/kg
B-14 (5-6.5 feet bgs.) 12 mg/kg
05ORTP-5 (5-5.5 feet bgs.) 15.5 mg/kg
05ORTP-6 (5-5.5 feet bgs.) 506.5 mg/kg
96ORTP5 (2-4 feet bgs.) 9.5 mg/kg
96ORTP1 (2-4 feet bgs.) 13 mg/kg
05ORTP-3
(5-5.5 feet bgs.) 8.37 mg/kg
B-22 (2.5-4 feet bgs.) 1400 mg/kg
05ORTP-7 (5-5.5 feet bgs.) 14.5 mg/kg
Oil Reclamation Building Site
Oil Reclamation Building
Compressor Building
OR-SB-31 (10-11.5 feet bgs.) ND
S-8 (7 feet bgs.) 52 mg/kg
TL-01 (3 feet bgs.) ND
TL-02 (3 feet bgs.) ND
G1/G3 Lines Site
HL-MW-21S
(9-11 feet bgs.) 3.1 mg/kg
Oil/Water Emulsion Spill Site
0 50 100 200 Feet
Legend
Lead Sample Locations
Roads
RailRoad
G1 Transfer Line
G2 Transfer Lines
G3 Transfer Lines
Trentwood Facility Boundary
Sites
Water Bodies
Buildings
Tanks and Former Tanks
Notes:
-Non-detect (ND)
-Below Ground Surface (bgs)
N
W
E
S
PIONEER
TECHNOLOGIES CORPORATION
Oil Reclamation Building Site: Lead Sample Locations
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009
Figure 7-3



Legend

- Soil Gas Sample Locations
- Roads
- RailRoad
- Trentwood Facility Boundary
- Parks
- Water Bodies
- Buildings
- Tanks and Former Tanks



Notes:

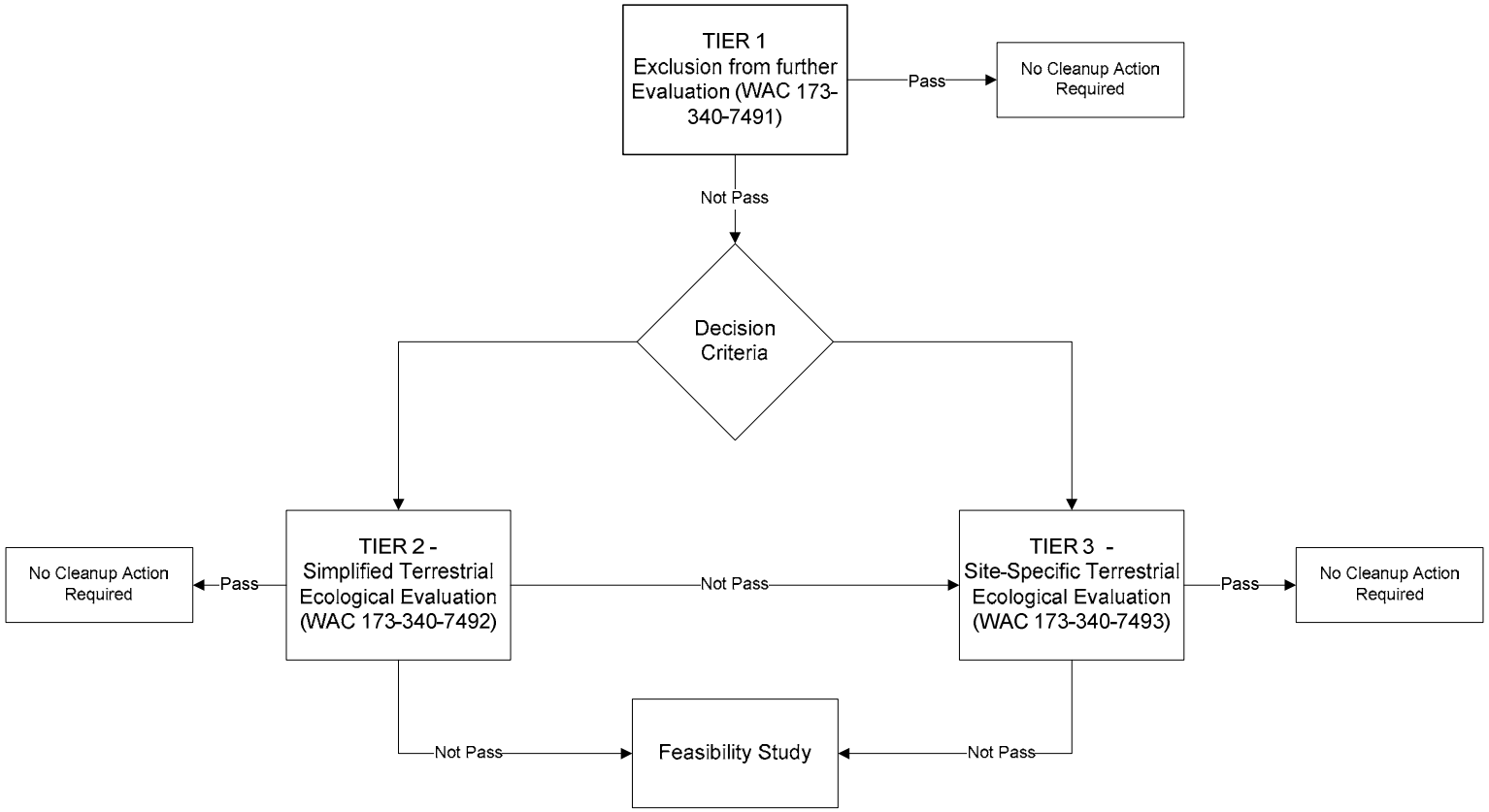
-Spokane River spatial data provided by the City of Spokane.
-Park spatial data provided by ESRI.

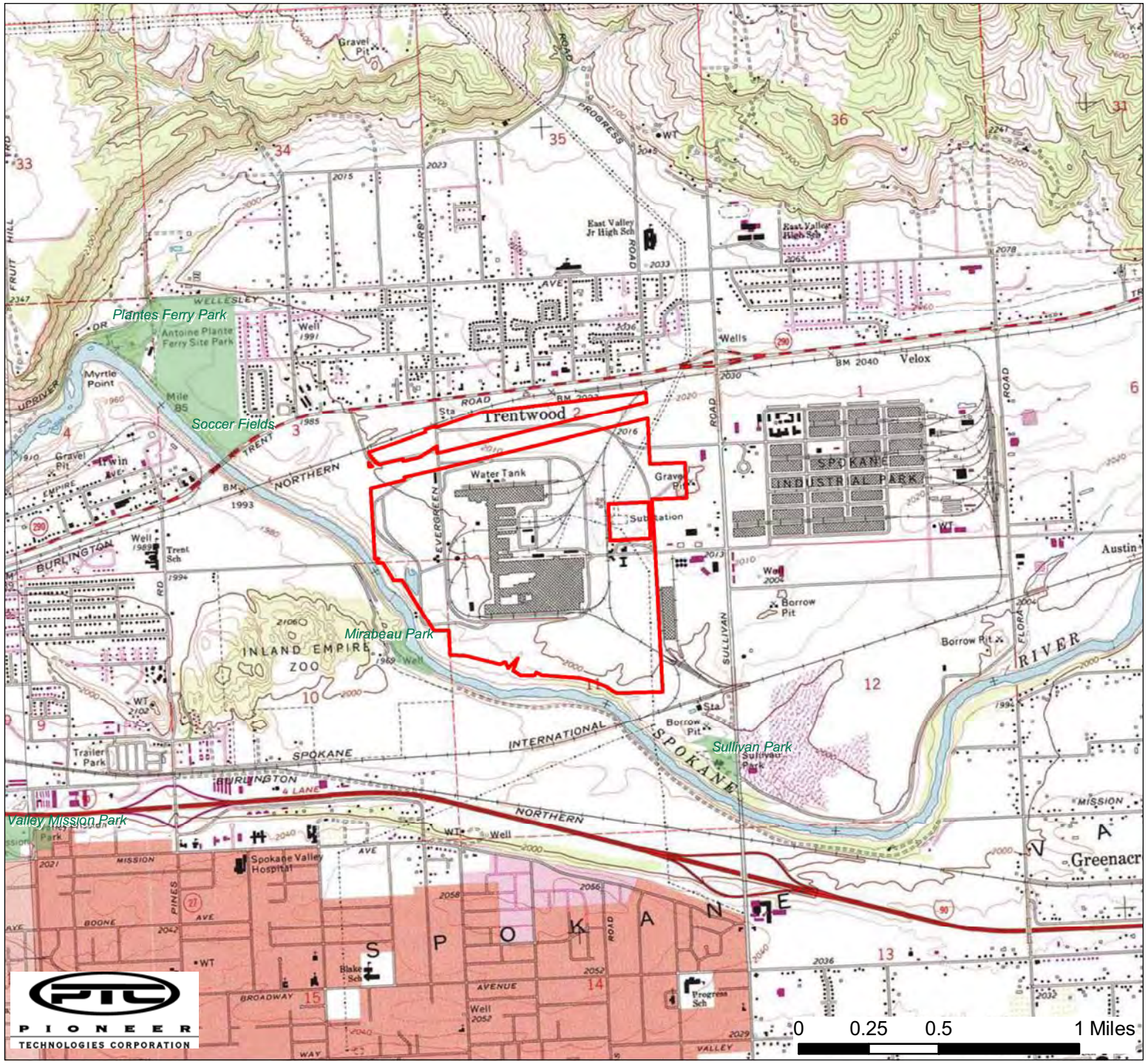
PIONEER TECHNOLOGIES CORPORATION

Soil Gas Sample Locations
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 7-4

Figure 8-1. MTCA Terrestrial Ecological Evaluation Framework





Legend

- Trentwood Facility Boundary
- Parks

Notes:

-Topographic map provided by United States Geological Survey (USGS).
-Parks spatial data provided by Environmenal Systems Research Institute (ESRI) .

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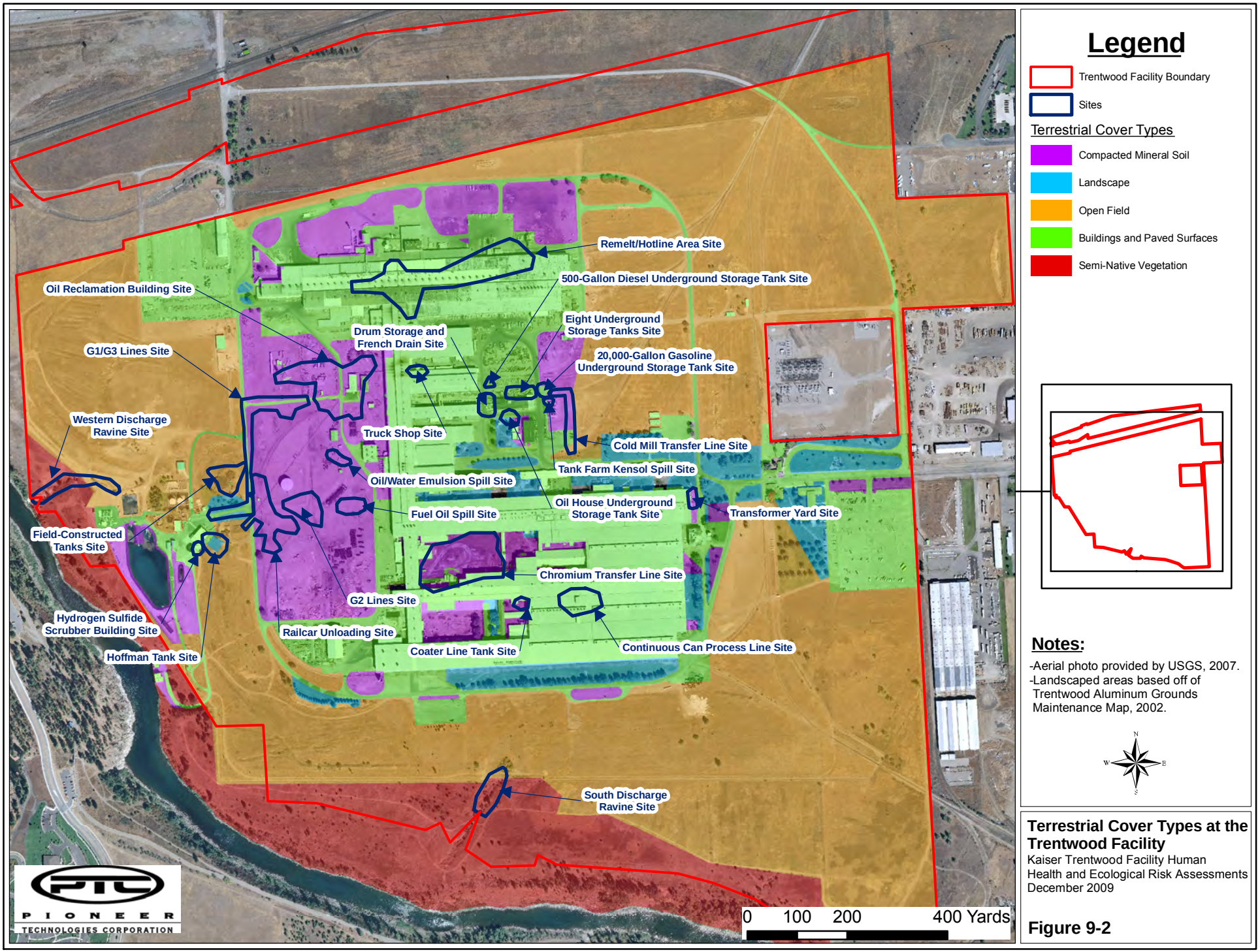
Trentwood Facility Topographical Map

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 9-1



Legend

- Trentwood Facility Boundary
- Sites

Terrestrial Cover Types

- Compacted Mineral Soil
- Landscape
- Open Field
- Buildings and Paved Surfaces
- Semi-Native Vegetation

Notes:

-Aerial photo provided by USGS, 2007.
-Landscaped areas based off of Trentwood Aluminum Grounds Maintenance Map, 2002.

Terrestrial Cover Types at the Trentwood Facility

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
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Figure 9-2

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Eight Underground Storage Tanks Site
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 9-3

PIONEER TECHNOLOGIES CORPORATION

Landscaping Near the Administration Building
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 9-4

PIONEER
TECHNOLOGIES CORPORATION

Landscaping South of the Cold Mill/Finishing Building
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
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Figure 9-5

PIONEER TECHNOLOGIES CORPORATION

Imported Gravel Cover Type Free of Vegetation West of the Oil Reclamation Building

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
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Figure 9-6

PIONEER TECHNOLOGIES CORPORATION

Compacted Mineral Soil Cover Type at the Chromium Transfer Line Site

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
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Figure 9-7

PIONEER TECHNOLOGIES CORPORATION

Open Field Cover Type North of the Field-Constructed Tanks Site

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
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Figure 9-8

PIONEER TECHNOLOGIES CORPORATION

Open Field Cover Type South of the Cold Mill Building
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 9-9

PIONEER TECHNOLOGIES CORPORATION

Semi-Native Vegetation Cover Type in South Discharge Ravine

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
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Figure 9-10

PIONEER TECHNOLOGIES CORPORATION

Semi-Native Vegetation Cover Type in West Discharge Ravine

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
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Figure 9-11

PIONEER TECHNOLOGIES CORPORATION

Anthropogenic Impacts to South Discharge Ravine

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
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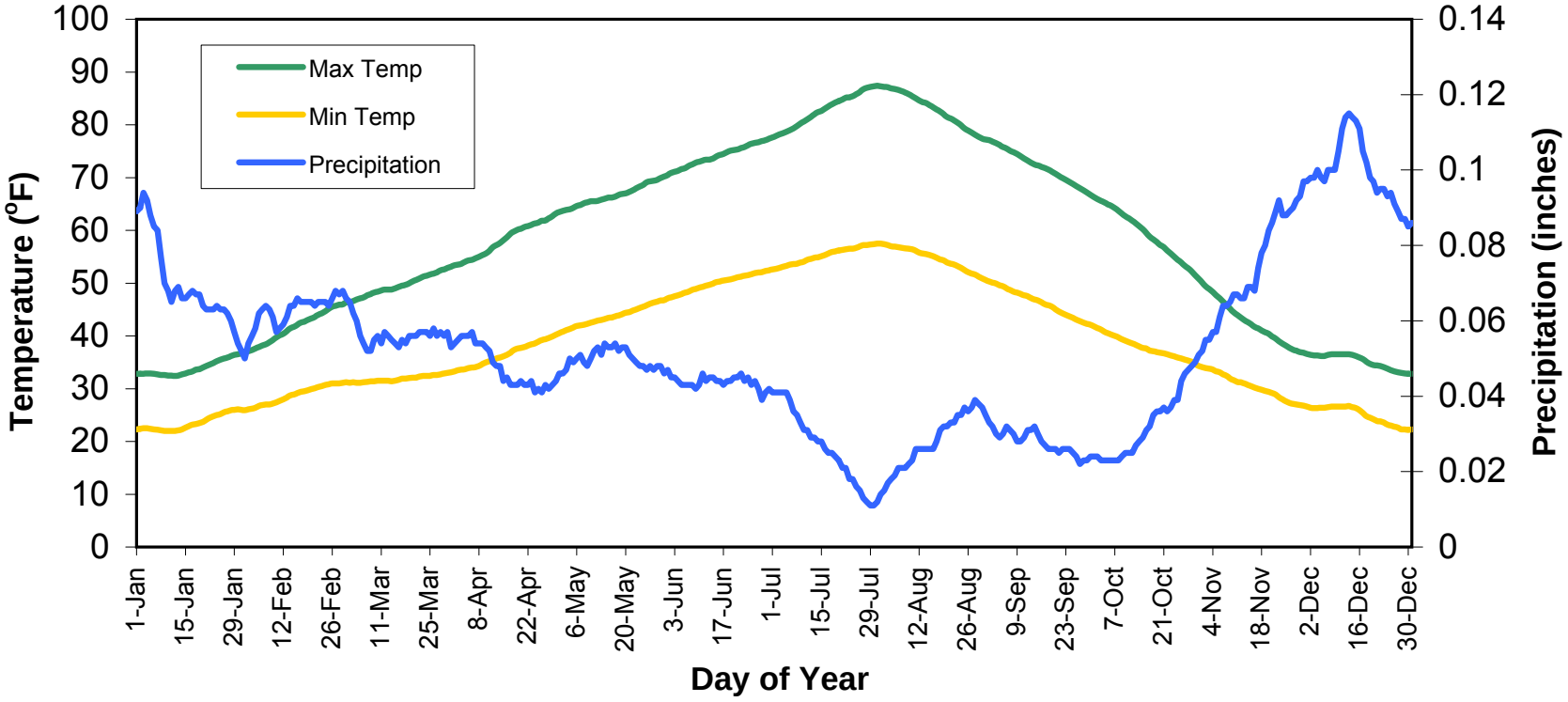
Figure 9-12

Figure 9-13. Daily Average Minimum/Maximum Temperature and Precipitation
Spokane, WA - Years 1971 to 2000



Source: Western Regional Center (Spokane Cooperative Station 457933) at http://wrcc.dri.edu/cgi-bin/cliMAIN.pl?wa7933

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Landscaping Covering the Hoffman Tank Site
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 10-1

PIONEER TECHNOLOGIES CORPORATION

Field-Constructed Tank Excavation

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 10-2

PIONEER TECHNOLOGIES CORPORATION

Railcar Unloading Site
2008 Excavation
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 10-3

PIONEER TECHNOLOGIES CORPORATION

Coater Line Tank Site
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 10-4

PIONEER TECHNOLOGIES CORPORATION

Transformer Yard Site
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 10-5

PIONEER
TECHNOLOGIES CORPORATION

Oil House Underground Storage Tank Site
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 10-6

PIONEER TECHNOLOGIES CORPORATION

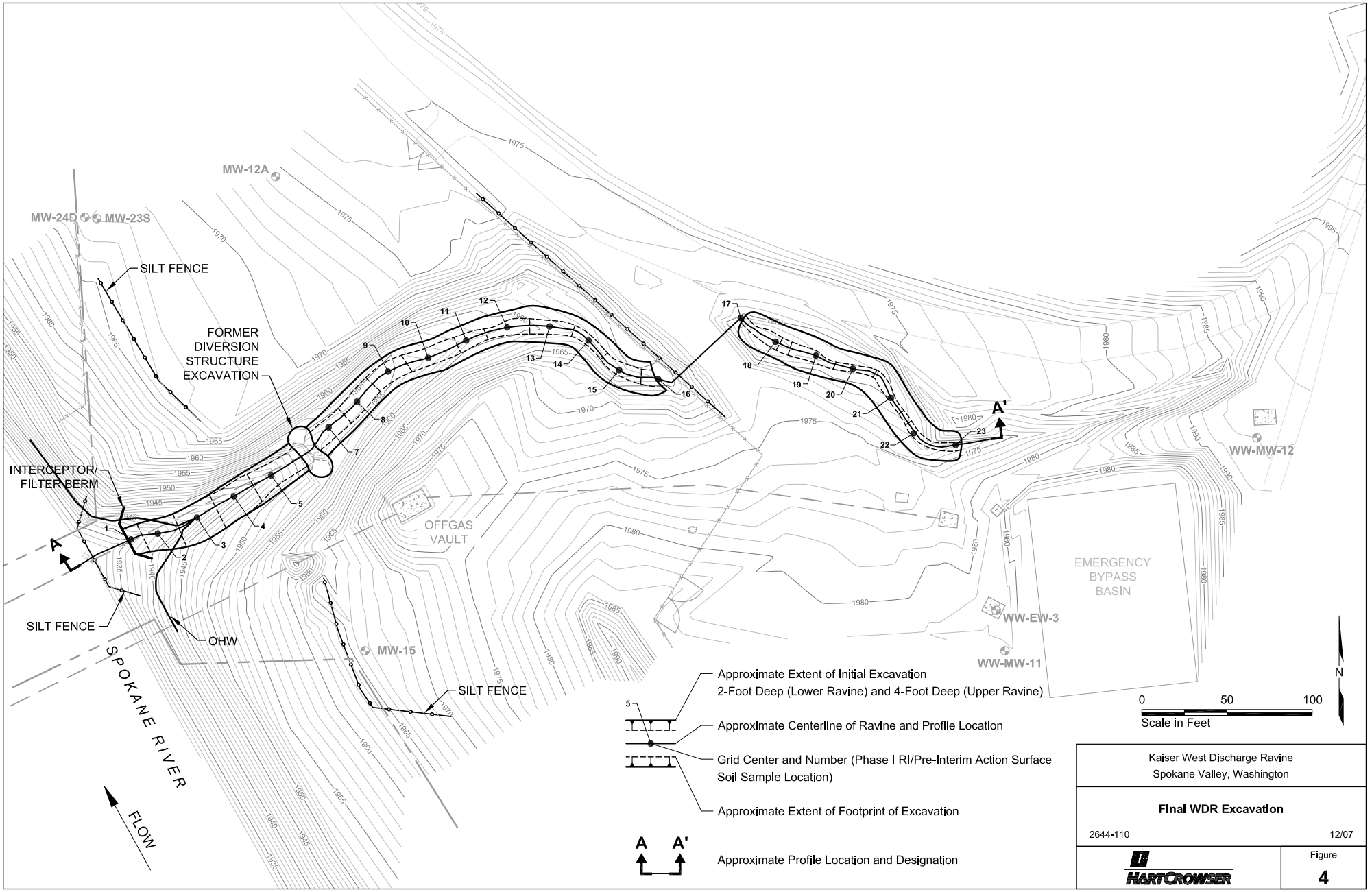
500-Gallon Diesel Underground Storage Tank Site

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 10-7

PIONEER TECHNOLOGIES CORPORATION

Figure 10-8. Final Western Discharge Ravine Excavation



Kaiser West Discharge Ravine
Spokane Valley, Washington

Final WDR Excavation

2644-110 12/07

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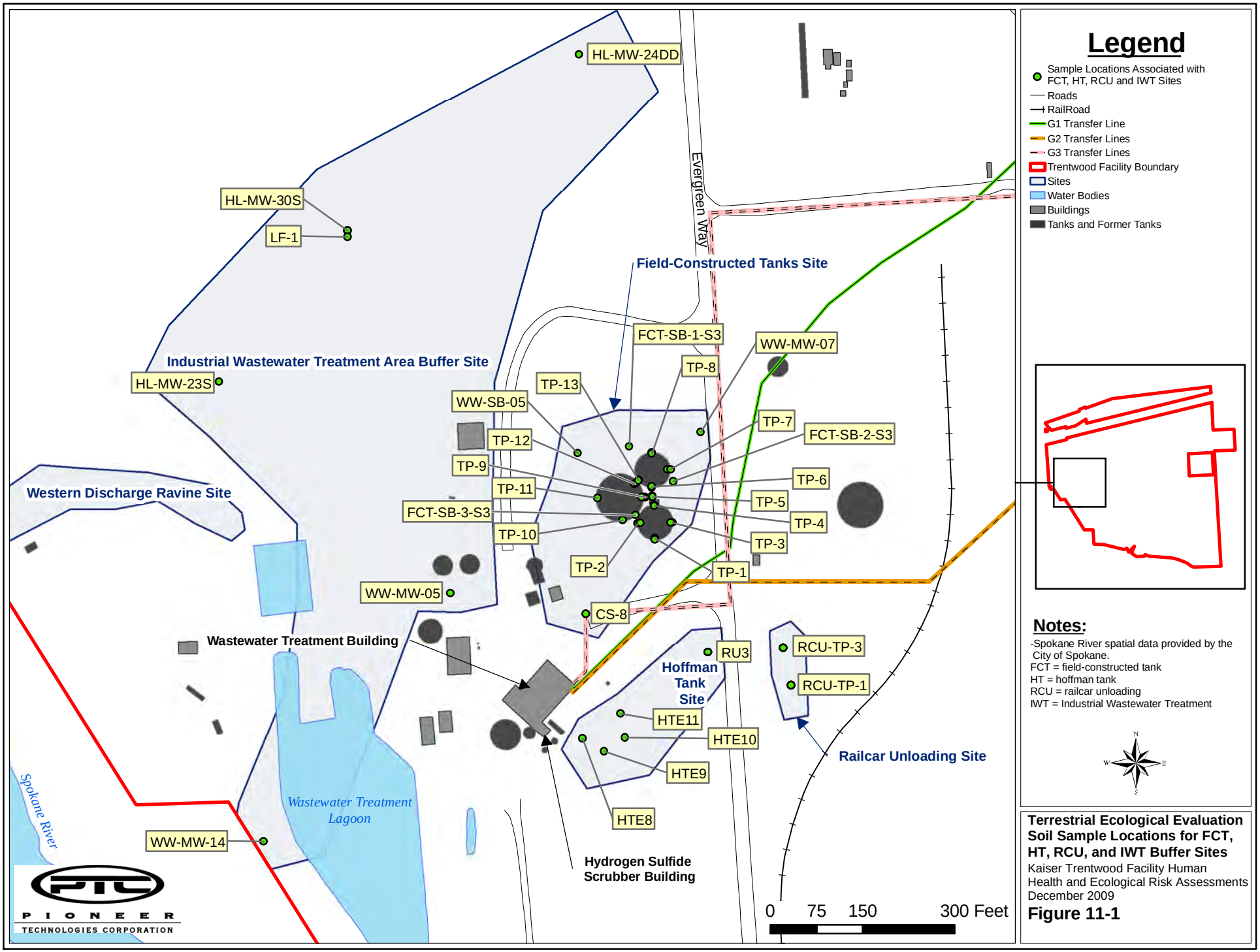
Figure 4

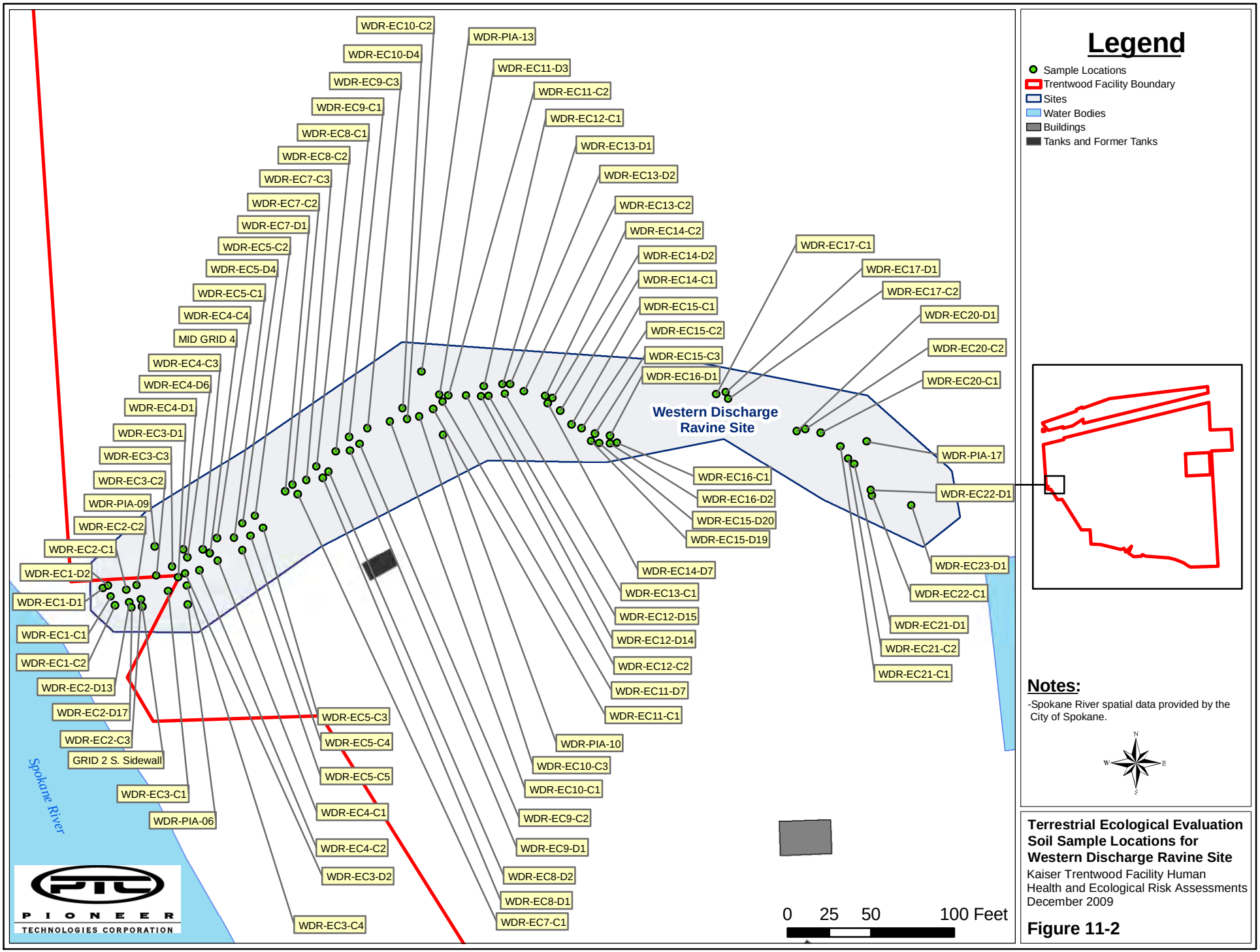
EAL 12/11/07 2644110-018.dwg



Terrestrial Ecological Evaluation Soil Sample Locations for FCT, HT, RCU, and IWT Buffer Sites

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 11-1



Legend

- Sample Locations
- Trentwood Facility Boundary
- Sites
- Water Bodies
- Buildings
- Tanks and Former Tanks

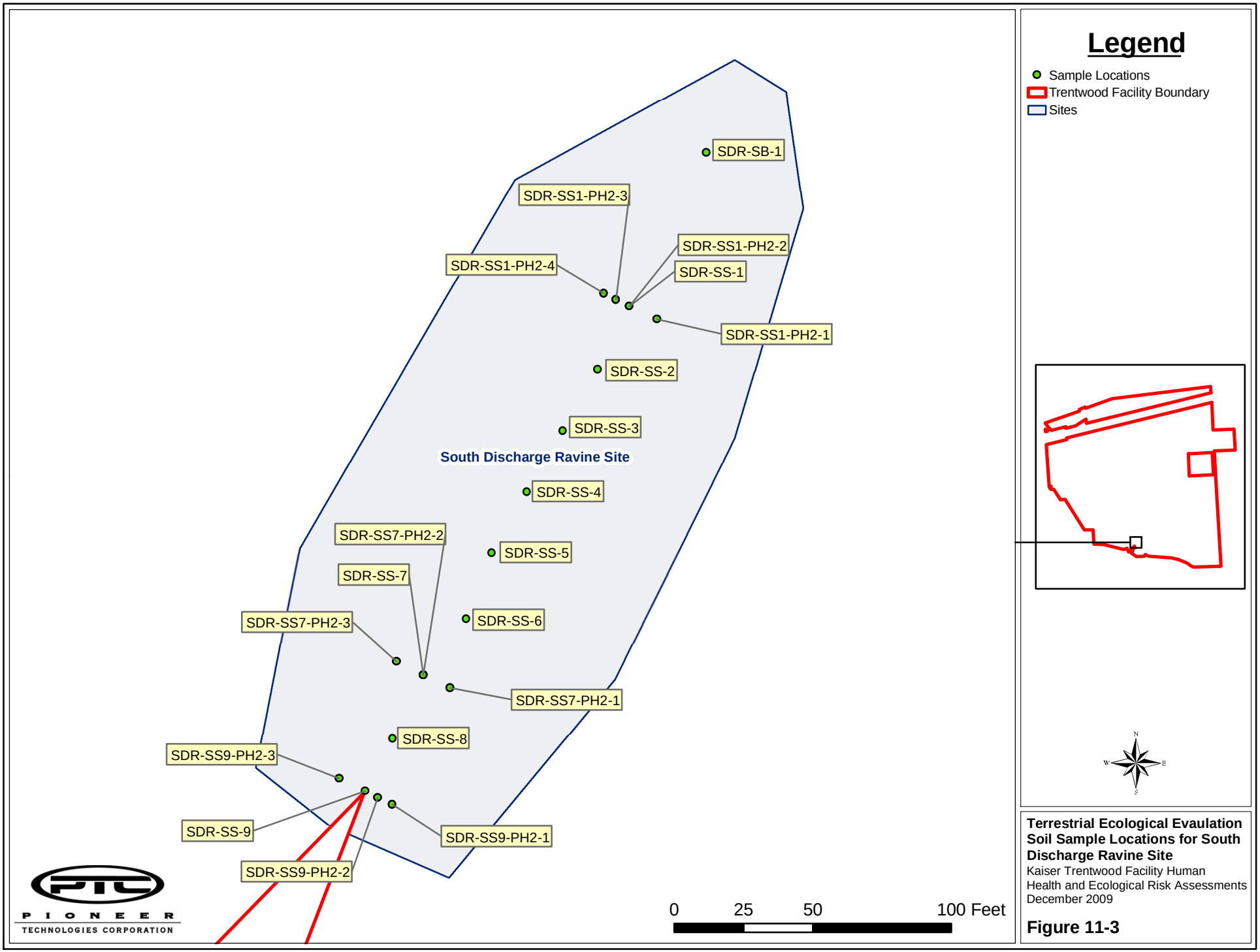
Notes:

-Spokane River spatial data provided by the City of Spokane.

Terrestrial Ecological Evaluation Soil Sample Locations for Western Discharge Ravine Site

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 11-2


Legend
Sample Locations
Trentwood Facility Boundary
Sites
SDR-SB-1
SDR-SS1-PH2-3
SDR-SS1-PH2-2
SDR-SS1-PH2-4
SDR-SS-1
SDR-SS1-PH2-1
SDR-SS-2
SDR-SS-3
South Discharge Ravine Site
SDR-SS-4
SDR-SS7-PH2-2
SDR-SS-5
SDR-SS-7
SDR-SS7-PH2-3
SDR-SS-6
SDR-SS7-PH2-1
SDR-SS-8
SDR-SS9-PH2-3
SDR-SS-9
SDR-SS9-PH2-1
SDR-SS9-PH2-2
0
25
50
100 Feet
PIONEER
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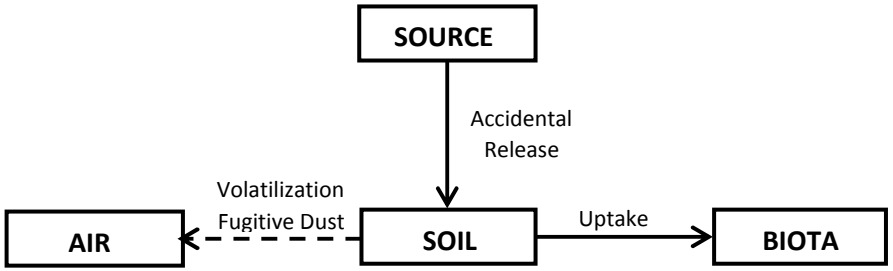
Terrestrial Ecological Evaulation
Soil Sample Locations for South Discharge Ravine Site
Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009
Figure 11-3

Figure 11-4. Ecological Conceptual Site Model for Terrestrial Sites at the Trentwood Facility



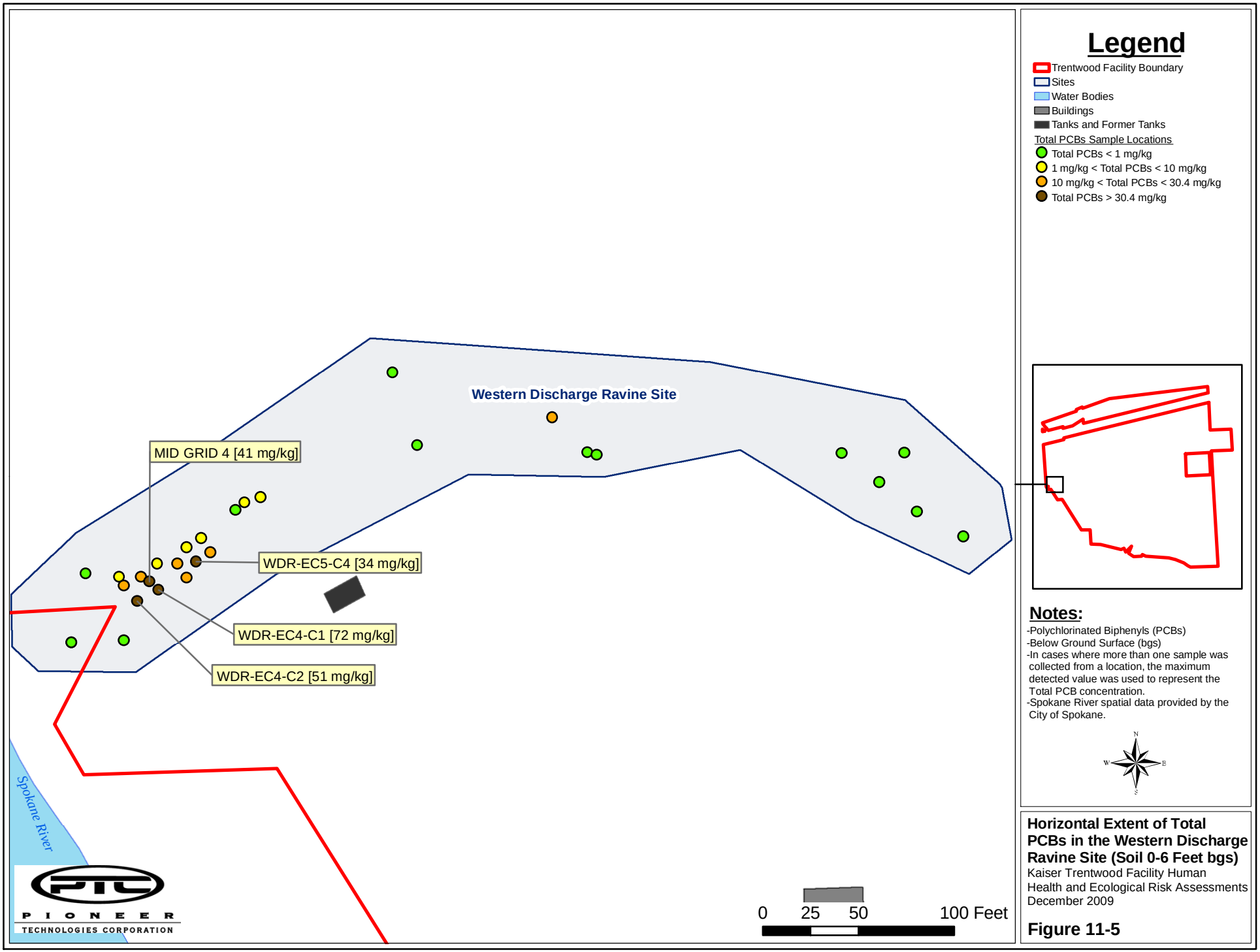
Receptor	Exposure Route	AIR	SOIL	BIOTA
Birds and Mammals	Inhalation	○	--	--
	Ingestion	--	●	●
	Dermal	--	○	--

Complete pathway

Incomplete or minor pathway

● Exposure route complete, quantitatively evaluated

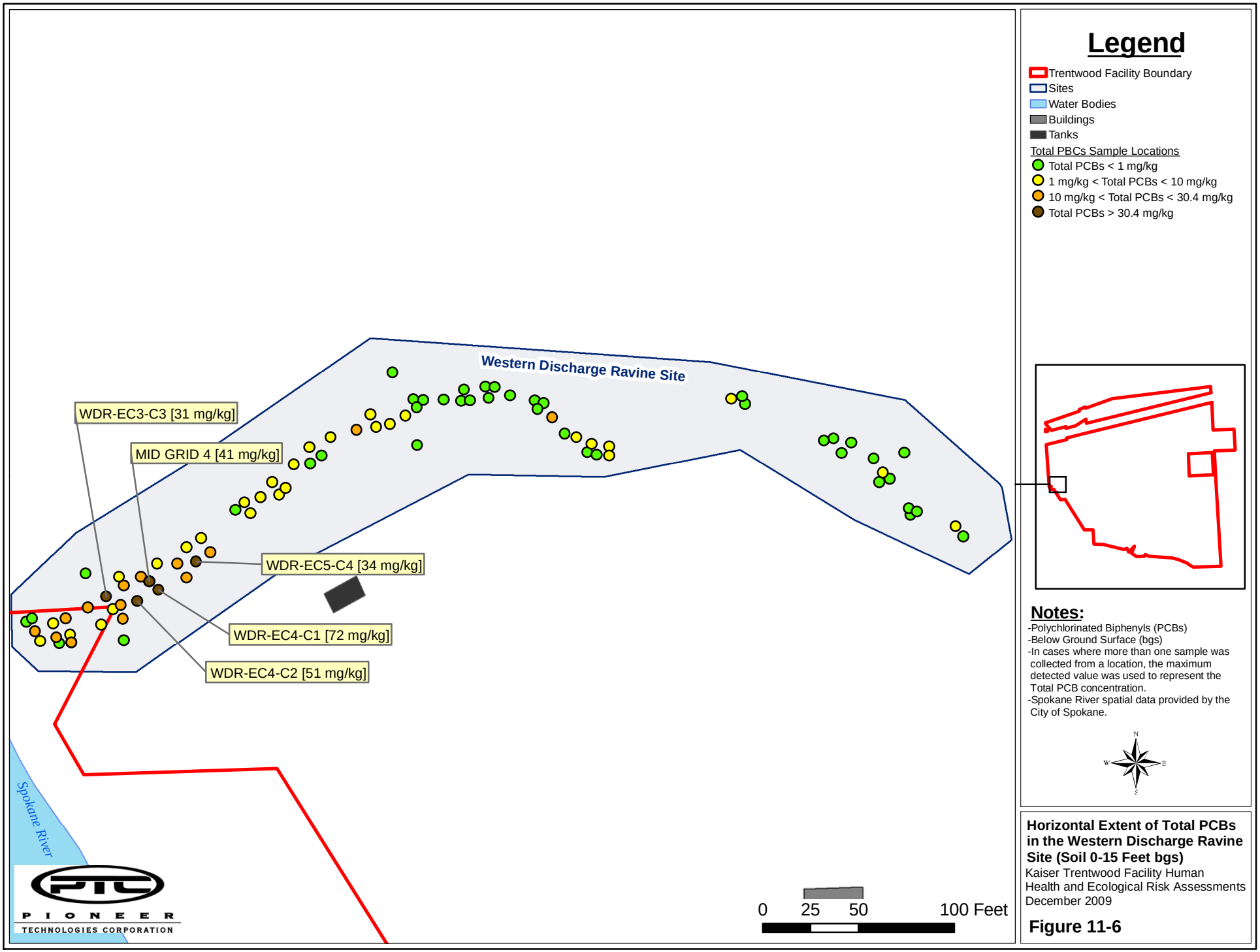
○ Exposure route incomplete or minor, not quantitatively evaluated



Horizontal Extent of Total PCBs in the Western Discharge Ravine Site (Soil 0-6 Feet bgs)

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 11-5



Legend

- Trentwood Facility Boundary
- Sites
- Water Bodies
- Buildings
- Tanks

Total PBCs Sample Locations

- Total PCBs < 1 mg/kg
- 1 mg/kg < Total PCBs < 10 mg/kg
- 10 mg/kg < Total PCBs < 30.4 mg/kg
- Total PCBs > 30.4 mg/kg

Notes:

-Polychlorinated Biphenyls (PCBs)
-Below Ground Surface (bgs)
-In cases where more than one sample was collected from a location, the maximum detected value was used to represent the Total PCB concentration.
-Spokane River spatial data provided by the City of Spokane.

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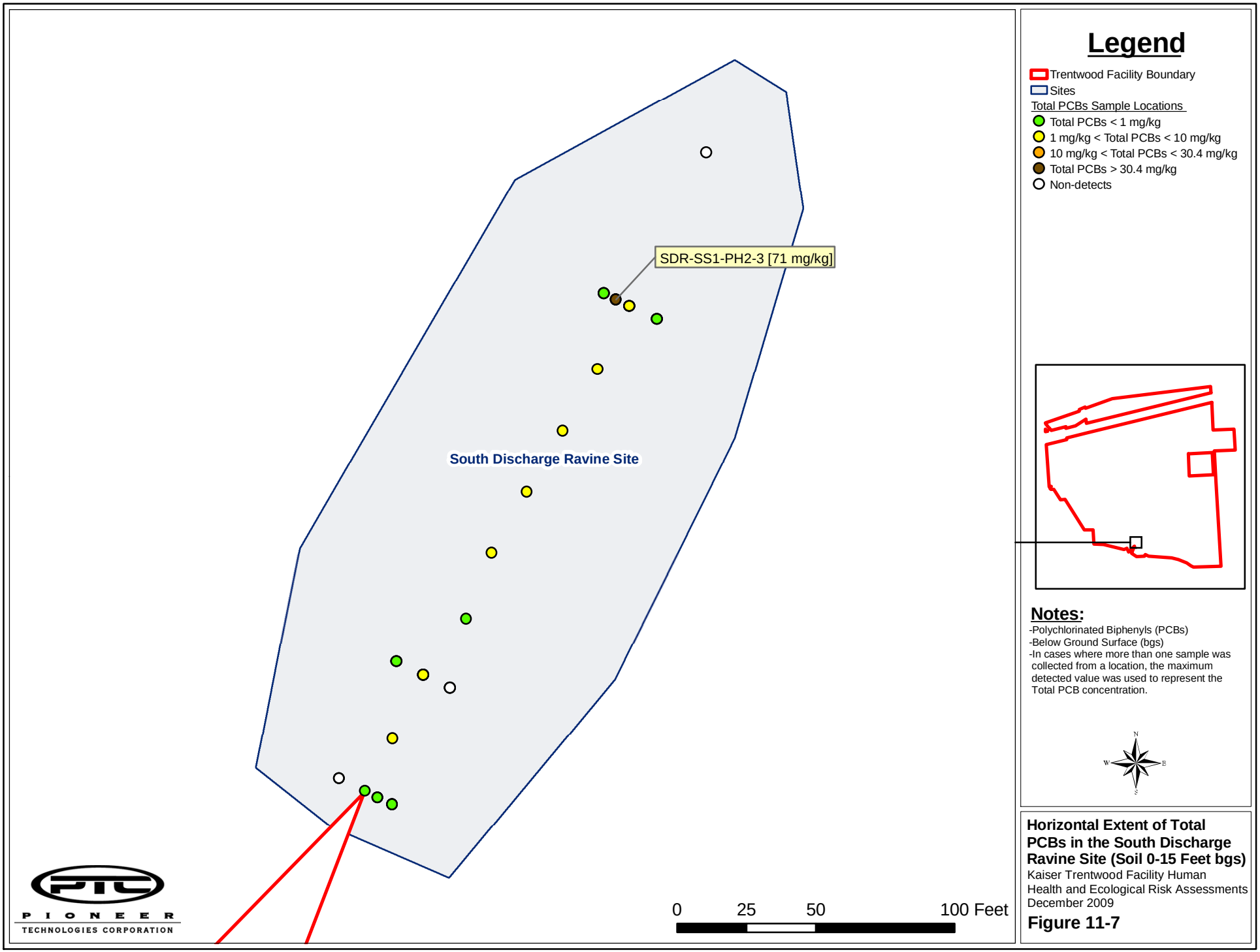
Horizontal Extent of Total PCBs in the Western Discharge Ravine Site (Soil 0-15 Feet bgs)

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 11-6



Legend

- Trentwood Facility Boundary
- Sites

Total PCBs Sample Locations

- Total PCBs < 1 mg/kg
- 1 mg/kg < Total PCBs < 10 mg/kg
- 10 mg/kg < Total PCBs < 30.4 mg/kg
- Total PCBs > 30.4 mg/kg
- Non-detects

Notes:

-Polychlorinated Biphenyls (PCBs)
-Below Ground Surface (bgs)
-In cases where more than one sample was collected from a location, the maximum detected value was used to represent the Total PCB concentration.

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Horizontal Extent of Total PCBs in the South Discharge Ravine Site (Soil 0-15 Feet bgs)

Kaiser Trentwood Facility Human Health and Ecological Risk Assessments
December 2009

Figure 11-7

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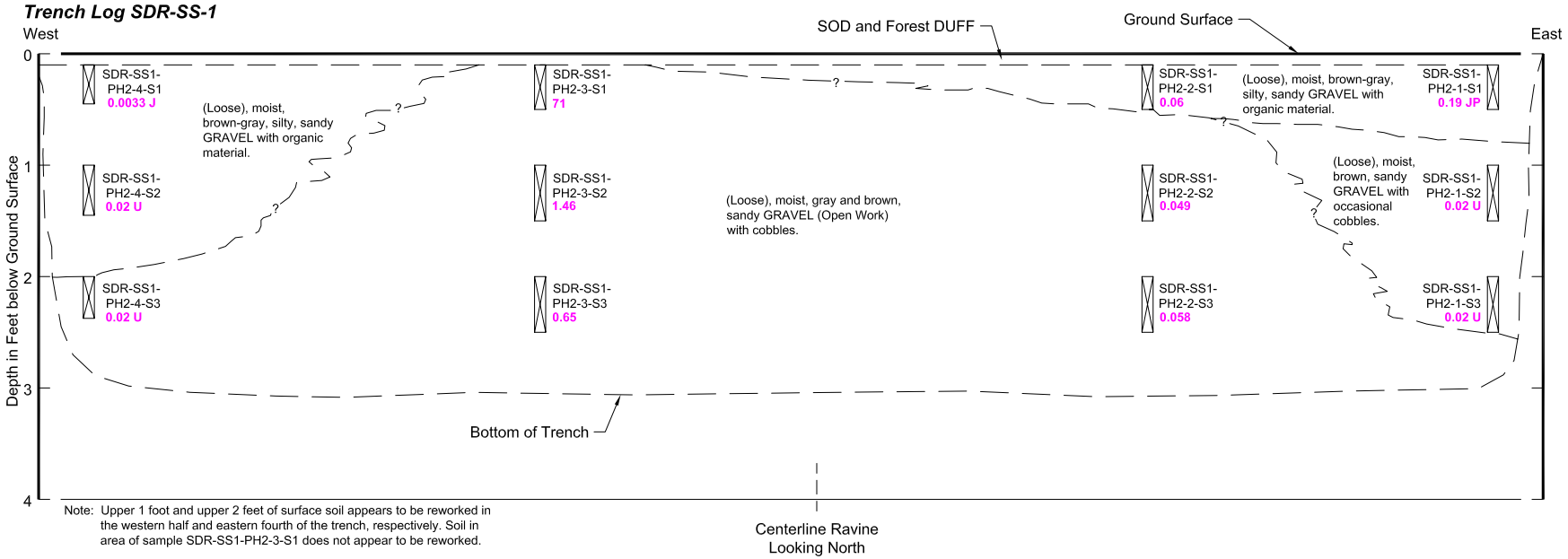
Figure 11-8. Vertical Extent of Total PCBs in Test Pit SDR-SS1 and SDR-SS7 in the South Discharge Ravine

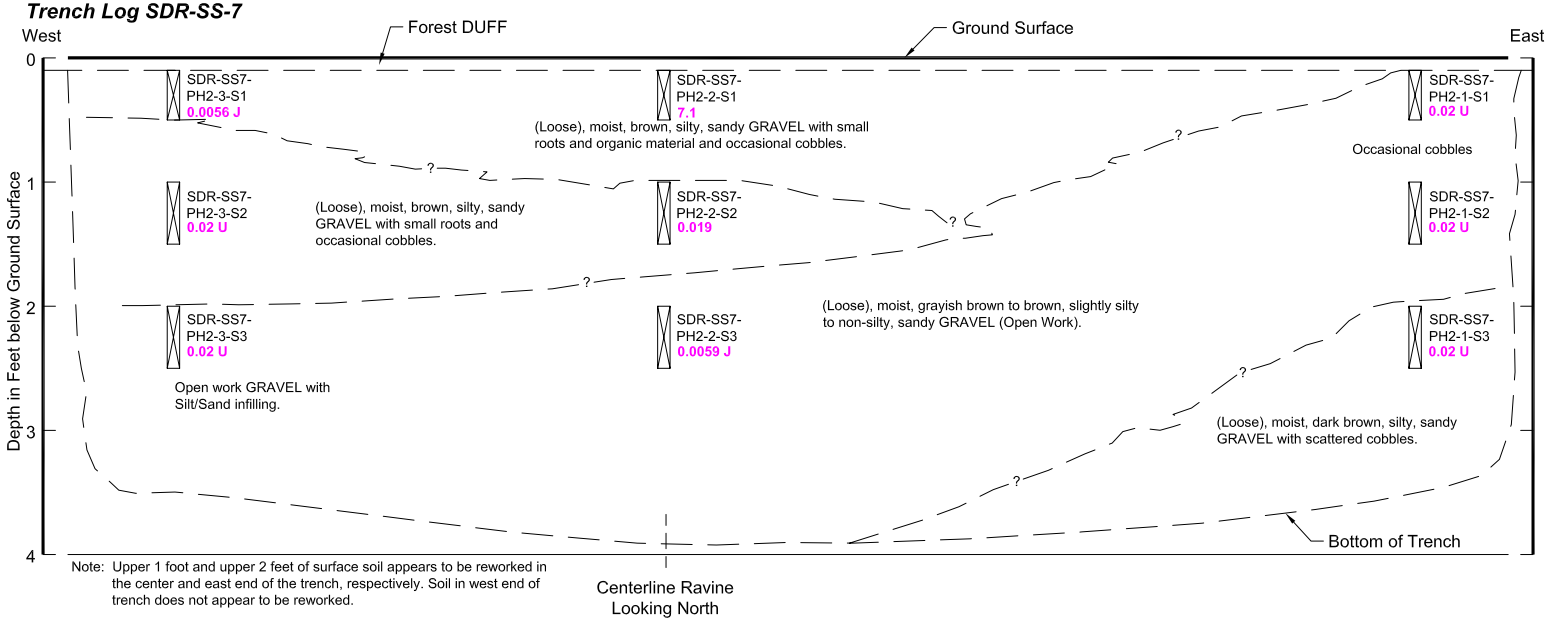
Trench Log SDR-SS-1, SDR-SS-7

Trench Log SDR-SS-1



Note: Upper 1 foot and upper 2 feet of surface soil appears to be reworked in the western half and eastern fourth of the trench, respectively. Soil in area of sample SDR-SS1-PH2-3-S1 does not appear to be reworked.

Trench Log SDR-SS-7



Note: Upper 1 foot and upper 2 feet of surface soil appears to be reworked in the center and east end of the trench, respectively. Soil in west end of trench does not appear to be reworked.

SDR-SS1-PH2-1-S3 0.058	Grab Soil Sample Location and Number Total PCB Concentration in mg/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

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Appendix A

Analytical Data Used in HHERA

TABLE OF CONTENTS

LIST OF TABLES

ANALYTICAL DATA USED IN HUMAN HEALTH RISK ASSESSMENT

ANALYTICAL DATA USED IN ECOLOGICAL RISK ASSESSMENT

ANALYTICAL DATA USED IN HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENTS

1.1 Introduction

The soil data used in the Kaiser Trentwood Facility Human Health and Ecological Risk Assessments (HHERA) were collected between 1989 and 2008, and include soil samples collected as part of historical-release investigations and as part of the Phase I and Phase II Remedial Investigations (RIs) (Hart Crowser 2005, 2007). The soil samples included in the HHERA were collected at a depth of 15 feet below ground surface (bgs) or shallower, which is the appropriate depth range for evaluating point of compliance for human and ecological exposure based on direct contact with soil, as specified in WAC 173-340-740 (6)(d) and WAC 173-340-7490 (4)(b).

The analytical data included in the Terrestrial Ecological Evaluation may differ from the data used in the Human Health Risk Assessment for two reasons. First, the Terrestrial Ecological Evaluation excluded any data that were under a barrier that would prohibit wildlife exposure to constituents in soil. Second, the Terrestrial Ecological Evaluation included a sub-set of tables that only presented data collected at a depth of six feet bgs or shallower, which is the conditional point of compliance when institutional controls are in place to prevent excavation of soil below six feet bgs. The zero to six foot soil strata is considered the biologically-active zone where most, if not all, potential ecological exposures to constituents could occur.

The soil data identified for use in the HHERA and presented in this Appendix were processed to enable the calculations required for completion of the HHERA. Data processing included prioritizing analytical methods when more than one method was used to evaluate a constituent concentration in the same sample, retrofitting of total petroleum hydrocarbon (TPH) analytical data, and combining the results of field duplicate samples. Each of these processing steps is described below.

The analytical data presented in this appendix have been rounded to three significant digits for presentation purposes. Rounding was not applied prior to statistical calculations and risk calculations conducted in the HHERAs.

1.2 Prioritizing of Analytical Methods

In instances where analytical overlap occurred (i.e., results for a constituent were reported by different analytical methods for the same sample), the most recent method, or the method with the higher sensitivity (i.e., lowest detection limit) was given precedence. For TPH analysis, NWTPH-Dx and NW-TPH-Gx results were given priority over NWTPH-HCID results. It should be noted that methods NWTPH-Dx, NWTPH-Gx, and NWTPH-HCID report both individual TPH compound concentrations and a "Total TPH" concentration. In the attached tables, both individual compound and "Total TPH" results are shown; however only the individual TPH compound results (identified as "Total Diesel/Fuel

Oil," "Total Gasoline," "Total Heavy Oil," "Total Kerosene/Jet Fuel," and "Total Stoddard/Mineral Spirits" in the attached tables) were used in risk calculations.

1.3 Retrofitting of TPH Data

To provide the most accurate risk estimates, and to make use of as much historical Trentwood Facility data as possible, historical TPH data (reported as "total TPH" using TPH method 418.1) was retrofitted to individual TPH products identified within the same Trentwood Facility site using recent Ecology-approved northwest total petroleum hydrocarbons (NWTPH) methods, which report northwest total petroleum hydrocarbons diesel-range constituents (NWTPH-Dx) and northwest total petroleum hydrocarbons gasoline-range constituents (NWTPH-Gx). Retrofitting of TPH data is allowed by MTCA, which states that if the identity of a constituent is not known or is a mixture, retrofitting may be conducted, but must be based on the composition that yields the lowest TPH cleanup level (WAC 173-340-700(8)(b)(ii)(D)). The detailed approach used to retrofit "total TPH" data is presented in Appendix B.

In the attached tables, TPH data used in risk calculations are identified as "Total Diesel/Fuel Oil," "Total Gasoline," "Total Heavy Oil," "Total Kerosene/Jet Fuel," and "Total Stoddard/Mineral Spirits." These were the constituent names given to retrofitted TPH analytical data.

1.4 Combining Field Duplicate Sample Results

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

- If both results were detected values, then the two values were averaged
- If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location
- If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location

In the attached tables, duplicate-averaged samples are noted with "_DC" suffix designations.

1.5 References

Hart Crowser 2005. Phase I Remedial Investigation Work Plan. Kaiser Trentwood Facility, Spokane, Washington. December 21, 2005.

Hart Crowser 2007. Phase II Remedial Investigation Work Plan. Kaiser Trentwood Facility, Spokane Valley, Washington. November 30, 2007.

Table A.1.1
500-Gallon Diesel Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HC-DB3_121190(14.0)_SO	HC-DW_101090(8.0-10.0)_SO				
Petroleum-Related Constituents (mg/kg)						
Diesel	5.00 U					
Gasoline Range Organics	5.00 U					
Total Diesel/Fuel Oil	5.00 U					
Total Gasoline	5.00 U					
Total Heavy Oil		180				
Total TPH		180				

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.2
Drum Storage and French Drain Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	OH-MW-24/S-1_112591(8.0-8.5)_SO	OH-MW-24/S-2_112591(13.0-13.5)_SO	OH-MW-25/S-1_120391(3.0-3.5)_SO	OH-MW-25/S-2_120391(8.0-10.0)_SO	OH-MW-25/S-3_120391(13.0-14.0)_SO	SA-1/S-1_091791(10.0)_SO
Conventional (%)						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.0330 UJ	0.0330 U	0.0330 U	0.500 U	0.500 U	0.250 U
Aroclor 1221	0.0330 UJ	0.0330 U	0.0330 U	0.500 U	0.500 U	0.250 U
Aroclor 1232	0.0330 UJ	0.0330 U	0.0330 U	0.500 U	0.500 U	0.250 U
Aroclor 1242	0.0330 UJ	0.0330 U	0.0330 U	0.500 U	0.500 U	0.250 U
Aroclor 1248	0.0330 UJ	0.0330 U	0.0330 U	0.200 U	0.200 U	2900
Aroclor 1254	0.0330 UJ	0.0330 U	0.0330 U	0.200 U	0.200 U	0.100 U
Aroclor 1260	0.0330 UJ	0.0330 U	0.0330 U	0.200 U	0.200 U	0.100 U
Aroclor 1262	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.100 U
Aroclor 1268	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.100 U
Total PCBs	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	2900
Petroleum-Related Constituents (mg/kg)						
Bunker C	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Diesel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Heavy Oil	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Kensol	10.0 U	10.0	5.00 J	10.0 U	10.0 U	
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total Diesel/Fuel Oil	20.0 U	15.0	10.0	20.0 U	20.0 U	945
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total Heavy Oil	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	1760
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total TPH	10.0 U	10.0	5.00 J	10.0 U	10.0 U	2700

Table A.1.2
Drum Storage and French Drain Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SA-1/S-2_091791(15.0)_SO	SA-2/S-1_091191(10.0)_SO	SA-2/S-2_091191(15.0)_SO	SA-3/S-1_111191(10.0)_SO	SA-3/S-2_111191(15.0)_SO	SA-4/S-1_112291(10.0)_SO
Conventional (%)						
Total Organic Carbon			0.300			
PCBs (mg/kg)						
Aroclor 1016	0.250 U	0.500 U	0.500 U	0.500 U	0.500 U	0.0330 U
Aroclor 1221	0.250 U	0.500 U	0.500 U	0.500 U	0.500 U	0.0330 U
Aroclor 1232	0.250 U	0.500 U	0.500 U	0.500 U	0.500 U	0.0330 U
Aroclor 1242	0.250 U	0.500 U	0.500 U	0.500 U	0.500 U	0.0330 U
Aroclor 1248	2300	0.200 U	0.200 U	0.200 U	0.200 U	0.0330 U
Aroclor 1254	0.100 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0330 U
Aroclor 1260	0.100 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0330 U
Aroclor 1262	0.100 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1268	0.100 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Total PCBs	2300	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Petroleum-Related Constituents (mg/kg)						
Bunker C				10.0 U	10.0 U	10.0 U
Diesel				10.0 U	10.0 U	10.0 U
Gasoline Range Organics				10.0 U	10.0 U	10.0 U
Heavy Oil				10.0 U	10.0 U	10.0 U
Kensol				10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel				10.0 U	10.0 U	10.0 U
Mineral spirits/Stoddard				10.0 U	10.0 U	10.0 U
Total Diesel/Fuel Oil	630			20.0 U	20.0 U	20.0 U
Total Gasoline				10.0 U	10.0 U	10.0 U
Total Heavy Oil	1170			10.0 U	10.0 U	10.0 U
Total Kerosene/Jet Fuel				10.0 U	10.0 U	10.0 U
Total Stoddard/Mineral Spirits				10.0 U	10.0 U	10.0 U
Total TPH	1800			10.0 U	10.0 U	10.0 U

Table A.1.2
Drum Storage and French Drain Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SA-4/S-2_112291(15.0)_SO	SA-5/S-1_111091(10.0)_SO	SA-5/S-2_111091(15.0)_SO	SA-6/S-1_110991(10.0)_SO	SA-6/S-2_110991(15.0)_SO	SA-7/S-1_112691(5.0)_SO
Conventional (%)						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.0330 UJ
Aroclor 1221	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.0330 UJ
Aroclor 1232	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.0330 UJ
Aroclor 1242	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.0330 UJ
Aroclor 1248	0.200 U	0.200 U	0.200 U	720	68.0	0.0330 UJ
Aroclor 1254	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0330 UJ
Aroclor 1260	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0330 UJ
Aroclor 1262	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1268	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Total PCBs	0.200 U	0.200 U	0.200 U	720	68.0	0.200 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Diesel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	10.0 U	10.0 U	10.0 U	1400	350	25.0
Kensol	10.0 U	10.0 U	10.0 U	690	130	7.00
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Diesel/Fuel Oil	20.0 U	20.0 U	20.0 U	695	135	12.0
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	10.0 U	10.0 U	10.0 U	1400	350	25.0
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	10.0 U	10.0 U	10.0 U	2090	480	32.0

Table A.1.2
Drum Storage and French Drain Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SA-7/S-2_112691(10.0)_SO	SA-7/S-3_112691(15.0)_SO				
Conventional (%)						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.500 U	0.500 U				
Aroclor 1221	0.500 U	0.500 U				
Aroclor 1232	0.500 U	0.500 U				
Aroclor 1242	0.500 U	0.500 U				
Aroclor 1248	0.200 U	0.200 U				
Aroclor 1254	0.200 U	0.200 U				
Aroclor 1260	0.200 U	0.200 U				
Aroclor 1262	0.200 U	0.200 U				
Aroclor 1268	0.200 U	0.200 U				
Total PCBs	0.200 U	0.200 U				
Petroleum-Related Constituents (mg/kg)						
Bunker C	10.0 U	10.0 U				
Diesel	10.0 U	10.0 U				
Gasoline Range Organics	10.0 U	10.0 U				
Heavy Oil	10.0 U	10.0 U				
Kensol	10.0	10.0 U				
Kerosene/Jet fuel	10.0 U	10.0 U				
Mineral spirits/Stoddard	10.0 U	10.0 U				
Total Diesel/Fuel Oil	15.0	20.0 U				
Total Gasoline	10.0 U	10.0 U				
Total Heavy Oil	10.0 U	10.0 U				
Total Kerosene/Jet Fuel	10.0 U	10.0 U				
Total Stoddard/Mineral Spirits	10.0 U	10.0 U				
Total TPH	10.0	10.0 U				

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.3
Oil House Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	OH-E2_101090_SO	OH-MW-3/S-1_110189(9.0-11.0)_SO	OH-N2_101090_SO	OH-S2_101090_SO	OH-SB-2/S-2A_103089(8.0-10.0)_SO_DC	OH-W2_101090_SO
Metals (mg/kg)						
Arsenic (inorganic)		2.40			6.20	
Cadmium		1.00 U			1.00 U	
Chromium		13.0			29.0	
Lead (inorganic)		10.0 U			33.5	
Petroleum-Related Constituents (mg/kg)						
Benzene		0.0500 U			0.0500 U	
Ethyl Benzene		0.0500 U			0.390	
Toluene		0.0500 U			1.60	
Total Diesel/Fuel Oil	340	9.60	23.0	76.0	22500	140
Total TPH	340	9.60	23.0	76.0	22500	140
Total Xylenes		0.0500 U			4.00	
Xylenes		0.0500 U			4.00	
Volatile Organics Constituents (mg/kg)						
Chloroform		0.0500 U			0.0500 U	
Dichloroethane, 1,1-		0.0500 U			0.530	
Methyl Ethyl Ketone		0.500 U			0.500 U	
Trichloroethane, 1,1,1-		0.0500 U			1.30	

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.4
20,000-Gallon Gasoline Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	20K-1_050191_SO	G-DW_050191_SO	G-E_050191_SO	G-N1_050191_SO	G-N2_050191_SO	G-S1_050191_SO
Metals (mg/kg)						
Lead (inorganic)						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Bunker C	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Diesel	100	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	10.0 U	10.0 U	120	21.0	22.0	8.00 J
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Toluene						
Total Diesel/Fuel Oil	100	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	10.0 U	10.0 U	120	21.0	22.0	8.00
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	100	29.0	350	118	85.0	128
Total Xylenes						
Xylenes						

Table A.1.4
20,000-Gallon Gasoline Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	G-S2_050191_SO	G-W_050191_SO	GT-B_050191(15.0)_SO	GT-NW_050191_SO	GT-SE_050191_SO	
Metals (mg/kg)						
Lead (inorganic)			11.0	10.0	11.0	
Petroleum-Related Constituents (mg/kg)						
Benzene			0.0500 U	0.0500 U	0.0500 U	
Bunker C	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Diesel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Ethyl Benzene			0.0500 U	0.0500 U	0.0500 U	
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Heavy Oil	24.0	39.0	10.0 U	10.0 U	15.0	
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Toluene			0.0500 U	0.0500 U	0.0500 U	
Total Diesel/Fuel Oil	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total Heavy Oil	24.0	39.0	10.0 U	10.0 U	15.0	
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total TPH	134	98.0	10.0 U	240	375	
Total Xylenes			0.0500 U	0.0500 U	0.0500 U	
Xylenes			0.0500 U	0.0500 U	0.0500 U	

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.5
Tank Farm Kensol Spill Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TF#1 Sidewall_020391_SO	TF#3-Bottom Composite_020491(12.0)_SO				
Petroleum-Related Constituents (mg/kg)						
Benzene		0.00500 U				
Benzo(a)anthracene		2.10 U				
Benzo(a)pyrene		2.10 U				
Benzo(b)fluoranthene		2.10 U				
Benzo(g,h,i)perylene		2.10 U				
Benzo(k)fluoranthene		2.10 U				
CPAH TEQ		3.20 U				
Chrysene		2.10 U				
Dibenz(a,h)anthracene		2.10 U				
Ethyl Benzene		0.00500 U				
Indeno(1,2,3-cd)pyrene		2.10 U				
Methylnaphthalene, 2-		2.10 U				
Naphthalene		2.10 U				
Toluene		0.00500 U				
Total Diesel/Fuel Oil	670	12000				
Total Naphthalene		2.10 U				
Total TPH	670	12000				
Total Xylenes		0.0280				
Xylenes		0.0280				
Semi-Volatile Organic Constituents (mg/kg)						
1,2-Diphenylhydrazine		4.20 U				
2-Nitrophenol		4.20 U				
Acenaphthene		2.10 U				
Acenaphthylene		2.10 U				
Aniline		11.0 U				
Anthracene		2.10 U				
Benzidine		52.0 U				
Benzoic Acid		52.0 U				
Benzyl Alcohol		2.10 U				
Bis(2-Chloroethoxy)methane		2.10 U				
Bis(2-chloroisopropyl)Ether		2.10 U				
Bis(2-ethylhexyl)Phthalate (DEHP)		2.10 U				
Bis(Chloroethyl)ether		2.10 U				
Bromodiphenyl ether, 4-		4.20 U				
Butyl Benzyl Phthalate, N-		2.10 U				

Table A.1.5
Tank Farm Kensol Spill Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Sample ID:	TF#1 Sidewall_020391_SO	TF#3-Bottom Composite_020491(12.0)_SO				
Chloro-3-methylphenol, 4-			4.20 U				
Chloroaniline, 4-			2.10 U				
Chloronaphthalene, 2-			2.10 U				
Chlorophenol, 2-			2.10 U				
Chlorophenyl-phenyl ether, 4-			2.10 U				
Di-n-Octylphthalate			2.10 U				
Dibenzofuran			2.10 U				
Dibutyl Phthalate			2.10 U				
Dichlorobenzene, 1,2-			2.10 U				
Dichlorobenzene, 1,3-			2.10 U				
Dichlorobenzidine, 3,3'			42.0 U				
Dichlorophenol, 2,4-			4.20 U				
Diethyl Phthalate			2.10 U				
Dimethyl Phthalate			2.10 U				
Dimethylphenol, 2,4-			2.10 U				
Dinitro-o-Cresol, 4,6-			2.10 U				
Dinitrophenol, 2,4-			21.0 U				
Dinitrotoluene, 2,4-			4.20 U				
Dinitrotoluene, 2,6-			4.20 U				
Fluoranthene			2.10 U				
Fluorene			2.10 U				
Hexachlorobenzene			4.20 U				
Hexachlorobutadiene			2.10 U				
Hexachlorocyclopentadiene			4.20 U				
Hexachloroethane			4.20 U				
Isophorone			2.10 U				
Methylphenol, 2-			2.10 U				
Methylphenol, 4-			2.10 U				
Nitroaniline, 2-			4.20 U				
Nitroaniline, 3-			10.0 U				
Nitroaniline, 4-			4.20 U				
Nitrobenzene			2.10 U				
Nitrophenol, 4-			21.0 U				
Nitrosodi-N-propylamine, N-			2.10 U				
Nitrosodiphenylamine, N-			2.10 U				
Pentachlorophenol			21.0 U				
Phenanthrene			2.10 U				

Table A.1.5
Tank Farm Kensol Spill Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TF#1 Sidewall_020391_SO	TF#3-Bottom Composite_020491(12.0)_SO				
Phenol		2.10 U				
Pyrene		2.10 U				
Trichlorobenzene, 1,2,4-		2.10 U				
Trichlorophenol, 2,4,5-		4.20 U				
Trichlorophenol, 2,4,6-		4.20 U				
Volatile Organics Constituents (mg/kg)						
Acetone		0.0260 U				
Bromodichloromethane		0.00500 U				
Bromoform		0.00500 U				
Bromomethane		0.00500 U				
Carbon Disulfide		0.00500 U				
Carbon Tetrachloride		0.00500 U				
Chlorobenzene		0.0160 U				
Chloroform		0.00500 U				
Chloromethane		0.00500 U				
Dibromochloromethane		0.0160 U				
Dichlorobenzene, 1,4-		2.10 U				
Dichloroethane, 1,1-		0.00500 U				
Dichloroethane, 1,2-		0.00500 U				
Dichloroethene, 1,1-		0.00500 U				
Dichloroethylene, Cis-1,2-		0.00500 U				
Dichloroethylene, Trans-1,2-		0.00500 U				
Dichloromethane		0.00500				
Dichloropropane, 1,2-		0.00500 U				
Dichloropropene, Cis-1,3-		0.0160 U				
Dichloropropene, Trans-1,3-		0.0160 U				
Ethyl Chloride		0.0160 U				
Hexanone, 2-		0.0160 U				
Methyl Ethyl Ketone		0.0160 U				
Methyl Isobutyl Ketone		0.0160 U				
Styrene		0.00500 U				
Tetrachloroethane, 1,1,2,2-		0.0160 U				
Tetrachloroethylene		0.00500 U				
Trichloroethane, 1,1,1-		0.00500 U				
Trichloroethane, 1,1,2-		0.00500 U				
Trichloroethylene		0.00500 U				
Vinyl Acetate		0.00500 U				

Table A.1.5
Tank Farm Kensol Spill Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Sample ID:	TF#1 Sidewall_020391_SO	TF#3-Bottom Composite_020491(12.0)_SO				
Vinyl Chloride			0.00500 U				

Notes:

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The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.6
Eight Underground Storage Tanks Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	1-NW_061190_SO	1-SW_061190_SO	2-NW_061190_SO	2-SW_061190_SO	3-NW_061190_SO	3-SW_061190_SO
Conventional (%)						
Moisture						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Bunker C						
Diesel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kensol	10.0 U	14000	2500	2200	10.0 U	330
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Mineral spirits/Stoddard						
Toluene						
Total Diesel/Fuel Oil	20.0 U	14000	2510	2210	20.0 U	335
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Stoddard/Mineral Spirits						
Total TPH	10.0 U	14000	2500	2200	10.0 U	330
Total Xylenes						
Xylenes						

Table A.1.6
Eight Underground Storage Tanks Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	4-NW_061190_SO	4-SW_061190_SO	5-NW_061190_SO	5-SW_061190_SO	6-NW_061190_SO	6-SW_061190_SO
Conventional (%)						
Moisture						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Bunker C						
Diesel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kensol	10.0 U	780	10.0 U	7400	1500	27.0
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Mineral spirits/Stoddard						
Toluene						
Total Diesel/Fuel Oil	20.0 U	785	20.0 U	7410	1510	32.0
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Stoddard/Mineral Spirits						
Total TPH	10.0 U	863	10.0 U	8180	2180	27.0
Total Xylenes						
Xylenes						

Table A.1.6
Eight Underground Storage Tanks Site
Oil House Area
Kaiser Trentwood Facility

Constituent / Sample ID:	7-NW_061190_SO	7-SW_061190_SO	EW_061190_SO	GW_061190_SO	OH-SB-1-S1_081208(9.0-10.0)_SO	
Conventional (%)						
Moisture					5.00	
Petroleum-Related Constituents (mg/kg)						
Benzene				0.0500 U		
Bunker C					50.0 U	
Diesel	10.0 U	10.0 U	10.0 U	10.0 U	20.0 U	
Ethyl Benzene				0.0500 U		
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	5.00 U	
Heavy Oil	10.0 U	10.0 U	10.0 U	10.0 U	50.0 U	
Kensol	1500	200	5800	10.0 U	20.0 U	
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	20.0 U	
Mineral spirits/Stoddard					5.00 U	
Toluene				0.0500 U		
Total Diesel/Fuel Oil	1510	205	5810	20.0 U	40.0 U	
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	5.00 U	
Total Heavy Oil	10.0 U	10.0 U	10.0 U	10.0 U	50.0 U	
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	20.0 U	
Total Stoddard/Mineral Spirits					5.00 U	
Total TPH	1500	215	5800	10.0 U		
Total Xylenes				0.0500 U		
Xylenes				0.0500 U		

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	FCT-SB-1-S3_031908(30.0)_SO_DC	FCT-SB-2-S3_031908(30.0)_SO_DC	FCT-SB-3-S3_031908(30.0)_SO_DC	TP-1-Bottom_070208(9.0-9.5)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-1-S2_070208(6.0-6.5)_SO
Conventional (%)						
Moisture		10.5	11.0	7.10	7.60	4.10
Metals (mg/kg)						
Antimony (metallic)	0.180	0.155	0.170	0.130 J		
Arsenic (inorganic)	10.1	6.40	5.90	8.60		
Barium	44.3	26.7	53.1	45.2		
Cadmium	0.0575	0.0765	0.115	0.520		
Chromium	6.50	5.30	15.0	7.20		
Lead (inorganic)	7.90	5.60	9.00	11.7		
Mercury (inorganic)	0.0200 U	0.0200 U	0.0200 U	0.0140 U		
Selenium (and compounds)	1.00 U	1.00 U	1.00 U	1.10 U		
Silver	0.0900	0.102	0.200	0.0440		
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	0.00990 U		
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U		
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	0.00990 U		
Aroclor 1242	0.0130 U	0.0100 U	0.0100 U	0.00990 U		
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U	0.00990 U		
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U	0.00990 U		
Aroclor 1260	0.0100 U	0.0100 U	0.0100 U	0.00990 U		
Total PCBs	0.0100 U	0.0100 U	0.0100 U	0.00990 U		
Petroleum-Related Constituents (mg/kg)						
Benzene	0.00520 U	0.00110 JT	0.00500 U	0.00510 U		
Benzo(a)anthracene	0.00480 U	0.00470 U	0.000740 T	0.00620		
Benzo(a)pyrene	0.00480 U	0.150	0.00440 U	0.00410 T		
Benzo(b)fluoranthene	0.00480 U	0.135	0.00440 U	0.00280 T		
Benzo(g,h,i)perylene	0.00480 U	0.725	0.00440 U	0.00440 T		
Benzo(k)fluoranthene	0.00480 U	0.00470 UX	0.00440 U	0.000770 T		
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ	0.00361	0.200	0.00316	0.00540		
Chrysene	0.000640 T	0.345	0.000750 T	0.00590		
Dibenz(a,h)anthracene	0.00480 U	0.0740	0.00440 U	0.000940 T		
Diesel	20.0 U	1150	85.0	20.0 U	20.0 U	20.0 U
Ethyl Benzene	0.00520 U	0.00540 U	0.000180	0.00170 T		
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	FCT-SB-1-S3_031908(30.0)_SO_DC	FCT-SB-2-S3_031908(30.0)_SO_DC	FCT-SB-3-S3_031908(30.0)_SO_DC	TP-1-Bottom_070208(9.0-9.5)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-1-S2_070208(6.0-6.5)_SO
Heavy Oil	50.0 U	3500	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene	0.00480 U	0.250	0.00440 U	0.00170 T		
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-	0.00480 U	0.000620 T	0.00235	0.150		
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene	0.0210 U	0.0220 U	0.0200 U	0.0560		
Toluene	0.00520 U	0.00230 JT	0.00500 U	0.00510 U		
Total Diesel/Fuel Oil	40.0 U	1160	95.0	40.0 U	40.0 U	40.0 U
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil	50.0 U	3500	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene	0.0210 U	0.0220 U	0.0200 U	0.0560		
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH						
Total Xylenes	0.00280	0.00149	0.000615	0.0107		
Xylenes	0.000195	0.000915	0.000440	0.00580 J		
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene	0.00480 U	0.000990 T	0.00118	0.00900		
Acenaphthylene	0.00480 U	0.000860	0.00440 U	0.00480 U		
Anthracene	0.00480 U	0.00600 U	0.00440 U	0.0110		
Bromobenzene	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dibenzofuran	0.00480 U	0.00470 U	0.00440 U	0.00670		
Dichlorobenzene, 1,2-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichlorobenzene, 1,3-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Fluoranthene	0.00480 U	0.0310	0.00120 T	0.00720		
Fluorene	0.00480 U	0.00470 U	0.00230	0.0170		
Hexachlorobutadiene	0.0210 U	0.0220 U	0.0200 U	0.0210 U		
Phenanthrene	0.00480 U	0.00580 U	0.00365	0.0820		
Pyrene	0.00480 U	0.500	0.00170 T	0.0370		
Trichlorobenzene, 1,2,4-	0.0210 U	0.0220 U	0.0200 U	0.0210 U		
o-Xylene	0.00520 U	0.000570 JT	0.000175	0.00490 T		
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
1,2,3-trichlorobenzene	0.0210 U	0.0220 U	0.0200 U	0.0210 U		
1,2,4-Trimethylbenzene	0.0210 U	0.000470	0.0200 U	0.0260		

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	FCT-SB-1-S3_031908(30.0)_SO_DC	FCT-SB-2-S3_031908(30.0)_SO_DC	FCT-SB-3-S3_031908(30.0)_SO_DC	TP-1-Bottom_070208(9.0-9.5)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-1-S2_070208(6.0-6.5)_SO
1,3,5-Trimethylbenzene	0.0210 U	0.0220 U	0.0200 U	0.00600 JT		
1,3-dichloropropane	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
1-Phenylpropane	0.0210 U	0.0220 U	0.0200 U	0.00250 JT		
2,2-dichloropropane	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
2-chlorotoluene	0.0210 U	0.0220 U	0.0200 U	0.0210 U		
4-chlorotoluene	0.0210 U	0.0220 U	0.0200 U	0.000190 T		
4-isopropyltoluene	0.0210 U	0.0220 U	0.0200 U	0.00240 JT		
Acetone	0.0125	0.110	0.0605	0.0240		
Bromochloromethane	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Bromodichloromethane	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Bromoform	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Bromomethane	0.00520 U	0.00540 U	0.00500 U	0.00130 JT		
CFC-11	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
CFC-12	0.000510	0.000815	0.00500 UJ	0.00510 U		
Carbon Disulfide	0.000555	0.00122	0.00605	0.000450 T		
Carbon Tetrachloride	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Chlorobenzene	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Chloroform	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Chloromethane	0.00520 U	0.00540 U	0.00500 U	0.000220 T		
Cumene	0.0210 U	0.0220 U	0.0200 U	0.00110 T		
Dibromo-3-chloropropane, 1,2-	0.0210 U	0.0220 U	0.0200 U	0.0210 U		
Dibromochloromethane	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dibromoethane, 1,2-	0.0210 U	0.0220 U	0.0200 U	0.0210 U		
Dichlorobenzene, 1,4-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichloroethane, 1,1-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichloroethane, 1,2-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichloroethene, 1,1-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichloroethylene, Cis-1,2-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichloroethylene, Trans-1,2-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichloromethane	0.0110 U	0.0110 U	0.0100 U	0.0110 U		
Dichloropropane, 1,2-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichloropropene, Cis-1,3-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Dichloropropene, Trans-1,3-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Ethyl Chloride	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Hexanone, 2-	0.0210 U	0.00400 JT	0.0200 U	0.0210 U		
Methyl Ethyl Ketone	0.00370	0.0175	0.0105	0.00310 T		
Methyl Isobutyl Ketone	0.0210 U	0.0220 U	0.0200 U	0.0210 U		

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	FCT-SB-1-S3_031908(30.0)_SO_DC	FCT-SB-2-S3_031908(30.0)_SO_DC	FCT-SB-3-S3_031908(30.0)_SO_DC	TP-1-Bottom_070208(9.0-9.5)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-1-S2_070208(6.0-6.5)_SO
Methylene Bromide	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Styrene	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Tert-butylbenzene	0.0210 U	0.0220 U	0.0200 U	0.0210 U		
Tetrachloroethane, 1,1,1,2-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Tetrachloroethane, 1,1,2,2-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Tetrachloroethylene	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Trichloroethane, 1,1,1-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Trichloroethane, 1,1,2-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Trichloroethylene	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Trichloropropane, 1,2,3-	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
Vinyl Chloride	0.00520 U	0.00540 U	0.00500 U	0.00510 U		
n-Butylbenzene	0.0210 U	0.0220 U	0.0200 U	0.00300 T		
sec-Butylbenzene	0.0210 U	0.0220 U	0.0200 U	0.00170 T		

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-10-Bottom_070308(6.0-7.0)_SO	TP-10-S1_070308(2.0-2.5)_SO	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-Bottom_070308(10.0-11.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-12-S2_070308(6.0-7.0)_SO
Conventional (%)						
Moisture	4.60	13.0	7.30	6.10	3.10	8.70
Metals (mg/kg)						
Antimony (metallic)	0.300 J		0.0900 J	0.140 J		
Arsenic (inorganic)	12.0		10.2	9.70		
Barium	34.6		127	44.8		
Cadmium	0.0550		0.105	0.0540		
Chromium	5.10		14.4	8.80		
Lead (inorganic)	8.70		11.1	10.9		
Mercury (inorganic)	0.0160 U		0.00400 T	0.00700 T		
Selenium (and compounds)	1.00 U		1.10 U	1.10 U		
Silver	0.0600		0.119	0.0300		
PCBs (mg/kg)						
Aroclor 1016	0.00990 U		0.0100 U	0.0100 U		
Aroclor 1221	0.0200 U		0.0200 U	0.0200 U		
Aroclor 1232	0.00990 U		0.0100 U	0.0100 U		
Aroclor 1242	0.00990 U		0.0100 U	0.0100 U		
Aroclor 1248	0.00990 U		0.0100 U	0.0100 U		
Aroclor 1254	0.00990 U		0.0100 U	0.0100 U		
Aroclor 1260	0.00990 U		0.0100 U	0.0100 U		
Total PCBs	0.00990 U		0.0100 U	0.0100 U		
Petroleum-Related Constituents (mg/kg)						
Benzene	0.00460 U		0.00500 U	0.00430 U		
Benzo(a)anthracene	0.00490 U		0.00720	0.00500 U		
Benzo(a)pyrene	0.00490 U		0.00620	0.00500 U		
Benzo(b)fluoranthene	0.00490 U		0.00230 T	0.00500 U		
Benzo(g,h,i)perylene	0.00490 U		0.0250	0.00850		
Benzo(k)fluoranthene	0.00490 U		0.000540 T	0.00500 U		
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ	0.00740 U		0.00781	0.00356		
Chrysene	0.00490 U		0.0100	0.00500 U		
Dibenz(a,h)anthracene	0.00490 U		0.00180 T	0.000380 T		
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	200
Ethyl Benzene	0.00460 U		0.00500 U	0.00430 U		
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-10-Bottom_070308(6.0-7.0)_SO	TP-10-S1_070308(2.0-2.5)_SO	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-Bottom_070308(10.0-11.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-12-S2_070308(6.0-7.0)_SO
Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	530
Indeno(1,2,3-cd)pyrene	0.00490 U		0.00330 T	0.00500 U		
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-	0.00490 U		0.00230 T	0.000480 T		
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene	0.0190 U		0.0200 U	0.0180 U		
Toluene	0.00460 U		0.00500 U	0.00430 U		
Total Diesel/Fuel Oil	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	210
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	530
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene	0.0190 U		0.0200 U	0.0180 U		
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH						
Total Xylenes	0.00920 U		0.0100 U	0.00860 U		
Xylenes	0.00460 U		0.00500 U	0.00430 U		
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene	0.00490 U		0.000720 T	0.00500 U		
Acenaphthylene	0.00490 U		0.00480 U	0.00500 U		
Anthracene	0.00490 U		0.00150 T	0.00500 U		
Bromobenzene	0.00460 U		0.00500 U	0.00430 U		
Dibenzofuran	0.00490 U		0.00480 U	0.00500 U		
Dichlorobenzene, 1,2-	0.00460 U		0.00500 U	0.00430 U		
Dichlorobenzene, 1,3-	0.00460 U		0.00500 U	0.00430 U		
Fluoranthene	0.00490 U		0.00360 T	0.00500 U		
Fluorene	0.00490 U		0.00170 T	0.00500 U		
Hexachlorobutadiene	0.0190 U		0.0200 U	0.0180 U		
Phenanthrene	0.00490 U		0.0120	0.00500 U		
Pyrene	0.00490 U		0.0210	0.00500 U		
Trichlorobenzene, 1,2,4-	0.0190 U		0.0200 U	0.0180 U		
o-Xylene	0.00460 U		0.00500 U	0.00430 U		
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00460 U		0.00500 U	0.00430 U		
1,2,3-trichlorobenzene	0.0190 U		0.0200 U	0.0180 U		
1,2,4-Trimethylbenzene	0.000140 T		0.0200 U	0.0180 U		

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-10-Bottom_070308(6.0-7.0)_SO	TP-10-S1_070308(2.0-2.5)_SO	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-Bottom_070308(10.0-11.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-12-S2_070308(6.0-7.0)_SO
1,3,5-Trimethylbenzene	0.0190 U		0.0200 U	0.0180 U		
1,3-dichloropropane	0.00460 U		0.00500 U	0.00430 U		
1-Phenylpropane	0.0190 U		0.0200 U	0.0180 U		
2,2-dichloropropane	0.00460 U		0.00500 U	0.00430 U		
2-chlorotoluene	0.0190 U		0.0200 U	0.0180 U		
4-chlorotoluene	0.0190 U		0.0200 U	0.0180 U		
4-isopropyltoluene	0.0190 U		0.0200 U	0.0180 U		
Acetone	0.0190 U		0.0450	0.0820		
Bromochloromethane	0.00460 U		0.00500 U	0.00430 U		
Bromodichloromethane	0.00460 U		0.00500 U	0.00430 U		
Bromoform	0.00460 U		0.00500 U	0.00430 U		
Bromomethane	0.00460 U		0.00500 U	0.00430 U		
CFC-11	0.00460 U		0.00500 U	0.00430 U		
CFC-12	0.00460 U		0.00500 U	0.00430 U		
Carbon Disulfide	0.000210 T		0.000410 T	0.000480 T		
Carbon Tetrachloride	0.00460 U		0.00500 U	0.00430 U		
Chlorobenzene	0.00460 U		0.00500 U	0.00430 U		
Chloroform	0.00460 U		0.00500 U	0.00430 U		
Chloromethane	0.00460 U		0.00500 U	0.00430 U		
Cumene	0.0190 U		0.0200 U	0.0180 U		
Dibromo-3-chloropropane, 1,2-	0.0190 U		0.0200 U	0.0180 U		
Dibromochloromethane	0.00460 U		0.00500 U	0.00430 U		
Dibromoethane, 1,2-	0.0190 U		0.0200 U	0.0180 U		
Dichlorobenzene, 1,4-	0.00460 U		0.00500 U	0.00430 U		
Dichloroethane, 1,1-	0.00460 U		0.00500 U	0.00430 U		
Dichloroethane, 1,2-	0.00460 U		0.00500 U	0.00430 U		
Dichloroethene, 1,1-	0.00460 U		0.00500 U	0.00430 U		
Dichloroethylene, Cis-1,2-	0.00460 U		0.00500 U	0.00430 U		
Dichloroethylene, Trans-1,2-	0.00460 U		0.00500 U	0.00430 U		
Dichloromethane	0.00920 U		0.00330 T	0.00470 T		
Dichloropropane, 1,2-	0.00460 U		0.00500 U	0.00430 U		
Dichloropropene, Cis-1,3-	0.00460 U		0.00500 U	0.00430 U		
Dichloropropene, Trans-1,3-	0.00460 U		0.00500 U	0.00430 U		
Ethyl Chloride	0.00460 U		0.00500 U	0.00430 U		
Hexanone, 2-	0.0190 U		0.0200 U	0.0180 U		
Methyl Ethyl Ketone	0.0190 U		0.00450 T	0.0150 T		
Methyl Isobutyl Ketone	0.0190 U		0.0200 U	0.0180 U		

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-10-Bottom_070308(6.0-7.0)_SO	TP-10-S1_070308(2.0-2.5)_SO	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-Bottom_070308(10.0-11.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-12-S2_070308(6.0-7.0)_SO
Methylene Bromide	0.00460 U		0.00500 U	0.00430 U		
Styrene	0.00460 U		0.00500 U	0.00430 U		
Tert-butylbenzene	0.0190 U		0.0200 U	0.0180 U		
Tetrachloroethane, 1,1,1,2-	0.00460 U		0.00500 U	0.00430 U		
Tetrachloroethane, 1,1,2,2-	0.00460 U		0.00500 U	0.00430 U		
Tetrachloroethylene	0.00460 U		0.00500 U	0.00430 U		
Trichloroethane, 1,1,1-	0.00460 U		0.00500 U	0.00430 U		
Trichloroethane, 1,1,2-	0.00460 U		0.00500 U	0.00430 U		
Trichloroethylene	0.00460 U		0.00500 U	0.00430 U		
Trichloropropane, 1,2,3-	0.00460 U		0.00500 U	0.00430 U		
Vinyl Chloride	0.00460 U		0.00500 U	0.00430 U		
n-Butylbenzene	0.0190 U		0.0200 U	0.0180 U		
sec-Butylbenzene	0.0190 U		0.0200 U	0.0180 U		

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-13 S-2_070308(6.0-7.0)_SO	TP-13-Bottom_070308(10.0-11.0)_SO	TP-13-S1_070308(2.0-3.0)_SO	TP-13-S2_070308(6.0-7.0)_SO	TP-2-Bottom_070208(9.0-9.5)_SO_DC	TP-2-S1_070208(2.0-2.5)_SO
Conventional (%)						
Moisture		5.20	10.0	8.40	8.40	7.30
Metals (mg/kg)						
Antimony (metallic)		0.210 J			0.160	
Arsenic (inorganic)		11.5			35.7	
Barium		58.2			54.4	
Cadmium		0.0800			0.0730	
Chromium		6.40			6.00	
Lead (inorganic)		12.5			10.1	
Mercury (inorganic)		0.0300			0.00300	
Selenium (and compounds)		1.10 U			1.10 U	
Silver		0.0660			0.0560	
PCBs (mg/kg)						
Aroclor 1016		0.0100 U			0.00990 U	
Aroclor 1221		0.0200 U			0.0200 U	
Aroclor 1232		0.0100 U			0.00990 U	
Aroclor 1242		0.0100 U			0.00990 U	
Aroclor 1248		0.0100 U			0.00990 U	
Aroclor 1254		0.0100 U			0.00990 U	
Aroclor 1260		0.00290 T			0.00990 U	
Total PCBs		0.00290			0.00990 U	
Petroleum-Related Constituents (mg/kg)						
Benzene	0.00480 U				0.00480 U	
Benzo(a)anthracene		0.00500 U			0.00120	
Benzo(a)pyrene		0.00500 U			0.00190 T	
Benzo(b)fluoranthene		0.00500 U			0.000630	
Benzo(g,h,i)perylene		0.170			0.00120 T	
Benzo(k)fluoranthene		0.00500 U			0.000340 T	
Bunker C		50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ		0.00449			0.00221	
Chrysene		0.00500 U			0.00151	
Dibenz(a,h)anthracene		0.00280 T			0.000360	
Diesel		20.0 U	1700	620	20.0 U	20.0 U
Ethyl Benzene	0.00480 U				0.00120 T	
Gasoline Range Organics		20.0 U	5.00 U	5.00 U	5.00 U	5.00 U

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-13 S-2_070308(6.0-7.0)_SO	TP-13-Bottom_070308(10.0-11.0)_SO	TP-13-S1_070308(2.0-3.0)_SO	TP-13-S2_070308(6.0-7.0)_SO	TP-2-Bottom_070208(9.0-9.5)_SO_DC	TP-2-S1_070208(2.0-2.5)_SO
Heavy Oil		50.0 U	1600	900	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene		0.00930			0.000370	
Kensol		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-		0.00120 T			0.0165	
Mineral spirits/Stoddard		20.0 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene	0.0200 U	0.000580 T			0.0370	
Toluene	0.00480 U				0.00480 U	
Total Diesel/Fuel Oil		40.0 U	1710	630	40.0 U	40.0 U
Total Gasoline		20.0 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil		50.0 U	1600	900	50.0 U	50.0 U
Total Kerosene/Jet Fuel		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene	0.0200 U	0.000580			0.0370	
Total Stoddard/Mineral Spirits		20.0 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH						
Total Xylenes	0.00267				0.00427	
Xylenes	0.000270 JT				0.00247	
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene		0.000250 T			0.00125	
Acenaphthylene		0.00500 U			0.00490 U	
Anthracene		0.00120 T			0.00185	
Bromobenzene	0.00480 U				0.00480 U	
Dibenzofuran		0.00500 U			0.00165	
Dichlorobenzene, 1,2-	0.00480 U				0.00480 U	
Dichlorobenzene, 1,3-	0.00480 U				0.00480 U	
Fluoranthene		0.00500 U			0.00260	
Fluorene		0.00500 U			0.00185	
Hexachlorobutadiene	0.0200 U				0.0190 U	
Phenanthrene		0.00170 T			0.0420	
Pyrene		0.00310 T			0.00945	
Trichlorobenzene, 1,2,4-	0.0200 U				0.0190 U	
o-Xylene	0.00480 U				0.00181	
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00480 U				0.00480 U	
1,2,3-trichlorobenzene	0.0200 U				0.0190 U	
1,2,4-Trimethylbenzene	0.0200 U				0.00745	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-13 S-2_070308(6.0-7.0)_SO	TP-13-Bottom_070308(10.0-11.0)_SO	TP-13-S1_070308(2.0-3.0)_SO	TP-13-S2_070308(6.0-7.0)_SO	TP-2-Bottom_070208(9.0-9.5)_SO_DC	TP-2-S1_070208(2.0-2.5)_SO
1,3,5-Trimethylbenzene	0.0200 U				0.00174	
1,3-dichloropropane	0.00480 U				0.00480 U	
1-Phenylpropane	0.0200 U				0.00140 JT	
2,2-dichloropropane	0.00480 U				0.00480 U	
2-chlorotoluene	0.0200 U				0.0190 U	
4-chlorotoluene	0.0200 U				0.0190 U	
4-isopropyltoluene	0.0200 U				0.000565	
Acetone	0.0790				0.0445	
Bromochloromethane	0.00480 U				0.00480 U	
Bromodichloromethane	0.00480 U				0.00480 U	
Bromoform	0.00480 U				0.00480 U	
Bromomethane	0.00480 U				0.00480 U	
CFC-11	0.00480 U				0.00480 U	
CFC-12	0.00480 U				0.00480 U	
Carbon Disulfide	0.000180 T				0.000330 T	
Carbon Tetrachloride	0.00480 U				0.00480 U	
Chlorobenzene	0.00480 U				0.00480 U	
Chloroform	0.00480 U				0.00480 U	
Chloromethane	0.00480 U				0.00480 U	
Cumene	0.0200 U				0.000610 T	
Dibromo-3-chloropropane, 1,2-	0.0200 U				0.0190 U	
Dibromochloromethane	0.00480 U				0.00480 U	
Dibromoethane, 1,2-	0.0200 U				0.0190 U	
Dichlorobenzene, 1,4-	0.00480 U				0.00480 U	
Dichloroethane, 1,1-	0.00480 U				0.00480 U	
Dichloroethane, 1,2-	0.00480 U				0.00480 U	
Dichloroethene, 1,1-	0.00480 U				0.00480 U	
Dichloroethylene, Cis-1,2-	0.00480 U				0.00480 U	
Dichloroethylene, Trans-1,2-	0.00480 U				0.00480 U	
Dichloromethane	0.00260 T				0.00400 T	
Dichloropropane, 1,2-	0.00480 U				0.00480 U	
Dichloropropene, Cis-1,3-	0.00480 U				0.00480 U	
Dichloropropene, Trans-1,3-	0.00480 U				0.00480 U	
Ethyl Chloride	0.00480 U				0.00480 U	
Hexanone, 2-	0.0200 U				0.0190 U	
Methyl Ethyl Ketone	0.0140 T				0.00655	
Methyl Isobutyl Ketone	0.0200 U				0.0190 U	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-13 S-2_070308(6.0-7.0)_SO	TP-13-Bottom_070308(10.0-11.0)_SO	TP-13-S1_070308(2.0-3.0)_SO	TP-13-S2_070308(6.0-7.0)_SO	TP-2-Bottom_070208(9.0-9.5)_SO_DC	TP-2-S1_070208(2.0-2.5)_SO
Methylene Bromide	0.00480 U				0.00480 U	
Styrene	0.00480 U				0.000150 T	
Tert-butylbenzene	0.0200 U				0.0190 U	
Tetrachloroethane, 1,1,1,2-	0.00480 U				0.00480 U	
Tetrachloroethane, 1,1,2,2-	0.00480 U				0.00480 U	
Tetrachloroethylene	0.00480 U				0.00480 U	
Trichloroethane, 1,1,1-	0.00480 U				0.00480 U	
Trichloroethane, 1,1,2-	0.00480 U				0.00480 U	
Trichloroethylene	0.00480 U				0.00480 U	
Trichloropropane, 1,2,3-	0.00480 U				0.00480 U	
Vinyl Chloride	0.00480 U				0.00480 U	
n-Butylbenzene	0.0200 U				0.00110 T	
sec-Butylbenzene	0.0200 U				0.000760 T	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-2-S2_070208(6.0-6.5)_SO	TP-3-Bottom_070208(9.0-9.5)_SO	TP-3-S1_070208(2.0-3.0)_SO	TP-3-S2_070208(6.0-6.5)_SO	TP-4-Bottom_070208(9.0-9.5)_SO_DC	TP-4-S1_070208(2.0-2.5)_SO
Conventional (%)						
Moisture	7.30	4.70	5.50	4.90	7.10	5.70
Metals (mg/kg)						
Antimony (metallic)		0.160 J			0.320	
Arsenic (inorganic)		7.70			9.80	
Barium		93.1			53.8	
Cadmium		0.0780			0.0775	
Chromium		12.2			6.90	
Lead (inorganic)		10.9			12.0	
Mercury (inorganic)		0.0180 U			0.00700	
Selenium (and compounds)		1.10 U			1.10 U	
Silver		0.0930			0.138	
PCBs (mg/kg)						
Aroclor 1016		0.00990 U			0.0100 U	
Aroclor 1221		0.0200 U			0.0200 U	
Aroclor 1232		0.00990 U			0.0100 U	
Aroclor 1242		0.00990 U			0.0100 U	
Aroclor 1248		0.00990 U			0.00760	
Aroclor 1254		0.00990 U			0.00800	
Aroclor 1260		0.00990 U			0.0100 U	
Total PCBs		0.00990 U			0.0156	
Petroleum-Related Constituents (mg/kg)						
Benzene		0.00450 U			0.00370 U	
Benzo(a)anthracene		0.000710 T			0.00155	
Benzo(a)pyrene		0.00490 U			0.000975	
Benzo(b)fluoranthene		0.00490 U			0.00490 U	
Benzo(g,h,i)perylene		0.00490 U			0.00680	
Benzo(k)fluoranthene		0.00490 U			0.00490 U	
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ		0.00350			0.00176	
Chrysene		0.000300 T			0.00125	
Dibenz(a,h)anthracene		0.00490 U			0.000410 T	
Diesel	20.0 U	20.0 U	60.0	20.0 U	220	81.0
Ethyl Benzene		0.00450 U			0.00370 U	
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-2-S2_070208(6.0-6.5)_SO	TP-3-Bottom_070208(9.0-9.5)_SO	TP-3-S1_070208(2.0-3.0)_SO	TP-3-S2_070208(6.0-6.5)_SO	TP-4-Bottom_070208(9.0-9.5)_SO_DC	TP-4-S1_070208(2.0-2.5)_SO
Heavy Oil	50.0 U	50.0 U	180	50.0 U	470	220
Indeno(1,2,3-cd)pyrene		0.00490 U			0.000875	
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-		0.000530 T			0.00695	
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene		0.0180 U			0.0150 U	
Toluene		0.00450 U			0.00370 U	
Total Diesel/Fuel Oil	40.0 U	40.0 U	70.0	40.0 U	230	91.0
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil	50.0 U	50.0 U	180	50.0 U	470	220
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene		0.0180 U			0.0150 U	
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH						
Total Xylenes		0.000520			0.00200	
Xylenes		0.000240 JT			0.000150 JT	
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene		0.00490 U			0.00140	
Acenaphthylene		0.00490 U			0.00490 U	
Anthracene		0.00490 U			0.00100 T	
Bromobenzene		0.00450 U			0.00370 U	
Dibenzofuran		0.00490 U			0.00115	
Dichlorobenzene, 1,2-		0.00450 U			0.00370 U	
Dichlorobenzene, 1,3-		0.00450 U			0.00370 U	
Fluoranthene		0.00490 U			0.00165	
Fluorene		0.00490 U			0.00290	
Hexachlorobutadiene		0.0180 U			0.0150 U	
Phenanthrene		0.000890 T			0.0120	
Pyrene		0.000500 T			0.00635	
Trichlorobenzene, 1,2,4-		0.0180 U			0.0150 U	
o-Xylene		0.000280 T			0.00370 U	
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene		0.00450 U			0.00370 U	
1,2,3-trichlorobenzene		0.0180 U			0.0150 U	
1,2,4-Trimethylbenzene		0.000360 T			0.0150 U	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-2-S2_070208(6.0-6.5)_SO	TP-3-Bottom_070208(9.0-9.5)_SO	TP-3-S1_070208(2.0-3.0)_SO	TP-3-S2_070208(6.0-6.5)_SO	TP-4-Bottom_070208(9.0-9.5)_SO_DC	TP-4-S1_070208(2.0-2.5)_SO
1,3,5-Trimethylbenzene		0.000120 JT			0.0150 U	
1,3-dichloropropane		0.00450 U			0.00370 U	
1-Phenylpropane		0.0180 U			0.0150 U	
2,2-dichloropropane		0.00450 U			0.00370 U	
2-chlorotoluene		0.0180 U			0.0150 U	
4-chlorotoluene		0.0180 U			0.0150 U	
4-isopropyltoluene		0.0180 U			0.0150 U	
Acetone		0.0180 U			0.0785	
Bromochloromethane		0.00450 U			0.00370 U	
Bromodichloromethane		0.00450 U			0.00370 U	
Bromoform		0.00450 U			0.00370 U	
Bromomethane		0.00450 U			0.00160 JT	
CFC-11		0.00450 U			0.00370 U	
CFC-12		0.00450 U			0.00370 U	
Carbon Disulfide		0.0000800 T			0.000260	
Carbon Tetrachloride		0.00450 U			0.00370 U	
Chlorobenzene		0.00450 U			0.00370 U	
Chloroform		0.00450 U			0.00370 U	
Chloromethane		0.000150 T			0.000200	
Cumene		0.0180 U			0.0150 U	
Dibromo-3-chloropropane, 1,2-		0.0180 U			0.0150 U	
Dibromochloromethane		0.00450 U			0.00370 U	
Dibromoethane, 1,2-		0.0180 U			0.0150 U	
Dichlorobenzene, 1,4-		0.00450 U			0.00370 U	
Dichloroethane, 1,1-		0.00450 U			0.00370 U	
Dichloroethane, 1,2-		0.00450 U			0.00370 U	
Dichloroethene, 1,1-		0.00450 U			0.00370 U	
Dichloroethylene, Cis-1,2-		0.00450 U			0.00370 U	
Dichloroethylene, Trans-1,2-		0.00450 U			0.00370 U	
Dichloromethane		0.00890 U			0.00195	
Dichloropropane, 1,2-		0.00450 U			0.00370 U	
Dichloropropene, Cis-1,3-		0.00450 U			0.00370 U	
Dichloropropene, Trans-1,3-		0.00450 U			0.00370 U	
Ethyl Chloride		0.00450 U			0.00370 U	
Hexanone, 2-		0.0180 U			0.00230 T	
Methyl Ethyl Ketone		0.0180 U			0.0128	
Methyl Isobutyl Ketone		0.0180 U			0.0150 U	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-2-S2_070208(6.0-6.5)_SO	TP-3-Bottom_070208(9.0-9.5)_SO	TP-3-S1_070208(2.0-3.0)_SO	TP-3-S2_070208(6.0-6.5)_SO	TP-4-Bottom_070208(9.0-9.5)_SO_DC	TP-4-S1_070208(2.0-2.5)_SO
Methylene Bromide		0.00450 U			0.00370 U	
Styrene		0.000150 T			0.00370 U	
Tert-butylbenzene		0.0180 U			0.0150 U	
Tetrachloroethane, 1,1,1,2-		0.00450 U			0.00370 U	
Tetrachloroethane, 1,1,2,2-		0.00450 U			0.00370 U	
Tetrachloroethylene		0.00450 U			0.00370 U	
Trichloroethane, 1,1,1-		0.00450 U			0.00370 U	
Trichloroethane, 1,1,2-		0.00450 U			0.00370 U	
Trichloroethylene		0.00450 U			0.00370 U	
Trichloropropane, 1,2,3-		0.00450 U			0.00370 U	
Vinyl Chloride		0.00450 U			0.00370 U	
n-Butylbenzene		0.0180 U			0.0150 U	
sec-Butylbenzene		0.0180 U			0.0150 U	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-4-S2_070208(6.0-6.5)_SO	TP-5-Bottom_070208(8.5-9.0)_SO	TP-5-S1_070208(2.0-2.5)_SO	TP-5-S2_070208(6.0-6.5)_SO	TP-6-Bottom_070208(8.0-8.5)_SO	TP-6-S1_070208(2.0-2.5)_SO
Conventional (%)						
Moisture	6.60	8.10	5.40	5.00	7.20	7.90
Metals (mg/kg)						
Antimony (metallic)		0.220 J			0.200 J	
Arsenic (inorganic)		10.0			6.00	
Barium		41.3			37.2	
Cadmium		0.0820			0.0950	
Chromium		5.90			7.80	
Lead (inorganic)		9.90			7.10	
Mercury (inorganic)		0.0200			0.0700	
Selenium (and compounds)		1.00 U			1.10 U	
Silver		0.0420			0.0630	
PCBs (mg/kg)						
Aroclor 1016		0.0100 U			0.0100 U	
Aroclor 1221		0.0200 U			0.0200 U	
Aroclor 1232		0.0100 U			0.0100 U	
Aroclor 1242		0.0100 U			0.0100 U	
Aroclor 1248		0.0190			0.00770 T	
Aroclor 1254		0.0180			0.00860 T	
Aroclor 1260		0.0100 U			0.0100 U	
Total PCBs		0.0370			0.0163	
Petroleum-Related Constituents (mg/kg)						
Benzene		0.00460 U			0.0500 U	
Benzo(a)anthracene		0.00320 T			0.00630	
Benzo(a)pyrene		0.00220 T			0.0230	
Benzo(b)fluoranthene		0.00210 T			0.0100	
Benzo(g,h,i)perylene		0.00400 T			0.260	
Benzo(k)fluoranthene		0.000680 T			0.00490 U	
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ		0.00301			0.0281	
Chrysene		0.00310 T			0.0390	
Dibenz(a,h)anthracene		0.000720 T			0.00710	
Diesel	200	340	94.0	85.0	510	7300
Ethyl Benzene		0.00460 U			0.00990 T	
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-4-S2_070208(6.0-6.5)_SO	TP-5-Bottom_070208(8.5-9.0)_SO	TP-5-S1_070208(2.0-2.5)_SO	TP-5-S2_070208(6.0-6.5)_SO	TP-6-Bottom_070208(8.0-8.5)_SO	TP-6-S1_070208(2.0-2.5)_SO
Heavy Oil	430	310	120	130	340	3300
Indeno(1,2,3-cd)pyrene		0.00110 T			0.0210	
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-		0.0170			0.0180	
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene		0.00860 T			0.170 T	
Toluene		0.00460 U			0.0130 T	
Total Diesel/Fuel Oil	210	350	104	95.0	520	7310
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil	430	310	120	130	340	3300
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene		0.00860			0.170	
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH						
Total Xylenes		0.000780			0.0660	
Xylenes		0.000480 JT			0.0380 T	
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene		0.00480 T			0.0360	
Acenaphthylene		0.00500 U			0.00490 U	
Anthracene		0.00320 T			0.0110 U	
Bromobenzene		0.00460 U			0.200 U	
Dibenzofuran		0.00340 T			0.0190	
Dichlorobenzene, 1,2-		0.00460 U			0.0500 U	
Dichlorobenzene, 1,3-		0.00460 U			0.0500 U	
Fluoranthene		0.00520			0.0160	
Fluorene		0.00930			0.0770	
Hexachlorobutadiene		0.0190 U			0.200 U	
Phenanthrene		0.0360			0.110	
Pyrene		0.0160			0.150	
Trichlorobenzene, 1,2,4-		0.0190 U			0.200 U	
o-Xylene		0.000300 T			0.0280 T	
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene		0.00460 U			0.0500 U	
1,2,3-trichlorobenzene		0.0190 U			0.200 U	
1,2,4-Trimethylbenzene		0.00310 T			0.170 T	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-4-S2_070208(6.0-6.5)_SO	TP-5-Bottom_070208(8.5-9.0)_SO	TP-5-S1_070208(2.0-2.5)_SO	TP-5-S2_070208(6.0-6.5)_SO	TP-6-Bottom_070208(8.0-8.5)_SO	TP-6-S1_070208(2.0-2.5)_SO
1,3,5-Trimethylbenzene		0.000890 JT			0.0840 JT	
1,3-dichloropropane		0.00460 U			0.0500 U	
1-Phenylpropane		0.0190 U			0.0190 JT	
2,2-dichloropropane		0.00460 U			0.0500 U	
2-chlorotoluene		0.0190 U			0.200 U	
4-chlorotoluene		0.0190 U			0.200 U	
4-isopropyltoluene		0.000400 JT			0.0370 JT	
Acetone		0.110			0.310 T	
Bromochloromethane		0.00460 U			0.0500 U	
Bromodichloromethane		0.00460 U			0.0500 U	
Bromoform		0.00460 U			0.0500 U	
Bromomethane		0.00110 JT			0.0500 U	
CFC-11		0.00460 U			0.0500 U	
CFC-12		0.00460 U			0.0230 JT	
Carbon Disulfide		0.000420 T			0.0500 U	
Carbon Tetrachloride		0.00460 U			0.0500 U	
Chlorobenzene		0.00460 U			0.0500 U	
Chloroform		0.00460 U			0.0500 U	
Chloromethane		0.000200 T			0.0500 U	
Cumene		0.0190 U			0.0110 JT	
Dibromo-3-chloropropane, 1,2-		0.0190 U			0.200 U	
Dibromochloromethane		0.00460 U			0.0500 U	
Dibromoethane, 1,2-		0.0190 U			0.200 U	
Dichlorobenzene, 1,4-		0.00460 U			0.0500 U	
Dichloroethane, 1,1-		0.00460 U			0.0500 U	
Dichloroethane, 1,2-		0.00460 U			0.0500 U	
Dichloroethene, 1,1-		0.00460 U			0.0500 U	
Dichloroethylene, Cis-1,2-		0.00460 U			0.0500 U	
Dichloroethylene, Trans-1,2-		0.00460 U			0.0500 U	
Dichloromethane		0.00910 U			0.0210 T	
Dichloropropane, 1,2-		0.00460 U			0.0500 U	
Dichloropropene, Cis-1,3-		0.00460 U			0.0500 U	
Dichloropropene, Trans-1,3-		0.00460 U			0.0500 U	
Ethyl Chloride		0.00460 U			0.0500 U	
Hexanone, 2-		0.00510 T			2.00 U	
Methyl Ethyl Ketone		0.0180 T			2.00 U	
Methyl Isobutyl Ketone		0.0190 U			2.00 U	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-4-S2_070208(6.0-6.5)_SO	TP-5-Bottom_070208(8.5-9.0)_SO	TP-5-S1_070208(2.0-2.5)_SO	TP-5-S2_070208(6.0-6.5)_SO	TP-6-Bottom_070208(8.0-8.5)_SO	TP-6-S1_070208(2.0-2.5)_SO
Methylene Bromide		0.00460 U			0.0500 U	
Styrene		0.00460 U			0.0160 T	
Tert-butylbenzene		0.0190 U			0.200 U	
Tetrachloroethane, 1,1,1,2-		0.00460 U			0.0500 U	
Tetrachloroethane, 1,1,2,2-		0.00460 U			0.0500 U	
Tetrachloroethylene		0.00460 U			0.0500 U	
Trichloroethane, 1,1,1-		0.00460 U			0.0500 U	
Trichloroethane, 1,1,2-		0.00460 U			0.0500 U	
Trichloroethylene		0.00460 U			0.0500 U	
Trichloropropane, 1,2,3-		0.00460 U			0.0500 U	
Vinyl Chloride		0.00460 U			0.0500 U	
n-Butylbenzene		0.0190 U			0.0750 JT	
sec-Butylbenzene		0.0190 U			0.0330 JT	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-6-S2_070208(6.0-6.5)_SO	TP-7-Bottom_070208(8.5-9.0)_SO	TP-7-S1_070208(2.0-2.5)_SO	TP-7-S2_070208(6.0-7.0)_SO	TP-8-Bottom_070308(9.0-10.0)_SO	TP-8-S1_070308(1.0-2.0)_SO
Conventional (%)						
Moisture	5.60	6.10	5.80	5.80	3.90	5.60
Metals (mg/kg)						
Antimony (metallic)		0.160 J			0.0600 J	
Arsenic (inorganic)		12.5			3.20	
Barium		36.8			16.9	
Cadmium		0.0630			0.0180 T	
Chromium		6.00			3.20	
Lead (inorganic)		10.0			4.00	
Mercury (inorganic)		0.0190 U			0.0110 U	
Selenium (and compounds)		1.10 U			1.10 U	
Silver		0.0600			0.0340	
PCBs (mg/kg)						
Aroclor 1016		0.00990 U			0.0100 U	
Aroclor 1221		0.0200 U			0.0200 U	
Aroclor 1232		0.00990 U			0.0100 U	
Aroclor 1242		0.00990 U			0.0100 U	
Aroclor 1248		0.00990 U			0.0100 U	
Aroclor 1254		0.00990 U			0.0100 U	
Aroclor 1260		0.00990 U			0.0100 U	
Total PCBs		0.00990 U			0.0100 U	
Petroleum-Related Constituents (mg/kg)						
Benzene		0.00460 U			0.00520 U	
Benzo(a)anthracene		0.00130 T			0.00490 U	
Benzo(a)pyrene		0.00500 U			0.00490 U	
Benzo(b)fluoranthene		0.000300 T			0.00490 U	
Benzo(g,h,i)perylene		0.00500 U			0.00490 U	
Benzo(k)fluoranthene		0.00500 U			0.00490 U	
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ		0.00319			0.00740 U	
Chrysene		0.000890 T			0.00490 U	
Dibenz(a,h)anthracene		0.00500 U			0.00490 U	
Diesel	4500	20.0 U	20.0 U	46.0	20.0 U	20.0 U
Ethyl Benzene		0.00460 U			0.00520 U	
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U	20.0 U	5.00 U

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-6-S2_070208(6.0-6.5)_SO	TP-7-Bottom_070208(8.5-9.0)_SO	TP-7-S1_070208(2.0-2.5)_SO	TP-7-S2_070208(6.0-7.0)_SO	TP-8-Bottom_070308(9.0-10.0)_SO	TP-8-S1_070308(1.0-2.0)_SO
Heavy Oil	2000	50.0 U	50.0 U	220	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene		0.000260 T			0.00490 U	
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-		0.0150			0.00490 U	
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U	20.0 U	5.00 U
Naphthalene		0.0190 U			0.0210 U	
Toluene		0.00460 U			0.00520 U	
Total Diesel/Fuel Oil	4510	40.0 U	40.0 U	56.0	40.0 U	40.0 U
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U	20.0 U	5.00 U
Total Heavy Oil	2000	50.0 U	50.0 U	220	50.0 U	50.0 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene		0.0190 U			0.0210 U	
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U	20.0 U	5.00 U
Total TPH						
Total Xylenes		0.000620			0.00281	
Xylenes		0.000370 JT			0.000210 JT	
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene		0.00100 T			0.00490 U	
Acenaphthylene		0.00500 U			0.00490 U	
Anthracene		0.00130 T			0.00490 U	
Bromobenzene		0.00460 U			0.00520 U	
Dibenzofuran		0.000810 T			0.00490 U	
Dichlorobenzene, 1,2-		0.00460 U			0.00520 U	
Dichlorobenzene, 1,3-		0.00460 U			0.00520 U	
Fluoranthene		0.000910 T			0.00490 U	
Fluorene		0.00230 T			0.00490 U	
Hexachlorobutadiene		0.0190 U			0.0210 U	
Phenanthrene		0.00960			0.00490 U	
Pyrene		0.00410 T			0.00490 U	
Trichlorobenzene, 1,2,4-		0.0190 U			0.0210 U	
o-Xylene		0.000250 T			0.00520 U	
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene		0.00460 U			0.00520 U	
1,2,3-trichlorobenzene		0.0190 U			0.0210 U	
1,2,4-Trimethylbenzene		0.00110 T			0.0210 U	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-6-S2_070208(6.0-6.5)_SO	TP-7-Bottom_070208(8.5-9.0)_SO	TP-7-S1_070208(2.0-2.5)_SO	TP-7-S2_070208(6.0-7.0)_SO	TP-8-Bottom_070308(9.0-10.0)_SO	TP-8-S1_070308(1.0-2.0)_SO
1,3,5-Trimethylbenzene		0.000290 JT			0.0210 U	
1,3-dichloropropane		0.00460 U			0.00520 U	
1-Phenylpropane		0.0190 U			0.0210 U	
2,2-dichloropropane		0.00460 U			0.00520 U	
2-chlorotoluene		0.0190 U			0.0210 U	
4-chlorotoluene		0.0190 U			0.0210 U	
4-isopropyltoluene		0.0190 U			0.0210 U	
Acetone		0.0190 U			0.0210 U	
Bromochloromethane		0.00460 U			0.00520 U	
Bromodichloromethane		0.00460 U			0.00520 U	
Bromoform		0.00460 U			0.00520 U	
Bromomethane		0.00210 JT			0.00520 U	
CFC-11		0.00460 U			0.00520 U	
CFC-12		0.00460 U			0.00520 U	
Carbon Disulfide		0.00460 U			0.000300 T	
Carbon Tetrachloride		0.00460 U			0.00520 U	
Chlorobenzene		0.00460 U			0.00520 U	
Chloroform		0.00460 U			0.00520 U	
Chloromethane		0.000390 T			0.00520 U	
Cumene		0.0190 U			0.0210 U	
Dibromo-3-chloropropane, 1,2-		0.0190 U			0.0210 U	
Dibromochloromethane		0.00460 U			0.00520 U	
Dibromoethane, 1,2-		0.0190 U			0.0210 U	
Dichlorobenzene, 1,4-		0.00460 U			0.00520 U	
Dichloroethane, 1,1-		0.00460 U			0.00520 U	
Dichloroethane, 1,2-		0.00460 U			0.00520 U	
Dichloroethene, 1,1-		0.00460 U			0.00520 U	
Dichloroethylene, Cis-1,2-		0.00460 U			0.00520 U	
Dichloroethylene, Trans-1,2-		0.00460 U			0.00520 U	
Dichloromethane		0.00920 U			0.0110 U	
Dichloropropane, 1,2-		0.00460 U			0.00520 U	
Dichloropropene, Cis-1,3-		0.00460 U			0.00520 U	
Dichloropropene, Trans-1,3-		0.00460 U			0.00520 U	
Ethyl Chloride		0.00460 U			0.00520 U	
Hexanone, 2-		0.0190 U			0.0210 U	
Methyl Ethyl Ketone		0.0190 U			0.0210 U	
Methyl Isobutyl Ketone		0.0190 U			0.0210 U	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-6-S2_070208(6.0-6.5)_SO	TP-7-Bottom_070208(8.5-9.0)_SO	TP-7-S1_070208(2.0-2.5)_SO	TP-7-S2_070208(6.0-7.0)_SO	TP-8-Bottom_070308(9.0-10.0)_SO	TP-8-S1_070308(1.0-2.0)_SO
Methylene Bromide		0.00460 U			0.00520 U	
Styrene		0.000140 T			0.00520 U	
Tert-butylbenzene		0.0190 U			0.0210 U	
Tetrachloroethane, 1,1,1,2-		0.00460 U			0.00520 U	
Tetrachloroethane, 1,1,2,2-		0.00460 U			0.00520 U	
Tetrachloroethylene		0.00460 U			0.00520 U	
Trichloroethane, 1,1,1-		0.00460 U			0.00520 U	
Trichloroethane, 1,1,2-		0.00460 U			0.00520 U	
Trichloroethylene		0.00460 U			0.00520 U	
Trichloropropane, 1,2,3-		0.00460 U			0.00520 U	
Vinyl Chloride		0.00460 U			0.00520 U	
n-Butylbenzene		0.000270 T			0.0210 U	
sec-Butylbenzene		0.0190 U			0.0210 U	

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-8-S2_070308(6.0-7.0)_SO	TP-9-Bottom_070308(8.0-8.5)_SO	TP-9-S1_070308(2.0-3.0)_SO	TP-9-S2_070308(6.0-6.5)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO
Conventional (%)						
Moisture	6.60	4.80	4.90	6.60		
Metals (mg/kg)						
Antimony (metallic)		0.130 J				
Arsenic (inorganic)		9.30			2.20	1.70
Barium		42.2				
Cadmium		0.0660			1.00 U	1.00 U
Chromium		5.40			22.0	34.0
Lead (inorganic)		9.80			120	10.0 U
Mercury (inorganic)		0.00100 T				
Selenium (and compounds)		1.10 U				
Silver		0.0440				
PCBs (mg/kg)						
Aroclor 1016		0.0100 U				
Aroclor 1221		0.0200 U				
Aroclor 1232		0.0100 U				
Aroclor 1242		0.0100 U				
Aroclor 1248		0.0160				
Aroclor 1254		0.0100 U				
Aroclor 1260		0.0100 U				
Total PCBs		0.0160				
Petroleum-Related Constituents (mg/kg)						
Benzene		0.00450 U			0.0500 U	0.500 U
Benzo(a)anthracene		0.00140 T				
Benzo(a)pyrene		0.00140 T				
Benzo(b)fluoranthene		0.000500 T				
Benzo(g,h,i)perylene		0.000780 T				
Benzo(k)fluoranthene		0.00480 U				
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U		
CPAH TEQ		0.00210				
Chrysene		0.00100 T				
Dibenz(a,h)anthracene		0.00480 U				
Diesel	20.0 U	20.0 U	2500	450		
Ethyl Benzene		0.00450 U			0.0500 U	0.500 U
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U		

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-8-S2_070308(6.0-7.0)_SO	TP-9-Bottom_070308(8.0-8.5)_SO	TP-9-S1_070308(2.0-3.0)_SO	TP-9-S2_070308(6.0-6.5)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO
Heavy Oil	50.0 U	50.0 U	750	440		
Indeno(1,2,3-cd)pyrene		0.000230 T				
Kensol	20.0 U	20.0 U	20.0 U	20.0 U		
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U		
Methylnaphthalene, 2-		0.000740 T				
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U		
Naphthalene		0.0180 U				
Toluene		0.00450 U			0.0500 U	0.500 U
Total Diesel/Fuel Oil	40.0 U	40.0 U	2510	460	117	1800
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U		
Total Heavy Oil	50.0 U	50.0 U	750	440	103	1600
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U		
Total Naphthalene		0.0180 U				
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U		
Total TPH					220	3400
Total Xylenes		0.000800			0.0500 U	0.500 U
Xylenes		0.000490 JT			0.0500 U	0.500 U
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene		0.00110 T				
Acenaphthylene		0.00480 U				
Anthracene		0.00480 U				
Bromobenzene		0.00450 U				
Dibenzofuran		0.00480 U				
Dichlorobenzene, 1,2-		0.00450 U				
Dichlorobenzene, 1,3-		0.00450 U				
Fluoranthene		0.00120 T				
Fluorene		0.00260 T				
Hexachlorobutadiene		0.0180 U				
Phenanthrene		0.00590				
Pyrene		0.00490				
Trichlorobenzene, 1,2,4-		0.0180 U				
o-Xylene		0.000310 T				
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene		0.00450 U				
1,2,3-trichlorobenzene		0.0180 U				
1,2,4-Trimethylbenzene		0.00140 T				

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-8-S2_070308(6.0-7.0)_SO	TP-9-Bottom_070308(8.0-8.5)_SO	TP-9-S1_070308(2.0-3.0)_SO	TP-9-S2_070308(6.0-6.5)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO
1,3,5-Trimethylbenzene		0.000500 JT				
1,3-dichloropropane		0.00450 U				
1-Phenylpropane		0.0180 U				
2,2-dichloropropane		0.00450 U				
2-chlorotoluene		0.0180 U				
4-chlorotoluene		0.0180 U				
4-isopropyltoluene		0.0180 U				
Acetone		0.0540				
Bromochloromethane		0.00450 U				
Bromodichloromethane		0.00450 U				
Bromoform		0.00450 U				
Bromomethane		0.00450 U				
CFC-11		0.00450 U				
CFC-12		0.00450 U				
Carbon Disulfide		0.000540 T				
Carbon Tetrachloride		0.00450 U				
Chlorobenzene		0.00450 U				
Chloroform		0.00450 U			0.0500 U	0.500 U
Chloromethane		0.00450 U				
Cumene		0.0180 U				
Dibromo-3-chloropropane, 1,2-		0.0180 U				
Dibromochloromethane		0.00450 U				
Dibromoethane, 1,2-		0.0180 U				
Dichlorobenzene, 1,4-		0.00450 U				
Dichloroethane, 1,1-		0.00450 U			0.0500 U	0.500 U
Dichloroethane, 1,2-		0.00450 U				
Dichloroethene, 1,1-		0.00450 U				
Dichloroethylene, Cis-1,2-		0.00450 U				
Dichloroethylene, Trans-1,2-		0.00450 U				
Dichloromethane		0.00890 U				
Dichloropropane, 1,2-		0.00450 U				
Dichloropropene, Cis-1,3-		0.00450 U				
Dichloropropene, Trans-1,3-		0.00450 U				
Ethyl Chloride		0.00450 U				
Hexanone, 2-		0.0180 U				
Methyl Ethyl Ketone		0.00950 T			0.500 U	5.00 U
Methyl Isobutyl Ketone		0.0180 U				

Table A.1.7
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-8-S2_070308(6.0-7.0)_SO	TP-9-Bottom_070308(8.0-8.5)_SO	TP-9-S1_070308(2.0-3.0)_SO	TP-9-S2_070308(6.0-6.5)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO
Methylene Bromide		0.00450 U				
Styrene		0.00450 U				
Tert-butylbenzene		0.0180 U				
Tetrachloroethane, 1,1,1,2-		0.00450 U				
Tetrachloroethane, 1,1,2,2-		0.00450 U				
Tetrachloroethylene		0.00450 U				
Trichloroethane, 1,1,1-		0.00450 U			0.0500 U	0.500 U
Trichloroethane, 1,1,2-		0.00450 U				
Trichloroethylene		0.00450 U				
Trichloropropane, 1,2,3-		0.00450 U				
Vinyl Chloride		0.00450 U				
n-Butylbenzene		0.0180 U				
sec-Butylbenzene		0.0180 U				

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.8
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Sample ID:	HTE10_042991_SO	HTE11_042991(13.0)_SO	HTE5_050191_SO	HTE6B_052491_SO	HTE6_050191_SO	HTE7_042991_SO
Metals (mg/kg)							
Antimony (metallic)						0.500 U	
Arsenic (inorganic)						12.0	
Beryllium						0.190	
Cadmium						3.70	
Chromium						25.0	
Copper						79.0	
Lead (inorganic)						58.0	
Mercury (inorganic)						0.540	
Nickel (soluble salts)						11.0	
Selenium (and compounds)						0.500 U	
Silver						0.150 U	
Thallium						0.500 U	
Zinc						56.0	
PCBs (mg/kg)							
Aroclor 1016						0.660 U	
Aroclor 1221						0.660 U	
Aroclor 1232						0.660 U	
Aroclor 1242						0.660 U	
Aroclor 1248						0.660 U	
Aroclor 1254						0.660 U	
Aroclor 1260						0.660 U	
Total PCBs						0.660 U	
Petroleum-Related Constituents (mg/kg)							
Benzene						0.0500 U	
Benzo(a)anthracene					0.830 U	17.0 U	
Benzo(a)pyrene					0.830 U	17.0 U	
Benzo(b)fluoranthene					0.830 U	17.0 U	
Benzo(g,h,i)perylene					0.830 U	17.0 U	
Benzo(k)fluoranthene					0.830 U	17.0 U	
CPAH TEQ					1.30 U	25.7 U	
Chrysene					0.830 U	17.0 U	
Dibenz(a,h)anthracene					1.70 U	17.0 U	
Ethyl Benzene						0.0500 U	
Indeno(1,2,3-cd)pyrene					0.830 U	17.0 U	
Methylnaphthalene, 2-						17.0 U	

Table A.1.8
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HTE10_042991_SO	HTE11_042991(13.0)_SO	HTE5_050191_SO	HTE6B_052491_SO	HTE6_050191_SO	HTE7_042991_SO
Naphthalene				4.20 U	17.0 U	
Toluene					0.0500 U	
Total Diesel/Fuel Oil	260	410	4400		33000	5000
Total Naphthalene				4.20 U	17.0 U	
Total TPH	260	410	4400		33000	5000
Total Xylenes					0.0500 U	
Xylenes					0.0500 U	
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol					17.0 U	
Acenaphthene				8.30 U	17.0 U	
Acenaphthylene				8.30	17.0 U	
Aniline					17.0 U	
Anthracene				0.420 U	17.0 U	
Benzidine					170 U	
Benzoic Acid					85.0 U	
Benzyl Alcohol					17.0 U	
Bis(2-Chloroethoxy)methane					17.0 U	
Bis(2-chloroisopropyl)Ether					17.0 U	
Bis(2-ethylhexyl)Phthalate (DEHP)					17.0 U	
Bis(Chloroethyl)ether					17.0 U	
Bromodiphenyl ether, 4-					17.0 U	
Butyl Benzyl Phthalate, N-					17.0 U	
Chloro-3-methylphenol, 4-					17.0 U	
Chloroaniline, 4-					17.0 U	
Chloronaphthalene, 2-					17.0 U	
Chlorophenol, 2-					17.0 U	
Chlorophenyl-phenyl ether, 4-					17.0 U	
Di-n-Octylphthalate					17.0 U	
Dibenzofuran					17.0 U	
Dibutyl Phthalate					17.0 U	
Dichlorobenzene, 1,2-					17.0 U	
Dichlorobenzene, 1,3-					17.0 U	
Dichlorobenzidine, 3,3'					34.0 U	
Dichlorophenol, 2,4-					17.0 U	
Diethyl Phthalate					17.0 U	
Dimethyl Phthalate					17.0 U	
Dimethylphenol, 2,4-					17.0 U	

Table A.1.8
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HTE10_042991_SO	HTE11_042991(13.0)_SO	HTE5_050191_SO	HTE6B_052491_SO	HTE6_050191_SO	HTE7_042991_SO
Dinitro-o-Cresol, 4,6-					85.0 U	
Dinitrophenol, 2,4-					85.0 U	
Dinitrotoluene, 2,4-					17.0 U	
Dinitrotoluene, 2,6-					17.0 U	
Fluoranthene				0.830 U	17.0 U	
Fluorene				0.830 U	17.0 U	
Hexachlorobenzene					17.0 U	
Hexachlorobutadiene					17.0 U	
Hexachlorocyclopentadiene					17.0 U	
Hexachloroethane					17.0 U	
Isophorone					17.0 U	
Methylphenol, 2-					17.0 U	
Methylphenol, 4-					17.0 U	
Nitroaniline, 2-					85.0 U	
Nitroaniline, 3-					85.0 U	
Nitroaniline, 4-					85.0 U	
Nitrobenzene					17.0 U	
Nitrophenol, 4-					85.0 U	
Nitrosodi-N-propylamine, N-					17.0 U	
Nitrosodimethylamine, N-					17.0 U	
Nitrosodiphenylamine, N-					17.0 U	
Pentachlorophenol					85.0 U	
Phenanthrene				0.420 U	17.0 U	
Phenol					7.00 J	
Pyrene				0.830 U	17.0 U	
Trichlorobenzene, 1,2,4-					17.0 U	
Trichlorophenol, 2,4,5-					85.0 U	
Trichlorophenol, 2,4,6-					17.0 U	
Volatile Organics Constituents (mg/kg)						
Acetone					0.630 J	
Bromodichloromethane					0.0500 U	
Bromoform					0.250 U	
Bromomethane					0.500 U	
Carbon Disulfide					0.0500 U	
Carbon Tetrachloride					0.0500 U	
Chlorobenzene					0.0500 U	
Chloroform					0.0500 U	

Table A.1.8
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HTE10_042991_SO	HTE11_042991(13.0)_SO	HTE5_050191_SO	HTE6B_052491_SO	HTE6_050191_SO	HTE7_042991_SO
Chloromethane					0.500 U	
Dibromochloromethane					0.0500 U	
Dichlorobenzene, 1,4-					17.0 U	
Dichloroethane, 1,1-					0.0500 U	
Dichloroethane, 1,2-					0.0500 U	
Dichloroethene, 1,1-					0.0500 U	
Dichloroethylene, Cis-1,2-					0.0500 U	
Dichloromethane					0.390 U	
Dichloropropane, 1,2-					0.0500 U	
Dichloropropene, Cis-1,3-					0.0500 U	
Dichloropropene, Trans-1,3-					0.0500 U	
Ethyl Chloride					0.0500 U	
Hexanone, 2-					0.500 U	
Methyl Ethyl Ketone					0.500 U	
Methyl Isobutyl Ketone					0.500 U	
Styrene					0.0500 U	
Tetrachloroethane, 1,1,2,2-					0.0500 U	
Tetrachloroethylene					0.0500 U	
Trichloroethane, 1,1,1-					0.0500 U	
Trichloroethane, 1,1,2-					0.0500 U	
Trichloroethylene					0.0500 U	
Vinyl Acetate					0.500 U	
Vinyl Chloride					0.0500 U	

Table A.1.8
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Sample ID:	HTE8_042991(11.0)_SO	HTE9_042991_SO				
Metals (mg/kg)							
Antimony (metallic)							
Arsenic (inorganic)							
Beryllium							
Cadmium							
Chromium							
Copper							
Lead (inorganic)							
Mercury (inorganic)							
Nickel (soluble salts)							
Selenium (and compounds)							
Silver							
Thallium							
Zinc							
PCBs (mg/kg)							
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Total PCBs							
Petroleum-Related Constituents (mg/kg)							
Benzene							
Benzo(a)anthracene							
Benzo(a)pyrene							
Benzo(b)fluoranthene							
Benzo(g,h,i)perylene							
Benzo(k)fluoranthene							
CPAH TEQ							
Chrysene							
Dibenz(a,h)anthracene							
Ethyl Benzene							
Indeno(1,2,3-cd)pyrene							
Methylnaphthalene, 2-							

Table A.1.8
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HTE8_042991(11.0)_SO	HTE9_042991_SO				
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	1100	100				
Total Naphthalene						
Total TPH	1100	100				
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						

Table A.1.8
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Sample ID:	HTE8_042991(11.0)_SO	HTE9_042991_SO				
Dinitro-o-Cresol, 4,6-							
Dinitrophenol, 2,4-							
Dinitrotoluene, 2,4-							
Dinitrotoluene, 2,6-							
Fluoranthene							
Fluorene							
Hexachlorobenzene							
Hexachlorobutadiene							
Hexachlorocyclopentadiene							
Hexachloroethane							
Isophorone							
Methylphenol, 2-							
Methylphenol, 4-							
Nitroaniline, 2-							
Nitroaniline, 3-							
Nitroaniline, 4-							
Nitrobenzene							
Nitrophenol, 4-							
Nitrosodi-N-propylamine, N-							
Nitrosodimethylamine, N-							
Nitrosodiphenylamine, N-							
Pentachlorophenol							
Phenanthrene							
Phenol							
Pyrene							
Trichlorobenzene, 1,2,4-							
Trichlorophenol, 2,4,5-							
Trichlorophenol, 2,4,6-							
Volatile Organics Constituents (mg/kg)							
Acetone							
Bromodichloromethane							
Bromoform							
Bromomethane							
Carbon Disulfide							
Carbon Tetrachloride							
Chlorobenzene							
Chloroform							

Table A.1.8
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HTE8_042991(11.0)_SO	HTE9_042991_SO				
Chloromethane						
Dibromochloromethane						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Styrene						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Vinyl Acetate						
Vinyl Chloride						

Notes:
The following qualifiers may be used in this table:
J - Constituent present, reported value is estimated
U - Not detected at or above reporting limit
UJ - Not detected; reporting limit is estimated
The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:
-If both results were detected values, then the two values were averaged.
If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.9
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Sample ID:	HT-SB-1-S1_081208(10.0-11.0)_SO	WW-SB-1/S-1_111589(5.0-7.0)_SO	WW-T-OS-S-2_040298(4.0-7.0)_SO	WW-T-OS-S-3_040298_SO	WW-TO-SCRUB-COMP_042898(4.0-7.0)_SO	
Conventional (%)							
Moisture		7.80					
Metals (mg/kg)							
Arsenic (inorganic)			5.40	11.0			
Barium				180			
Cadmium			1.00 U	1.40			
Chromium			39.0	220			
Lead (inorganic)			10.0 U	320 J			
Mercury (inorganic)				0.240			
Selenium (and compounds)				0.640 UJ			
Silver				4.90			
Northwest EPH (mg/kg)							
C10-C12 Aliphatics						52.0 U	
C10-C12 Aromatics						2.60 U	
C12-C16 Aliphatics						1900	
C12-C16 Aromatics						82.0	
C16-C21 Aliphatics						8400	
C16-C21 Aromatics						2000	
C21-C34 Aliphatics						16000	
C21-C34 Aromatics						2300	
C8-C10 Aliphatics						52.0 U	
Northwest VPH (mg/kg)							
Aliphatic C5-C6						1.30 U	
Aliphatic C6-C8						1.70 U	
Aliphatic C8-C10						2.60 U	
Aromatic C8-C10						3.40	
PCBs (mg/kg)							
Aroclor 1016				0.0790 U			
Aroclor 1221				0.0790 U			
Aroclor 1232				0.0790 U			
Aroclor 1242				0.0790 U			
Aroclor 1248				0.290			
Aroclor 1254				0.240			
Aroclor 1260				0.0790 U			
Total PCBs				0.530			

Table A.1.9
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HT-SB-1-S1_081208(10.0-11.0)_SO	WW-SB-1/S-1_111589(5.0-7.0)_SO	WW-T-OS-S-2_040298(4.0-7.0)_SO	WW-T-OS-S-3_040298_SO	WW-TO-SCRUB-COMP_042898(4.0-7.0)_SO	
Petroleum-Related Constituents (mg/kg)						
Benzene		0.0500 U	0.0120 U		0.430 U	
Benzo(a)anthracene			0.900 J		0.0100 U	
Benzo(a)pyrene			0.550 J		0.00970 U	
Benzo(b)fluoranthene			9.90 U		0.0130 U	
Benzo(g,h,i)perylene			9.90 U		0.0150 U	
Benzo(k)fluoranthene			9.90 U		0.0180 U	
Bunker C	50.0 U					
CPAH TEQ			2.60		0.0170 U	
Chrysene			1.10 J		0.0130 U	
Dibenz(a,h)anthracene			9.90 U		0.0140 U	
Diesel	20.0 U		20000	39.0		
Ethyl Benzene		0.0500 U	0.0120 U		0.430 U	
Gasoline Range Organics	5.00 U					
Heavy Oil	50.0 U		22000	160		
Indeno(1,2,3-cd)pyrene			9.90 U		0.0170 U	
Kensol	20.0 U					
Kerosene/Jet fuel	20.0 U					
Methylnaphthalene, 2-			2.40 J		0.300	
Mineral spirits/Stoddard	5.00 U					
Naphthalene			0.0300 U		0.750	
Toluene		0.0500 U	0.0120 U		0.430 U	
Total Diesel/Fuel Oil	40.0 U		20000	39.0		
Total Gasoline	5.00 U					
Total Heavy Oil	50.0 U	48.0	22000	160		
Total Kerosene/Jet Fuel	20.0 U					
Total Naphthalene			0.0300 U		0.750	
Total Stoddard/Mineral Spirits	5.00 U					
Total TPH		48.0				
Total Xylenes		0.0500 U	0.0260		1.30 U	
Xylenes		0.0500 U	0.0260 J		0.870 U	
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol			9.90 U			
3,4-Methylphenol (m,p-cresol)			9.90 U			
Acenaphthene			2.20 J		0.520	
Acenaphthylene			9.90 U		0.0250 U	

Table A.1.9
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HT-SB-1-S1_081208(10.0-11.0)_SO	WW-SB-1/S-1_111589(5.0-7.0)_SO	WW-T-OS-S-2_040298(4.0-7.0)_SO	WW-T-OS-S-3_040298_SO	WW-TO-SCRUB-COMP_042898(4.0-7.0)_SO	
Aniline			9.90 U			
Anthracene			3.20 J		3.00	
Benzidine			99.0 U			
Benzoic Acid			50.0 U			
Benzyl Alcohol			9.90 U			
Bis(2-Chloroethoxy)methane			9.90 U			
Bis(2-ethylhexyl)Phthalate (DEHP)			1.90 J			
Bis(Chloroethyl)ether			9.90 U			
Bromobenzene			0.0120 U			
Bromodiphenyl ether, 4-			9.90 U			
Butyl Benzyl Phthalate, N-			9.90 U			
Chloro-3-methylphenol, 4-			9.90 U			
Chloroaniline, 4-			9.90 U			
Chloronaphthalene, 2-			9.90 U			
Chlorophenol, 2-			9.90 U			
Chlorophenyl-phenyl ether, 4-			9.90 U			
Di-n-Octylphthalate			9.90 U			
Dibenzofuran			2.00 J			
Dibutyl Phthalate			9.90 U			
Dichlorobenzene, 1,2-			0.0120 U			
Dichlorobenzene, 1,3-			0.0120 U			
Dichlorobenzidine, 3,3'			20.0 U			
Dichlorophenol, 2,4-			9.90 U			
Diethyl Phthalate			9.90 U			
Dimethyl Phthalate			9.90 U			
Dimethylphenol, 2,4-			9.90 U			
Dinitro-o-Cresol, 4,6-			50.0 U			
Dinitrophenol, 2,4-			50.0 U			
Dinitrotoluene, 2,4-			9.90 U			
Dinitrotoluene, 2,6-			9.90 U			
Fluoranthene			4.50 J		3.00	
Fluorene			5.20 J		2.40	
Hexachlorobenzene			9.90 U			
Hexachlorobutadiene			0.0300 U			
Hexachlorocyclopentadiene			9.90 U			
Hexachloroethane			9.90 U			
Isophorone			9.90 U			

Table A.1.9
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HT-SB-1-S1_081208(10.0-11.0)_SO	WW-SB-1/S-1_111589(5.0-7.0)_SO	WW-T-OS-S-2_040298(4.0-7.0)_SO	WW-T-OS-S-3_040298_SO	WW-TO-SCRUB-COMP_042898(4.0-7.0)_SO	
Isopropyltoluene			0.200 J			
Methylphenol, 2-			9.90 U			
Nitroaniline, 2-			50.0 U			
Nitroaniline, 3-			50.0 U			
Nitroaniline, 4-			50.0 U			
Nitrobenzene			9.90 U			
Nitrophenol, 4-			50.0 U			
Nitrosodi-N-propylamine, N-			9.90 U			
Nitrosodimethylamine, N-			9.90 U			
Nitrosodiphenylamine, N-			9.90 U			
Oxybis(1-chloropropane), 2-2'			9.90 U			
Pentachlorophenol			50.0 U			
Phenanthrene			15.0 J		4.90	
Phenol			9.90 U			
Pyrene			2.60 J		5.00	
Trichlorobenzene, 1,2,4-			0.0300 U			
Trichlorophenol, 2,4,5-			50.0 U			
Trichlorophenol, 2,4,6-			9.90 U			
o-Xylene					0.430 U	
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene			0.0120 U			
1,2,3-trichlorobenzene			0.0300 U			
1,2,4-Trimethylbenzene			1.00 J			
1,3,5-Trimethylbenzene			0.340 J			
1,3-dichloropropane			0.0120 U			
1-Phenylpropane			0.0120 U			
2,2-dichloropropane			0.0120 U			
2-chlorotoluene			0.0120 U			
4-chlorotoluene			0.0120 U			
Bromochloromethane			0.0120 U			
Bromodichloromethane			0.0120 U			
Bromoform			0.0120 U			
Bromomethane			0.0300 U			
CFC-11			0.0120 U			
CFC-12			0.0120 U			
Carbon Tetrachloride			0.0120 U			
Chlorobenzene			0.0120 U			

Table A.1.9
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HT-SB-1-S1_081208(10.0-11.0)_SO	WW-SB-1/S-1_111589(5.0-7.0)_SO	WW-T-OS-S-2_040298(4.0-7.0)_SO	WW-T-OS-S-3_040298_SO	WW-TO-SCRUB-COMP_042898(4.0-7.0)_SO	
Chloroform		0.0500 U	0.0120 U			
Chloromethane			0.0300 U			
Cumene			0.0120 U			
Dibromo-3-chloropropane, 1,2-			0.0300 U			
Dibromochloromethane			0.0120 U			
Dibromoethane, 1,2-			0.0120 U			
Dichlorobenzene, 1,4-			0.0120 U			
Dichloroethane, 1,1-		0.0500 U	0.0120 U			
Dichloroethane, 1,2-			0.0120 U			
Dichloroethene, 1,1-			0.0120 U			
Dichloroethylene, Cis-1,2-			0.0120 U			
Dichloroethylene, Trans-1,2-			0.0120 U			
Dichloromethane			0.0600 U			
Dichloropropane, 1,2-			0.0120 U			
Dichloropropene, Cis-1,3-			0.0120 U			
Dichloropropene, Trans-1,3-			0.0120 U			
Ethyl Chloride			0.0120 U			
Methyl Ethyl Ketone		0.500 U				
Methyl Tertiary Butyl Ether					0.430 U	
Methylene Bromide			0.0120 U			
Styrene			0.0120 U			
Tert-butylbenzene			0.0120 U			
Tetrachloroethane, 1,1,1,2-			0.0120 U			
Tetrachloroethane, 1,1,2,2-			0.0120 U			
Tetrachloroethylene			0.0120 U			
Trichloroethane, 1,1,1-		0.0500 U	0.0120 U			
Trichloroethane, 1,1,2-			0.0120 U			
Trichloroethylene			0.0120 U			
Trichloropropane, 1,2,3-			0.0120 U			
Vinyl Chloride			0.0120 U			
n-Butylbenzene			0.210 J			
sec-Butylbenzene			0.0300 U			

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-1_031606(5.0-5.5)_SO	05ORTP-2_031606(4.5-5.0)_SO	05ORTP-3_031606(5.0-5.5)_SO	05ORTP-4_031606(5.0-5.5)_SO	05ORTP-5_031606(5.0-5.5)_SO	05ORTP-6_031606(5.0-5.5)_SO_DC
Conventional (%)						
Moisture	10.0	12.0	10.0	9.00	13.0	10.5
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)	33.6	14.0	8.40	1280	15.5	507
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics	11.0 U			56.0		1150
C10-C12 Aromatics	2.20 U			2.40 U		59.0
C12-C16 Aliphatics	33.0			380		1900
C12-C16 Aromatics	2.20 U			12.0		205
C16-C21 Aliphatics	390			920		4000
C16-C21 Aromatics	41.0			360		1700
C21-C34 Aliphatics	1600			2700		8200
C21-C34 Aromatics	150			840		2350
C8-C10 Aliphatics	11.0 U			12.0 U		1750
C8-C10 Aromatics	2.30			2.40 U		71.5
Northwest VPH (mg/kg)						
Aliphatic C10-C12	5.00 U			26.0		1100
Aliphatic C5-C6	5.00 U			5.00 U		5.00 U
Aliphatic C6-C8	5.00 U			5.00 U		5.00 U
Aliphatic C8-C10	5.00 U			5.00 U		275
Aromatic C10-C12	5.00 U			21.0		295
Aromatic C12-C13	5.00 U			45.0		130
Aromatic C8-C10	5.00 U			5.00 U		915
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-1_031606(5.0-5.5)_SO	05ORTP-2_031606(4.5-5.0)_SO	05ORTP-3_031606(5.0-5.5)_SO	05ORTP-4_031606(5.0-5.5)_SO	05ORTP-5_031606(5.0-5.5)_SO	05ORTP-6_031606(5.0-5.5)_SO_DC
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0130 U
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0360 U
Aroclor 1260	0.0400 J	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0480
Total PCBs	0.0400	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0480
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene	0.00520 U			0.00550 U		0.0160 J
Benzo(a)anthracene	0.00340 J			0.0260		0.960
Benzo(a)pyrene	0.00500 U			0.00500 U		0.455
Benzo(b)fluoranthene	0.00490 J			0.0150		0.580
Benzo(g,h,i)perylene	0.0690			0.00510		0.315
Benzo(k)fluoranthene	0.00250 J			0.00500 U		0.510
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ	0.00487			0.00819		0.712
Castor oil	100 U	100 U	100 U	100 U	100 U	100 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-1_031606(5.0-5.5)_SO	05ORTP-2_031606(4.5-5.0)_SO	05ORTP-3_031606(5.0-5.5)_SO	05ORTP-4_031606(5.0-5.5)_SO	05ORTP-5_031606(5.0-5.5)_SO	05ORTP-6_031606(5.0-5.5)_SO_DC
Chrysene	0.0130			0.0790		1.30
Dibenz(a,h)anthracene	0.00190 J			0.00110 J		0.0755
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene	0.00520 U			0.00550 U		0.195
Gasoline Range Organics	5.00 U	20.0 U	20.0 U	5.00 U	20.0 U	5.00 U
Heavy Oil	100 U	100 U	100 U	1200	100 U	4650
Indeno(1,2,3-cd)pyrene	0.00970			0.00440 J		0.315
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	310	20.0 U	1700
Methylnaphthalene, 2-	0.00150 J			0.00680		8.20
Mineral spirits/Stoddard	5.00 U	20.0 U	20.0 U	5.00 U	20.0 U	335
Naphthalene	0.0210 U			0.0220 U		1.40
Toluene	0.00520 U			0.00550 U		0.0765
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	5.00 U	20.0 U	20.0 U	5.00 U	20.0 U	5.00 U
Total Heavy Oil	200 U	200 U	200 U	1250	200 U	4700
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	310	20.0 U	1700
Total Naphthalene	0.0210 U			0.0220 U		1.40
Total Stoddard/Mineral Spirits	5.00 U	20.0 U	20.0 U	5.00 U	20.0 U	335
Total TPH						
Total Xylenes	0.0104 U			0.0110 U		0.995
Xylenes	0.00520 U			0.00550 U		0.275
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene	0.00500 U			0.00140 J		0.630
Acenaphthylene	0.00160 J			0.00500 U		0.150 U
Aniline						
Anthracene	0.00610 U			0.0220		1.30
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-1_031606(5.0-5.5)_SO	05ORTP-2_031606(4.5-5.0)_SO	05ORTP-3_031606(5.0-5.5)_SO	05ORTP-4_031606(5.0-5.5)_SO	05ORTP-5_031606(5.0-5.5)_SO	05ORTP-6_031606(5.0-5.5)_SO_DC
Bromobenzene	0.00520 U			0.00550 U		0.200 U
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran	0.00500 U			0.00250 J		0.785
Dibutyl Phthalate						
Dichlorobenzene, 1,2-	0.00520 U			0.00550 U		0.0120 J
Dichlorobenzene, 1,3-	0.00520 U			0.00550 U		0.0490 U
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene	0.00620			0.0670		3.30
Fluorene	0.00500 U			0.0100		2.30
Hexachlorobenzene						
Hexachlorobutadiene	0.0210 U			0.0220 U		0.200 U
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-1_031606(5.0-5.5)_SO	05ORTP-2_031606(4.5-5.0)_SO	05ORTP-3_031606(5.0-5.5)_SO	05ORTP-4_031606(5.0-5.5)_SO	05ORTP-5_031606(5.0-5.5)_SO	05ORTP-6_031606(5.0-5.5)_SO_DC
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene	0.00500 U			0.0670		8.50
Phenol						
Pyrene	0.00770			0.0260		2.60
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-	0.0210 U			0.0220 U		0.200 U
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene	0.00520 U			0.00550 U		0.720
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00520 U			0.00550 U		0.0490 U
1,2,3-trichlorobenzene	0.0210 U			0.0220 U		0.200 U
1,2,4-Trimethylbenzene	0.0210 U			0.0220 U		32.0
1,3,5-Trimethylbenzene	0.0210 U			0.0220 U		0.710
1,3-dichloropropane	0.00520 U			0.00550 U		0.0490 U
1-Phenylpropane	0.0210 U			0.0220 U		6.50
2,2-dichloropropane	0.00520 U			0.00550 U		0.0490 U
2-chlorotoluene	0.0210 U			0.0220 U		0.565
4-chlorotoluene	0.0210 U			0.0220 U		0.590
4-isopropyltoluene	0.0210 U			0.0220 U		7.10
Acetone	0.220			0.0700		0.400
Bromochloromethane	0.00520 U			0.00550 U		0.0490 U
Bromodichloromethane	0.00520 U			0.00550 U		0.0490 U
Bromoform	0.00520 U			0.00550 U		0.0490 U
Bromomethane	0.00520 U			0.00550 U		0.0490 U
CFC-11	0.00520 U			0.00550 U		0.0490 U
CFC-12	0.00520 U			0.00550 U		0.0490 U
Carbon Disulfide	0.00520 U			0.00550 U		0.0875

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-1_031606(5.0-5.5)_SO	05ORTP-2_031606(4.5-5.0)_SO	05ORTP-3_031606(5.0-5.5)_SO	05ORTP-4_031606(5.0-5.5)_SO	05ORTP-5_031606(5.0-5.5)_SO	05ORTP-6_031606(5.0-5.5)_SO_DC
Carbon Tetrachloride	0.00520 U			0.00550 U		0.0490 U
Chlorobenzene	0.00520 U			0.00550 U		0.0490 U
Chloroform	0.00520 U			0.00550 U		0.0490 U
Chloromethane	0.00520 U			0.00550 U		0.0490 U
Cumene	0.0210 U			0.0220 U		0.850
Dibromo-3-chloropropane, 1,2-	0.0210 U			0.0220 U		0.200 U
Dibromochloromethane	0.00520 U			0.00550 U		0.0490 U
Dibromoethane, 1,2-	0.0210 U			0.0220 U		0.200 U
Dichlorobenzene, 1,4-	0.00520 U			0.00550 U		0.0490 U
Dichloroethane, 1,1-	0.00520 U			0.00550 U		0.0490 U
Dichloroethane, 1,2-	0.00520 U			0.00550 U		0.0490 U
Dichloroethene, 1,1-	0.00520 U			0.00550 U		0.0490 U
Dichloroethylene, Cis-1,2-	0.00520 U			0.00550 U		0.0490 U
Dichloroethylene, Trans-1,2-	0.00520 U			0.00550 U		0.0490 U
Dichloromethane	0.0110 U			0.0110 U		0.0280
Dichloropropane, 1,2-	0.00520 U			0.00550 U		0.0490 U
Dichloropropene, Cis-1,3-	0.00520 U			0.00550 U		0.0490 U
Dichloropropene, Trans-1,3-	0.00520 U			0.00550 U		0.0490 U
Ethyl Chloride	0.00520 U			0.00550 U		0.0490 U
Hexanone, 2-	0.0210 U			0.0220 U		2.00 U
Methyl Ethyl Ketone	0.0330			0.0220 U		2.00 U
Methyl Isobutyl Ketone	0.0210 U			0.0220 U		2.00 U
Methyl Tertiary Butyl Ether	0.500 U			0.500 U		0.500 U
Methylene Bromide	0.00520 U			0.00550 U		0.0490 U
Styrene	0.00520 U			0.00550 U		0.0490 U
Tert-butylbenzene	0.0210 U			0.0220 U		0.330
Tetrachloroethane, 1,1,1,2-	0.00520 U			0.00550 U		0.0490 U
Tetrachloroethane, 1,1,2,2-	0.00520 U			0.00550 U		0.0490 U
Tetrachloroethylene	0.00520 U			0.00550 U		0.0490 U
Trichloroethane, 1,1,1-	0.00520 U			0.00550 U		0.0490 U
Trichloroethane, 1,1,2-	0.00520 U			0.00550 U		0.0490 U
Trichloroethylene	0.00520 U			0.00550 U		0.0490 U
Trichloropropane, 1,2,3-	0.00520 U			0.00550 U		1.50 U
Vinyl Acetate						
Vinyl Chloride	0.00520 U			0.00550 U		0.0490 U
n-Butylbenzene	0.0210 U			0.0220 U		7.60
sec-Butylbenzene	0.0210 U			0.0220 U		6.50

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-7_031606(5.0-5.5)_SO	96ORTP1-S1_041896(0.0-1.0)_SO	96ORTP1-S2_041896(2.0-4.0)_SO	96ORTP1-S3_041896(5.0-6.0)_SO	96ORTP2-S1_041896(0.0-2.0)_SO	96ORTP2-S2_041896(2.0-4.0)_SO
Conventional (%)						
Moisture	12.0					
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)			17.0			
Barium			53.0			
Cadmium			0.700			
Chromium			13.0			
Lead (inorganic)	14.5		13.0			
Mercury (inorganic)			0.110 U			
Selenium (and compounds)			0.590 U			
Silver			0.290 U			
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016	0.0100 U		0.0570 U		0.0380 U	
Aroclor 1221	0.0200 U		0.0570 U		0.0380 U	
Aroclor 1232	0.0100 U		0.0570 U		0.0380 U	

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-7_031606(5.0-5.5)_SO	96ORTP1-S1_041896(0.0-1.0)_SO	96ORTP1-S2_041896(2.0-4.0)_SO	96ORTP1-S3_041896(5.0-6.0)_SO	96ORTP2-S1_041896(0.0-2.0)_SO	96ORTP2-S2_041896(2.0-4.0)_SO
Aroclor 1242	0.0100 U		0.0570 U		0.0380 U	
Aroclor 1248	0.0100 U		0.310		0.0380 U	
Aroclor 1254	0.0100 U		0.0570 U		0.0380 U	
Aroclor 1260	0.0100 U		0.0570 U		0.0380 U	
Total PCBs	0.0100 U		0.310		0.0380 U	
Pesticides (mg/kg)						
Aldrin			0.00280 U			
DDD (p,p'-Dichlorodiphenyldichloroethane)			0.00570 U			
DDE (p,p'-Dichlorodiphenyldichloroethylene)			0.00570 U			
DDT (p,p'-Dichorodiphenyltrichloroethane)			0.00570 U			
Dieldrin			0.00570 U			
Endosulfan I			0.00280 U			
Endosulfan II			0.00570 U			
Endosulfan sulfate			0.00570 U			
Endrin			0.00570 U			
Endrin Ketone			0.00570 U			
Endrin aldehyde			0.00570 U			
Heptachlor			0.00280 U			
Heptachlor Epoxide			0.00280 U			
Hexachlorocyclohexane, alpha-			0.00280 U			
Hexachlorocyclohexane, beta-			0.00280 U			
Hexachlorocyclohexane, delta-			0.00280 U			
Hexachlorocyclohexane, gamma			0.00280 U			
Methoxychlor			0.0280 U			
Toxaphene			0.0570 U			
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene			0.0570 U	0.0580 U		
Benzo(a)anthracene			0.950 U			
Benzo(a)pyrene			0.950 U			
Benzo(b)fluoranthene			0.950 U			
Benzo(g,h,i)perylene			0.950 U			
Benzo(k)fluoranthene			0.950 U			
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ			1.40 U			
Castor oil	100 U					

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-7_031606(5.0-5.5)_SO	96ORTP1-S1_041896(0.0-1.0)_SO	96ORTP1-S2_041896(2.0-4.0)_SO	96ORTP1-S3_041896(5.0-6.0)_SO	96ORTP2-S1_041896(0.0-2.0)_SO	96ORTP2-S2_041896(2.0-4.0)_SO
Chrysene			0.950 U			
Dibenz(a,h)anthracene			0.950 U			
Diesel	50.0 U	120	1700	27.0	110	20.0 U
Ethyl Benzene			0.0660	0.0580 U		
Gasoline Range Organics	20.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	470	1900	11000	160	660	67.0
Indeno(1,2,3-cd)pyrene			0.950 U			
Kensol	20.0 U	190	410	10.0 U	44.0	9.90 J
Kerosene/Jet fuel	98.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-			0.360 J			
Mineral spirits/Stoddard	20.0 D	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene			0.0800 J			
Toluene			0.140	0.0580 U		
Total Diesel/Fuel Oil	70.0 U	310	2110	32.0	154	19.9
Total Gasoline	20.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	520	1900	11000	160	660	67.0
Total Kerosene/Jet Fuel	98.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene			0.0800			
Total Stoddard/Mineral Spirits	20.0	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH		2210	13100	187	814	76.9
Total Xylenes			0.330	0.0580 U		
Xylenes			0.330	0.0580 U		
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol			0.950 U			
3,4-Methylphenol (m,p-cresol)						
Acenaphthene			0.950 U			
Acenaphthylene			0.950 U			
Aniline			4.70 U			
Anthracene			0.950 U			
Benzidine			9.50 U			
Benzoic Acid			4.70 U			
Benzyl Alcohol			0.950 U			
Bis(2-Chloroethoxy)methane			0.950 U			
Bis(2-chloroisopropyl)Ether			0.950 U			
Bis(2-ethylhexyl)Phthalate (DEHP)			0.680 U			
Bis(Chloroethyl)ether			0.950 U			

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-7_031606(5.0-5.5)_SO	96ORTP1-S1_041896(0.0-1.0)_SO	96ORTP1-S2_041896(2.0-4.0)_SO	96ORTP1-S3_041896(5.0-6.0)_SO	96ORTP2-S1_041896(0.0-2.0)_SO	96ORTP2-S2_041896(2.0-4.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-			0.950 U			
Butyl Benzyl Phthalate, N-			0.950 U			
Chlordane			0.00570 U			
Chloro-3-methylphenol, 4-			0.950 U			
Chloroaniline, 4-			0.950 U			
Chloronaphthalene, 2-			0.950 U			
Chlorophenol, 2-			0.950 U			
Chlorophenyl-phenyl ether, 4-			0.950 U			
Di-n-Octylphthalate			0.950 U			
Dibenzofuran			0.950 U			
Dibutyl Phthalate			0.950 U			
Dichlorobenzene, 1,2-			0.950 U			
Dichlorobenzene, 1,3-			0.950 U			
Dichlorobenzidine, 3,3'			1.90 U			
Dichlorophenol, 2,4-			0.950 U			
Dichlorophenol, 2,6-						
Diethyl Phthalate			0.950 U			
Dimethyl Phthalate			0.950 U			
Dimethylphenol, 2,4-			0.950 U			
Dinitro-o-Cresol, 4,6-			4.70 U			
Dinitrophenol, 2,4-			4.70 U			
Dinitrotoluene, 2,4-			0.950 U			
Dinitrotoluene, 2,6-			0.950 U			
Dinoseb						
Fluoranthene			0.950 U			
Fluorene			0.210 J			
Hexachlorobenzene			0.950 U			
Hexachlorobutadiene			0.950 U			
Hexachlorocyclopentadiene			4.70 U			
Hexachloroethane			0.950 U			
Hexachloropropylene						
Isophorone			0.950 U			
Isopropyltoluene						
Methylphenol, 2-			0.950 U			
Methylphenol, 4-			0.950 U			
Nitroaniline, 2-			4.70 U			

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-7_031606(5.0-5.5)_SO	96ORTP1-S1_041896(0.0-1.0)_SO	96ORTP1-S2_041896(2.0-4.0)_SO	96ORTP1-S3_041896(5.0-6.0)_SO	96ORTP2-S1_041896(0.0-2.0)_SO	96ORTP2-S2_041896(2.0-4.0)_SO
Nitroaniline, 3-			4.70 U			
Nitroaniline, 4-			4.70 U			
Nitrobenzene			0.950 U			
Nitrophenol, 4-			4.70 U			
Nitrosodi-N-propylamine, N-			0.950 U			
Nitrosodimethylamine, N-			0.950 U			
Nitrosodiphenylamine, N-			0.950 U			
Pentachlorobenzene						
Pentachlorophenol			4.70 U			
Phenanthrene			0.570 J			
Phenol			0.950 U			
Pyrene			0.950 U			
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-			0.950 U			
Trichlorophenol, 2,4,5-			4.70 U			
Trichlorophenol, 2,4,6-			0.950 U			
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone			0.710	0.580 U		
Bromochloromethane						
Bromodichloromethane			0.0570 U	0.0580 U		
Bromoform			0.280 U	0.290 U		
Bromomethane			0.570 U	0.580 U		
CFC-11						
CFC-12						
Carbon Disulfide			0.0570 U	0.0580 U		

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	05ORTP-7_031606(5.0-5.5)_SO	96ORTP1-S1_041896(0.0-1.0)_SO	96ORTP1-S2_041896(2.0-4.0)_SO	96ORTP1-S3_041896(5.0-6.0)_SO	96ORTP2-S1_041896(0.0-2.0)_SO	96ORTP2-S2_041896(2.0-4.0)_SO
Carbon Tetrachloride			0.0570 U	0.0580 U		
Chlorobenzene			0.0570 U	0.0580 U		
Chloroform			0.0570 U	0.0580 U		
Chloromethane			0.570 U	0.580 U		
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane			0.0570 U	0.0580 U		
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-			0.950 U			
Dichloroethane, 1,1-			0.0570 U	0.0580 U		
Dichloroethane, 1,2-			0.0570 U	0.0580 U		
Dichloroethene, 1,1-			0.0570 U	0.0580 U		
Dichloroethylene, Cis-1,2-			0.0570 U	0.0580 U		
Dichloroethylene, Trans-1,2-						
Dichloromethane			0.280 U	0.290 U		
Dichloropropane, 1,2-			0.0570 U	0.0580 U		
Dichloropropene, Cis-1,3-			0.0570 U	0.0580 U		
Dichloropropene, Trans-1,3-			0.0570 U	0.0580 U		
Ethyl Chloride			0.0570 U	0.0580 U		
Hexanone, 2-			0.570 U	0.580 U		
Methyl Ethyl Ketone			0.570 U	0.580 U		
Methyl Isobutyl Ketone			0.570 U	0.580 U		
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene			0.0570 U	0.0580 U		
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-			0.0570 U	0.0580 U		
Tetrachloroethylene			0.0570 U	0.0580 U		
Trichloroethane, 1,1,1-			0.0570 U	0.0580 U		
Trichloroethane, 1,1,2-			0.0570 U	0.0580 U		
Trichloroethylene			0.0570 U	0.0580 U		
Trichloropropane, 1,2,3-						
Vinyl Acetate			0.570 U	0.580 U		
Vinyl Chloride			0.0570 U	0.0580 U		
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP2-S3_041896(5.0-6.0)_SO	96ORTP3-S1_041896(0.3-1.8)_SO	96ORTP3-S2_041896(1.8-3.5)_SO	96ORTP3-S3_041896(4.0-5.0)_SO	96ORTP4-S1_041896(1.0-2.0)_SO	96ORTP4-S2_041896(2.0-4.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016			0.0420 U		0.0370 U	0.0390 U
Aroclor 1221			0.0420 U		0.0370 U	0.0390 U
Aroclor 1232			0.0420 U		0.0370 U	0.0390 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP2-S3_041896(5.0-6.0)_SO	96ORTP3-S1_041896(0.3-1.8)_SO	96ORTP3-S2_041896(1.8-3.5)_SO	96ORTP3-S3_041896(4.0-5.0)_SO	96ORTP4-S1_041896(1.0-2.0)_SO	96ORTP4-S2_041896(2.0-4.0)_SO
Aroclor 1242			0.0420 U		0.0370 U	0.0390 U
Aroclor 1248			0.0420 U		0.0370 U	0.0390 U
Aroclor 1254			0.0420 U		0.0370 U	0.0390 U
Aroclor 1260			0.0420 U		0.0370 U	0.0390 U
Total PCBs			0.0420 U		0.0370 U	0.0390 U
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP2-S3_041896(5.0-6.0)_SO	96ORTP3-S1_041896(0.3-1.8)_SO	96ORTP3-S2_041896(1.8-3.5)_SO	96ORTP3-S3_041896(4.0-5.0)_SO	96ORTP4-S1_041896(1.0-2.0)_SO	96ORTP4-S2_041896(2.0-4.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	140	200	50.0 U	50.0 U	48.0 J	50.0 U
Indeno(1,2,3-cd)pyrene						
Kensol	35.0	14.0	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	45.0	24.0	30.0 U	30.0 U	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	140	200	50.0 U	50.0 U	48.0	50.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	175	214	50.0 U	50.0 U	48.0 J	50.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP2-S3_041896(5.0-6.0)_SO	96ORTP3-S1_041896(0.3-1.8)_SO	96ORTP3-S2_041896(1.8-3.5)_SO	96ORTP3-S3_041896(4.0-5.0)_SO	96ORTP4-S1_041896(1.0-2.0)_SO	96ORTP4-S2_041896(2.0-4.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP2-S3_041896(5.0-6.0)_SO	96ORTP3-S1_041896(0.3-1.8)_SO	96ORTP3-S2_041896(1.8-3.5)_SO	96ORTP3-S3_041896(4.0-5.0)_SO	96ORTP4-S1_041896(1.0-2.0)_SO	96ORTP4-S2_041896(2.0-4.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP2-S3_041896(5.0-6.0)_SO	96ORTP3-S1_041896(0.3-1.8)_SO	96ORTP3-S2_041896(1.8-3.5)_SO	96ORTP3-S3_041896(4.0-5.0)_SO	96ORTP4-S1_041896(1.0-2.0)_SO	96ORTP4-S2_041896(2.0-4.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP4-S3_041896(4.0-5.5)_SO	96ORTP5-S1_041896(1.0-1.8)_SO	96ORTP5-S2_041896(2.0-4.0)_SO	96ORTP5-S3_041896(4.0-6.0)_SO	B-1/S-4_100996(10.0-11.5)_SO	B-10/S-1_101096(2.5-4.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)			6.40			
Barium			84.0			
Cadmium			0.300 U			
Chromium			9.80			
Lead (inorganic)			9.50			
Mercury (inorganic)			0.110 U			
Selenium (and compounds)			0.610 U			
Silver			0.300 U			
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016			0.0580 U			
Aroclor 1221			0.0580 U			
Aroclor 1232			0.0580 U			

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP4-S3_041896(4.0-5.5)_SO	96ORTP5-S1_041896(1.0-1.8)_SO	96ORTP5-S2_041896(2.0-4.0)_SO	96ORTP5-S3_041896(4.0-6.0)_SO	B-1/S-4_100996(10.0-11.5)_SO	B-10/S-1_101096(2.5-4.0)_SO
Aroclor 1242			0.0580 U			
Aroclor 1248			0.0580 U			
Aroclor 1254			0.0580 U			
Aroclor 1260			0.0580 U			
Total PCBs			0.0580 U			
Pesticides (mg/kg)						
Aldrin			0.00290 U			
DDD (p,p'-Dichlorodiphenyldichloroethane)			0.00580 U			
DDE (p,p'-Dichlorodiphenyldichloroethylene)			0.00580 U			
DDT (p,p'-Dichorodiphenyltrichloroethane)			0.00580 U			
Dieldrin			0.00580 U			
Endosulfan I			0.00290 U			
Endosulfan II			0.00580 U			
Endosulfan sulfate			0.00580 U			
Endrin			0.00580 U			
Endrin Ketone			0.00580 U			
Endrin aldehyde			0.00580 U			
Heptachlor			0.00290 U			
Heptachlor Epoxide			0.00290 U			
Hexachlorocyclohexane, alpha-			0.00290 U			
Hexachlorocyclohexane, beta-			0.00290 U			
Hexachlorocyclohexane, delta-			0.00290 U			
Hexachlorocyclohexane, gamma			0.00290 U			
Methoxychlor			0.0290 U			
Toxaphene			0.0580 U			
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene			0.0580 U			
Benzo(a)anthracene			0.190 U			
Benzo(a)pyrene			0.190 U			
Benzo(b)fluoranthene			0.190 U			
Benzo(g,h,i)perylene			0.190 U			
Benzo(k)fluoranthene			0.190 U			
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ			0.287 U			
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP4-S3_041896(4.0-5.5)_SO	96ORTP5-S1_041896(1.0-1.8)_SO	96ORTP5-S2_041896(2.0-4.0)_SO	96ORTP5-S3_041896(4.0-6.0)_SO	B-1/S-4_100996(10.0-11.5)_SO	B-10/S-1_101096(2.5-4.0)_SO
Chrysene			0.190 U			
Dibenz(a,h)anthracene			0.190 U			
Diesel	20.0 U	120	20.0 U	20.0 U	1200	20.0 U
Ethyl Benzene			0.0580 U			
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	50.0 U	1200	50.0 U	95.0	3500	840
Indeno(1,2,3-cd)pyrene			0.190 U			
Kensol	10.0 U	970	10.0 U	76.0	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	46.0	10.0 U	10.0 U	200	10.0 U
Methylnaphthalene, 2-			0.190 U			
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene			0.190 U			
Toluene			0.0580 U			
Total Diesel/Fuel Oil	30.0 U	1090	30.0 U	86.0	1210	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	50.0 U	1200	50.0 U	95.0	3500	840
Total Kerosene/Jet Fuel	10.0 U	46.0	10.0 U	10.0 U	200	10.0 U
Total Naphthalene			0.190 U			
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	50.0 U	2340	50.0 U	171	4900	840
Total Xylenes			0.0580 U			
Xylenes			0.0580 U			
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol			0.190 U			
3,4-Methylphenol (m,p-cresol)						
Acenaphthene			0.190 U			
Acenaphthylene			0.190 U			
Aniline			0.970 U			
Anthracene			0.190 U			
Benzidine			1.90 U			
Benzoic Acid			0.970 U			
Benzyl Alcohol			0.190 U			
Bis(2-Chloroethoxy)methane			0.190 U			
Bis(2-chloroisopropyl)Ether			0.190 U			
Bis(2-ethylhexyl)Phthalate (DEHP)			0.190 U			
Bis(Chloroethyl)ether			0.190 U			

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP4-S3_041896(4.0-5.5)_SO	96ORTP5-S1_041896(1.0-1.8)_SO	96ORTP5-S2_041896(2.0-4.0)_SO	96ORTP5-S3_041896(4.0-6.0)_SO	B-1/S-4_100996(10.0-11.5)_SO	B-10/S-1_101096(2.5-4.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-			0.190 U			
Butyl Benzyl Phthalate, N-			0.190 U			
Chlordane			0.00580 U			
Chloro-3-methylphenol, 4-			0.190 U			
Chloroaniline, 4-			0.190 U			
Chloronaphthalene, 2-			0.190 U			
Chlorophenol, 2-			0.190 U			
Chlorophenyl-phenyl ether, 4-			0.190 U			
Di-n-Octylphthalate			0.190 U			
Dibenzofuran			0.190 U			
Dibutyl Phthalate			0.190 U			
Dichlorobenzene, 1,2-			0.190 U			
Dichlorobenzene, 1,3-			0.190 U			
Dichlorobenzidine, 3,3'			0.390 U			
Dichlorophenol, 2,4-			0.190 U			
Dichlorophenol, 2,6-						
Diethyl Phthalate			0.190 U			
Dimethyl Phthalate			0.190 U			
Dimethylphenol, 2,4-			0.190 U			
Dinitro-o-Cresol, 4,6-			0.970 U			
Dinitrophenol, 2,4-			0.970 U			
Dinitrotoluene, 2,4-			0.190 U			
Dinitrotoluene, 2,6-			0.190 U			
Dinoseb						
Fluoranthene			0.190 U			
Fluorene			0.190 U			
Hexachlorobenzene			0.190 U			
Hexachlorobutadiene			0.190 U			
Hexachlorocyclopentadiene			0.970 U			
Hexachloroethane			0.190 U			
Hexachloropropylene						
Isophorone			0.190 U			
Isopropyltoluene						
Methylphenol, 2-			0.190 U			
Methylphenol, 4-			0.190 U			
Nitroaniline, 2-			0.970 U			

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP4-S3_041896(4.0-5.5)_SO	96ORTP5-S1_041896(1.0-1.8)_SO	96ORTP5-S2_041896(2.0-4.0)_SO	96ORTP5-S3_041896(4.0-6.0)_SO	B-1/S-4_100996(10.0-11.5)_SO	B-10/S-1_101096(2.5-4.0)_SO
Nitroaniline, 3-			0.970 U			
Nitroaniline, 4-			0.970 U			
Nitrobenzene			0.190 U			
Nitrophenol, 4-			0.970 U			
Nitrosodi-N-propylamine, N-			0.190 U			
Nitrosodimethylamine, N-			0.190 U			
Nitrosodiphenylamine, N-			0.190 U			
Pentachlorobenzene						
Pentachlorophenol			0.970 U			
Phenanthrene			0.190 U			
Phenol			0.190 U			
Pyrene			0.190 U			
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-			0.190 U			
Trichlorophenol, 2,4,5-			0.970 U			
Trichlorophenol, 2,4,6-			0.190 U			
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone			0.580 U			
Bromochloromethane						
Bromodichloromethane			0.0580 U			
Bromoform			0.290 U			
Bromomethane			0.580 U			
CFC-11						
CFC-12						
Carbon Disulfide			0.0580 U			

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	96ORTP4-S3_041896(4.0-5.5)_SO	96ORTP5-S1_041896(1.0-1.8)_SO	96ORTP5-S2_041896(2.0-4.0)_SO	96ORTP5-S3_041896(4.0-6.0)_SO	B-1/S-4_100996(10.0-11.5)_SO	B-10/S-1_101096(2.5-4.0)_SO
Carbon Tetrachloride			0.0580 U			
Chlorobenzene			0.0580 U			
Chloroform			0.0580 U			
Chloromethane			0.580 U			
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane			0.0580 U			
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-			0.190 U			
Dichloroethane, 1,1-			0.0580 U			
Dichloroethane, 1,2-			0.0580 U			
Dichloroethene, 1,1-			0.0580 U			
Dichloroethylene, Cis-1,2-			0.0580 U			
Dichloroethylene, Trans-1,2-						
Dichloromethane			0.290 U			
Dichloropropane, 1,2-			0.0580 U			
Dichloropropene, Cis-1,3-			0.0580 U			
Dichloropropene, Trans-1,3-			0.0580 U			
Ethyl Chloride			0.0580 U			
Hexanone, 2-			0.580 U			
Methyl Ethyl Ketone			0.580 U			
Methyl Isobutyl Ketone			0.580 U			
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene			0.0580 U			
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-			0.0580 U			
Tetrachloroethylene			0.0580 U			
Trichloroethane, 1,1,1-			0.0580 U			
Trichloroethane, 1,1,2-			0.0580 U			
Trichloroethylene			0.0580 U			
Trichloropropane, 1,2,3-						
Vinyl Acetate			0.580 U			
Vinyl Chloride			0.0580 U			
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-10/S-2_101096(5.0-6.5)_SO	B-10/S-3_101096(7.5-9.0)_SO	B-10/S-4_101096(10.0-11.5)_SO	B-10/S-5_101096(12.5-14.0)_SO	B-11/S-2_101096(5.0-6.5)_SO	B-11/S-3_101096(7.5-9.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-10/S-2_101096(5.0-6.5)_SO	B-10/S-3_101096(7.5-9.0)_SO	B-10/S-4_101096(10.0-11.5)_SO	B-10/S-5_101096(12.5-14.0)_SO	B-11/S-2_101096(5.0-6.5)_SO	B-11/S-3_101096(7.5-9.0)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-10/S-2_101096(5.0-6.5)_SO	B-10/S-3_101096(7.5-9.0)_SO	B-10/S-4_101096(10.0-11.5)_SO	B-10/S-5_101096(12.5-14.0)_SO	B-11/S-2_101096(5.0-6.5)_SO	B-11/S-3_101096(7.5-9.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	1200	29.0	20.0 U	20.0 U	27.0	16.0 J
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	3800	170	590	50.0 U	140	50.0
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	490	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	1210	34.0	30.0 U	30.0 U	32.0	21.0
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	3800	170	590	50.0 U	140	50.0
Total Kerosene/Jet Fuel	490	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	5490	199	590	50.0 U	167	66.0
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-10/S-2_101096(5.0-6.5)_SO	B-10/S-3_101096(7.5-9.0)_SO	B-10/S-4_101096(10.0-11.5)_SO	B-10/S-5_101096(12.5-14.0)_SO	B-11/S-2_101096(5.0-6.5)_SO	B-11/S-3_101096(7.5-9.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-10/S-2_101096(5.0-6.5)_SO	B-10/S-3_101096(7.5-9.0)_SO	B-10/S-4_101096(10.0-11.5)_SO	B-10/S-5_101096(12.5-14.0)_SO	B-11/S-2_101096(5.0-6.5)_SO	B-11/S-3_101096(7.5-9.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-10/S-2_101096(5.0-6.5)_SO	B-10/S-3_101096(7.5-9.0)_SO	B-10/S-4_101096(10.0-11.5)_SO	B-10/S-5_101096(12.5-14.0)_SO	B-11/S-2_101096(5.0-6.5)_SO	B-11/S-3_101096(7.5-9.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-11/S-4_101096(10.0-11.5)_SO	B-11/S-5_101096(12.5-14.0)_SO	B-12/S-1_101096(2.5-4.0)_SO	B-12/S-2_101096(5.0-6.5)_SO	B-12/S-3_101096(7.5-9.0)_SO	B-12/S-4_101096(10.0-11.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-11/S-4_101096(10.0-11.5)_SO	B-11/S-5_101096(12.5-14.0)_SO	B-12/S-1_101096(2.5-4.0)_SO	B-12/S-2_101096(5.0-6.5)_SO	B-12/S-3_101096(7.5-9.0)_SO	B-12/S-4_101096(10.0-11.5)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-11/S-4_101096(10.0-11.5)_SO	B-11/S-5_101096(12.5-14.0)_SO	B-12/S-1_101096(2.5-4.0)_SO	B-12/S-2_101096(5.0-6.5)_SO	B-12/S-3_101096(7.5-9.0)_SO	B-12/S-4_101096(10.0-11.5)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	100	20.0 U	170	20.0 U	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	220	50.0 U	950	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	22.0	10.0 U	13.0	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	105	30.0 U	175	30.0 U	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	220	50.0 U	950	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel	22.0	10.0 U	13.0	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	342	50.0 U	1130	50.0 U	50.0 U	50.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-11/S-4_101096(10.0-11.5)_SO	B-11/S-5_101096(12.5-14.0)_SO	B-12/S-1_101096(2.5-4.0)_SO	B-12/S-2_101096(5.0-6.5)_SO	B-12/S-3_101096(7.5-9.0)_SO	B-12/S-4_101096(10.0-11.5)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-11/S-4_101096(10.0-11.5)_SO	B-11/S-5_101096(12.5-14.0)_SO	B-12/S-1_101096(2.5-4.0)_SO	B-12/S-2_101096(5.0-6.5)_SO	B-12/S-3_101096(7.5-9.0)_SO	B-12/S-4_101096(10.0-11.5)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-11/S-4_101096(10.0-11.5)_SO	B-11/S-5_101096(12.5-14.0)_SO	B-12/S-1_101096(2.5-4.0)_SO	B-12/S-2_101096(5.0-6.5)_SO	B-12/S-3_101096(7.5-9.0)_SO	B-12/S-4_101096(10.0-11.5)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-13/S-1_101096(2.5-4.0)_SO	B-13/S-2_101096(5.0-6.5)_SO	B-13/S-3_101096(7.5-9.0)_SO	B-13/S-4_101096(10.0-11.5)_SO	B-13/S-5_101096(12.5-14.0)_SO	B-14/S-2_103196(5.0-6.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						4.70
Barium						140
Cadmium						0.570 U
Chromium						13.0
Lead (inorganic)						12.0
Mercury (inorganic)						0.110 U
Selenium (and compounds)						0.290 U
Silver						0.310 U
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						0.200 U
Aroclor 1221						0.500 U
Aroclor 1232						0.500 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-13/S-1_101096(2.5-4.0)_SO	B-13/S-2_101096(5.0-6.5)_SO	B-13/S-3_101096(7.5-9.0)_SO	B-13/S-4_101096(10.0-11.5)_SO	B-13/S-5_101096(12.5-14.0)_SO	B-14/S-2_103196(5.0-6.5)_SO
Aroclor 1242						0.200 U
Aroclor 1248						0.200 U
Aroclor 1254						0.200 U
Aroclor 1260						0.200 U
Total PCBs						0.200 U
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						0.0190 UJ
Benzene						
Benzo(a)anthracene						0.0500 UJ
Benzo(a)pyrene						0.0380 UJ
Benzo(b)fluoranthene						0.0760 UJ
Benzo(g,h,i)perylene						0.0760 UJ
Benzo(k)fluoranthene						0.0380 UJ
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						0.0652 U
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-13/S-1_101096(2.5-4.0)_SO	B-13/S-2_101096(5.0-6.5)_SO	B-13/S-3_101096(7.5-9.0)_SO	B-13/S-4_101096(10.0-11.5)_SO	B-13/S-5_101096(12.5-14.0)_SO	B-14/S-2_103196(5.0-6.5)_SO
Chrysene						0.300 UJ
Dibenz(a,h)anthracene						0.0760 UJ
Diesel	20.0 U	120	55.0	20.0	29.0	5700
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	3200	590	330	86.0	140	9100
Indeno(1,2,3-cd)pyrene						0.00190 UJ
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	35.0	9.30 J	10.0 U	10.0 U	1300
Methylnaphthalene, 2-						0.180 J
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						0.0190 UJ
Toluene						
Total Diesel/Fuel Oil	30.0 U	125	60.0	25.0	34.0	5710
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	3200	590	330	86.0	140	9100
Total Kerosene/Jet Fuel	10.0 U	35.0	9.30	10.0 U	10.0 U	1300
Total Naphthalene						0.0190 U
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	3200	745	394	106	169	16100
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						0.0190 UJ
Acenaphthylene						0.0380 UJ
Aniline						
Anthracene						0.0280 J
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-13/S-1_101096(2.5-4.0)_SO	B-13/S-2_101096(5.0-6.5)_SO	B-13/S-3_101096(7.5-9.0)_SO	B-13/S-4_101096(10.0-11.5)_SO	B-13/S-5_101096(12.5-14.0)_SO	B-14/S-2_103196(5.0-6.5)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						5.30 J
Fluorene						0.110 J
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-13/S-1_101096(2.5-4.0)_SO	B-13/S-2_101096(5.0-6.5)_SO	B-13/S-3_101096(7.5-9.0)_SO	B-13/S-4_101096(10.0-11.5)_SO	B-13/S-5_101096(12.5-14.0)_SO	B-14/S-2_103196(5.0-6.5)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						0.740 J
Phenol						
Pyrene						0.180 J
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-13/S-1_101096(2.5-4.0)_SO	B-13/S-2_101096(5.0-6.5)_SO	B-13/S-3_101096(7.5-9.0)_SO	B-13/S-4_101096(10.0-11.5)_SO	B-13/S-5_101096(12.5-14.0)_SO	B-14/S-2_103196(5.0-6.5)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-14/S-3_103196(7.5-9.0)_SO	B-14/S-4_103196(10.0-11.5)_SO	B-14/S-5_103196(12.5-14.0)_SO	B-15/S-1_103196(2.5-4.0)_SO	B-15/S-2_103196(5.0-6.5)_SO	B-15/S-3_103196(7.5-9.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-14/S-3_103196(7.5-9.0)_SO	B-14/S-4_103196(10.0-11.5)_SO	B-14/S-5_103196(12.5-14.0)_SO	B-15/S-1_103196(2.5-4.0)_SO	B-15/S-2_103196(5.0-6.5)_SO	B-15/S-3_103196(7.5-9.0)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-14/S-3_103196(7.5-9.0)_SO	B-14/S-4_103196(10.0-11.5)_SO	B-14/S-5_103196(12.5-14.0)_SO	B-15/S-1_103196(2.5-4.0)_SO	B-15/S-2_103196(5.0-6.5)_SO	B-15/S-3_103196(7.5-9.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	48.0	44.0	49.0	82.0	20.0 U	89.0
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	250	170	200	810	570	620
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	14.0
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	53.0	49.0	54.0	87.0	30.0 U	94.0
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	250	170	200	810	570	620
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	14.0
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	298	214	249	892	570	723
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-14/S-3_103196(7.5-9.0)_SO	B-14/S-4_103196(10.0-11.5)_SO	B-14/S-5_103196(12.5-14.0)_SO	B-15/S-1_103196(2.5-4.0)_SO	B-15/S-2_103196(5.0-6.5)_SO	B-15/S-3_103196(7.5-9.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-14/S-3_103196(7.5-9.0)_SO	B-14/S-4_103196(10.0-11.5)_SO	B-14/S-5_103196(12.5-14.0)_SO	B-15/S-1_103196(2.5-4.0)_SO	B-15/S-2_103196(5.0-6.5)_SO	B-15/S-3_103196(7.5-9.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-14/S-3_103196(7.5-9.0)_SO	B-14/S-4_103196(10.0-11.5)_SO	B-14/S-5_103196(12.5-14.0)_SO	B-15/S-1_103196(2.5-4.0)_SO	B-15/S-2_103196(5.0-6.5)_SO	B-15/S-3_103196(7.5-9.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-15/S-5_103196(12.5-14.0)_SO	B-16/S-1_103196(2.5-4.0)_SO	B-16/S-2_103196(5.0-6.5)_SO	B-16/S-3_103196(7.5-9.0)_SO	B-16/S-5_103196(12.5-14.0)_SO	B-17/S-1_103196(2.5-4.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016		0.200 U				
Aroclor 1221		0.500 U				
Aroclor 1232		0.500 U				

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-15/S-5_103196(12.5-14.0)_SO	B-16/S-1_103196(2.5-4.0)_SO	B-16/S-2_103196(5.0-6.5)_SO	B-16/S-3_103196(7.5-9.0)_SO	B-16/S-5_103196(12.5-14.0)_SO	B-17/S-1_103196(2.5-4.0)_SO
Aroclor 1242		0.200 U				
Aroclor 1248		0.200 U				
Aroclor 1254		0.200 U				
Aroclor 1260		0.200 U				
Total PCBs		0.200 U				
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-15/S-5_103196(12.5-14.0)_SO	B-16/S-1_103196(2.5-4.0)_SO	B-16/S-2_103196(5.0-6.5)_SO	B-16/S-3_103196(7.5-9.0)_SO	B-16/S-5_103196(12.5-14.0)_SO	B-17/S-1_103196(2.5-4.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	43.0 J	75.0	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	43.0	75.0	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	43.0 J	75.0	50.0 U	50.0 U	50.0 U	50.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-15/S-5_103196(12.5-14.0)_SO	B-16/S-1_103196(2.5-4.0)_SO	B-16/S-2_103196(5.0-6.5)_SO	B-16/S-3_103196(7.5-9.0)_SO	B-16/S-5_103196(12.5-14.0)_SO	B-17/S-1_103196(2.5-4.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-15/S-5_103196(12.5-14.0)_SO	B-16/S-1_103196(2.5-4.0)_SO	B-16/S-2_103196(5.0-6.5)_SO	B-16/S-3_103196(7.5-9.0)_SO	B-16/S-5_103196(12.5-14.0)_SO	B-17/S-1_103196(2.5-4.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-15/S-5_103196(12.5-14.0)_SO	B-16/S-1_103196(2.5-4.0)_SO	B-16/S-2_103196(5.0-6.5)_SO	B-16/S-3_103196(7.5-9.0)_SO	B-16/S-5_103196(12.5-14.0)_SO	B-17/S-1_103196(2.5-4.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-17/S-2_103196(5.0-6.5)_SO	B-17/S-4_103196(10.0-11.5)_SO	B-17/S-5_103196(12.5-14.0)_SO	B-18/S-1_103196(2.5-4.0)_SO	B-18/S-2_103196(5.0-6.5)_SO	B-18/S-5_103196(12.5-14.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-17/S-2_103196(5.0-6.5)_SO	B-17/S-4_103196(10.0-11.5)_SO	B-17/S-5_103196(12.5-14.0)_SO	B-18/S-1_103196(2.5-4.0)_SO	B-18/S-2_103196(5.0-6.5)_SO	B-18/S-5_103196(12.5-14.0)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-17/S-2_103196(5.0-6.5)_SO	B-17/S-4_103196(10.0-11.5)_SO	B-17/S-5_103196(12.5-14.0)_SO	B-18/S-1_103196(2.5-4.0)_SO	B-18/S-2_103196(5.0-6.5)_SO	B-18/S-5_103196(12.5-14.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-17/S-2_103196(5.0-6.5)_SO	B-17/S-4_103196(10.0-11.5)_SO	B-17/S-5_103196(12.5-14.0)_SO	B-18/S-1_103196(2.5-4.0)_SO	B-18/S-2_103196(5.0-6.5)_SO	B-18/S-5_103196(12.5-14.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-17/S-2_103196(5.0-6.5)_SO	B-17/S-4_103196(10.0-11.5)_SO	B-17/S-5_103196(12.5-14.0)_SO	B-18/S-1_103196(2.5-4.0)_SO	B-18/S-2_103196(5.0-6.5)_SO	B-18/S-5_103196(12.5-14.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-17/S-2_103196(5.0-6.5)_SO	B-17/S-4_103196(10.0-11.5)_SO	B-17/S-5_103196(12.5-14.0)_SO	B-18/S-1_103196(2.5-4.0)_SO	B-18/S-2_103196(5.0-6.5)_SO	B-18/S-5_103196(12.5-14.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-19/S-1_103196(2.5-4.0)_SO	B-19/S-2_103196(5.0-6.5)_SO	B-19/S-3_103196(7.5-9.0)_SO	B-19/S-4_103196(10.0-11.5)_SO	B-19/S-5_103196(12.5-14.0)_SO	B-20/S-1_103196(2.5-4.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016	0.200 U					
Aroclor 1221	0.500 U					
Aroclor 1232	0.500 U					

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-19/S-1_103196(2.5-4.0)_SO	B-19/S-2_103196(5.0-6.5)_SO	B-19/S-3_103196(7.5-9.0)_SO	B-19/S-4_103196(10.0-11.5)_SO	B-19/S-5_103196(12.5-14.0)_SO	B-20/S-1_103196(2.5-4.0)_SO
Aroclor 1242	0.200 U					
Aroclor 1248	2.60					
Aroclor 1254	0.200 U					
Aroclor 1260	0.200 U					
Total PCBs	2.60					
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene		0.0190 UJ				
Benzene						
Benzo(a)anthracene		0.00190 UJ				
Benzo(a)pyrene		0.00790 J				
Benzo(b)fluoranthene		0.00380 UJ				
Benzo(g,h,i)perylene		0.00380 UJ				
Benzo(k)fluoranthene		0.00580 J				
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ		0.00930				
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-19/S-1_103196(2.5-4.0)_SO	B-19/S-2_103196(5.0-6.5)_SO	B-19/S-3_103196(7.5-9.0)_SO	B-19/S-4_103196(10.0-11.5)_SO	B-19/S-5_103196(12.5-14.0)_SO	B-20/S-1_103196(2.5-4.0)_SO
Chrysene		0.0500 UJ				
Dibenz(a,h)anthracene		0.00380 UJ				
Diesel	2800	4200	61.0	20.0	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	7700	11000	710	120	76.0	670
Indeno(1,2,3-cd)pyrene		0.00190 UJ				
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-		0.300 J				
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene		0.0190 UJ				
Toluene						
Total Diesel/Fuel Oil	2810	4210	66.0	25.0	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	7700	11000	710	120	76.0	670
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene		0.0190 U				
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	10500	15200	771	140	76.0	670
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene		0.0190 UJ				
Acenaphthylene		0.0380 UJ				
Aniline						
Anthracene		0.00190 UJ				
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-19/S-1_103196(2.5-4.0)_SO	B-19/S-2_103196(5.0-6.5)_SO	B-19/S-3_103196(7.5-9.0)_SO	B-19/S-4_103196(10.0-11.5)_SO	B-19/S-5_103196(12.5-14.0)_SO	B-20/S-1_103196(2.5-4.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene		0.550 J				
Fluorene		0.0830 J				
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-19/S-1_103196(2.5-4.0)_SO	B-19/S-2_103196(5.0-6.5)_SO	B-19/S-3_103196(7.5-9.0)_SO	B-19/S-4_103196(10.0-11.5)_SO	B-19/S-5_103196(12.5-14.0)_SO	B-20/S-1_103196(2.5-4.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene		0.0400 J				
Phenol						
Pyrene		0.0330 J				
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-19/S-1_103196(2.5-4.0)_SO	B-19/S-2_103196(5.0-6.5)_SO	B-19/S-3_103196(7.5-9.0)_SO	B-19/S-4_103196(10.0-11.5)_SO	B-19/S-5_103196(12.5-14.0)_SO	B-20/S-1_103196(2.5-4.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-20/S-2_103196(5.0-6.5)_SO	B-20/S-3_103196(7.5-9.0)_SO	B-20/S-5_103196(12.5-14.0)_SO	B-21/S-1_110196(2.5-4.0)_SO	B-21/S-3_110196(7.5-9.0)_SO	B-21/S-4_110196(10.0-11.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-20/S-2_103196(5.0-6.5)_SO	B-20/S-3_103196(7.5-9.0)_SO	B-20/S-5_103196(12.5-14.0)_SO	B-21/S-1_110196(2.5-4.0)_SO	B-21/S-3_110196(7.5-9.0)_SO	B-21/S-4_110196(10.0-11.5)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-20/S-2_103196(5.0-6.5)_SO	B-20/S-3_103196(7.5-9.0)_SO	B-20/S-5_103196(12.5-14.0)_SO	B-21/S-1_110196(2.5-4.0)_SO	B-21/S-3_110196(7.5-9.0)_SO	B-21/S-4_110196(10.0-11.5)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	270	50.0 U	50.0 U	140	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	270	50.0 U	50.0 U	140	50.0 U	50.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	270	50.0 U	50.0 U	140	50.0 U	50.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-20/S-2_103196(5.0-6.5)_SO	B-20/S-3_103196(7.5-9.0)_SO	B-20/S-5_103196(12.5-14.0)_SO	B-21/S-1_110196(2.5-4.0)_SO	B-21/S-3_110196(7.5-9.0)_SO	B-21/S-4_110196(10.0-11.5)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-20/S-2_103196(5.0-6.5)_SO	B-20/S-3_103196(7.5-9.0)_SO	B-20/S-5_103196(12.5-14.0)_SO	B-21/S-1_110196(2.5-4.0)_SO	B-21/S-3_110196(7.5-9.0)_SO	B-21/S-4_110196(10.0-11.5)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-20/S-2_103196(5.0-6.5)_SO	B-20/S-3_103196(7.5-9.0)_SO	B-20/S-5_103196(12.5-14.0)_SO	B-21/S-1_110196(2.5-4.0)_SO	B-21/S-3_110196(7.5-9.0)_SO	B-21/S-4_110196(10.0-11.5)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-22/S-1_110196(2.5-4.0)_SO	B-22/S-2_110196(5.0-6.5)_SO	B-22/S-3_110196(7.5-9.0)_SO	B-22/S-4_110196(10.0-11.5)_SO	B-22/S-5_110196(12.5-14.0)_SO	B-23/S-2_110196(5.0-6.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)	8.30					
Barium	210					
Cadmium	2.00					
Chromium	230					
Lead (inorganic)	1400					
Mercury (inorganic)	0.150					
Selenium (and compounds)	0.620 U					
Silver	0.290 U					
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016	0.200 U					
Aroclor 1221	0.500 U					
Aroclor 1232	0.500 U					

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-22/S-1_110196(2.5-4.0)_SO	B-22/S-2_110196(5.0-6.5)_SO	B-22/S-3_110196(7.5-9.0)_SO	B-22/S-4_110196(10.0-11.5)_SO	B-22/S-5_110196(12.5-14.0)_SO	B-23/S-2_110196(5.0-6.5)_SO
Aroclor 1242	0.200 U					
Aroclor 1248	0.340					
Aroclor 1254	0.200 U					
Aroclor 1260	0.200 U					
Total PCBs	0.340					
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene		0.0190 UJ				
Benzene						
Benzo(a)anthracene		0.00190 UJ				
Benzo(a)pyrene		0.00190 UJ				
Benzo(b)fluoranthene		0.00370 UJ				
Benzo(g,h,i)perylene		0.00370 UJ				
Benzo(k)fluoranthene		0.00190 UJ				
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ		0.00287				
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-22/S-1_110196(2.5-4.0)_SO	B-22/S-2_110196(5.0-6.5)_SO	B-22/S-3_110196(7.5-9.0)_SO	B-22/S-4_110196(10.0-11.5)_SO	B-22/S-5_110196(12.5-14.0)_SO	B-23/S-2_110196(5.0-6.5)_SO
Chrysene		0.00550 J				
Dibenz(a,h)anthracene		0.00370 UJ				
Diesel	5000	1000	430	1800	1000	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	14000	7300	3100	9200	4900	50.0 U
Indeno(1,2,3-cd)pyrene		0.0130 J				
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	600	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-		0.0190 UJ				
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene		0.0190 UJ				
Toluene						
Total Diesel/Fuel Oil	5010	1010	435	1810	1010	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	14000	7300	3100	9200	4900	50.0 U
Total Kerosene/Jet Fuel	600	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene		0.0190 U				
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	19600	8300	3530	11000	5900	50.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene		0.0190 UJ				
Acenaphthylene		0.0370 UJ				
Aniline						
Anthracene		0.00190 UJ				
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-22/S-1_110196(2.5-4.0)_SO	B-22/S-2_110196(5.0-6.5)_SO	B-22/S-3_110196(7.5-9.0)_SO	B-22/S-4_110196(10.0-11.5)_SO	B-22/S-5_110196(12.5-14.0)_SO	B-23/S-2_110196(5.0-6.5)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene		0.00370 UJ				
Fluorene		0.00370 UJ				
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-22/S-1_110196(2.5-4.0)_SO	B-22/S-2_110196(5.0-6.5)_SO	B-22/S-3_110196(7.5-9.0)_SO	B-22/S-4_110196(10.0-11.5)_SO	B-22/S-5_110196(12.5-14.0)_SO	B-23/S-2_110196(5.0-6.5)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene		0.00190 UJ				
Phenol						
Pyrene		0.00190 UJ				
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-22/S-1_110196(2.5-4.0)_SO	B-22/S-2_110196(5.0-6.5)_SO	B-22/S-3_110196(7.5-9.0)_SO	B-22/S-4_110196(10.0-11.5)_SO	B-22/S-5_110196(12.5-14.0)_SO	B-23/S-2_110196(5.0-6.5)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-23/S-3_110196(7.5-9.0)_SO	B-23/S-4_110196(10.0-11.5)_SO	B-24/S-1_110196(2.5-4.0)_SO	B-24/S-2_110196(5.0-6.5)_SO	B-24/S-3_110196(7.5-9.0)_SO	B-24/S-4_110196(10.0-11.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-23/S-3_110196(7.5-9.0)_SO	B-23/S-4_110196(10.0-11.5)_SO	B-24/S-1_110196(2.5-4.0)_SO	B-24/S-2_110196(5.0-6.5)_SO	B-24/S-3_110196(7.5-9.0)_SO	B-24/S-4_110196(10.0-11.5)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-23/S-3_110196(7.5-9.0)_SO	B-23/S-4_110196(10.0-11.5)_SO	B-24/S-1_110196(2.5-4.0)_SO	B-24/S-2_110196(5.0-6.5)_SO	B-24/S-3_110196(7.5-9.0)_SO	B-24/S-4_110196(10.0-11.5)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	47.0	88.0	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	50.0 U	50.0 U	360	700	120	78.0
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	52.0	93.0	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	50.0 U	50.0 U	360	700	120	78.0
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	50.0 U	50.0 U	407	788	120	78.0
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-23/S-3_110196(7.5-9.0)_SO	B-23/S-4_110196(10.0-11.5)_SO	B-24/S-1_110196(2.5-4.0)_SO	B-24/S-2_110196(5.0-6.5)_SO	B-24/S-3_110196(7.5-9.0)_SO	B-24/S-4_110196(10.0-11.5)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-23/S-3_110196(7.5-9.0)_SO	B-23/S-4_110196(10.0-11.5)_SO	B-24/S-1_110196(2.5-4.0)_SO	B-24/S-2_110196(5.0-6.5)_SO	B-24/S-3_110196(7.5-9.0)_SO	B-24/S-4_110196(10.0-11.5)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-23/S-3_110196(7.5-9.0)_SO	B-23/S-4_110196(10.0-11.5)_SO	B-24/S-1_110196(2.5-4.0)_SO	B-24/S-2_110196(5.0-6.5)_SO	B-24/S-3_110196(7.5-9.0)_SO	B-24/S-4_110196(10.0-11.5)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-25/S-1_113096(10.0-11.5)_SO	B-26/S-1_112596(2.5-4.0)_SO	B-26/S-2_112596(5.0-6.5)_SO	B-26/S-3_112596(7.5-9.0)_SO	B-26/S-5_112596(12.5-14.0)_SO	B-4/S-1_100896(2.5-4.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-25/S-1_113096(10.0-11.5)_SO	B-26/S-1_112596(2.5-4.0)_SO	B-26/S-2_112596(5.0-6.5)_SO	B-26/S-3_112596(7.5-9.0)_SO	B-26/S-5_112596(12.5-14.0)_SO	B-4/S-1_100896(2.5-4.0)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-25/S-1_113096(10.0-11.5)_SO	B-26/S-1_112596(2.5-4.0)_SO	B-26/S-2_112596(5.0-6.5)_SO	B-26/S-3_112596(7.5-9.0)_SO	B-26/S-5_112596(12.5-14.0)_SO	B-4/S-1_100896(2.5-4.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	1800	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	8500	50.0 U	50.0 U	50.0 U	50.0 U	110
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	1810	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	8500	50.0 U	50.0 U	50.0 U	50.0 U	110
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	10300	50.0 U	50.0 U	50.0 U	50.0 U	110
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-25/S-1_113096(10.0-11.5)_SO	B-26/S-1_112596(2.5-4.0)_SO	B-26/S-2_112596(5.0-6.5)_SO	B-26/S-3_112596(7.5-9.0)_SO	B-26/S-5_112596(12.5-14.0)_SO	B-4/S-1_100896(2.5-4.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-25/S-1_113096(10.0-11.5)_SO	B-26/S-1_112596(2.5-4.0)_SO	B-26/S-2_112596(5.0-6.5)_SO	B-26/S-3_112596(7.5-9.0)_SO	B-26/S-5_112596(12.5-14.0)_SO	B-4/S-1_100896(2.5-4.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-25/S-1_113096(10.0-11.5)_SO	B-26/S-1_112596(2.5-4.0)_SO	B-26/S-2_112596(5.0-6.5)_SO	B-26/S-3_112596(7.5-9.0)_SO	B-26/S-5_112596(12.5-14.0)_SO	B-4/S-1_100896(2.5-4.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-4/S-2_100896(5.0-6.5)_SO	B-4/S-3_100896(7.5-9.0)_SO	B-4/S-4_100896(10.0-11.5)_SO	B-4/S-5_100896(12.5-14.0)_SO	B-5/S-1_101096(2.5-4.0)_SO	B-5/S-2_101096(5.0-6.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-4/S-2_100896(5.0-6.5)_SO	B-4/S-3_100896(7.5-9.0)_SO	B-4/S-4_100896(10.0-11.5)_SO	B-4/S-5_100896(12.5-14.0)_SO	B-5/S-1_101096(2.5-4.0)_SO	B-5/S-2_101096(5.0-6.5)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-4/S-2_100896(5.0-6.5)_SO	B-4/S-3_100896(7.5-9.0)_SO	B-4/S-4_100896(10.0-11.5)_SO	B-4/S-5_100896(12.5-14.0)_SO	B-5/S-1_101096(2.5-4.0)_SO	B-5/S-2_101096(5.0-6.5)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	47.0	21.0
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	85.0	65.0	50.0 U	50.0 U	690	300
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	30.0 U	30.0 U	52.0	26.0
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	85.0	65.0	50.0 U	50.0 U	690	300
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	85.0	65.0	50.0 U	50.0 U	737	321
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-4/S-2_100896(5.0-6.5)_SO	B-4/S-3_100896(7.5-9.0)_SO	B-4/S-4_100896(10.0-11.5)_SO	B-4/S-5_100896(12.5-14.0)_SO	B-5/S-1_101096(2.5-4.0)_SO	B-5/S-2_101096(5.0-6.5)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-4/S-2_100896(5.0-6.5)_SO	B-4/S-3_100896(7.5-9.0)_SO	B-4/S-4_100896(10.0-11.5)_SO	B-4/S-5_100896(12.5-14.0)_SO	B-5/S-1_101096(2.5-4.0)_SO	B-5/S-2_101096(5.0-6.5)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-4/S-2_100896(5.0-6.5)_SO	B-4/S-3_100896(7.5-9.0)_SO	B-4/S-4_100896(10.0-11.5)_SO	B-4/S-5_100896(12.5-14.0)_SO	B-5/S-1_101096(2.5-4.0)_SO	B-5/S-2_101096(5.0-6.5)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-5/S-3_101096(7.5-9.0)_SO	B-5/S-4_101096(10.0-11.5)_SO	B-7/S-1_100996(2.5-4.0)_SO	B-7/S-2_100996(5.0-6.5)_SO	B-7/S-3_100996(7.5-9.0)_SO	B-7/S-4_100996(10.0-11.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-5/S-3_101096(7.5-9.0)_SO	B-5/S-4_101096(10.0-11.5)_SO	B-7/S-1_100996(2.5-4.0)_SO	B-7/S-2_100996(5.0-6.5)_SO	B-7/S-3_100996(7.5-9.0)_SO	B-7/S-4_100996(10.0-11.5)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 UJ	50.0 UJ	50.0 UJ	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-5/S-3_101096(7.5-9.0)_SO	B-5/S-4_101096(10.0-11.5)_SO	B-7/S-1_100996(2.5-4.0)_SO	B-7/S-2_100996(5.0-6.5)_SO	B-7/S-3_100996(7.5-9.0)_SO	B-7/S-4_100996(10.0-11.5)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	2500 J	2500 J	2100 J	850
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U
Heavy Oil	320	270	9200 J	9000 J	9500 J	4000
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	840 J	810 J	580 J	310
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 UJ	10.0 UJ	10.0 UJ	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	2510	2510	2110	855
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	320	270	9200	9000	9500	4000
Total Kerosene/Jet Fuel	10.0 U	10.0 U	840	810	580	310
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	320	270	12500 J	12300 J	12200 J	5160
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-5/S-3_101096(7.5-9.0)_SO	B-5/S-4_101096(10.0-11.5)_SO	B-7/S-1_100996(2.5-4.0)_SO	B-7/S-2_100996(5.0-6.5)_SO	B-7/S-3_100996(7.5-9.0)_SO	B-7/S-4_100996(10.0-11.5)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-5/S-3_101096(7.5-9.0)_SO	B-5/S-4_101096(10.0-11.5)_SO	B-7/S-1_100996(2.5-4.0)_SO	B-7/S-2_100996(5.0-6.5)_SO	B-7/S-3_100996(7.5-9.0)_SO	B-7/S-4_100996(10.0-11.5)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-5/S-3_101096(7.5-9.0)_SO	B-5/S-4_101096(10.0-11.5)_SO	B-7/S-1_100996(2.5-4.0)_SO	B-7/S-2_100996(5.0-6.5)_SO	B-7/S-3_100996(7.5-9.0)_SO	B-7/S-4_100996(10.0-11.5)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-7/S-5_100996(12.5-14.0)_SO	B-8/S-1_100996(2.5-4.0)_SO	B-8/S-2_100996(5.0-6.5)_SO	B-8/S-4_100996(10.0-11.5)_SO	B-8/S-5_100996(12.5-14.0)_SO	B-9/S-1_100996(2.5-4.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-7/S-5_100996(12.5-14.0)_SO	B-8/S-1_100996(2.5-4.0)_SO	B-8/S-2_100996(5.0-6.5)_SO	B-8/S-4_100996(10.0-11.5)_SO	B-8/S-5_100996(12.5-14.0)_SO	B-9/S-1_100996(2.5-4.0)_SO
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-7/S-5_100996(12.5-14.0)_SO	B-8/S-1_100996(2.5-4.0)_SO	B-8/S-2_100996(5.0-6.5)_SO	B-8/S-4_100996(10.0-11.5)_SO	B-8/S-5_100996(12.5-14.0)_SO	B-9/S-1_100996(2.5-4.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	500	700	640	670	20.0 U	1200
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	2100	2100	2500	4000	110	7800
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	140	220	210	230	10.0 U	270
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	505	705	645	675	30.0 U	1210
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	2100	2100	2500	4000	110	7800
Total Kerosene/Jet Fuel	140	220	210	230	10.0 U	270
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	2740	3020	3350	4900	110	9270
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-7/S-5_100996(12.5-14.0)_SO	B-8/S-1_100996(2.5-4.0)_SO	B-8/S-2_100996(5.0-6.5)_SO	B-8/S-4_100996(10.0-11.5)_SO	B-8/S-5_100996(12.5-14.0)_SO	B-9/S-1_100996(2.5-4.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-7/S-5_100996(12.5-14.0)_SO	B-8/S-1_100996(2.5-4.0)_SO	B-8/S-2_100996(5.0-6.5)_SO	B-8/S-4_100996(10.0-11.5)_SO	B-8/S-5_100996(12.5-14.0)_SO	B-9/S-1_100996(2.5-4.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-7/S-5_100996(12.5-14.0)_SO	B-8/S-1_100996(2.5-4.0)_SO	B-8/S-2_100996(5.0-6.5)_SO	B-8/S-4_100996(10.0-11.5)_SO	B-8/S-5_100996(12.5-14.0)_SO	B-9/S-1_100996(2.5-4.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-9/S-2_100996(5.0-6.5)_SO	B-9/S-3_100996(7.5-9.0)_SO	B-9/S-4_100996(10.0-11.5)_SO	B-9/S-5_100996(12.5-14.0)_SO	HL-MW-20S/S-3_010505(10.0-11.0)_SO	HL-MW-21S-10'_012805(9.0-11.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)						3.60
Barium						10.0 U
Cadmium						1.00 U
Chromium						2.00 U
Lead (inorganic)						3.10
Mercury (inorganic)						0.500 U
Selenium (and compounds)						10.0 U
Silver						2.00 U
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221					0.200 U	0.200 U
Aroclor 1232					0.200 U	0.200 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-9/S-2_100996(5.0-6.5)_SO	B-9/S-3_100996(7.5-9.0)_SO	B-9/S-4_100996(10.0-11.5)_SO	B-9/S-5_100996(12.5-14.0)_SO	HL-MW-20S/S-3_010505(10.0-11.0)_SO	HL-MW-21S-10'_012805(9.0-11.0)_SO
Aroclor 1242					0.200 U	0.200 U
Aroclor 1248					0.200 U	0.200 U
Aroclor 1254					0.200 U	0.200 U
Aroclor 1260					0.200 U	0.200 U
Total PCBs					0.200 U	0.200 U
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						0.0500 U
Benzo(a)anthracene						0.100 U
Benzo(a)pyrene						0.100 U
Benzo(b)fluoranthene						0.100 U
Benzo(g,h,i)perylene						0.100 U
Benzo(k)fluoranthene						0.100 U
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						0.151 U
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-9/S-2_100996(5.0-6.5)_SO	B-9/S-3_100996(7.5-9.0)_SO	B-9/S-4_100996(10.0-11.5)_SO	B-9/S-5_100996(12.5-14.0)_SO	HL-MW-20S/S-3_010505(10.0-11.0)_SO	HL-MW-21S-10'_012805(9.0-11.0)_SO
Chrysene						0.100 U
Dibenz(a,h)anthracene						0.100 U
Diesel	47.0	20.0 U	90.0	20.0 U	1000	50.0 U
Ethyl Benzene						0.0500 U
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	20.0 U	5.00 U
Heavy Oil	47.0 J	50.0 U	140	50.0 U	2600	100 U
Indeno(1,2,3-cd)pyrene						0.100 U
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	10.0 U	22.0	10.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	20.0 D	5.00 U
Naphthalene						0.0500 U
Toluene						0.0500 U
Total Diesel/Fuel Oil	52.0	30.0 U	95.0	30.0 U	1010	70.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	20.0 U	5.00 U
Total Heavy Oil	47.0	50.0 U	140	50.0 U	2600	100 U
Total Kerosene/Jet Fuel	20.0 U	10.0 U	22.0	10.0 U	20.0 U	20.0 U
Total Naphthalene						0.0500 U
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	20.0	5.00 U
Total TPH	94.0	50.0 U	252	50.0 U		
Total Xylenes						0.0500 U
Xylenes						0.0500 U
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						0.500 U
2-Nitrophenol						0.500 U
3,4-Methylphenol (m,p-cresol)						0.100 U
Acenaphthene						0.100 U
Acenaphthylene						0.100 U
Aniline						
Anthracene						0.100 U
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						0.100 U
Bis(2-chloroisopropyl)Ether						0.100 U
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						0.500 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-9/S-2_100996(5.0-6.5)_SO	B-9/S-3_100996(7.5-9.0)_SO	B-9/S-4_100996(10.0-11.5)_SO	B-9/S-5_100996(12.5-14.0)_SO	HL-MW-20S/S-3_010505(10.0-11.0)_SO	HL-MW-21S-10'_012805(9.0-11.0)_SO
Bromobenzene						0.0500 U
Bromodiphenyl ether, 4-						0.100 U
Butyl Benzyl Phthalate, N-						0.500 U
Chlordane						
Chloro-3-methylphenol, 4-						0.500 U
Chloroaniline, 4-						
Chloronaphthalene, 2-						0.100 U
Chlorophenol, 2-						0.500 U
Chlorophenyl-phenyl ether, 4-						0.500 U
Di-n-Octylphthalate						0.500 U
Dibenzofuran						
Dibutyl Phthalate						0.100 U
Dichlorobenzene, 1,2-						0.0500 U
Dichlorobenzene, 1,3-						0.0500 U
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						0.500 U
Dichlorophenol, 2,6-						0.500 U
Diethyl Phthalate						0.100 U
Dimethyl Phthalate						0.100 U
Dimethylphenol, 2,4-						0.500 U
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						0.500 U
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						0.500 U
Fluoranthene						0.100 U
Fluorene						0.100 U
Hexachlorobenzene						0.100 U
Hexachlorobutadiene						0.0500 U
Hexachlorocyclopentadiene						0.100 U
Hexachloroethane						0.100 U
Hexachloropropylene						0.500 U
Isophorone						
Isopropyltoluene						0.0500 U
Methylphenol, 2-						0.100 U
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-9/S-2_100996(5.0-6.5)_SO	B-9/S-3_100996(7.5-9.0)_SO	B-9/S-4_100996(10.0-11.5)_SO	B-9/S-5_100996(12.5-14.0)_SO	HL-MW-20S/S-3_010505(10.0-11.0)_SO	HL-MW-21S-10'_012805(9.0-11.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						0.500 U
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						0.100 U
Pentachlorobenzene						0.500 U
Pentachlorophenol						0.500 U
Phenanthrene						0.100 U
Phenol						0.500 U
Pyrene						0.100 U
Tetrachlorobenzene, 1,2,4,5-						0.500 U
Tetrachlorophenol, 2,3,4,6-						0.500 U
Trichlorobenzene, 1,2,4-						0.0500 U
Trichlorophenol, 2,4,5-						0.500 U
Trichlorophenol, 2,4,6-						0.500 U
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						0.0500 U
1,2,3-trichlorobenzene						0.0500 U
1,2,4-Trimethylbenzene						0.0500 U
1,3,5-Trimethylbenzene						0.0500 U
1,3-dichloropropane						0.0500 U
1-Phenylpropane						0.0500 U
2,2-dichloropropane						0.0500 U
2-chlorotoluene						0.0500 U
4-chlorotoluene						0.0500 U
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						0.0500 U
Bromoform						0.0500 U
Bromomethane						0.0500 U
CFC-11						0.0500 U
CFC-12						0.0500 U
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-9/S-2_100996(5.0-6.5)_SO	B-9/S-3_100996(7.5-9.0)_SO	B-9/S-4_100996(10.0-11.5)_SO	B-9/S-5_100996(12.5-14.0)_SO	HL-MW-20S/S-3_010505(10.0-11.0)_SO	HL-MW-21S-10'_012805(9.0-11.0)_SO
Carbon Tetrachloride						0.0500 U
Chlorobenzene						0.0500 U
Chloroform						0.0500 U
Chloromethane						0.0500 U
Cumene						0.0500 U
Dibromo-3-chloropropane, 1,2-						0.0500 U
Dibromochloromethane						0.0200 U
Dibromoethane, 1,2-						0.00500 U
Dichlorobenzene, 1,4-						0.0500 U
Dichloroethane, 1,1-						0.0500 U
Dichloroethane, 1,2-						0.0200 U
Dichloroethene, 1,1-						0.0500 U
Dichloroethylene, Cis-1,2-						0.0500 U
Dichloroethylene, Trans-1,2-						0.0500 U
Dichloromethane						0.0200 U
Dichloropropane, 1,2-						0.0500 U
Dichloropropene, Cis-1,3-						0.0500 U
Dichloropropene, Trans-1,3-						0.0500 U
Ethyl Chloride						0.0500 U
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						0.100 U
Methylene Bromide						0.0500 U
Styrene						0.0500 U
Tert-butylbenzene						0.0500 U
Tetrachloroethane, 1,1,1,2-						0.0500 U
Tetrachloroethane, 1,1,2,2-						0.0500 U
Tetrachloroethylene						0.0500 U
Trichloroethane, 1,1,1-						0.0500 U
Trichloroethane, 1,1,2-						0.0500 U
Trichloroethylene						0.0200 U
Trichloropropane, 1,2,3-						0.0500 U
Vinyl Acetate						
Vinyl Chloride						0.0500 U
n-Butylbenzene						0.0500 U
sec-Butylbenzene						0.0500 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-21S-5'_012805(4.0-6.0)_SO	Location #1 (G-1) CS_110906(3.0-8.0)_SO	Location #1 (G-1)_110706(3.0-8.0)_SO	Location #3N (CS)_110606(3.0-8.0)_SO	Location #3S (CS)_110706(3.0-8.0)_SO	OR-SB-31/S-1_010305(10.0-11.5)_SO
Conventional (%)						
Moisture		9.40	14.0	5.60	4.30	
Total Organic Carbon			8.40			
Metals (mg/kg)						
Arsenic (inorganic)						2.00 U
Barium						10.0 U
Cadmium						1.00 U
Chromium						3.90
Lead (inorganic)						1.00 U
Mercury (inorganic)						0.500 U
Selenium (and compounds)						10.0 U
Silver						2.00
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016			0.100 U			
Aroclor 1221			0.200 U			0.200 U
Aroclor 1232			0.100 U			0.200 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-21S-5'_012805(4.0-6.0)_SO	Location #1 (G-1) CS_110906(3.0-8.0)_SO	Location #1 (G-1)_110706(3.0-8.0)_SO	Location #3N (CS)_110606(3.0-8.0)_SO	Location #3S (CS)_110706(3.0-8.0)_SO	OR-SB-31/S-1_010305(10.0-11.5)_SO
Aroclor 1242			0.100 U			0.200 U
Aroclor 1248			0.100 U			0.200 U
Aroclor 1254			0.130			0.200 U
Aroclor 1260			0.100 U			0.200 U
Total PCBs			0.130			0.200 U
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene			0.0470 U			0.0500 U
Benzo(a)anthracene			0.0320 J			0.140
Benzo(a)pyrene			0.0500 U			0.100 U
Benzo(b)fluoranthene			0.0500 U			0.100 U
Benzo(g,h,i)perylene			0.0190 J			0.100 U
Benzo(k)fluoranthene			0.0500 U			0.100 U
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ			0.0383			0.0852
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-21S-5'_012805(4.0-6.0)_SO	Location #1 (G-1) CS_110906(3.0-8.0)_SO	Location #1 (G-1)_110706(3.0-8.0)_SO	Location #3N (CS)_110606(3.0-8.0)_SO	Location #3S (CS)_110706(3.0-8.0)_SO	OR-SB-31/S-1_010305(10.0-11.5)_SO
Chrysene			0.0460 J			0.120
Dibenz(a,h)anthracene			0.0500 U			0.100 U
Diesel	50.0 U	50.0 U	20.0 U	50.0 U	50.0 U	430
Ethyl Benzene			0.120			0.110
Gasoline Range Organics	20.0 U	20.0 U	5.00 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	20000	100 U	170	1200
Indeno(1,2,3-cd)pyrene			0.0210 J			0.100 U
Kensol	20.0 U	20.0 U	3000	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-			0.300			
Mineral spirits/Stoddard	20.0 U	20.0 U	330	20.0 U	20.0 U	20.0 D
Naphthalene			0.750			0.0500 U
Toluene			0.0320 J			0.150
Total Diesel/Fuel Oil	70.0 U	70.0 U	3010	70.0 U	70.0 U	440
Total Gasoline	20.0 U	20.0 U	5.00 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	20000	100 U	170	1200
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene			0.750			0.0500 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	330	20.0 U	20.0 U	20.0
Total TPH						
Total Xylenes			1.40			0.660
Xylenes			0.670			0.660
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						0.500 U
2-Nitrophenol						0.500 U
3,4-Methylphenol (m,p-cresol)						0.100 U
Acenaphthene			0.0460			0.100 U
Acenaphthylene			0.0140 U			0.100 U
Aniline						
Anthracene			0.0820			0.100 U
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						0.100 U
Bis(2-chloroisopropyl)Ether						0.100 U
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						0.500 U

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-21S-5'_012805(4.0-6.0)_SO	Location #1 (G-1) CS_110906(3.0-8.0)_SO	Location #1 (G-1)_110706(3.0-8.0)_SO	Location #3N (CS)_110606(3.0-8.0)_SO	Location #3S (CS)_110706(3.0-8.0)_SO	OR-SB-31/S-1_010305(10.0-11.5)_SO
Bromobenzene			0.190 U			0.0500 U
Bromodiphenyl ether, 4-						0.100 U
Butyl Benzyl Phthalate, N-						0.500 U
Chlordane						
Chloro-3-methylphenol, 4-						0.500 U
Chloroaniline, 4-						
Chloronaphthalene, 2-						0.100 U
Chlorophenol, 2-						0.500 U
Chlorophenyl-phenyl ether, 4-						0.500 U
Di-n-Octylphthalate						0.500 U
Dibenzofuran			0.110			
Dibutyl Phthalate						0.100 U
Dichlorobenzene, 1,2-			0.0470 U			0.0500 U
Dichlorobenzene, 1,3-			0.0470 U			0.0500 U
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						0.500 U
Dichlorophenol, 2,6-						0.500 U
Diethyl Phthalate						0.100 U
Dimethyl Phthalate						0.100 U
Dimethylphenol, 2,4-						0.500 U
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						0.500 U
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						0.500 U
Fluoranthene			0.0560			0.100 U
Fluorene			0.270			0.100 U
Hexachlorobenzene						0.100 U
Hexachlorobutadiene			0.190 U			0.0500 U
Hexachlorocyclopentadiene						0.100 U
Hexachloroethane						0.100 U
Hexachloropropylene						0.500 U
Isophorone						
Isopropyltoluene						0.0500 U
Methylphenol, 2-						0.100 U
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-21S-5'_012805(4.0-6.0)_SO	Location #1 (G-1) CS_110906(3.0-8.0)_SO	Location #1 (G-1)_110706(3.0-8.0)_SO	Location #3N (CS)_110606(3.0-8.0)_SO	Location #3S (CS)_110706(3.0-8.0)_SO	OR-SB-31/S-1_010305(10.0-11.5)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						0.500 U
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						0.600
Pentachlorobenzene						0.500 U
Pentachlorophenol						0.500 U
Phenanthrene			0.640			0.140
Phenol						0.500 U
Pyrene			0.0940			0.100 U
Tetrachlorobenzene, 1,2,4,5-						0.500 U
Tetrachlorophenol, 2,3,4,6-						0.500 U
Trichlorobenzene, 1,2,4-			0.190 U			0.0500 U
Trichlorophenol, 2,4,5-						0.500 U
Trichlorophenol, 2,4,6-						0.500 U
o-Xylene			0.710			
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene			0.0470 U			0.0500 U
1,2,3-trichlorobenzene			0.190 U			0.0500 U
1,2,4-Trimethylbenzene			7.80			2.60
1,3,5-Trimethylbenzene			2.20			0.0500 U
1,3-dichloropropane			0.0470 U			0.0500 U
1-Phenylpropane			0.860			0.430
2,2-dichloropropane			0.0470 U			0.0500 U
2-chlorotoluene			0.190 U			0.240
4-chlorotoluene			0.190 U			0.110
4-isopropyltoluene			0.550			
Acetone			1.90 U			
Bromochloromethane			0.0470 U			
Bromodichloromethane			0.0470 U			0.0500 U
Bromoform			0.0470 U			0.0500 U
Bromomethane			0.0470 U			0.0500 U
CFC-11			0.0470 U			0.0500 U
CFC-12			0.0470 U			0.0500 U
Carbon Disulfide			0.0470 U			

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-21S-5'_012805(4.0-6.0)_SO	Location #1 (G-1) CS_110906(3.0-8.0)_SO	Location #1 (G-1)_110706(3.0-8.0)_SO	Location #3N (CS)_110606(3.0-8.0)_SO	Location #3S (CS)_110706(3.0-8.0)_SO	OR-SB-31/S-1_010305(10.0-11.5)_SO
Carbon Tetrachloride			0.0470 U			0.0500 U
Chlorobenzene			0.0470 U			0.0500 U
Chloroform			0.0470 U			0.0500 U
Chloromethane			0.0470 U			0.0500 U
Cumene			0.240			0.130
Dibromo-3-chloropropane, 1,2-			0.190 U			0.0500 U
Dibromochloromethane			0.0470 U			0.0200 U
Dibromoethane, 1,2-			0.190 U			0.00500 U
Dichlorobenzene, 1,4-			0.0470 U			0.0500 U
Dichloroethane, 1,1-			0.0470 U			0.0500 U
Dichloroethane, 1,2-			0.0470 U			0.0200 U
Dichloroethene, 1,1-			0.0470 U			0.0500 U
Dichloroethylene, Cis-1,2-			0.0470 U			0.0500 U
Dichloroethylene, Trans-1,2-			0.0470 U			0.0500 U
Dichloromethane			0.190 U			0.0200 U
Dichloropropane, 1,2-			0.0470 U			0.0500 U
Dichloropropene, Cis-1,3-			0.0470 U			0.0500 U
Dichloropropene, Trans-1,3-			0.0470 U			0.0500 U
Ethyl Chloride			0.0470 U			0.0500 U
Hexanone, 2-			1.90 U			
Methyl Ethyl Ketone			1.90 U			
Methyl Isobutyl Ketone			1.90 U			
Methyl Tertiary Butyl Ether						
Methylene Bromide			0.0470 U			0.0500 U
Styrene			0.0470 U			0.0500 U
Tert-butylbenzene			0.0310 J			0.0500
Tetrachloroethane, 1,1,1,2-			0.0470 U			0.0500 U
Tetrachloroethane, 1,1,2,2-			0.0470 U			0.0500 U
Tetrachloroethylene			0.0470 U			0.0500 U
Trichloroethane, 1,1,1-			0.0470 U			0.0500 U
Trichloroethane, 1,1,2-			0.0470 U			0.0500 U
Trichloroethylene			0.0470 U			0.0200 U
Trichloropropane, 1,2,3-			0.0470 U			0.0500 U
Vinyl Acetate						
Vinyl Chloride			0.0470 U			0.0500 U
n-Butylbenzene			1.30 U			0.460
sec-Butylbenzene			0.430			0.310

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S-4_011205(15.0)_SO	S-5_011205(15.0)_SO	S-6_011205(10.0)_SO	S-7_011205(9.0)_SO	S-8_011205(7.0)_SO	S-9_011205(3.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)					2.00 U	
Barium					10.0 U	
Cadmium					1.80	
Chromium					2.00 U	
Lead (inorganic)					52.0	
Mercury (inorganic)					0.500 U	
Selenium (and compounds)					10.0 U	
Silver					1.00 U	
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221				0.200 U	0.200 U	
Aroclor 1232				0.200 U	0.200 U	

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S-4_011205(15.0)_SO	S-5_011205(15.0)_SO	S-6_011205(10.0)_SO	S-7_011205(9.0)_SO	S-8_011205(7.0)_SO	S-9_011205(3.0)_SO
Aroclor 1242				0.200 U	0.200 U	
Aroclor 1248				0.200 U	0.200 U	
Aroclor 1254				0.200 U	0.200 U	
Aroclor 1260				0.200 U	0.200 U	
Total PCBs				0.200 U	0.200 U	
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene				0.0200 U	0.0200 U	
Benzo(a)anthracene				0.100 U	0.940	
Benzo(a)pyrene				0.100 U	0.350	
Benzo(b)fluoranthene				0.100 U	0.100 U	
Benzo(g,h,i)perylene				0.200	0.470	
Benzo(k)fluoranthene				0.100 U	0.470	
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ				0.0864	0.510	
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S-4_011205(15.0)_SO	S-5_011205(15.0)_SO	S-6_011205(10.0)_SO	S-7_011205(9.0)_SO	S-8_011205(7.0)_SO	S-9_011205(3.0)_SO
Chrysene				0.140	0.350	
Dibenz(a,h)anthracene				0.150	0.100 U	
Diesel	4000	5000	50.0 U	3500	43000	3200
Ethyl Benzene				6.80	1.20	
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	340	20.0 U
Heavy Oil	9900	12000	100 U	7000	170000	16000
Indeno(1,2,3-cd)pyrene				0.100 U	0.100 U	
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	20.0 D	20.0 D	20.0 U	20.0 U	5.00 U	20.0 D
Naphthalene				0.180	1.60	
Toluene				3.80	1.20	
Total Diesel/Fuel Oil	4010	5010	70.0 U	3510	43000	3210
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	340	20.0 U
Total Heavy Oil	9900	12000	100 U	7000	170000	16000
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene				0.180	1.60	
Total Stoddard/Mineral Spirits	20.0	20.0	20.0 U	20.0 U	5.00 U	20.0
Total TPH						
Total Xylenes				35.0	6.00	
Xylenes				35.0	6.00	
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene				0.270	0.590	
Acenaphthylene				0.100 U	0.100 U	
Aniline						
Anthracene				0.390	0.100 U	
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S-4_011205(15.0)_SO	S-5_011205(15.0)_SO	S-6_011205(10.0)_SO	S-7_011205(9.0)_SO	S-8_011205(7.0)_SO	S-9_011205(3.0)_SO
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Dinoseb						
Fluoranthene				0.120	0.350	
Fluorene				0.360	1.90	
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S-4_011205(15.0)_SO	S-5_011205(15.0)_SO	S-6_011205(10.0)_SO	S-7_011205(9.0)_SO	S-8_011205(7.0)_SO	S-9_011205(3.0)_SO
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene				0.100 U	2.40	
Phenol						
Pyrene				0.100 U	0.820	
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S-4_011205(15.0)_SO	S-5_011205(15.0)_SO	S-6_011205(10.0)_SO	S-7_011205(9.0)_SO	S-8_011205(7.0)_SO	S-9_011205(3.0)_SO
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Acetate						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-1_052704(3.0)_SO	TL-2_052704(3.0)_SO				
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)	3.70	2.60				
Barium	27.9	77.3				
Cadmium	0.800 U	0.900 U				
Chromium	8.20	8.50				
Lead (inorganic)	17.0 U	17.0 U				
Mercury (inorganic)	0.0100 U	0.0100 U				
Selenium (and compounds)	2.10 U	2.10 U				
Silver	1.70 U	1.70 U				
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016	0.0770 U	0.0870 U				
Aroclor 1221	0.160 U	0.180 U				
Aroclor 1232	0.0770 U	0.0870 U				

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-1_052704(3.0)_SO	TL-2_052704(3.0)_SO				
Aroclor 1242	0.0770 U	0.0870 U				
Aroclor 1248	0.0770 U	0.0870 U				
Aroclor 1254	0.0770 U	0.0870 U				
Aroclor 1260	0.0770 U	0.0870 U				
Total PCBs	0.0770 U	0.0870 U				
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						
Endrin aldehyde						
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene	0.00510 U	0.00540 U				
Benzo(a)anthracene	5.80 U	0.330 U				
Benzo(a)pyrene	5.80 U	0.330 U				
Benzo(b)fluoranthene	5.80 U	0.330 U				
Benzo(g,h,i)perylene	5.80 U	0.330 U				
Benzo(k)fluoranthene	5.80 U	0.330 U				
Bunker C						
CPAH TEQ	8.80 U	0.498 U				
Castor oil						

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-1_052704(3.0)_SO	TL-2_052704(3.0)_SO				
Chrysene	5.80 U	0.330 U				
Dibenz(a,h)anthracene	5.80 U	0.330 U				
Diesel	29000	12000				
Ethyl Benzene	0.00510 U	0.00540 U				
Gasoline Range Organics						
Heavy Oil	33000	15000				
Indeno(1,2,3-cd)pyrene	5.80 U	0.330 U				
Kensol						
Kerosene/Jet fuel						
Methylnaphthalene, 2-	5.80 U	0.330 U				
Mineral spirits/Stoddard						
Naphthalene	0.0210 U	0.0220 U				
Toluene	0.00510 U	0.00540 U				
Total Diesel/Fuel Oil	29000	12000				
Total Gasoline						
Total Heavy Oil	33000	15000				
Total Kerosene/Jet Fuel						
Total Naphthalene	0.0210 U	0.0220 U				
Total Stoddard/Mineral Spirits						
Total TPH						
Total Xylenes	0.0102 U	0.0108 U				
Xylenes	0.00510 U	0.00540 U				
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol	5.80 U	0.330 U				
3,4-Methylphenol (m,p-cresol)						
Acenaphthene	5.80 U	0.330 U				
Acenaphthylene	5.80 U	0.330 U				
Aniline	18.0 U	0.980 U				
Anthracene	5.80 U	0.330 U				
Benzidine						
Benzoic Acid	35.0 U	2.00 U				
Benzyl Alcohol	5.80 U	0.330 U				
Bis(2-Chloroethoxy)methane	5.80 U	0.330 U				
Bis(2-chloroisopropyl)Ether	5.80 U	0.330 U				
Bis(2-ethylhexyl)Phthalate (DEHP)	5.80 U	0.330 U				
Bis(Chloroethyl)ether	5.80 U	0.330 U				

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Sample ID:	TL-1_052704(3.0)_SO	TL-2_052704(3.0)_SO				
Bromobenzene		0.00510 U	0.00540 U				
Bromodiphenyl ether, 4-		5.80 U	0.330 U				
Butyl Benzyl Phthalate, N-		5.80 U	0.330 U				
Chlordane							
Chloro-3-methylphenol, 4-		5.80 U	0.330 U				
Chloroaniline, 4-		5.80 U	0.330 U				
Chloronaphthalene, 2-		5.80 U	0.330 U				
Chlorophenol, 2-		5.80 U	0.330 U				
Chlorophenyl-phenyl ether, 4-		5.80 U	0.330 U				
Di-n-Octylphthalate		5.80 U	0.330 U				
Dibenzofuran		5.80 U	0.330 U				
Dibutyl Phthalate		5.80 U	0.330 U				
Dichlorobenzene, 1,2-		0.00510 U	0.00540 U				
Dichlorobenzene, 1,3-		0.00510 U	0.00540 U				
Dichlorobenzidine, 3,3'		35.0 U	2.00 U				
Dichlorophenol, 2,4-		5.80 U	0.330 U				
Dichlorophenol, 2,6-							
Diethyl Phthalate		5.80 U	0.330 U				
Dimethyl Phthalate		5.80 U	0.330 U				
Dimethylphenol, 2,4-		5.80 U	0.330 U				
Dinitro-o-Cresol, 4,6-		35.0 U	2.00 U				
Dinitrophenol, 2,4-		35.0 U	2.00 U				
Dinitrotoluene, 2,4-		5.80 U	0.330 U				
Dinitrotoluene, 2,6-		5.80 U	0.330 U				
Dinoseb							
Fluoranthene		5.80 U	0.330 U				
Fluorene		5.80 U	0.330 U				
Hexachlorobenzene		5.80 U	0.330 U				
Hexachlorobutadiene		0.0210 U	0.0220 U				
Hexachlorocyclopentadiene		5.80 U	0.330 U				
Hexachloroethane		5.80 U	0.330 U				
Hexachloropropylene							
Isophorone		5.80 U	0.330 U				
Isopropyltoluene							
Methylphenol, 2-		5.80 U	0.330 U				
Methylphenol, 4-		5.80 U	0.330 U				
Nitroaniline, 2-		35.0 U	2.00 U				

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-1_052704(3.0)_SO	TL-2_052704(3.0)_SO				
Nitroaniline, 3-	35.0 U	2.00 U				
Nitroaniline, 4-	35.0 U	2.00 U				
Nitrobenzene	5.80 U	0.330 U				
Nitrophenol, 4-	35.0 U	2.00 U				
Nitrosodi-N-propylamine, N-	5.80 U	0.330 U				
Nitrosodimethylamine, N-	35.0 U	2.00 U				
Nitrosodiphenylamine, N-	5.80 U	0.330 U				
Pentachlorobenzene						
Pentachlorophenol	35.0 U	2.00 U				
Phenanthrene	5.80 U	0.330 U				
Phenol	5.80 U	0.330 U				
Pyrene	5.80 U	0.330 U				
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-	0.0210 U	0.0220 U				
Trichlorophenol, 2,4,5-	5.80 U	0.330 U				
Trichlorophenol, 2,4,6-	5.80 U	0.330 U				
o-Xylene	0.00510 U	0.00540 U				
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00510 U	0.00540 U				
1,2,3-trichlorobenzene	0.0210 U	0.0220 U				
1,2,4-Trimethylbenzene	0.0210 U	0.0220 U				
1,3,5-Trimethylbenzene	0.0210 U	0.0220 U				
1,3-dichloropropane	0.00510 U	0.00540 U				
1-Phenylpropane	0.0210 U	0.0220 U				
2,2-dichloropropane	0.00510 U	0.00540 U				
2-chlorotoluene	0.0210 U	0.0220 U				
4-chlorotoluene	0.0210 U	0.0220 U				
4-isopropyltoluene	0.0210 U	0.0220 U				
Acetone	0.0210 U	0.0220				
Bromochloromethane	0.00510 U	0.00540 U				
Bromodichloromethane	0.00510 U	0.00540 U				
Bromoform	0.00510 U	0.00540 U				
Bromomethane	0.00510 U	0.00540 U				
CFC-11	0.00510 U	0.00540 U				
CFC-12	0.00510 U	0.00540 U				
Carbon Disulfide	0.00510 U	0.00540 U				

Table A.1.10
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Sample ID:	TL-1_052704(3.0)_SO	TL-2_052704(3.0)_SO				
Carbon Tetrachloride		0.00510 U	0.00540 U				
Chlorobenzene		0.00510 U	0.00540 U				
Chloroform		0.00510 U	0.00540 U				
Chloromethane		0.00510 U	0.00540 U				
Cumene		0.0220 U	0.0220 U				
Dibromo-3-chloropropane, 1,2-		0.0210 U	0.0220 U				
Dibromochloromethane		0.00510 U	0.00540 U				
Dibromoethane, 1,2-		0.0210 U	0.0220 U				
Dichlorobenzene, 1,4-		0.00510 U	0.00540 U				
Dichloroethane, 1,1-		0.00510 U	0.00540 U				
Dichloroethane, 1,2-		0.00510 U	0.00540 U				
Dichloroethene, 1,1-		0.00510 U	0.00540 U				
Dichloroethylene, Cis-1,2-		0.00510 U	0.00540 U				
Dichloroethylene, Trans-1,2-		0.00510 U	0.00540 U				
Dichloromethane		0.0110 U	0.0110 U				
Dichloropropane, 1,2-		0.00510 U	0.00540 U				
Dichloropropene, Cis-1,3-		0.00510 U	0.00540 U				
Dichloropropene, Trans-1,3-		0.00510 U	0.00540 U				
Ethyl Chloride		0.00510 U	0.00540 U				
Hexanone, 2-		0.0210 U	0.0220 U				
Methyl Ethyl Ketone		0.0210 U	0.0220 U				
Methyl Isobutyl Ketone		0.0210 U	0.0220 U				
Methyl Tertiary Butyl Ether							
Methylene Bromide		0.00510 U	0.00540 U				
Styrene		0.00510 U	0.00540 U				
Tert-butylbenzene		0.0210 U	0.0220 U				
Tetrachloroethane, 1,1,1,2-		0.00510 U	0.00540 U				
Tetrachloroethane, 1,1,2,2-		0.00510 U	0.00540 U				
Tetrachloroethylene		0.00510 U	0.00540 U				
Trichloroethane, 1,1,1-		0.00510 U	0.00540 U				
Trichloroethane, 1,1,2-		0.00510 U	0.00540 U				
Trichloroethylene		0.00510 U	0.00540 U				
Trichloropropane, 1,2,3-		0.00510 U	0.00540 U				
Vinyl Acetate							
Vinyl Chloride		0.00510 U	0.00540 U				
n-Butylbenzene		0.0210 U	0.0220 U				
sec-Butylbenzene		0.0210 U	0.0220 U				

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.11
Oil/Water Emulsion Spill Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	T1_042492(10.0-18.0)_SO	T2-2_050692(2.0)_SO	T3_042492(2.0-2.5)_SO	T4_042492(10.0-18.0)_SO	T5_042492(2.0-2.5)_SO	T6_042492(10.0-18.0)_SO
Petroleum-Related Constituents (mg/kg)						
Bunker C	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Diesel	10.0 U	10.0 U	60.0	10.0 U	10.0 U	10.0 U
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Heavy Oil	140	10.0 U	110	39.0	21.0	10.0 U
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Diesel/Fuel Oil	20.0 U	20.0 U	65.0	20.0 U	20.0 U	20.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	140	10.0 U	110	39.0	21.0	10.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	140	10.0 U	170	43.0	21.0	10.0 U

Table A.1.11
Oil/Water Emulsion Spill Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	T7-2_050692(1.5)_SO	T8_042492(10.0-18.0)_SO				
Petroleum-Related Constituents (mg/kg)						
Bunker C	10.0 U	10.0 U				
Diesel	10.0 U	10.0 U				
Gasoline Range Organics	10.0 U	10.0 U				
Heavy Oil	59.0	31.0				
Kensol	10.0 U	10.0 U				
Kerosene/Jet fuel	10.0 U	10.0 U				
Mineral spirits/Stoddard	10.0 U	10.0 U				
Total Diesel/Fuel Oil	20.0 U	20.0 U				
Total Gasoline	10.0 U	10.0 U				
Total Heavy Oil	59.0	31.0				
Total Kerosene/Jet Fuel	10.0 U	10.0 U				
Total Stoddard/Mineral Spirits	10.0 U	10.0 U				
Total TPH	59.0	31.0				

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.12
Fuel Oil Spill Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	FO-MW-1S-S1_022206(8.0-10.0)_SO_DC	FO-SS-1_082208(3.0)_SO	FO-SS-2_082208(3.0)_SO_DC			
Conventional (%)						
Moisture	6.00					
Petroleum-Related Constituents (mg/kg)						
Benzene	0.00540 U		0.00530 U			
Benzo(a)anthracene	0.000440 J	0.0110	0.0120			
Benzo(a)pyrene	0.000500 J	0.0100	0.0140			
Benzo(b)fluoranthene	0.000850 J	0.0180	0.0145			
Benzo(g,h,i)perylene	0.00260 U	0.00920	0.00850			
Benzo(k)fluoranthene	0.000610 J	0.00520	0.00710			
CPAH TEQ	0.000828	0.0147	0.0189			
Chrysene	0.000730 J	0.0150	0.0111			
Dibenz(a,h)anthracene	0.000560 J	0.00490 U	0.00490 U			
Diesel	23.0 J	20.0 U	20.0 U			
Ethyl Benzene	0.00540 U		0.00530 U			
Heavy Oil	100 U	50.0 U	50.0 U			
Indeno(1,2,3-cd)pyrene	0.000750 J	0.00910	0.0120			
Kensol		20.0 U	20.0 U			
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U			
Methylnaphthalene, 2-	0.000455	0.00790	0.00905			
Naphthalene	0.00500 UJ	0.00520	0.00600			
Toluene	0.00540 U		0.00530 U			
Total Diesel/Fuel Oil	23.0	40.0 U	40.0 U			
Total Heavy Oil	100 U	50.0 U	50.0 U			
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U			
Total Naphthalene	0.00500 U	0.00520	0.00600			
Total Xylenes	0.0108 U		0.0106 U			
Xylenes	0.00540 U		0.00530 U			
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene	0.00260 U	0.000600 T	0.000555			
Acenaphthylene	0.000340 J	0.000460 T	0.000465			
Anthracene	0.00260 U	0.00120 T	0.00155			
Bromobenzene	0.00540 U					
Dibenzofuran	0.000200 J	0.00220 T	0.00260			
Dichlorobenzene, 1,2-	0.00540 U					
Dichlorobenzene, 1,3-	0.00540 U					
Fluoranthene	0.000960 J	0.0170	0.0131			

Table A.1.12
Fuel Oil Spill Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	FO-MW-1S-S1_022206(8.0-10.0)_SO_DC	FO-SS-1_082208(3.0)_SO	FO-SS-2_082208(3.0)_SO_DC			
Fluorene	0.00260 U	0.000780 T	0.000810			
Hexachlorobutadiene	0.0220 U					
Phenanthrene	0.000660 J	0.0110	0.0108			
Pyrene	0.000910 J	0.0190	0.0142			
Trichlorobenzene, 1,2,4-	0.0220 U					
o-Xylene	0.00540 U		0.00530 U			
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00540 U					
1,2,3-trichlorobenzene	0.0220 U					
1,2,4-Trimethylbenzene	0.0220 U					
1,3,5-Trimethylbenzene	0.0220 U					
1,3-dichloropropane	0.00540 U					
1-Phenylpropane	0.0220 U					
2,2-dichloropropane	0.00540 U					
2-chlorotoluene	0.0220 U					
4-chlorotoluene	0.0220 U					
4-isopropyltoluene	0.0220 U					
Acetone	0.0220 U					
Bromochloromethane	0.00540 U					
Bromodichloromethane	0.00540 U					
Bromoform	0.00540 U					
Bromomethane	0.00540 U					
CFC-11	0.00540 U					
CFC-12	0.00540 U					
Carbon Disulfide	0.00450 J					
Carbon Tetrachloride	0.00540 U					
Chlorobenzene	0.00540 U					
Chloroform	0.00540 U					
Chloromethane	0.00540 U					
Cumene	0.0220 U					
Dibromo-3-chloropropane, 1,2-	0.0220 U					
Dibromochloromethane	0.00540 U					
Dibromoethane, 1,2-	0.0220 U					
Dichlorobenzene, 1,4-	0.00540 U					
Dichloroethane, 1,1-	0.00540 U					
Dichloroethane, 1,2-	0.00540 U					
Dichloroethene, 1,1-	0.00540 U					

Table A.1.12
Fuel Oil Spill Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	FO-MW-1S-S1_022206(8.0-10.0)_SO_DC	FO-SS-1_082208(3.0)_SO	FO-SS-2_082208(3.0)_SO_DC			
Dichloroethylene, Cis-1,2-	0.00540 U					
Dichloroethylene, Trans-1,2-	0.00540 U					
Dichloromethane	0.0110 U					
Dichloropropane, 1,2-	0.00540 U					
Dichloropropene, Cis-1,3-	0.00540 U					
Dichloropropene, Trans-1,3-	0.00540 U					
Ethyl Chloride	0.00540 U					
Hexanone, 2-	0.0220 U					
Methyl Ethyl Ketone	0.0220 U					
Methyl Isobutyl Ketone	0.0220 U					
Methylene Bromide	0.00540 U					
Styrene	0.00540 U					
Tert-butylbenzene	0.0220 U					
Tetrachloroethane, 1,1,1,2-	0.00540 U					
Tetrachloroethane, 1,1,2,2-	0.00540 U					
Tetrachloroethylene	0.00540 U					
Trichloroethane, 1,1,1-	0.00540 U					
Trichloroethane, 1,1,2-	0.00540 U					
Trichloroethylene	0.00540 U					
Trichloropropane, 1,2,3-	0.00540 U					
Vinyl Chloride	0.00540 U					
n-Butylbenzene	0.0220 U					
sec-Butylbenzene	0.0220 U					

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1/S3_081392(7.5-9.0)_SO	B1/S4_081392(10.0-12.0)_SO	B2/S4_081392(10.0-11.5)_SO	B3/S1_081492(2.5-4.0)_SO	B3/S2_081492(5.0-6.5)_SO	B3/S3_081492(7.5-9.5)_SO
Metals (mg/kg)						
Antimony (metallic)						
Arsenic (inorganic)						
Beryllium						
Cadmium						
Chromium						
Chromium (VI)						
Copper						
Cyanide (free)						
Lead (inorganic)						
Mercury (inorganic)						
Nickel (soluble salts)						
Selenium (and compounds)						
Silver						
Thallium						
Zinc						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1/S3_081392(7.5-9.0)_SO	B1/S4_081392(10.0-12.0)_SO	B2/S4_081392(10.0-11.5)_SO	B3/S1_081492(2.5-4.0)_SO	B3/S2_081492(5.0-6.5)_SO	B3/S3_081492(7.5-9.5)_SO
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
Benzene	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel						
Ethyl Benzene	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Gasoline Range Organics						
Indeno(1,2,3-cd)pyrene						
Methylnaphthalene, 2-						
Naphthalene						
Toluene	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Total Diesel/Fuel Oil	21.0 U	20.0 U	20.0 U	21.0 U	21.0 U	21.0 U
Total Gasoline						
Total Naphthalene						
Total TPH	21.0 U	20.0 U	20.0 U	21.0 U	21.0 U	21.0 U
Total Xylenes	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Xylenes	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1/S3_081392(7.5-9.0)_SO	B1/S4_081392(10.0-12.0)_SO	B2/S4_081392(10.0-11.5)_SO	B3/S1_081492(2.5-4.0)_SO	B3/S2_081492(5.0-6.5)_SO	B3/S3_081492(7.5-9.5)_SO
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Isophorone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1/S3_081392(7.5-9.0)_SO	B1/S4_081392(10.0-12.0)_SO	B2/S4_081392(10.0-11.5)_SO	B3/S1_081492(2.5-4.0)_SO	B3/S2_081492(5.0-6.5)_SO	B3/S3_081492(7.5-9.5)_SO
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Total Phenols						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
2-Ethyl-1-hexanol	0.520 U	0.500 U	0.510 U	0.540 U	0.530 U	0.540 U
Acetone	1.00 U	1.00 U	1.00 U	1.20 U	1.20 U	1.00 U
Bromodichloromethane	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Bromoform	0.260 U	0.250 U	0.260 U	0.270 U	0.260 U	0.270 U
Bromomethane	0.520 U	0.500 U	0.510 U	0.540 U	0.530 U	0.540 U
Carbon Disulfide	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Carbon Tetrachloride	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Chlorobenzene	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Chloroform	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Chloromethane	0.520 U	0.500 U	0.510 U	0.540 U	0.530 U	0.540 U
Dibromochloromethane	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Dichloroethane, 1,2-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Dichloroethene, 1,1-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Dichloroethylene, Cis-1,2-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Dichloromethane	0.260 U	0.250 U	0.310 U	0.310 U	0.260 U	0.270 U
Dichloropropane, 1,2-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1/S3_081392(7.5-9.0)_SO	B1/S4_081392(10.0-12.0)_SO	B2/S4_081392(10.0-11.5)_SO	B3/S1_081492(2.5-4.0)_SO	B3/S2_081492(5.0-6.5)_SO	B3/S3_081492(7.5-9.5)_SO
Dichloropropene, Cis-1,3-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Dichloropropene, Trans-1,3-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Ethyl Chloride	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Hexanone, 2-	0.520 U	0.500 U	0.510 U	0.540 U	0.530 U	0.540 U
Methyl Ethyl Ketone	0.520 U	0.740 U	0.590 U	0.620 U	0.530 U	0.540 U
Methyl Isobutyl Ketone	0.520 U	0.500 U	0.510 U	0.540 U	0.530 U	0.540 U
Styrene	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Tetrachloroethane, 1,1,2,2-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Tetrachloroethylene	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Trichloroethane, 1,1,1-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Trichloroethane, 1,1,2-	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Trichloroethylene	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U
Vinyl Acetate	0.520 U	0.500 U	0.510 U	0.540 U	0.530 U	0.540 U
Vinyl Chloride	0.0520 U	0.0500 U	0.0510 U	0.0540 U	0.0530 U	0.0540 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B4/S-4_081492(10.0-11.0)_SO	CC-MW-1/S-1_112591(1.0-2.5)_SO	CC-MW-1/S-2_112691(5.0-6.5)_SO	CC-MW-1/S-3_112691(10.0-11.5)_SO	CC-SB-1/S-1_120291(1.0-2.5)_SO	CC-SB-1/S-2_120291(5.0-6.5)_SO
Metals (mg/kg)						
Antimony (metallic)						
Arsenic (inorganic)						
Beryllium						
Cadmium						
Chromium		11.0	6.30	7.60	11.0	6.50
Chromium (VI)		1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Copper						
Cyanide (free)						
Lead (inorganic)						
Mercury (inorganic)						
Nickel (soluble salts)						
Selenium (and compounds)						
Silver						
Thallium						
Zinc						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B4/S-4_081492(10.0-11.0)_SO	CC-MW-1/S-1_112591(1.0-2.5)_SO	CC-MW-1/S-2_112691(5.0-6.5)_SO	CC-MW-1/S-3_112691(10.0-11.5)_SO	CC-SB-1/S-1_120291(1.0-2.5)_SO	CC-SB-1/S-2_120291(5.0-6.5)_SO
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
Benzene	0.0510 U					
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel						
Ethyl Benzene	0.0510 U					
Gasoline Range Organics						
Indeno(1,2,3-cd)pyrene						
Methylnaphthalene, 2-						
Naphthalene						
Toluene	0.0510 U					
Total Diesel/Fuel Oil	21.0 U					
Total Gasoline						
Total Naphthalene						
Total TPH	21.0 U					
Total Xylenes	0.0510 U					
Xylenes	0.0510 U					
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B4/S-4_081492(10.0-11.0)_SO	CC-MW-1/S-1_112591(1.0-2.5)_SO	CC-MW-1/S-2_112691(5.0-6.5)_SO	CC-MW-1/S-3_112691(10.0-11.5)_SO	CC-SB-1/S-1_120291(1.0-2.5)_SO	CC-SB-1/S-2_120291(5.0-6.5)_SO
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Isophorone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B4/S-4_081492(10.0-11.0)_SO	CC-MW-1/S-1_112591(1.0-2.5)_SO	CC-MW-1/S-2_112691(5.0-6.5)_SO	CC-MW-1/S-3_112691(10.0-11.5)_SO	CC-SB-1/S-1_120291(1.0-2.5)_SO	CC-SB-1/S-2_120291(5.0-6.5)_SO
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Total Phenols						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
2-Ethyl-1-hexanol	0.510 U					
Acetone	1.00 U					
Bromodichloromethane	0.0510 U					
Bromoform	0.310 U					
Bromomethane	0.510 U					
Carbon Disulfide	0.0510 U					
Carbon Tetrachloride	0.0510 U					
Chlorobenzene	0.0510 U					
Chloroform	0.0510 U					
Chloromethane	0.510 U					
Dibromochloromethane	0.0510 U					
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-	0.0510 U					
Dichloroethane, 1,2-	0.0510 U					
Dichloroethene, 1,1-	0.0510 U					
Dichloroethylene, Cis-1,2-	0.0510 U					
Dichloromethane	0.310 U					
Dichloropropane, 1,2-	0.0510 U					

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B4/S-4_081492(10.0-11.0)_SO	CC-MW-1/S-1_112591(1.0-2.5)_SO	CC-MW-1/S-2_112691(5.0-6.5)_SO	CC-MW-1/S-3_112691(10.0-11.5)_SO	CC-SB-1/S-1_120291(1.0-2.5)_SO	CC-SB-1/S-2_120291(5.0-6.5)_SO
Dichloropropene, Cis-1,3-	0.0510 U					
Dichloropropene, Trans-1,3-	0.0510 U					
Ethyl Chloride	0.0510 U					
Hexanone, 2-	0.510 U					
Methyl Ethyl Ketone	0.510 U					
Methyl Isobutyl Ketone	0.510 U					
Styrene	0.0510 U					
Tetrachloroethane, 1,1,2,2-	0.0510 U					
Tetrachloroethylene	0.0510 U					
Trichloroethane, 1,1,1-	0.0510 U					
Trichloroethane, 1,1,2-	0.0510 U					
Trichloroethylene	0.0510 U					
Vinyl Acetate	0.510 U					
Vinyl Chloride	0.0510 U					

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CC-SB-1/S-3_120291(10.0-11.5)_SO	CC-SB-2/S-1_120291(1.0-2.5)_SO	CC-SB-2/S-2_120291(5.0-6.5)_SO	CC-SB-2/S-3_120291(10.0-11.5)_SO	CCPL-1_083192(12.0)_SO	CCPL-2_083192(15.0)_SO
Metals (mg/kg)						
Antimony (metallic)						
Arsenic (inorganic)						
Beryllium						
Cadmium						
Chromium	5.20	6.00	5.80	7.00		
Chromium (VI)	1.00 U	1.00 U	1.00 UJ	1.00 U		
Copper						
Cyanide (free)						
Lead (inorganic)						
Mercury (inorganic)						
Nickel (soluble salts)						
Selenium (and compounds)						
Silver						
Thallium						
Zinc						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CC-SB-1/S-3_120291(10.0-11.5)_SO	CC-SB-2/S-1_120291(1.0-2.5)_SO	CC-SB-2/S-2_120291(5.0-6.5)_SO	CC-SB-2/S-3_120291(10.0-11.5)_SO	CCPL-1_083192(12.0)_SO	CCPL-2_083192(15.0)_SO
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
Benzene					0.0530 U	0.0530 U
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel						
Ethyl Benzene					0.0530 U	0.0530 U
Gasoline Range Organics						
Indeno(1,2,3-cd)pyrene						
Methylnaphthalene, 2-						
Naphthalene						
Toluene					0.0530 U	0.0530 U
Total Diesel/Fuel Oil					110 U	100 U
Total Gasoline						
Total Naphthalene						
Total TPH					110 U	100 U
Total Xylenes					0.0530 U	0.0530 U
Xylenes					0.0530 U	0.0530 U
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CC-SB-1/S-3_120291(10.0-11.5)_SO	CC-SB-2/S-1_120291(1.0-2.5)_SO	CC-SB-2/S-2_120291(5.0-6.5)_SO	CC-SB-2/S-3_120291(10.0-11.5)_SO	CCPL-1_083192(12.0)_SO	CCPL-2_083192(15.0)_SO
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Isophorone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CC-SB-1/S-3_120291(10.0-11.5)_SO	CC-SB-2/S-1_120291(1.0-2.5)_SO	CC-SB-2/S-2_120291(5.0-6.5)_SO	CC-SB-2/S-3_120291(10.0-11.5)_SO	CCPL-1_083192(12.0)_SO	CCPL-2_083192(15.0)_SO
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Total Phenols						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
2-Ethyl-1-hexanol						
Acetone					1.20 U	1.20 U
Bromodichloromethane					0.0530 U	0.0530 U
Bromoform					0.270 U	0.270 U
Bromomethane					0.530 U	0.530 U
Carbon Disulfide					0.0530 U	0.0530 U
Carbon Tetrachloride					0.0530 U	0.0530 U
Chlorobenzene					0.0530 U	0.0530 U
Chloroform					0.0530 U	0.0530 U
Chloromethane					0.530 U	0.530 U
Dibromochloromethane					0.0530 U	0.0530 U
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-					0.0530 U	0.0530 U
Dichloroethane, 1,2-					0.0530 U	0.0530 U
Dichloroethene, 1,1-					0.0530 U	0.0530 U
Dichloroethylene, Cis-1,2-					0.0530 U	0.0530 U
Dichloromethane					0.270 U	0.270 U
Dichloropropane, 1,2-					0.0530 U	0.0530 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CC-SB-1/S-3_120291(10.0-11.5)_SO	CC-SB-2/S-1_120291(1.0-2.5)_SO	CC-SB-2/S-2_120291(5.0-6.5)_SO	CC-SB-2/S-3_120291(10.0-11.5)_SO	CCPL-1_083192(12.0)_SO	CCPL-2_083192(15.0)_SO
Dichloropropene, Cis-1,3-						0.0530 U	0.0530 U
Dichloropropene, Trans-1,3-						0.0530 U	0.0530 U
Ethyl Chloride						0.0530 U	0.0530 U
Hexanone, 2-						0.530 U	0.530 U
Methyl Ethyl Ketone						2.70 U	2.60 U
Methyl Isobutyl Ketone						0.530 U	0.530 U
Styrene						0.0530 U	0.0530 U
Tetrachloroethane, 1,1,2,2-						0.0530 U	0.0530 U
Tetrachloroethylene						0.0530 U	0.0530 U
Trichloroethane, 1,1,1-						0.0530 U	0.0530 U
Trichloroethane, 1,1,2-						0.0530 U	0.0530 U
Trichloroethylene						0.0530 U	0.0530 U
Vinyl Acetate						0.530 U	0.530 U
Vinyl Chloride						0.0530 U	0.0530 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-3_083192(8.0)_SO	CCPL-4_083192(10.0)_SO	CCPL-5_083192(8.0)_SO	CCPL-6_083192(8.0)_SO	CCPL-C10_021992(8.0-15.0)_SO	CCPL-C11_021992(8.0-15.0)_SO
Metals (mg/kg)						
Antimony (metallic)						
Arsenic (inorganic)						
Beryllium						
Cadmium						
Chromium					26.0	73.0
Chromium (VI)						
Copper						
Cyanide (free)						
Lead (inorganic)						
Mercury (inorganic)						
Nickel (soluble salts)						
Selenium (and compounds)						
Silver						
Thallium						
Zinc						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-3_083192(8.0)_SO	CCPL-4_083192(10.0)_SO	CCPL-5_083192(8.0)_SO	CCPL-6_083192(8.0)_SO	CCPL-C10_021992(8.0-15.0)_SO	CCPL-C11_021992(8.0-15.0)_SO
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
Benzene	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel						
Ethyl Benzene	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Gasoline Range Organics						
Indeno(1,2,3-cd)pyrene						
Methylnaphthalene, 2-						
Naphthalene						
Toluene	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Total Diesel/Fuel Oil	110 U	100 U	100 U	100 U		
Total Gasoline						
Total Naphthalene						
Total TPH	110 U	100 U	100 U	100 U		
Total Xylenes	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Xylenes	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-3_083192(8.0)_SO	CCPL-4_083192(10.0)_SO	CCPL-5_083192(8.0)_SO	CCPL-6_083192(8.0)_SO	CCPL-C10_021992(8.0-15.0)_SO	CCPL-C11_021992(8.0-15.0)_SO
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Isophorone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-3_083192(8.0)_SO	CCPL-4_083192(10.0)_SO	CCPL-5_083192(8.0)_SO	CCPL-6_083192(8.0)_SO	CCPL-C10_021992(8.0-15.0)_SO	CCPL-C11_021992(8.0-15.0)_SO
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Total Phenols						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
2-Ethyl-1-hexanol						
Acetone	1.20 U	1.10 U	1.20 U	1.30 U		
Bromodichloromethane	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Bromoform	0.270 U	0.260 U	0.270 U	0.260 U		
Bromomethane	0.530 U	0.520 U	0.550 U	0.530 U		
Carbon Disulfide	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Carbon Tetrachloride	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Chlorobenzene	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Chloroform	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Chloromethane	0.550 U	0.520 U	0.550 U	0.530 U		
Dibromochloromethane	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Dichloroethane, 1,2-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Dichloroethene, 1,1-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Dichloroethylene, Cis-1,2-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Dichloromethane	0.280 U	0.260 U	0.270 U	0.260 U		
Dichloropropane, 1,2-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-3_083192(8.0)_SO	CCPL-4_083192(10.0)_SO	CCPL-5_083192(8.0)_SO	CCPL-6_083192(8.0)_SO	CCPL-C10_021992(8.0-15.0)_SO	CCPL-C11_021992(8.0-15.0)_SO
Dichloropropene, Cis-1,3-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Dichloropropene, Trans-1,3-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Ethyl Chloride	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Hexanone, 2-	0.550 U	0.520 U	0.550 U	0.530 U		
Methyl Ethyl Ketone	2.70 U	2.50 U	2.60 U	2.60 U		
Methyl Isobutyl Ketone	0.550 U	0.520 U	0.550 U	0.530 U		
Styrene	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Tetrachloroethane, 1,1,2,2-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Tetrachloroethylene	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Trichloroethane, 1,1,1-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Trichloroethane, 1,1,2-	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Trichloroethylene	0.0550 U	0.0520 U	0.0550 U	0.0530 U		
Vinyl Acetate	0.550 U	0.520 U	0.550 U	0.530 U		
Vinyl Chloride	0.0550 U	0.0520 U	0.0550 U	0.0530 U		

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C12_021992(8.0-15.0)_SO	CCPL-C13_021992(8.0-15.0)_SO	CCPL-C1_021992(8.0-15.0)_SO	CCPL-C2_021992(8.0-15.0)_SO	CCPL-C3_021992(8.0-15.0)_SO	CCPL-C4_021992(8.0-15.0)_SO
Metals (mg/kg)						
Antimony (metallic)						2.90 UJ
Arsenic (inorganic)						9.20
Beryllium						0.520
Cadmium						1.80
Chromium	250	130	85.0	120	97.0	51.0
Chromium (VI)						
Copper						22.0
Cyanide (free)						0.100 U
Lead (inorganic)						28.0
Mercury (inorganic)						0.0890 U
Nickel (soluble salts)						12.0
Selenium (and compounds)						0.320 U
Silver						0.290 U
Thallium						0.320 U
Zinc						71.0
PCBs (mg/kg)						
Aroclor 1016						0.100 U
Aroclor 1221						0.100 U
Aroclor 1232						0.100 U
Aroclor 1242						0.100 U
Aroclor 1248						0.100 U
Aroclor 1254						0.100 U
Aroclor 1260						0.100 U
Total PCBs						0.100 U
Pesticides (mg/kg)						
Aldrin						0.00520 U
DDD (p,p'-Dichlorodiphenyldichloroethane)						0.0100 U
DDE (p,p'-Dichlorodiphenyldichloroethylene)						0.0100 U
DDT (p,p'-Dichorodiphenyltrichloroethane)						0.0100 U
Dieldrin						0.0100 U
Endosulfan I						0.00520 U
Endosulfan II						0.0100 U
Endosulfan sulfate						0.0100 U
Endrin						0.0100 U
Endrin Ketone						0.0100 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C12_021992(8.0-15.0)_SO	CCPL-C13_021992(8.0-15.0)_SO	CCPL-C1_021992(8.0-15.0)_SO	CCPL-C2_021992(8.0-15.0)_SO	CCPL-C3_021992(8.0-15.0)_SO	CCPL-C4_021992(8.0-15.0)_SO
Heptachlor						0.00520 U
Heptachlor Epoxide						0.00520 U
Hexachlorocyclohexane, alpha-						0.00520 U
Hexachlorocyclohexane, beta-						0.00520 U
Hexachlorocyclohexane, delta-						0.00520 U
Hexachlorocyclohexane, gamma						0.00520 U
Methoxychlor						0.0520 U
Toxaphene						0.100 U
Petroleum-Related Constituents (mg/kg)						
Benzene						0.0550 U
Benzo(a)anthracene						0.470
Benzo(a)pyrene						0.340
Benzo(b)fluoranthene						0.540
Benzo(g,h,i)perylene						0.190
Benzo(k)fluoranthene						0.150 J
CPAH TEQ						0.490
Chrysene						0.480
Dibenz(a,h)anthracene						0.0610 J
Diesel						40.0
Ethyl Benzene						0.0550 U
Gasoline Range Organics						5.00 U
Indeno(1,2,3-cd)pyrene						0.230
Methylnaphthalene, 2-						0.180 U
Naphthalene						0.180 U
Toluene						0.0550 U
Total Diesel/Fuel Oil						40.0
Total Gasoline						5.00 U
Total Naphthalene						0.180 U
Total TPH						40.0
Total Xylenes						0.0550 U
Xylenes						0.0550 U
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						0.180 U
Acenaphthene						0.120 J
Acenaphthylene						0.180 U
Aniline						0.180 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C12_021992(8.0-15.0)_SO	CCPL-C13_021992(8.0-15.0)_SO	CCPL-C1_021992(8.0-15.0)_SO	CCPL-C2_021992(8.0-15.0)_SO	CCPL-C3_021992(8.0-15.0)_SO	CCPL-C4_021992(8.0-15.0)_SO
Anthracene						0.270
Benzidine						1.80 U
Benzoic Acid						0.910 U
Benzyl Alcohol						0.180 U
Bis(2-Chloroethoxy)methane						0.180 U
Bis(2-chloroisopropyl)Ether						0.180 U
Bis(2-ethylhexyl)Phthalate (DEHP)						0.370
Bis(Chloroethyl)ether						0.180 U
Bromodiphenyl ether, 4-						0.180 U
Butyl Benzyl Phthalate, N-						0.180 U
Chlordane						0.0520 U
Chloro-3-methylphenol, 4-						0.180 U
Chloroaniline, 4-						0.180 U
Chloronaphthalene, 2-						0.180 U
Chlorophenol, 2-						0.180 U
Chlorophenyl-phenyl ether, 4-						0.180 U
Di-n-Octylphthalate						0.150 J
Dibenzofuran						0.0630 J
Dibutyl Phthalate						0.360 U
Dichlorobenzene, 1,2-						0.180 U
Dichlorobenzene, 1,3-						0.180 U
Dichlorobenzidine, 3,3'						0.360 U
Dichlorophenol, 2,4-						0.180 U
Diethyl Phthalate						0.180 U
Dimethyl Phthalate						0.180 U
Dimethylphenol, 2,4-						0.180 U
Dinitro-o-Cresol, 4,6-						0.910 U
Dinitrophenol, 2,4-						0.910 U
Dinitrotoluene, 2,4-						0.180 U
Dinitrotoluene, 2,6-						0.180 U
Fluoranthene						1.20
Fluorene						0.110 J
Hexachlorobenzene						0.180 U
Hexachlorobutadiene						0.180 U
Hexachlorocyclopentadiene						0.180 U
Hexachloroethane						0.180 U
Isophorone						0.180 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C12_021992(8.0-15.0)_SO	CCPL-C13_021992(8.0-15.0)_SO	CCPL-C1_021992(8.0-15.0)_SO	CCPL-C2_021992(8.0-15.0)_SO	CCPL-C3_021992(8.0-15.0)_SO	CCPL-C4_021992(8.0-15.0)_SO
Methylphenol, 2-						0.180 U
Methylphenol, 4-						0.180 U
Nitroaniline, 2-						0.910 U
Nitroaniline, 3-						0.910 U
Nitroaniline, 4-						0.910 U
Nitrobenzene						0.180 U
Nitrophenol, 4-						0.910 U
Nitrosodi-N-propylamine, N-						0.180 U
Nitrosodimethylamine, N-						0.180 U
Nitrosodiphenylamine, N-						0.180 U
Pentachlorophenol						0.180 U
Phenanthrene						1.10
Phenol						0.180 U
Pyrene						0.890
Total Phenols						0.200 U
Trichlorobenzene, 1,2,4-						0.180 U
Trichlorophenol, 2,4,5-						0.910 U
Trichlorophenol, 2,4,6-						0.180 U
Volatile Organics Constituents (mg/kg)						
2-Ethyl-1-hexanol						
Acetone						1.10 U
Bromodichloromethane						0.0550 U
Bromoform						0.270 U
Bromomethane						0.550 U
Carbon Disulfide						0.0550 U
Carbon Tetrachloride						0.0550 U
Chlorobenzene						0.0550 U
Chloroform						0.0550 U
Chloromethane						0.550 U
Dibromochloromethane						0.0550 U
Dichlorobenzene, 1,4-						0.180 U
Dichloroethane, 1,1-						0.0550 U
Dichloroethane, 1,2-						0.0550 U
Dichloroethene, 1,1-						0.0550 U
Dichloroethylene, Cis-1,2-						0.0550 U
Dichloromethane						0.270 U
Dichloropropane, 1,2-						0.0550 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C12_021992(8.0-15.0)_SO	CCPL-C13_021992(8.0-15.0)_SO	CCPL-C1_021992(8.0-15.0)_SO	CCPL-C2_021992(8.0-15.0)_SO	CCPL-C3_021992(8.0-15.0)_SO	CCPL-C4_021992(8.0-15.0)_SO
Dichloropropene, Cis-1,3-						0.0550 U
Dichloropropene, Trans-1,3-						0.0550 U
Ethyl Chloride						0.0550 U
Hexanone, 2-						0.550 U
Methyl Ethyl Ketone						0.550 U
Methyl Isobutyl Ketone						0.550 U
Styrene						0.0550 U
Tetrachloroethane, 1,1,2,2-						0.0550 U
Tetrachloroethylene						0.0550 U
Trichloroethane, 1,1,1-						0.0550 U
Trichloroethane, 1,1,2-						0.0550 U
Trichloroethylene						0.0550 U
Vinyl Acetate						0.550 U
Vinyl Chloride						0.0550 U

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C5_021992(8.0-15.0)_SO	CCPL-C6_021992(8.0-15.0)_SO	CCPL-C7_021992(8.0-15.0)_SO	CCPL-C8_021992(8.0-15.0)_SO	CCPL-C9_021992(8.0-15.0)_SO	CCPL-PPBS-1_021992(0.0-1.0)_SO
Metals (mg/kg)						
Antimony (metallic)						
Arsenic (inorganic)						
Beryllium						
Cadmium						
Chromium	340	97.0	68.0	270	130	12.0
Chromium (VI)						
Copper						
Cyanide (free)						
Lead (inorganic)						
Mercury (inorganic)						
Nickel (soluble salts)						
Selenium (and compounds)						
Silver						
Thallium						
Zinc						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Pesticides (mg/kg)						
Aldrin						
DDD (p,p'-Dichlorodiphenyldichloroethane)						
DDE (p,p'-Dichlorodiphenyldichloroethylene)						
DDT (p,p'-Dichorodiphenyltrichloroethane)						
Dieldrin						
Endosulfan I						
Endosulfan II						
Endosulfan sulfate						
Endrin						
Endrin Ketone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C5_021992(8.0-15.0)_SO	CCPL-C6_021992(8.0-15.0)_SO	CCPL-C7_021992(8.0-15.0)_SO	CCPL-C8_021992(8.0-15.0)_SO	CCPL-C9_021992(8.0-15.0)_SO	CCPL-PPBS-1_021992(0.0-1.0)_SO
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel						
Ethyl Benzene						
Gasoline Range Organics						
Indeno(1,2,3-cd)pyrene						
Methylnaphthalene, 2-						
Naphthalene						
Toluene						
Total Diesel/Fuel Oil						
Total Gasoline						
Total Naphthalene						
Total TPH						
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C5_021992(8.0-15.0)_SO	CCPL-C6_021992(8.0-15.0)_SO	CCPL-C7_021992(8.0-15.0)_SO	CCPL-C8_021992(8.0-15.0)_SO	CCPL-C9_021992(8.0-15.0)_SO	CCPL-PPBS-1_021992(0.0-1.0)_SO
Anthracene						
Benzidine						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chlordane						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Isophorone						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C5_021992(8.0-15.0)_SO	CCPL-C6_021992(8.0-15.0)_SO	CCPL-C7_021992(8.0-15.0)_SO	CCPL-C8_021992(8.0-15.0)_SO	CCPL-C9_021992(8.0-15.0)_SO	CCPL-PPBS-1_021992(0.0-1.0)_SO
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Total Phenols						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
2-Ethyl-1-hexanol						
Acetone						
Bromodichloromethane						
Bromoform						
Bromomethane						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Dibromochloromethane						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-C5_021992(8.0-15.0)_SO	CCPL-C6_021992(8.0-15.0)_SO	CCPL-C7_021992(8.0-15.0)_SO	CCPL-C8_021992(8.0-15.0)_SO	CCPL-C9_021992(8.0-15.0)_SO	CCPL-PPBS-1_021992(0.0-1.0)_SO
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Styrene						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Vinyl Acetate						
Vinyl Chloride						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CCPL-PPBS-2_021992(0.0-1.0)_SO	CCPL-PPBS-3_021992(0.0-1.0)_SO				
Metals (mg/kg)							
Antimony (metallic)							
Arsenic (inorganic)							
Beryllium							
Cadmium							
Chromium		14.0	18.0				
Chromium (VI)							
Copper							
Cyanide (free)							
Lead (inorganic)							
Mercury (inorganic)							
Nickel (soluble salts)							
Selenium (and compounds)							
Silver							
Thallium							
Zinc							
PCBs (mg/kg)							
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Total PCBs							
Pesticides (mg/kg)							
Aldrin							
DDD (p,p'-Dichlorodiphenyldichloroethane)							
DDE (p,p'-Dichlorodiphenyldichloroethylene)							
DDT (p,p'-Dichorodiphenyltrichloroethane)							
Dieldrin							
Endosulfan I							
Endosulfan II							
Endosulfan sulfate							
Endrin							
Endrin Ketone							

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CCPL-PPBS-2_021992(0.0-1.0)_SO	CCPL-PPBS-3_021992(0.0-1.0)_SO				
Heptachlor						
Heptachlor Epoxide						
Hexachlorocyclohexane, alpha-						
Hexachlorocyclohexane, beta-						
Hexachlorocyclohexane, delta-						
Hexachlorocyclohexane, gamma						
Methoxychlor						
Toxaphene						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel						
Ethyl Benzene						
Gasoline Range Organics						
Indeno(1,2,3-cd)pyrene						
Methylnaphthalene, 2-						
Naphthalene						
Toluene						
Total Diesel/Fuel Oil						
Total Gasoline						
Total Naphthalene						
Total TPH						
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CCPL-PPBS-2_021992(0.0-1.0)_SO	CCPL-PPBS-3_021992(0.0-1.0)_SO				
Anthracene							
Benzidine							
Benzoic Acid							
Benzyl Alcohol							
Bis(2-Chloroethoxy)methane							
Bis(2-chloroisopropyl)Ether							
Bis(2-ethylhexyl)Phthalate (DEHP)							
Bis(Chloroethyl)ether							
Bromodiphenyl ether, 4-							
Butyl Benzyl Phthalate, N-							
Chlordane							
Chloro-3-methylphenol, 4-							
Chloroaniline, 4-							
Chloronaphthalene, 2-							
Chlorophenol, 2-							
Chlorophenyl-phenyl ether, 4-							
Di-n-Octylphthalate							
Dibenzofuran							
Dibutyl Phthalate							
Dichlorobenzene, 1,2-							
Dichlorobenzene, 1,3-							
Dichlorobenzidine, 3,3'							
Dichlorophenol, 2,4-							
Diethyl Phthalate							
Dimethyl Phthalate							
Dimethylphenol, 2,4-							
Dinitro-o-Cresol, 4,6-							
Dinitrophenol, 2,4-							
Dinitrotoluene, 2,4-							
Dinitrotoluene, 2,6-							
Fluoranthene							
Fluorene							
Hexachlorobenzene							
Hexachlorobutadiene							
Hexachlorocyclopentadiene							
Hexachloroethane							
Isophorone							

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CCPL-PPBS-2_021992(0.0-1.0)_SO	CCPL-PPBS-3_021992(0.0-1.0)_SO				
Methylphenol, 2-							
Methylphenol, 4-							
Nitroaniline, 2-							
Nitroaniline, 3-							
Nitroaniline, 4-							
Nitrobenzene							
Nitrophenol, 4-							
Nitrosodi-N-propylamine, N-							
Nitrosodimethylamine, N-							
Nitrosodiphenylamine, N-							
Pentachlorophenol							
Phenanthrene							
Phenol							
Pyrene							
Total Phenols							
Trichlorobenzene, 1,2,4-							
Trichlorophenol, 2,4,5-							
Trichlorophenol, 2,4,6-							
Volatile Organics Constituents (mg/kg)							
2-Ethyl-1-hexanol							
Acetone							
Bromodichloromethane							
Bromoform							
Bromomethane							
Carbon Disulfide							
Carbon Tetrachloride							
Chlorobenzene							
Chloroform							
Chloromethane							
Dibromochloromethane							
Dichlorobenzene, 1,4-							
Dichloroethane, 1,1-							
Dichloroethane, 1,2-							
Dichloroethene, 1,1-							
Dichloroethylene, Cis-1,2-							
Dichloromethane							
Dichloropropane, 1,2-							

Table A.1.13
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CCPL-PPBS-2_021992(0.0-1.0)_SO	CCPL-PPBS-3_021992(0.0-1.0)_SO				
Dichloropropene, Cis-1,3-							
Dichloropropene, Trans-1,3-							
Ethyl Chloride							
Hexanone, 2-							
Methyl Ethyl Ketone							
Methyl Isobutyl Ketone							
Styrene							
Tetrachloroethane, 1,1,2,2-							
Tetrachloroethylene							
Trichloroethane, 1,1,1-							
Trichloroethane, 1,1,2-							
Trichloroethylene							
Vinyl Acetate							
Vinyl Chloride							

Notes:
The following qualifiers may be used in this table:
J - Constituent present, reported value is estimated
U - Not detected at or above reporting limit
UJ - Not detected; reporting limit is estimated
The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:
-If both results were detected values, then the two values were averaged.
If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.14
Chromium Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CY-10_040291(0.0-1.0)_SO	CY-10_062590(0.0-1.0)_SO	CY-1_040291(0.0-1.0)_SO	CY-2_040291(0.0-1.0)_SO	CY-3_040291(0.0-1.0)_SO	CY-4_040291(0.0-1.0)_SO
Metals (mg/kg)							
Chromium		9.40	20.0	42.0	220	69.0	18.0
Chromium (VI)		1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U

Table A.1.14
Chromium Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CY-5_040291(0.0-1.0)_SO	CY-6_040291(0.0-1.0)_SO	CY-7_040291(0.0-1.0)_SO	CY-7_062590(0.0-1.0)_SO	CY-8_040291(0.0-1.0)_SO	CY-8_062590(0.0-1.0)_SO
Metals (mg/kg)						
Chromium	210	19.0	59.0	53.0	15.0	16.0
Chromium (VI)	1.00	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U

Table A.1.14
Chromium Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CY-9_040291(0.0-1.0)_SO	CY-9_062590(0.0-1.0)_SO	TL-11_010991(0.0-15.0)_SO	TL-12_011791(0.0-15.0)_SO	TL-13_011791(0.0-15.0)_SO	TL-14_011791(0.0-15.0)_SO
Metals (mg/kg)							
Chromium		18.0	15.0	75.0	140	61.0	270
Chromium (VI)		1.00 U	1.00 U				

Table A.1.14
Chromium Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-16_011791_SO	TL-1_120590(7.0)_SO	TL-2_120590(7.0)_SO	TL-5_120790(0.0-16.0)_SO	TL-6_120790(4.0)_SO	TL-7_121290(8.0-16.0)_SO
Metals (mg/kg)						
Chromium	380	9.00	5.00	910	59.0	5350
Chromium (VI)						

Table A.1.14
Chromium Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	TL-8_121290(12.0-16.0)_SO	TL-MW-1/S-3_061590(4.0-5.0)_SO	TL-MW-2/S-3_061890(4.0-6.0)_SO			
Metals (mg/kg)							
Chromium		1850	25.0	110			
Chromium (VI)							

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.15
Coater Line Tank Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CL-SB-1/S-2_111889(8.5-10.5)_SO	HC-MEK2B_121190(7.0)_SO	HC-MEKW_101790(4.0-6.0)_SO			
Petroleum-Related Constituents (mg/kg)						
Benzene		0.0420	0.500 U			
Ethyl Benzene		0.130	0.500 U			
Toluene		0.0250 U	1.00 U			
Total Xylenes		1.80	1.00			
Xylenes		1.80	1.00			
Volatile Organics Constituents (mg/kg)						
Acetone			10.0 U			
Bromodichloromethane			0.500 U			
Bromoform			3.00 U			
Bromomethane			5.00 U			
Carbon Disulfide			0.500 U			
Carbon Tetrachloride			0.500 U			
Chlorobenzene			0.500 U			
Chloroform			0.500 U			
Chloromethane			5.00 U			
Dibromochloromethane			0.500 U			
Dichloroethane, 1,1-			0.500 U			
Dichloroethane, 1,2-			0.500 U			
Dichloroethene, 1,1-			0.500 U			
Dichloroethylene, Cis-1,2-			0.500 U			
Dichloromethane			3.00 U			
Dichloropropane, 1,2-			0.500 U			
Dichloropropene, Cis-1,3-			0.500 U			
Dichloropropene, Trans-1,3-			0.500 U			
Ethyl Chloride			0.500 U			
Hexanone, 2-			5.00 U			
Methyl Ethyl Ketone	0.500 U		10.0 U			
Methyl Isobutyl Ketone			5.00 U			
Styrene			0.500 U			
Tetrachloroethane, 1,1,2,2-			0.500 U			
Tetrachloroethylene			0.500 U			
Trichloroethane, 1,1,1-			0.500 U			
Trichloroethane, 1,1,2-			0.500 U			
Trichloroethylene			0.500 U			
Vinyl Acetate			5.00 U			

Table A.1.15
Coater Line Tank Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CL-SB-1/S-2_111889(8.5-10.5)_SO	HC-MEK2B_121190(7.0)_SO	HC-MEKW_101790(4.0-6.0)_SO			
Vinyl Chloride				0.500 U			

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.16
Transformer Yard Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TY-SS-01_052406(0.0-0.5)_SO	TY-SS-02_052406(0.0-0.5)_SO	TY-SS-03_052406(0.0-0.5)_SO	TY-SS-04_052406(0.0-0.5)_SO_DC	TY-SS-05_052406(0.0-0.5)_SO	TY-SS-06_052406(0.0-0.5)_SO
Conventional (%)						
Moisture	13.0	14.0	13.0	14.5	16.0	13.0
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1260	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Total PCBs	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 UJ	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U
Diesel	50.0 UJ	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U
Gasoline Range Organics	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Heavy Oil	100 UJ	100 U	100 U	100 U	100 UJ	100 U
Kensol	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Kerosene/Jet fuel	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Mineral spirits/Stoddard	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.16
Transformer Yard Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TY-SS-07_052406(0.0-0.5)_SO	TY-SS-08_052406(0.0-0.5)_SO	TY-SS-09_052406(0.0-0.5)_SO			
Conventional (%)						
Moisture	14.0	14.0	15.0			
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U			
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1260	0.0100 U	0.0100 U	0.0100 U			
Total PCBs	0.0100 U	0.0100 U	0.0100 U			
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U			
Diesel	50.0 U	50.0 U	50.0 U			
Gasoline Range Organics	20.0 U	20.0 U	20.0 U			
Heavy Oil	100 U	100 U	100 U			
Kensol	20.0 U	20.0 U	20.0 U			
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U			
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U			
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U			
Total Gasoline	20.0 U	20.0 U	20.0 U			
Total Heavy Oil	100 U	100 U	100 U			
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U			
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U			

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.17
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CM-EX-S1_051706(9.0)_SO	CM-EX-S2_051706(6.0)_SO	CM-EX-S3_051806(6.0)_SO_DC	CM-EX-TOC1_051806(7.0-8.0)_SO_DC	CM-EX-TOC2_051806(7.0-8.0)_SO	CMTL-SB-1/S-1_010307(5.0-6.5)_SO_DC
Conventional						
Moisture (%)	7.00	5.00	6.50			3.80
Total Organic Carbon (mg/kg)				0.0900	0.0500	
Metals (mg/kg)						
Arsenic (inorganic)	10.0	4.60	9.50			
Barium	55.6	30.8	63.1			
Cadmium	0.0700 J	0.0700 J	0.0800			
Chromium	7.40	5.20	8.60			
Lead (inorganic)	8.00	7.60	6.20			
Manganese	285	244	318			
Mercury (inorganic)	0.00100 J	0.00100 J	0.00100			
Selenium (and compounds)	0.300 J	0.300 J	0.400			
Silver	0.0690	0.0820	0.0730			
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U			0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U			0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U			0.0100 U
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U			0.0100 U
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U			0.0100 U
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U			0.0100 U
Aroclor 1260	0.0100 U	0.0100 U	0.0100 U			0.0100 U
Total PCBs	0.0100 U	0.0100 U	0.0100 U			0.0100 U
Petroleum-Related Constituents (mg/kg)						
Benzene	0.00590 U	0.00490 U	0.00560 U			
Benzo(a)anthracene	0.000340 J	0.00500 U	0.00145			
Benzo(a)pyrene	0.000360 J	0.00500 U	0.00115			
Benzo(b)fluoranthene	0.000650 J	0.00500 U	0.00160			
Benzo(g,h,i)perylene	0.000600 J	0.00500 U	0.00104			
Benzo(k)fluoranthene	0.000420 J	0.00500 U	0.00135			
Bunker C	50.0 U	50.0 U	50.0 U			50.0 U
CPAH TEQ	0.000601	0.00755 U	0.00175			
Castor oil						100 U
Chrysene	0.000810 J	0.00500 U	0.00180			
Dibenz(a,h)anthracene	0.000430 J	0.00500 U	0.000590 J			
Diesel	20.0 U	20.0 U	20.0 U			50.0 U

Table A.1.17
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CM-EX-S1_051706(9.0)_SO	CM-EX-S2_051706(6.0)_SO	CM-EX-S3_051806(6.0)_SO_DC	CM-EX-TOC1_051806(7.0-8.0)_SO_DC	CM-EX-TOC2_051806(7.0-8.0)_SO	CMTL-SB-1/S-1_010307(5.0-6.5)_SO_DC
Ethyl Benzene	0.00590 U	0.00490 U	0.00560 U			
Gasoline Range Organics	5.00 U	5.00 U	5.00 U			20.0 U
Heavy Oil	50.0 U	50.0 U	50.0 U			100 U
Indeno(1,2,3-cd)pyrene	0.000490 J	0.00500 U	0.000825			
Kensol	2100	20.0 U	20.0 U			20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U			20.0 U
Methylnaphthalene, 2-	0.00230 J	0.000530 J	0.000575			
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U			20.0 U
Naphthalene	0.0240 U	0.0200 U	0.0230 U			
Toluene	0.00590 U	0.00490 U	0.00560 U			
Total Diesel/Fuel Oil	2110	40.0 U	40.0 U			70.0 U
Total Gasoline	5.00 U	5.00 U	5.00 U			20.0 U
Total Heavy Oil	50.0 U	50.0 U	50.0 U			200 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U			20.0 U
Total Naphthalene	0.0240 U	0.0200 U	0.0230 U			
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U			20.0 U
Total Xylenes	0.0118 U	0.00980 U	0.0112 U			
Xylenes	0.00590 U	0.00490 U	0.00560 U			
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene	0.00500 U	0.00500 U	0.000260			
Acenaphthylene	0.00500 U	0.00500 U	0.00500 U			
Anthracene	0.00500 U	0.00500 U	0.000260 J			
Bromobenzene	0.00590 U	0.00490 U	0.00560 U			
Dibenzofuran	0.00610	0.00500 U	0.000260			
Dichlorobenzene, 1,2-	0.00590 U	0.00490 U	0.00560 U			
Dichlorobenzene, 1,3-	0.00590 U	0.00490 U	0.00560 U			
Fluoranthene	0.00110 J	0.000440 J	0.00215			
Fluorene	0.00500 U	0.00500 U	0.00500 U			
Hexachlorobutadiene	0.0240 U	0.0200 U	0.0230 U			
Phenanthrene	0.00500 U	0.000520 J	0.00135			
Pyrene	0.00110 J	0.00500 U	0.00225			
Trichlorobenzene, 1,2,4-	0.0240 U	0.0200 U	0.0230 U			
o-Xylene	0.00590 U	0.00490 U	0.00560 U			
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00590 U	0.00490 U	0.00560 U			
1,2,3-trichlorobenzene	0.0240 U	0.0200 U	0.0230 U			

Table A.1.17
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CM-EX-S1_051706(9.0)_SO	CM-EX-S2_051706(6.0)_SO	CM-EX-S3_051806(6.0)_SO_DC	CM-EX-TOC1_051806(7.0-8.0)_SO_DC	CM-EX-TOC2_051806(7.0-8.0)_SO	CMTL-SB-1/S-1_010307(5.0-6.5)_SO_DC
1,2,4-Trimethylbenzene	0.0240 U	0.0200 U	0.0230 U			
1,3,5-Trimethylbenzene	0.0240 U	0.0200 U	0.0230 U			
1,3-dichloropropane	0.00590 U	0.00490 U	0.00560 U			
1-Phenylpropane	0.0240 U	0.0200 U	0.0230 U			
2,2-dichloropropane	0.00590 U	0.00490 U	0.00560 U			
2-chlorotoluene	0.0240 U	0.0200 U	0.0230 U			
4-chlorotoluene	0.0240 U	0.0200 U	0.0230 U			
4-isopropyltoluene	0.0240 U	0.0200 U	0.0230 U			
Acetone	0.0780	0.0130 J	0.0160			
Bromochloromethane	0.00590 U	0.00490 U	0.00560 U			
Bromodichloromethane	0.00590 U	0.00490 U	0.00560 U			
Bromoform	0.00590 U	0.00490 U	0.00560 U			
Bromomethane	0.00590 U	0.00490 U	0.00560 U			
CFC-11	0.00590 U	0.00490 U	0.00560 U			
CFC-12	0.00590 U	0.00490 U	0.00560 U			
Carbon Disulfide	0.00590 U	0.00490 U	0.00560 U			
Carbon Tetrachloride	0.00590 U	0.00490 U	0.00560 U			
Chlorobenzene	0.00590 U	0.00490 U	0.00560 U			
Chloroform	0.00590 U	0.00490 U	0.00560 U			
Chloromethane	0.00590 U	0.00490 U	0.00560 U			
Cumene	0.0240 U	0.0200 U	0.0230 U			
Dibromo-3-chloropropane, 1,2-	0.0240 U	0.0200 U	0.0230 U			
Dibromochloromethane	0.00590 U	0.00490 U	0.00560 U			
Dibromoethane, 1,2-	0.0240 U	0.0200 U	0.0230 U			
Dichlorobenzene, 1,4-	0.00590 U	0.00490 U	0.00560 U			
Dichloroethane, 1,1-	0.00590 U	0.00490 U	0.00560 U			
Dichloroethane, 1,2-	0.00590 U	0.00490 U	0.00560 U			
Dichloroethene, 1,1-	0.00590 U	0.00490 U	0.00560 U			
Dichloroethylene, Cis-1,2-	0.00590 U	0.00490 U	0.00560 U			
Dichloroethylene, Trans-1,2-	0.00590 U	0.00490 U	0.00560 U			
Dichloromethane	0.0120 U	0.00970 U	0.0120 U			
Dichloropropane, 1,2-	0.00590 U	0.00490 U	0.00560 U			
Dichloropropene, Cis-1,3-	0.00590 U	0.00490 U	0.00560 U			
Dichloropropene, Trans-1,3-	0.00590 U	0.00490 U	0.00560 U			
Ethyl Chloride	0.00590 U	0.00490 U	0.00560 U			
Hexanone, 2-	0.0240 U	0.0200 U	0.0230 U			
Methyl Ethyl Ketone	0.0150 J	0.0200 U	0.0230 U			

Table A.1.17
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CM-EX-S1_051706(9.0)_SO	CM-EX-S2_051706(6.0)_SO	CM-EX-S3_051806(6.0)_SO_DC	CM-EX-TOC1_051806(7.0-8.0)_SO_DC	CM-EX-TOC2_051806(7.0-8.0)_SO	CMTL-SB-1/S-1_010307(5.0-6.5)_SO_DC
Methyl Isobutyl Ketone	0.0240 U	0.0200 U	0.0230 U			
Methylene Bromide	0.00590 U	0.00490 U	0.00560 U			
Styrene	0.00590 U	0.00490 U	0.00560 U			
Tert-butylbenzene	0.0240 U	0.0200 U	0.0230 U			
Tetrachloroethane, 1,1,1,2-	0.00590 U	0.00490 U	0.00560 U			
Tetrachloroethane, 1,1,2,2-	0.00590 U	0.00490 U	0.00560 U			
Tetrachloroethylene	0.00590 U	0.00490 U	0.00560 U			
Trichloroethane, 1,1,1-	0.00590 U	0.00490 U	0.00560 U			
Trichloroethane, 1,1,2-	0.00590 U	0.00490 U	0.00560 U			
Trichloroethylene	0.00590 U	0.00490 U	0.00560 U			
Trichloropropane, 1,2,3-	0.00590 U	0.00490 U	0.00560 U			
Vinyl Chloride	0.00590 U	0.00490 U	0.00560 U			
n-Butylbenzene	0.0240 U	0.0200 U	0.0230 U			
sec-Butylbenzene	0.0240 U	0.0200 U	0.0230 U			

Table A.1.17
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CMTL-SB-1/S-2_010307(10.0-11.5)_SO					
Conventional							
Moisture (%)		5.10					
Total Organic Carbon (mg/kg)							
Metals (mg/kg)							
Arsenic (inorganic)							
Barium							
Cadmium							
Chromium							
Lead (inorganic)							
Manganese							
Mercury (inorganic)							
Selenium (and compounds)							
Silver							
PCBs (mg/kg)							
Aroclor 1016		0.0100 U					
Aroclor 1221		0.0200 U					
Aroclor 1232		0.0100 U					
Aroclor 1242		0.0100 U					
Aroclor 1248		0.0100 U					
Aroclor 1254		0.0100 U					
Aroclor 1260		0.0100 U					
Total PCBs		0.0100 U					
Petroleum-Related Constituents (mg/kg)							
Benzene							
Benzo(a)anthracene							
Benzo(a)pyrene							
Benzo(b)fluoranthene							
Benzo(g,h,i)perylene							
Benzo(k)fluoranthene							
Bunker C		50.0 U					
CPAH TEQ							
Castor oil		100 U					
Chrysene							
Dibenz(a,h)anthracene							
Diesel		50.0 U					

Table A.1.17
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CMTL-SB-1/S-2_010307(10.0-11.5)_SO					
Ethyl Benzene							
Gasoline Range Organics		20.0 U					
Heavy Oil		100 U					
Indeno(1,2,3-cd)pyrene							
Kensol		20.0 U					
Kerosene/Jet fuel		20.0 U					
Methylnaphthalene, 2-							
Mineral spirits/Stoddard		20.0 U					
Naphthalene							
Toluene							
Total Diesel/Fuel Oil		70.0 U					
Total Gasoline		20.0 U					
Total Heavy Oil		200 U					
Total Kerosene/Jet Fuel		20.0 U					
Total Naphthalene							
Total Stoddard/Mineral Spirits		20.0 U					
Total Xylenes							
Xylenes							
Semi-Volatile Organic Constituents (mg/kg)							
Acenaphthene							
Acenaphthylene							
Anthracene							
Bromobenzene							
Dibenzofuran							
Dichlorobenzene, 1,2-							
Dichlorobenzene, 1,3-							
Fluoranthene							
Fluorene							
Hexachlorobutadiene							
Phenanthrene							
Pyrene							
Trichlorobenzene, 1,2,4-							
o-Xylene							
Volatile Organics Constituents (mg/kg)							
1,1-Dichloropropene							
1,2,3-trichlorobenzene							

Table A.1.17
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CMTL-SB-1/S-2_010307(10.0-11.5)_SO					
1,2,4-Trimethylbenzene							
1,3,5-Trimethylbenzene							
1,3-dichloropropane							
1-Phenylpropane							
2,2-dichloropropane							
2-chlorotoluene							
4-chlorotoluene							
4-isopropyltoluene							
Acetone							
Bromochloromethane							
Bromodichloromethane							
Bromoform							
Bromomethane							
CFC-11							
CFC-12							
Carbon Disulfide							
Carbon Tetrachloride							
Chlorobenzene							
Chloroform							
Chloromethane							
Cumene							
Dibromo-3-chloropropane, 1,2-							
Dibromochloromethane							
Dibromoethane, 1,2-							
Dichlorobenzene, 1,4-							
Dichloroethane, 1,1-							
Dichloroethane, 1,2-							
Dichloroethene, 1,1-							
Dichloroethylene, Cis-1,2-							
Dichloroethylene, Trans-1,2-							
Dichloromethane							
Dichloropropane, 1,2-							
Dichloropropene, Cis-1,3-							
Dichloropropene, Trans-1,3-							
Ethyl Chloride							
Hexanone, 2-							
Methyl Ethyl Ketone							

Table A.1.17
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Sample ID:	CMTL-SB-1/S-2_010307(10.0-11.5)_SO					
Methyl Isobutyl Ketone							
Methylene Bromide							
Styrene							
Tert-butylbenzene							
Tetrachloroethane, 1,1,1,2-							
Tetrachloroethane, 1,1,2,2-							
Tetrachloroethylene							
Trichloroethane, 1,1,1-							
Trichloroethane, 1,1,2-							
Trichloroethylene							
Trichloropropane, 1,2,3-							
Vinyl Chloride							
n-Butylbenzene							
sec-Butylbenzene							

Notes:
The following qualifiers may be used in this table:
J - Constituent present, reported value is estimated
U - Not detected at or above reporting limit
UJ - Not detected; reporting limit is estimated
The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:
-If both results were detected values, then the two values were averaged.
If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1_031505(7.0)_SO	B2_031505(7.0)_SO	B3_031505(5.0)_SO	B4_031605(7.0)_SO	DC#4-N_071306(5.5)_SO	DC#4-S_071306(5.5)_SO
Conventional (%)						
Moisture						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016					0.100 U	0.200 U
Aroclor 1221	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.400 U
Aroclor 1232	0.200 U	0.200 U	0.200 U	0.200 U	0.100 U	0.200 U
Aroclor 1242	0.200 U	0.200 U	0.200 U	0.200 U	0.100 U	0.200 U
Aroclor 1248	0.200 U	0.780	0.430	0.200 U	7.10	12.0
Aroclor 1254	0.200 U	0.200 U	0.200 U	0.200 U	5.70	7.20
Aroclor 1260	0.200 U	0.200 U	0.200 U	0.200 U	0.100 U	0.200 U
Total PCBs	0.200 U	0.780	0.430	0.200 U	12.8	19.2
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U		
CPAH TEQ						
Castor oil	14000	12000	2100	100 U		
Chrysene						
Dibenz(a,h)anthracene						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U		
Ethyl Benzene						
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U		

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1_031505(7.0)_SO	B2_031505(7.0)_SO	B3_031505(5.0)_SO	B4_031605(7.0)_SO	DC#4-N_071306(5.5)_SO	DC#4-S_071306(5.5)_SO
Gasoline Range Organics						
Heavy Oil	100 U	100 U	100 U	100 U		
Indeno(1,2,3-cd)pyrene						
Kensol	20.0 U	20.0 U	20.0 U	20.0 U		
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U		
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U		
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U		
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U		
Total Heavy Oil	14100	12100	2150	200 U		
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U		
Total Naphthalene						
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U		
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(Chloroethyl)ether						
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chloro-3-methylphenol, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1_031505(7.0)_SO	B2_031505(7.0)_SO	B3_031505(5.0)_SO	B4_031605(7.0)_SO	DC#4-N_071306(5.5)_SO	DC#4-S_071306(5.5)_SO
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitrophenol, 2,4-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isopropyltoluene						
Methylphenol, 2-						
Nitrophenol, 4-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B1_031505(7.0)_SO	B2_031505(7.0)_SO	B3_031505(5.0)_SO	B4_031605(7.0)_SO	DC#4-N_071306(5.5)_SO	DC#4-S_071306(5.5)_SO
4-chlorotoluene						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	INDBG-SB-1/S-1_030405(0.0-1.5)_SO	INDBG-SB-1/S-2_030405(5.0-5.3)_SO	RM-F4-SB-1 S-1_091504(4.0-5.0)_SO	RM-F4-SB-1 S-2_091504(10.0-11.5)_SO	RM-MW-10S S-1_092004(10.0-10.5)_SO	RM-MW-12S-S1_042505(2.5)_SO
Conventional (%)						
Moisture						
Metals (mg/kg)						
Arsenic (inorganic)	2.00 U					
Barium	10.0 U					
Cadmium	1.50					
Chromium	16.0					
Lead (inorganic)	91.0					
Mercury (inorganic)	0.500 U					
Selenium (and compounds)	10.0 U					
Silver	1.00 U					
PCBs (mg/kg)						
Aroclor 1016			0.110 U	0.110 U	0.0100 U	
Aroclor 1221	0.200 U	0.200 U	0.210 U	0.220 U	0.0200 U	0.200 U
Aroclor 1232	0.200 U	0.200 U	0.110 U	0.110 U	0.0100 U	0.200 U
Aroclor 1242	0.200 U	0.200 U	0.110 U	0.110 U	0.0100 U	0.200 U
Aroclor 1248	0.200 U	0.440	4.70	6.80	0.0120	0.200 U
Aroclor 1254	0.200 U	0.200 U	4.50	5.40	0.0100 U	0.200 U
Aroclor 1260	0.200 U	0.200 U	0.110 U	0.110 U	0.0100 U	0.200 U
Total PCBs	0.200 U	0.440	9.20	12.2	0.0120	0.200 U
Petroleum-Related Constituents (mg/kg)						
Benzene	0.0500 U					
Benzo(a)anthracene	0.100 U					
Benzo(a)pyrene	0.100 U					
Benzo(b)fluoranthene	0.100 U					
Benzo(g,h,i)perylene	0.100 U					
Benzo(k)fluoranthene	0.100 U					
Bunker C	50.0 U	50.0 U				50.0 U
CPAH TEQ	0.0768					
Castor oil						100 U
Chrysene	0.180					
Dibenz(a,h)anthracene	0.100 U					
Diesel	50.0 U	50.0 U	10.0 U	28.0	9.20 UJ	50.0 U
Ethyl Benzene	0.0500 U					
Gasoline Range Organics	20.0 U	20.0 U				20.0 U

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	INDBG-SB-1/S-1_030405(0.0-1.5)_SO	INDBG-SB-1/S-2_030405(5.0-5.3)_SO	RM-F4-SB-1 S-1_091504(4.0-5.0)_SO	RM-F4-SB-1 S-2_091504(10.0-11.5)_SO	RM-MW-10S S-1_092004(10.0-10.5)_SO	RM-MW-12S-S1_042505(2.5)_SO
Gasoline Range Organics			5.70 J	10.0 U	9.20 UJ	
Heavy Oil	9900	1800	13.0 J	59.0	5.30 J	100 U
Indeno(1,2,3-cd)pyrene	0.100 U					
Kensol	20.0 U	20.0 U				20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U				20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U				20.0 U
Naphthalene	0.0500 U					
Toluene	0.0500 U					
Total Diesel/Fuel Oil	70.0 U	70.0 U	10.0 U	28.0	9.20 U	70.0 U
Total Gasoline	20.0 U	20.0 U				20.0 U
Total Heavy Oil	9900	1800	13.0	59.0	5.30	200 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U				20.0 U
Total Naphthalene	0.0500 U					
Total Stoddard/Mineral Spirits	20.0 U	20.0 U				20.0 U
Total Xylenes	0.0500 U					
Xylenes	0.0500 U					
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol	0.500 U					
2-Nitrophenol	0.500 U					
3,4-Methylphenol (m,p-cresol)	0.100 U					
Acenaphthene	0.100 U					
Acenaphthylene	0.100 U					
Anthracene	0.100 U					
Bis(2-Chloroethoxy)methane	0.100 U					
Bis(2-chloroisopropyl)Ether	0.100 U					
Bis(Chloroethyl)ether	0.500 U					
Bromobenzene	0.0500 U					
Bromodiphenyl ether, 4-	0.100 U					
Butyl Benzyl Phthalate, N-	0.500 U					
Chloro-3-methylphenol, 4-	0.500 U					
Chloronaphthalene, 2-	0.100 U					
Chlorophenol, 2-	0.500 U					
Chlorophenyl-phenyl ether, 4-	0.500 U					
Di-n-Octylphthalate	0.500 U					
Dibutyl Phthalate	0.100 U					
Dichlorobenzene, 1,2-	0.0500 U					
Dichlorobenzene, 1,3-	0.0500 U					

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	INDBG-SB-1/S-1_030405(0.0-1.5)_SO	INDBG-SB-1/S-2_030405(5.0-5.3)_SO	RM-F4-SB-1 S-1_091504(4.0-5.0)_SO	RM-F4-SB-1 S-2_091504(10.0-11.5)_SO	RM-MW-10S S-1_092004(10.0-10.5)_SO	RM-MW-12S-S1_042505(2.5)_SO
Dichlorophenol, 2,4-	0.500 U					
Dichlorophenol, 2,6-	0.500 U					
Diethyl Phthalate	0.100 U					
Dimethyl Phthalate	0.100 U					
Dimethylphenol, 2,4-	0.500 U					
Dinitrophenol, 2,4-	0.500 U					
Dinoseb	0.500 U					
Fluoranthene	0.290					
Fluorene	0.100 U					
Hexachlorobenzene	0.100 U					
Hexachlorobutadiene	0.0500 U					
Hexachlorocyclopentadiene	0.100 U					
Hexachloroethane	0.100 U					
Hexachloropropylene	0.500 U					
Isopropyltoluene	0.0500 U					
Methylphenol, 2-	0.100 U					
Nitrophenol, 4-	0.500 U					
Nitrosodiphenylamine, N-	0.100 U					
Pentachlorobenzene	0.500 U					
Pentachlorophenol	0.500 U					
Phenanthrene	0.160					
Phenol	0.500 U					
Pyrene	0.430					
Tetrachlorobenzene, 1,2,4,5-	0.500 U					
Tetrachlorophenol, 2,3,4,6-	0.500 U					
Trichlorobenzene, 1,2,4-	0.0500 U					
Trichlorophenol, 2,4,5-	0.500 U					
Trichlorophenol, 2,4,6-	0.500 U					
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.0500 U					
1,2,3-trichlorobenzene	0.0500 U					
1,2,4-Trimethylbenzene	0.0500 U					
1,3,5-Trimethylbenzene	0.0500 U					
1,3-dichloropropane	0.0500 U					
1-Phenylpropane	0.0500 U					
2,2-dichloropropane	0.0500 U					
2-chlorotoluene	0.0500 U					

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	INDBG-SB-1/S-1_030405(0.0-1.5)_SO	INDBG-SB-1/S-2_030405(5.0-5.3)_SO	RM-F4-SB-1 S-1_091504(4.0-5.0)_SO	RM-F4-SB-1 S-2_091504(10.0-11.5)_SO	RM-MW-10S S-1_092004(10.0-10.5)_SO	RM-MW-12S-S1_042505(2.5)_SO
4-chlorotoluene	0.0500 U					
Bromodichloromethane	0.0500 U					
Bromoform	0.0500 U					
Bromomethane	0.0500 U					
CFC-11	0.0500 U					
Carbon Tetrachloride	0.0500 U					
Chlorobenzene	0.0500 U					
Chloroform	0.0500 U					
Chloromethane	0.0500 U					
Cumene	0.0500 U					
Dibromo-3-chloropropane, 1,2-	0.0500 U					
Dibromochloromethane	0.0500 U					
Dibromoethane, 1,2-	0.00500 U					
Dichlorobenzene, 1,4-	0.0500 U					
Dichloroethane, 1,1-	0.0500 U					
Dichloroethane, 1,2-	0.0200 U					
Dichloroethene, 1,1-	0.0500 U					
Dichloroethylene, Cis-1,2-	0.0500 U					
Dichloroethylene, Trans-1,2-	0.0500 U					
Dichloromethane	0.0200 U					
Dichloropropane, 1,2-	0.0500 U					
Dichloropropene, Cis-1,3-	0.0500 U					
Dichloropropene, Trans-1,3-	0.0500 U					
Ethyl Chloride	0.0500 U					
Methylene Bromide	0.0500 U					
Styrene	0.0500 U					
Tert-butylbenzene	0.0500 U					
Tetrachloroethane, 1,1,1,2-	0.0500 U					
Tetrachloroethane, 1,1,2,2-	0.0500 U					
Tetrachloroethylene	0.0500 U					
Trichloroethane, 1,1,1-	0.0500 U					
Trichloroethane, 1,1,2-	0.0500 U					
Trichloroethylene	0.0200 U					
Trichloropropane, 1,2,3-	0.0500 U					
Vinyl Chloride	0.0500 U					
n-Butylbenzene	0.0500 U					
sec-Butylbenzene	0.0500 U					

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-12S-S2_042505(10.0)_SO	RM-MW-12S-S3_042505(15.0)_SO	RM-MW-13S-S1_042705(5.0)_SO	RM-MW-13S-S2_042705(10.0)_SO	RM-MW-13S-S3_042705(15.0)_SO	RM-MW-14S/S-1_092006(10.0-11.5)_SO_DC
Conventional (%)						
Moisture	9.00	9.00	10.0	6.00	7.00	4.60
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016						0.00980 U
Aroclor 1221	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U
Aroclor 1232	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.00980 U
Aroclor 1242	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.00980 U
Aroclor 1248	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.00980 U
Aroclor 1254	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.00980 U
Aroclor 1260	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.00980 U
Total PCBs	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.00980 U
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil	100 U	100 U	100 U	100 U	1700	100 U
Chrysene						
Dibenz(a,h)anthracene						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene						
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-12S-S2_042505(10.0)_SO	RM-MW-12S-S3_042505(15.0)_SO	RM-MW-13S-S1_042705(5.0)_SO	RM-MW-13S-S2_042705(10.0)_SO	RM-MW-13S-S3_042705(15.0)_SO	RM-MW-14S/S-1_092006(10.0-11.5)_SO_DC
Gasoline Range Organics						
Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Indeno(1,2,3-cd)pyrene						
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200 U	200 U	200 U	200 U	1750	200 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(Chloroethyl)ether						
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chloro-3-methylphenol, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-12S-S2_042505(10.0)_SO	RM-MW-12S-S3_042505(15.0)_SO	RM-MW-13S-S1_042705(5.0)_SO	RM-MW-13S-S2_042705(10.0)_SO	RM-MW-13S-S3_042705(15.0)_SO	RM-MW-14S/S-1_092006(10.0-11.5)_SO_DC
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitrophenol, 2,4-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isopropyltoluene						
Methylphenol, 2-						
Nitrophenol, 4-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-12S-S2_042505(10.0)_SO	RM-MW-12S-S3_042505(15.0)_SO	RM-MW-13S-S1_042705(5.0)_SO	RM-MW-13S-S2_042705(10.0)_SO	RM-MW-13S-S3_042705(15.0)_SO	RM-MW-14S/S-1_092006(10.0-11.5)_SO_DC
4-chlorotoluene						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-15S/S-1_091806(10.0-11.5)_SO	RM-MW-16S/S-1_091506(10.0-11.3)_SO_DC	RM-MW-17S/S-1_091406(10.0-11.5)_SO	RM-MW-3S S-1_092703(10.0-10.5)_SO	RM-MW-8S/S-1_030105(5.0-6.5)_SO	RM-MW-8S/S-2_030105(10.0-11.5)_SO
Conventional (%)						
Moisture	3.70	5.30	4.00			
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016	0.00980 U	0.00980 U	0.00980 U	0.0650 U		
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.130 U	0.200 U	0.200 U
Aroclor 1232	0.00980 U	0.00980 U	0.00980 U	0.0650 U	0.200 U	0.200 U
Aroclor 1242	0.00980 U	0.00980 U	0.00980 U	0.0650 U	0.200 U	0.200 U
Aroclor 1248	0.00290 J	0.00980 U	0.0620	0.0650 U	0.200 U	0.200 U
Aroclor 1254	0.00980 U	0.00980 U	0.00980 U	0.0650 U	0.200 U	0.200 U
Aroclor 1260	0.00980 U	0.00980 U	0.00980 U	0.0650 U	0.200 U	0.200 U
Total PCBs	0.00290	0.00980 U	0.0620	0.0650 U	0.200 U	0.200 U
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Castor oil	100 U	100 U	100 U			
Chrysene						
Dibenz(a,h)anthracene						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene						
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-15S/S-1_091806(10.0-11.5)_SO	RM-MW-16S/S-1_091506(10.0-11.3)_SO_DC	RM-MW-17S/S-1_091406(10.0-11.5)_SO	RM-MW-3S S-1_092703(10.0-10.5)_SO	RM-MW-8S/S-1_030105(5.0-6.5)_SO	RM-MW-8S/S-2_030105(10.0-11.5)_SO
Gasoline Range Organics						
Heavy Oil	100 U	100 U	100 U	280	100 U	100 U
Indeno(1,2,3-cd)pyrene						
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200 U	200 U	200 U	280	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(Chloroethyl)ether						
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chloro-3-methylphenol, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-15S/S-1_091806(10.0-11.5)_SO	RM-MW-16S/S-1_091506(10.0-11.3)_SO_DC	RM-MW-17S/S-1_091406(10.0-11.5)_SO	RM-MW-3S S-1_092703(10.0-10.5)_SO	RM-MW-8S/S-1_030105(5.0-6.5)_SO	RM-MW-8S/S-2_030105(10.0-11.5)_SO
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitrophenol, 2,4-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isopropyltoluene						
Methylphenol, 2-						
Nitrophenol, 4-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-15S/S-1_091806(10.0-11.5)_SO	RM-MW-16S/S-1_091506(10.0-11.3)_SO_DC	RM-MW-17S/S-1_091406(10.0-11.5)_SO	RM-MW-3S S-1_092703(10.0-10.5)_SO	RM-MW-8S/S-1_030105(5.0-6.5)_SO	RM-MW-8S/S-2_030105(10.0-11.5)_SO
4-chlorotoluene						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-9S/S-1_030305(5.0-5.5)_SO	RM-MW-9S/S-2_030305(10.0-11.5)_SO	RMSW-MW-11S-S1_042205(10.0)_SO	S1_031505_SO	S2_031505_SO	S3_031605_SO
Conventional (%)						
Moisture			14.0			
Metals (mg/kg)						
Arsenic (inorganic)	2.00 U					
Barium	10.0 U					
Cadmium	1.00 U					
Chromium	7.60					
Lead (inorganic)	5.50					
Mercury (inorganic)	0.500 U					
Selenium (and compounds)	10.0 U					
Silver	1.00 U					
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1232	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1242	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1248	0.200 U	0.200 U	0.200 U	0.530	0.630	0.200 U
Aroclor 1254	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1260	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Total PCBs	0.200 U	0.200 U	0.200 U	0.530	0.630	0.200 U
Petroleum-Related Constituents (mg/kg)						
Benzene	0.0500 U					
Benzo(a)anthracene	0.100 U					
Benzo(a)pyrene	0.100 U					
Benzo(b)fluoranthene	0.100 U					
Benzo(g,h,i)perylene	0.100 U					
Benzo(k)fluoranthene	0.100 U					
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ	0.151 U					
Castor oil			100 U	11000	3400	1100
Chrysene	0.100 U					
Dibenz(a,h)anthracene	0.100 U					
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene	0.0500 U					
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-9S/S-1_030305(5.0-5.5)_SO	RM-MW-9S/S-2_030305(10.0-11.5)_SO	RMSW-MW-11S-S1_042205(10.0)_SO	S1_031505_SO	S2_031505_SO	S3_031605_SO
Gasoline Range Organics						
Heavy Oil	1100	100 U	100 U	100 U	100 U	100 U
Indeno(1,2,3-cd)pyrene	0.100 U					
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Naphthalene	0.0500 U					
Toluene	0.0500 U					
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	1100	100 U	200 U	11100	3450	1150
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene	0.0500 U					
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Xylenes	0.0500 U					
Xylenes	0.0500 U					
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol	0.500 U					
2-Nitrophenol	0.500 U					
3,4-Methylphenol (m,p-cresol)	0.100 U					
Acenaphthene	0.100 U					
Acenaphthylene	0.100 U					
Anthracene	0.100 U					
Bis(2-Chloroethoxy)methane	0.100 U					
Bis(2-chloroisopropyl)Ether	0.100 U					
Bis(Chloroethyl)ether	0.500 U					
Bromobenzene	0.0500 U					
Bromodiphenyl ether, 4-	0.100 U					
Butyl Benzyl Phthalate, N-	0.500 U					
Chloro-3-methylphenol, 4-	0.500 U					
Chloronaphthalene, 2-	0.100 U					
Chlorophenol, 2-	0.500 U					
Chlorophenyl-phenyl ether, 4-	0.500 U					
Di-n-Octylphthalate	0.500 U					
Dibutyl Phthalate	0.100 U					
Dichlorobenzene, 1,2-	0.0500 U					
Dichlorobenzene, 1,3-	0.0500 U					

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-9S/S-1_030305(5.0-5.5)_SO	RM-MW-9S/S-2_030305(10.0-11.5)_SO	RMSW-MW-11S-S1_042205(10.0)_SO	S1_031505_SO	S2_031505_SO	S3_031605_SO
Dichlorophenol, 2,4-	0.500 U					
Dichlorophenol, 2,6-	0.500 U					
Diethyl Phthalate	0.100 U					
Dimethyl Phthalate	0.100 U					
Dimethylphenol, 2,4-	0.500 U					
Dinitrophenol, 2,4-	0.500 U					
Dinoseb	0.500 U					
Fluoranthene	0.100 U					
Fluorene	0.100 U					
Hexachlorobenzene	0.100 U					
Hexachlorobutadiene	0.0500 U					
Hexachlorocyclopentadiene	0.100 U					
Hexachloroethane	0.100 U					
Hexachloropropylene	0.500 U					
Isopropyltoluene	0.0500 U					
Methylphenol, 2-	0.100 U					
Nitrophenol, 4-	0.500 U					
Nitrosodiphenylamine, N-	0.100 U					
Pentachlorobenzene	0.500 U					
Pentachlorophenol	0.500 U					
Phenanthrene	0.100 U					
Phenol	0.500 U					
Pyrene	0.100 U					
Tetrachlorobenzene, 1,2,4,5-	0.500 U					
Tetrachlorophenol, 2,3,4,6-	0.500 U					
Trichlorobenzene, 1,2,4-	0.0500 U					
Trichlorophenol, 2,4,5-	0.500 U					
Trichlorophenol, 2,4,6-	0.500 U					
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.0500 U					
1,2,3-trichlorobenzene	0.0500 U					
1,2,4-Trimethylbenzene	0.0500 U					
1,3,5-Trimethylbenzene	0.0500 U					
1,3-dichloropropane	0.0500 U					
1-Phenylpropane	0.0500 U					
2,2-dichloropropane	0.0500 U					
2-chlorotoluene	0.0500 U					

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RM-MW-9S/S-1_030305(5.0-5.5)_SO	RM-MW-9S/S-2_030305(10.0-11.5)_SO	RMSW-MW-11S-S1_042205(10.0)_SO	S1_031505_SO	S2_031505_SO	S3_031605_SO
4-chlorotoluene	0.0500 U					
Bromodichloromethane	0.0500 U					
Bromoform	0.0500 U					
Bromomethane	0.0500 U					
CFC-11	0.0500 U					
Carbon Tetrachloride	0.0500 U					
Chlorobenzene	0.0500 U					
Chloroform	0.0500 U					
Chloromethane	0.0500 U					
Cumene	0.0500 U					
Dibromo-3-chloropropane, 1,2-	0.0500 U					
Dibromochloromethane	0.0500 U					
Dibromoethane, 1,2-	0.00500 U					
Dichlorobenzene, 1,4-	0.0500 U					
Dichloroethane, 1,1-	0.0500 U					
Dichloroethane, 1,2-	0.0200 U					
Dichloroethene, 1,1-	0.0500 U					
Dichloroethylene, Cis-1,2-	0.0500 U					
Dichloroethylene, Trans-1,2-	0.0500 U					
Dichloromethane	0.0200 U					
Dichloropropane, 1,2-	0.0500 U					
Dichloropropene, Cis-1,3-	0.0500 U					
Dichloropropene, Trans-1,3-	0.0500 U					
Ethyl Chloride	0.0500 U					
Methylene Bromide	0.0500 U					
Styrene	0.0500 U					
Tert-butylbenzene	0.0500 U					
Tetrachloroethane, 1,1,1,2-	0.0500 U					
Tetrachloroethane, 1,1,2,2-	0.0500 U					
Tetrachloroethylene	0.0500 U					
Trichloroethane, 1,1,1-	0.0500 U					
Trichloroethane, 1,1,2-	0.0500 U					
Trichloroethylene	0.0200 U					
Trichloropropane, 1,2,3-	0.0500 U					
Vinyl Chloride	0.0500 U					
n-Butylbenzene	0.0500 U					
sec-Butylbenzene	0.0500 U					

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S4_031605_SO	TB-5_061406(5.0)_SO	TB-6_061406(5.0)_SO	TB-7_061406(5.0)_SO	TB-8_061406(5.0)_SO	
Conventional (%)						
Moisture						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016		0.200 U	0.100 U	0.100 U	0.200 U	
Aroclor 1221	0.200 U	0.400 U	0.200 U	0.200 U	0.400 U	
Aroclor 1232	0.200 U	0.200 U	0.100 U	0.100 U	0.200 U	
Aroclor 1242	0.200 U	0.200 U	0.100 U	0.100 U	0.200 U	
Aroclor 1248	0.200 U	5.70	3.40	1.30	8.00	
Aroclor 1254	0.200 U	0.200 U	0.100 U	0.100 U	0.200 U	
Aroclor 1260	0.200 U	0.200 U	0.100 U	0.100 U	0.200 U	
Total PCBs	0.200 U	5.70	3.40	1.30	8.00	
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U					
CPAH TEQ						
Castor oil	100 U					
Chrysene						
Dibenz(a,h)anthracene						
Diesel	50.0 U					
Ethyl Benzene						
Gasoline Range Organics	20.0 U					

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S4_031605_SO	TB-5_061406(5.0)_SO	TB-6_061406(5.0)_SO	TB-7_061406(5.0)_SO	TB-8_061406(5.0)_SO	
Gasoline Range Organics						
Heavy Oil	100 U					
Indeno(1,2,3-cd)pyrene						
Kensol	20.0 U					
Kerosene/Jet fuel	20.0 U					
Mineral spirits/Stoddard	20.0 U					
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	70.0 U					
Total Gasoline	20.0 U					
Total Heavy Oil	200 U					
Total Kerosene/Jet Fuel	20.0 U					
Total Naphthalene						
Total Stoddard/Mineral Spirits	20.0 U					
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol						
2-Nitrophenol						
3,4-Methylphenol (m,p-cresol)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(Chloroethyl)ether						
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chloro-3-methylphenol, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S4_031605_SO	TB-5_061406(5.0)_SO	TB-6_061406(5.0)_SO	TB-7_061406(5.0)_SO	TB-8_061406(5.0)_SO	
Dichlorophenol, 2,4-						
Dichlorophenol, 2,6-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitrophenol, 2,4-						
Dinoseb						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Hexachloropropylene						
Isopropyltoluene						
Methylphenol, 2-						
Nitrophenol, 4-						
Nitrosodiphenylamine, N-						
Pentachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Tetrachlorobenzene, 1,2,4,5-						
Tetrachlorophenol, 2,3,4,6-						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						
Trichlorophenol, 2,4,6-						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						

Table A.1.18
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent / Sample ID:	S4_031605_SO	TB-5_061406(5.0)_SO	TB-6_061406(5.0)_SO	TB-7_061406(5.0)_SO	TB-8_061406(5.0)_SO	
4-chlorotoluene						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	G-2 (STA4+27-Bottom)_050107_SO	G-2 (STA4+80-Bottom)_050107_SO	G-2 (STA7+74 Side Wall)_050307(5.3)_SO	G-2 (STA7+74-Bottom)_050307(10.0)_SO	TL-SW-1_100800_SO	TL-SW-2_100800_SO
Conventional						
Moisture (%)	4.90	4.00		5.40		
Total Organic Carbon (mg/kg)		0.410	0.860	0.380		
Northwest EPH (mg/kg)						
C10-C12 Aliphatics				2.20		
C10-C12 Aromatics				2.10 U		
C12-C16 Aliphatics				18.0		
C12-C16 Aromatics				2.10 U		
C16-C21 Aliphatics				74.0		
C16-C21 Aromatics				41.0		
C21-C34 Aliphatics				270		
C21-C34 Aromatics				67.0		
C8-C10 Aliphatics				2.10 U		
C8-C10 Aromatics				2.10 U		
Northwest VPH (mg/kg)						
Aliphatic C10-C12				5.00 U		
Aliphatic C5-C6				5.00 U		
Aliphatic C6-C8				5.00 U		
Aliphatic C8-C10				5.00 U		
Aromatic C10-C12				5.00 U		
Aromatic C12-C13				10.0		
Aromatic C8-C10				5.00 U		
PCBs (mg/kg)						
Aroclor 1016		0.00520 U		0.00520 U		
Aroclor 1221		0.0110 U		0.0110 U		
Aroclor 1232		0.00520 U		0.00520 U		
Aroclor 1242		0.00520 U		0.00520 U		
Aroclor 1248		0.00520 U		0.00520 U		
Aroclor 1254		0.00520 U		0.00520 U		
Aroclor 1260		0.00330 J		0.00520 U		
Total PCBs		0.00330		0.00520 U		
Petroleum-Related Constituents (mg/kg)						
Benzene		0.00460 U		0.0200 U		
Benzo(a)anthracene		0.0770		0.00240 J		
Benzo(a)pyrene		0.0780		0.00230 J		

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	G-2 (STA4+27-Bottom)_050107_SO	G-2 (STA4+80-Bottom)_050107_SO	G-2 (STA7+74 Side Wall)_050307(5.3)_SO	G-2 (STA7+74-Bottom)_050307(10.0)_SO	TL-SW-1_100800_SO	TL-SW-2_100800_SO
Benzo(b)fluoranthene		0.100		0.00570		
Benzo(g,h,i)perylene		0.0420		0.00400		
Benzo(k)fluoranthene		0.0370		0.00150 J		
Bunker C	50.0 U	50.0 U		50.0 U	50.0 U	50.0 U
CPAH TEQ		0.107		0.00361		
Chrysene		0.0850		0.00320		
Dibenz(a,h)anthracene		0.0120		0.000610 J		
Diesel	50.0 U	20.0 U		200	50.0 U	50.0 U
Ethyl Benzene		0.00460 U		0.500 U		
Gasoline Range Organics	20.0 U	5.00 U		5.00 U	20.0 U	20.0 U
Heavy Oil	270	50.0 U		360	100 U	100 U
Indeno(1,2,3-cd)pyrene		0.0510		0.00260 J		
Kensol	20.0 U	20.0 U		20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U		20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-		0.00870		0.0100		
Mineral spirits/Stoddard	20.0 U	5.00 U		5.00 U	20.0 U	20.0 U
Naphthalene		0.0190 U		0.0200 U		
Toluene		0.00500 U		0.500 U		
Total Diesel/Fuel Oil	70.0 U	40.0 U		210	70.0 U	70.0 U
Total Gasoline	20.0 U	5.00 U		5.00 U	20.0 U	20.0 U
Total Heavy Oil	270	50.0 U		360	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U		20.0 U	20.0 U	20.0 U
Total Naphthalene		0.0190 U		0.0200 U		
Total Stoddard/Mineral Spirits	20.0 U	5.00 U		5.00 U	20.0 U	20.0 U
Total TPH					100 U	100 U
Total Xylenes		0.00254		1.00 U		
Xylenes		0.000240 J		0.500 U		
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene		0.00670		0.000390 J		
Acenaphthylene		0.00330		0.00100 J		
Anthracene		0.0190		0.00150 J		
Bromobenzene		0.00460 U		0.00500 U		
Dibenzofuran		0.00360		0.00210 J		
Dichlorobenzene, 1,2-		0.00460 U		0.00500 U		
Dichlorobenzene, 1,3-		0.00460 U		0.00500 U		
Fluoranthene		0.140		0.00500		
Fluorene		0.00590		0.00200 J		

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	G-2 (STA4+27-Bottom)_050107_SO	G-2 (STA4+80-Bottom)_050107_SO	G-2 (STA7+74 Side Wall)_050307(5.3)_SO	G-2 (STA7+74-Bottom)_050307(10.0)_SO	TL-SW-1_100800_SO	TL-SW-2_100800_SO
Hexachlorobutadiene		0.0190 U		0.0200 U		
Phenanthrene		0.0880		0.00620		
Pyrene		0.140		0.00710		
Trichlorobenzene, 1,2,4-		0.0190 U		0.0200 U		
o-Xylene		0.00460 U		0.500 U		
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene		0.00460 U		0.00500 U		
1,2,3-trichlorobenzene		0.0190 U		0.0200 U		
1,2,4-Trimethylbenzene		0.000160 J		0.0200 U		
1,3,5-Trimethylbenzene		0.0190 U		0.0200 U		
1,3-dichloropropane		0.00460 U		0.00500 U		
1-Phenylpropane		0.0190 U		0.0200 U		
2,2-dichloropropane		0.00460 U		0.00500 U		
2-chlorotoluene		0.0190 U		0.0200 U		
4-chlorotoluene		0.0190 U		0.0200 U		
4-isopropyltoluene		0.0190 U		0.0200 U		
Acetone		0.0200 U		0.0650 J		
Bromochloromethane		0.00460 U		0.00500 U		
Bromodichloromethane		0.00460 U		0.00500 U		
Bromoform		0.00460 U		0.00500 U		
Bromomethane		0.00460 U		0.00500 U		
CFC-11		0.00460 U		0.00500 U		
CFC-12		0.00460 U		0.00500 U		
Carbon Disulfide		0.000420 J		0.000710 J		
Carbon Tetrachloride		0.00460 U		0.00500 U		
Chlorobenzene		0.00460 U		0.00500 U		
Chloroform		0.00460 U		0.00500 U		
Chloromethane		0.00460 U		0.00500 U		
Cumene		0.0190 U		0.0200 U		
Dibromo-3-chloropropane, 1,2-		0.0190 U		0.0200 U		
Dibromochloromethane		0.00460 U		0.00500 U		
Dibromoethane, 1,2-		0.0190 U		0.0200 U		
Dichlorobenzene, 1,4-		0.00460 U		0.00500 U		
Dichloroethane, 1,1-		0.00460 U		0.00500 U		
Dichloroethane, 1,2-		0.00460 U		0.00500 U		
Dichloroethene, 1,1-		0.00460 U		0.00500 U		
Dichloroethylene, Cis-1,2-		0.00460 U		0.00500 U		

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	G-2 (STA4+27-Bottom)_050107_SO	G-2 (STA4+80-Bottom)_050107_SO	G-2 (STA7+74 Side Wall)_050307(5.3)_SO	G-2 (STA7+74-Bottom)_050307(10.0)_SO	TL-SW-1_100800_SO	TL-SW-2_100800_SO
Dichloroethylene, Trans-1,2-		0.00460 U		0.00500 U		
Dichloromethane		0.0100 U		0.0100 U		
Dichloropropane, 1,2-		0.00460 U		0.00500 U		
Dichloropropene, Cis-1,3-		0.00460 U		0.00500 U		
Dichloropropene, Trans-1,3-		0.00460 U		0.00500 U		
Ethyl Chloride		0.00460 U		0.00500 U		
Hexanone, 2-		0.0190 U		0.0200 U		
Methyl Ethyl Ketone		0.0190 U		0.0200 U		
Methyl Isobutyl Ketone		0.0190 U		0.0200 U		
Methyl Tertiary Butyl Ether				0.500 U		
Methylene Bromide		0.00460 U		0.00500 U		
Styrene		0.000110 J		0.00500 U		
Tert-butylbenzene		0.0190 U		0.0200 U		
Tetrachloroethane, 1,1,1,2-		0.00460 U		0.00500 U		
Tetrachloroethane, 1,1,2,2-		0.00460 U		0.00500 U		
Tetrachloroethylene		0.00460 U		0.00500 U		
Trichloroethane, 1,1,1-		0.00460 U		0.00500 U		
Trichloroethane, 1,1,2-		0.00460 U		0.00500 U		
Trichloroethylene		0.00460 U		0.00500 U		
Trichloropropane, 1,2,3-		0.00460 U		0.00500 U		
Vinyl Chloride		0.00460 U		0.00500 U		
n-Butylbenzene		0.0190 U		0.0200 U		
sec-Butylbenzene		0.0190 U		0.0200 U		

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-SW-3_100800_SO	TL-SW-4_100800_SO_DC	TL-SW-5_100800_SO	TL-SW-6_100800_SO	TL-SW-7_100800_SO	TL-SW-8_100800_SO
Conventional						
Moisture (%)						
Total Organic Carbon (mg/kg)						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-SW-3_100800_SO	TL-SW-4_100800_SO_DC	TL-SW-5_100800_SO	TL-SW-6_100800_SO	TL-SW-7_100800_SO	TL-SW-8_100800_SO
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene						
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	100 U	100 U	140
Indeno(1,2,3-cd)pyrene						
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	140
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total TPH	100 U	100 U	100 U	100 U	100 U	140
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-SW-3_100800_SO	TL-SW-4_100800_SO_DC	TL-SW-5_100800_SO	TL-SW-6_100800_SO	TL-SW-7_100800_SO	TL-SW-8_100800_SO
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TL-SW-3_100800_SO	TL-SW-4_100800_SO_DC	TL-SW-5_100800_SO	TL-SW-6_100800_SO	TL-SW-7_100800_SO	TL-SW-8_100800_SO
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-TL-SB1-8-9_111298(8.0-9.0)_SO	WW-TL-SB12-13-14.5_111898(13.0-14.5)_SO	WW-TL-SB13-13-13.9_111898(13.0-13.9)_SO	WW-TL-SB17-13-14_111998(13.0-14.0)_SO	WW-TL-SB18-13-13.75_111998(13.0-13.8)_SO	
Conventional						
Moisture (%)						
Total Organic Carbon (mg/kg)						
Northwest EPH (mg/kg)						
C10-C12 Aliphatics						
C10-C12 Aromatics						
C12-C16 Aliphatics						
C12-C16 Aromatics						
C16-C21 Aliphatics						
C16-C21 Aromatics						
C21-C34 Aliphatics						
C21-C34 Aromatics						
C8-C10 Aliphatics						
C8-C10 Aromatics						
Northwest VPH (mg/kg)						
Aliphatic C10-C12						
Aliphatic C5-C6						
Aliphatic C6-C8						
Aliphatic C8-C10						
Aromatic C10-C12						
Aromatic C12-C13						
Aromatic C8-C10						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-TL-SB1-8-9_111298(8.0-9.0)_SO	WW-TL-SB12-13-14.5_111898(13.0-14.5)_SO	WW-TL-SB13-13-13.9_111898(13.0-13.9)_SO	WW-TL-SB17-13-14_111998(13.0-14.0)_SO	WW-TL-SB18-13-13.75_111998(13.0-13.8)_SO	
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U	
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Total TPH	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-TL-SB1-8-9_111298(8.0-9.0)_SO	WW-TL-SB12-13-14.5_111898(13.0-14.5)_SO	WW-TL-SB13-13-13.9_111898(13.0-13.9)_SO	WW-TL-SB17-13-14_111998(13.0-14.0)_SO	WW-TL-SB18-13-13.75_111998(13.0-13.8)_SO	
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						

Table A.1.19
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-TL-SB1-8-9_111298(8.0-9.0)_SO	WW-TL-SB12-13-14.5_111898(13.0-14.5)_SO	WW-TL-SB13-13-13.9_111898(13.0-13.9)_SO	WW-TL-SB17-13-14_111998(13.0-14.0)_SO	WW-TL-SB18-13-13.75_111998(13.0-13.8)_SO	
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-27/S-1_112596(2.5-4.0)_SO	B-27/S-3_112596(7.5-9.0)_SO	B-27/S-5_112596(12.5-14.0)_SO	CS-10_111306(3.0-8.0)_SO	CS-11_111306(3.0-8.0)_SO	CS-12_111306(3.0-8.0)_SO
Conventional (%)						
Moisture				4.50	5.40	7.40
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	50.0 U	50.0 U	50.0 U	100 U	100 U	100 U

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-27/S-1_112596(2.5-4.0)_SO	B-27/S-3_112596(7.5-9.0)_SO	B-27/S-5_112596(12.5-14.0)_SO	CS-10_111306(3.0-8.0)_SO	CS-11_111306(3.0-8.0)_SO	CS-12_111306(3.0-8.0)_SO
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	20.0 U	20.0 U	20.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	30.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	50.0 U	50.0 U	50.0 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	20.0 U	20.0 U	20.0 U
Total TPH	50.0 U	50.0 U	50.0 U			
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-27/S-1_112596(2.5-4.0)_SO	B-27/S-3_112596(7.5-9.0)_SO	B-27/S-5_112596(12.5-14.0)_SO	CS-10_111306(3.0-8.0)_SO	CS-11_111306(3.0-8.0)_SO	CS-12_111306(3.0-8.0)_SO
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-27/S-1_112596(2.5-4.0)_SO	B-27/S-3_112596(7.5-9.0)_SO	B-27/S-5_112596(12.5-14.0)_SO	CS-10_111306(3.0-8.0)_SO	CS-11_111306(3.0-8.0)_SO	CS-12_111306(3.0-8.0)_SO
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	B-27/S-1_112596(2.5-4.0)_SO	B-27/S-3_112596(7.5-9.0)_SO	B-27/S-5_112596(12.5-14.0)_SO	CS-10_111306(3.0-8.0)_SO	CS-11_111306(3.0-8.0)_SO	CS-12_111306(3.0-8.0)_SO
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-1_110706(3.0-8.0)_SO	CS-2_110706(3.0-8.0)_SO	CS-3_110806(3.0-8.0)_SO	CS-4_110806(3.0-8.0)_SO	CS-5_110806(3.0-8.0)_SO	CS-6_110806(3.0-8.0)_SO
Conventional (%)						
Moisture	7.20	3.40	12.0	2.90	4.00	3.10
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents (mg/kg)						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene						
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-1_110706(3.0-8.0)_SO	CS-2_110706(3.0-8.0)_SO	CS-3_110806(3.0-8.0)_SO	CS-4_110806(3.0-8.0)_SO	CS-5_110806(3.0-8.0)_SO	CS-6_110806(3.0-8.0)_SO
Indeno(1,2,3-cd)pyrene						
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total TPH						
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol						
Acenaphthene						
Acenaphthylene						
Aniline						
Anthracene						
Benzoic Acid						
Benzyl Alcohol						
Bis(2-Chloroethoxy)methane						
Bis(2-chloroisopropyl)Ether						
Bis(2-ethylhexyl)Phthalate (DEHP)						
Bis(Chloroethyl)ether						
Bromobenzene						
Bromodiphenyl ether, 4-						
Butyl Benzyl Phthalate, N-						
Chloro-3-methylphenol, 4-						
Chloroaniline, 4-						
Chloronaphthalene, 2-						
Chlorophenol, 2-						
Chlorophenyl-phenyl ether, 4-						
Di-n-Octylphthalate						

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-1_110706(3.0-8.0)_SO	CS-2_110706(3.0-8.0)_SO	CS-3_110806(3.0-8.0)_SO	CS-4_110806(3.0-8.0)_SO	CS-5_110806(3.0-8.0)_SO	CS-6_110806(3.0-8.0)_SO
Dibenzofuran						
Dibutyl Phthalate						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Dichlorobenzidine, 3,3'						
Dichlorophenol, 2,4-						
Diethyl Phthalate						
Dimethyl Phthalate						
Dimethylphenol, 2,4-						
Dinitro-o-Cresol, 4,6-						
Dinitrophenol, 2,4-						
Dinitrotoluene, 2,4-						
Dinitrotoluene, 2,6-						
Fluoranthene						
Fluorene						
Hexachlorobenzene						
Hexachlorobutadiene						
Hexachlorocyclopentadiene						
Hexachloroethane						
Isophorone						
Isopropyltoluene						
Methylphenol, 2-						
Methylphenol, 4-						
Nitroaniline, 2-						
Nitroaniline, 3-						
Nitroaniline, 4-						
Nitrobenzene						
Nitrophenol, 4-						
Nitrosodi-N-propylamine, N-						
Nitrosodimethylamine, N-						
Nitrosodiphenylamine, N-						
Pentachlorophenol						
Phenanthrene						
Phenol						
Pyrene						
Trichlorobenzene, 1,2,4-						
Trichlorophenol, 2,4,5-						

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-1_110706(3.0-8.0)_SO	CS-2_110706(3.0-8.0)_SO	CS-3_110806(3.0-8.0)_SO	CS-4_110806(3.0-8.0)_SO	CS-5_110806(3.0-8.0)_SO	CS-6_110806(3.0-8.0)_SO
Trichlorophenol, 2,4,6-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-1_110706(3.0-8.0)_SO	CS-2_110706(3.0-8.0)_SO	CS-3_110806(3.0-8.0)_SO	CS-4_110806(3.0-8.0)_SO	CS-5_110806(3.0-8.0)_SO	CS-6_110806(3.0-8.0)_SO
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methyl Tertiary Butyl Ether						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-7_110906(3.0-8.0)_SO	CS-8_111306(3.0-8.0)_SO	CS-9_111306(3.0-8.0)_SO	OR-WWT-S-A_012705(7.0)_SO	TL-3_052704(8.0)_SO	TL-4_052704(8.0)_SO
Conventional (%)						
Moisture	5.20	5.90	3.20			
Metals (mg/kg)						
Arsenic (inorganic)					4.10	4.50
Barium					53.7	195
Cadmium					0.900 U	0.900 U
Chromium					7.10	16.9
Lead (inorganic)					17.0 U	24.0
Mercury (inorganic)					0.0200	0.0300
Selenium (and compounds)					2.20 U	2.20 U
Silver					1.70 U	1.80 U
PCBs (mg/kg)						
Aroclor 1016					0.0790 U	0.0800 U
Aroclor 1221					0.160 U	0.160 U
Aroclor 1232					0.0790 U	0.0800 U
Aroclor 1242					0.0790 U	0.0800 U
Aroclor 1248					0.0790 U	0.0800 U
Aroclor 1254					0.0790 U	0.0800 U
Aroclor 1260					0.0790 U	0.0800 U
Total PCBs					0.0790 U	0.0800 U
Petroleum-Related Constituents (mg/kg)						
Benzene				0.0500 U	0.00540 U	0.00540 U
Benzo(a)anthracene					0.310 U	0.310 U
Benzo(a)pyrene					3.10 U	0.310 U
Benzo(b)fluoranthene					3.10 U	0.310 U
Benzo(g,h,i)perylene					3.10 U	0.310 U
Benzo(k)fluoranthene					3.10 U	0.310 U
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U		
CPAH TEQ					4.40 U	0.468 U
Chrysene					0.310 U	0.310 U
Dibenz(a,h)anthracene					3.10 U	0.310 U
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	4100	43.0
Ethyl Benzene				0.0500 U	0.00540 U	0.00540 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U		
Heavy Oil	100 U	100 U	100 U	280	6900	190

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-7_110906(3.0-8.0)_SO	CS-8_111306(3.0-8.0)_SO	CS-9_111306(3.0-8.0)_SO	OR-WWT-S-A_012705(7.0)_SO	TL-3_052704(8.0)_SO	TL-4_052704(8.0)_SO
Indeno(1,2,3-cd)pyrene					3.10 U	0.310 U
Kensol	20.0 U	20.0 U	20.0 U	20.0 U		
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U		
Methylnaphthalene, 2-					0.310 U	0.310 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U		
Naphthalene				0.0500 U	0.0220 U	0.0220 U
Toluene				0.0500 U	0.00540 U	0.00540 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	4100	43.0
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U		
Total Heavy Oil	100 U	100 U	100 U	280	6900	190
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U		
Total Naphthalene				0.0500 U	0.0220 U	0.0220 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U		
Total TPH						
Total Xylenes				0.0500 U	0.0108 U	0.0108 U
Xylenes				0.0500 U	0.00540 U	0.00540 U
Semi-Volatile Organic Constituents (mg/kg)						
2-Nitrophenol					0.310 U	0.310 U
Acenaphthene					0.310 U	0.310 U
Acenaphthylene					0.310 U	0.310 U
Aniline					0.930 U	0.930 U
Anthracene					0.310 U	0.310 U
Benzoic Acid					1.90 U	1.90 U
Benzyl Alcohol					0.310 U	0.310 U
Bis(2-Chloroethoxy)methane					0.310 U	0.310 U
Bis(2-chloroisopropyl)Ether					0.310 U	0.310 U
Bis(2-ethylhexyl)Phthalate (DEHP)					2.90	0.310 U
Bis(Chloroethyl)ether					0.310 U	0.310 U
Bromobenzene				0.0500 U	0.00540 U	0.00540 U
Bromodiphenyl ether, 4-					0.310 U	0.310 U
Butyl Benzyl Phthalate, N-					0.310 U	0.310 U
Chloro-3-methylphenol, 4-					0.310 U	0.310 U
Chloroaniline, 4-					0.310 U	0.310 U
Chloronaphthalene, 2-					0.310 U	0.310 U
Chlorophenol, 2-					0.310 U	0.310 U
Chlorophenyl-phenyl ether, 4-					0.310 U	0.310 U
Di-n-Octylphthalate					3.10 U	0.310 U

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-7_110906(3.0-8.0)_SO	CS-8_111306(3.0-8.0)_SO	CS-9_111306(3.0-8.0)_SO	OR-WWT-S-A_012705(7.0)_SO	TL-3_052704(8.0)_SO	TL-4_052704(8.0)_SO
Dibenzofuran					0.310 U	0.310 U
Dibutyl Phthalate					0.310 U	0.310 U
Dichlorobenzene, 1,2-				0.0500 U	0.00540 U	0.00540 U
Dichlorobenzene, 1,3-				0.0500 U	0.00540 U	0.00540 U
Dichlorobenzidine, 3,3'					1.90 U	1.90 U
Dichlorophenol, 2,4-					0.310 U	0.310 U
Diethyl Phthalate					0.310 U	0.310 U
Dimethyl Phthalate					0.390	0.310 U
Dimethylphenol, 2,4-					0.310 U	0.310 U
Dinitro-o-Cresol, 4,6-					1.90 U	1.90 U
Dinitrophenol, 2,4-					1.90 U	1.90 U
Dinitrotoluene, 2,4-					0.310 U	0.310 U
Dinitrotoluene, 2,6-					0.310 U	0.310 U
Fluoranthene					0.310 U	0.310 U
Fluorene					0.310 U	0.310 U
Hexachlorobenzene					0.310 U	0.310 U
Hexachlorobutadiene				0.0500 U	0.0220 U	0.0220 U
Hexachlorocyclopentadiene					0.310 U	0.310 U
Hexachloroethane					0.310 U	0.310 U
Isophorone					0.310 U	0.310 U
Isopropyltoluene				0.0500 U		
Methylphenol, 2-					0.310 U	0.310 U
Methylphenol, 4-					0.310 U	0.310 U
Nitroaniline, 2-					1.90 U	1.90 U
Nitroaniline, 3-					1.90 U	1.90 U
Nitroaniline, 4-					1.90 U	1.90 U
Nitrobenzene					0.310 U	0.310 U
Nitrophenol, 4-					1.90 U	1.90 U
Nitrosodi-N-propylamine, N-					0.310 U	0.310 U
Nitrosodimethylamine, N-					1.90 U	1.90 U
Nitrosodiphenylamine, N-					0.310 U	0.310 U
Pentachlorophenol					1.90 U	1.90 U
Phenanthrene					0.310 U	0.310 U
Phenol					0.310 U	0.310 U
Pyrene					0.310 U	0.310 U
Trichlorobenzene, 1,2,4-				0.0500 U	0.0220 U	0.0220 U
Trichlorophenol, 2,4,5-					0.310 U	0.310 U

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-7_110906(3.0-8.0)_SO	CS-8_111306(3.0-8.0)_SO	CS-9_111306(3.0-8.0)_SO	OR-WWT-S-A_012705(7.0)_SO	TL-3_052704(8.0)_SO	TL-4_052704(8.0)_SO
Trichlorophenol, 2,4,6-					0.310 U	0.310 U
o-Xylene					0.00540 U	0.00540 U
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene				0.0500 U	0.00540 U	0.00540 U
1,2,3-trichlorobenzene				0.0500 U	0.0220 U	0.0220 U
1,2,4-Trimethylbenzene				0.0500 U	0.0220 U	0.0220 U
1,3,5-Trimethylbenzene				0.0500 U	0.0220 U	0.0220 U
1,3-dichloropropane				0.0500 U	0.00540 U	0.00540 U
1-Phenylpropane				0.0500 U	0.0220 U	0.0220 U
2,2-dichloropropane				0.0500 U	0.00540 U	0.00540 U
2-chlorotoluene				0.0500 U	0.0220 U	0.0220 U
4-chlorotoluene				0.0500 U	0.0220 U	0.0220 U
4-isopropyltoluene					0.0220 U	0.0220 U
Acetone					0.0220 U	0.0220 U
Bromochloromethane					0.00540 U	0.00540 U
Bromodichloromethane				0.0500 U	0.00540 U	0.00540 U
Bromoform				0.0500 U	0.00540 U	0.00540 U
Bromomethane				0.0500 U	0.00540 U	0.00540 U
CFC-11				0.0500 U	0.00540 U	0.00540 U
CFC-12				0.0500 U	0.00540 U	0.00540 U
Carbon Disulfide					0.00540 U	0.00540 U
Carbon Tetrachloride				0.0500 U	0.00540 U	0.00540 U
Chlorobenzene				0.0500 U	0.00540 U	0.00540 U
Chloroform				0.0500 U	0.00540 U	0.00540 U
Chloromethane				0.0500 U	0.00540 U	0.00540 U
Cumene				0.0500 U	0.0220 U	0.0220 U
Dibromo-3-chloropropane, 1,2-				0.0500 U	0.0220 U	0.0220 U
Dibromochloromethane				0.0200 U	0.00540 U	0.00540 U
Dibromoethane, 1,2-				0.00500 U	0.0220 U	0.0220 U
Dichlorobenzene, 1,4-				0.0500 U	0.00540 U	0.00540 U
Dichloroethane, 1,1-				0.0500 U	0.00540 U	0.00540 U
Dichloroethane, 1,2-				0.0200 U	0.00540 U	0.00540 U
Dichloroethene, 1,1-				0.0500 U	0.00540 U	0.00540 U
Dichloroethylene, Cis-1,2-				0.0500 U	0.00540 U	0.00540 U
Dichloroethylene, Trans-1,2-				0.0500 U	0.00540 U	0.00540 U
Dichloromethane				0.0200 U	0.0110 U	0.0110 U
Dichloropropane, 1,2-				0.0500 U	0.00540 U	0.00540 U

Table A.1.20
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-7_110906(3.0-8.0)_SO	CS-8_111306(3.0-8.0)_SO	CS-9_111306(3.0-8.0)_SO	OR-WWT-S-A_012705(7.0)_SO	TL-3_052704(8.0)_SO	TL-4_052704(8.0)_SO
Dichloropropene, Cis-1,3-				0.0500 U	0.00540 U	0.00540 U
Dichloropropene, Trans-1,3-				0.0500 U	0.00540 U	0.00540 U
Ethyl Chloride				0.0500 U	0.00540 U	0.00540 U
Hexanone, 2-					0.0220 U	0.0220 U
Methyl Ethyl Ketone					0.0220 U	0.0220 U
Methyl Isobutyl Ketone					0.0220 U	0.0220 U
Methyl Tertiary Butyl Ether				0.100 U		
Methylene Bromide				0.0500 U	0.00540 U	0.00540 U
Styrene				0.0500 U	0.00540 U	0.00540 U
Tert-butylbenzene				0.0500 U	0.0220 U	0.0220 U
Tetrachloroethane, 1,1,1,2-				0.0500 U	0.00540 U	0.00540 U
Tetrachloroethane, 1,1,2,2-				0.0500 U	0.00540 U	0.00540 U
Tetrachloroethylene				0.0500 U	0.00540 U	0.00540 U
Trichloroethane, 1,1,1-				0.0500 U	0.00540 U	0.00540 U
Trichloroethane, 1,1,2-				0.0500 U	0.00540 U	0.00540 U
Trichloroethylene				0.0200 U	0.00540 U	0.00540 U
Trichloropropane, 1,2,3-				0.0500 U	0.00540 U	0.00540 U
Vinyl Chloride				0.0500 U	0.00540 U	0.00540 U
n-Butylbenzene				0.0500 U	0.0220 U	0.0220 U
sec-Butylbenzene				0.0500 U	0.0220 U	0.0220 U

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-1-B1_040408(10.0)_SO_DC	RCU-TP-1-SW-1_040408(2.0-3.0)_SO_DC	RCU-TP-1-SW-2_040408(5.0-6.0)_SO_DC	RCU-TP-1-SW-3_040408(9.0-10.0)_SO_DC	RCU-TP-3-B1_040408(10.0)_SO_DC	RCU-TP-3-SW-1_040408(2.0-3.0)_SO
Conventional (%)						
Moisture						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016	0.00950 U				0.0100 U	
Aroclor 1221	0.0190 U				0.0200 U	
Aroclor 1232	0.00950 U				0.0100 U	
Aroclor 1242	0.00950 U				0.0100 U	
Aroclor 1248	0.00950 U				0.0100 U	
Aroclor 1254	0.00950 U				0.0100 U	
Aroclor 1260	0.00950 U				0.0100 U	
Total PCBs	0.00950 U				0.0100 U	
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene	0.00430 U				0.00550 U	
Benzo(a)anthracene	0.000320 U				0.000320 U	
Benzo(a)pyrene	0.000320 U				0.000320 U	
Benzo(b)fluoranthene	0.000320 U				0.000320 U	
Benzo(g,h,i)perylene	0.000320 U				0.000320 U	
Benzo(k)fluoranthene	0.000320 U				0.000320 U	
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ	0.000483 U				0.000483 U	
Chrysene	0.000320 U				0.000320 U	
Dibenz(a,h)anthracene	0.000320 U				0.000320 U	
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene	0.000345				0.000350 T	
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-1-B1_040408(10.0)_SO_DC	RCU-TP-1-SW-1_040408(2.0-3.0)_SO_DC	RCU-TP-1-SW-2_040408(5.0-6.0)_SO_DC	RCU-TP-1-SW-3_040408(9.0-10.0)_SO_DC	RCU-TP-3-B1_040408(10.0)_SO_DC	RCU-TP-3-SW-1_040408(2.0-3.0)_SO
Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene	0.000320 U				0.000320 U	
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-	0.000320 U				0.000320 U	
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene	0.000320 U				0.000320 U	
Toluene	0.00260				0.00240 T	
Total Diesel/Fuel Oil	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene	0.000320 U				0.000320 U	
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH						
Total Xylenes	0.00131				0.00137	
Xylenes	0.00105				0.00110 T	
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene	0.000320 U				0.000320 U	
Acenaphthylene	0.000320 U				0.000320 U	
Anthracene	0.000320 U				0.000320 U	
Bromobenzene	0.00430 U				0.00550 U	
Dibenzofuran	0.000320 U				0.000320 U	
Dichlorobenzene, 1,2-	0.00430 U				0.00550 U	
Dichlorobenzene, 1,3-	0.00430 U				0.00550 U	
Fluoranthene	0.0000160 T				0.000320 U	
Fluorene	0.000320 U				0.000320 U	
Hexachlorobutadiene	0.0180 U				0.0220 U	
Phenanthrene	0.000320 U				0.000320 U	
Pyrene	0.000320 U				0.000320 U	
Trichlorobenzene, 1,2,4-	0.0180 U				0.0220 U	
o-Xylene	0.000265				0.000270 T	
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00430 U				0.00550 U	
1,2,3-trichlorobenzene	0.0180 U				0.0220 U	
1,2,4-Trimethylbenzene	0.0000860 T				0.0220 U	

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-1-B1_040408(10.0)_SO_DC	RCU-TP-1-SW-1_040408(2.0-3.0)_SO_DC	RCU-TP-1-SW-2_040408(5.0-6.0)_SO_DC	RCU-TP-1-SW-3_040408(9.0-10.0)_SO_DC	RCU-TP-3-B1_040408(10.0)_SO_DC	RCU-TP-3-SW-1_040408(2.0-3.0)_SO
1,3,5-Trimethylbenzene	0.0180 U				0.0220 U	
1,3-dichloropropane	0.00430 U				0.00550 U	
1-Phenylpropane	0.0180 U				0.0220 U	
2,2-dichloropropane	0.00430 U				0.00550 U	
2-chlorotoluene	0.0180 U				0.0220 U	
4-chlorotoluene	0.0180 U				0.0220 U	
4-isopropyltoluene	0.0180 U				0.0220 U	
Acetone	0.00595				0.0330	
Bromochloromethane	0.00430 U				0.00550 U	
Bromodichloromethane	0.00430 U				0.00550 U	
Bromoform	0.00430 U				0.00550 U	
Bromomethane	0.00430 U				0.00550 U	
CFC-11	0.00430 U				0.00550 U	
CFC-12	0.00430 U				0.00550 U	
Carbon Disulfide	0.000810				0.000240 T	
Carbon Tetrachloride	0.00430 U				0.00550 U	
Chlorobenzene	0.00430 U				0.00550 U	
Chloroform	0.00430 U				0.00550 U	
Chloromethane	0.00430 U				0.00550 U	
Cumene	0.0180 U				0.0220 U	
Dibromo-3-chloropropane, 1,2-	0.0180 U				0.0220 U	
Dibromochloromethane	0.00430 U				0.00550 U	
Dibromoethane, 1,2-	0.0180 U				0.0220 U	
Dichlorobenzene, 1,4-	0.00430 U				0.00550 U	
Dichloroethane, 1,1-	0.00430 U				0.00550 U	
Dichloroethane, 1,2-	0.00430 U				0.00550 U	
Dichloroethene, 1,1-	0.00430 U				0.00550 U	
Dichloroethylene, Cis-1,2-	0.00430 U				0.00550 U	
Dichloroethylene, Trans-1,2-	0.00430 U				0.00550 U	
Dichloromethane	0.00860 U				0.0110 U	
Dichloropropane, 1,2-	0.00430 U				0.00550 U	
Dichloropropene, Cis-1,3-	0.00430 U				0.00550 U	
Dichloropropene, Trans-1,3-	0.00430 U				0.00550 U	
Ethyl Chloride	0.00430 U				0.00550 U	
Hexanone, 2-	0.0180 U				0.0220 U	
Methyl Ethyl Ketone	0.0180 U				0.00390 T	
Methyl Isobutyl Ketone	0.0180 U				0.0220 U	

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-1-B1_040408(10.0)_SO_DC	RCU-TP-1-SW-1_040408(2.0-3.0)_SO_DC	RCU-TP-1-SW-2_040408(5.0-6.0)_SO_DC	RCU-TP-1-SW-3_040408(9.0-10.0)_SO_DC	RCU-TP-3-B1_040408(10.0)_SO_DC	RCU-TP-3-SW-1_040408(2.0-3.0)_SO
Methylene Bromide	0.00430 U				0.00550 U	
Styrene	0.000140 T				0.00550 U	
Tert-butylbenzene	0.0180 U				0.0220 U	
Tetrachloroethane, 1,1,1,2-	0.00430 U				0.00550 U	
Tetrachloroethane, 1,1,2,2-	0.00430 U				0.00550 U	
Tetrachloroethylene	0.00108				0.00100 T	
Trichloroethane, 1,1,1-	0.000190 T				0.00550 U	
Trichloroethane, 1,1,2-	0.00430 U				0.00550 U	
Trichloroethylene	0.000325				0.000260 T	
Trichloropropane, 1,2,3-	0.00430 U				0.00550 U	
Vinyl Chloride	0.00430 U				0.00550 U	
n-Butylbenzene	0.0180 U				0.0220 U	
sec-Butylbenzene	0.0180 U				0.0220 U	

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-3-SW-2_040408(5.0-6.0)_SO	RCU-TP-3-SW-3_040408(9.0-10.0)_SO	RCU-TP-FL-B-1_040408(4.0)_SO_DC	RCU-TP-FL-SW-1_040408(1.0-2.0)_SO	RCU-TP-FL-SW-2_040408(1.0-2.0)_SO	RU1-S2_110196(12.5-12.9)_SO
Conventional (%)						
Moisture				13.0	16.0	
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016			0.00910 U			
Aroclor 1221			0.0190 U			
Aroclor 1232			0.00910 U			
Aroclor 1242			0.00910 U			
Aroclor 1248			0.00910 U			
Aroclor 1254			0.00910 U			
Aroclor 1260			0.00910 U			
Total PCBs			0.00910 U			
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene			0.00110 T			0.0500 U
Benzo(a)anthracene			0.000330 U			
Benzo(a)pyrene			0.000330 U			
Benzo(b)fluoranthene			0.000330 U			
Benzo(g,h,i)perylene			0.000330 U			
Benzo(k)fluoranthene			0.000330 U			
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ			0.000498 U			
Chrysene			0.000330 U			
Dibenz(a,h)anthracene			0.000330 U			
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	7400	360
Ethyl Benzene			0.000770 T			0.0500 U
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.0 U

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-3-SW-2_040408(5.0-6.0)_SO	RCU-TP-3-SW-3_040408(9.0-10.0)_SO	RCU-TP-FL-B-1_040408(4.0)_SO_DC	RCU-TP-FL-SW-1_040408(1.0-2.0)_SO	RCU-TP-FL-SW-2_040408(1.0-2.0)_SO	RU1-S2_110196(12.5-12.9)_SO
Heavy Oil	50.0 U	50.0 U	50.0 U	1300	9700	170
Indeno(1,2,3-cd)pyrene			0.000330 U			
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	10.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	10.0 U
Methylnaphthalene, 2-			0.000330 U			
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.0 U
Naphthalene			0.000330 U			
Toluene			0.00410 T			0.0500 U
Total Diesel/Fuel Oil	40.0 U	40.0 U	40.0 U	40.0 U	7410	365
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.0 U
Total Heavy Oil	50.0 U	50.0 U	50.0 U	1300	9700	170
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	10.0 U
Total Naphthalene			0.000330 U			
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	10.0 U
Total TPH						530
Total Xylenes			0.00236			0.0500 U
Xylenes			0.00180 T			0.0500 U
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene			0.000330 U			
Acenaphthylene			0.000330 U			
Anthracene			0.000340 U			
Bromobenzene			0.00550 U			0.250 U
Dibenzofuran			0.000330 U			
Dichlorobenzene, 1,2-			0.00550 U			0.0500 U
Dichlorobenzene, 1,3-			0.00550 U			0.0500 U
Fluoranthene			0.000340 U			
Fluorene			0.000330 U			
Hexachlorobutadiene			0.0220 U			
Phenanthrene			0.000340 U			
Pyrene			0.000340 U			
Trichlorobenzene, 1,2,4-			0.0220 U			
o-Xylene			0.000560 T			
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene			0.00550 U			
1,2,3-trichlorobenzene			0.0220 U			
1,2,4-Trimethylbenzene			0.000350 T			

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-3-SW-2_040408(5.0-6.0)_SO	RCU-TP-3-SW-3_040408(9.0-10.0)_SO	RCU-TP-FL-B-1_040408(4.0)_SO_DC	RCU-TP-FL-SW-1_040408(1.0-2.0)_SO	RCU-TP-FL-SW-2_040408(1.0-2.0)_SO	RU1-S2_110196(12.5-12.9)_SO
1,3,5-Trimethylbenzene			0.000130 T			
1,3-dichloropropane			0.00550 U			
1-Phenylpropane			0.0220 U			
2,2-dichloropropane			0.00550 U			
2-chlorotoluene			0.0220 U			
4-chlorotoluene			0.0220 U			
4-isopropyltoluene			0.0220 U			
Acetone			0.0270			
Bromochloromethane			0.00550 U			
Bromodichloromethane			0.00550 U			0.250 U
Bromoform			0.00550 U			0.250 U
Bromomethane			0.00550 U			0.250 U
CFC-11			0.00550 U			
CFC-12			0.00550 U			
Carbon Disulfide			0.000240 T			
Carbon Tetrachloride			0.00550 U			0.0500 U
Chlorobenzene			0.00550 U			0.0500 U
Chloroform			0.00550 U			0.0500 U
Chloromethane			0.00550 U			0.250 U
Cumene			0.0220 U			
Dibromo-3-chloropropane, 1,2-			0.0220 U			
Dibromochloromethane			0.00550 U			0.250 U
Dibromoethane, 1,2-			0.0220 U			
Dichlorobenzene, 1,4-			0.00550 U			0.0500 U
Dichloroethane, 1,1-			0.00550 U			0.250 U
Dichloroethane, 1,2-			0.00550 U			0.250 U
Dichloroethene, 1,1-			0.00550 U			0.250 U
Dichloroethylene, Cis-1,2-			0.00550 U			0.250 U
Dichloroethylene, Trans-1,2-			0.00550 U			0.250 U
Dichloromethane			0.0110 U			0.250 U
Dichloropropane, 1,2-			0.00550 U			0.250 U
Dichloropropene, Cis-1,3-			0.00550 U			0.250 U
Dichloropropene, Trans-1,3-			0.00550 U			0.250 U
Ethyl Chloride			0.00550 U			0.250 U
Hexanone, 2-			0.0220 U			
Methyl Ethyl Ketone			0.00440 T			
Methyl Isobutyl Ketone			0.0220 U			

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-3-SW-2_040408(5.0-6.0)_SO	RCU-TP-3-SW-3_040408(9.0-10.0)_SO	RCU-TP-FL-B-1_040408(4.0)_SO_DC	RCU-TP-FL-SW-1_040408(1.0-2.0)_SO	RCU-TP-FL-SW-2_040408(1.0-2.0)_SO	RU1-S2_110196(12.5-12.9)_SO
Methylene Bromide			0.00550 U			0.250 U
Styrene			0.0000980 T			
Tert-butylbenzene			0.0220 U			
Tetrachloroethane, 1,1,1,2-			0.00550 U			0.250 U
Tetrachloroethane, 1,1,2,2-			0.00550 U			0.250 U
Tetrachloroethylene			0.000840 T			0.0500 U
Trichloroethane, 1,1,1-			0.00550 U			0.0500 U
Trichloroethane, 1,1,2-			0.00550 U			0.0500 U
Trichloroethylene			0.000240 T			0.0500 U
Trichloropropane, 1,2,3-			0.00550 U			0.250 U
Vinyl Chloride			0.00550 U			0.250 U
n-Butylbenzene			0.0220 U			
sec-Butylbenzene			0.0220 U			

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RU2-S1_110196(7.5-9.0)_SO	RU3-S1_110196(2.5-4.0)_SO	RU3-S2_110196(5.0-6.5)_SO	RU3-S3_110196(7.5-9.0)_SO	TP1-S1_100896(2.0-3.0)_SO	TP10-S1_100896(0.5-1.0)_SO
Conventional (%)						
Moisture						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel	150	68.0	39.0	29.0	20.0 U	410
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RU2-S1_110196(7.5-9.0)_SO	RU3-S1_110196(2.5-4.0)_SO	RU3-S2_110196(5.0-6.5)_SO	RU3-S3_110196(7.5-9.0)_SO	TP1-S1_100896(2.0-3.0)_SO	TP10-S1_100896(0.5-1.0)_SO
Heavy Oil	820	99.0	50.0 U	53.0	510	1600
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	155	73.0	44.0	34.0	30.0 U	415
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	820	99.0	50.0 U	53.0	510	1600
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	970	167	39.0	82.0	510	2010
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RU2-S1_110196(7.5-9.0)_SO	RU3-S1_110196(2.5-4.0)_SO	RU3-S2_110196(5.0-6.5)_SO	RU3-S3_110196(7.5-9.0)_SO	TP1-S1_100896(2.0-3.0)_SO	TP10-S1_100896(0.5-1.0)_SO
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RU2-S1_110196(7.5-9.0)_SO	RU3-S1_110196(2.5-4.0)_SO	RU3-S2_110196(5.0-6.5)_SO	RU3-S3_110196(7.5-9.0)_SO	TP1-S1_100896(2.0-3.0)_SO	TP10-S1_100896(0.5-1.0)_SO
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP10-S2_100896(3.5-4.0)_SO	TP12-S1_100896(1.0-2.0)_SO	TP14-S1_101096(0.5-1.0)_SO	TP14-S2_101096(4.0-4.5)_SO	TP15-S2_101096(4.0-4.5)_SO	TP16-S1_101096(0.5-1.0)_SO
Conventional (%)						
Moisture						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP10-S2_100896(3.5-4.0)_SO	TP12-S1_100896(1.0-2.0)_SO	TP14-S1_101096(0.5-1.0)_SO	TP14-S2_101096(4.0-4.5)_SO	TP15-S2_101096(4.0-4.5)_SO	TP16-S1_101096(0.5-1.0)_SO
Heavy Oil	50.0 U	280	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	50.0 U	280	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	50.0 U	280	50.0 U	50.0 U	50.0 U	50.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP10-S2_100896(3.5-4.0)_SO	TP12-S1_100896(1.0-2.0)_SO	TP14-S1_101096(0.5-1.0)_SO	TP14-S2_101096(4.0-4.5)_SO	TP15-S2_101096(4.0-4.5)_SO	TP16-S1_101096(0.5-1.0)_SO
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP10-S2_100896(3.5-4.0)_SO	TP12-S1_100896(1.0-2.0)_SO	TP14-S1_101096(0.5-1.0)_SO	TP14-S2_101096(4.0-4.5)_SO	TP15-S2_101096(4.0-4.5)_SO	TP16-S1_101096(0.5-1.0)_SO
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP18-S1_101096(1.0-2.0)_SO	TP19-S2_101096(3.0-3.5)_SO	TP2-S1_100896(0.5-1.0)_SO	TP2-S2_100896(4.0-4.5)_SO	TP2A-S1_100896(0.5-1.0)_SO	TP3-S1_100896(2.0-2.5)_SO
Conventional (%)						
Moisture						
Metals (mg/kg)						
Arsenic (inorganic)					6.60	
Barium					82.0	
Cadmium					0.280	
Chromium					9.90	
Lead (inorganic)					13.0	
Mercury (inorganic)					0.110 U	
Selenium (and compounds)					0.280 U	
Silver					0.550 U	
PCBs (mg/kg)						
Aroclor 1016					0.200 U	
Aroclor 1221					0.500 U	
Aroclor 1232					0.500 U	
Aroclor 1242					0.200 U	
Aroclor 1248					0.200 U	
Aroclor 1254					0.200 U	
Aroclor 1260					0.200 U	
Total PCBs					0.200 U	
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene					0.180 UJ	
Benzene						
Benzo(a)anthracene					0.0370 UJ	
Benzo(a)pyrene					0.730 J	
Benzo(b)fluoranthene					0.0740 UJ	
Benzo(g,h,i)perylene					0.540 J	
Benzo(k)fluoranthene					0.310 UJ	
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ					0.808	
Chrysene					5.10 J	
Dibenz(a,h)anthracene					0.0740 UJ	
Diesel	20.0 U	20.0 U	3600	20.0 U	510	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP18-S1_101096(1.0-2.0)_SO	TP19-S2_101096(3.0-3.5)_SO	TP2-S1_100896(0.5-1.0)_SO	TP2-S2_100896(4.0-4.5)_SO	TP2A-S1_100896(0.5-1.0)_SO	TP3-S1_100896(2.0-2.5)_SO
Heavy Oil	50.0 U	67.0	8700	300	4000	700
Indeno(1,2,3-cd)pyrene					0.0370 UJ	
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-					0.180 UJ	
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene					0.180 UJ	
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U	3610	30.0 U	515	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	50.0 U	67.0	8700	300	4000	700
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene					0.180 U	
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	50.0 U	67.0	12300	300	4510	700
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene					0.180 UJ	
Acenaphthylene					0.370 UJ	
Anthracene					0.0980 J	
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene					0.970 J	
Fluorene					0.0370 UJ	
Hexachlorobutadiene						
Phenanthrene					0.0400 J	
Pyrene					5.90 J	
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP18-S1_101096(1.0-2.0)_SO	TP19-S2_101096(3.0-3.5)_SO	TP2-S1_100896(0.5-1.0)_SO	TP2-S2_100896(4.0-4.5)_SO	TP2A-S1_100896(0.5-1.0)_SO	TP3-S1_100896(2.0-2.5)_SO
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP18-S1_101096(1.0-2.0)_SO	TP19-S2_101096(3.0-3.5)_SO	TP2-S1_100896(0.5-1.0)_SO	TP2-S2_100896(4.0-4.5)_SO	TP2A-S1_100896(0.5-1.0)_SO	TP3-S1_100896(2.0-2.5)_SO
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP4-S1_100896(1.5-2.0)_SO	TP5-S1_100896(2.0-3.0)_SO	TP5-S2_100896(7.5-8.5)_SO	TP6-S1_100896(2.0-3.0)_SO	TP7-S2_100896(8.5-9.5)_SO	TP8-S2_100896(4.0-4.5)_SO
Conventional (%)						
Moisture						
Metals (mg/kg)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents (mg/kg)						
1-Methylnaphthalene						
Benzene						
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	620	350	20.0 U	33.0	20.0 U
Ethyl Benzene						
Gasoline Range Organics	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP4-S1_100896(1.5-2.0)_SO	TP5-S1_100896(2.0-3.0)_SO	TP5-S2_100896(7.5-8.5)_SO	TP6-S1_100896(2.0-3.0)_SO	TP7-S2_100896(8.5-9.5)_SO	TP8-S2_100896(4.0-4.5)_SO
Heavy Oil	350	280	240	45.0 J	73.0	50.0 U
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene						
Toluene						
Total Diesel/Fuel Oil	30.0 U	625	355	30.0 U	38.0	30.0 U
Total Gasoline	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Heavy Oil	350	280	240	45.0	73.0	50.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Total TPH	350	900	590	45.0 J	106	50.0 U
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP4-S1_100896(1.5-2.0)_SO	TP5-S1_100896(2.0-3.0)_SO	TP5-S2_100896(7.5-8.5)_SO	TP6-S1_100896(2.0-3.0)_SO	TP7-S2_100896(8.5-9.5)_SO	TP8-S2_100896(4.0-4.5)_SO
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP4-S1_100896(1.5-2.0)_SO	TP5-S1_100896(2.0-3.0)_SO	TP5-S2_100896(7.5-8.5)_SO	TP6-S1_100896(2.0-3.0)_SO	TP7-S2_100896(8.5-9.5)_SO	TP8-S2_100896(4.0-4.5)_SO
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Sample ID:	TP9-S1_100896(0.5-1.0)_SO	TP9-S2_100896(3.5-4.5)_SO				
Conventional (%)							
Moisture							
Metals (mg/kg)							
Arsenic (inorganic)		5.20					
Barium		130					
Cadmium		0.280 U					
Chromium		10.0					
Lead (inorganic)		29.0					
Mercury (inorganic)		0.500					
Selenium (and compounds)		0.290 U					
Silver		0.280 U					
PCBs (mg/kg)							
Aroclor 1016		0.200 U					
Aroclor 1221		0.500 U					
Aroclor 1232		0.500 U					
Aroclor 1242		0.200 U					
Aroclor 1248		0.200 U					
Aroclor 1254		0.200 U					
Aroclor 1260		0.200 U					
Total PCBs		0.200 U					
Petroleum-Related Constituents (mg/kg)							
1-Methylnaphthalene		0.410 J					
Benzene							
Benzo(a)anthracene		0.210 J					
Benzo(a)pyrene		1.10 J					
Benzo(b)fluoranthene		0.230 J					
Benzo(g,h,i)perylene		0.840 J					
Benzo(k)fluoranthene		0.300 UJ					
Bunker C		50.0 U	50.0 U				
CPAH TEQ		1.20					
Chrysene		1.10 J					
Dibenz(a,h)anthracene		0.0760 UJ					
Diesel		20.0 U	20.0 U				
Ethyl Benzene							
Gasoline Range Organics		10.0 U	10.0 U				

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP9-S1_100896(0.5-1.0)_SO	TP9-S2_100896(3.5-4.5)_SO				
Heavy Oil	500	50.0 U				
Indeno(1,2,3-cd)pyrene	0.380 J					
Kensol	10.0 U	10.0 U				
Kerosene/Jet fuel	10.0 U	10.0 U				
Methylnaphthalene, 2-	0.980 J					
Mineral spirits/Stoddard	10.0 U	10.0 U				
Naphthalene	0.190 UJ					
Toluene						
Total Diesel/Fuel Oil	30.0 U	30.0 U				
Total Gasoline	10.0 U	10.0 U				
Total Heavy Oil	500	50.0 U				
Total Kerosene/Jet Fuel	10.0 U	10.0 U				
Total Naphthalene	0.190 U					
Total Stoddard/Mineral Spirits	10.0 U	10.0 U				
Total TPH	500	50.0 U				
Total Xylenes						
Xylenes						
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene	0.190 UJ					
Acenaphthylene	0.380 UJ					
Anthracene	0.120 J					
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene	3.00 UJ					
Fluorene	0.0380 UJ					
Hexachlorobutadiene						
Phenanthrene	0.890 J					
Pyrene	0.850 UJ					
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP9-S1_100896(0.5-1.0)_SO	TP9-S2_100896(3.5-4.5)_SO				
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						

Table A.1.21
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP9-S1_100896(0.5-1.0)_SO	TP9-S2_100896(3.5-4.5)_SO				
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Notes:
The following qualifiers may be used in this table:
J - Constituent present, reported value is estimated
U - Not detected at or above reporting limit
UJ - Not detected; reporting limit is estimated
The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:
-If both results were detected values, then the two values were averaged.
If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.22
Truck Shop Site
Truck Stop Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TSMW-1S/S-1_051805(5.0)_SO	TSMW-1S/S-2_051805(10.0)_SO	TSMW-1S/S-3_051805(15.0)_SO	TSMW-2S/S-1_052005(5.0)_SO	TSMW-2S/S-2_052005(10.0)_SO	TSMW-2S/S-3_052005(15.0)_SO
Conventional (%)						
Moisture	7.00	19.0	20.0	10.0	9.00	7.00
Metals (mg/kg)						
Arsenic (inorganic)			3.20			
Barium			10.0 U			
Cadmium			1.00 U			
Chromium			6.00			
Lead (inorganic)			6.70			
Mercury (inorganic)			0.500 U			
Selenium (and compounds)			10.0 U			
Silver			1.00 U			
PCBs (mg/kg)						
Aroclor 1221	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1232	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1242	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1248	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1254	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1260	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Total PCBs	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Petroleum-Related Constituents (mg/kg)						
Benzene		0.0500 U	0.0500 U			0.0500 U
Benzo(a)anthracene			0.770 J			
Benzo(a)pyrene			0.100 UJ			
Benzo(b)fluoranthene			0.100 UJ			
Benzo(g,h,i)perylene			0.100 UJ			
Benzo(k)fluoranthene			0.100 UJ			
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ			0.153			
Castor oil	100 U	100 U	100 U	100 U	100 U	100 U
Chrysene			0.620 J			
Dibenz(a,h)anthracene			0.100 UJ			
Diesel	50.0 U	260	700	50.0 U	50.0 U	50.0 U
Ethyl Benzene		0.0550	0.0500 U			0.0500 U
Gasoline Range Organics	20.0 U	20.0 U	5.00 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	1800	5400	100 U	100 U	100 U

Table A.1.22
Truck Shop Site
Truck Stop Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TSMW-1S/S-1_051805(5.0)_SO	TSMW-1S/S-2_051805(10.0)_SO	TSMW-1S/S-3_051805(15.0)_SO	TSMW-2S/S-1_052005(5.0)_SO	TSMW-2S/S-2_052005(10.0)_SO	TSMW-2S/S-3_052005(15.0)_SO
Indeno(1,2,3-cd)pyrene			0.100 UJ			
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 D	700	20.0 U	20.0 U	20.0 U
Naphthalene		0.0500 U	0.0500 U			0.0500 U
Toluene		0.0620	0.0500 U			0.0500 U
Total Diesel/Fuel Oil	70.0 U	270	710	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	5.00 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200 U	1850	5450	200 U	200 U	200 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene		0.0500 U	0.0500 U			0.0500 U
Total Stoddard/Mineral Spirits	20.0 U	20.0	700	20.0 U	20.0 U	20.0 U
Total Xylenes		0.470	0.350			0.0500 U
Xylenes		0.470	0.350			0.0500 U
Semi-Volatile Organic Constituents (mg/kg)						
2,4,6-Tribromophenol			0.500 UJ			
2-Nitrophenol			0.500 UJ			
3,4-Methylphenol (m,p-cresol)			0.100 UJ			
Acenaphthene			0.100 UJ			
Acenaphthylene			0.300 J			
Anthracene			0.100 UJ			
Bis(2-Chloroethoxy)methane			0.100 UJ			
Bis(2-chloroisopropyl)Ether			0.100 UJ			
Bis(Chloroethyl)ether			0.500 UJ			
Bromobenzene		0.0500 U	0.0500 U			0.0500 U
Bromodiphenyl ether, 4-			0.100 UJ			
Butyl Benzyl Phthalate, N-			0.500 UJ			
Chloro-3-methylphenol, 4-			0.500 UJ			
Chloronaphthalene, 2-			0.100 UJ			
Chlorophenol, 2-			0.500 UJ			
Chlorophenyl-phenyl ether, 4-			0.500 UJ			
Di-n-Octylphthalate			0.500 UJ			
Dibutyl Phthalate			0.100 UJ			
Dichlorobenzene, 1,2-		0.0500 U	0.0500 U			0.0500 U
Dichlorobenzene, 1,3-		0.0500 U	0.0500 U			0.0500 U
Dichlorophenol, 2,4-			0.500 UJ			
Dichlorophenol, 2,6-			0.500 UJ			

Table A.1.22
Truck Shop Site
Truck Stop Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TSMW-1S/S-1_051805(5.0)_SO	TSMW-1S/S-2_051805(10.0)_SO	TSMW-1S/S-3_051805(15.0)_SO	TSMW-2S/S-1_052005(5.0)_SO	TSMW-2S/S-2_052005(10.0)_SO	TSMW-2S/S-3_052005(15.0)_SO
Diethyl Phthalate			0.100 UJ			
Dimethyl Phthalate			0.100 UJ			
Dimethylphenol, 2,4-			0.500 UJ			
Dinitrophenol, 2,4-			0.500 UJ			
Dinoseb			0.500 UJ			
Fluoranthene			0.870 J			
Fluorene			0.250 J			
Hexachlorobenzene			0.100 UJ			
Hexachlorobutadiene		0.0500 U	0.0500 U			0.0500 U
Hexachlorocyclopentadiene			0.100 UJ			
Hexachloroethane			0.100 UJ			
Hexachloropropylene			0.500 UJ			
Isopropyltoluene		0.0500 U	0.0500 U			0.0500 U
Methylphenol, 2-			0.100 UJ			
Nitrophenol, 4-			0.500 UJ			
Nitrosodiphenylamine, N-			0.440 J			
Pentachlorobenzene			0.500 UJ			
Pentachlorophenol			0.500 UJ			
Phenanthrene			0.920 J			
Phenol			0.500 UJ			
Pyrene			0.760 J			
Tetrachlorobenzene, 1,2,4,5-			0.500 UJ			
Tetrachlorophenol, 2,3,4,6-			0.500 UJ			
Trichlorobenzene, 1,2,4-		0.0500 U	0.0500 U			0.0500 U
Trichlorophenol, 2,4,5-			0.500 UJ			
Trichlorophenol, 2,4,6-			0.500 UJ			
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene		0.0500 U	0.0500 U			0.0500 U
1,2,3-trichlorobenzene		0.0500 U	0.0500 U			0.0500 U
1,2,4-Trimethylbenzene		2.20	0.530			0.390
1,3,5-Trimethylbenzene		0.0500 U	0.0500 U			0.0500 U
1,3-dichloropropane		0.0500 U	0.0500 U			0.0500 U
1-Phenylpropane		0.190	0.350			0.0500 U
2,2-dichloropropane		0.0500 U	0.0500 U			0.0500 U
2-chlorotoluene		0.160	0.280			0.0500 U
4-chlorotoluene		0.0500 U	0.0500 U			0.0500 U
Bromodichloromethane		0.0500 U	0.0500 U			0.0500 U

Table A.1.22
Truck Shop Site
Truck Stop Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TSMW-1S/S-1_051805(5.0)_SO	TSMW-1S/S-2_051805(10.0)_SO	TSMW-1S/S-3_051805(15.0)_SO	TSMW-2S/S-1_052005(5.0)_SO	TSMW-2S/S-2_052005(10.0)_SO	TSMW-2S/S-3_052005(15.0)_SO
Bromoform		0.0500 U	0.0500 U			0.0500 U
Bromomethane		0.0500 U	0.0500 U			0.0500 U
CFC-11		0.0500 U	0.0500 U			0.0500 U
CFC-12		0.0500 U	0.0500 U			0.0500 U
Carbon Tetrachloride		0.0500 U	0.0500 U			0.0500 U
Chlorobenzene		0.0500 U	0.0500 U			0.0500 U
Chloroform		0.0500 U	0.0500 U			0.0500 U
Chloromethane		0.0500 U	0.0500 U			0.0500 U
Cumene		0.0500 U	0.0500 U			0.0500 U
Dibromo-3-chloropropane, 1,2-		0.0500 U	0.0500 U			0.0500 U
Dibromochloromethane		0.0200 U	0.0200 U			0.0200 U
Dibromoethane, 1,2-		0.00500 U	0.00500 U			0.00500 U
Dichlorobenzene, 1,4-		0.0500 U	0.0500 U			0.0500 U
Dichloroethane, 1,1-		0.0500 U	0.0500 U			0.0500 U
Dichloroethane, 1,2-		0.0200 U	0.0200 U			0.0200 U
Dichloroethene, 1,1-		0.0500 U	0.0500 U			0.0500 U
Dichloroethylene, Cis-1,2-		0.0500 U	0.0500 U			0.0500 U
Dichloroethylene, Trans-1,2-		0.0500 U	0.0500 U			0.0500 U
Dichloromethane		0.0200 U	0.0200 U			0.0200 U
Dichloropropane, 1,2-		0.0500 U	0.0500 U			0.0500 U
Dichloropropene, Cis-1,3-		0.0500 U	0.0500 U			0.0500 U
Dichloropropene, Trans-1,3-		0.0500 U	0.0500 U			0.0500 U
Ethyl Chloride		0.0500 U	0.0500 U			0.0500 U
Methylene Bromide		0.0500 U	0.0500 U			0.0500 U
Styrene		0.0500 U	0.0500 U			0.0500 U
Tert-butylbenzene		0.290	0.0500 U			0.0500 U
Tetrachloroethane, 1,1,1,2-		0.0500 U	0.0500 U			0.0500 U
Tetrachloroethane, 1,1,2,2-		0.0500 U	0.0500 U			0.0500 U
Tetrachloroethylene		0.0500 U	0.0500 U			0.0500 U
Trichloroethane, 1,1,1-		0.0500 U	0.0500 U			0.0500 U
Trichloroethane, 1,1,2-		0.0500 U	0.0500 U			0.0500 U
Trichloroethylene		0.0200 U	0.0200 U			0.0200 U
Trichloropropane, 1,2,3-		0.0500 U	0.0500 U			0.0500 U
Vinyl Chloride		0.0500 U	0.0500 U			0.0500 U
n-Butylbenzene		0.340	0.940			0.0590
sec-Butylbenzene		0.120	0.350			0.0500 U

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.23
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SB-1-S1_022306(10.0-15.0)_SO	SDR-SS-1_030106(0.0-1.0)_SO	SDR-SS-2_030106(0.0-1.0)_SO	SDR-SS-3_030106(0.0-1.0)_SO	SDR-SS-4_030106(0.0-1.0)_SO	SDR-SS-5_030106(0.0-1.0)_SO
Conventional (%)						
Moisture	10.0	16.0	18.0	17.0	26.0	22.0
Total Organic Carbon						2.10
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1221	0.0200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1232	0.0100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1242	0.0100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1248	0.0100 U	4.40	4.10	3.90	1.70	0.850
Aroclor 1254	0.0100 U	3.50	2.70	2.30	1.70	0.530
Aroclor 1260	0.0100 U	1.20	0.660	0.600	0.460	0.140
Aroclor 1262						
Aroclor 1268						
Total PCBs	0.0100 U	9.10	7.50	6.80	3.90	1.50
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil	100 U	100 U	100 U	100 U	100 U	100 U
Diesel	32.0 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	130	110	100 U
Kensol	20.0 U	830	1100	300	410	38.0
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	42.0	855	1130	325	435	63.0
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200 U	200 U	200 U	180	160	200 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.23
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS-6_030106(0.0-1.0)_SO	SDR-SS-7_030106(0.0-1.0)_SO_DC	SDR-SS-8_030106(0.0-1.0)_SO	SDR-SS-9_030106(0.0-1.0)_SO	SDR-SS1-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-1-S2_052306(1.0-1.5)_SO
Conventional (%)						
Moisture	33.0	20.0	26.0	19.0		
Total Organic Carbon		5.40		2.80		
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.200 U	0.200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	2.30	1.50	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.120	1.70	1.10	0.130	0.0700 JP	0.0100 U
Aroclor 1260	0.0730	0.390	0.270	0.0790	0.120	0.0100 U
Aroclor 1262					0.0100 U	0.0100 U
Aroclor 1268					0.0100 U	0.0100 U
Total PCBs	0.193	4.30	2.90	0.209	0.190	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil	100 U	100 U	100 U	100 U		
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	150	100 U	100 U	100 U	100 U
Kensol	85.0	445	54.0	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	110	470	79.0	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200 U	200	200 U	200 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.23
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS1-PH2-1-S3_052306(2.0-2.5)_SO	SDR-SS1-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS1-PH2-2-S3_052306(2.0-2.5)_SO	SDR-SS1-PH2-3-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-3-S2_052306(1.0-1.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.00990 U	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	2.50 U	0.200 U
Aroclor 1232	0.00990 U	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U
Aroclor 1242	0.00990 U	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U
Aroclor 1248	0.00990 U	0.0100 U	0.0100 U	0.0100 U	71.0	0.360
Aroclor 1254	0.00990 U	0.0600	0.0290	0.0100 U	1.30 U	0.100 U
Aroclor 1260	0.00990 U	0.0100 U	0.0200	0.0100 U	1.30 U	1.10
Aroclor 1262	0.00990 U	0.0100 U	0.0100 U	0.0580	1.30 U	0.100 U
Aroclor 1268	0.00990 U	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U
Total PCBs	0.00990 U	0.0600	0.0490	0.0580	71.0	1.50
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	100 U	13000	1200
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	1300	140
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	1330	165
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	13000	1200
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.23
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS1-PH2-3-S3_052306(2.0-2.5)_SO	SDR-SS1-PH2-4-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-4-S2_052306(1.0-1.5)_SO	SDR-SS1-PH2-4-S3_052306(2.0-2.5)_SO	SDR-SS7-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-1-S2_052306(1.0-1.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1248	0.130	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1260	0.0100 U	0.00330 J	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1262	0.520	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1268	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Total PCBs	0.650	0.00330	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Kensol	20.0 U	20.0 U	120	690	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	145	715	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.23
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS7-PH2-1-S3_052306(2.0-2.5)_SO	SDR-SS7-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS7-PH2-2-S3_052306(2.0-2.5)_SO	SDR-SS7-PH2-3-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-3-S2_052306(1.0-1.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.500 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	7.10	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.0100 U	0.250 U	0.0100 U	0.00350 J	0.0100 U	0.0100 U
Aroclor 1260	0.0100 U	0.250 U	0.0100 U	0.00240 J	0.00560 J	0.0100 U
Aroclor 1262	0.0100 U	0.250 U	0.0190	0.0100 U	0.0100 U	0.0100 U
Aroclor 1268	0.0100 U	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Total PCBs	0.0100 U	7.10	0.0190	0.00590	0.00560	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Heavy Oil	100 U	1300	100 U	100 U	100 UJ	100 U
Kensol	20.0 U	1100	20.0 U	20.0 U	20.0 UJ	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Total Diesel/Fuel Oil	70.0 U	1130	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	1300	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.23
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS7-PH2-3-S3_052306(2.0-2.5)_SO_DC	SDR-SS9-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS9-PH2-1-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS9-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-2-S3_052306(2.0-2.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1260	0.00990 U	0.00350 J	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1262	0.00990 U	0.0100 U	0.0100 U	0.150	0.0100 U	0.0100 U
Aroclor 1268	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Total PCBs	0.00990 U	0.00350	0.0100 U	0.150	0.0100 U	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 UJ	50.0 UJ	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 UJ	50.0 UJ	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 UJ	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 UJ	100 UJ	100 U	100 U	100 U	100 U
Kensol	20.0 UJ	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 UJ	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 UJ	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.1.23
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent	Sample ID:	SDR-SS9-PH2-3-S1_052306(0.0-0.5)_SO	SDR-SS9-PH2-3-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-3-S3_052306(2.0-2.5)_SO_DC			
Conventional (%)							
Moisture							
Total Organic Carbon							
PCBs (mg/kg)							
Aroclor 1016		0.0100 U	0.0100 U	0.0100 U			
Aroclor 1221		0.0200 U	0.0200 U	0.0200 U			
Aroclor 1232		0.0100 U	0.0100 U	0.0100 U			
Aroclor 1242		0.0100 U	0.0100 U	0.0100 U			
Aroclor 1248		0.0100 U	0.0100 U	0.0100 U			
Aroclor 1254		0.0100 U	0.0100 U	0.0100 U			
Aroclor 1260		0.0100 U	0.0100 U	0.0100 U			
Aroclor 1262		0.0100 U	0.0100 U	0.0100 U			
Aroclor 1268		0.0100 U	0.0100 U	0.0100 U			
Total PCBs		0.0100 U	0.0100 U	0.0100 U			
Petroleum-Related Constituents (mg/kg)							
Bunker C		50.0 U	50.0 U	50.0 U			
Castor oil							
Diesel		50.0 U	50.0 U	50.0 U			
Gasoline Range Organics		20.0 U	20.0 U	20.0 U			
Heavy Oil		100 U	100 U	100 U			
Kensol		20.0 U	20.0 U	20.0 U			
Kerosene/Jet fuel		20.0 U	20.0 U	20.0 U			
Mineral spirits/Stoddard		20.0 U	20.0 U	20.0 U			
Total Diesel/Fuel Oil		70.0 U	70.0 U	70.0 U			
Total Gasoline		20.0 U	20.0 U	20.0 U			
Total Heavy Oil		100 U	100 U	100 U			
Total Kerosene/Jet Fuel		20.0 U	20.0 U	20.0 U			
Total Stoddard/Mineral Spirits		20.0 U	20.0 U	20.0 U			

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	GRID 2 S. Sidewall 2'_080207(2.0)_SO	GRID 2 S. Sidewall 5'_080207(5.0)_SO	GRID 2 S. Sidewall 7'_080207(7.0)_SO	MID GRID 4 5'_080607(5.0)_SO	MID GRID 4 6.5'_080607(6.5)_SO	MID GRID 4 8.5'_080607(8.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.0540 U	0.0530 U	0.530 U	0.530 U	0.520 U	0.0520 U
Aroclor 1221	0.110 U	0.110 U	1.10 U	1.10 U	1.10 U	0.110 U
Aroclor 1232	0.0540 U	0.0530 U	0.530 U	0.530 U	0.520 U	0.0520 U
Aroclor 1242	0.0540 U	0.0530 U	0.530 U	0.530 U	0.520 U	0.0520 U
Aroclor 1248	0.0540 U	0.0530 U	23.0	41.0	9.70	4.20
Aroclor 1254	0.550	0.650	0.530 U	0.530 U	0.520 U	0.0520 U
Aroclor 1260	0.0540 U	0.0530 U	0.530 U	0.530 U	0.520 U	0.0520 U
Total PCBs	0.550	0.650	23.0	41.0	9.70	4.20
Petroleum-Related Constituents (mg/kg)						
Diesel						
Heavy Oil						
Kensol						
Kerosene/Jet fuel						
Total Diesel/Fuel Oil						
Total Heavy Oil						
Total Kerosene/Jet Fuel						

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC1-C1_080907(8.0)_SO	WDR-EC1-C2_080907(7.0-8.0)_SO	WDR-EC1-D1_080907(7.0-8.0)_SO	WDR-EC1-D2_080907(7.0-8.0)_SO	WDR-EC10-C1_082207(9.0-10.0)_SO_DC	WDR-EC10-C2_082307(9.0-10.0)_SO
Conventional (%)						
Moisture	15.0					
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	1.00 U	0.100 U	0.0100 U	0.00950 U	0.500 U	0.250 U
Aroclor 1221	2.00 U	0.200 U	0.0200 U	0.0190 U	1.00 U	0.500 U
Aroclor 1232	1.00 U	0.100 U	0.0100 U	0.00950 U	0.500 U	0.250 U
Aroclor 1242	1.00 U	0.100 U	0.0100 U	0.00950 U	0.500 U	0.250 U
Aroclor 1248	24.0	5.10	0.0100 U	0.00950 U	11.0	5.10
Aroclor 1254	1.00 U	0.100 U	0.0160	0.0210	0.500 U	0.250 U
Aroclor 1260	1.00 U	0.100 U	0.0100 U	0.00950 U	0.500 U	0.250 U
Total PCBs	24.0	5.10	0.0160	0.0210	11.0	5.10
Petroleum-Related Constituents (mg/kg)						
Diesel	20.0 U				20.0 U	
Heavy Oil	380				50.0 U	
Kensol	20.0 U				20.0 U	
Kerosene/Jet fuel	20.0 U				20.0 U	
Total Diesel/Fuel Oil	40.0 U				40.0 U	
Total Heavy Oil	380				50.0 U	
Total Kerosene/Jet Fuel	20.0 U				20.0 U	

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC10-C3_082307(9.0-10.0)_SO	WDR-EC10-D4_082007(9.0-10.0)_SO	WDR-EC11-C1_082307(8.0)_SO	WDR-EC11-C2_083007(9.0)_SO	WDR-EC11-D3_082207(8.0)_SO	WDR-EC11-D7_082207(8.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Aroclor 1221	0.980 U	0.0500 U	0.0500 U	0.0140 U	0.0490 U	0.0500 U
Aroclor 1232	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Aroclor 1242	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Aroclor 1248	7.70	1.70	1.60	0.230	0.830	0.980
Aroclor 1254	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Aroclor 1260	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Total PCBs	7.70	1.70	1.60	0.230	0.830	0.980
Petroleum-Related Constituents (mg/kg)						
Diesel			20.0 U			
Heavy Oil			50.0 U			
Kensol			20.0 U			
Kerosene/Jet fuel			20.0 U			
Total Diesel/Fuel Oil			40.0 U			
Total Heavy Oil			50.0 U			
Total Kerosene/Jet Fuel			20.0 U			

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC12-C1_083007(7.0-8.0)_SO	WDR-EC12-C2_083007(7.0-8.0)_SO	WDR-EC12-D14_083007(7.0-8.0)_SO	WDR-EC12-D15_083007(7.0-8.0)_SO	WDR-EC13-C1_083007(7.0)_SO	WDR-EC13-C2_083007(7.0-9.0)_SO_DC
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Aroclor 1221	0.0140 U	0.650 U	0.0140 U	0.0140 U	0.0140 U	0.0140 U
Aroclor 1232	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Aroclor 1242	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Aroclor 1248	0.110	0.540	0.320	0.180	0.0900	0.110
Aroclor 1254	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Aroclor 1260	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Total PCBs	0.110	0.540	0.320	0.180	0.0900	0.110
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U				20.0 U
Heavy Oil		50.0 U				50.0 U
Kensol		20.0 U				20.0 U
Kerosene/Jet fuel		20.0 U				20.0 U
Total Diesel/Fuel Oil		40.0 U				40.0 U
Total Heavy Oil		50.0 U				50.0 U
Total Kerosene/Jet Fuel		20.0 U				20.0 U

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC13-D1_083007(7.0)_SO	WDR-EC13-D2_082907(7.0)_SO	WDR-EC14-C1_082407(4.0-6.0)_SO	WDR-EC14-C2_083007(6.0-8.0)_SO	WDR-EC14-D2_082707(6.0-7.0)_SO	WDR-EC14-D7_082707(6.0-7.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Aroclor 1221	0.0140 U	0.0140 U	0.960 U	0.730 U	0.0150 U	0.0150 U
Aroclor 1232	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Aroclor 1242	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Aroclor 1248	0.0460	0.0100	11.0	0.730	0.0720	0.380
Aroclor 1254	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Aroclor 1260	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Total PCBs	0.0460	0.0100	11.0	0.730	0.0720	0.380
Petroleum-Related Constituents (mg/kg)						
Diesel			20.0 U			
Heavy Oil			50.0 U			
Kensol			20.0 U			
Kerosene/Jet fuel			20.0 U			
Total Diesel/Fuel Oil			40.0 U			
Total Heavy Oil			50.0 U			
Total Kerosene/Jet Fuel			20.0 U			

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC15-C1_082307(4.0-9.0)_SO	WDR-EC15-C2_082307(4.0-9.0)_SO_DC	WDR-EC15-C3_082307(6.0-9.0)_SO	WDR-EC15-D19_082107(4.0-5.0)_SO	WDR-EC15-D20_082107(4.0-5.0)_SO	WDR-EC16-C1_082407(9.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Aroclor 1221	0.0500 U	0.980 U	0.500 U	0.0500 U	0.0500 U	
Aroclor 1232	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Aroclor 1242	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Aroclor 1248	1.00	8.30	4.20	0.200	0.380	
Aroclor 1254	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Aroclor 1260	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Total PCBs	1.00	8.30	4.20	0.200	0.380	
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U				20.0 U
Heavy Oil		50.0 U				50.0 U
Kensol		20.0 U				20.0 U
Kerosene/Jet fuel		20.0 U				20.0 U
Total Diesel/Fuel Oil		40.0 U				40.0 U
Total Heavy Oil		50.0 U				50.0 U
Total Kerosene/Jet Fuel		20.0 U				20.0 U

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC16-D1_082307(9.0)_SO	WDR-EC16-D2_082307(9.0)_SO	WDR-EC17-C1_090707(14.0-15.0)_SO	WDR-EC17-C2_090707(14.0-15.0)_SO	WDR-EC17-D1_090507(14.0-15.0)_SO_DC	WDR-EC2-C1_080907(7.0-8.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Aroclor 1221	0.490 U	0.500 U	0.140 U	0.0140 U	0.0140 U	0.200 U
Aroclor 1232	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Aroclor 1242	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Aroclor 1248	9.80	6.80	1.20	0.300	0.270	3.10
Aroclor 1254	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Aroclor 1260	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Total PCBs	9.80	6.80	1.20	0.300	0.270	3.10
Petroleum-Related Constituents (mg/kg)						
Diesel			20.0 U			20.0 U
Heavy Oil			50.0 U			50.0 U
Kensol			20.0 U			20.0 U
Kerosene/Jet fuel			20.0 U			20.0 U
Total Diesel/Fuel Oil			40.0 U			40.0 U
Total Heavy Oil			50.0 U			50.0 U
Total Kerosene/Jet Fuel			20.0 U			20.0 U

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC2-C2_080907(7.0-8.0)_SO	WDR-EC2-C3_080907(7.0-8.0)_SO	WDR-EC2-D13_080907(7.0-8.0)_SO	WDR-EC2-D17_080907(7.0-8.0)_SO	WDR-EC20-C1_090707(7.0-15.0)_SO	WDR-EC20-C2_090707(8.0-15.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	1.00 U	0.100 U	1.00 U	0.0100 U	0.00700 U	0.00710 U
Aroclor 1221	2.00 U	0.200 U	2.00 U	0.0200 U	0.0140 U	0.0150 U
Aroclor 1232	1.00 U	0.100 U	1.00 U	0.0100 U	0.00700 U	0.00710 U
Aroclor 1242	1.00 U	0.100 U	1.00 U	0.0100 U	0.00700 U	0.00710 U
Aroclor 1248	17.0	6.90	12.0	0.0100 U	0.420	0.500
Aroclor 1254	9.60	0.100 U	1.00 U	0.300	0.00700 U	0.00710 U
Aroclor 1260	1.00 U	0.100 U	1.00 U	0.0100 U	0.00700 U	0.00710 U
Total PCBs	26.6	6.90	12.0	0.300	0.420	0.500
Petroleum-Related Constituents (mg/kg)						
Diesel					20.0 U	
Heavy Oil					50.0 U	
Kensol					20.0 U	
Kerosene/Jet fuel					20.0 U	
Total Diesel/Fuel Oil					40.0 U	
Total Heavy Oil					50.0 U	
Total Kerosene/Jet Fuel					20.0 U	

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC20-D1_090707(8.0-15.0)_SO	WDR-EC21-C1_090707(14.0-15.0)_SO	WDR-EC21-C2_090707(14.0-15.0)_SO	WDR-EC21-D1_090707(14.0-15.0)_SO	WDR-EC22-C1_090707(14.0-15.0)_SO	WDR-EC22-D1_090707(14.0-15.0)_SO_DC
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Aroclor 1221	0.0140 U	0.110 U	0.110 U	0.0110 U	0.0120 U	0.0110 U
Aroclor 1232	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Aroclor 1242	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Aroclor 1248	0.250	0.960	1.70	0.420	0.430	0.270
Aroclor 1254	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Aroclor 1260	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Total PCBs	0.250	0.960	1.70	0.420	0.430	0.270
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U			20.0 U	
Heavy Oil		50.0 U			50.0 U	
Kensol		20.0 U			20.0 U	
Kerosene/Jet fuel		20.0 U			20.0 U	
Total Diesel/Fuel Oil		40.0 U			40.0 U	
Total Heavy Oil		50.0 U			50.0 U	
Total Kerosene/Jet Fuel		20.0 U			20.0 U	

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC23-D1_090507(14.0-15.0)_SO	WDR-EC3-C1_080907(6.0-7.0)_SO	WDR-EC3-C2_080907(6.0-7.0)_SO	WDR-EC3-C3_080907(6.0-7.0)_SO	WDR-EC3-C4_080907(6.0-7.0)_SO	WDR-EC3-D1_080907(6.0-7.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.150 U	0.100 U	1.00 U	0.990 U	0.100 U	0.100 U
Aroclor 1221	0.290 U	0.200 U	2.00 U	2.00 U	0.200 U	0.200 U
Aroclor 1232	0.150 U	0.100 U	1.00 U	0.990 U	0.100 U	0.100 U
Aroclor 1242	0.150 U	0.100 U	1.00 U	0.990 U	0.100 U	0.100 U
Aroclor 1248	9.40	1.90	12.0	31.0	6.60	6.20
Aroclor 1254	0.150 U	1.30	1.00 U	0.990 U	4.60	0.100 U
Aroclor 1260	0.150 U	0.100 U	1.00 U	0.990 U	0.100 U	0.100 U
Total PCBs	9.40	3.20	12.0	31.0	11.2	6.20
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U				
Heavy Oil		50.0 U				
Kensol		20.0 U				
Kerosene/Jet fuel		20.0 U				
Total Diesel/Fuel Oil		40.0 U				
Total Heavy Oil		50.0 U				
Total Kerosene/Jet Fuel		20.0 U				

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC3-D2_080907(6.0-7.0)_SO	WDR-EC4-C1_081007(4.0-5.0)_SO	WDR-EC4-C2_081007(4.0-6.0)_SO	WDR-EC4-C3_081007(4.0-6.0)_SO	WDR-EC4-C4_081007(4.0-6.0)_SO	WDR-EC4-D1_081007(4.0-6.0)_SO
Conventional (%)						
Moisture		14.0				
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	0.0990 U
Aroclor 1221	2.00 U	2.00 U	2.00 U	2.00 U	0.200 U	0.200 U
Aroclor 1232	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	0.0990 U
Aroclor 1242	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	0.0990 U
Aroclor 1248	21.0	72.0	51.0	14.0	7.90	0.0990 U
Aroclor 1254	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	1.20
Aroclor 1260	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	0.0990 U
Total PCBs	21.0	72.0	51.0	14.0	7.90	1.20
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U				
Heavy Oil		1500				
Kensol		20.0 U				
Kerosene/Jet fuel		20.0 U				
Total Diesel/Fuel Oil		40.0 U				
Total Heavy Oil		1500				
Total Kerosene/Jet Fuel		20.0 U				

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC4-D6_081007(4.0-6.0)_SO	WDR-EC5-C1_081007(4.0)_SO	WDR-EC5-C2_081007(4.0)_SO	WDR-EC5-C3_081007(4.0)_SO	WDR-EC5-C4_081007(4.0)_SO	WDR-EC5-C5_081007(4.0)_SO
Conventional (%)						
Moisture				16.0		
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Aroclor 1221	2.00 U	2.00 U	0.200 U	2.00 U	2.00 U	2.00 U
Aroclor 1232	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Aroclor 1242	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Aroclor 1248	16.0	15.0	2.50	19.0	34.0	29.0
Aroclor 1254	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Aroclor 1260	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Total PCBs	16.0	15.0	2.50	19.0	34.0	29.0
Petroleum-Related Constituents (mg/kg)						
Diesel				20.0 U		
Heavy Oil				530		
Kensol				20.0 U		
Kerosene/Jet fuel				20.0 U		
Total Diesel/Fuel Oil				40.0 U		
Total Heavy Oil				530		
Total Kerosene/Jet Fuel				20.0 U		

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC5-D4_081007(4.0)_SO	WDR-EC7-C1_081707(4.0-9.0)_SO	WDR-EC7-C2_081707(4.0-5.0)_SO	WDR-EC7-C3_081707(4.0-5.0)_SO	WDR-EC7-D1_081607(4.0-5.0)_SO	WDR-EC8-C1_081707(6.5-7.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Aroclor 1221	0.200 U	0.830 U	0.800 U	0.830 U	0.0170 U	0.840 U
Aroclor 1232	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Aroclor 1242	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Aroclor 1248	2.40	5.50	1.10	2.90	0.350	1.90
Aroclor 1254	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Aroclor 1260	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Total PCBs	2.40	5.50	1.10	2.90	0.350	1.90
Petroleum-Related Constituents (mg/kg)						
Diesel				20.0 U		20.0 U
Heavy Oil				50.0 U		50.0 U
Kensol				20.0 U		20.0 U
Kerosene/Jet fuel				20.0 U		20.0 U
Total Diesel/Fuel Oil				40.0 U		40.0 U
Total Heavy Oil				50.0 U		50.0 U
Total Kerosene/Jet Fuel				20.0 U		20.0 U

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC8-C2_081707(6.5-7.5)_SO	WDR-EC8-D1_081607(6.5-7.5)_SO	WDR-EC8-D2_081607(6.5-7.5)_SO	WDR-EC9-C1_081707(6.5-7.5)_SO	WDR-EC9-C2_081707(6.5-7.5)_SO	WDR-EC9-C3_082207(8.0)_SO_DC
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/kg)						
Aroclor 1016	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Aroclor 1221	0.820 U	0.840 U	0.820 U	0.830 U	0.0170 UJ	0.500 U
Aroclor 1232	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Aroclor 1242	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Aroclor 1248	1.30	1.40	1.60	2.30	0.290 J	4.30
Aroclor 1254	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Aroclor 1260	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Total PCBs	1.30	1.40	1.60	2.30	0.290	4.30
Petroleum-Related Constituents (mg/kg)						
Diesel				20.0 U		
Heavy Oil				50.0 U		
Kensol				20.0 U		
Kerosene/Jet fuel				20.0 U		
Total Diesel/Fuel Oil				40.0 U		
Total Heavy Oil				50.0 U		
Total Kerosene/Jet Fuel				20.0 U		

Table A.1.24
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC9-D1_081607(6.5-7.5)_SO	WDR-PIA-06_050907(0.0-1.0)_SO	WDR-PIA-09_050907(0.0-1.0)_SO	WDR-PIA-10_050907(0.0-1.0)_SO	WDR-PIA-13_050907(0.0-1.0)_SO	WDR-PIA-17_050907(0.0-1.0)_SO
Conventional (%)						
Moisture		3.20	5.10	10.0	3.90	3.00
Total Organic Carbon			0.620			
PCBs (mg/kg)						
Aroclor 1016	0.00820 U	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U
Aroclor 1221	0.0170 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.00820 U	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U
Aroclor 1242	0.00820 U	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U
Aroclor 1248	0.170	0.160 JP	0.00990 U	0.00980 U	0.0150	0.00970 U
Aroclor 1254	0.00820 U	0.310	0.00700 J	0.00640 J	0.00860 J	0.0110
Aroclor 1260	0.00820 U	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U
Total PCBs	0.170	0.470	0.00700	0.00640	0.0236	0.0110
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil		50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Kensol		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil		40.0 U	40.0 U	40.0 U	40.0 U	40.0 U
Total Heavy Oil		50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CM-MW-1S-S1_092104(5.0-6.0)_SO	CM-MW-1S-S2_092104(10.0-11.0)_SO	HL-DW-SB-1/S-1_010307(8.0-10.0)_SO	HL-DW-SB-1/S-2_010307(10.0-12.0)_SO	HL-DW-SB-2/S-1_010507(7.0-10.0)_SO	HL-MW-23S-S1_021306(8.0-11.2)_SO
Conventional (%)						
Moisture			17.0	7.80	19.0	9.00
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)	9.40	5.90				4.70
Barium	59.7	58.7				114
Cadmium	1.10 U	1.00 U				0.139
Chromium	8.90	13.8				11.8
Chromium (VI)						
Lead (inorganic)	12.6 J	9.40 J				11.7
Manganese						481
Mercury (inorganic)	0.0210	0.0150 U				0.0120 J
Selenium (and compounds)	1.10 U	1.00 U				1.10 U
Silver	2.10 U	2.10 U				0.0550
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.0210	0.0100 U	0.00700 J	0.0110	0.0350	0.0100 U
Aroclor 1260	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0220	0.0100 U
Aroclor 1262						
Aroclor 1268			0.00590 J	0.0240		
Total PCBs	0.0210	0.0100 U	0.0129	0.0350	0.0570	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Benzene						0.00920 U
Benzo(a)anthracene						0.00500 U
Benzo(a)pyrene						0.00500 U
Benzo(b)fluoranthene						0.00500 U
Benzo(g,h,i)perylene						0.00500 U
Benzo(k)fluoranthene						0.00500 U
Bunker C			50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ						0.00755 U
Castor oil			100 U	100 U	100 U	100 U

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CM-MW-1S-S1_092104(5.0-6.0)_SO	CM-MW-1S-S2_092104(10.0-11.0)_SO	HL-DW-SB-1/S-1_010307(8.0-10.0)_SO	HL-DW-SB-1/S-2_010307(10.0-12.0)_SO	HL-DW-SB-2/S-1_010507(7.0-10.0)_SO	HL-MW-23S-S1_021306(8.0-11.2)_SO
Chrysene						0.00500 U
Dibenz(a,h)anthracene						0.00500 U
Diesel	33.0 J	8.90 J	50.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene						0.00920 U
Gasoline Range Organics			20.0 U	20.0 U	20.0 U	5.00 U
Gasoline Range Organics	9.90 J	9.00 UJ				
Heavy Oil	69.0	27.0	100 U	100 U	4400	100 U
Indeno(1,2,3-cd)pyrene						0.00500 U
Kensol			20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel			20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-						0.00500 U
Mineral spirits/Stoddard			20.0 U	20.0 U	20.0 U	5.00 U
Naphthalene						0.0370 U
Toluene						0.00180 J
Total Diesel/Fuel Oil	33.0	8.90	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline			20.0 U	20.0 U	20.0 U	5.00 U
Total Heavy Oil	69.0	27.0	200 U	200 U	4450	200 U
Total Kerosene/Jet Fuel			20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene						0.0370 U
Total Stoddard/Mineral Spirits			20.0 U	20.0 U	20.0 U	5.00 U
Total TPH						
Total Xylenes						0.0184 U
Xylenes						0.00920 U
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						0.00500 U
Acenaphthylene						0.00500 U
Anthracene						0.00500 U
Bromobenzene						0.00920 U
Dibenzofuran						0.000260 J
Dichlorobenzene, 1,2-						0.00920 U
Dichlorobenzene, 1,3-						0.00920 U
Fluoranthene						0.00500 U
Fluorene						0.000230 J
Hexachlorobutadiene						0.0370 U
Phenanthrene						0.00500 U
Pyrene						0.00500 U
Trichlorobenzene, 1,2,4-						0.0370 U

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CM-MW-1S-S1_092104(5.0-6.0)_SO	CM-MW-1S-S2_092104(10.0-11.0)_SO	HL-DW-SB-1/S-1_010307(8.0-10.0)_SO	HL-DW-SB-1/S-2_010307(10.0-12.0)_SO	HL-DW-SB-2/S-1_010507(7.0-10.0)_SO	HL-MW-23S-S1_021306(8.0-11.2)_SO
o-Xylene						0.00920 U
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						0.00920 U
1,2,3-trichlorobenzene						0.0370 U
1,2,4-Trimethylbenzene						0.0370 U
1,3,5-Trimethylbenzene						0.0370 U
1,3-dichloropropane						0.00920 U
1-Phenylpropane						0.0370 U
2,2-dichloropropane						0.00920 U
2-chlorotoluene						0.0370 U
4-chlorotoluene						0.0370 U
4-isopropyltoluene						0.0370 U
Acetone						0.0460
Bromochloromethane						0.00920 U
Bromodichloromethane						0.00920 U
Bromoform						0.00920 U
Bromomethane						0.00920 U
CFC-11						0.00920 U
CFC-12						0.00920 U
Carbon Disulfide						0.00920 U
Carbon Tetrachloride						0.00920 U
Chlorobenzene						0.00920 U
Chloroform						0.00920 U
Chloromethane						0.00920 U
Cumene						0.0370 U
Dibromo-3-chloropropane, 1,2-						0.0370 U
Dibromochloromethane						0.00920 U
Dibromoethane, 1,2-						0.0370 U
Dichlorobenzene, 1,4-						0.00920 U
Dichloroethane, 1,1-						0.00920 U
Dichloroethane, 1,2-						0.00920 U
Dichloroethene, 1,1-						0.00920 U
Dichloroethylene, Cis-1,2-						0.00920 U
Dichloroethylene, Trans-1,2-						0.00920 U
Dichloromethane						0.0190 U
Dichloropropane, 1,2-						0.00920 U
Dichloropropene, Cis-1,3-						0.00920 U

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CM-MW-1S-S1_092104(5.0-6.0)_SO	CM-MW-1S-S2_092104(10.0-11.0)_SO	HL-DW-SB-1/S-1_010307(8.0-10.0)_SO	HL-DW-SB-1/S-2_010307(10.0-12.0)_SO	HL-DW-SB-2/S-1_010507(7.0-10.0)_SO	HL-MW-23S-S1_021306(8.0-11.2)_SO
Dichloropropene, Trans-1,3-						0.00920 U
Ethyl Chloride						0.00920 U
Hexanone, 2-						0.0370 U
Methyl Ethyl Ketone						0.0370 U
Methyl Isobutyl Ketone						0.0370 U
Methylene Bromide						0.00920 U
Styrene						0.00920 U
Tert-butylbenzene						0.0370 U
Tetrachloroethane, 1,1,1,2-						0.00920 U
Tetrachloroethane, 1,1,2,2-						0.00920 U
Tetrachloroethylene						0.00920 U
Trichloroethane, 1,1,1-						0.00920 U
Trichloroethane, 1,1,2-						0.00920 U
Trichloroethylene						0.00920 U
Trichloropropane, 1,2,3-						0.00920 U
Vinyl Chloride						0.00920 U
n-Butylbenzene						0.0370 U
sec-Butylbenzene						0.0370 U

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-24DD-S1_020806(10.0-11.0)_SO	HL-MW-25S-S1_021506(8.0-10.8)_SO	HL-MW-26S-S1_021606(8.0-10.8)_SO	HL-MW-27D-S-1_022106(8.0-10.4)_SO_DC	HL-MW-28DD/S-1_090506(2.0-2.5)_SO	HL-MW-28DD/S-2_090506(2.5-3.0)_SO
Conventional (%)						
Moisture	1.00	7.00	8.00	12.0	7.20	4.30
Total Organic Carbon				0.290 J	0.310	0.0400 J
Metals (mg/kg)						
Arsenic (inorganic)	2.00 J	4.00	5.90	4.10		
Barium	37.4 J	33.5	53.3	89.5		
Cadmium	0.0430 J	0.0620	0.0640	0.124		
Chromium	7.00	5.60	10.1	11.0		
Chromium (VI)						
Lead (inorganic)	4.60	3.10	7.90	13.4		
Manganese	97.1 J	148	418 J	389 J		
Mercury (inorganic)	0.0190 U	0.0200 U	0.0220 U	0.0520 U		
Selenium (and compounds)	1.00 U	1.00 U	0.300 J	0.300 J		
Silver	0.0280	0.0320	0.0580	0.284		
PCBs (mg/kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	0.00980 UJ	0.00990 U	0.00990 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	0.00980 UJ	0.00990 U	0.00990 U
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U	0.00980 UJ	0.00990 U	0.00990 U
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U	0.00980 UJ	0.00990 U	0.00990 U
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U	0.0830 J	0.00990 U	0.00990 U
Aroclor 1260	0.0100 U	0.0100 U	0.0100 U	0.00980 UJ	0.00990 U	0.00990 U
Aroclor 1262						
Aroclor 1268						
Total PCBs	0.0100 U	0.0100 U	0.0100 U	0.0830	0.00990 U	0.00990 U
Petroleum-Related Constituents (mg/kg)						
Benzene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Benzo(a)anthracene	0.00500 U	0.00500 U	0.00270 U	0.00330		
Benzo(a)pyrene	0.00500 U	0.00500 U	0.00270 U	0.00280		
Benzo(b)fluoranthene	0.00500 U	0.00500 U	0.00270 U	0.00410		
Benzo(g,h,i)perylene	0.00500 U	0.00500 U	0.00270 U	0.00330		
Benzo(k)fluoranthene	0.00500 U	0.00500 U	0.00270 U	0.00260 J		
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ	0.00755 U	0.00755 U	0.00408 U	0.00421		
Castor oil	180	100 U	100 U	100 U	100 U	100 U

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-24DD-S1_020806(10.0-11.0)_SO	HL-MW-25S-S1_021506(8.0-10.8)_SO	HL-MW-26S-S1_021606(8.0-10.8)_SO	HL-MW-27D-S-1_022106(8.0-10.4)_SO_DC	HL-MW-28DD/S-1_090506(2.0-2.5)_SO	HL-MW-28DD/S-2_090506(2.5-3.0)_SO
Chrysene	0.00500 U	0.00500 U	0.00270 U	0.00460		
Dibenz(a,h)anthracene	0.00500 U	0.00500 U	0.00270 U	0.000640 J		
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Ethyl Benzene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Gasoline Range Organics	5.00 U	5.00 U	5.00 U	5.00 U	20.0 U	20.0 U
Gasoline Range Organics						
Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Indeno(1,2,3-cd)pyrene	0.00500 U	0.00500 U	0.00270 U	0.00300		
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-	0.00500 U	0.00500 U	0.00270 U	0.000700 J		
Mineral spirits/Stoddard	5.00 U	5.00 U	5.00 U	5.00 U	20.0 U	20.0 U
Naphthalene	0.0350 U	0.0240 U	0.00270 J	0.0300 U		
Toluene	0.00860 U	0.00180 J	0.00620 U	0.00730 U		
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	5.00 U	5.00 U	5.00 U	5.00 U	20.0 U	20.0 U
Total Heavy Oil	230	200 U	200 U	200 U	200 U	200 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene	0.0350 U	0.0240 U	0.00270	0.0300 U		
Total Stoddard/Mineral Spirits	5.00 U	5.00 U	5.00 U	5.00 U	20.0 U	20.0 U
Total TPH						
Total Xylenes	0.0172 U	0.0118 U	0.0124 U	0.0146 U		
Xylenes	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene	0.00500 U	0.00500 U	0.00270 U	0.000280 J		
Acenaphthylene	0.00500 U	0.00500 U	0.00270 U	0.00270 U		
Anthracene	0.00500 U	0.00500 U	0.00270 U	0.000660 J		
Bromobenzene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dibenzofuran	0.00500 U	0.00500 U	0.00270 U	0.000280 J		
Dichlorobenzene, 1,2-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dichlorobenzene, 1,3-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Fluoranthene	0.00500 U	0.00500 U	0.00270 U	0.00730		
Fluorene	0.00500 U	0.00500 U	0.00270 U	0.000300 J		
Hexachlorobutadiene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Phenanthrene	0.00500 U	0.00500 U	0.00270 U	0.00460		
Pyrene	0.00500 U	0.00500 U	0.00270 U	0.00790		
Trichlorobenzene, 1,2,4-	0.0350 U	0.0240 U	0.0250 U	0.0300 U		

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-24DD-S1_020806(10.0-11.0)_SO	HL-MW-25S-S1_021506(8.0-10.8)_SO	HL-MW-26S-S1_021606(8.0-10.8)_SO	HL-MW-27D-S-1_022106(8.0-10.4)_SO_DC	HL-MW-28DD/S-1_090506(2.0-2.5)_SO	HL-MW-28DD/S-2_090506(2.5-3.0)_SO
o-Xylene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
1,2,3-trichlorobenzene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
1,2,4-Trimethylbenzene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
1,3,5-Trimethylbenzene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
1,3-dichloropropane	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
1-Phenylpropane	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
2,2-dichloropropane	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
2-chlorotoluene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
4-chlorotoluene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
4-isopropyltoluene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Acetone	0.0350 U	0.0170 J	0.0290 J	0.0360 J		
Bromochloromethane	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Bromodichloromethane	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Bromoform	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Bromomethane	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
CFC-11	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
CFC-12	0.00130 J	0.00590 U	0.00620 U	0.00730 U		
Carbon Disulfide	0.00370 J	0.00590 U	0.00370 J	0.00730 U		
Carbon Tetrachloride	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Chlorobenzene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Chloroform	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Chloromethane	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Cumene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Dibromo-3-chloropropane, 1,2-	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Dibromochloromethane	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dibromoethane, 1,2-	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Dichlorobenzene, 1,4-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dichloroethane, 1,1-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dichloroethane, 1,2-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dichloroethene, 1,1-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dichloroethylene, Cis-1,2-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dichloroethylene, Trans-1,2-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dichloromethane	0.0180 U	0.0120 U	0.0130 U	0.0150 U		
Dichloropropane, 1,2-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Dichloropropene, Cis-1,3-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-24DD-S1_020806(10.0-11.0)_SO	HL-MW-25S-S1_021506(8.0-10.8)_SO	HL-MW-26S-S1_021606(8.0-10.8)_SO	HL-MW-27D-S-1_022106(8.0-10.4)_SO_DC	HL-MW-28DD/S-1_090506(2.0-2.5)_SO	HL-MW-28DD/S-2_090506(2.5-3.0)_SO
Dichloropropene, Trans-1,3-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Ethyl Chloride	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Hexanone, 2-	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Methyl Ethyl Ketone	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Methyl Isobutyl Ketone	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Methylene Bromide	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Styrene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Tert-butylbenzene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
Tetrachloroethane, 1,1,1,2-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Tetrachloroethane, 1,1,2,2-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Tetrachloroethylene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Trichloroethane, 1,1,1-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Trichloroethane, 1,1,2-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Trichloroethylene	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Trichloropropane, 1,2,3-	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
Vinyl Chloride	0.00860 U	0.00590 U	0.00620 U	0.00730 U		
n-Butylbenzene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		
sec-Butylbenzene	0.0350 U	0.0240 U	0.0250 U	0.0300 U		

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-28DD/S-3_090506(5.0)_SO	HL-MW-28DD/S-4_090506(10.0)_SO	HL-MW-29s 10'_060707(10.0-11.0)_SO	HL-MW-29s 5'_060707(5.0-6.0)_SO	HL-MW-30s 10'_060807(10.0-11.0)_SO	HL-MW-30s 5'_060807(5.0-6.0)_SO
Conventional (%)						
Moisture	7.80	4.20	8.20	5.30	6.80	5.60
Total Organic Carbon	0.0300 J	0.0400 J				
Metals (mg/kg)						
Arsenic (inorganic)					7.10 J	
Barium					49.6	
Cadmium					0.141	
Chromium					10.8	
Chromium (VI)						
Lead (inorganic)					9.80	
Manganese					389	
Mercury (inorganic)					0.0200 U	
Selenium (and compounds)					0.400 J	
Silver					0.0700	
PCBs (mg/kg)						
Aroclor 1016	0.00990 U	0.0100 U	0.00950 U	0.00980 U	0.00990 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0190 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.00990 U	0.0100 U	0.00950 U	0.00980 U	0.00990 U	0.0100 U
Aroclor 1242	0.00990 U	0.0100 U	0.00950 U	0.00980 U	0.00990 U	0.0100 U
Aroclor 1248	0.00990 U	0.0100 U	0.00950 U	0.00980 U	0.00990 U	0.0720
Aroclor 1254	0.00990 U	0.0100 U	0.00950 U	0.00980 U	0.00990 U	0.0760
Aroclor 1260	0.00990 U	0.0100 U	0.00950 U	0.00980 U	0.00990 U	0.0100 U
Aroclor 1262						
Aroclor 1268						
Total PCBs	0.00990 U	0.0100 U	0.00950 U	0.00980 U	0.00990 U	0.148
Petroleum-Related Constituents (mg/kg)						
Benzene					0.00450 U	
Benzo(a)anthracene					0.000710 J	
Benzo(a)pyrene					0.00500 U	
Benzo(b)fluoranthene					0.00500 U	
Benzo(g,h,i)perylene					0.00500 U	
Benzo(k)fluoranthene					0.00500 U	
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ					0.00358	
Castor oil	100 U	100 U				

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-28DD/S-3_090506(5.0)_SO	HL-MW-28DD/S-4_090506(10.0)_SO	HL-MW-29s 10'_060707(10.0-11.0)_SO	HL-MW-29s 5'_060707(5.0-6.0)_SO	HL-MW-30s 10'_060807(10.0-11.0)_SO	HL-MW-30s 5'_060807(5.0-6.0)_SO
Chrysene					0.000430 J	
Dibenz(a,h)anthracene					0.00500 U	
Diesel	50.0 U	50.0 U	50.0 U	20.0 U	20.0 U	50.0 U
Ethyl Benzene					0.00450 U	
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	5.00 U	5.00 U	20.0 U
Gasoline Range Organics						
Heavy Oil	100 U	100 U	100 U	50.0 U	50.0 U	100 U
Indeno(1,2,3-cd)pyrene					0.00500 U	
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2-					0.00500 U	
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	5.00 U	5.00 U	20.0 U
Naphthalene					0.0180 U	
Toluene					0.00450 U	
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	40.0 U	40.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	5.00 U	5.00 U	20.0 U
Total Heavy Oil	200 U	200 U	100 U	50.0 U	50.0 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene					0.0180 U	
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	5.00 U	5.00 U	20.0 U
Total TPH						
Total Xylenes					0.00250	
Xylenes					0.000250 J	
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene					0.00500 U	
Acenaphthylene					0.00500 U	
Anthracene					0.00500 U	
Bromobenzene					0.00450 U	
Dibenzofuran					0.00500 U	
Dichlorobenzene, 1,2-					0.00450 U	
Dichlorobenzene, 1,3-					0.00450 U	
Fluoranthene					0.00500 U	
Fluorene					0.00500 U	
Hexachlorobutadiene					0.0180 U	
Phenanthrene					0.00500 U	
Pyrene					0.000460 J	
Trichlorobenzene, 1,2,4-					0.0180 U	

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-28DD/S-3_090506(5.0)_SO	HL-MW-28DD/S-4_090506(10.0)_SO	HL-MW-29s 10'_060707(10.0-11.0)_SO	HL-MW-29s 5'_060707(5.0-6.0)_SO	HL-MW-30s 10'_060807(10.0-11.0)_SO	HL-MW-30s 5'_060807(5.0-6.0)_SO
o-Xylene					0.00450 U	
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene					0.00450 U	
1,2,3-trichlorobenzene					0.0180 U	
1,2,4-Trimethylbenzene					0.000120 J	
1,3,5-Trimethylbenzene					0.0180 U	
1,3-dichloropropane					0.00450 U	
1-Phenylpropane					0.0180 U	
2,2-dichloropropane					0.00450 U	
2-chlorotoluene					0.0180 U	
4-chlorotoluene					0.000120 J	
4-isopropyltoluene					0.0180 U	
Acetone					0.0210 U	
Bromochloromethane					0.00450 U	
Bromodichloromethane					0.00450 U	
Bromoform					0.00450 U	
Bromomethane					0.00450 U	
CFC-11					0.00450 U	
CFC-12					0.00450 U	
Carbon Disulfide					0.00150 J	
Carbon Tetrachloride					0.00450 U	
Chlorobenzene					0.00450 U	
Chloroform					0.00450 U	
Chloromethane					0.00450 U	
Cumene					0.0180 U	
Dibromo-3-chloropropane, 1,2-					0.0180 U	
Dibromochloromethane					0.00450 U	
Dibromoethane, 1,2-					0.0180 U	
Dichlorobenzene, 1,4-					0.00450 U	
Dichloroethane, 1,1-					0.00450 U	
Dichloroethane, 1,2-					0.00450 U	
Dichloroethene, 1,1-					0.00450 U	
Dichloroethylene, Cis-1,2-					0.00450 U	
Dichloroethylene, Trans-1,2-					0.00450 U	
Dichloromethane					0.00890 U	
Dichloropropane, 1,2-					0.00450 U	
Dichloropropene, Cis-1,3-					0.00450 U	

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-28DD/S-3_090506(5.0)_SO	HL-MW-28DD/S-4_090506(10.0)_SO	HL-MW-29s 10'_060707(10.0-11.0)_SO	HL-MW-29s 5'_060707(5.0-6.0)_SO	HL-MW-30s 10'_060807(10.0-11.0)_SO	HL-MW-30s 5'_060807(5.0-6.0)_SO
Dichloropropene, Trans-1,3-					0.00450 U	
Ethyl Chloride					0.00450 U	
Hexanone, 2-					0.0180 U	
Methyl Ethyl Ketone					0.00290 J	
Methyl Isobutyl Ketone					0.0180 U	
Methylene Bromide					0.00450 U	
Styrene					0.00450 U	
Tert-butylbenzene					0.0180 U	
Tetrachloroethane, 1,1,1,2-					0.00450 U	
Tetrachloroethane, 1,1,2,2-					0.00450 U	
Tetrachloroethylene					0.000520 J	
Trichloroethane, 1,1,1-					0.00450 U	
Trichloroethane, 1,1,2-					0.00450 U	
Trichloroethylene					0.00450 U	
Trichloropropane, 1,2,3-					0.00450 U	
Vinyl Chloride					0.00450 U	
n-Butylbenzene					0.0180 U	
sec-Butylbenzene					0.0180 U	

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-6/S-1_113096(2.5-4.0)_SO	HL-MW-6/S-2_113096(7.5-9.0)_SO	LF-1_050807(6.0)_SO	WW-MW-1/S-1_111389(5.0-6.0)_SO	WW-MW-1/S-3_111389(13.5-15.5)_SO	WW-MW-14/S-1_111991(8.0-10.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)					3.90	
Barium						
Cadmium					1.00 U	
Chromium				29.0	33.0	
Chromium (VI)				0.100 U		
Lead (inorganic)					12.0	
Manganese						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016			0.00990 U			0.500 U
Aroclor 1221			0.0200 U			0.500 U
Aroclor 1232			0.00990 U			0.500 U
Aroclor 1242			0.00990 U			0.500 U
Aroclor 1248			0.550			0.200 U
Aroclor 1254			0.350			0.200 U
Aroclor 1260			0.00990 U			0.200 U
Aroclor 1262						0.200 U
Aroclor 1268						0.200 U
Total PCBs			0.900			0.200 U
Petroleum-Related Constituents (mg/kg)						
Benzene					0.0500 U	
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C	50.0 U	50.0 U	50.0 U			10.0 U
CPAH TEQ						
Castor oil						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-6/S-1_113096(2.5-4.0)_SO	HL-MW-6/S-2_113096(7.5-9.0)_SO	LF-1_050807(6.0)_SO	WW-MW-1/S-1_111389(5.0-6.0)_SO	WW-MW-1/S-3_111389(13.5-15.5)_SO	WW-MW-14/S-1_111991(8.0-10.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel	20.0 U	20.0 U	20.0 U			10.0 U
Ethyl Benzene					0.0500 U	
Gasoline Range Organics	10.0 U	10.0 U	5.00 U			10.0 U
Gasoline Range Organics						
Heavy Oil	50.0 U	50.0 U	50.0 U			10.0 U
Indeno(1,2,3-cd)pyrene						
Kensol	10.0 U	10.0 U	20.0 U			10.0 U
Kerosene/Jet fuel	10.0 U	10.0 U	20.0 U			10.0 U
Methylnaphthalene, 2-						
Mineral spirits/Stoddard	10.0 U	10.0 U	5.00 U			10.0 U
Naphthalene						
Toluene					0.0500 U	
Total Diesel/Fuel Oil	30.0 U	30.0 U	40.0 U			20.0 U
Total Gasoline	10.0 U	10.0 U	5.00 U			10.0 U
Total Heavy Oil	50.0 U	50.0 U	50.0 U			10.0 U
Total Kerosene/Jet Fuel	10.0 U	10.0 U	20.0 U			10.0 U
Total Naphthalene						
Total Stoddard/Mineral Spirits	10.0 U	10.0 U	5.00 U			10.0 U
Total TPH	50.0 U	50.0 U			25.0	10.0 U
Total Xylenes					0.0500 U	
Xylenes					0.0500 U	
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-6/S-1_113096(2.5-4.0)_SO	HL-MW-6/S-2_113096(7.5-9.0)_SO	LF-1_050807(6.0)_SO	WW-MW-1/S-1_111389(5.0-6.0)_SO	WW-MW-1/S-3_111389(13.5-15.5)_SO	WW-MW-14/S-1_111991(8.0-10.0)_SO
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform					0.0500 U	
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-					0.0500 U	
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-6/S-1_113096(2.5-4.0)_SO	HL-MW-6/S-2_113096(7.5-9.0)_SO	LF-1_050807(6.0)_SO	WW-MW-1/S-1_111389(5.0-6.0)_SO	WW-MW-1/S-3_111389(13.5-15.5)_SO	WW-MW-14/S-1_111991(8.0-10.0)_SO
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone					0.500 U	
Methyl Isobutyl Ketone						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-					0.0500 U	
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-MW-3/S-1_110689(5.0-7.0)_SO	WW-MW-3/S-2_110689(8.5-10.5)_SO	WW-MW-3/S-3_110689(13.0-15.0)_SO	WW-MW-5/S-3_110889(13.0-15.0)_SO	WW-SB-2/S-1_111589(5.0-7.0)_SO	WW-SB-2/S-2_111589(8.0-10.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
Metals (mg/kg)						
Arsenic (inorganic)	2.40			4.70		1.70
Barium						
Cadmium	1.00 U			1.00 U		1.00 U
Chromium	78.0	34.0	34.0	37.0	35.0	39.0
Chromium (VI)	0.100 U	0.100 U	0.100 U		0.100	
Lead (inorganic)	10.0 U			10.0 U		45.0
Manganese						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Aroclor 1262						
Aroclor 1268						
Total PCBs						
Petroleum-Related Constituents (mg/kg)						
Benzene	0.0500 U			0.0500 U		0.0500 U
Benzo(a)anthracene						
Benzo(a)pyrene						
Benzo(b)fluoranthene						
Benzo(g,h,i)perylene						
Benzo(k)fluoranthene						
Bunker C						
CPAH TEQ						
Castor oil						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-MW-3/S-1_110689(5.0-7.0)_SO	WW-MW-3/S-2_110689(8.5-10.5)_SO	WW-MW-3/S-3_110689(13.0-15.0)_SO	WW-MW-5/S-3_110889(13.0-15.0)_SO	WW-SB-2/S-1_111589(5.0-7.0)_SO	WW-SB-2/S-2_111589(8.0-10.0)_SO
Chrysene						
Dibenz(a,h)anthracene						
Diesel						
Ethyl Benzene	0.0500 U			0.0500 U		0.0500 U
Gasoline Range Organics						
Gasoline Range Organics						
Heavy Oil						
Indeno(1,2,3-cd)pyrene						
Kensol						
Kerosene/Jet fuel						
Methylnaphthalene, 2-						
Mineral spirits/Stoddard						
Naphthalene						
Toluene	0.0500 U			0.0500 U		0.0500 U
Total Diesel/Fuel Oil						
Total Gasoline						
Total Heavy Oil						
Total Kerosene/Jet Fuel						
Total Naphthalene						
Total Stoddard/Mineral Spirits						
Total TPH	25.0			2.00		480
Total Xylenes	0.0500 U			0.0500 U		0.0500 U
Xylenes	0.0500 U			0.0500 U		0.0500 U
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-MW-3/S-1_110689(5.0-7.0)_SO	WW-MW-3/S-2_110689(8.5-10.5)_SO	WW-MW-3/S-3_110689(13.0-15.0)_SO	WW-MW-5/S-3_110889(13.0-15.0)_SO	WW-SB-2/S-1_111589(5.0-7.0)_SO	WW-SB-2/S-2_111589(8.0-10.0)_SO
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform	0.0500 U			0.0500 U		0.0500 U
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-	0.0500 U			0.0500 U		0.0500 U
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-MW-3/S-1_110689(5.0-7.0)_SO	WW-MW-3/S-2_110689(8.5-10.5)_SO	WW-MW-3/S-3_110689(13.0-15.0)_SO	WW-MW-5/S-3_110889(13.0-15.0)_SO	WW-SB-2/S-1_111589(5.0-7.0)_SO	WW-SB-2/S-2_111589(8.0-10.0)_SO
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone	0.500 U			0.500 U		0.500 U
Methyl Isobutyl Ketone						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-	0.0500 U			0.0500 U		0.0500 U
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent	Sample ID:	WW-SB-2/S-3_111589(13.5-15.5)_SO	WW-SB-3/S-1_110489(5.0-7.0)_SO	WW-SB-3/S-2_110489(8.5-10.5)_SO			
Conventional (%)							
Moisture							
Total Organic Carbon							
Metals (mg/kg)							
Arsenic (inorganic)		1.70	3.70	1.10			
Barium							
Cadmium		1.00 U	1.00 U	1.00 U			
Chromium		34.0	22.0	27.0			
Chromium (VI)							
Lead (inorganic)		10.0 U	10.0 U	10.0 U			
Manganese							
Mercury (inorganic)							
Selenium (and compounds)							
Silver							
PCBs (mg/kg)							
Aroclor 1016							
Aroclor 1221							
Aroclor 1232							
Aroclor 1242							
Aroclor 1248							
Aroclor 1254							
Aroclor 1260							
Aroclor 1262							
Aroclor 1268							
Total PCBs							
Petroleum-Related Constituents (mg/kg)							
Benzene		0.0500 U	0.0500 U	0.0500 U			
Benzo(a)anthracene							
Benzo(a)pyrene							
Benzo(b)fluoranthene							
Benzo(g,h,i)perylene							
Benzo(k)fluoranthene							
Bunker C							
CPAH TEQ							
Castor oil							

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-SB-2/S-3_111589(13.5-15.5)_SO	WW-SB-3/S-1_110489(5.0-7.0)_SO	WW-SB-3/S-2_110489(8.5-10.5)_SO			
Chrysene						
Dibenz(a,h)anthracene						
Diesel						
Ethyl Benzene	0.0500 U	0.0500 U	0.0500 U			
Gasoline Range Organics						
Gasoline Range Organics						
Heavy Oil						
Indeno(1,2,3-cd)pyrene						
Kensol						
Kerosene/Jet fuel						
Methylnaphthalene, 2-						
Mineral spirits/Stoddard						
Naphthalene						
Toluene	0.0500 U	0.0500 U	0.0500 U			
Total Diesel/Fuel Oil						
Total Gasoline						
Total Heavy Oil						
Total Kerosene/Jet Fuel						
Total Naphthalene						
Total Stoddard/Mineral Spirits						
Total TPH	1.00 U	460	9.60			
Total Xylenes	0.0500 U	0.0500 U	0.0500 U			
Xylenes	0.0500 U	0.0500 U	0.0500 U			
Semi-Volatile Organic Constituents (mg/kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-SB-2/S-3_111589(13.5-15.5)_SO	WW-SB-3/S-1_110489(5.0-7.0)_SO	WW-SB-3/S-2_110489(8.5-10.5)_SO			
o-Xylene						
Volatile Organics Constituents (mg/kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform	0.0500 U	0.0500 U	0.0500 U			
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-	0.0500 U	0.0500 U	0.0500 U			
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						

Table A.1.25
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WW-SB-2/S-3_111589(13.5-15.5)_SO	WW-SB-3/S-1_110489(5.0-7.0)_SO	WW-SB-3/S-2_110489(8.5-10.5)_SO			
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone	0.500 U	0.500 U	0.500 U			
Methyl Isobutyl Ketone						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-	0.0500 U	0.0500 U	0.0500 U			
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-8_111306(3.0-8.0)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-10-S1_070308(2.0-2.5)_SO	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-13-S1_070308(2.0-3.0)_SO
Conventional (%)						
Moisture	5.90	7.60	13.0	7.30	3.10	10.0
Metals (mg/Kg)						
Antimony (metallic)				0.0900 J		
Arsenic (inorganic)				10.2		
Barium				127		
Cadmium				0.105		
Chromium				14.4		
Lead (inorganic)				11.1		
Mercury (inorganic)				0.00400 T		
Selenium (and compounds)				1.10 U		
Silver				0.119		
PCBs (mg/Kg)						
Aroclor 1016				0.0100 U		
Aroclor 1221				0.0200 U		
Aroclor 1232				0.0100 U		
Aroclor 1242				0.0100 U		
Aroclor 1248				0.0100 U		
Aroclor 1254				0.0100 U		
Aroclor 1260				0.0100 U		
Total PCBs				0.0100 U		
Petroleum-Related Constituents						
Benzene (mg/Kg)				0.00500 U		
Benzene (mg/kg)				0.00500 U		
Benzo(a)anthracene (mg/Kg)				0.00720		
Benzo(a)pyrene (mg/Kg)				0.00620		
Benzo(b)fluoranthene (mg/Kg)				0.00230 T		
Benzo(g,h,i)perylene (mg/Kg)				0.0250		
Benzo(k)fluoranthene (mg/Kg)				0.000540 T		
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ (mg/Kg)				0.00781		
Chrysene (mg/Kg)				0.0100		
Dibenz(a,h)anthracene (mg/Kg)				0.00180 T		
Diesel (mg/kg)	50.0 U	20.0 U	20.0 U	20.0 U	20.0 U	1700
Ethyl Benzene (mg/Kg)				0.00500 U		

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-8_111306(3.0-8.0)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-10-S1_070308(2.0-2.5)_SO	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-13-S1_070308(2.0-3.0)_SO
Ethyl Benzene (mg/kg)				0.00500 U		
Gasoline Range Organics (mg/kg)	20.0 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Heavy Oil (mg/kg)	100 U	50.0 U	50.0 U	50.0 U	50.0 U	1600
Indeno(1,2,3-cd)pyrene (mg/Kg)				0.00330 T		
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2- (mg/Kg)				0.00230 T		
Mineral spirits/Stoddard (mg/kg)	20.0 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene (mg/Kg)				0.0200 U		
Toluene (mg/Kg)				0.00500 U		
Toluene (mg/kg)				0.00500 U		
Total Diesel/Fuel Oil (mg/kg)	70.0 U	40.0 U	40.0 U	40.0 U	40.0 U	1710
Total Gasoline (mg/kg)	20.0 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil (mg/kg)	100 U	50.0 U	50.0 U	50.0 U	50.0 U	1600
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene (mg/Kg)				0.0200 U		
Total Stoddard/Mineral Spirits (mg/kg)	20.0 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH (mg/kg)						
Total Xylenes (mg/Kg)				0.0100 U		
Total Xylenes (mg/kg)				0.0100 U		
Xylenes (mg/Kg)				0.00500 U		
Xylenes (mg/kg)				0.00500 U		
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene				0.000720 T		
Acenaphthylene				0.00480 U		
Anthracene				0.00150 T		
Bromobenzene				0.00500 U		
Dibenzofuran				0.00480 U		
Dichlorobenzene, 1,2-				0.00500 U		
Dichlorobenzene, 1,3-				0.00500 U		
Fluoranthene				0.00360 T		
Fluorene				0.00170 T		
Hexachlorobutadiene				0.0200 U		
Phenanthrene				0.0120		
Pyrene				0.0210		
Trichlorobenzene, 1,2,4-				0.0200 U		
o-Xylene				0.00500 U		

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-8_111306(3.0-8.0)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-10-S1_070308(2.0-2.5)_SO	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-13-S1_070308(2.0-3.0)_SO
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene				0.00500 U		
1,2,3-trichlorobenzene				0.0200 U		
1,2,4-Trimethylbenzene				0.0200 U		
1,3,5-Trimethylbenzene				0.0200 U		
1,3-dichloropropane				0.00500 U		
1-Phenylpropane				0.0200 U		
2,2-dichloropropane				0.00500 U		
2-chlorotoluene				0.0200 U		
4-chlorotoluene				0.0200 U		
4-isopropyltoluene				0.0200 U		
Acetone				0.0450		
Bromochloromethane				0.00500 U		
Bromodichloromethane				0.00500 U		
Bromoform				0.00500 U		
Bromomethane				0.00500 U		
CFC-11				0.00500 U		
CFC-12				0.00500 U		
Carbon Disulfide				0.000410 T		
Carbon Tetrachloride				0.00500 U		
Chlorobenzene				0.00500 U		
Chloroform				0.00500 U		
Chloromethane				0.00500 U		
Cumene				0.0200 U		
Dibromo-3-chloropropane, 1,2-				0.0200 U		
Dibromochloromethane				0.00500 U		
Dibromoethane, 1,2-				0.0200 U		
Dichlorobenzene, 1,4-				0.00500 U		
Dichloroethane, 1,1-				0.00500 U		
Dichloroethane, 1,2-				0.00500 U		
Dichloroethene, 1,1-				0.00500 U		
Dichloroethylene, Cis-1,2-				0.00500 U		
Dichloroethylene, Trans-1,2-				0.00500 U		
Dichloromethane				0.00330 T		
Dichloropropane, 1,2-				0.00500 U		
Dichloropropene, Cis-1,3-				0.00500 U		
Dichloropropene, Trans-1,3-				0.00500 U		

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-8_111306(3.0-8.0)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-10-S1_070308(2.0-2.5)_SO	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-13-S1_070308(2.0-3.0)_SO
Ethyl Chloride				0.00500 U		
Hexanone, 2-				0.0200 U		
Methyl Ethyl Ketone				0.00450 T		
Methyl Isobutyl Ketone				0.0200 U		
Methylene Bromide				0.00500 U		
Styrene				0.00500 U		
Tert-butylbenzene				0.0200 U		
Tetrachloroethane, 1,1,1,2-				0.00500 U		
Tetrachloroethane, 1,1,2,2-				0.00500 U		
Tetrachloroethylene				0.00500 U		
Trichloroethane, 1,1,1-				0.00500 U		
Trichloroethane, 1,1,2-				0.00500 U		
Trichloroethylene				0.00500 U		
Trichloropropane, 1,2,3-				0.00500 U		
Vinyl Chloride				0.00500 U		
n-Butylbenzene				0.0200 U		
sec-Butylbenzene				0.0200 U		

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-2-S1_070208(2.0-2.5)_SO	TP-3-S1_070208(2.0-3.0)_SO	TP-4-S1_070208(2.0-2.5)_SO	TP-5-S1_070208(2.0-2.5)_SO	TP-6-S1_070208(2.0-2.5)_SO	TP-7-S1_070208(2.0-2.5)_SO
Conventional (%)						
Moisture	7.30	5.50	5.70	5.40	7.90	5.80
Metals (mg/Kg)						
Antimony (metallic)						
Arsenic (inorganic)						
Barium						
Cadmium						
Chromium						
Lead (inorganic)						
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/Kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents						
Benzene (mg/Kg)						
Benzene (mg/kg)						
Benzo(a)anthracene (mg/Kg)						
Benzo(a)pyrene (mg/Kg)						
Benzo(b)fluoranthene (mg/Kg)						
Benzo(g,h,i)perylene (mg/Kg)						
Benzo(k)fluoranthene (mg/Kg)						
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ (mg/Kg)						
Chrysene (mg/Kg)						
Dibenz(a,h)anthracene (mg/Kg)						
Diesel (mg/kg)	20.0 U	60.0	81.0	94.0	7300	20.0 U
Ethyl Benzene (mg/Kg)						

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-2-S1_070208(2.0-2.5)_SO	TP-3-S1_070208(2.0-3.0)_SO	TP-4-S1_070208(2.0-2.5)_SO	TP-5-S1_070208(2.0-2.5)_SO	TP-6-S1_070208(2.0-2.5)_SO	TP-7-S1_070208(2.0-2.5)_SO
Ethyl Benzene (mg/kg)						
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Heavy Oil (mg/kg)	50.0 U	180	220	120	3300	50.0 U
Indeno(1,2,3-cd)pyrene (mg/Kg)						
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2- (mg/Kg)						
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene (mg/Kg)						
Toluene (mg/Kg)						
Toluene (mg/kg)						
Total Diesel/Fuel Oil (mg/kg)	40.0 U	70.0	91.0	104	7310	40.0 U
Total Gasoline (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil (mg/kg)	50.0 U	180	220	120	3300	50.0 U
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene (mg/Kg)						
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH (mg/kg)						
Total Xylenes (mg/Kg)						
Total Xylenes (mg/kg)						
Xylenes (mg/Kg)						
Xylenes (mg/kg)						
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						
o-Xylene						

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-2-S1_070208(2.0-2.5)_SO	TP-3-S1_070208(2.0-3.0)_SO	TP-4-S1_070208(2.0-2.5)_SO	TP-5-S1_070208(2.0-2.5)_SO	TP-6-S1_070208(2.0-2.5)_SO	TP-7-S1_070208(2.0-2.5)_SO
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-2-S1_070208(2.0-2.5)_SO	TP-3-S1_070208(2.0-3.0)_SO	TP-4-S1_070208(2.0-2.5)_SO	TP-5-S1_070208(2.0-2.5)_SO	TP-6-S1_070208(2.0-2.5)_SO	TP-7-S1_070208(2.0-2.5)_SO
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-8-S1_070308(1.0-2.0)_SO	TP-9-S1_070308(2.0-3.0)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO		
Conventional (%)						
Moisture	5.60	4.90				
Metals (mg/Kg)						
Antimony (metallic)						
Arsenic (inorganic)			2.20	1.70		
Barium						
Cadmium			1.00 U	1.00 U		
Chromium			22.0	34.0		
Lead (inorganic)			120	10.0 U		
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/Kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents						
Benzene (mg/Kg)			0.0500 U	0.500 U		
Benzene (mg/kg)			0.0500 U	0.500 U		
Benzo(a)anthracene (mg/Kg)						
Benzo(a)pyrene (mg/Kg)						
Benzo(b)fluoranthene (mg/Kg)						
Benzo(g,h,i)perylene (mg/Kg)						
Benzo(k)fluoranthene (mg/Kg)						
Bunker C (mg/kg)	50.0 U	50.0 U				
CPAH TEQ (mg/Kg)						
Chrysene (mg/Kg)						
Dibenz(a,h)anthracene (mg/Kg)						
Diesel (mg/kg)	20.0 U	2500				
Ethyl Benzene (mg/Kg)			0.0500 U	0.500 U		

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-8-S1_070308(1.0-2.0)_SO	TP-9-S1_070308(2.0-3.0)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO		
Ethyl Benzene (mg/kg)			0.0500 U	0.500 U		
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U				
Heavy Oil (mg/kg)	50.0 U	750				
Indeno(1,2,3-cd)pyrene (mg/Kg)						
Kensol (mg/kg)	20.0 U	20.0 U				
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U				
Methylnaphthalene, 2- (mg/Kg)						
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U				
Naphthalene (mg/Kg)						
Toluene (mg/Kg)			0.0500 U	0.500 U		
Toluene (mg/kg)			0.0500 U	0.500 U		
Total Diesel/Fuel Oil (mg/kg)	40.0 U	2510	117	1800		
Total Gasoline (mg/kg)	5.00 U	5.00 U				
Total Heavy Oil (mg/kg)	50.0 U	750	103	1600		
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U				
Total Naphthalene (mg/Kg)						
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U				
Total TPH (mg/kg)			220	3400		
Total Xylenes (mg/Kg)			0.0500 U	0.500 U		
Total Xylenes (mg/kg)			0.0500 U	0.500 U		
Xylenes (mg/Kg)			0.0500 U	0.500 U		
Xylenes (mg/kg)			0.0500 U	0.500 U		
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						
o-Xylene						

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-8-S1_070308(1.0-2.0)_SO	TP-9-S1_070308(2.0-3.0)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO		
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform			0.0500 U	0.500 U		
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-			0.0500 U	0.500 U		
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						

Table A.2.1.1
Field-Constructed Tanks Site (0 to 6 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-8-S1_070308(1.0-2.0)_SO	TP-9-S1_070308(2.0-3.0)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO		
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone			0.500 U	5.00 U		
Methyl Isobutyl Ketone						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-			0.0500 U	0.500 U		
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Notes:
The following qualifiers may be used in this table:
J - Constituent present, reported value is estimated
U - Not detected at or above reporting limit
UJ - Not detected; reporting limit is estimated
The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:
-If both results were detected values, then the two values were averaged.
If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-8_111306(3.0-8.0)_SO	TP-1-Bottom_070208(9.0-9.5)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-1-S2_070208(6.0-6.5)_SO	TP-10-Bottom_070308(6.0-7.0)_SO	TP-10-S1_070308(2.0-2.5)_SO
Conventional (%)						
Moisture	5.90	7.10	7.60	4.10	4.60	13.0
Metals (mg/Kg)						
Antimony (metallic)		0.130 J			0.300 J	
Arsenic (inorganic)		8.60			12.0	
Barium		45.2			34.6	
Cadmium		0.520			0.0550	
Chromium		7.20			5.10	
Lead (inorganic)		11.7			8.70	
Mercury (inorganic)		0.0140 U			0.0160 U	
Selenium (and compounds)		1.10 U			1.00 U	
Silver		0.0440			0.0600	
PCBs (mg/Kg)						
Aroclor 1016		0.00990 U			0.00990 U	
Aroclor 1221		0.0200 U			0.0200 U	
Aroclor 1232		0.00990 U			0.00990 U	
Aroclor 1242		0.00990 U			0.00990 U	
Aroclor 1248		0.00990 U			0.00990 U	
Aroclor 1254		0.00990 U			0.00990 U	
Aroclor 1260		0.00990 U			0.00990 U	
Total PCBs		0.00990 U			0.00990 U	
Petroleum-Related Constituents						
Benzene (mg/Kg)		0.00510 U			0.00460 U	
Benzene (mg/kg)		0.00510 U			0.00460 U	
Benzo(a)anthracene (mg/Kg)		0.00620			0.00490 U	
Benzo(a)pyrene (mg/Kg)		0.00410 T			0.00490 U	
Benzo(b)fluoranthene (mg/Kg)		0.00280 T			0.00490 U	
Benzo(g,h,i)perylene (mg/Kg)		0.00440 T			0.00490 U	
Benzo(k)fluoranthene (mg/Kg)		0.000770 T			0.00490 U	
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ (mg/Kg)		0.00540			0.00740 U	
Chrysene (mg/Kg)		0.00590			0.00490 U	
Dibenz(a,h)anthracene (mg/Kg)		0.000940 T			0.00490 U	
Diesel (mg/kg)	50.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene (mg/Kg)		0.00170 T			0.00460 U	

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-8_111306(3.0-8.0)_SO	TP-1-Bottom_070208(9.0-9.5)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-1-S2_070208(6.0-6.5)_SO	TP-10-Bottom_070308(6.0-7.0)_SO	TP-10-S1_070308(2.0-2.5)_SO
Ethyl Benzene (mg/kg)		0.00170 T			0.00460 U	
Gasoline Range Organics (mg/kg)	20.0 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Heavy Oil (mg/kg)	100 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene (mg/Kg)		0.00170 T			0.00490 U	
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2- (mg/Kg)		0.150			0.00490 U	
Mineral spirits/Stoddard (mg/kg)	20.0 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene (mg/Kg)		0.0560			0.0190 U	
Naphthalene (mg/kg)		0.0560			0.0190 U	
Toluene (mg/Kg)		0.00510 U			0.00460 U	
Toluene (mg/kg)		0.00510 U			0.00460 U	
Total Diesel/Fuel Oil (mg/kg)	70.0 U	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U
Total Gasoline (mg/kg)	20.0 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil (mg/kg)	100 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene (mg/Kg)		0.0560			0.0190 U	
Total Naphthalene (mg/kg)		0.0560			0.0190 U	
Total Stoddard/Mineral Spirits (mg/kg)	20.0 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH (mg/kg)						
Total Xylenes (mg/Kg)		0.0107			0.00920 U	
Total Xylenes (mg/kg)		0.0107			0.00920 U	
Xylenes (mg/Kg)		0.00580 J			0.00460 U	
Xylenes (mg/kg)		0.00580 J			0.00460 U	
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene		0.00900			0.00490 U	
Acenaphthylene		0.00480 U			0.00490 U	
Anthracene		0.0110			0.00490 U	
Bromobenzene		0.00510 U			0.00460 U	
Dibenzofuran		0.00670			0.00490 U	
Dichlorobenzene, 1,2-		0.00510 U			0.00460 U	
Dichlorobenzene, 1,3-		0.00510 U			0.00460 U	
Fluoranthene		0.00720			0.00490 U	
Fluorene		0.0170			0.00490 U	
Hexachlorobutadiene		0.0210 U			0.0190 U	
Phenanthrene		0.0820			0.00490 U	
Pyrene		0.0370			0.00490 U	

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-8_111306(3.0-8.0)_SO	TP-1-Bottom_070208(9.0-9.5)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-1-S2_070208(6.0-6.5)_SO	TP-10-Bottom_070308(6.0-7.0)_SO	TP-10-S1_070308(2.0-2.5)_SO
Trichlorobenzene, 1,2,4-		0.0210 U			0.0190 U	
o-Xylene		0.00490 T			0.00460 U	
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene		0.00510 U			0.00460 U	
1,2,3-trichlorobenzene		0.0210 U			0.0190 U	
1,2,4-Trimethylbenzene		0.0260			0.000140 T	
1,3,5-Trimethylbenzene		0.00600 JT			0.0190 U	
1,3-dichloropropane		0.00510 U			0.00460 U	
1-Phenylpropane		0.00250 JT			0.0190 U	
2,2-dichloropropane		0.00510 U			0.00460 U	
2-chlorotoluene		0.0210 U			0.0190 U	
4-chlorotoluene		0.000190 T			0.0190 U	
4-isopropyltoluene		0.00240 JT			0.0190 U	
Acetone		0.0240			0.0190 U	
Bromochloromethane		0.00510 U			0.00460 U	
Bromodichloromethane		0.00510 U			0.00460 U	
Bromoform		0.00510 U			0.00460 U	
Bromomethane		0.00130 JT			0.00460 U	
CFC-11		0.00510 U			0.00460 U	
CFC-12		0.00510 U			0.00460 U	
Carbon Disulfide		0.000450 T			0.000210 T	
Carbon Tetrachloride		0.00510 U			0.00460 U	
Chlorobenzene		0.00510 U			0.00460 U	
Chloroform		0.00510 U			0.00460 U	
Chloromethane		0.000220 T			0.00460 U	
Cumene		0.00110 T			0.0190 U	
Dibromo-3-chloropropane, 1,2-		0.0210 U			0.0190 U	
Dibromochloromethane		0.00510 U			0.00460 U	
Dibromoethane, 1,2-		0.0210 U			0.0190 U	
Dichlorobenzene, 1,4-		0.00510 U			0.00460 U	
Dichloroethane, 1,1-		0.00510 U			0.00460 U	
Dichloroethane, 1,2-		0.00510 U			0.00460 U	
Dichloroethene, 1,1-		0.00510 U			0.00460 U	
Dichloroethylene, Cis-1,2-		0.00510 U			0.00460 U	
Dichloroethylene, Trans-1,2-		0.00510 U			0.00460 U	
Dichloromethane		0.0110 U			0.00920 U	
Dichloropropane, 1,2-		0.00510 U			0.00460 U	

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	CS-8_111306(3.0-8.0)_SO	TP-1-Bottom_070208(9.0-9.5)_SO	TP-1-S1_070208(2.0-2.5)_SO	TP-1-S2_070208(6.0-6.5)_SO	TP-10-Bottom_070308(6.0-7.0)_SO	TP-10-S1_070308(2.0-2.5)_SO
Dichloropropene, Cis-1,3-		0.00510 U			0.00460 U	
Dichloropropene, Trans-1,3-		0.00510 U			0.00460 U	
Ethyl Chloride		0.00510 U			0.00460 U	
Hexanone, 2-		0.0210 U			0.0190 U	
Methyl Ethyl Ketone		0.00310 T			0.0190 U	
Methyl Isobutyl Ketone		0.0210 U			0.0190 U	
Methylene Bromide		0.00510 U			0.00460 U	
Styrene		0.00510 U			0.00460 U	
Tert-butylbenzene		0.0210 U			0.0190 U	
Tetrachloroethane, 1,1,1,2-		0.00510 U			0.00460 U	
Tetrachloroethane, 1,1,2,2-		0.00510 U			0.00460 U	
Tetrachloroethylene		0.00510 U			0.00460 U	
Trichloroethane, 1,1,1-		0.00510 U			0.00460 U	
Trichloroethane, 1,1,2-		0.00510 U			0.00460 U	
Trichloroethylene		0.00510 U			0.00460 U	
Trichloropropane, 1,2,3-		0.00510 U			0.00460 U	
Vinyl Chloride		0.00510 U			0.00460 U	
n-Butylbenzene		0.00300 T			0.0190 U	
sec-Butylbenzene		0.00170 T			0.0190 U	

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-Bottom_070308(10.0-11.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-12-S2_070308(6.0-7.0)_SO	TP-13 S-2_070308(6.0-7.0)_SO	TP-13-Bottom_070308(10.0-11.0)_SO
Conventional (%)						
Moisture	7.30	6.10	3.10	8.70		5.20
Metals (mg/Kg)						
Antimony (metallic)	0.0900 J	0.140 J				0.210 J
Arsenic (inorganic)	10.2	9.70				11.5
Barium	127	44.8				58.2
Cadmium	0.105	0.0540				0.0800
Chromium	14.4	8.80				6.40
Lead (inorganic)	11.1	10.9				12.5
Mercury (inorganic)	0.00400 T	0.00700 T				0.0300
Selenium (and compounds)	1.10 U	1.10 U				1.10 U
Silver	0.119	0.0300				0.0660
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.0100 U				0.0100 U
Aroclor 1221	0.0200 U	0.0200 U				0.0200 U
Aroclor 1232	0.0100 U	0.0100 U				0.0100 U
Aroclor 1242	0.0100 U	0.0100 U				0.0100 U
Aroclor 1248	0.0100 U	0.0100 U				0.0100 U
Aroclor 1254	0.0100 U	0.0100 U				0.0100 U
Aroclor 1260	0.0100 U	0.0100 U				0.00290 T
Total PCBs	0.0100 U	0.0100 U				0.00290
Petroleum-Related Constituents						
Benzene (mg/Kg)	0.00500 U	0.00430 U			0.00480 U	
Benzene (mg/kg)	0.00500 U	0.00430 U			0.00480 U	
Benzo(a)anthracene (mg/Kg)	0.00720	0.00500 U				0.00500 U
Benzo(a)pyrene (mg/Kg)	0.00620	0.00500 U				0.00500 U
Benzo(b)fluoranthene (mg/Kg)	0.00230 T	0.00500 U				0.00500 U
Benzo(g,h,i)perylene (mg/Kg)	0.0250	0.00850				0.170
Benzo(k)fluoranthene (mg/Kg)	0.000540 T	0.00500 U				0.00500 U
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U		50.0 U
CPAH TEQ (mg/Kg)	0.00781	0.00356				0.00449
Chrysene (mg/Kg)	0.0100	0.00500 U				0.00500 U
Dibenz(a,h)anthracene (mg/Kg)	0.00180 T	0.000380 T				0.00280 T
Diesel (mg/kg)	20.0 U	20.0 U	20.0 U	200		20.0 U
Ethyl Benzene (mg/Kg)	0.00500 U	0.00430 U			0.00480 U	

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-Bottom_070308(10.0-11.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-12-S2_070308(6.0-7.0)_SO	TP-13 S-2_070308(6.0-7.0)_SO	TP-13-Bottom_070308(10.0-11.0)_SO
Ethyl Benzene (mg/kg)	0.00500 U	0.00430 U			0.00480 U	
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U		20.0 U
Heavy Oil (mg/kg)	50.0 U	50.0 U	50.0 U	530		50.0 U
Indeno(1,2,3-cd)pyrene (mg/Kg)	0.00330 T	0.00500 U				0.00930
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U		20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U		20.0 U
Methylnaphthalene, 2- (mg/Kg)	0.00230 T	0.000480 T				0.00120 T
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U		20.0 U
Naphthalene (mg/Kg)	0.0200 U	0.0180 U			0.0200 U	0.000580 T
Naphthalene (mg/kg)	0.0200 U	0.0180 U			0.0200 U	0.000580 T
Toluene (mg/Kg)	0.00500 U	0.00430 U			0.00480 U	
Toluene (mg/kg)	0.00500 U	0.00430 U			0.00480 U	
Total Diesel/Fuel Oil (mg/kg)	40.0 U	40.0 U	40.0 U	210		40.0 U
Total Gasoline (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U		20.0 U
Total Heavy Oil (mg/kg)	50.0 U	50.0 U	50.0 U	530		50.0 U
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U		20.0 U
Total Naphthalene (mg/Kg)	0.0200 U	0.0180 U			0.0200 U	0.000580
Total Naphthalene (mg/kg)	0.0200 U	0.0180 U			0.0200 U	0.000580
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U		20.0 U
Total TPH (mg/kg)						
Total Xylenes (mg/Kg)	0.0100 U	0.00860 U			0.00267	
Total Xylenes (mg/kg)	0.0100 U	0.00860 U			0.00267	
Xylenes (mg/Kg)	0.00500 U	0.00430 U			0.000270 JT	
Xylenes (mg/kg)	0.00500 U	0.00430 U			0.000270 JT	
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene	0.000720 T	0.00500 U				0.000250 T
Acenaphthylene	0.00480 U	0.00500 U				0.00500 U
Anthracene	0.00150 T	0.00500 U				0.00120 T
Bromobenzene	0.00500 U	0.00430 U			0.00480 U	
Dibenzofuran	0.00480 U	0.00500 U				0.00500 U
Dichlorobenzene, 1,2-	0.00500 U	0.00430 U			0.00480 U	
Dichlorobenzene, 1,3-	0.00500 U	0.00430 U			0.00480 U	
Fluoranthene	0.00360 T	0.00500 U				0.00500 U
Fluorene	0.00170 T	0.00500 U				0.00500 U
Hexachlorobutadiene	0.0200 U	0.0180 U			0.0200 U	
Phenanthrene	0.0120	0.00500 U				0.00170 T
Pyrene	0.0210	0.00500 U				0.00310 T

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-Bottom_070308(10.0-11.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-12-S2_070308(6.0-7.0)_SO	TP-13 S-2_070308(6.0-7.0)_SO	TP-13-Bottom_070308(10.0-11.0)_SO
Trichlorobenzene, 1,2,4-	0.0200 U	0.0180 U			0.0200 U	
o-Xylene	0.00500 U	0.00430 U			0.00480 U	
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene	0.00500 U	0.00430 U			0.00480 U	
1,2,3-trichlorobenzene	0.0200 U	0.0180 U			0.0200 U	
1,2,4-Trimethylbenzene	0.0200 U	0.0180 U			0.0200 U	
1,3,5-Trimethylbenzene	0.0200 U	0.0180 U			0.0200 U	
1,3-dichloropropane	0.00500 U	0.00430 U			0.00480 U	
1-Phenylpropane	0.0200 U	0.0180 U			0.0200 U	
2,2-dichloropropane	0.00500 U	0.00430 U			0.00480 U	
2-chlorotoluene	0.0200 U	0.0180 U			0.0200 U	
4-chlorotoluene	0.0200 U	0.0180 U			0.0200 U	
4-isopropyltoluene	0.0200 U	0.0180 U			0.0200 U	
Acetone	0.0450	0.0820			0.0790	
Bromochloromethane	0.00500 U	0.00430 U			0.00480 U	
Bromodichloromethane	0.00500 U	0.00430 U			0.00480 U	
Bromoform	0.00500 U	0.00430 U			0.00480 U	
Bromomethane	0.00500 U	0.00430 U			0.00480 U	
CFC-11	0.00500 U	0.00430 U			0.00480 U	
CFC-12	0.00500 U	0.00430 U			0.00480 U	
Carbon Disulfide	0.000410 T	0.000480 T			0.000180 T	
Carbon Tetrachloride	0.00500 U	0.00430 U			0.00480 U	
Chlorobenzene	0.00500 U	0.00430 U			0.00480 U	
Chloroform	0.00500 U	0.00430 U			0.00480 U	
Chloromethane	0.00500 U	0.00430 U			0.00480 U	
Cumene	0.0200 U	0.0180 U			0.0200 U	
Dibromo-3-chloropropane, 1,2-	0.0200 U	0.0180 U			0.0200 U	
Dibromochloromethane	0.00500 U	0.00430 U			0.00480 U	
Dibromoethane, 1,2-	0.0200 U	0.0180 U			0.0200 U	
Dichlorobenzene, 1,4-	0.00500 U	0.00430 U			0.00480 U	
Dichloroethane, 1,1-	0.00500 U	0.00430 U			0.00480 U	
Dichloroethane, 1,2-	0.00500 U	0.00430 U			0.00480 U	
Dichloroethene, 1,1-	0.00500 U	0.00430 U			0.00480 U	
Dichloroethylene, Cis-1,2-	0.00500 U	0.00430 U			0.00480 U	
Dichloroethylene, Trans-1,2-	0.00500 U	0.00430 U			0.00480 U	
Dichloromethane	0.00330 T	0.00470 T			0.00260 T	
Dichloropropane, 1,2-	0.00500 U	0.00430 U			0.00480 U	

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-11-Bottom_070308(2.0-3.0)_SO	TP-12-Bottom_070308(10.0-11.0)_SO	TP-12-S1_070308(3.0-4.0)_SO	TP-12-S2_070308(6.0-7.0)_SO	TP-13 S-2_070308(6.0-7.0)_SO	TP-13-Bottom_070308(10.0-11.0)_SO
Dichloropropene, Cis-1,3-	0.00500 U	0.00430 U			0.00480 U	
Dichloropropene, Trans-1,3-	0.00500 U	0.00430 U			0.00480 U	
Ethyl Chloride	0.00500 U	0.00430 U			0.00480 U	
Hexanone, 2-	0.0200 U	0.0180 U			0.0200 U	
Methyl Ethyl Ketone	0.00450 T	0.0150 T			0.0140 T	
Methyl Isobutyl Ketone	0.0200 U	0.0180 U			0.0200 U	
Methylene Bromide	0.00500 U	0.00430 U			0.00480 U	
Styrene	0.00500 U	0.00430 U			0.00480 U	
Tert-butylbenzene	0.0200 U	0.0180 U			0.0200 U	
Tetrachloroethane, 1,1,1,2-	0.00500 U	0.00430 U			0.00480 U	
Tetrachloroethane, 1,1,2,2-	0.00500 U	0.00430 U			0.00480 U	
Tetrachloroethylene	0.00500 U	0.00430 U			0.00480 U	
Trichloroethane, 1,1,1-	0.00500 U	0.00430 U			0.00480 U	
Trichloroethane, 1,1,2-	0.00500 U	0.00430 U			0.00480 U	
Trichloroethylene	0.00500 U	0.00430 U			0.00480 U	
Trichloropropane, 1,2,3-	0.00500 U	0.00430 U			0.00480 U	
Vinyl Chloride	0.00500 U	0.00430 U			0.00480 U	
n-Butylbenzene	0.0200 U	0.0180 U			0.0200 U	
sec-Butylbenzene	0.0200 U	0.0180 U			0.0200 U	

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-13-S1_070308(2.0-3.0)_SO	TP-13-S2_070308(6.0-7.0)_SO	TP-2-Bottom_070208(9.0-9.5)_SO_DC	TP-2-S1_070208(2.0-2.5)_SO	TP-2-S2_070208(6.0-6.5)_SO	TP-3-Bottom_070208(9.0-9.5)_SO
Conventional (%)						
Moisture	10.0	8.40	8.40	7.30	7.30	4.70
Metals (mg/Kg)						
Antimony (metallic)			0.160			0.160 J
Arsenic (inorganic)			35.7			7.70
Barium			54.4			93.1
Cadmium			0.0730			0.0780
Chromium			6.00			12.2
Lead (inorganic)			10.1			10.9
Mercury (inorganic)			0.00300			0.0180 U
Selenium (and compounds)			1.10 U			1.10 U
Silver			0.0560			0.0930
PCBs (mg/Kg)						
Aroclor 1016			0.00990 U			0.00990 U
Aroclor 1221			0.0200 U			0.0200 U
Aroclor 1232			0.00990 U			0.00990 U
Aroclor 1242			0.00990 U			0.00990 U
Aroclor 1248			0.00990 U			0.00990 U
Aroclor 1254			0.00990 U			0.00990 U
Aroclor 1260			0.00990 U			0.00990 U
Total PCBs			0.00990 U			0.00990 U
Petroleum-Related Constituents						
Benzene (mg/Kg)			0.00480 U			0.00450 U
Benzene (mg/kg)			0.00480 U			0.00450 U
Benzo(a)anthracene (mg/Kg)			0.00120			0.000710 T
Benzo(a)pyrene (mg/Kg)			0.00190 T			0.00490 U
Benzo(b)fluoranthene (mg/Kg)			0.000630			0.00490 U
Benzo(g,h,i)perylene (mg/Kg)			0.00120 T			0.00490 U
Benzo(k)fluoranthene (mg/Kg)			0.000340 T			0.00490 U
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ (mg/Kg)			0.00221			0.00350
Chrysene (mg/Kg)			0.00151			0.000300 T
Dibenz(a,h)anthracene (mg/Kg)			0.000360			0.00490 U
Diesel (mg/kg)	1700	620	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene (mg/Kg)			0.00120 T			0.00450 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-13-S1_070308(2.0-3.0)_SO	TP-13-S2_070308(6.0-7.0)_SO	TP-2-Bottom_070208(9.0-9.5)_SO_DC	TP-2-S1_070208(2.0-2.5)_SO	TP-2-S2_070208(6.0-6.5)_SO	TP-3-Bottom_070208(9.0-9.5)_SO
Ethyl Benzene (mg/kg)			0.00120 T			0.00450 U
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Heavy Oil (mg/kg)	1600	900	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene (mg/Kg)			0.000370			0.00490 U
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2- (mg/Kg)			0.0165			0.000530 T
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene (mg/Kg)			0.0370			0.0180 U
Naphthalene (mg/kg)			0.0370			0.0180 U
Toluene (mg/Kg)			0.00480 U			0.00450 U
Toluene (mg/kg)			0.00480 U			0.00450 U
Total Diesel/Fuel Oil (mg/kg)	1710	630	40.0 U	40.0 U	40.0 U	40.0 U
Total Gasoline (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil (mg/kg)	1600	900	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene (mg/Kg)			0.0370			0.0180 U
Total Naphthalene (mg/kg)			0.0370			0.0180 U
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH (mg/kg)						
Total Xylenes (mg/Kg)			0.00427			0.000520
Total Xylenes (mg/kg)			0.00427			0.000520
Xylenes (mg/Kg)			0.00247			0.000240 JT
Xylenes (mg/kg)			0.00247			0.000240 JT
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene			0.00125			0.00490 U
Acenaphthylene			0.00490 U			0.00490 U
Anthracene			0.00185			0.00490 U
Bromobenzene			0.00480 U			0.00450 U
Dibenzofuran			0.00165			0.00490 U
Dichlorobenzene, 1,2-			0.00480 U			0.00450 U
Dichlorobenzene, 1,3-			0.00480 U			0.00450 U
Fluoranthene			0.00260			0.00490 U
Fluorene			0.00185			0.00490 U
Hexachlorobutadiene			0.0190 U			0.0180 U
Phenanthrene			0.0420			0.000890 T
Pyrene			0.00945			0.000500 T

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-13-S1_070308(2.0-3.0)_SO	TP-13-S2_070308(6.0-7.0)_SO	TP-2-Bottom_070208(9.0-9.5)_SO_DC	TP-2-S1_070208(2.0-2.5)_SO	TP-2-S2_070208(6.0-6.5)_SO	TP-3-Bottom_070208(9.0-9.5)_SO
Trichlorobenzene, 1,2,4-			0.0190 U			0.0180 U
o-Xylene			0.00181			0.000280 T
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene			0.00480 U			0.00450 U
1,2,3-trichlorobenzene			0.0190 U			0.0180 U
1,2,4-Trimethylbenzene			0.00745			0.000360 T
1,3,5-Trimethylbenzene			0.00174			0.000120 JT
1,3-dichloropropane			0.00480 U			0.00450 U
1-Phenylpropane			0.00140 JT			0.0180 U
2,2-dichloropropane			0.00480 U			0.00450 U
2-chlorotoluene			0.0190 U			0.0180 U
4-chlorotoluene			0.0190 U			0.0180 U
4-isopropyltoluene			0.000565			0.0180 U
Acetone			0.0445			0.0180 U
Bromochloromethane			0.00480 U			0.00450 U
Bromodichloromethane			0.00480 U			0.00450 U
Bromoform			0.00480 U			0.00450 U
Bromomethane			0.00480 U			0.00450 U
CFC-11			0.00480 U			0.00450 U
CFC-12			0.00480 U			0.00450 U
Carbon Disulfide			0.000330 T			0.0000800 T
Carbon Tetrachloride			0.00480 U			0.00450 U
Chlorobenzene			0.00480 U			0.00450 U
Chloroform			0.00480 U			0.00450 U
Chloromethane			0.00480 U			0.000150 T
Cumene			0.000610 T			0.0180 U
Dibromo-3-chloropropane, 1,2-			0.0190 U			0.0180 U
Dibromochloromethane			0.00480 U			0.00450 U
Dibromoethane, 1,2-			0.0190 U			0.0180 U
Dichlorobenzene, 1,4-			0.00480 U			0.00450 U
Dichloroethane, 1,1-			0.00480 U			0.00450 U
Dichloroethane, 1,2-			0.00480 U			0.00450 U
Dichloroethene, 1,1-			0.00480 U			0.00450 U
Dichloroethylene, Cis-1,2-			0.00480 U			0.00450 U
Dichloroethylene, Trans-1,2-			0.00480 U			0.00450 U
Dichloromethane			0.00400 T			0.00890 U
Dichloropropane, 1,2-			0.00480 U			0.00450 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-13-S1_070308(2.0-3.0)_SO	TP-13-S2_070308(6.0-7.0)_SO	TP-2-Bottom_070208(9.0-9.5)_SO_DC	TP-2-S1_070208(2.0-2.5)_SO	TP-2-S2_070208(6.0-6.5)_SO	TP-3-Bottom_070208(9.0-9.5)_SO
Dichloropropene, Cis-1,3-			0.00480 U			0.00450 U
Dichloropropene, Trans-1,3-			0.00480 U			0.00450 U
Ethyl Chloride			0.00480 U			0.00450 U
Hexanone, 2-			0.0190 U			0.0180 U
Methyl Ethyl Ketone			0.00655			0.0180 U
Methyl Isobutyl Ketone			0.0190 U			0.0180 U
Methylene Bromide			0.00480 U			0.00450 U
Styrene			0.000150 T			0.000150 T
Tert-butylbenzene			0.0190 U			0.0180 U
Tetrachloroethane, 1,1,1,2-			0.00480 U			0.00450 U
Tetrachloroethane, 1,1,2,2-			0.00480 U			0.00450 U
Tetrachloroethylene			0.00480 U			0.00450 U
Trichloroethane, 1,1,1-			0.00480 U			0.00450 U
Trichloroethane, 1,1,2-			0.00480 U			0.00450 U
Trichloroethylene			0.00480 U			0.00450 U
Trichloropropane, 1,2,3-			0.00480 U			0.00450 U
Vinyl Chloride			0.00480 U			0.00450 U
n-Butylbenzene			0.00110 T			0.0180 U
sec-Butylbenzene			0.000760 T			0.0180 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-3-S1_070208(2.0-3.0)_SO	TP-3-S2_070208(6.0-6.5)_SO	TP-4-Bottom_070208(9.0-9.5)_SO_DC	TP-4-S1_070208(2.0-2.5)_SO	TP-4-S2_070208(6.0-6.5)_SO	TP-5-Bottom_070208(8.5-9.0)_SO
Conventional (%)						
Moisture	5.50	4.90	7.10	5.70	6.60	8.10
Metals (mg/Kg)						
Antimony (metallic)			0.320			0.220 J
Arsenic (inorganic)			9.80			10.0
Barium			53.8			41.3
Cadmium			0.0775			0.0820
Chromium			6.90			5.90
Lead (inorganic)			12.0			9.90
Mercury (inorganic)			0.00700			0.0200
Selenium (and compounds)			1.10 U			1.00 U
Silver			0.138			0.0420
PCBs (mg/Kg)						
Aroclor 1016			0.0100 U			0.0100 U
Aroclor 1221			0.0200 U			0.0200 U
Aroclor 1232			0.0100 U			0.0100 U
Aroclor 1242			0.0100 U			0.0100 U
Aroclor 1248			0.00760			0.0190
Aroclor 1254			0.00800			0.0180
Aroclor 1260			0.0100 U			0.0100 U
Total PCBs			0.0156			0.0370
Petroleum-Related Constituents						
Benzene (mg/Kg)			0.00370 U			0.00460 U
Benzene (mg/kg)			0.00370 U			0.00460 U
Benzo(a)anthracene (mg/Kg)			0.00155			0.00320 T
Benzo(a)pyrene (mg/Kg)			0.000975			0.00220 T
Benzo(b)fluoranthene (mg/Kg)			0.00490 U			0.00210 T
Benzo(g,h,i)perylene (mg/Kg)			0.00680			0.00400 T
Benzo(k)fluoranthene (mg/Kg)			0.00490 U			0.000680 T
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ (mg/Kg)			0.00176			0.00301
Chrysene (mg/Kg)			0.00125			0.00310 T
Dibenz(a,h)anthracene (mg/Kg)			0.000410 T			0.000720 T
Diesel (mg/kg)	60.0	20.0 U	220	81.0	200	340
Ethyl Benzene (mg/Kg)			0.00370 U			0.00460 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-3-S1_070208(2.0-3.0)_SO	TP-3-S2_070208(6.0-6.5)_SO	TP-4-Bottom_070208(9.0-9.5)_SO_DC	TP-4-S1_070208(2.0-2.5)_SO	TP-4-S2_070208(6.0-6.5)_SO	TP-5-Bottom_070208(8.5-9.0)_SO
Ethyl Benzene (mg/kg)			0.00370 U			0.00460 U
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Heavy Oil (mg/kg)	180	50.0 U	470	220	430	310
Indeno(1,2,3-cd)pyrene (mg/Kg)			0.000875			0.00110 T
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2- (mg/Kg)			0.00695			0.0170
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene (mg/Kg)			0.0150 U			0.00860 T
Naphthalene (mg/kg)			0.0150 U			0.00860 T
Toluene (mg/Kg)			0.00370 U			0.00460 U
Toluene (mg/kg)			0.00370 U			0.00460 U
Total Diesel/Fuel Oil (mg/kg)	70.0	40.0 U	230	91.0	210	350
Total Gasoline (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil (mg/kg)	180	50.0 U	470	220	430	310
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene (mg/Kg)			0.0150 U			0.00860
Total Naphthalene (mg/kg)			0.0150 U			0.00860
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH (mg/kg)						
Total Xylenes (mg/Kg)			0.00200			0.000780
Total Xylenes (mg/kg)			0.00200			0.000780
Xylenes (mg/Kg)			0.000150 JT			0.000480 JT
Xylenes (mg/kg)			0.000150 JT			0.000480 JT
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene			0.00140			0.00480 T
Acenaphthylene			0.00490 U			0.00500 U
Anthracene			0.00100 T			0.00320 T
Bromobenzene			0.00370 U			0.00460 U
Dibenzofuran			0.00115			0.00340 T
Dichlorobenzene, 1,2-			0.00370 U			0.00460 U
Dichlorobenzene, 1,3-			0.00370 U			0.00460 U
Fluoranthene			0.00165			0.00520
Fluorene			0.00290			0.00930
Hexachlorobutadiene			0.0150 U			0.0190 U
Phenanthrene			0.0120			0.0360
Pyrene			0.00635			0.0160

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-3-S1_070208(2.0-3.0)_SO	TP-3-S2_070208(6.0-6.5)_SO	TP-4-Bottom_070208(9.0-9.5)_SO_DC	TP-4-S1_070208(2.0-2.5)_SO	TP-4-S2_070208(6.0-6.5)_SO	TP-5-Bottom_070208(8.5-9.0)_SO
Trichlorobenzene, 1,2,4-			0.0150 U			0.0190 U
o-Xylene			0.00370 U			0.000300 T
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene			0.00370 U			0.00460 U
1,2,3-trichlorobenzene			0.0150 U			0.0190 U
1,2,4-Trimethylbenzene			0.0150 U			0.00310 T
1,3,5-Trimethylbenzene			0.0150 U			0.000890 JT
1,3-dichloropropane			0.00370 U			0.00460 U
1-Phenylpropane			0.0150 U			0.0190 U
2,2-dichloropropane			0.00370 U			0.00460 U
2-chlorotoluene			0.0150 U			0.0190 U
4-chlorotoluene			0.0150 U			0.0190 U
4-isopropyltoluene			0.0150 U			0.000400 JT
Acetone			0.0785			0.110
Bromochloromethane			0.00370 U			0.00460 U
Bromodichloromethane			0.00370 U			0.00460 U
Bromoform			0.00370 U			0.00460 U
Bromomethane			0.00160 JT			0.00110 JT
CFC-11			0.00370 U			0.00460 U
CFC-12			0.00370 U			0.00460 U
Carbon Disulfide			0.000260			0.000420 T
Carbon Tetrachloride			0.00370 U			0.00460 U
Chlorobenzene			0.00370 U			0.00460 U
Chloroform			0.00370 U			0.00460 U
Chloromethane			0.000200			0.000200 T
Cumene			0.0150 U			0.0190 U
Dibromo-3-chloropropane, 1,2-			0.0150 U			0.0190 U
Dibromochloromethane			0.00370 U			0.00460 U
Dibromoethane, 1,2-			0.0150 U			0.0190 U
Dichlorobenzene, 1,4-			0.00370 U			0.00460 U
Dichloroethane, 1,1-			0.00370 U			0.00460 U
Dichloroethane, 1,2-			0.00370 U			0.00460 U
Dichloroethene, 1,1-			0.00370 U			0.00460 U
Dichloroethylene, Cis-1,2-			0.00370 U			0.00460 U
Dichloroethylene, Trans-1,2-			0.00370 U			0.00460 U
Dichloromethane			0.00195			0.00910 U
Dichloropropane, 1,2-			0.00370 U			0.00460 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-3-S1_070208(2.0-3.0)_SO	TP-3-S2_070208(6.0-6.5)_SO	TP-4-Bottom_070208(9.0-9.5)_SO_DC	TP-4-S1_070208(2.0-2.5)_SO	TP-4-S2_070208(6.0-6.5)_SO	TP-5-Bottom_070208(8.5-9.0)_SO
Dichloropropene, Cis-1,3-			0.00370 U			0.00460 U
Dichloropropene, Trans-1,3-			0.00370 U			0.00460 U
Ethyl Chloride			0.00370 U			0.00460 U
Hexanone, 2-			0.00230 T			0.00510 T
Methyl Ethyl Ketone			0.0128			0.0180 T
Methyl Isobutyl Ketone			0.0150 U			0.0190 U
Methylene Bromide			0.00370 U			0.00460 U
Styrene			0.00370 U			0.00460 U
Tert-butylbenzene			0.0150 U			0.0190 U
Tetrachloroethane, 1,1,1,2-			0.00370 U			0.00460 U
Tetrachloroethane, 1,1,2,2-			0.00370 U			0.00460 U
Tetrachloroethylene			0.00370 U			0.00460 U
Trichloroethane, 1,1,1-			0.00370 U			0.00460 U
Trichloroethane, 1,1,2-			0.00370 U			0.00460 U
Trichloroethylene			0.00370 U			0.00460 U
Trichloropropane, 1,2,3-			0.00370 U			0.00460 U
Vinyl Chloride			0.00370 U			0.00460 U
n-Butylbenzene			0.0150 U			0.0190 U
sec-Butylbenzene			0.0150 U			0.0190 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-5-S1_070208(2.0-2.5)_SO	TP-5-S2_070208(6.0-6.5)_SO	TP-6-Bottom_070208(8.0-8.5)_SO	TP-6-S1_070208(2.0-2.5)_SO	TP-6-S2_070208(6.0-6.5)_SO	TP-7-Bottom_070208(8.5-9.0)_SO
Conventional (%)						
Moisture	5.40	5.00	7.20	7.90	5.60	6.10
Metals (mg/Kg)						
Antimony (metallic)			0.200 J			0.160 J
Arsenic (inorganic)			6.00			12.5
Barium			37.2			36.8
Cadmium			0.0950			0.0630
Chromium			7.80			6.00
Lead (inorganic)			7.10			10.0
Mercury (inorganic)			0.0700			0.0190 U
Selenium (and compounds)			1.10 U			1.10 U
Silver			0.0630			0.0600
PCBs (mg/Kg)						
Aroclor 1016			0.0100 U			0.00990 U
Aroclor 1221			0.0200 U			0.0200 U
Aroclor 1232			0.0100 U			0.00990 U
Aroclor 1242			0.0100 U			0.00990 U
Aroclor 1248			0.00770 T			0.00990 U
Aroclor 1254			0.00860 T			0.00990 U
Aroclor 1260			0.0100 U			0.00990 U
Total PCBs			0.0163			0.00990 U
Petroleum-Related Constituents						
Benzene (mg/Kg)			0.0500 U			0.00460 U
Benzene (mg/kg)			0.0500 U			0.00460 U
Benzo(a)anthracene (mg/Kg)			0.00630			0.00130 T
Benzo(a)pyrene (mg/Kg)			0.0230			0.00500 U
Benzo(b)fluoranthene (mg/Kg)			0.0100			0.000300 T
Benzo(g,h,i)perylene (mg/Kg)			0.260			0.00500 U
Benzo(k)fluoranthene (mg/Kg)			0.00490 U			0.00500 U
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ (mg/Kg)			0.0281			0.00319
Chrysene (mg/Kg)			0.0390			0.000890 T
Dibenz(a,h)anthracene (mg/Kg)			0.00710			0.00500 U
Diesel (mg/kg)	94.0	85.0	510	7300	4500	20.0 U
Ethyl Benzene (mg/Kg)			0.00990 T			0.00460 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-5-S1_070208(2.0-2.5)_SO	TP-5-S2_070208(6.0-6.5)_SO	TP-6-Bottom_070208(8.0-8.5)_SO	TP-6-S1_070208(2.0-2.5)_SO	TP-6-S2_070208(6.0-6.5)_SO	TP-7-Bottom_070208(8.5-9.0)_SO
Ethyl Benzene (mg/kg)			0.00990 T			0.00460 U
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Heavy Oil (mg/kg)	120	130	340	3300	2000	50.0 U
Indeno(1,2,3-cd)pyrene (mg/Kg)			0.0210			0.000260 T
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2- (mg/Kg)			0.0180			0.0150
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene (mg/Kg)			0.170 T			0.0190 U
Naphthalene (mg/kg)			0.170 T			0.0190 U
Toluene (mg/Kg)			0.0130 T			0.00460 U
Toluene (mg/kg)			0.0130 T			0.00460 U
Total Diesel/Fuel Oil (mg/kg)	104	95.0	520	7310	4510	40.0 U
Total Gasoline (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil (mg/kg)	120	130	340	3300	2000	50.0 U
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene (mg/Kg)			0.170			0.0190 U
Total Naphthalene (mg/kg)			0.170			0.0190 U
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total TPH (mg/kg)						
Total Xylenes (mg/Kg)			0.0660			0.000620
Total Xylenes (mg/kg)			0.0660			0.000620
Xylenes (mg/Kg)			0.0380 T			0.000370 JT
Xylenes (mg/kg)			0.0380 T			0.000370 JT
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene			0.0360			0.00100 T
Acenaphthylene			0.00490 U			0.00500 U
Anthracene			0.0110 U			0.00130 T
Bromobenzene			0.200 U			0.00460 U
Dibenzofuran			0.0190			0.000810 T
Dichlorobenzene, 1,2-			0.0500 U			0.00460 U
Dichlorobenzene, 1,3-			0.0500 U			0.00460 U
Fluoranthene			0.0160			0.000910 T
Fluorene			0.0770			0.00230 T
Hexachlorobutadiene			0.200 U			0.0190 U
Phenanthrene			0.110			0.00960
Pyrene			0.150			0.00410 T

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-5-S1_070208(2.0-2.5)_SO	TP-5-S2_070208(6.0-6.5)_SO	TP-6-Bottom_070208(8.0-8.5)_SO	TP-6-S1_070208(2.0-2.5)_SO	TP-6-S2_070208(6.0-6.5)_SO	TP-7-Bottom_070208(8.5-9.0)_SO
Trichlorobenzene, 1,2,4-			0.200 U			0.0190 U
o-Xylene			0.0280 T			0.000250 T
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene			0.0500 U			0.00460 U
1,2,3-trichlorobenzene			0.200 U			0.0190 U
1,2,4-Trimethylbenzene			0.170 T			0.00110 T
1,3,5-Trimethylbenzene			0.0840 JT			0.000290 JT
1,3-dichloropropane			0.0500 U			0.00460 U
1-Phenylpropane			0.0190 JT			0.0190 U
2,2-dichloropropane			0.0500 U			0.00460 U
2-chlorotoluene			0.200 U			0.0190 U
4-chlorotoluene			0.200 U			0.0190 U
4-isopropyltoluene			0.0370 JT			0.0190 U
Acetone			0.310 T			0.0190 U
Bromochloromethane			0.0500 U			0.00460 U
Bromodichloromethane			0.0500 U			0.00460 U
Bromoform			0.0500 U			0.00460 U
Bromomethane			0.0500 U			0.00210 JT
CFC-11			0.0500 U			0.00460 U
CFC-12			0.0230 JT			0.00460 U
Carbon Disulfide			0.0500 U			0.00460 U
Carbon Tetrachloride			0.0500 U			0.00460 U
Chlorobenzene			0.0500 U			0.00460 U
Chloroform			0.0500 U			0.00460 U
Chloromethane			0.0500 U			0.000390 T
Cumene			0.0110 JT			0.0190 U
Dibromo-3-chloropropane, 1,2-			0.200 U			0.0190 U
Dibromochloromethane			0.0500 U			0.00460 U
Dibromoethane, 1,2-			0.200 U			0.0190 U
Dichlorobenzene, 1,4-			0.0500 U			0.00460 U
Dichloroethane, 1,1-			0.0500 U			0.00460 U
Dichloroethane, 1,2-			0.0500 U			0.00460 U
Dichloroethene, 1,1-			0.0500 U			0.00460 U
Dichloroethylene, Cis-1,2-			0.0500 U			0.00460 U
Dichloroethylene, Trans-1,2-			0.0500 U			0.00460 U
Dichloromethane			0.0210 T			0.00920 U
Dichloropropane, 1,2-			0.0500 U			0.00460 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-5-S1_070208(2.0-2.5)_SO	TP-5-S2_070208(6.0-6.5)_SO	TP-6-Bottom_070208(8.0-8.5)_SO	TP-6-S1_070208(2.0-2.5)_SO	TP-6-S2_070208(6.0-6.5)_SO	TP-7-Bottom_070208(8.5-9.0)_SO
Dichloropropene, Cis-1,3-			0.0500 U			0.00460 U
Dichloropropene, Trans-1,3-			0.0500 U			0.00460 U
Ethyl Chloride			0.0500 U			0.00460 U
Hexanone, 2-			2.00 U			0.0190 U
Methyl Ethyl Ketone			2.00 U			0.0190 U
Methyl Isobutyl Ketone			2.00 U			0.0190 U
Methylene Bromide			0.0500 U			0.00460 U
Styrene			0.0160 T			0.000140 T
Tert-butylbenzene			0.200 U			0.0190 U
Tetrachloroethane, 1,1,1,2-			0.0500 U			0.00460 U
Tetrachloroethane, 1,1,2,2-			0.0500 U			0.00460 U
Tetrachloroethylene			0.0500 U			0.00460 U
Trichloroethane, 1,1,1-			0.0500 U			0.00460 U
Trichloroethane, 1,1,2-			0.0500 U			0.00460 U
Trichloroethylene			0.0500 U			0.00460 U
Trichloropropane, 1,2,3-			0.0500 U			0.00460 U
Vinyl Chloride			0.0500 U			0.00460 U
n-Butylbenzene			0.0750 JT			0.000270 T
sec-Butylbenzene			0.0330 JT			0.0190 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-7-S1_070208(2.0-2.5)_SO	TP-7-S2_070208(6.0-7.0)_SO	TP-8-Bottom_070308(9.0-10.0)_SO	TP-8-S1_070308(1.0-2.0)_SO	TP-8-S2_070308(6.0-7.0)_SO	TP-9-Bottom_070308(8.0-8.5)_SO
Conventional (%)						
Moisture	5.80	5.80	3.90	5.60	6.60	4.80
Metals (mg/Kg)						
Antimony (metallic)			0.0600 J			0.130 J
Arsenic (inorganic)			3.20			9.30
Barium			16.9			42.2
Cadmium			0.0180 T			0.0660
Chromium			3.20			5.40
Lead (inorganic)			4.00			9.80
Mercury (inorganic)			0.0110 U			0.00100 T
Selenium (and compounds)			1.10 U			1.10 U
Silver			0.0340			0.0440
PCBs (mg/Kg)						
Aroclor 1016			0.0100 U			0.0100 U
Aroclor 1221			0.0200 U			0.0200 U
Aroclor 1232			0.0100 U			0.0100 U
Aroclor 1242			0.0100 U			0.0100 U
Aroclor 1248			0.0100 U			0.0160
Aroclor 1254			0.0100 U			0.0100 U
Aroclor 1260			0.0100 U			0.0100 U
Total PCBs			0.0100 U			0.0160
Petroleum-Related Constituents						
Benzene (mg/Kg)			0.00520 U			0.00450 U
Benzene (mg/kg)			0.00520 U			0.00450 U
Benzo(a)anthracene (mg/Kg)			0.00490 U			0.00140 T
Benzo(a)pyrene (mg/Kg)			0.00490 U			0.00140 T
Benzo(b)fluoranthene (mg/Kg)			0.00490 U			0.000500 T
Benzo(g,h,i)perylene (mg/Kg)			0.00490 U			0.000780 T
Benzo(k)fluoranthene (mg/Kg)			0.00490 U			0.00480 U
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ (mg/Kg)			0.00740 U			0.00210
Chrysene (mg/Kg)			0.00490 U			0.00100 T
Dibenz(a,h)anthracene (mg/Kg)			0.00490 U			0.00480 U
Diesel (mg/kg)	20.0 U	46.0	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene (mg/Kg)			0.00520 U			0.00450 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-7-S1_070208(2.0-2.5)_SO	TP-7-S2_070208(6.0-7.0)_SO	TP-8-Bottom_070308(9.0-10.0)_SO	TP-8-S1_070308(1.0-2.0)_SO	TP-8-S2_070308(6.0-7.0)_SO	TP-9-Bottom_070308(8.0-8.5)_SO
Ethyl Benzene (mg/kg)			0.00520 U			0.00450 U
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U	20.0 U	5.00 U	5.00 U	5.00 U
Heavy Oil (mg/kg)	50.0 U	220	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene (mg/Kg)			0.00490 U			0.000230 T
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2- (mg/Kg)			0.00490 U			0.000740 T
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U	20.0 U	5.00 U	5.00 U	5.00 U
Naphthalene (mg/Kg)			0.0210 U			0.0180 U
Naphthalene (mg/kg)			0.0210 U			0.0180 U
Toluene (mg/Kg)			0.00520 U			0.00450 U
Toluene (mg/kg)			0.00520 U			0.00450 U
Total Diesel/Fuel Oil (mg/kg)	40.0 U	56.0	40.0 U	40.0 U	40.0 U	40.0 U
Total Gasoline (mg/kg)	5.00 U	5.00 U	20.0 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil (mg/kg)	50.0 U	220	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene (mg/Kg)			0.0210 U			0.0180 U
Total Naphthalene (mg/kg)			0.0210 U			0.0180 U
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U	20.0 U	5.00 U	5.00 U	5.00 U
Total TPH (mg/kg)						
Total Xylenes (mg/Kg)			0.00281			0.000800
Total Xylenes (mg/kg)			0.00281			0.000800
Xylenes (mg/Kg)			0.000210 JT			0.000490 JT
Xylenes (mg/kg)			0.000210 JT			0.000490 JT
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene			0.00490 U			0.00110 T
Acenaphthylene			0.00490 U			0.00480 U
Anthracene			0.00490 U			0.00480 U
Bromobenzene			0.00520 U			0.00450 U
Dibenzofuran			0.00490 U			0.00480 U
Dichlorobenzene, 1,2-			0.00520 U			0.00450 U
Dichlorobenzene, 1,3-			0.00520 U			0.00450 U
Fluoranthene			0.00490 U			0.00120 T
Fluorene			0.00490 U			0.00260 T
Hexachlorobutadiene			0.0210 U			0.0180 U
Phenanthrene			0.00490 U			0.00590
Pyrene			0.00490 U			0.00490

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-7-S1_070208(2.0-2.5)_SO	TP-7-S2_070208(6.0-7.0)_SO	TP-8-Bottom_070308(9.0-10.0)_SO	TP-8-S1_070308(1.0-2.0)_SO	TP-8-S2_070308(6.0-7.0)_SO	TP-9-Bottom_070308(8.0-8.5)_SO
Trichlorobenzene, 1,2,4-			0.0210 U			0.0180 U
o-Xylene			0.00520 U			0.000310 T
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene			0.00520 U			0.00450 U
1,2,3-trichlorobenzene			0.0210 U			0.0180 U
1,2,4-Trimethylbenzene			0.0210 U			0.00140 T
1,3,5-Trimethylbenzene			0.0210 U			0.000500 JT
1,3-dichloropropane			0.00520 U			0.00450 U
1-Phenylpropane			0.0210 U			0.0180 U
2,2-dichloropropane			0.00520 U			0.00450 U
2-chlorotoluene			0.0210 U			0.0180 U
4-chlorotoluene			0.0210 U			0.0180 U
4-isopropyltoluene			0.0210 U			0.0180 U
Acetone			0.0210 U			0.0540
Bromochloromethane			0.00520 U			0.00450 U
Bromodichloromethane			0.00520 U			0.00450 U
Bromoform			0.00520 U			0.00450 U
Bromomethane			0.00520 U			0.00450 U
CFC-11			0.00520 U			0.00450 U
CFC-12			0.00520 U			0.00450 U
Carbon Disulfide			0.000300 T			0.000540 T
Carbon Tetrachloride			0.00520 U			0.00450 U
Chlorobenzene			0.00520 U			0.00450 U
Chloroform			0.00520 U			0.00450 U
Chloromethane			0.00520 U			0.00450 U
Cumene			0.0210 U			0.0180 U
Dibromo-3-chloropropane, 1,2-			0.0210 U			0.0180 U
Dibromochloromethane			0.00520 U			0.00450 U
Dibromoethane, 1,2-			0.0210 U			0.0180 U
Dichlorobenzene, 1,4-			0.00520 U			0.00450 U
Dichloroethane, 1,1-			0.00520 U			0.00450 U
Dichloroethane, 1,2-			0.00520 U			0.00450 U
Dichloroethene, 1,1-			0.00520 U			0.00450 U
Dichloroethylene, Cis-1,2-			0.00520 U			0.00450 U
Dichloroethylene, Trans-1,2-			0.00520 U			0.00450 U
Dichloromethane			0.0110 U			0.00890 U
Dichloropropane, 1,2-			0.00520 U			0.00450 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-7-S1_070208(2.0-2.5)_SO	TP-7-S2_070208(6.0-7.0)_SO	TP-8-Bottom_070308(9.0-10.0)_SO	TP-8-S1_070308(1.0-2.0)_SO	TP-8-S2_070308(6.0-7.0)_SO	TP-9-Bottom_070308(8.0-8.5)_SO
Dichloropropene, Cis-1,3-			0.00520 U			0.00450 U
Dichloropropene, Trans-1,3-			0.00520 U			0.00450 U
Ethyl Chloride			0.00520 U			0.00450 U
Hexanone, 2-			0.0210 U			0.0180 U
Methyl Ethyl Ketone			0.0210 U			0.00950 T
Methyl Isobutyl Ketone			0.0210 U			0.0180 U
Methylene Bromide			0.00520 U			0.00450 U
Styrene			0.00520 U			0.00450 U
Tert-butylbenzene			0.0210 U			0.0180 U
Tetrachloroethane, 1,1,1,2-			0.00520 U			0.00450 U
Tetrachloroethane, 1,1,2,2-			0.00520 U			0.00450 U
Tetrachloroethylene			0.00520 U			0.00450 U
Trichloroethane, 1,1,1-			0.00520 U			0.00450 U
Trichloroethane, 1,1,2-			0.00520 U			0.00450 U
Trichloroethylene			0.00520 U			0.00450 U
Trichloropropane, 1,2,3-			0.00520 U			0.00450 U
Vinyl Chloride			0.00520 U			0.00450 U
n-Butylbenzene			0.0210 U			0.0180 U
sec-Butylbenzene			0.0210 U			0.0180 U

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-9-S1_070308(2.0-3.0)_SO	TP-9-S2_070308(6.0-6.5)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO		
Conventional (%)						
Moisture	4.90	6.60				
Metals (mg/Kg)						
Antimony (metallic)						
Arsenic (inorganic)			2.20	1.70		
Barium						
Cadmium			1.00 U	1.00 U		
Chromium			22.0	34.0		
Lead (inorganic)			120	10.0 U		
Mercury (inorganic)						
Selenium (and compounds)						
Silver						
PCBs (mg/Kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents						
Benzene (mg/Kg)			0.0500 U	0.500 U		
Benzene (mg/kg)			0.0500 U	0.500 U		
Benzo(a)anthracene (mg/Kg)						
Benzo(a)pyrene (mg/Kg)						
Benzo(b)fluoranthene (mg/Kg)						
Benzo(g,h,i)perylene (mg/Kg)						
Benzo(k)fluoranthene (mg/Kg)						
Bunker C (mg/kg)	50.0 U	50.0 U				
CPAH TEQ (mg/Kg)						
Chrysene (mg/Kg)						
Dibenz(a,h)anthracene (mg/Kg)						
Diesel (mg/kg)	2500	450				
Ethyl Benzene (mg/Kg)			0.0500 U	0.500 U		

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-9-S1_070308(2.0-3.0)_SO	TP-9-S2_070308(6.0-6.5)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO		
Ethyl Benzene (mg/kg)			0.0500 U	0.500 U		
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U				
Heavy Oil (mg/kg)	750	440				
Indeno(1,2,3-cd)pyrene (mg/Kg)						
Kensol (mg/kg)	20.0 U	20.0 U				
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U				
Methylnaphthalene, 2- (mg/Kg)						
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U				
Naphthalene (mg/Kg)						
Naphthalene (mg/kg)						
Toluene (mg/Kg)			0.0500 U	0.500 U		
Toluene (mg/kg)			0.0500 U	0.500 U		
Total Diesel/Fuel Oil (mg/kg)	2510	460	117	1800		
Total Gasoline (mg/kg)	5.00 U	5.00 U				
Total Heavy Oil (mg/kg)	750	440	103	1600		
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U				
Total Naphthalene (mg/Kg)						
Total Naphthalene (mg/kg)						
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U				
Total TPH (mg/kg)			220	3400		
Total Xylenes (mg/Kg)			0.0500 U	0.500 U		
Total Xylenes (mg/kg)			0.0500 U	0.500 U		
Xylenes (mg/Kg)			0.0500 U	0.500 U		
Xylenes (mg/kg)			0.0500 U	0.500 U		
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-9-S1_070308(2.0-3.0)_SO	TP-9-S2_070308(6.0-6.5)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO		
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform			0.0500 U	0.500 U		
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-			0.0500 U	0.500 U		
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						

Table A.2.1.2
Field-Constructed Tanks Site (0 to 15 feet)
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent / Sample ID:	TP-9-S1_070308(2.0-3.0)_SO	TP-9-S2_070308(6.0-6.5)_SO	WW-MW-7/S-1_110389(5.0-7.0)_SO	WW-SB-5/S-1_110489(5.0-7.0)_SO		
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone			0.500 U	5.00 U		
Methyl Isobutyl Ketone						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-			0.0500 U	0.500 U		
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Notes:
The following qualifiers may be used in this table:
J - Constituent present, reported value is estimated
U - Not detected at or above reporting limit
UJ - Not detected; reporting limit is estimated
The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:
-If both results were detected values, then the two values were averaged.
If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.2.1
Hoffman Tank Site (0 to 6 feet)
Hoffman Tank Site Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HTE10_042991_SO	HTE9_042991_SO	RU3-S1_110196(2.5-4.0)_SO	RU3-S2_110196(5.0-6.5)_SO		
Petroleum-Related Constituents (mg/kg)						
Bunker C			50.0 U	50.0 U		
Diesel			68.0	39.0		
Gasoline Range Organics			10.0 U	10.0 U		
Heavy Oil			99.0	50.0 U		
Kensol			10.0 U	10.0 U		
Kerosene/Jet fuel			10.0 U	10.0 U		
Mineral spirits/Stoddard			10.0 U	10.0 U		
Total Diesel/Fuel Oil	260	100	73.0	44.0		
Total Gasoline			10.0 U	10.0 U		
Total Heavy Oil			99.0	50.0 U		
Total Kerosene/Jet Fuel			10.0 U	10.0 U		
Total Stoddard/Mineral Spirits			10.0 U	10.0 U		
Total TPH	260	100	167	39.0		

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.2.2
Hoffman Tank Site (0 to 15 feet)
Hoffman Tank Site Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HTE10_042991_SO	HTE11_042991(13.0)_SO	HTE8_042991(11.0)_SO	HTE9_042991_SO	RU3-S1_110196(2.5-4.0)_SO	RU3-S2_110196(5.0-6.5)_SO
Petroleum-Related Constituents (mg/kg)						
Bunker C					50.0 U	50.0 U
Diesel					68.0	39.0
Gasoline Range Organics					10.0 U	10.0 U
Heavy Oil					99.0	50.0 U
Kensol					10.0 U	10.0 U
Kerosene/Jet fuel					10.0 U	10.0 U
Mineral spirits/Stoddard					10.0 U	10.0 U
Total Diesel/Fuel Oil	260	410	1100	100	73.0	44.0
Total Gasoline					10.0 U	10.0 U
Total Heavy Oil					99.0	50.0 U
Total Kerosene/Jet Fuel					10.0 U	10.0 U
Total Stoddard/Mineral Spirits					10.0 U	10.0 U
Total TPH	260	410	1100	100	167	39.0

Table A.2.2.2
Hoffman Tank Site (0 to 15 feet)
Hoffman Tank Site Area
Kaiser Trentwood Facility

Constituent	Sample ID:	RU3-S3_110196(7.5-9.0)_SO					
Petroleum-Related Constituents (mg/kg)							
Bunker C		50.0 U					
Diesel		29.0					
Gasoline Range Organics		10.0 U					
Heavy Oil		53.0					
Kensol		10.0 U					
Kerosene/Jet fuel		10.0 U					
Mineral spirits/Stoddard		10.0 U					
Total Diesel/Fuel Oil		34.0					
Total Gasoline		10.0 U					
Total Heavy Oil		53.0					
Total Kerosene/Jet Fuel		10.0 U					
Total Stoddard/Mineral Spirits		10.0 U					
Total TPH		82.0					

Notes:
The following qualifiers may be used in this table:
J - Constituent present, reported value is estimated
U - Not detected at or above reporting limit
UJ - Not detected; reporting limit is estimated
The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:
-If both results were detected values, then the two values were averaged.
If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.3.1
Railcar Unloading Site (0 to 6 feet)
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Sample ID:	RCU-TP-1-SW-1_040408(2.0-3.0)_SO_DC	RCU-TP-1-SW-2_040408(5.0-6.0)_SO_DC	RCU-TP-3-SW-1_040408(2.0-3.0)_SO	RCU-TP-3-SW-2_040408(5.0-6.0)_SO		
Petroleum-Related Constituents (mg/kg)							
Bunker C		50.0 U	50.0 U	50.0 U	50.0 U		
Diesel		20.0 U	20.0 U	20.0 U	20.0 U		
Gasoline Range Organics		5.00 U	5.00 U	5.00 U	5.00 U		
Heavy Oil		50.0 U	50.0 U	50.0 U	50.0 U		
Kensol		20.0 U	20.0 U	20.0 U	20.0 U		
Kerosene/Jet fuel		20.0 U	20.0 U	20.0 U	20.0 U		
Mineral spirits/Stoddard		5.00 U	5.00 U	5.00 U	5.00 U		
Total Diesel/Fuel Oil		40.0 U	40.0 U	40.0 U	40.0 U		
Total Gasoline		5.00 U	5.00 U	5.00 U	5.00 U		
Total Heavy Oil		50.0 U	50.0 U	50.0 U	50.0 U		
Total Kerosene/Jet Fuel		20.0 U	20.0 U	20.0 U	20.0 U		
Total Stoddard/Mineral Spirits		5.00 U	5.00 U	5.00 U	5.00 U		

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.3.2
Railcar Unloading Site (0 to 15 feet)
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-1-B1_040408(10.0)_SO_DC	RCU-TP-1-SW-1_040408(2.0-3.0)_SO_DC	RCU-TP-1-SW-2_040408(5.0-6.0)_SO_DC	RCU-TP-1-SW-3_040408(9.0-10.0)_SO_DC	RCU-TP-3-B1_040408(10.0)_SO_DC	RCU-TP-3-SW-1_040408(2.0-3.0)_SO
PCBs (mg/Kg)						
Aroclor 1016	0.00950 U				0.0100 U	
Aroclor 1221	0.0190 U				0.0200 U	
Aroclor 1232	0.00950 U				0.0100 U	
Aroclor 1242	0.00950 U				0.0100 U	
Aroclor 1248	0.00950 U				0.0100 U	
Aroclor 1254	0.00950 U				0.0100 U	
Aroclor 1260	0.00950 U				0.0100 U	
Total PCBs	0.00950 U				0.0100 U	
Petroleum-Related Constituents						
Benzene (mg/Kg)	0.00430 U				0.00550 U	
Benzo(a)anthracene (mg/Kg)	0.000320 U				0.000320 U	
Benzo(a)pyrene (mg/Kg)	0.000320 U				0.000320 U	
Benzo(b)fluoranthene (mg/Kg)	0.000320 U				0.000320 U	
Benzo(g,h,i)perylene (mg/Kg)	0.000320 U				0.000320 U	
Benzo(k)fluoranthene (mg/Kg)	0.000320 U				0.000320 U	
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
CPAH TEQ (mg/Kg)	0.000483 U				0.000483 U	
Chrysene (mg/Kg)	0.000320 U				0.000320 U	
Dibenz(a,h)anthracene (mg/Kg)	0.000320 U				0.000320 U	
Diesel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Ethyl Benzene (mg/Kg)	0.000345				0.000350 T	
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Heavy Oil (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Indeno(1,2,3-cd)pyrene (mg/Kg)	0.000320 U				0.000320 U	
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Methylnaphthalene, 2- (mg/Kg)	0.000320 U				0.000320 U	
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene (mg/Kg)	0.000320 U				0.000320 U	
Toluene (mg/Kg)	0.00260				0.00240 T	
Total Diesel/Fuel Oil (mg/kg)	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U
Total Gasoline (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Heavy Oil (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Naphthalene (mg/Kg)	0.000320 U				0.000320 U	

Table A.2.3.2
Railcar Unloading Site (0 to 15 feet)
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-1-B1_040408(10.0)_SO_DC	RCU-TP-1-SW-1_040408(2.0-3.0)_SO_DC	RCU-TP-1-SW-2_040408(5.0-6.0)_SO_DC	RCU-TP-1-SW-3_040408(9.0-10.0)_SO_DC	RCU-TP-3-B1_040408(10.0)_SO_DC	RCU-TP-3-SW-1_040408(2.0-3.0)_SO
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Total Xylenes (mg/Kg)	0.00131				0.00137	
Xylenes (mg/Kg)	0.00105				0.00110 T	
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene	0.000320 U				0.000320 U	
Acenaphthylene	0.000320 U				0.000320 U	
Anthracene	0.000320 U				0.000320 U	
Bromobenzene	0.00430 U				0.00550 U	
Dibenzofuran	0.000320 U				0.000320 U	
Dichlorobenzene, 1,2-	0.00430 U				0.00550 U	
Dichlorobenzene, 1,3-	0.00430 U				0.00550 U	
Fluoranthene	0.0000160 T				0.000320 U	
Fluorene	0.000320 U				0.000320 U	
Hexachlorobutadiene	0.0180 U				0.0220 U	
Phenanthrene	0.000320 U				0.000320 U	
Pyrene	0.000320 U				0.000320 U	
Trichlorobenzene, 1,2,4-	0.0180 U				0.0220 U	
o-Xylene	0.000265				0.000270 T	
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene	0.00430 U				0.00550 U	
1,2,3-trichlorobenzene	0.0180 U				0.0220 U	
1,2,4-Trimethylbenzene	0.0000860 T				0.0220 U	
1,3,5-Trimethylbenzene	0.0180 U				0.0220 U	
1,3-dichloropropane	0.00430 U				0.00550 U	
1-Phenylpropane	0.0180 U				0.0220 U	
2,2-dichloropropane	0.00430 U				0.00550 U	
2-chlorotoluene	0.0180 U				0.0220 U	
4-chlorotoluene	0.0180 U				0.0220 U	
4-isopropyltoluene	0.0180 U				0.0220 U	
Acetone	0.00595				0.0330	
Bromochloromethane	0.00430 U				0.00550 U	
Bromodichloromethane	0.00430 U				0.00550 U	
Bromoform	0.00430 U				0.00550 U	
Bromomethane	0.00430 U				0.00550 U	
CFC-11	0.00430 U				0.00550 U	
CFC-12	0.00430 U				0.00550 U	

Table A.2.3.2
Railcar Unloading Site (0 to 15 feet)
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-1-B1_040408(10.0)_SO_DC	RCU-TP-1-SW-1_040408(2.0-3.0)_SO_DC	RCU-TP-1-SW-2_040408(5.0-6.0)_SO_DC	RCU-TP-1-SW-3_040408(9.0-10.0)_SO_DC	RCU-TP-3-B1_040408(10.0)_SO_DC	RCU-TP-3-SW-1_040408(2.0-3.0)_SO
Carbon Disulfide	0.000810				0.000240 T	
Carbon Tetrachloride	0.00430 U				0.00550 U	
Chlorobenzene	0.00430 U				0.00550 U	
Chloroform	0.00430 U				0.00550 U	
Chloromethane	0.00430 U				0.00550 U	
Cumene	0.0180 U				0.0220 U	
Dibromo-3-chloropropane, 1,2-	0.0180 U				0.0220 U	
Dibromochloromethane	0.00430 U				0.00550 U	
Dibromoethane, 1,2-	0.0180 U				0.0220 U	
Dichlorobenzene, 1,4-	0.00430 U				0.00550 U	
Dichloroethane, 1,1-	0.00430 U				0.00550 U	
Dichloroethane, 1,2-	0.00430 U				0.00550 U	
Dichloroethene, 1,1-	0.00430 U				0.00550 U	
Dichloroethylene, Cis-1,2-	0.00430 U				0.00550 U	
Dichloroethylene, Trans-1,2-	0.00430 U				0.00550 U	
Dichloromethane	0.00860 U				0.0110 U	
Dichloropropane, 1,2-	0.00430 U				0.00550 U	
Dichloropropene, Cis-1,3-	0.00430 U				0.00550 U	
Dichloropropene, Trans-1,3-	0.00430 U				0.00550 U	
Ethyl Chloride	0.00430 U				0.00550 U	
Hexanone, 2-	0.0180 U				0.0220 U	
Methyl Ethyl Ketone	0.0180 U				0.00390 T	
Methyl Isobutyl Ketone	0.0180 U				0.0220 U	
Methylene Bromide	0.00430 U				0.00550 U	
Styrene	0.000140 T				0.00550 U	
Tert-butylbenzene	0.0180 U				0.0220 U	
Tetrachloroethane, 1,1,1,2-	0.00430 U				0.00550 U	
Tetrachloroethane, 1,1,2,2-	0.00430 U				0.00550 U	
Tetrachloroethylene	0.00108				0.00100 T	
Trichloroethane, 1,1,1-	0.000190 T				0.00550 U	
Trichloroethane, 1,1,2-	0.00430 U				0.00550 U	
Trichloroethylene	0.000325				0.000260 T	
Trichloropropane, 1,2,3-	0.00430 U				0.00550 U	
Vinyl Chloride	0.00430 U				0.00550 U	
n-Butylbenzene	0.0180 U				0.0220 U	
sec-Butylbenzene	0.0180 U				0.0220 U	

Table A.2.3.2
Railcar Unloading Site (0 to 15 feet)
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-3-SW-2_040408(5.0-6.0)_SO	RCU-TP-3-SW-3_040408(9.0-10.0)_SO				
PCBs (mg/Kg)						
Aroclor 1016						
Aroclor 1221						
Aroclor 1232						
Aroclor 1242						
Aroclor 1248						
Aroclor 1254						
Aroclor 1260						
Total PCBs						
Petroleum-Related Constituents						
Benzene (mg/Kg)						
Benzo(a)anthracene (mg/Kg)						
Benzo(a)pyrene (mg/Kg)						
Benzo(b)fluoranthene (mg/Kg)						
Benzo(g,h,i)perylene (mg/Kg)						
Benzo(k)fluoranthene (mg/Kg)						
Bunker C (mg/kg)	50.0 U	50.0 U				
CPAH TEQ (mg/Kg)						
Chrysene (mg/Kg)						
Dibenz(a,h)anthracene (mg/Kg)						
Diesel (mg/kg)	20.0 U	20.0 U				
Ethyl Benzene (mg/Kg)						
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U				
Heavy Oil (mg/kg)	50.0 U	50.0 U				
Indeno(1,2,3-cd)pyrene (mg/Kg)						
Kensol (mg/kg)	20.0 U	20.0 U				
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U				
Methylnaphthalene, 2- (mg/Kg)						
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U				
Naphthalene (mg/Kg)						
Toluene (mg/Kg)						
Total Diesel/Fuel Oil (mg/kg)	40.0 U	40.0 U				
Total Gasoline (mg/kg)	5.00 U	5.00 U				
Total Heavy Oil (mg/kg)	50.0 U	50.0 U				
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U				
Total Naphthalene (mg/Kg)						

Table A.2.3.2
Railcar Unloading Site (0 to 15 feet)
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-3-SW-2_040408(5.0-6.0)_SO	RCU-TP-3-SW-3_040408(9.0-10.0)_SO				
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U				
Total Xylenes (mg/Kg)						
Xylenes (mg/Kg)						
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene						
Acenaphthylene						
Anthracene						
Bromobenzene						
Dibenzofuran						
Dichlorobenzene, 1,2-						
Dichlorobenzene, 1,3-						
Fluoranthene						
Fluorene						
Hexachlorobutadiene						
Phenanthrene						
Pyrene						
Trichlorobenzene, 1,2,4-						
o-Xylene						
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene						
1,2,3-trichlorobenzene						
1,2,4-Trimethylbenzene						
1,3,5-Trimethylbenzene						
1,3-dichloropropane						
1-Phenylpropane						
2,2-dichloropropane						
2-chlorotoluene						
4-chlorotoluene						
4-isopropyltoluene						
Acetone						
Bromochloromethane						
Bromodichloromethane						
Bromoform						
Bromomethane						
CFC-11						
CFC-12						

Table A.2.3.2
Railcar Unloading Site (0 to 15 feet)
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	RCU-TP-3-SW-2_040408(5.0-6.0)_SO	RCU-TP-3-SW-3_040408(9.0-10.0)_SO				
Carbon Disulfide						
Carbon Tetrachloride						
Chlorobenzene						
Chloroform						
Chloromethane						
Cumene						
Dibromo-3-chloropropane, 1,2-						
Dibromochloromethane						
Dibromoethane, 1,2-						
Dichlorobenzene, 1,4-						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-						
Dichloroethene, 1,1-						
Dichloroethylene, Cis-1,2-						
Dichloroethylene, Trans-1,2-						
Dichloromethane						
Dichloropropane, 1,2-						
Dichloropropene, Cis-1,3-						
Dichloropropene, Trans-1,3-						
Ethyl Chloride						
Hexanone, 2-						
Methyl Ethyl Ketone						
Methyl Isobutyl Ketone						
Methylene Bromide						
Styrene						
Tert-butylbenzene						
Tetrachloroethane, 1,1,1,2-						
Tetrachloroethane, 1,1,2,2-						
Tetrachloroethylene						
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethylene						
Trichloropropane, 1,2,3-						
Vinyl Chloride						
n-Butylbenzene						
sec-Butylbenzene						

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.4.1
South Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS-1_030106(0.0-1.0)_SO	SDR-SS-2_030106(0.0-1.0)_SO	SDR-SS-3_030106(0.0-1.0)_SO	SDR-SS-4_030106(0.0-1.0)_SO	SDR-SS-5_030106(0.0-1.0)_SO	SDR-SS-6_030106(0.0-1.0)_SO
Conventional (%)						
Moisture	16.0	18.0	17.0	26.0	22.0	33.0
Total Organic Carbon					2.10	
PCBs (mg/Kg)						
Aroclor 1016	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0100 U
Aroclor 1221	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U
Aroclor 1232	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0100 U
Aroclor 1242	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.0100 U
Aroclor 1248	4.40	4.10	3.90	1.70	0.850	0.0100 U
Aroclor 1254	3.50	2.70	2.30	1.70	0.530	0.120
Aroclor 1260	1.20	0.660	0.600	0.460	0.140	0.0730
Aroclor 1262						
Aroclor 1268						
Total PCBs	9.10	7.50	6.80	3.90	1.50	0.193
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil	100 U	100 U	100 U	100 U	100 U	100 U
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	130	110	100 U	100 U
Kensol	830	1100	300	410	38.0	85.0
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	855	1130	325	435	63.0	110
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200 U	200 U	180	160	200 U	200 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.1
South Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS-7_030106(0.0-1.0)_SO_DC	SDR-SS-8_030106(0.0-1.0)_SO	SDR-SS-9_030106(0.0-1.0)_SO	SDR-SS1-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-1-S2_052306(1.0-1.5)_SO	SDR-SS1-PH2-1-S3_052306(2.0-2.5)_SO
Conventional (%)						
Moisture	20.0	26.0	19.0			
Total Organic Carbon	5.40		2.80			
PCBs (mg/Kg)						
Aroclor 1016	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1221	0.200 U	0.200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1242	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1248	2.30	1.50	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1254	1.70	1.10	0.130	0.0700 JP	0.0100 U	0.00990 U
Aroclor 1260	0.390	0.270	0.0790	0.120	0.0100 U	0.00990 U
Aroclor 1262				0.0100 U	0.0100 U	0.00990 U
Aroclor 1268				0.0100 U	0.0100 U	0.00990 U
Total PCBs	4.30	2.90	0.209	0.190	0.0100 U	0.00990 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil	100 U	100 U	100 U			
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	150	100 U	100 U	100 U	100 U	100 U
Kensol	445	54.0	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	470	79.0	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200	200 U	200 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.1
South Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS1-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS1-PH2-2-S3_052306(2.0-2.5)_SO	SDR-SS1-PH2-3-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-3-S2_052306(1.0-1.5)_SO	SDR-SS1-PH2-3-S3_052306(2.0-2.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	2.50 U	0.200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U	0.0100 U
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U	0.0100 U
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U	71.0	0.360	0.130
Aroclor 1254	0.0600	0.0290	0.0100 U	1.30 U	0.100 U	0.0100 U
Aroclor 1260	0.0100 U	0.0200	0.0100 U	1.30 U	1.10	0.0100 U
Aroclor 1262	0.0100 U	0.0100 U	0.0580	1.30 U	0.100 U	0.520
Aroclor 1268	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U	0.0100 U
Total PCBs	0.0600	0.0490	0.0580	71.0	1.50	0.650
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	13000	1200	100 U
Kensol	20.0 U	20.0 U	20.0 U	1300	140	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	1330	165	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	13000	1200	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.1
South Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS1-PH2-4-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-4-S2_052306(1.0-1.5)_SO	SDR-SS1-PH2-4-S3_052306(2.0-2.5)_SO	SDR-SS7-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-1-S2_052306(1.0-1.5)_SO	SDR-SS7-PH2-1-S3_052306(2.0-2.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1260	0.00330 J	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1262	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1268	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Total PCBs	0.00330	0.0100 U	0.00990 U	0.0100 U	0.0100 U	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Kensol	20.0 U	120	690	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	145	715	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.1
South Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS7-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS7-PH2-2-S3_052306(2.0-2.5)_SO	SDR-SS7-PH2-3-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-3-S2_052306(1.0-1.5)_SO	SDR-SS7-PH2-3-S3_052306(2.0-2.5)_SO_DC
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1221	0.500 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1242	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1248	7.10	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1254	0.250 U	0.0100 U	0.00350 J	0.0100 U	0.0100 U	0.00990 U
Aroclor 1260	0.250 U	0.0100 U	0.00240 J	0.00560 J	0.0100 U	0.00990 U
Aroclor 1262	0.250 U	0.0190	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Aroclor 1268	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.00990 U
Total PCBs	7.10	0.0190	0.00590	0.00560	0.0100 U	0.00990 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U	50.0 UJ
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U	50.0 UJ
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U	20.0 UJ
Heavy Oil	1300	100 U	100 U	100 UJ	100 U	100 UJ
Kensol	1100	20.0 U	20.0 U	20.0 UJ	20.0 U	20.0 UJ
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U	20.0 UJ
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U	20.0 UJ
Total Diesel/Fuel Oil	1130	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	1300	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.1
South Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS9-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS9-PH2-1-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS9-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-2-S3_052306(2.0-2.5)_SO	SDR-SS9-PH2-3-S1_052306(0.0-0.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1260	0.00350 J	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1262	0.0100 U	0.0100 U	0.150	0.0100 U	0.0100 U	0.0100 U
Aroclor 1268	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Total PCBs	0.00350	0.0100 U	0.150	0.0100 U	0.0100 U	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 UJ	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 UJ	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 UJ	100 U	100 U	100 U	100 U	100 U
Kensol	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.1
South Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent	Sample ID:	SDR-SS9-PH2-3-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-3-S3_052306(2.0-2.5)_SO_DC				
Conventional (%)							
Moisture							
Total Organic Carbon							
PCBs (mg/Kg)							
Aroclor 1016		0.0100 U	0.0100 U				
Aroclor 1221		0.0200 U	0.0200 U				
Aroclor 1232		0.0100 U	0.0100 U				
Aroclor 1242		0.0100 U	0.0100 U				
Aroclor 1248		0.0100 U	0.0100 U				
Aroclor 1254		0.0100 U	0.0100 U				
Aroclor 1260		0.0100 U	0.0100 U				
Aroclor 1262		0.0100 U	0.0100 U				
Aroclor 1268		0.0100 U	0.0100 U				
Total PCBs		0.0100 U	0.0100 U				
Petroleum-Related Constituents (mg/kg)							
Bunker C		50.0 U	50.0 U				
Castor oil							
Diesel		50.0 U	50.0 U				
Gasoline Range Organics		20.0 U	20.0 U				
Heavy Oil		100 U	100 U				
Kensol		20.0 U	20.0 U				
Kerosene/Jet fuel		20.0 U	20.0 U				
Mineral spirits/Stoddard		20.0 U	20.0 U				
Total Diesel/Fuel Oil		70.0 U	70.0 U				
Total Gasoline		20.0 U	20.0 U				
Total Heavy Oil		100 U	100 U				
Total Kerosene/Jet Fuel		20.0 U	20.0 U				
Total Stoddard/Mineral Spirits		20.0 U	20.0 U				

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.4.2
South Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SB-1-S1_022306(10.0-15.0)_SO	SDR-SS-1_030106(0.0-1.0)_SO	SDR-SS-2_030106(0.0-1.0)_SO	SDR-SS-3_030106(0.0-1.0)_SO	SDR-SS-4_030106(0.0-1.0)_SO	SDR-SS-5_030106(0.0-1.0)_SO
Conventional (%)						
Moisture	10.0	16.0	18.0	17.0	26.0	22.0
Total Organic Carbon						2.10
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1221	0.0200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Aroclor 1232	0.0100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1242	0.0100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1248	0.0100 U	4.40	4.10	3.90	1.70	0.850
Aroclor 1254	0.0100 U	3.50	2.70	2.30	1.70	0.530
Aroclor 1260	0.0100 U	1.20	0.660	0.600	0.460	0.140
Aroclor 1262						
Aroclor 1268						
Total PCBs	0.0100 U	9.10	7.50	6.80	3.90	1.50
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil	100 U	100 U	100 U	100 U	100 U	100 U
Diesel	32.0 J	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	130	110	100 U
Kensol	20.0 U	830	1100	300	410	38.0
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	42.0	855	1130	325	435	63.0
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200 U	200 U	200 U	180	160	200 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.2
South Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS-6_030106(0.0-1.0)_SO	SDR-SS-7_030106(0.0-1.0)_SO_DC	SDR-SS-8_030106(0.0-1.0)_SO	SDR-SS-9_030106(0.0-1.0)_SO	SDR-SS1-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-1-S2_052306(1.0-1.5)_SO
Conventional (%)						
Moisture	33.0	20.0	26.0	19.0		
Total Organic Carbon		5.40		2.80		
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.200 U	0.200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.100 U	0.100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	2.30	1.50	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.120	1.70	1.10	0.130	0.0700 JP	0.0100 U
Aroclor 1260	0.0730	0.390	0.270	0.0790	0.120	0.0100 U
Aroclor 1262					0.0100 U	0.0100 U
Aroclor 1268					0.0100 U	0.0100 U
Total PCBs	0.193	4.30	2.90	0.209	0.190	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil	100 U	100 U	100 U	100 U		
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	150	100 U	100 U	100 U	100 U
Kensol	85.0	445	54.0	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	110	470	79.0	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	200 U	200	200 U	200 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.2
South Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS1-PH2-1-S3_052306(2.0-2.5)_SO	SDR-SS1-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS1-PH2-2-S3_052306(2.0-2.5)_SO	SDR-SS1-PH2-3-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-3-S2_052306(1.0-1.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.00990 U	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	2.50 U	0.200 U
Aroclor 1232	0.00990 U	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U
Aroclor 1242	0.00990 U	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U
Aroclor 1248	0.00990 U	0.0100 U	0.0100 U	0.0100 U	71.0	0.360
Aroclor 1254	0.00990 U	0.0600	0.0290	0.0100 U	1.30 U	0.100 U
Aroclor 1260	0.00990 U	0.0100 U	0.0200	0.0100 U	1.30 U	1.10
Aroclor 1262	0.00990 U	0.0100 U	0.0100 U	0.0580	1.30 U	0.100 U
Aroclor 1268	0.00990 U	0.0100 U	0.0100 U	0.0100 U	1.30 U	0.100 U
Total PCBs	0.00990 U	0.0600	0.0490	0.0580	71.0	1.50
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	100 U	13000	1200
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	1300	140
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	1330	165
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	13000	1200
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.2
South Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS1-PH2-3-S3_052306(2.0-2.5)_SO	SDR-SS1-PH2-4-S1_052306(0.0-0.5)_SO	SDR-SS1-PH2-4-S2_052306(1.0-1.5)_SO	SDR-SS1-PH2-4-S3_052306(2.0-2.5)_SO	SDR-SS7-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-1-S2_052306(1.0-1.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1248	0.130	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1260	0.0100 U	0.00330 J	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1262	0.520	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Aroclor 1268	0.0100 U	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Total PCBs	0.650	0.00330	0.0100 U	0.00990 U	0.0100 U	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Kensol	20.0 U	20.0 U	120	690	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	145	715	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.2
South Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS7-PH2-1-S3_052306(2.0-2.5)_SO	SDR-SS7-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS7-PH2-2-S3_052306(2.0-2.5)_SO	SDR-SS7-PH2-3-S1_052306(0.0-0.5)_SO	SDR-SS7-PH2-3-S2_052306(1.0-1.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.500 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.0100 U	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.0100 U	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.0100 U	7.10	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.0100 U	0.250 U	0.0100 U	0.00350 J	0.0100 U	0.0100 U
Aroclor 1260	0.0100 U	0.250 U	0.0100 U	0.00240 J	0.00560 J	0.0100 U
Aroclor 1262	0.0100 U	0.250 U	0.0190	0.0100 U	0.0100 U	0.0100 U
Aroclor 1268	0.0100 U	0.250 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Total PCBs	0.0100 U	7.10	0.0190	0.00590	0.00560	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U	50.0 U	50.0 UJ	50.0 U
Gasoline Range Organics	20.0 U	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Heavy Oil	100 U	1300	100 U	100 U	100 UJ	100 U
Kensol	20.0 U	1100	20.0 U	20.0 U	20.0 UJ	20.0 U
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U	20.0 U	20.0 UJ	20.0 U
Total Diesel/Fuel Oil	70.0 U	1130	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	1300	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.2
South Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS7-PH2-3-S3_052306(2.0-2.5)_SO_DC	SDR-SS9-PH2-1-S1_052306(0.0-0.5)_SO	SDR-SS9-PH2-1-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-2-S1_052306(0.0-0.5)_SO	SDR-SS9-PH2-2-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-2-S3_052306(2.0-2.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1242	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1248	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1254	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1260	0.00990 U	0.00350 J	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Aroclor 1262	0.00990 U	0.0100 U	0.0100 U	0.150	0.0100 U	0.0100 U
Aroclor 1268	0.00990 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Total PCBs	0.00990 U	0.00350	0.0100 U	0.150	0.0100 U	0.0100 U
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 UJ	50.0 UJ	50.0 U	50.0 U	50.0 U	50.0 U
Castor oil						
Diesel	50.0 UJ	50.0 UJ	50.0 U	50.0 U	50.0 U	50.0 U
Gasoline Range Organics	20.0 UJ	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil	100 UJ	100 UJ	100 U	100 U	100 U	100 U
Kensol	20.0 UJ	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel	20.0 UJ	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U
Mineral spirits/Stoddard	20.0 UJ	20.0 UJ	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U	70.0 U
Total Gasoline	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Heavy Oil	100 U	100 U	100 U	100 U	100 U	100 U
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Table A.2.4.2
South Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	SDR-SS9-PH2-3-S1_052306(0.0-0.5)_SO	SDR-SS9-PH2-3-S2_052306(1.0-1.5)_SO	SDR-SS9-PH2-3-S3_052306(2.0-2.5)_SO_DC			
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U			
Aroclor 1232	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1242	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1248	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1254	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1260	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1262	0.0100 U	0.0100 U	0.0100 U			
Aroclor 1268	0.0100 U	0.0100 U	0.0100 U			
Total PCBs	0.0100 U	0.0100 U	0.0100 U			
Petroleum-Related Constituents (mg/kg)						
Bunker C	50.0 U	50.0 U	50.0 U			
Castor oil						
Diesel	50.0 U	50.0 U	50.0 U			
Gasoline Range Organics	20.0 U	20.0 U	20.0 U			
Heavy Oil	100 U	100 U	100 U			
Kensol	20.0 U	20.0 U	20.0 U			
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U			
Mineral spirits/Stoddard	20.0 U	20.0 U	20.0 U			
Total Diesel/Fuel Oil	70.0 U	70.0 U	70.0 U			
Total Gasoline	20.0 U	20.0 U	20.0 U			
Total Heavy Oil	100 U	100 U	100 U			
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U			
Total Stoddard/Mineral Spirits	20.0 U	20.0 U	20.0 U			

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.5.1
Western Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	GRID 2 S. Sidewall 2'_080207(2.0)_SO	GRID 2 S. Sidewall 5'_080207(5.0)_SO	MID GRID 4 5'_080607(5.0)_SO	WDR-EC14-C1_082407(4.0-6.0)_SO	WDR-EC15-C1_082307(4.0-9.0)_SO	WDR-EC15-C2_082307(4.0-9.0)_SO_DC
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0540 U	0.0530 U	0.530 U	0.480 U	0.0250 U	0.490 U
Aroclor 1221	0.110 U	0.110 U	1.10 U	0.960 U	0.0500 U	0.980 U
Aroclor 1232	0.0540 U	0.0530 U	0.530 U	0.480 U	0.0250 U	0.490 U
Aroclor 1242	0.0540 U	0.0530 U	0.530 U	0.480 U	0.0250 U	0.490 U
Aroclor 1248	0.0540 U	0.0530 U	41.0	11.0	1.00	8.30
Aroclor 1254	0.550	0.650	0.530 U	0.480 U	0.0250 U	0.490 U
Aroclor 1260	0.0540 U	0.0530 U	0.530 U	0.480 U	0.0250 U	0.490 U
Total PCBs	0.550	0.650	41.0	11.0	1.00	8.30
Petroleum-Related Constituents (mg/kg)						
Diesel				20.0 U		20.0 U
Heavy Oil				50.0 U		50.0 U
Kensol				20.0 U		20.0 U
Kerosene/Jet fuel				20.0 U		20.0 U
Total Diesel/Fuel Oil				40.0 U		40.0 U
Total Heavy Oil				50.0 U		50.0 U
Total Kerosene/Jet Fuel				20.0 U		20.0 U

Table A.2.5.1
Western Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC15-D19_082107(4.0-5.0)_SO	WDR-EC15-D20_082107(4.0-5.0)_SO	WDR-EC4-C1_081007(4.0-5.0)_SO	WDR-EC4-C2_081007(4.0-6.0)_SO	WDR-EC4-C3_081007(4.0-6.0)_SO	WDR-EC4-C4_081007(4.0-6.0)_SO
Conventional (%)						
Moisture			14.0			
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0250 U	0.0250 U	1.00 U	1.00 U	1.00 U	0.100 U
Aroclor 1221	0.0500 U	0.0500 U	2.00 U	2.00 U	2.00 U	0.200 U
Aroclor 1232	0.0250 U	0.0250 U	1.00 U	1.00 U	1.00 U	0.100 U
Aroclor 1242	0.0250 U	0.0250 U	1.00 U	1.00 U	1.00 U	0.100 U
Aroclor 1248	0.200	0.380	72.0	51.0	14.0	7.90
Aroclor 1254	0.0250 U	0.0250 U	1.00 U	1.00 U	1.00 U	0.100 U
Aroclor 1260	0.0250 U	0.0250 U	1.00 U	1.00 U	1.00 U	0.100 U
Total PCBs	0.200	0.380	72.0	51.0	14.0	7.90
Petroleum-Related Constituents (mg/kg)						
Diesel			20.0 U			
Heavy Oil			1500			
Kensol			20.0 U			
Kerosene/Jet fuel			20.0 U			
Total Diesel/Fuel Oil			40.0 U			
Total Heavy Oil			1500			
Total Kerosene/Jet Fuel			20.0 U			

Table A.2.5.1
Western Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC4-D1_081007(4.0-6.0)_SO	WDR-EC4-D6_081007(4.0-6.0)_SO	WDR-EC5-C1_081007(4.0)_SO	WDR-EC5-C2_081007(4.0)_SO	WDR-EC5-C3_081007(4.0)_SO	WDR-EC5-C4_081007(4.0)_SO
Conventional (%)						
Moisture					16.0	
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0990 U	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U
Aroclor 1221	0.200 U	2.00 U	2.00 U	0.200 U	2.00 U	2.00 U
Aroclor 1232	0.0990 U	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U
Aroclor 1242	0.0990 U	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U
Aroclor 1248	0.0990 U	16.0	15.0	2.50	19.0	34.0
Aroclor 1254	1.20	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U
Aroclor 1260	0.0990 U	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U
Total PCBs	1.20	16.0	15.0	2.50	19.0	34.0
Petroleum-Related Constituents (mg/kg)						
Diesel					20.0 U	
Heavy Oil					530	
Kensol					20.0 U	
Kerosene/Jet fuel					20.0 U	
Total Diesel/Fuel Oil					40.0 U	
Total Heavy Oil					530	
Total Kerosene/Jet Fuel					20.0 U	

Table A.2.5.1
Western Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC5-C5_081007(4.0)_SO	WDR-EC5-D4_081007(4.0)_SO	WDR-EC7-C1_081707(4.0-9.0)_SO	WDR-EC7-C2_081707(4.0-5.0)_SO	WDR-EC7-C3_081707(4.0-5.0)_SO	WDR-EC7-D1_081607(4.0-5.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	1.00 U	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U
Aroclor 1221	2.00 U	0.200 U	0.830 U	0.800 U	0.830 U	0.0170 U
Aroclor 1232	1.00 U	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U
Aroclor 1242	1.00 U	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U
Aroclor 1248	29.0	2.40	5.50	1.10	2.90	0.350
Aroclor 1254	1.00 U	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U
Aroclor 1260	1.00 U	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U
Total PCBs	29.0	2.40	5.50	1.10	2.90	0.350
Petroleum-Related Constituents (mg/kg)						
Diesel					20.0 U	
Heavy Oil					50.0 U	
Kensol					20.0 U	
Kerosene/Jet fuel					20.0 U	
Total Diesel/Fuel Oil					40.0 U	
Total Heavy Oil					50.0 U	
Total Kerosene/Jet Fuel					20.0 U	

Table A.2.5.1
Western Discharge Ravine Site (0 to 6 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-PIA-06_050907(0.0-1.0)_SO	WDR-PIA-09_050907(0.0-1.0)_SO	WDR-PIA-10_050907(0.0-1.0)_SO	WDR-PIA-13_050907(0.0-1.0)_SO	WDR-PIA-17_050907(0.0-1.0)_SO	
Conventional (%)						
Moisture	3.20	5.10	10.0	3.90	3.00	
Total Organic Carbon		0.620				
PCBs (mg/Kg)						
Aroclor 1016	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U	
Aroclor 1221	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	
Aroclor 1232	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U	
Aroclor 1242	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U	
Aroclor 1248	0.160 JP	0.00990 U	0.00980 U	0.0150	0.00970 U	
Aroclor 1254	0.310	0.00700 J	0.00640 J	0.00860 J	0.0110	
Aroclor 1260	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U	
Total PCBs	0.470	0.00700	0.00640	0.0236	0.0110	
Petroleum-Related Constituents (mg/kg)						
Diesel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	
Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	
Kensol	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	
Kerosene/Jet fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	
Total Diesel/Fuel Oil	40.0 U	40.0 U	40.0 U	40.0 U	40.0 U	
Total Heavy Oil	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	
Total Kerosene/Jet Fuel	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	GRID 2 S. Sidewall 2'_080207(2.0)_SO	GRID 2 S. Sidewall 5'_080207(5.0)_SO	GRID 2 S. Sidewall 7'_080207(7.0)_SO	MID GRID 4 5'_080607(5.0)_SO	MID GRID 4 6.5'_080607(6.5)_SO	MID GRID 4 8.5'_080607(8.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0540 U	0.0530 U	0.530 U	0.530 U	0.520 U	0.0520 U
Aroclor 1221	0.110 U	0.110 U	1.10 U	1.10 U	1.10 U	0.110 U
Aroclor 1232	0.0540 U	0.0530 U	0.530 U	0.530 U	0.520 U	0.0520 U
Aroclor 1242	0.0540 U	0.0530 U	0.530 U	0.530 U	0.520 U	0.0520 U
Aroclor 1248	0.0540 U	0.0530 U	23.0	41.0	9.70	4.20
Aroclor 1254	0.550	0.650	0.530 U	0.530 U	0.520 U	0.0520 U
Aroclor 1260	0.0540 U	0.0530 U	0.530 U	0.530 U	0.520 U	0.0520 U
Total PCBs	0.550	0.650	23.0	41.0	9.70	4.20
Petroleum-Related Constituents (mg/kg)						
Diesel						
Heavy Oil						
Kensol						
Kerosene/Jet fuel						
Total Diesel/Fuel Oil						
Total Heavy Oil						
Total Kerosene/Jet Fuel						

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC1-C1_080907(8.0)_SO	WDR-EC1-C2_080907(7.0-8.0)_SO	WDR-EC1-D1_080907(7.0-8.0)_SO	WDR-EC1-D2_080907(7.0-8.0)_SO	WDR-EC10-C1_082207(9.0-10.0)_SO_DC	WDR-EC10-C2_082307(9.0-10.0)_SO
Conventional (%)						
Moisture	15.0					
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	1.00 U	0.100 U	0.0100 U	0.00950 U	0.500 U	0.250 U
Aroclor 1221	2.00 U	0.200 U	0.0200 U	0.0190 U	1.00 U	0.500 U
Aroclor 1232	1.00 U	0.100 U	0.0100 U	0.00950 U	0.500 U	0.250 U
Aroclor 1242	1.00 U	0.100 U	0.0100 U	0.00950 U	0.500 U	0.250 U
Aroclor 1248	24.0	5.10	0.0100 U	0.00950 U	11.0	5.10
Aroclor 1254	1.00 U	0.100 U	0.0160	0.0210	0.500 U	0.250 U
Aroclor 1260	1.00 U	0.100 U	0.0100 U	0.00950 U	0.500 U	0.250 U
Total PCBs	24.0	5.10	0.0160	0.0210	11.0	5.10
Petroleum-Related Constituents (mg/kg)						
Diesel	20.0 U				20.0 U	
Heavy Oil	380				50.0 U	
Kensol	20.0 U				20.0 U	
Kerosene/Jet fuel	20.0 U				20.0 U	
Total Diesel/Fuel Oil	40.0 U				40.0 U	
Total Heavy Oil	380				50.0 U	
Total Kerosene/Jet Fuel	20.0 U				20.0 U	

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC10-C3_082307(9.0-10.0)_SO	WDR-EC10-D4_082007(9.0-10.0)_SO	WDR-EC11-C1_082307(8.0)_SO	WDR-EC11-C2_083007(9.0)_SO	WDR-EC11-D3_082207(8.0)_SO	WDR-EC11-D7_082207(8.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Aroclor 1221	0.980 U	0.0500 U	0.0500 U	0.0140 U	0.0490 U	0.0500 U
Aroclor 1232	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Aroclor 1242	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Aroclor 1248	7.70	1.70	1.60	0.230	0.830	0.980
Aroclor 1254	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Aroclor 1260	0.490 U	0.0250 U	0.0250 U	0.00670 U	0.0250 U	0.0250 U
Total PCBs	7.70	1.70	1.60	0.230	0.830	0.980
Petroleum-Related Constituents (mg/kg)						
Diesel			20.0 U			
Heavy Oil			50.0 U			
Kensol			20.0 U			
Kerosene/Jet fuel			20.0 U			
Total Diesel/Fuel Oil			40.0 U			
Total Heavy Oil			50.0 U			
Total Kerosene/Jet Fuel			20.0 U			

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC12-C1_083007(7.0-8.0)_SO	WDR-EC12-C2_083007(7.0-8.0)_SO	WDR-EC12-D14_083007(7.0-8.0)_SO	WDR-EC12-D15_083007(7.0-8.0)_SO	WDR-EC13-C1_083007(7.0)_SO	WDR-EC13-C2_083007(7.0-9.0)_SO_DC
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Aroclor 1221	0.0140 U	0.650 U	0.0140 U	0.0140 U	0.0140 U	0.0140 U
Aroclor 1232	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Aroclor 1242	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Aroclor 1248	0.110	0.540	0.320	0.180	0.0900	0.110
Aroclor 1254	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Aroclor 1260	0.00670 U	0.330 U	0.00670 U	0.00670 U	0.00690 U	0.00680 U
Total PCBs	0.110	0.540	0.320	0.180	0.0900	0.110
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U				20.0 U
Heavy Oil		50.0 U				50.0 U
Kensol		20.0 U				20.0 U
Kerosene/Jet fuel		20.0 U				20.0 U
Total Diesel/Fuel Oil		40.0 U				40.0 U
Total Heavy Oil		50.0 U				50.0 U
Total Kerosene/Jet Fuel		20.0 U				20.0 U

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC13-D1_083007(7.0)_SO	WDR-EC13-D2_082907(7.0)_SO	WDR-EC14-C1_082407(4.0-6.0)_SO	WDR-EC14-C2_083007(6.0-8.0)_SO	WDR-EC14-D2_082707(6.0-7.0)_SO	WDR-EC14-D7_082707(6.0-7.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Aroclor 1221	0.0140 U	0.0140 U	0.960 U	0.730 U	0.0150 U	0.0150 U
Aroclor 1232	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Aroclor 1242	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Aroclor 1248	0.0460	0.0100	11.0	0.730	0.0720	0.380
Aroclor 1254	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Aroclor 1260	0.00670 U	0.00660 U	0.480 U	0.370 U	0.00730 U	0.00710 U
Total PCBs	0.0460	0.0100	11.0	0.730	0.0720	0.380
Petroleum-Related Constituents (mg/kg)						
Diesel			20.0 U			
Heavy Oil			50.0 U			
Kensol			20.0 U			
Kerosene/Jet fuel			20.0 U			
Total Diesel/Fuel Oil			40.0 U			
Total Heavy Oil			50.0 U			
Total Kerosene/Jet Fuel			20.0 U			

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC15-C1_082307(4.0-9.0)_SO	WDR-EC15-C2_082307(4.0-9.0)_SO_DC	WDR-EC15-C3_082307(6.0-9.0)_SO	WDR-EC15-D19_082107(4.0-5.0)_SO	WDR-EC15-D20_082107(4.0-5.0)_SO	WDR-EC16-C1_082407(9.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Aroclor 1221	0.0500 U	0.980 U	0.500 U	0.0500 U	0.0500 U	
Aroclor 1232	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Aroclor 1242	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Aroclor 1248	1.00	8.30	4.20	0.200	0.380	
Aroclor 1254	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Aroclor 1260	0.0250 U	0.490 U	0.250 U	0.0250 U	0.0250 U	
Total PCBs	1.00	8.30	4.20	0.200	0.380	
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U				20.0 U
Heavy Oil		50.0 U				50.0 U
Kensol		20.0 U				20.0 U
Kerosene/Jet fuel		20.0 U				20.0 U
Total Diesel/Fuel Oil		40.0 U				40.0 U
Total Heavy Oil		50.0 U				50.0 U
Total Kerosene/Jet Fuel		20.0 U				20.0 U

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC16-D1_082307(9.0)_SO	WDR-EC16-D2_082307(9.0)_SO	WDR-EC17-C1_090707(14.0-15.0)_SO	WDR-EC17-C2_090707(14.0-15.0)_SO	WDR-EC17-D1_090507(14.0-15.0)_SO_DC	WDR-EC2-C1_080907(7.0-8.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Aroclor 1221	0.490 U	0.500 U	0.140 U	0.0140 U	0.0140 U	0.200 U
Aroclor 1232	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Aroclor 1242	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Aroclor 1248	9.80	6.80	1.20	0.300	0.270	3.10
Aroclor 1254	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Aroclor 1260	0.250 U	0.250 U	0.0700 U	0.00690 U	0.00690 U	0.100 U
Total PCBs	9.80	6.80	1.20	0.300	0.270	3.10
Petroleum-Related Constituents (mg/kg)						
Diesel			20.0 U			20.0 U
Heavy Oil			50.0 U			50.0 U
Kensol			20.0 U			20.0 U
Kerosene/Jet fuel			20.0 U			20.0 U
Total Diesel/Fuel Oil			40.0 U			40.0 U
Total Heavy Oil			50.0 U			50.0 U
Total Kerosene/Jet Fuel			20.0 U			20.0 U

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC2-C2_080907(7.0-8.0)_SO	WDR-EC2-C3_080907(7.0-8.0)_SO	WDR-EC2-D13_080907(7.0-8.0)_SO	WDR-EC2-D17_080907(7.0-8.0)_SO	WDR-EC20-C1_090707(7.0-15.0)_SO	WDR-EC20-C2_090707(8.0-15.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	1.00 U	0.100 U	1.00 U	0.0100 U	0.00700 U	0.00710 U
Aroclor 1221	2.00 U	0.200 U	2.00 U	0.0200 U	0.0140 U	0.0150 U
Aroclor 1232	1.00 U	0.100 U	1.00 U	0.0100 U	0.00700 U	0.00710 U
Aroclor 1242	1.00 U	0.100 U	1.00 U	0.0100 U	0.00700 U	0.00710 U
Aroclor 1248	17.0	6.90	12.0	0.0100 U	0.420	0.500
Aroclor 1254	9.60	0.100 U	1.00 U	0.300	0.00700 U	0.00710 U
Aroclor 1260	1.00 U	0.100 U	1.00 U	0.0100 U	0.00700 U	0.00710 U
Total PCBs	26.6	6.90	12.0	0.300	0.420	0.500
Petroleum-Related Constituents (mg/kg)						
Diesel					20.0 U	
Heavy Oil					50.0 U	
Kensol					20.0 U	
Kerosene/Jet fuel					20.0 U	
Total Diesel/Fuel Oil					40.0 U	
Total Heavy Oil					50.0 U	
Total Kerosene/Jet Fuel					20.0 U	

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC20-D1_090707(8.0-15.0)_SO	WDR-EC21-C1_090707(14.0-15.0)_SO	WDR-EC21-C2_090707(14.0-15.0)_SO	WDR-EC21-D1_090707(14.0-15.0)_SO	WDR-EC22-C1_090707(14.0-15.0)_SO	WDR-EC22-D1_090707(14.0-15.0)_SO_DC
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Aroclor 1221	0.0140 U	0.110 U	0.110 U	0.0110 U	0.0120 U	0.0110 U
Aroclor 1232	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Aroclor 1242	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Aroclor 1248	0.250	0.960	1.70	0.420	0.430	0.270
Aroclor 1254	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Aroclor 1260	0.00700 U	0.0540 U	0.0540 U	0.00550 U	0.00560 U	0.00550 U
Total PCBs	0.250	0.960	1.70	0.420	0.430	0.270
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U			20.0 U	
Heavy Oil		50.0 U			50.0 U	
Kensol		20.0 U			20.0 U	
Kerosene/Jet fuel		20.0 U			20.0 U	
Total Diesel/Fuel Oil		40.0 U			40.0 U	
Total Heavy Oil		50.0 U			50.0 U	
Total Kerosene/Jet Fuel		20.0 U			20.0 U	

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC23-D1_090507(14.0-15.0)_SO	WDR-EC3-C1_080907(6.0-7.0)_SO	WDR-EC3-C2_080907(6.0-7.0)_SO	WDR-EC3-C3_080907(6.0-7.0)_SO	WDR-EC3-C4_080907(6.0-7.0)_SO	WDR-EC3-D1_080907(6.0-7.0)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.150 U	0.100 U	1.00 U	0.990 U	0.100 U	0.100 U
Aroclor 1221	0.290 U	0.200 U	2.00 U	2.00 U	0.200 U	0.200 U
Aroclor 1232	0.150 U	0.100 U	1.00 U	0.990 U	0.100 U	0.100 U
Aroclor 1242	0.150 U	0.100 U	1.00 U	0.990 U	0.100 U	0.100 U
Aroclor 1248	9.40	1.90	12.0	31.0	6.60	6.20
Aroclor 1254	0.150 U	1.30	1.00 U	0.990 U	4.60	0.100 U
Aroclor 1260	0.150 U	0.100 U	1.00 U	0.990 U	0.100 U	0.100 U
Total PCBs	9.40	3.20	12.0	31.0	11.2	6.20
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U				
Heavy Oil		50.0 U				
Kensol		20.0 U				
Kerosene/Jet fuel		20.0 U				
Total Diesel/Fuel Oil		40.0 U				
Total Heavy Oil		50.0 U				
Total Kerosene/Jet Fuel		20.0 U				

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC3-D2_080907(6.0-7.0)_SO	WDR-EC4-C1_081007(4.0-5.0)_SO	WDR-EC4-C2_081007(4.0-6.0)_SO	WDR-EC4-C3_081007(4.0-6.0)_SO	WDR-EC4-C4_081007(4.0-6.0)_SO	WDR-EC4-D1_081007(4.0-6.0)_SO
Conventional (%)						
Moisture		14.0				
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	0.0990 U
Aroclor 1221	2.00 U	2.00 U	2.00 U	2.00 U	0.200 U	0.200 U
Aroclor 1232	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	0.0990 U
Aroclor 1242	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	0.0990 U
Aroclor 1248	21.0	72.0	51.0	14.0	7.90	0.0990 U
Aroclor 1254	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	1.20
Aroclor 1260	0.990 U	1.00 U	1.00 U	1.00 U	0.100 U	0.0990 U
Total PCBs	21.0	72.0	51.0	14.0	7.90	1.20
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U				
Heavy Oil		1500				
Kensol		20.0 U				
Kerosene/Jet fuel		20.0 U				
Total Diesel/Fuel Oil		40.0 U				
Total Heavy Oil		1500				
Total Kerosene/Jet Fuel		20.0 U				

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC4-D6_081007(4.0-6.0)_SO	WDR-EC5-C1_081007(4.0)_SO	WDR-EC5-C2_081007(4.0)_SO	WDR-EC5-C3_081007(4.0)_SO	WDR-EC5-C4_081007(4.0)_SO	WDR-EC5-C5_081007(4.0)_SO
Conventional (%)						
Moisture				16.0		
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Aroclor 1221	2.00 U	2.00 U	0.200 U	2.00 U	2.00 U	2.00 U
Aroclor 1232	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Aroclor 1242	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Aroclor 1248	16.0	15.0	2.50	19.0	34.0	29.0
Aroclor 1254	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Aroclor 1260	1.00 U	1.00 U	0.100 U	0.980 U	1.00 U	1.00 U
Total PCBs	16.0	15.0	2.50	19.0	34.0	29.0
Petroleum-Related Constituents (mg/kg)						
Diesel				20.0 U		
Heavy Oil				530		
Kensol				20.0 U		
Kerosene/Jet fuel				20.0 U		
Total Diesel/Fuel Oil				40.0 U		
Total Heavy Oil				530		
Total Kerosene/Jet Fuel				20.0 U		

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC5-D4_081007(4.0)_SO	WDR-EC7-C1_081707(4.0-9.0)_SO	WDR-EC7-C2_081707(4.0-5.0)_SO	WDR-EC7-C3_081707(4.0-5.0)_SO	WDR-EC7-D1_081607(4.0-5.0)_SO	WDR-EC8-C1_081707(6.5-7.5)_SO
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Aroclor 1221	0.200 U	0.830 U	0.800 U	0.830 U	0.0170 U	0.840 U
Aroclor 1232	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Aroclor 1242	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Aroclor 1248	2.40	5.50	1.10	2.90	0.350	1.90
Aroclor 1254	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Aroclor 1260	0.100 U	0.420 U	0.400 U	0.420 U	0.00820 U	0.420 U
Total PCBs	2.40	5.50	1.10	2.90	0.350	1.90
Petroleum-Related Constituents (mg/kg)						
Diesel				20.0 U		20.0 U
Heavy Oil				50.0 U		50.0 U
Kensol				20.0 U		20.0 U
Kerosene/Jet fuel				20.0 U		20.0 U
Total Diesel/Fuel Oil				40.0 U		40.0 U
Total Heavy Oil				50.0 U		50.0 U
Total Kerosene/Jet Fuel				20.0 U		20.0 U

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC8-C2_081707(6.5-7.5)_SO	WDR-EC8-D1_081607(6.5-7.5)_SO	WDR-EC8-D2_081607(6.5-7.5)_SO	WDR-EC9-C1_081707(6.5-7.5)_SO	WDR-EC9-C2_081707(6.5-7.5)_SO	WDR-EC9-C3_082207(8.0)_SO_DC
Conventional (%)						
Moisture						
Total Organic Carbon						
PCBs (mg/Kg)						
Aroclor 1016	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Aroclor 1221	0.820 U	0.840 U	0.820 U	0.830 U	0.0170 UJ	0.500 U
Aroclor 1232	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Aroclor 1242	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Aroclor 1248	1.30	1.40	1.60	2.30	0.290 J	4.30
Aroclor 1254	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Aroclor 1260	0.410 U	0.420 U	0.410 U	0.420 U	0.00840 UJ	0.250 U
Total PCBs	1.30	1.40	1.60	2.30	0.290	4.30
Petroleum-Related Constituents (mg/kg)						
Diesel				20.0 U		
Heavy Oil				50.0 U		
Kensol				20.0 U		
Kerosene/Jet fuel				20.0 U		
Total Diesel/Fuel Oil				40.0 U		
Total Heavy Oil				50.0 U		
Total Kerosene/Jet Fuel				20.0 U		

Table A.2.5.2
Western Discharge Ravine Site (0 to 15 feet)
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent / Sample ID:	WDR-EC9-D1_081607(6.5-7.5)_SO	WDR-PIA-06_050907(0.0-1.0)_SO	WDR-PIA-09_050907(0.0-1.0)_SO	WDR-PIA-10_050907(0.0-1.0)_SO	WDR-PIA-13_050907(0.0-1.0)_SO	WDR-PIA-17_050907(0.0-1.0)_SO
Conventional (%)						
Moisture		3.20	5.10	10.0	3.90	3.00
Total Organic Carbon			0.620			
PCBs (mg/Kg)						
Aroclor 1016	0.00820 U	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U
Aroclor 1221	0.0170 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Aroclor 1232	0.00820 U	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U
Aroclor 1242	0.00820 U	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U
Aroclor 1248	0.170	0.160 JP	0.00990 U	0.00980 U	0.0150	0.00970 U
Aroclor 1254	0.00820 U	0.310	0.00700 J	0.00640 J	0.00860 J	0.0110
Aroclor 1260	0.00820 U	0.00990 U	0.00990 U	0.00980 U	0.00990 U	0.00970 U
Total PCBs	0.170	0.470	0.00700	0.00640	0.0236	0.0110
Petroleum-Related Constituents (mg/kg)						
Diesel		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Heavy Oil		50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Kensol		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Kerosene/Jet fuel		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Total Diesel/Fuel Oil		40.0 U	40.0 U	40.0 U	40.0 U	40.0 U
Total Heavy Oil		50.0 U	50.0 U	50.0 U	50.0 U	50.0 U
Total Kerosene/Jet Fuel		20.0 U	20.0 U	20.0 U	20.0 U	20.0 U

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

-If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Table A.2.6.1
Industrial Wastewater Treatment Buffer Site (0 to 6 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent	Sample ID:	HL-MW-30s 5'_060807(5.0-6.0)_SO					
Conventional (%)							
Moisture		5.60					
PCBs (mg/Kg)							
Aroclor 1016		0.0100 U					
Aroclor 1221		0.0200 U					
Aroclor 1232		0.0100 U					
Aroclor 1242		0.0100 U					
Aroclor 1248		0.0720					
Aroclor 1254		0.0760					
Aroclor 1260		0.0100 U					
Total PCBs		0.148					
Petroleum-Related Constituents (mg/kg)							
Bunker C		50.0 U					
Diesel		50.0 U					
Gasoline Range Organics		20.0 U					
Heavy Oil		100 U					
Kensol		20.0 U					
Kerosene/Jet fuel		20.0 U					
Mineral spirits/Stoddard		20.0 U					
Total Diesel/Fuel Oil		70.0 U					
Total Gasoline		20.0 U					
Total Heavy Oil		100 U					
Total Kerosene/Jet Fuel		20.0 U					
Total Stoddard/Mineral Spirits		20.0 U					

Notes:
The following qualifiers may be used in this table:
J - Constituent present, reported value is estimated
U - Not detected at or above reporting limit
UJ - Not detected; reporting limit is estimated
The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:
If both results were detected values, then the two values were averaged.
If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.
If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.
Sample IDs include sample date and sample depth. For example, sample AKCB-400_102008(1.0-1.5)_SO was collected on 10/20/2008 and the sample depth was 1.0 to 1.5 feet below ground surface.
If cell is blank then sample was not analyzed for that constituent.

Table A.2.6.2
Industrial Wastewater Treatment Buffer Site (0 to 15 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-23S-S1_021306(8.0-11.2)_SO	HL-MW-24DD-S1_020806(10.0-11.0)_SO	HL-MW-30s 10'_060807(10.0-11.0)_SO	HL-MW-30s 5'_060807(5.0-6.0)_SO	LF-1_050807(6.0)_SO	WW-MW-14/S-1_111991(8.0-10.0)_SO
Conventional (%)						
Moisture	9.00	1.00	6.80	5.60		
Metals (mg/Kg)						
Arsenic (inorganic)	4.70	2.00 J	7.10 J			
Barium	114	37.4 J	49.6			
Cadmium	0.139	0.0430 J	0.141			
Chromium	11.8	7.00	10.8			
Lead (inorganic)	11.7	4.60	9.80			
Manganese	481	97.1 J	389			
Mercury (inorganic)	0.0120 J	0.0190 U	0.0200 U			
Selenium (and compounds)	1.10 U	1.00 U	0.400 J			
Silver	0.0550	0.0280	0.0700			
PCBs						
Aroclor 1016 (mg/Kg)	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.00990 U	0.500 U
Aroclor 1016 (mg/kg)	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.00990 U	0.500 U
Aroclor 1221 (mg/Kg)	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.500 U
Aroclor 1221 (mg/kg)	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.500 U
Aroclor 1232 (mg/Kg)	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.00990 U	0.500 U
Aroclor 1232 (mg/kg)	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.00990 U	0.500 U
Aroclor 1242 (mg/Kg)	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.00990 U	0.500 U
Aroclor 1242 (mg/kg)	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.00990 U	0.500 U
Aroclor 1248 (mg/Kg)	0.0100 U	0.0100 U	0.00990 U	0.0720	0.550	0.200 U
Aroclor 1248 (mg/kg)	0.0100 U	0.0100 U	0.00990 U	0.0720	0.550	0.200 U
Aroclor 1254 (mg/Kg)	0.0100 U	0.0100 U	0.00990 U	0.0760	0.350	0.200 U
Aroclor 1254 (mg/kg)	0.0100 U	0.0100 U	0.00990 U	0.0760	0.350	0.200 U
Aroclor 1260 (mg/Kg)	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.00990 U	0.200 U
Aroclor 1260 (mg/kg)	0.0100 U	0.0100 U	0.00990 U	0.0100 U	0.00990 U	0.200 U
Aroclor 1262 (mg/kg)						0.200 U
Aroclor 1268 (mg/kg)						0.200 U
Total PCBs (mg/Kg)	0.0100 U	0.0100 U	0.00990 U	0.148	0.900	0.200 U
Total PCBs (mg/kg)	0.0100 U	0.0100 U	0.00990 U	0.148	0.900	0.200 U
Petroleum-Related Constituents						
Benzene (mg/Kg)	0.00920 U	0.00860 U	0.00450 U			
Benzene (mg/kg)	0.00920 U	0.00860 U	0.00450 U			
Benzo(a)anthracene (mg/Kg)	0.00500 U	0.00500 U	0.000710 J			

Table A.2.6.2
Industrial Wastewater Treatment Buffer Site (0 to 15 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-23S-S1_021306(8.0-11.2)_SO	HL-MW-24DD-S1_020806(10.0-11.0)_SO	HL-MW-30s 10'_060807(10.0-11.0)_SO	HL-MW-30s 5'_060807(5.0-6.0)_SO	LF-1_050807(6.0)_SO	WW-MW-14/S-1_111991(8.0-10.0)_SO
Benzo(a)pyrene (mg/Kg)	0.00500 U	0.00500 U	0.00500 U			
Benzo(b)fluoranthene (mg/Kg)	0.00500 U	0.00500 U	0.00500 U			
Benzo(g,h,i)perylene (mg/Kg)	0.00500 U	0.00500 U	0.00500 U			
Benzo(k)fluoranthene (mg/Kg)	0.00500 U	0.00500 U	0.00500 U			
Bunker C (mg/kg)	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U	10.0 U
CPAH TEQ (mg/Kg)	0.00755 U	0.00755 U	0.00358			
Castor oil (mg/kg)	100 U	180				
Chrysene (mg/Kg)	0.00500 U	0.00500 U	0.000430 J			
Dibenz(a,h)anthracene (mg/Kg)	0.00500 U	0.00500 U	0.00500 U			
Diesel (mg/kg)	50.0 U	50.0 U	20.0 U	50.0 U	20.0 U	10.0 U
Ethyl Benzene (mg/Kg)	0.00920 U	0.00860 U	0.00450 U			
Ethyl Benzene (mg/kg)	0.00920 U	0.00860 U	0.00450 U			
Gasoline Range Organics (mg/kg)	5.00 U	5.00 U	5.00 U	20.0 U	5.00 U	10.0 U
Heavy Oil (mg/kg)	100 U	100 U	50.0 U	100 U	50.0 U	10.0 U
Indeno(1,2,3-cd)pyrene (mg/Kg)	0.00500 U	0.00500 U	0.00500 U			
Kensol (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	10.0 U
Kerosene/Jet fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	10.0 U
Methylnaphthalene, 2- (mg/Kg)	0.00500 U	0.00500 U	0.00500 U			
Mineral spirits/Stoddard (mg/kg)	5.00 U	5.00 U	5.00 U	20.0 U	5.00 U	10.0 U
Naphthalene (mg/Kg)	0.0370 U	0.0350 U	0.0180 U			
Toluene (mg/Kg)	0.00180 J	0.00860 U	0.00450 U			
Toluene (mg/kg)	0.00180 J	0.00860 U	0.00450 U			
Total Diesel/Fuel Oil (mg/kg)	70.0 U	70.0 U	40.0 U	70.0 U	40.0 U	20.0 U
Total Gasoline (mg/kg)	5.00 U	5.00 U	5.00 U	20.0 U	5.00 U	10.0 U
Total Heavy Oil (mg/kg)	200 U	230	50.0 U	100 U	50.0 U	10.0 U
Total Kerosene/Jet Fuel (mg/kg)	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	10.0 U
Total Naphthalene (mg/Kg)	0.0370 U	0.0350 U	0.0180 U			
Total Stoddard/Mineral Spirits (mg/kg)	5.00 U	5.00 U	5.00 U	20.0 U	5.00 U	10.0 U
Total TPH (mg/kg)						10.0 U
Total Xylenes (mg/Kg)	0.0184 U	0.0172 U	0.00250			
Total Xylenes (mg/kg)	0.0184 U	0.0172 U	0.00250			
Xylenes (mg/Kg)	0.00920 U	0.00860 U	0.000250 J			
Xylenes (mg/kg)	0.00920 U	0.00860 U	0.000250 J			
Semi-Volatile Organic Constituents (mg/Kg)						
Acenaphthene	0.00500 U	0.00500 U	0.00500 U			
Acenaphthylene	0.00500 U	0.00500 U	0.00500 U			
Anthracene	0.00500 U	0.00500 U	0.00500 U			

Table A.2.6.2
Industrial Wastewater Treatment Buffer Site (0 to 15 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-23S-S1_021306(8.0-11.2)_SO	HL-MW-24DD-S1_020806(10.0-11.0)_SO	HL-MW-30s 10'_060807(10.0-11.0)_SO	HL-MW-30s 5'_060807(5.0-6.0)_SO	LF-1_050807(6.0)_SO	WW-MW-14/S-1_111991(8.0-10.0)_SO
Bromobenzene	0.00920 U	0.00860 U	0.00450 U			
Dibenzofuran	0.000260 J	0.00500 U	0.00500 U			
Dichlorobenzene, 1,2-	0.00920 U	0.00860 U	0.00450 U			
Dichlorobenzene, 1,3-	0.00920 U	0.00860 U	0.00450 U			
Fluoranthene	0.00500 U	0.00500 U	0.00500 U			
Fluorene	0.000230 J	0.00500 U	0.00500 U			
Hexachlorobutadiene	0.0370 U	0.0350 U	0.0180 U			
Phenanthrene	0.00500 U	0.00500 U	0.00500 U			
Pyrene	0.00500 U	0.00500 U	0.000460 J			
Trichlorobenzene, 1,2,4-	0.0370 U	0.0350 U	0.0180 U			
o-Xylene	0.00920 U	0.00860 U	0.00450 U			
Volatile Organics Constituents (mg/Kg)						
1,1-Dichloropropene	0.00920 U	0.00860 U	0.00450 U			
1,2,3-trichlorobenzene	0.0370 U	0.0350 U	0.0180 U			
1,2,4-Trimethylbenzene	0.0370 U	0.0350 U	0.000120 J			
1,3,5-Trimethylbenzene	0.0370 U	0.0350 U	0.0180 U			
1,3-dichloropropane	0.00920 U	0.00860 U	0.00450 U			
1-Phenylpropane	0.0370 U	0.0350 U	0.0180 U			
2,2-dichloropropane	0.00920 U	0.00860 U	0.00450 U			
2-chlorotoluene	0.0370 U	0.0350 U	0.0180 U			
4-chlorotoluene	0.0370 U	0.0350 U	0.000120 J			
4-isopropyltoluene	0.0370 U	0.0350 U	0.0180 U			
Acetone	0.0460	0.0350 U	0.0210 U			
Bromochloromethane	0.00920 U	0.00860 U	0.00450 U			
Bromodichloromethane	0.00920 U	0.00860 U	0.00450 U			
Bromoform	0.00920 U	0.00860 U	0.00450 U			
Bromomethane	0.00920 U	0.00860 U	0.00450 U			
CFC-11	0.00920 U	0.00860 U	0.00450 U			
CFC-12	0.00920 U	0.00130 J	0.00450 U			
Carbon Disulfide	0.00920 U	0.00370 J	0.00150 J			
Carbon Tetrachloride	0.00920 U	0.00860 U	0.00450 U			
Chlorobenzene	0.00920 U	0.00860 U	0.00450 U			
Chloroform	0.00920 U	0.00860 U	0.00450 U			
Chloromethane	0.00920 U	0.00860 U	0.00450 U			
Cumene	0.0370 U	0.0350 U	0.0180 U			
Dibromo-3-chloropropane, 1,2-	0.0370 U	0.0350 U	0.0180 U			
Dibromochloromethane	0.00920 U	0.00860 U	0.00450 U			

Table A.2.6.2
Industrial Wastewater Treatment Buffer Site (0 to 15 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent / Sample ID:	HL-MW-23S-S1_021306(8.0-11.2)_SO	HL-MW-24DD-S1_020806(10.0-11.0)_SO	HL-MW-30s 10'_060807(10.0-11.0)_SO	HL-MW-30s 5'_060807(5.0-6.0)_SO	LF-1_050807(6.0)_SO	WW-MW-14/S-1_111991(8.0-10.0)_SO
Dibromoethane, 1,2-	0.0370 U	0.0350 U	0.0180 U			
Dichlorobenzene, 1,4-	0.00920 U	0.00860 U	0.00450 U			
Dichloroethane, 1,1-	0.00920 U	0.00860 U	0.00450 U			
Dichloroethane, 1,2-	0.00920 U	0.00860 U	0.00450 U			
Dichloroethene, 1,1-	0.00920 U	0.00860 U	0.00450 U			
Dichloroethylene, Cis-1,2-	0.00920 U	0.00860 U	0.00450 U			
Dichloroethylene, Trans-1,2-	0.00920 U	0.00860 U	0.00450 U			
Dichloromethane	0.0190 U	0.0180 U	0.00890 U			
Dichloropropane, 1,2-	0.00920 U	0.00860 U	0.00450 U			
Dichloropropene, Cis-1,3-	0.00920 U	0.00860 U	0.00450 U			
Dichloropropene, Trans-1,3-	0.00920 U	0.00860 U	0.00450 U			
Ethyl Chloride	0.00920 U	0.00860 U	0.00450 U			
Hexanone, 2-	0.0370 U	0.0350 U	0.0180 U			
Methyl Ethyl Ketone	0.0370 U	0.0350 U	0.00290 J			
Methyl Isobutyl Ketone	0.0370 U	0.0350 U	0.0180 U			
Methylene Bromide	0.00920 U	0.00860 U	0.00450 U			
Styrene	0.00920 U	0.00860 U	0.00450 U			
Tert-butylbenzene	0.0370 U	0.0350 U	0.0180 U			
Tetrachloroethane, 1,1,1,2-	0.00920 U	0.00860 U	0.00450 U			
Tetrachloroethane, 1,1,2,2-	0.00920 U	0.00860 U	0.00450 U			
Tetrachloroethylene	0.00920 U	0.00860 U	0.000520 J			
Trichloroethane, 1,1,1-	0.00920 U	0.00860 U	0.00450 U			
Trichloroethane, 1,1,2-	0.00920 U	0.00860 U	0.00450 U			
Trichloroethylene	0.00920 U	0.00860 U	0.00450 U			
Trichloropropane, 1,2,3-	0.00920 U	0.00860 U	0.00450 U			
Vinyl Chloride	0.00920 U	0.00860 U	0.00450 U			
n-Butylbenzene	0.0370 U	0.0350 U	0.0180 U			
sec-Butylbenzene	0.0370 U	0.0350 U	0.0180 U			

Table A.2.6.2
Industrial Wastewater Treatment Buffer Site (0 to 15 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent	Sample ID:	WW-MW-5/S-3_110889(13.0-15.0)_SO					
Conventional (%)							
Moisture							
Metals (mg/Kg)							
Arsenic (inorganic)		4.70					
Barium							
Cadmium		1.00 U					
Chromium		37.0					
Lead (inorganic)		10.0 U					
Manganese							
Mercury (inorganic)							
Selenium (and compounds)							
Silver							
PCBs							
Aroclor 1016 (mg/Kg)							
Aroclor 1016 (mg/kg)							
Aroclor 1221 (mg/Kg)							
Aroclor 1221 (mg/kg)							
Aroclor 1232 (mg/Kg)							
Aroclor 1232 (mg/kg)							
Aroclor 1242 (mg/Kg)							
Aroclor 1242 (mg/kg)							
Aroclor 1248 (mg/Kg)							
Aroclor 1248 (mg/kg)							
Aroclor 1254 (mg/Kg)							
Aroclor 1254 (mg/kg)							
Aroclor 1260 (mg/Kg)							
Aroclor 1260 (mg/kg)							
Aroclor 1262 (mg/kg)							
Aroclor 1268 (mg/kg)							
Total PCBs (mg/Kg)							
Total PCBs (mg/kg)							
Petroleum-Related Constituents							
Benzene (mg/Kg)		0.0500 U					
Benzene (mg/kg)		0.0500 U					
Benzo(a)anthracene (mg/Kg)							

Table A.2.6.2
Industrial Wastewater Treatment Buffer Site (0 to 15 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent	Sample ID:	WW-MW-5/S-3_110889(13.0-15.0)_SO					
Benzo(a)pyrene (mg/Kg)							
Benzo(b)fluoranthene (mg/Kg)							
Benzo(g,h,i)perylene (mg/Kg)							
Benzo(k)fluoranthene (mg/Kg)							
Bunker C (mg/kg)							
CPAH TEQ (mg/Kg)							
Castor oil (mg/kg)							
Chrysene (mg/Kg)							
Dibenz(a,h)anthracene (mg/Kg)							
Diesel (mg/kg)							
Ethyl Benzene (mg/Kg)		0.0500 U					
Ethyl Benzene (mg/kg)		0.0500 U					
Gasoline Range Organics (mg/kg)							
Heavy Oil (mg/kg)							
Indeno(1,2,3-cd)pyrene (mg/Kg)							
Kensol (mg/kg)							
Kerosene/Jet fuel (mg/kg)							
Methylnaphthalene, 2- (mg/Kg)							
Mineral spirits/Stoddard (mg/kg)							
Naphthalene (mg/Kg)							
Toluene (mg/Kg)		0.0500 U					
Toluene (mg/kg)		0.0500 U					
Total Diesel/Fuel Oil (mg/kg)							
Total Gasoline (mg/kg)							
Total Heavy Oil (mg/kg)							
Total Kerosene/Jet Fuel (mg/kg)							
Total Naphthalene (mg/Kg)							
Total Stoddard/Mineral Spirits (mg/kg)							
Total TPH (mg/kg)		2.00					
Total Xylenes (mg/Kg)		0.0500 U					
Total Xylenes (mg/kg)		0.0500 U					
Xylenes (mg/Kg)		0.0500 U					
Xylenes (mg/kg)		0.0500 U					
Semi-Volatile Organic Constituents (mg/Kg)							
Acenaphthene							
Acenaphthylene							
Anthracene							

Table A.2.6.2
Industrial Wastewater Treatment Buffer Site (0 to 15 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent	Sample ID:	WW-MW-5/S-3_110889(13.0-15.0)_SO					
Bromobenzene							
Dibenzofuran							
Dichlorobenzene, 1,2-							
Dichlorobenzene, 1,3-							
Fluoranthene							
Fluorene							
Hexachlorobutadiene							
Phenanthrene							
Pyrene							
Trichlorobenzene, 1,2,4-							
o-Xylene							
Volatile Organics Constituents (mg/Kg)							
1,1-Dichloropropene							
1,2,3-trichlorobenzene							
1,2,4-Trimethylbenzene							
1,3,5-Trimethylbenzene							
1,3-dichloropropane							
1-Phenylpropane							
2,2-dichloropropane							
2-chlorotoluene							
4-chlorotoluene							
4-isopropyltoluene							
Acetone							
Bromochloromethane							
Bromodichloromethane							
Bromoform							
Bromomethane							
CFC-11							
CFC-12							
Carbon Disulfide							
Carbon Tetrachloride							
Chlorobenzene							
Chloroform		0.0500 U					
Chloromethane							
Cumene							
Dibromo-3-chloropropane, 1,2-							
Dibromochloromethane							

Table A.2.6.2
Industrial Wastewater Treatment Buffer Site (0 to 15 feet)
Industrial Wastewater Treatment Buffer Site Area
Kaiser Trentwood Facility

Constituent	Sample ID:	WW-MW-5/S-3_110889(13.0-15.0)_SO					
Dibromoethane, 1,2-							
Dichlorobenzene, 1,4-							
Dichloroethane, 1,1-		0.0500 U					
Dichloroethane, 1,2-							
Dichloroethene, 1,1-							
Dichloroethylene, Cis-1,2-							
Dichloroethylene, Trans-1,2-							
Dichloromethane							
Dichloropropane, 1,2-							
Dichloropropene, Cis-1,3-							
Dichloropropene, Trans-1,3-							
Ethyl Chloride							
Hexanone, 2-							
Methyl Ethyl Ketone		0.500 U					
Methyl Isobutyl Ketone							
Methylene Bromide							
Styrene							
Tert-butylbenzene							
Tetrachloroethane, 1,1,1,2-							
Tetrachloroethane, 1,1,2,2-							
Tetrachloroethylene							
Trichloroethane, 1,1,1-		0.0500 U					
Trichloroethane, 1,1,2-							
Trichloroethylene							
Trichloropropane, 1,2,3-							
Vinyl Chloride							
n-Butylbenzene							
sec-Butylbenzene							

Notes:

The following qualifiers may be used in this table:

J - Constituent present, reported value is estimated

U - Not detected at or above reporting limit

UJ - Not detected; reporting limit is estimated

The results of field duplicate samples were combined to produce one concentration for each sample location and depth, according to the following decision rules:

If both results were detected values, then the two values were averaged.

If one result was detected and one was non-detected, then the detected value was used as the concentration for that sample location.

If both results were non-detected, the lowest detection limit value was used as the concentration for that sample location.

Sample IDs include sample date and sample depth. For example, sample AKCB-400_102008(1.0-1.5)_SO was collected on 10/20/2008 and the sample depth was 1.0 to 1.5 feet below ground surface.

If cell is blank then sample was not analyzed for that constituent.

Appendix B

Evaluation of Total Petroleum Hydrocarbon (TPH) Data

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EVALUATION OF TOTAL PETROLEUM HYDROCARBON (TPH) DATA

1.1 Introduction

Total petroleum hydrocarbon (TPH) concentrations in soil have been evaluated at the Kaiser Trentwood Facility (Trentwood Facility) for over 20 years. During that time there have been many refinements to analytical techniques enabling more specific characterization of the TPH composition of soil samples. This is particularly important for the Trentwood Facility because many different TPH-containing products were used across the Trentwood Facility, ranging from gasoline to heavy oils. The composition of these TPH-containing products varies widely as does the associated toxicity.

To provide the most accurate risk estimates, and to make use of as much historical Trentwood Facility data as possible, historical TPH data analyzed by method TPH 418.1 and reported as "Total TPH," was retrofitted to individual TPH compounds measured within the same site at the Facility.

The approach used to retrofit Total TPH data and the approach used to identify toxicity values for individual TPH compounds are presented in this appendix.

1.2 Retrofitting of Total TPH Data

1.2.1 TPH Compounds Reported in Facility Soil Samples

TPH concentrations at the Trentwood Facility have been measured using different analytical methods over the past 20 years. Depending on the analytical method, TPH results were either reported as "Total TPH," or as individual TPH products. The TPH results currently available for sample locations at the Trentwood Facility are shown in Table B-1.

1.2.2 Standardization and Retrofitting of TPH Data

For TPH analysis, NWTPH-Dx and NW-TPH-Gx results were given priority over NWTPH-HCID results. In order to perform the risk assessments for different sites, all TPH results were standardized to the NWTPH-Dx and NWTPH-Gx products according to the percentages of these products detected in other samples from the same site at the Trentwood Facility. Figure B-1 is a graphical presentation of the fractioning (and in some instances combining) that was conducted to evaluate TPH results.

The rationale for this approach was that:

- This type of retrofitting of TPH data is allowed by Ecology in the MTCA regulations, which state that if the identity of a compound is not known or is a mixture, retrofitting may be done, but must be based on the composition that yields the lowest TPH cleanup level (WAC 173-340-700(8)(b)(ii)(D)(II)).
- Ecology has identified toxicity values for specific TPH fractions, and the more TPH constituents can be refined, the more site-specific and accurate the TPH risk estimates will be.

- NWTPH-Dx and NWTPH-Gx are currently the Ecology-recommended TPH analytical methods.

1.2.3 Evaluation of the Percent Composition of Total TPH Results

For each site at the Trentwood Facility where Total TPH was the only TPH result for some sample locations, a statistical evaluation was performed to determine the percent composition of the NWTPH-Dx and NWTPH-Gx products present in other samples from that site. This evaluation was performed for three of the sites (the Buffer, the Field-Constructed Tank [FCT], and the Drum Storage/French Drain [DS/FD]). Results of the statistical evaluation for these sites are presented in Table B-2 and the percent composition of Total TPH in each of these sites was determined, and is presented in Table B-3.

1.2.4 Evaluation of Total TPH Results at Sites without NWTPH Data

There were five other sites where Total TPH was reported for some sample locations and NWTPH analysis results were not reported for any locations within the site. At these sites, analyses were available for "diesel-range organics," "gasoline-range organics," or as specific TPH products such as Kensol. These sites are the:

1. Hydrogen Sulfide Scrubber Building (HSSB)
2. Hoffman Tank (HT)
3. 500-Gallon Underground Storage Tank (500GUST)
4. Kensol Spill (KS)
5. Oil House Underground Storage Tank (OHUST)

Based on an evaluation of the TPH products measured in these five sites' samples, a determination was made regarding the likely composition of Total TPH at these sites. The rationale for the Total TPH determination is presented in Table B-4.

1.3 Identification of TPH Toxicity Values

Toxicity values were identified for the TPH compounds measured by Ecology's NWTPH-Dx and NWTPH-Gx analytical methods. Identification of these toxicity values involved determination of the carbon-chain composition of these compounds, and application of toxicity values obtained from Ecology's guidance regarding how to evaluate TPH compounds. The procedure for the identification of these toxicity values is described below.

1.3.1 Determination of the Carbon-Chain Composition and the Aliphatic/Aromatic Fractions of TPH Compounds

The approximate carbon-chain composition of the NWTPH-Dx and -Gx compounds was identified by reviewing the chromatograms presented in Appendix 6 of Ecology's *Analytical Methods for Petroleum Hydrocarbons* (Ecology 1997). Because the composition of TPH compounds can vary depending on the

manufacturing company, Valerie Ivanoff, the petroleum chemist responsible for evaluating TPH results for the Trentwood Facility, was contacted to confirm the carbon-chain composition that was appropriate for the TPH products used at the Trentwood Facility (Personal Communication 2009).

Because the toxicity of these compounds was also related to the percent composition of aliphatic and aromatic fractions, the approximate aliphatic and aromatic composition of each compound was identified using the Total Petroleum Hydrocarbon Criteria Working Group (TPHCWG) *Series Volume 2: Composition of Petroleum Mixtures Document* (TPHCWG 1998). The chain composition and the aliphatic and aromatic percent compositions determined for each of the NWTPH-Dx and –Gx compounds is presented in Table B-5.

1.3.2 Identification of Compound-Specific Toxicity Values

Toxicity values were determined by applying the reference doses recommended in Ecology's *Updated Reference Doses for Petroleum Hydrocarbon (TPH) Fractions and Individual Hazardous Substances Related to TPH* (Ecology 2006) to the composition of the TPH compounds identified above. Because the carbon-chain length of these compounds covers a wide range of estimated toxicity, the most conservative toxicity value associated with the carbon range was chosen. Weighted-average toxicity values were determined for each of the NWTPH-Dx and –Gx compounds using this approach. Example calculations for diesel and heavy oil are provided below.

1.3.2.1 Weighted-Average Diesel Reference Dose

1. The toxicity values associated with TPH compounds with aliphatic chain-length C12-C24 ranges from 0.03 mg/kg-day up to 2.0 mg/kg-day. As a conservative estimate, the value of 0.03 mg/kg-day was chosen to represent the toxicity of the aliphatic component.
2. The toxicity values associated with TPH compounds with aromatic chain-length C12-C24 ranges from 0.03 mg/kg-day up to 0.05 mg/kg-day. As a conservative estimate, the value of 0.03 mg/kg-day was chosen to represent the toxicity of the aromatic component.
3. Using these reference doses, the diesel-specific reference dose was calculated as follows:
    - 0.64 (percent aliphatics) x 0.03 = 0.019
    - 0.36 (percent aromatics) x 0.03 = 0.011
    - Resulting reference dose = 0.03 mg/kg-day

1.3.2.2 Weighted-Average Heavy Oil Reference Dose

1. The toxicity value associated with TPH compounds with aliphatic chain length C24-C36 is 2.0 mg/kg-day.
2. The toxicity value associated with TPH compounds with aromatic chain length C24-C36 is 0.04 mg/kg-day.
3. Using these reference doses, the heavy oil-specific reference dose was calculated as follows:
    - 0.73 (percent aliphatics) x 2.0 = 1.46
    - 0.22 (percent aromatics) x 0.04 = 0.01

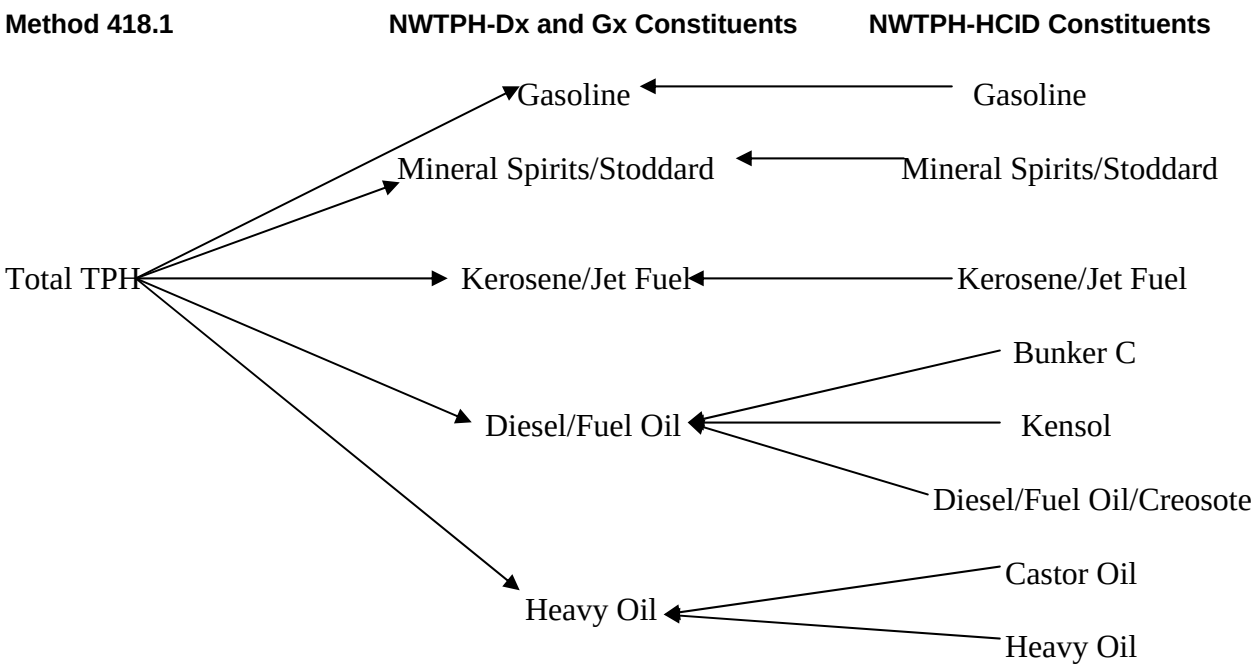
    (Note: Five percent of the composition of heavy oil is non-TPH additives)
    - Resulting reference dose = 1.47 mg/kg-day

Reference doses for the remaining three TPH compounds were calculated in the same way.

1.3.2.3 Summary of Reference Doses for TPH Compounds

The reference doses used for TPH evaluation are presented in Table B-6.

Figure B-1: Fractioning and Combining of TPH Compounds



1.4 References

Ecology (Washington State Department of Ecology). 1997. Analytical Methods for Petroleum Hydrocarbons. Publication No. ECY 97-602. June, 1997.

Ecology (Washington State Department of Ecology). 2006. Updated Reference Doses for Petroleum Hydrocarbon (TPH) Fractions and Individual Hazardous Substances Related to TPH. January, 2006.

Personal Communication. 2009. Personal Communication with Valerie Ivanoff, PhD, Petroleum Chemist, Advanced Analytical Laboratory, January 9, 2009.

TPHCWG (Total Petroleum Hydrocarbon Criteria Working Group). 1998. Series Volume 2: Composition of Petroleum Mixtures. May, 1998.

Table B-1. TPH Analytical Methods and Associated Products

TPH 418.1 Product	NWTPH-HCID Products	NWTPH-Dx and NWTPH-Gx Products
Total TPH	Gasoline	Gasoline
	Mineral Spirits/Stoddard	Mineral Spirits/Stoddard
	Kerosene/Jet Fuel	Kerosene/Jet Fuel
	Diesel/Fuel Oil/Creosote	Diesel/Fuel Oil/Creosote
	Bunker C	Heavy Oil
	Castor Oil	
	Heavy Oil	

Table B-2. Statistical Evaluation of Total TPH Composition from NWTPH-Dx and -Gx Samples

Petroleum Compound	Number of Samples	Number of Detections	Frequency of Detection (percentage)	Minimum Detected Concentration mg/kg	Maximum Detected Concentration mg/kg	Mean Concentration mg/kg	Percent of total TPH[1]
Buffer Site							
Total Diesel/Fuel Oil	20	0	0.00	0.00	0.00	0.00	
Total Gasoline	20	0	0.00	0.00	0.00	0.00	
Total Heavy Oil	20	2	10	230	450	296	100
Total Kerosene/Jet Fuel	20	0	0.00	0.00	0.00	0.00	
Total Stoddard/Mineral Spirits	20	0	0.00	0.00	0.00	0.00	
Average Total TPH:						**296**	
Field-Constructed Tank Site							
Total Diesel/Fuel Oil	42	19	45	56	7310	522	53
Total Gasoline	42	0	0.00	0.00	0.00	0.00	
Total Heavy Oil	42	18	43	120	3700	465	47
Total Kerosene/Jet Fuel	42	0	0.00	0.00	0.00	0.00	
Total Stoddard/Mineral Spirits	42	0	0.00	0.00	0.00	0.00	
Average Total TPH:						**988**	
Drum Storage/French Drain Site							
Total Diesel/Fuel Oil	16	6	38	10	695	61	35
Total Gasoline	16	0	0.00	0.00	0.00	0.00	
Total Heavy Oil	16	3	19	25	1400	115	65
Total Kerosene/Jet Fuel	16	0	0.00	0.00	0.00	0.00	
Total Stoddard/Mineral Spirits	16	0	0.00	0.00	0.00	0.00	
Average Total TPH:						**176**	

Notes:

TPH - Total Petroleum Hydrocarbons

[1] Percentages are based on average detected concentrations

Table B-3. Percent Composition of "Total TPH" Results at Trentwood Facility Sites

Site	Percent Composition of "total TPH" Results
Buffer	100% Heavy Oil
Field-Constructed Tank	53% Diesel/Fuel Oil 47% Heavy Oil
Drum Storage/French Drain	35% Diesel/Fuel Oil 65% Heavy Oil

Table B-4. Assumed Composition of "Total TPH" Results for Samples Without NWTPH Data

Site	Assumed Composition of total TPH	Rationale
Hydrogen Sulfide Scrubber Building	100% Heavy Oil	Heavy oil was the only TPH product detected at this site.
Hoffman Tank	100% Diesel/Fuel Oil	Benzene, toluene, ethyl benzene, and xylene, which are components of gasoline, were not detected in samples from this site. Therefore it was concluded that the TPH present was a diesel-range product. Because diesel/fuel oil is the most toxic of the diesel-range TPH products, it was assumed that the total TPH present was diesel/fuel oil.
500-Gallon Underground Storage Tank	100% Heavy Oil	Gasoline- and diesel-range products were both evaluated but not detected in samples from this site. It was therefore concluded that the TPH present in this site was heavy oil.
Kensol Spill	100% Diesel/Fuel Oil	This is the site of a Kensol spill. Because Kensol contains diesel-range organics and diesel is the most toxic component of diesel-range organics, total TPH at this site was assumed to be present as diesel.
Oil House Underground Storage Tank	100% Diesel/Fuel Oil	No benzene was detected in samples from this site, and toluene, ethyl benzene, and xylene were only present in a few samples in concentrations only slightly above detection limits. Therefore it was concluded that the TPH present was a diesel-range product. Because diesel/fuel oil is the most toxic of the diesel-range TPH products, it was assumed that the total TPH present was diesel/fuel oil.

Table B-5. Carbon Chain Composition and Aliphatic/Aromatic Fractions for NWTPH Products

NWTPH-Dx and -Gx Compound	Carbon-Chain Composition	Aliphatic Fraction (%)	Aromatic Fraction (%)
Gasoline[1]	C6-C12	47	53
Mineral Spirits/Stoddard Solvent[1]	C6-C12	47	53
Kerosene/Jet Fuel[2]	C10-C16	95	5
Diesel/Fuel Oil[3]	C12-C24	64	36
Heavy Oil[4]	C24-C36	73	22

Notes:
[1]Aliphatic and aromatic fractions were obtained from Table 4 of the TPHCWG, 1998 document, and are the fractions present in gasoline. In the absence of specific information on mineral spirits/stoddard solvent, gasoline was chosen as a surrogate because it is the TPH compound most closely related in composition.
[2]Aliphatic and aromatic fractions were obtained from Table 5 of the TPHCWG, 1998 document.
[3]Aliphatic and aromatic fractions were obtained from Table 10 of the TPHCWG, 1998 document.
[4]Aliphatic and aromatic fractions were obtained from Table 13 of the TPHCWG, 1998 document. The percentage of aliphatic and aromatic fractions does not equal 100 for heavy oil because other non-TPH components are typically present in heavy oil.
% = percentage

Table B-6. Reference Doses for TPH Products

TPH Compound	Reference Dose (mg/kg-day)
Gasoline	0.025
Mineral Spirits/Stoddard Solvent	0.025
Kerosene/Jet Fuel	0.03
Diesel/Fuel Oil	0.03
Heavy Oil	1.47

Appendix C

Natural Background Concentrations of Metals in Soil

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NATURAL BACKGROUND CONCENTRATIONS OF METALS IN SOIL

1.1 Introduction

This appendix discusses the selection of natural background concentrations for soil at the Kaiser Trentwood Facility (Trentwood Facility). The Model Toxics Control Act (MTCA, WAC 173-340-200) defines two types of background, area and natural. Area background concentrations are concentrations of constituents that are consistently present in the environment in the vicinity of a site, resulting from human activities that are unrelated to releases from a site. Natural background concentrations are concentrations of constituents consistently present in the environment that have not been influenced by localized human activity. Natural background concentrations were used to identify constituents detected at Trentwood Facility sites that were not site related. This appendix examines natural background concentrations at the Trentwood Facility.

Metals are naturally-occurring elements that are routinely detected in soil samples. Ecology has derived natural background concentrations for 12 metals in Washington State (Ecology 1994), and values derived specifically for the Spokane Basin were used for the risk assessments (Table C-1). However, Ecology does not provide natural background concentrations for all metals analyzed in soil samples at the Trentwood Facility (e.g., antimony, barium, selenium, and silver). Although some persistent organic compounds (e.g., polycyclic aromatic hydrocarbons) have become widespread and are considered to occur at natural background levels in the environment (WAC 173-340-200), background data for these organic chemicals is limited. Therefore, natural soil background concentrations were derived for the four additional metals (antimony, barium, selenium, and silver) as presented in Table C-2 and described in the following sections.

1.2 Methods and Materials

The methods described in MTCA (WAC 173-340-709) were used to calculate the natural background concentrations of antimony, barium, selenium, and silver in soil. Background concentrations for the risk assessments were calculated using Ecology's MTCA Stat 97 Background Module[1] and Statistical Guidance for Ecology Site Managers (Ecology 1992), which requires a minimum of 10 samples to calculate natural background. Censored data (i.e., non-detected values) were assigned a value of one-half the reporting limit. Calculation methodology consisted of the following steps:

1. Determine if the data were normally or not normally distributed.

    - If the data were normally distributed, select either the 80th percentile or four times the 50th percentile as natural background, whichever was lower.

[1] Available at http://www.ecy.wa.gov/programs/tcp/tools/toolmain.html

- If data were not normally distributed, assume the data were lognormally distributed and select either the 90th percentile or four times the 50th percentile as natural background, whichever was lower.

Ecology does not derive natural background concentrations for antimony, barium, and silver, but they do identify data for these metals, which were used to derive natural background concentrations for the Trentwood Facility. Statewide data were available for antimony and silver and Spokane Basin-specific data were available for barium. Although Ecology provides some data for selenium, data quality issues precluded its use for deriving background for the risk assessments. Therefore, data collected by the U.S. Geological Survey (USGS) was used to establish the natural background concentration for selenium in soil[2].

The USGS collected and analyzed soil samples from over 1,300 locations in the conterminous United States to provide background data on element abundance in surficial materials that were unaltered or altered very little from their natural condition (Shacklette and Boerngen 1984: Gustavsson et al. 2001). Soil samples were collected at a depth of 20 cm below the surface (normally the B horizon) and analyzed for the total content of 46 elements (Shacklette and Boerngen 1984). In most cases, sample stations were located at least 100 meters from roads and at sites that had natural surficial materials supporting native plant growth (Gustavsson et al. 2001). This sampling procedure is consistent with that used by Ecology to establish natural background concentrations for metals in Washington State soil (Ecology 1994). The USGS sampling was conducted over a period of more than 10 years during which time analytical methods were updated for some elements. An evaluation of sampling errors and analytical errors indicated adequate reproducibility of the analytical results (Gustavsson et al., 2001).

Soil development is controlled by five factors: parent material, climate, topography, soil biota (vegetation), and time (Ecology 1994). The greatest differences in soil now forming are related to climate and vegetation. The formation and development of soil is a process that is governed by factors other than geologic diversity (i.e., the formation of soil is a weathering process affected largely by climate and vegetation). Variability of parent rock material may, in some cases, have minimal impact on the development and the elemental composition of soil (Ecology 1994). Therefore, the ecoregion concept was used to delimit areas having like-soil development processes for use in determining natural background concentrations of inorganic constituents at the Trentwood Facility. Ecoregions are areas with generally-similar ecosystems and similar types, qualities, and quantities of environmental resources[3]. The United States Environmental Protection Agency (USEPA) delimited ecoregion boundaries by examining patterns of vegetation, animal life, geology, soils, water quality, climate, and human land use, as well as other living and non-living ecosystem components[4].

[2] An electronic file of the USGS data is available from Mr. David B. Smith (dsmith@usgs.gov).

[3] http://www.nationalatlas.gov/mld/ecomrp.html

[4] http://www.epa.gov/wed/pages/ecoregions/level_iii.htm#Ecoregions

Eastern Washington is characterized by two ecoregions, the Northern Rockies and the Columbia Plateau. USGS soil data from these two ecoregions (11 sample locations) were used to derive natural soil background concentrations for selenium at the Trentwood Facility (Shacklette and Boerngen 1984).

1.3 References

Ecology (Washington State Department of Ecology). 1992. Statistical Guidance for Ecology Site Managers. Publication 92-54. August 1992.

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

Gustavsson, N., B. Bolviken, D.B. Smith, and R.C. Severson. 2001. Geochemical Landscapes of the Conterminous United States – New Map Presentations for 22 Elements. U.S. Geological Survey Professional Paper 1648.

Shacklette, H.T., and J.G. Boerngen. 1984. Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States. U.S. Geological Survey, U.S. Government Printing Office, Washington, DC. Professional Paper 1270.

Table C-1. Natural Soil Background Concentrations for Metals in the Spokane Basin

Metal	Background Concentration
Aluminum	21,400
Arsenic	9
Beryllium	0.8
Cadmium	1
Chromium	18
Copper	22
Iron	25,000
Lead	15
Manganese	700
Mercury	0.02
Nickel	16
Zinc	66

Note: Concentrations are expressed in mg/kg (ppm) dry weight.

Table C-2. Natural Soil Background Concentrations for Antimony, Barium, Selenium, and Silver

Element	Number of Samples	Number of Detects	Are Data Normally Distributed?	Natural Background Concentration	Basis	Area	Data Source
Antimony	166	49	No	4.23	90th percentile of lognormal distribution	Statewide	Ecology (1994)
Barium	72	72	No	255	90th percentile of lognormal distribution	Spokane Basin	Ecology (1994)
Selenium	11	11	No	0.33	90th percentile of lognormal distribution	East of Cascades	Shacklette and Boerngen (1984)
Silver	166	33	No	0.38	90th percentile of lognormal distribution	Statewide	Ecology (1994)

Note:
Concentrations are expressed in mg/kg (ppm) dry weight.

Table C-3. Natural Soil Background Concentrations for Antimony

Sample Number	Concentration
1	3.1
2	3.1
3	3.2
4	3.2
5	3.3
6	3.3
7	3.4
8	3.4
9	3.4
10	3.4
11	3.4
12	3.4
13	3.5
14	3.5
15	3.5
16	3.6
17	3.6
18	3.6
19	3.7
20	3.7
21	3.8
22	3.9
23	3.9
24	3.9
25	4
26	4
27	4.1
28	4.1
29	4.1
30	4.2
31	4.2
32	4.2
33	4.2
34	4.2
35	4.2
36	4.2
37	4.3
38	4.3
39	4.3
40	4.5
41	4.6
42	4.8
43	4.9
44	4.9
45	5.2
46	5.4
47	5.8
48	6.6
49	7.6
50 - 166[1]	<3

Notes:
< = Not detected
[1] One hundred seventeen of 166 antimony samples had concentrations that were not detected

Table C-4. Natural Soil Background Concentrations for Barium

Sample Number	Concentration
1	47.6
2	49.2
3	67.9
4	89.3
5	92.9
6	94.4
7	95.1
8	96.9
9	98
10	103
11	104
12	104
13	109
14	116
15	116
16	116
17	118
18	120
19	122
20	132
21	133
22	135
23	136
24	140
25	141
26	144
27	145
28	147
29	148
30	149
31	153
32	153
33	154
34	155
35	155
36	157
37	158
38	159
39	159
40	162
41	168
42	170
43	175
44	178
45	178
46	179
47	181
48	183
49	184
50	186
51	189
52	189
53	190
54	191
55	192
56	193
57	194
58	194
59	197
60	199
61	201
62	202

Table C-4. Natural Soil Background Concentrations for Barium

Sample Number	Concentration
63	209
64	210
65	213
66	232
67	242
68	266
69	280
70	293
71	326
72	471

Table C-5. Natural Soil Background Concentrations for Selenium

Sample Number	Concentration
1	0.1709
2	0.1
3	0.1297
4	0.2326
5	0.4362
6	0.1
7	0.1235
8	0.1
9	0.2063
10	0.1
11	0.2791

Table C-6. Natural Soil Background Concentrations for Silver

Sample Number	Concentration
1	0.24
2	0.31
3	0.31
4	0.31
5	0.31
6	0.32
7	0.32
8	0.33
9	0.34
10	0.35
11	0.35
12	0.35
13	0.37
14	0.37
15	0.37
16	0.37
17	0.37
18	0.38
19	0.38
20	0.39
21	0.4
22	0.41
23	0.42
24	0.44
25	0.46
26	0.49
27	0.58
28	0.6
29	0.61
30	0.63
31	0.71
32	0.73
33	0.75
34 - 166	<0.3

Notes:
< = Not detected
[1] One hundred thirty three of 166 silver samples had concentrations that were not detected

Appendix D

Development of Human Health Risk-Based Screening Concentrations

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LIST OF TABLES

DEVELOPMENT OF HUMAN HEALTH RISK-BASED SCREENING CONCENTRATIONS

1.1 Introduction

This appendix presents the methodology used to develop human health risk-based screening concentrations (RBSCs) for the Kaiser Trentwood Facility (Trentwood Facility) human health risk assessment (HHRA). RBSCs are concentrations of hazardous constituents that are considered protective of human health, and are developed based on a specific exposure scenario, constituent-specific toxicity values, and target cancer and noncancer risk levels. RBSCs are used to screen out constituents that are not of concern and to identify indicator hazardous substances in accordance with the Model Toxics Control Act (MTCA) Washington Administrative Code (WAC) 173-340-703 (1).

RBSCs were developed using the exposure assumptions that reflect the current and potential future Trentwood Facility use and risk assessment procedures established by the MTCA regulation WAC 173-340-745. The RBSCs were developed consistent with the risk assessment approach discussed in the main text of the Kaiser Trentwood Facility Human Health and Ecological Risk Assessments (HHERA). Please refer to the Kaiser Trentwood Facility HHERA for a more detailed discussion of the exposure assessment (Section 5.0), toxicity assessment (Section 6.0) and benchmark values used in the HHRA.

Development of RBSCs involved identifying current and future land use scenarios, constituent and exposure route-specific toxicity criteria, and the RBSC calculation step, where the equations used for calculating RBSCs were presented and input factors were identified. These steps are presented below.

1.2 Current and Future Land Use Scenarios

The Trentwood Facility consists of approximately 512 acres of land, and is located approximately 10 miles east of downtown Spokane in the Spokane River Valley. The Trentwood Facility was originally constructed to provide aluminum for manufacturing fighter planes and bombers for World War II. Since then, the Facility has been used to manufacture various aluminum products. Current plant operations are focused on production of aluminum sheet, plate, and coil for aerospace and general engineering applications.

The current and projected future use of the Trentwood Facility is for industrial manufacturing purposes. Hence, the reasonably maximally-exposed individual is an industrial worker. This worker could be exposed to constituents via direct contact with soil. Per MTCA, the direct contact soil exposure pathways include incidental soil ingestion (evaluated for all constituents) and dermal contact with soil (only evaluated for petroleum mixtures and petroleum-related constituents) (WAC 173-340-745). As discussed in the HHRA, the soil-to-groundwater pathway is evaluated as part of the Soil and Groundwater Remedial Investigations (RIs).

Consequently, RBSCs were calculated for the industrial worker scenario assuming soil ingestion for individual non-petroleum constituents and soil ingestion and dermal contact for petroleum-related constituents.

1.3 Calculation of Risk-Based Screening Concentrations

Risk-based screening concentrations were calculated for the industrial worker scenario using the standard Method C exposure equations that evaluate the direct contact soil exposure pathways MTCA (WAC 173-340-745). MTCA equations (745-1 and 745-2) for calculating noncancer and cancer RBSCs for individual constituents that are not petroleum related are presented in Tables D-1 and D-2, respectively. MTCA equations (745-4 and 745-5) for calculating noncancer and cancer RBSCs for petroleum mixtures and petroleum-related constituents are presented in Tables D-3 and D-4, respectively.

The input values for these equations consisted of the following:

- MTCA Exposure factors, which described the exposure patterns of the receptors (e.g., exposure frequency, exposure duration, ingestion rate, body weight, and averaging time)
- Toxicity values (i.e., noncancer reference doses and cancer potency factors)
- Benchmark risks (i.e., target hazard quotients and target cancer risks)

1.3.1 Exposure Factors

The exposure parameters used to calculate RBSCs are the default exposure values provided by MTCA for standard Method C (WAC 173-340-745). The exposure factor values for the industrial worker scenario are intended to be a combination of all exposure variables resulting in a RME for the industrial worker. The exposure factors used for the industrial worker exposure pathways are described below. The acronyms provided in the following paragraphs are those used in formulas in Tables D-1 through D-4.

1.3.1.1 Exposure Factors Associated with Incidental Soil Ingestion and Dermal Absorption

- Exposure Duration– The exposure duration represents the number of years over which exposure is assumed to occur. The default value used for the Industrial Worker is 20 years.
- Exposure Frequency– The exposure frequency is a unitless value that represents the number of days per year that a person is exposed. The default value used for the Industrial Worker for petroleum mixtures and petroleum-related constituents is 0.7. For all other constituents, the default value is 0.4
- Average Body Weight– The average body weight represents the average body weight, in kilograms, of the receptor being evaluated. The default value used for the industrial worker is 70 kilograms.
- Averaging Time– The averaging time represents the number of days over which exposure is averaged. Exposure doses for carcinogens are averaged over the lifetime of the exposed individual (i.e., 75 years), while exposure doses for noncarcinogens are averaged over the duration of exposure. Therefore, for carcinogens, the averaging time is 75 years. The averaging time for noncarcinogens is equal to the exposure duration, which is 20 years.

1.3.1.2 Exposure Factors Associated with Incidental Soil Ingestion

- Soil Ingestion Rate– The soil ingestion rate represents the amount of soil ingested per day of exposure. The default value used for the Industrial Worker is 50 mg/day.
- Soil Gastrointestinal Absorption Fraction – The gastrointestinal absorption fraction represents the percentage of a constituent that can dissociate from soil once it is ingested. The default value is 100% for the constituents evaluated in the HHRA.

1.3.1.3 Exposure Factors Associated with Dermal Contact

- Skin Surface Area– The skin surface area represents the amount of skin available for exposure via dermal contact to soil. The default value used for the Industrial Worker is 2,500 cm^2.
- Soil-to-Skin Adherence Factor– The soil-to-skin adherence factor is a value that represents the amount of soil that adheres to exposed skin per day. The default value for the Industrial Worker is 0.2 mg/cm^2-day.
- Absorbance Factor– The absorbance factor represents the fraction of a constituent that is present on the skin that is absorbed into the blood stream, and is used to evaluate the dermal contact with soil exposure pathway. Absorbance factor values are constituent-specific and are presented in Table D-5. Values for petroleum mixtures and petroleum-related constituents were taken from Ecology's Workbook, Table F-1: Properties of Chemicals Commonly Found at Petroleum Contaminated Sites (Ecology, 2007).

1.3.2 Toxicity Values

The toxicity values used to calculate RBSCs included noncancer reference doses and cancer potency factor. Both noncancer and carcinogenic health effects must be considered when evaluating potential health impacts. The potential for producing carcinogenic effects is limited to certain constituents (i.e., carcinogens); conversely, adverse noncancer health effects can potentially result from exposure to any constituent. Therefore, in many cases, a constituent may only have a noncancer toxicity value and no cancer toxicity value.

The term reference doses was developed by the United States Environmental Protection Agency (USEPA) to refer to the daily intake of a constituent to which an individual, including sensitive subpopulations, could be exposed without any expectation of adverse noncarcinogenic health effects (e.g., organ damage, biochemical alterations, and birth defects). Reference doses were used to develop RBSCs and to evaluate noncancer hazards. Reference doses are expressed in units of milligrams per kilogram per day (mg/kg-day).

A cancer potency factor is a numerical estimate of the carcinogenic potency of a constituent. Generally, the cancer potency factor is a plausible upper-bound estimate of the probability of a response per unit intake of a constituent over a lifetime. The cancer potency factor is used in risk assessments to estimate an upper-bound lifetime probability of an individual developing cancer as a result of exposure to a particular level of a carcinogen. Cancer potency factors are expressed in units of the inverse of milligrams of constituent per kilogram of body weight per day $(kg\text{-}day/mg)^{-1}$.

The toxicity of any constituent depends on its route of entry into the body. In some cases, a constituent may produce toxic effects only through a specific route of entry and may not be toxic through other routes of exposure (i.e., asbestos is only toxic when inhaled). Route-specific toxicity values (i.e., oral and dermal toxicity values) were used to evaluate ingestion and dermal contact.

1.3.2.1 Hierarchy of Toxicity Values Used to Develop RBSCs

The USEPA and other regulatory agencies have evaluated numerous constituents and published corresponding toxicity values. Consistent with MTCA, the following sources of toxicity information were consulted, in order of preference, to identify toxicity values for this assessment:

- The Integrated Risk Information System (USEPA 2008a). The Integrated Risk Information System generally contains reference doses and cancer potency factors that have undergone peer reviews and the USEPA consensus review process.
- The Health Effects Assessment Summary Tables (USEPA 1997). All of the toxicity values presented in the Health Effects Assessment Summary Tables document are considered "provisional" by the USEPA, because an Agency Work Group has not verified them. Provisional values are not listed in the Integrated Risk Information System.
- USEPA Regional Screening Levels (USEPA 2008). The USEPA Regional Screening Level tables include some toxicity values that are not included in Integrated Risk Information System or the Health Effects Assessment Summary Tables because they are considered provisional peer reviewed.

If no toxicity value was provided in these sources, then the constituent was not quantitatively evaluated in the HHRA, with the exception of lead, for which a MTCA Method A industrial screening value of 1,000 mg/kg (WAC 173-340-745) was used.

Noncancer toxicity values were identified for the total petroleum hydrocarbon (TPH) compounds measured by Ecology's NWTPH-Dx and NWTPH-Gx analytical method (i.e., gasoline, mineral spirits/stoddard solvent, kerosene/jet fuel, diesel/fuel oil, and heavy oil). Identification of these toxicity values involved determination of the carbon-chain composition of these constituents, and application of toxicity values obtained from Ecology's Updated Reference Doses for Petroleum Hydrocarbon (TPH) Fractions and Individual Hazardous Substances Related to TPH (Ecology 2006). The procedure for identifying these toxicity values is described in Appendix B of the Kaiser Trentwood Facility HHERA. Petroleum-related constituents evaluated in this report are defined in WAC 173-340-900, Table 830-1.

Dermal toxicity values for TPH compounds were derived by adjusting oral values based on constituent-specific gastrointestinal absorption rates, as described in Ecology's Workbook (Ecology 2007). Gastrointestinal absorption rates for petroleum constituents were obtained from Table F-1: Properties of Chemicals Commonly Found at Petroleum Contaminated Sites (Ecology 2007). If constituent-specific GI absorption rates were not available, GI absorption was assumed to be 100 percent. The toxicity values used to develop RBSCs and to evaluate risk are presented in Section 6.0 of the Kaiser Trentwood Facility HHERA, Table 6-1.

1.3.3 Risk Benchmark Values

Risk benchmark values are used by regulatory agencies to evaluate the significance of risks to individuals exposed to constituents. Risk benchmark values are selected in order to define the acceptable risk levels for calculation of RBSCs.

1.3.3.1 Cancer Risk Benchmark Values

A one in 1,000,000 cancer risk (1.0E-06) means that if 1,000,000 people were exposed to a constituent under identical exposure conditions, one additional incidence of cancer would be observed within this population over a lifetime of 70 years due to exposure to the constituent. For industrial sites, a total cancer risk greater than 1.0E-05 (i.e., one in 100,000 people) is used to determine whether a site will require further evaluation or a remedial action (Ecology 2007). However, for screening purposes, a target cancer risk of 1.0E-06 was established for individual constituents to ensure that sites weren't screened out that may have a cumulative cancer risk (based on exposure to multiple carcinogens) greater than 1.0E-05.

1.3.3.2 Noncancer Risk Benchmark Values

For noncancer risks, a hazard index (i.e., the total noncancer hazard) of 1 is typically set as the benchmark below which adverse health effects are not expected. If the total HI is greater than 1, it may indicate that adverse health effects are possible. For screening purposes, a noncancer benchmark hazard quotient of 0.1 was established for individual constituents.

1.4 Summary of RBSCs

A summary of the RBSCs developed for the industrial worker is presented in Table D-7. RBSCs were calculated for both cancer and noncancer health effects. When a constituent had a value for both, the lower of these two values was selected as the RBSC. Table D-7 also includes natural background concentrations for metals. The derivation of natural background concentrations for metals is documented in Appendix C. Where the lowest RBSC was a lower concentration than the natural background concentration, the natural background concentration was used as the RBSC.

1.5 References

Ecology (Washington State Department of Ecology). 2006. Updated Reference Doses for Petroleum Hydrocarbon (TPH) Fractions and Individual Hazardous Substances Related to TPH. January, 2006.

Ecology. (Washington State Department of Ecology). 2007. Workbook Tools for Calculating Soil and Ground Water Cleanup Levels Under the Model Toxics Control Act Cleanup Regulation. User's Guide for MTCATPH 11.1 & MTCASGL 11.0. Revised December 2007. Publication No. 01-09-073.

MADEP (Massachusetts Department of Environmental Protection). 1997. Revisions to the Massachusetts Contingency Plan, 310 CMR 40.000 - Public Hearing Draft: Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards. January 17, 1997

USEPA (United States Environmental Protection Agency). 1989. Risk Assessment Guidance for Superfund: Human Health Evaluation Manual Part A. Interim Final. Office of Emergency and Remedial Response. Washington, D.C. 9285.701A. EPA/540/1-89/002.

USEPA (United States Environmental Protection Agency). July 1997. Health Effects Assessment Summary Tables (HEAST): FY 1997 Update (most recent version published by USEPA). EPA/540-R-97-036. PB97-921199. OSWER, Washington, D.C.).

USEPA (United States Environmental Protection Agency). 2008a. Integrated Risk Information System (IRIS). Environmental Criteria and Assessment Office, Cincinnati, Ohio. 4th Quarter 2008 Update.

USEPA (United States Environmental Protection Agency). 2008b. Industrial Soil Screening Values Table. http://www.epa.gov/region09/superfund/prg/pdf/indsoil_sl_table_run_12SEP2008.pdf

Table D-1. Equation and Exposure Parameters for Calculating Noncancer Risk-Based Screening Concentrations for Non-petroleum Constituents

$$Risk-Based\ Screening\ Concentration\ \ (mg/kg) = \left(\frac{RfD_o \times ABW \times AT_{nc} \times UCF \times HQ}{SIR \times AB1 \times ED \times EF} \right)$$

Exposure Parameters			
Variable	**Definition**	**Units**	**Industrial Worker Scenario**
HQ	Hazard Quotient	unitless	0.1
ABW	Average Body Weight	kg	70
AT_{nc}	Averaging Time - Noncancer	days	20
UCF	Unit Conversion Factor	mg/kg	1,000,000
RfD_o	Oral Reference Dose	mg/kg-day	Constituent specific (See Table D-6)
SIR	Soil Ingestion Rate	mg/day	50
AB1	Gastrointestinal Absorption Fraction	unitless	1
ED	Exposure Duration	years	20
EF	Exposure Frequency	unitless	0.4

Note: MTCA Equation 745-1

Table D-2. Equation and Exposure Parameters for Calculating Cancer Risk-Based Screening Concentrations for Non-Petroleum Constituents

$$Risk-Based\ Screening\ Concentration\ (mg/kg) = \left(\frac{RISK \times ABW \times AT_c \times UCF}{CPF_o \times SIR \times AB1 \times ED \times EF} \right)$$

Exposure Parameters			
Variable	**Definition**	**Units**	**Industrial Worker Scenario**
Risk	Target Cancer Risk	unitless	1.0E-06
ABW	Body Weight	kg	70
ATc	Averaging Time – Cancer	years	75
UCF	Conversion Factor	mg/kg	1,000,000
CPF_o	Carcinogenic Potency Factor	kg-day/mg	Constituent specific (See Table D-6)
SIR	Soil Ingestion Rate	mg/day	50
AB1	Gastrointestinal Absorption Fraction	unitless	1
ED	Exposure Duration	years	20
EF	Exposure Frequency	unitless	0.4

Note: MTCA Equation 745-2

Table D-3. Equation and Exposure Parameters for Calculating Noncancer Risk-Based Screening Concentrations for Petroleum Mixtures and Petroleum-related Constituents

$$Risk-Based\ Screening\ Concentration\ (mg/kg) = \frac{HQ \times ABW \times AT_{nc}}{EF \times ED\left[\left(\frac{1}{RfD_o} \times \frac{SIR \times AB1}{UCF}\right) + \left(\frac{1}{RfD_d} \times \frac{SA \times AF \times ABS_d}{UCF}\right)\right]}$$

Exposure Parameters			
Variable	**Definition**	**Units**	**Industrial Worker Scenario**
HQ	Hazard Quotient	unitless	0.1
ABW	Body Weight	kg	70
AT_{nc}	Averaging Time – Noncancer	years	20
UCF	Conversion Factor	mg/kg	1,000,000
SIR	Soil Ingestion Rate	mg/day	50
AB1	Gastrointestinal Absorption Fraction	unitless	1
RfD_o	Oral Reference Dose	mg/kg-day	Constituent specific (See Table D-6)
RfD_d	Dermal Reference Dose	mg/kg-day	Derived by RfD_o x GI (See Table D-6)
GI	Gastrointestinal Absorption Conversion Factor	unitless	Constituent specific
SA	Dermal Surface Area	cm^2	2500
AF	Adherence Factor	mg/cm^2-day	0.2
ABS_d	Dermal Absorption Fraction	unitless	Constituent specific (See Table D-5)
ED	Exposure Duration	years	20
EF	Exposure Frequency	unitless	0.7

Note: MTCA Equation 745-3

Table D-4. Equation and Exposure Parameters for Calculating Cancer Risk-Based Screening Concentrations for Petroleum Mixtures and Petroleum-related Constituents

$$Risk-BasedScreeningConcentraton\ (mg/kg) = \frac{RISK \times ABW \times AT_c}{EF \times ED\left[\left(\frac{SIR \times AB1 \times CPF_o}{UCF}\right)+\left(\frac{SA \times AF \times ABS_d \times CPF_d}{UCF}\right)\right]}$$

Exposure Parameters

Variable	Definition	Units	Industrial Worker Scenario
Risk	Target Cancer Risk	unitless	1.0E-06
ABW	Body Weight	kg	70
ATc	Averaging Time – Cancer	years	75
UCF	Conversion Factor	mg/kg	1,000,000
SIR	Soil Ingestion Rate	mg/day	50
AB1	Gastrointestinal Absorption Fraction	unitless	1
CPF_o	Oral Carcinogenic Potency Factor	kg-day/mg	Constituent specific
CPF_d	Dermal Carcinogenic Potency Factor	kg-day/mg	Derived by CPF_o / GI (See Table D-6)
GI	Gastrointestinal Absorption Conversion Factor	unitless	Constituent specific (see Table D-6)
SA	Dermal Surface Area	cm^2	2500
AF	Adherence Factor	mg/cm^2-day	0.2
ABS_d	Dermal Absorption Fraction	unitless	Constituent specific (see Table D-5)
ED	Exposure Duration	years	20
EF	Exposure Frequency	unitless	0.7

Note: MTCA Equation 745-4

Table D-5. Absorbance Factor Values Used to Evaluate Dermal Exposure[1]

Indicator Hazardous Substance	Dermal ABS Value2
Diesel/Fuel Oil3	0.1
Heavy Oil4	0.1
Kerosene/Jet Fuel5	0.1
Mineral Spirits/Stoddard Solvent6	0.03
Gasoline6	0.03
Benzene	0.0005
Toluene	0.03
Ethyl Benzene	0.03
Xylenes	0.03
Naphthalene	0.13
1-Methylnaphthalene	0.01
2-Methylnaphthalene	0.01
n-Hexane	0.03
Total cPAH TEQ	0.13

Notes:
ABS = Absorbance Factor
[1]Dermal exposure was only evaluated for petroleum-related compounds, as defined in Table 830-1, 173-340-900 WAC. Model Toxics Control Act, Cleanup Regulation Chapter 173-340 WAC, Amended February 21, 2001.
[2] Dermal ABS values were obtained from the Washington State Department of Ecology CLARC Database Workbook Tools, Appendix F: Revised Properties of Chemicals commonly found at Petroleum Contaminated Sites, December 2007.
[3]Most conservative value for compound with carbon chain length $C_{12} – C_{24}$.
[4]Most conservative value for compound with carbon chain length $C_{24} – C_{36}$.
[5]Most conservative value for compound with carbon chain length $C_{10} – C_{16}$.
[6]Most conservative value for compound with carbon chain length $C_{6} – C_{12}$.

Table D-6: Toxicity Values Used to Develop RBSCs

Cas_No	Constituent	Gastrointestinal Absorption Fraction[1] Unitless	Oral RfD (mg/kg/day)	Oral RfD Source	Dermal RfD[2] (mg/kg/day)	Oral CPF $(mg/kg\text{-}day)^{-1}$	Oral CPF Source	Dermal CPF[3] $(mg/kg\text{-}day)^{-1}$
Metals								
7440-36-0	Antimony (metallic)	NC	0.0004	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-38-2	Arsenic (inorganic)	NC	0.0003	IRIS, 4th Qtr 2008	NC	1.5	IRIS, 4th Qtr 2008	NC
7440-39-3	Barium	NC	0.2	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-41-7	Beryllium	NC	0.002	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-43-9	Cadmium	NC	0.001	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-47-3	Chromium (total, as Cr +3)	NC	1.5	IRIS, 4th Qtr 2008	NC	--	--	NC
18540-29-9	Chromium (VI)	NC	0.003	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-50-8	Copper	NC	0.037	IRIS, 4th Qtr 2008	NC	--	--	NC
7439-92-1	Lead (inorganic)	NC	--	--	NC	--	--	NC
7439-96-5	Manganese	NC	0.14	IRIS, 4th Qtr 2008	NC	--	--	NC
7439-97-6	Mercury (inorganic)	NC	0.0003	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-02-0	Nickel (soluble salts)	NC	0.02	IRIS, 4th Qtr 2008	NC	--	--	NC
7782-49-2	Selenium (and compounds)	NC	0.005	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-22-4	Silver	NC	0.005	IRIS, 4th Qtr 2008	NC	--	--	NC
7440-66-6	Zinc	NC	0.3	IRIS, 4th Qtr 2008	NC	--	--	NC
Petroleum-Related Compounds[4]								
TOT_DIESEL	Diesel/Fuel Oil	0.80	0.03	Derived	0.024	--	--	--
TOT_GASOLINE	Gasoline	0.80	0.02	Ecology, 2006	0.016	--	--	--
TOT_HEAVYOIL	Heavy Oil	0.50	1.47	Derived	0.74	--	--	--
TOT_KEROSENE	Kerosene/Jet fuel	0.80	0.03	Derived	0.024	--	--	--
TOT_MINERALSP	Mineral spirits/Stoddard	0.50	0.025	Derived	0.013	--	--	--
71-43-2	Benzene	0.95	0.004	IRIS, 4th Qtr 2008	0.004	0.055	IRIS, 4th Qtr 2008	0.058
PAH_TEQ	cPAH TEQ[5]	0.89	--	--	--	7.3	IRIS, 4th Qtr 2008	8.2
191-24-2	Benzo(g,h,i)perylene	0.89	--	--	--	--	--	--
100-41-4	Ethyl Benzene	0.92	0.1	IRIS, 4th Qtr 2008	0.09	--	--	--
90-12-0	1-Methylnaphthalene	0.80	--	--	--	0.029	USEPA, 2008	0.036
91-57-6	Methylnaphthalene, 2-	0.80	0.004	IRIS, 4th Qtr 2008	0.003	--	--	--
91-20-3	Naphthalene	0.89	0.02	IRIS, 4th Qtr 2008	0.018	--	--	--
108-88-3	Toluene	1.00	0.08	IRIS, 4th Qtr 2008	0.08	--	--	--
1330-20-7	Total Xylenes	0.90	0.2	IRIS, 4th Qtr 2008	0.18	--	--	--
PCBs								
12672-29-6	Aroclor 1248	NC	--	--	NC	2.00	IRIS, 4th Qtr 2008	NC

Table D-6: Toxicity Values Used to Develop RBSCs

Cas_No	Constituent	Gastrointestinal Absorption Fraction[1] Unitless	Oral RfD (mg/kg/day)	Oral RfD Source	Dermal RfD[2] (mg/kg/day)	Oral CPF $(mg/kg\text{-}day)^{-1}$	Oral CPF Source	Dermal CPF[3] $(mg/kg\text{-}day)^{-1}$
11097-69-1	Aroclor 1254	NC	0.00002	IRIS, 4th Qtr 2008	NC	2.00	IRIS, 4th Qtr 2008	NC
11096-82-5	Aroclor 1260	NC	--	--	NC	2.00	IRIS, 4th Qtr 2008	NC
37324-23-5	Aroclor 1262	NC	--	--	NC	2.00	IRIS, 4th Qtr 2008	NC
11100-14-4	Aroclor 1268	NC	--	--	NC	2.00	IRIS, 4th Qtr 2008	NC
Semi-Volatile Organics								
83-32-9	Acenaphthene	NC	0.06	IRIS, 4th Qtr 2008	NC	--	--	NC
208-96-8	Acenaphthylene	NC	--	--	NC	--	--	NC
120-12-7	Anthracene	NC	0.3	IRIS, 4th Qtr 2008	NC	--	--	NC
117-81-7	Bis(2-ethylhexyl)Phthalate (DEHP)	NC	0.02	IRIS, 4th Qtr 2008	NC	0.014	IRIS, 4th Qtr 2008	NC
132-64-9	Dibenzofuran	NC	--	--	NC	--	--	NC
95-50-1	Dichlorobenzene, 1,2-	NC	0.09	IRIS, 4th Qtr 2008	NC	--	--	NC
541-73-1	Dichlorobenzene, 1,3-	NC	--	--	NC	--	--	NC
131-11-3	Dimethyl Phthalate	NC	--	--	NC	--	--	NC
117-84-0	Di-n-Octylphthalate	NC	0.02	IRIS, 4th Qtr 2008	NC	--	--	NC
206-44-0	Fluoranthene	NC	0.04	IRIS, 4th Qtr 2008	NC	--	--	NC
86-73-7	Fluorene	NC	0.04	IRIS, 4th Qtr 2008	NC	--	--	NC
25155-15-1	Isopropyltoluene	NC	--	--	NC	--	--	NC
86-30-6	Nitrosodiphenylamine, N-	NC	--	--	NC	0.0049	IRIS, 4th Qtr 2008	NC
85-01-8	Phenanthrene	NC	--	--	NC	--	--	NC
108-95-2	Phenol	NC	0.3	IRIS, 4th Qtr 2008	NC	--	--	NC
129-00-0	Pyrene	NC	0.03	IRIS, 4th Qtr 2008	NC	--	--	NC
120-82-1	Trichlorobenzene, 1,2,4-	NC	0.01	IRIS, 4th Qtr 2008	NC	--	--	NC
Volatile Organics								
67-64-1	Acetone	NC	0.9	IRIS, 4th Qtr 2008	NC	--	--	NC
74-83-9	Bromomethane	NC	0.0014	IRIS, 4th Qtr 2008	NC	--	--	NC
104-51-8	n-Butylbenzene	NC	--	--	NC	--	--	NC
135-98-8	sec-Butylbenzene	NC	--	--	NC	--	--	NC
75-15-0	Carbon Disulfide	NC	0.1	IRIS, 4th Qtr 2008	NC	--	--	NC
75-71-8	CFC-12	NC	0.2	IRIS, 4th Qtr 2008	NC	--	--	NC
74-87-3	Chloromethane	NC	--	--	NC	0.013	HEAST, 1997	NC
95-49-8	2-chlorotoluene	NC	0.02	IRIS, 4th Qtr 2008	NC	--	--	NC
106-43-4	4-chlorotoluene	NC	--	--	NC	--	--	NC
98-06-6	Tert-butylbenzene	NC	--	--	NC	--	--	NC

Table D-6: Toxicity Values Used to Develop RBSCs

Cas_No	Constituent	Gastrointestinal Absorption Fraction[1] Unitless	Oral RfD (mg/kg/day)	Oral RfD Source	Dermal RfD[2] (mg/kg/day)	Oral CPF $(mg/kg\text{-}day)^{-1}$	Oral CPF Source	Dermal CPF[3] $(mg/kg\text{-}day)^{-1}$
98-82-8	Cumene	NC	0.1	IRIS, 4th Qtr 2008	NC	--	--	NC
106-46-7	Dichlorobenzene, 1,4-	NC	--	--	NC	0.024	IRIS, 4th Qtr 2008	NC
75-34-3	Dichloroethane, 1,1-	NC	0.20	USEPA, 2008	NC	--	--	NC
75-09-2	Dichloromethane	NC	0.06	IRIS, 4th Qtr 2008	NC	0.0075	IRIS, 4th Qtr 2008	NC
591-78-6	Hexanone, 2-	NC	--	--	NC	--	--	NC
99-87-6	4-isopropyltoluene	NC	--	--	NC	--	--	NC
78-93-3	Methyl Ethyl Ketone	NC	0.6	IRIS, 4th Qtr 2008	NC	--	--	NC
103-65-1	1-Phenylpropane	NC	--	--	NC	--	--	NC
100-42-5	Styrene	NC	0.2	IRIS, 4th Qtr 2008	NC	--	--	NC
127-18-4	Tetrachloroethylene	NC	0.01	IRIS, 4th Qtr 2008	NC	--	--	NC
71-55-6	Trichloroethane, 1,1,1-	NC	2	IRIS, 4th Qtr 2008	NC	--	--	NC
79-01-6	Trichloroethylene	NC	--	--	NC	0.013	USEPA, 2009	NC
95-63-6	1,2,4-Trimethylbenzene	NC	--	--	NC	--	--	NC
108-67-8	1,3,5-Trimethylbenzene	NC	0.05	USEPA, 2008	NC	--	--	NC

Notes:
"--" = Value not available
CPF = Cancer Slope Factor
RfD = Reference Dose
NC =Not Considered. Gastrointestinal absorption was only considered for those substances evaluated for the dermal exposure pathway. In accordance with the Model Toxics Control Act (MTCA) Soil Cleanup Standards for Industrial Properties (WAC 173-340-745),
[1]Gastrointestinal absorption values were taken from Ecology's Workbook for Calculating Cleanup Levels for Petroleum Contaminated Sites Table F-1: *Revised Properties of Chemicals commonly found at Petroleum Contaminated Sites, December 2007.*
http://www.ecy.wa.gov/programs/tcp/tools/toolmain.html
[2]The Dermal RfD is calculated by multiplying the Oral RfD by the Gastrointestinal Absorption Fraction
[3]The Dermal CPF is calculated by dividing the Oral CSF by the Gastrointestinal Absorption Fraction
[4]Petroleum-related compounds are defined by Ecology in WAC 173-340-900, Table 830-1.
[5] Toxicity values used for total cPAH TEQ are those for benzo(a)pyrene

Ecology , 2006	Updated Reference Doses for Petroleum Hydrocarbon Fractions (TPH) and Individual Hazardous Substances Related to TPH. January 2006.
USEPA, 2009	Memorandum from Susan Parker Bodine to Regional USEPA Administrators, RE: Interim Recommended Trichloroethylene (TCE) Toxicity Values to Assess Human Health Risk and Recommendations for the Vapor Intrusion Pathway Analysis. January 15, 2009.
USEPA, 2008	Values are Provisional Toxicity Values presented in the USEPA Soil Screening Table: http://www.epa.gov/region09/superfund/prg/pdf/indsoil_sl_table_run_12SEP2008.pdf
IRIS	USEPA Integrated Risk Information System On-Line Database: http://cfpub.epa.gov/ncea/iris/index.cfm
HEAST	USEPA Health Effects Assessment Summary Tables, 1997.

Table D-7: Human Health Risk-Based Screening Concentrations

CAS Number	Constituent	Industrial Cancer RBSC (mg/kg)	Industrial NonCancer RBSC (mg/kg)	Natural Background Metal Concentration (mg/kg)	RBSC used for Screening (mg/kg)
Metals					
7440-36-0	Antimony (metallic)	--	140	4	140
7440-38-2	Arsenic (inorganic)[1]	8.75	105	9.0	9.0
7440-39-3	Barium	--	70,000	255	70,000
7440-41-7	Beryllium	--	700	0.8	700
7440-43-9	Cadmium	--	350	1	350
7440-47-3	Chromium	--	525,000	18	525,000
18540-29-9	Chromium (VI)	--	1,050	--	1,050
7440-50-8	Copper	--	12,950	22	12,950
7439-92-1	Lead (inorganic)[2]	--	--	15	1,000
7439-96-5	Manganese	--	49,000	700	49,000
7439-97-6	Mercury (inorganic)	--	105	0.02	105
7440-02-0	Nickel (soluble salts)	--	7,000	16	7,000
7782-49-2	Selenium (and compounds)	--	1,750	0.3	1,750
7440-22-4	Silver	--	1,750	0.4	1,750
7440-66-6	Zinc	--	105,000	66	105,000
Petroleum-Related Compounds					
TOT_DIESEL	DieselFuel Oil	--	2,667	NA	2,667
TOT_GASOLINE	Gasoline	--	2,909	NA	2,909
TOT_HEAVYOIL	Heavy Oil	--	98,000	NA	98,000
TOT_KEROSENE	Kerosene/Jet fuel	--	4,364	NA	4,364
TOT_MINERALSP	Mineral spirits/Stoddard	--	3,125	NA	3,125
71-43-2	Benzene	136	796	NA	136
PAH_TEQ	Total cPAH TEQ	0.4	--	NA	0.4
191-24-2	Benzo(g,h,i)perylene	--	--	NA	--
100-41-4	Ethyl Benzene	--	15,082	NA	15,082
90-12-0	1-Methylnaphthalene	216	--	NA	216
91-57-6	Methylnaphthalene, 2-	--	667	NA	667
91-20-3	Naphthalene	--	1,626	NA	1,626
108-88-3	Toluene	--	12,308	NA	12,308
1330-20-7	Total Xylenes	--	30,000	NA	30,000
PCBs					
12672-29-6	Aroclor 1248	6.6	--	NA	6.6
11097-69-1	Aroclor 1254	6.6	7.0	NA	6.6
11096-82-5	Aroclor 1260	6.6	--	NA	6.6
37324-23-5	Aroclor 1262	6.6	--	NA	6.6
11100-14-4	Aroclor 1268	6.6	--	NA	6.6
Semi-Volatile Organics					
83-32-9	Acenaphthene	--	21,000	NA	21,000
208-96-8	Acenaphthylene	--	--	NA	--
120-12-7	Anthracene	--	105,000	NA	105,000
117-81-7	Bis(2-ethylhexyl)Phthalate (DEHP)	938	7,000	NA	938
132-64-9	Dibenzofuran	--	--	NA	--
95-50-1	Dichlorobenzene, 1,2-	--	31,500	NA	31,500
541-73-1	Dichlorobenzene, 1,3-	--	--	NA	--
131-11-3	Dimethyl Phthalate	--	--	NA	--

Table D-7: Human Health Risk-Based Screening Concentrations

CAS Number	Constituent	Industrial Cancer RBSC (mg/kg)	Industrial NonCancer RBSC (mg/kg)	Natural Background Metal Concentration (mg/kg)	RBSC used for Screening (mg/kg)
117-84-0	Di-n-Octylphthalate	--	7,000	NA	7,000
206-44-0	Fluoranthene	--	14,000	NA	14,000
86-73-7	Fluorene	--	14,000	NA	14,000
25155-15-1	Isopropyltoluene	--	--	NA	--
86-30-6	Nitrosodiphenylamine, N-	2,679	--	NA	2,679
85-01-8	Phenanthrene	--	--	NA	--
108-95-2	Phenol	--	105,000	NA	105,000
129-00-0	Pyrene	--	10,500	NA	10,500
120-82-1	Trichlorobenzene, 1,2,4-	--	3,500	NA	3,500
Volatile Organics					
67-64-1	Acetone	--	315,000	NA	315,000
74-83-9	Bromomethane	--	490	NA	490
104-51-8	n-Butylbenzene	--	--	NA	--
135-98-8	sec-Butylbenzene	--	--	NA	--
75-15-0	Carbon Disulfide	--	35,000	NA	35,000
75-71-8	CFC-12	--	70,000	NA	70,000
74-87-3	Chloromethane	1,010	--	NA	1,010
95-49-8	2-chlorotoluene	--	7,000	NA	7,000
106-43-4	4-chlorotoluene	--	--	NA	--
98-06-6	Tert-butylbenzene	--	--	NA	--
98-82-8	Cumene	--	35,000	NA	35,000
106-46-7	Dichlorobenzene, 1,4-	547	--	NA	547
75-34-3	Dichloroethane, 1,1-	--	70,000	NA	70,000
75-09-2	Dichloromethane	1,750	21,000	NA	1,750
591-78-6	Hexanone, 2-	--	--	NA	--
99-87-6	4-isopropyltoluene	--	--	NA	--
78-93-3	Methyl Ethyl Ketone	--	210,000	NA	210,000
103-65-1	1-Phenylpropane	--	--	NA	--
100-42-5	Styrene	--	70,000	NA	70,000
127-18-4	Tetrachloroethylene	--	3,500	NA	3,500
71-55-6	Trichloroethane, 1,1,1-	--	700,000	NA	700,000
79-01-6	Trichloroethylene	1,010	--	NA	1,010
95-63-6	1,2,4-Trimethylbenzene	--	--	NA	--
108-67-8	1,3,5-Trimethylbenzene	--	17,500	NA	17,500

Notes:

"--" = Value not available due to lack of toxicity value for the constituent

cPAH = Carcinogenic Polycyclic Aromatic Hydrocarbons

NA = Not Applicable

PCBs = Polychlorinated Biphenyls

RBSC = Risk-Based Screening Concentration

TEQ = Toxic Equivalency

[1] RBSC used for screening is natural background concentration, which was higher than the RBSC

[2] MTCA Method A Industrial Soil Screening Value (WAC 173-340-745)

Appendix E

Identification of Indicator Hazardous Substances for Human Health Screening Tables

LIST OF TABLES

Table E-1. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
500-Gallon Diesel Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Petroleum-Related Constituents												
Total Diesel/Fuel Oil	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Total Gasoline	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Total Heavy Oil	1	100	--	1.80E+02	1.80E+02	1.80E+02	--	1.80E+02	Unknown	9.80E+04	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-2. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Drum Storage and French Drain Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
PCBs												
Aroclor 1248	20	20	3.30E-02 - 2.00E-01	6.80E+01	2.90E+03	2.99E+02	1.88E+06	2.90E+03	Unknown	6.56E+00	Yes	Yes
Aroclor 1254	20	0	3.30E-02 - 2.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1260	20	0	3.30E-02 - 2.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1262	20	0	1.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1268	20	0	1.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Total Diesel/Fuel Oil	18	44	2.00E+01 - 2.00E+01	1.00E+01	9.45E+02	1.42E+02	4.67E+02	4.67E+02	Unknown	2.67E+03	--	--
Total Gasoline	16	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	18	28	1.00E+01 - 1.00E+01	2.50E+01	1.76E+03	2.65E+02	3.29E+03	1.76E+03	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	16	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	16	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-3. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Oil House Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	2	100	--	2.40E+00	6.20E+00	4.30E+00	1.05E+06	6.20E+00	Unknown	9.00E+00	--	--
Cadmium	2	0	1.00E+00 - 1.00E+00	--	--	--	--	--	--	--	--	--
Chromium	2	100	--	1.30E+01	2.90E+01	2.10E+01	1.30E+05	2.90E+01	Unknown	5.25E+05	--	--
Lead (inorganic)	2	50	1.00E+01 - 1.00E+01	3.35E+01	3.35E+01	1.93E+01	2.28E+23	3.35E+01	Unknown	1.00E+03	--	--
Petroleum-Related Constituents												
Benzene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Ethyl Benzene	2	50	5.00E-02 - 5.00E-02	3.90E-01	3.90E-01	2.08E-01	3.10E+45	3.90E-01	Unknown	1.51E+04	--	--
Toluene	2	50	5.00E-02 - 5.00E-02	1.60E+00	1.60E+00	8.13E-01	1.22E+106	1.60E+00	Unknown	1.23E+04	--	--
Total Diesel/Fuel Oil	6	100	--	9.60E+00	2.25E+04	3.85E+03	2.21E+09	2.25E+04	Lognormal	2.67E+03	Yes	Yes
Xylenes	2	50	5.00E-02 - 5.00E-02	3.95E+00	3.95E+00	1.99E+00	6.02E+157	3.95E+00	Unknown	3.00E+04	--	--
Volatile Organics Constituents												
Dichloroethane, 1,1-	2	50	5.00E-02 - 5.00E-02	5.30E-01	5.30E-01	2.78E-01	3.59E+56	5.30E-01	Unknown	7.00E+04	--	--
Methyl Ethyl Ketone	2	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	2	50	5.00E-02 - 5.00E-02	1.30E+00	1.30E+00	6.63E-01	4.31E+95	1.30E+00	Unknown	7.00E+05	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-4. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
20,000-Gallon Gasoline Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Lead (inorganic)	3	100	--	1.00E+01	1.10E+01	1.07E+01	1.18E+01	1.10E+01	Unknown	1.00E+03	--	--
Petroleum-Related Constituents												
Benzene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Ethyl Benzene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Toluene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	11	9	1.00E+01 - 1.00E+01	1.00E+02	1.00E+02	1.36E+01	2.21E+01	2.21E+01	Unknown	2.67E+03	--	--
Total Gasoline	11	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	11	64	1.00E+01 - 1.00E+01	8.00E+00	1.20E+02	2.45E+01	6.64E+01	6.64E+01	Lognormal	9.80E+04	--	--
Total Kerosene/Jet Fuel	11	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-5. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Tank Farm Kensol Spill Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Petroleum-Related Constituents												
Benzene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
CPAH TEQ	1	0	3.17E+00 - 3.17E+00	--	--	--	--	--	--	--	--	--
Ethyl Benzene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Naphthalene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Toluene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	2	100	--	6.70E+02	1.20E+04	6.34E+03	5.67E+54	1.20E+04	Unknown	2.67E+03	Yes	Yes
Xylenes	1	100	--	2.80E-02	2.80E-02	2.80E-02	--	2.80E-02	Unknown	3.00E+04	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Acenaphthylene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Anthracene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)Phthalate (DEHP)	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Di-n-Octylphthalate	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Dibenzofuran	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,2-	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Fluoranthene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Fluorene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Nitrosodiphenylamine, N-	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Phenanthrene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Phenol	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Pyrene	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Trichlorobenzene, 1,2,4-	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
Acetone	1	0	2.60E-02 - 2.60E-02	--	--	--	--	--	--	--	--	--
Bromomethane	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Carbon Disulfide	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Chloromethane	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	1	0	2.10E+00 - 2.10E+00	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Dichloromethane	1	100	--	5.00E-03	5.00E-03	5.00E-03	--	5.00E-03	Unknown	1.75E+03	--	--
Hexanone, 2-	1	0	1.60E-02 - 1.60E-02	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	1	0	1.60E-02 - 1.60E-02	--	--	--	--	--	--	--	--	--
Styrene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Trichloroethylene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--

Notes:
CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations
EPC = Exposure Point Concentration
IHS = Indicator Hazardous Substance
PCBs = Polychlorinated Biphenyls
RBSC = Risk Based Screening Concentration
TPH = Total Petroleum Hydrocarbon
UCL = Upper Confidence Limit

Table E-5. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Tank Farm Kensol Spill Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-6. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Eight Underground Storage Tanks Site
Oil House Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Petroleum-Related Constituents												
Benzene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Ethyl Benzene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Toluene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	17	65	2.00E+01 - 4.00E+01	3.20E+01	1.40E+04	2.14E+03	4.66E+05	1.40E+04	Unknown	2.67E+03	Yes	Yes
Total Gasoline	17	0	5.00E+00 - 1.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	17	0	1.00E+01 - 5.00E+01	--	--	--	--	--	--	--	--	--
Total Kerosene/Jet Fuel	17	0	1.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Xylenes	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-7. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Antimony (metallic)	16	100	--	6.00E-02	3.20E-01	1.74E-01	2.16E-01	2.16E-01	Normal/Lognormal	1.40E+02	--	--
Arsenic (inorganic)	18	100	--	1.70E+00	3.57E+01	9.59E+00	1.43E+01	1.43E+01	Unknown	9.00E+00	Yes	Yes
Barium	16	100	--	1.69E+01	1.27E+02	5.06E+01	6.43E+01	6.43E+01	Lognormal	7.00E+04	--	--
Cadmium	18	89	1.00E+00 - 1.00E+00	1.80E-02	5.20E-01	1.45E-01	2.30E-01	2.30E-01	Unknown	3.50E+02	--	--
Chromium	18	100	--	3.24E+00	3.40E+01	9.90E+00	1.31E+01	1.31E+01	Lognormal	5.25E+05	--	--
Lead (inorganic)	18	94	1.00E+01 - 1.00E+01	3.95E+00	1.20E+02	1.53E+01	1.88E+01	1.88E+01	Unknown	1.00E+03	--	--
Mercury (inorganic)	16	50	1.10E-02 - 2.00E-02	1.00E-03	7.00E-02	1.32E-02	2.50E-02	2.50E-02	Lognormal	1.05E+02	--	--
Selenium (and compounds)	16	0	1.00E+00 - 1.11E+00	--	--	--	--	--	--	--	--	--
Silver	16	100	--	3.00E-02	2.00E-01	7.75E-02	1.03E-01	1.03E-01	Lognormal	1.75E+03	--	--
PCBs												
Aroclor 1248	16	25	9.90E-03 - 1.00E-02	7.60E-03	1.90E-02	6.88E-03	8.43E-03	8.43E-03	Unknown	6.56E+00	--	--
Aroclor 1254	16	19	9.90E-03 - 1.00E-02	8.00E-03	1.80E-02	6.21E-03	7.27E-03	7.27E-03	Unknown	6.56E+00	--	--
Aroclor 1260	16	6	9.90E-03 - 1.00E-02	2.90E-03	2.90E-03	4.85E-03	5.17E-03	2.90E-03	Unknown	6.56E+00	--	--
Petroleum-Related Constituents												
Benzene	18	6	3.70E-03 - 5.00E-01	1.10E-03	1.10E-03	1.86E-02	2.46E-02	1.10E-03	Unknown	1.36E+02	--	--
Benzo(g,h,i)perylene	16	63	4.40E-03 - 5.00E-03	7.80E-04	7.25E-01	7.63E-02	6.38E-01	6.38E-01	Unknown	--	--	--
CPAH TEQ	16	88	7.40E-03 - 7.40E-03	1.76E-03	2.00E-01	1.74E-02	2.44E-02	2.44E-02	Unknown	4.18E-01	--	--
Ethyl Benzene	18	22	3.70E-03 - 5.00E-01	1.80E-04	9.90E-03	1.76E-02	2.80E-02	9.90E-03	Unknown	1.51E+04	--	--
Methylnaphthalene, 2-	16	81	4.80E-03 - 4.90E-03	4.80E-04	1.50E-01	1.49E-02	6.35E-02	6.35E-02	Lognormal	6.67E+02	--	--
Naphthalene	17	29	1.50E-02 - 2.20E-02	5.80E-04	1.70E-01	2.28E-02	4.96E-02	4.96E-02	Unknown	1.63E+03	--	--
Toluene	18	11	3.70E-03 - 5.00E-01	2.30E-03	1.30E-02	1.80E-02	2.04E-02	1.30E-02	Unknown	1.23E+04	--	--
Total Diesel/Fuel Oil	41	49	4.00E+01 - 4.00E+01	5.60E+01	7.31E+03	5.53E+02	1.16E+03	1.16E+03	Unknown	2.67E+03	Yes	Yes
Total Gasoline	39	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	41	46	5.00E+01 - 5.00E+01	1.03E+02	3.50E+03	4.31E+02	9.96E+02	9.96E+02	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	39	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	39	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	18	72	4.30E-03 - 5.00E-01	1.50E-04	3.80E-02	1.84E-02	1.14E-01	3.80E-02	Unknown	3.00E+04	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	16	69	4.80E-03 - 5.00E-03	2.50E-04	3.60E-02	4.37E-03	8.62E-03	8.62E-03	Lognormal	2.10E+04	--	--
Acenaphthylene	16	6	4.40E-03 - 5.00E-03	8.60E-04	8.60E-04	2.34E-03	2.67E-03	8.60E-04	Unknown	--	--	--
Anthracene	16	44	4.40E-03 - 1.10E-02	1.00E-03	1.10E-02	2.90E-03	3.91E-03	3.91E-03	Lognormal	1.05E+05	--	--
Dibenzofuran	16	38	4.40E-03 - 5.00E-03	8.10E-04	1.90E-02	3.55E-03	4.97E-03	4.97E-03	Unknown	--	--	--
Dichlorobenzene, 1,2-	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Fluoranthene	16	63	4.80E-03 - 5.00E-03	9.10E-04	3.10E-02	5.33E-03	9.04E-03	9.04E-03	Unknown	1.40E+04	--	--
Fluorene	16	56	4.70E-03 - 5.00E-03	1.70E-03	7.70E-02	8.38E-03	1.22E-02	1.22E-02	Unknown	1.40E+04	--	--
Phenanthrene	16	69	4.80E-03 - 5.80E-03	8.90E-04	1.10E-01	2.05E-02	7.90E-02	7.90E-02	Lognormal	--	--	--
Pyrene	16	75	4.80E-03 - 5.00E-03	5.00E-04	5.00E-01	4.77E-02	2.24E-01	2.24E-01	Lognormal	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	16	0	1.50E-02 - 2.00E-01	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	16	56	1.50E-02 - 2.10E-02	1.40E-04	1.70E-01	1.73E-02	1.42E-01	1.42E-01	Lognormal	--	--	--
1,3,5-Trimethylbenzene	16	44	1.50E-02 - 2.20E-02	1.20E-04	8.40E-02	1.13E-02	9.77E-02	8.40E-02	Unknown	1.75E+04	--	--
1-Phenylpropane	16	19	1.50E-02 - 2.20E-02	1.40E-03	1.90E-02	9.24E-03	1.39E-02	1.39E-02	Unknown	--	--	--
2-chlorotoluene	16	0	1.50E-02 - 2.00E-01	--	--	--	--	--	--	--	--	--
4-chlorotoluene	16	6	1.50E-02 - 2.00E-01	1.90E-04	1.90E-04	1.47E-02	4.31E-02	1.90E-04	Unknown	--	--	--
4-isopropyltoluene	16	25	1.50E-02 - 2.20E-02	4.00E-04	3.70E-02	9.74E-03	3.01E-02	3.01E-02	Unknown	--	--	--
Acetone	16	75	1.80E-02 - 2.10E-02	1.25E-02	3.10E-01	6.55E-02	1.57E-01	1.57E-01	Lognormal	3.15E+05	--	--
Bromomethane	16	25	4.30E-03 - 5.00E-02	1.10E-03	2.10E-03	3.61E-03	4.55E-03	2.10E-03	Unknown	4.90E+02	--	--

Table E-7. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
CFC-12	16	19	3.70E-03 - 5.20E-03	5.10E-04	2.30E-02	3.42E-03	4.88E-03	4.88E-03	Unknown	7.00E+04	--	--
Carbon Disulfide	16	88	4.60E-03 - 5.00E-02	8.00E-05	6.05E-03	2.42E-03	5.77E-03	5.77E-03	Unknown	3.50E+04	--	--
Chloromethane	16	31	4.30E-03 - 5.00E-02	1.50E-04	3.90E-04	3.16E-03	1.16E-02	3.90E-04	Unknown	1.01E+03	--	--
Cumene	16	19	1.50E-02 - 2.20E-02	6.10E-04	1.10E-02	8.61E-03	1.77E-02	1.10E-02	Unknown	3.50E+04	--	--
Dichlorobenzene, 1,4-	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	18	0	3.70E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--
Dichloromethane	16	38	8.90E-03 - 1.10E-02	1.95E-03	2.10E-02	5.45E-03	6.88E-03	6.88E-03	Unknown	1.75E+03	--	--
Hexanone, 2-	16	19	1.80E-02 - 2.00E+00	2.30E-03	5.10E-03	7.05E-02	6.98E-02	5.10E-03	Unknown	--	--	--
Methyl Ethyl Ketone	18	61	1.80E-02 - 5.00E+00	3.10E-03	1.80E-02	2.17E-01	6.65E-01	1.80E-02	Unknown	2.10E+05	--	--
Styrene	16	25	3.70E-03 - 5.40E-03	1.40E-04	1.60E-02	2.82E-03	1.02E-02	1.02E-02	Unknown	7.00E+04	--	--
Tert-butylbenzene	16	0	1.50E-02 - 2.00E-01	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	18	0	3.70E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--
Trichloroethylene	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
n-Butylbenzene	16	25	1.50E-02 - 2.20E-02	2.70E-04	7.50E-02	1.22E-02	3.73E-02	3.73E-02	Unknown	--	--	--
sec-Butylbenzene	16	19	1.50E-02 - 2.20E-02	7.60E-04	3.30E-02	1.00E-02	1.91E-02	1.91E-02	Unknown	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-8. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Antimony (metallic)	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Arsenic (inorganic)	1	100	--	1.20E+01	1.20E+01	1.20E+01	--	1.20E+01	Unknown	9.00E+00	Yes	Yes
Beryllium	1	100	--	1.90E-01	1.90E-01	1.90E-01	--	1.90E-01	Unknown	7.00E+02	--	--
Cadmium	1	100	--	3.70E+00	3.70E+00	3.70E+00	--	3.70E+00	Unknown	3.50E+02	--	--
Chromium	1	100	--	2.50E+01	2.50E+01	2.50E+01	--	2.50E+01	Unknown	5.25E+05	--	--
Copper	1	100	--	7.90E+01	7.90E+01	7.90E+01	--	7.90E+01	Unknown	1.30E+04	--	--
Lead (inorganic)	1	100	--	5.80E+01	5.80E+01	5.80E+01	--	5.80E+01	Unknown	1.00E+03	--	--
Mercury (inorganic)	1	100	--	5.40E-01	5.40E-01	5.40E-01	--	5.40E-01	Unknown	1.05E+02	--	--
Nickel (soluble salts)	1	100	--	1.10E+01	1.10E+01	1.10E+01	--	1.10E+01	Unknown	7.00E+03	--	--
Selenium (and compounds)	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Silver	1	0	1.50E-01 - 1.50E-01	--	--	--	--	--	--	--	--	--
Zinc	1	100	--	5.60E+01	5.60E+01	5.60E+01	--	5.60E+01	Unknown	1.05E+05	--	--
PCBs												
Aroclor 1248	1	0	6.60E-01 - 6.60E-01	--	--	--	--	--	--	--	--	--
Aroclor 1254	1	0	6.60E-01 - 6.60E-01	--	--	--	--	--	--	--	--	--
Aroclor 1260	1	0	6.60E-01 - 6.60E-01	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Benzene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	2	0	8.30E-01 - 1.70E+01	--	--	--	--	--	--	--	--	--
CPAH TEQ	2	0	1.34E+00 - 2.57E+01	--	--	--	--	--	--	--	--	--
Ethyl Benzene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Naphthalene	2	0	4.20E+00 - 1.70E+01	--	--	--	--	--	--	--	--	--
Toluene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	7	100	--	1.00E+02	3.30E+04	6.32E+03	2.70E+06	3.30E+04	Lognormal	2.67E+03	Yes	Yes
Xylenes	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	2	0	8.30E+00 - 1.70E+01	--	--	--	--	--	--	--	--	--
Acenaphthylene	2	50	1.70E+01 - 1.70E+01	8.30E+00	8.30E+00	8.40E+00	8.89E+00	8.30E+00	Unknown	--	--	--
Anthracene	2	0	4.20E-01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)Phthalate (DEHP)	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Di-n-Octylphthalate	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Dibenzofuran	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,2-	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Fluoranthene	2	0	8.30E-01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Fluorene	2	0	8.30E-01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Nitrosodiphenylamine, N-	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Phenanthrene	2	0	4.20E-01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Phenol	1	100	--	7.00E+00	7.00E+00	7.00E+00	--	7.00E+00	Unknown	1.05E+05	--	--
Pyrene	2	0	8.30E-01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Trichlorobenzene, 1,2,4-	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
Acetone	1	100	--	6.30E-01	6.30E-01	6.30E-01	--	6.30E-01	Unknown	3.15E+05	--	--
Bromomethane	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Carbon Disulfide	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Chloromethane	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--

Table E-8. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Dichlorobenzene, 1,4-	1	0	1.70E+01 - 1.70E+01	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloromethane	1	0	3.90E-01 - 3.90E-01	--	--	--	--	--	--	--	--	--
Hexanone, 2-	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Styrene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethylene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-9. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	2	100	--	5.40E+00	1.10E+01	8.20E+00	6.97E+03	1.10E+01	Unknown	9.00E+00	Yes	Yes
Barium	1	100	--	1.80E+02	1.80E+02	1.80E+02	--	1.80E+02	Unknown	7.00E+04	--	--
Cadmium	2	50	1.00E+00 - 1.00E+00	1.40E+00	1.40E+00	9.50E-01	2.22E+06	1.40E+00	Unknown	3.50E+02	--	--
Chromium	2	100	--	3.90E+01	2.20E+02	1.30E+02	2.25E+20	2.20E+02	Unknown	5.25E+05	--	--
Lead (inorganic)	2	50	1.00E+01 - 1.00E+01	3.20E+02	3.20E+02	1.63E+02	2.45E+108	3.20E+02	Unknown	1.00E+03	--	--
Mercury (inorganic)	1	100	--	2.40E-01	2.40E-01	2.40E-01	--	2.40E-01	Unknown	1.05E+02	--	--
Selenium (and compounds)	1	0	6.40E-01 - 6.40E-01	--	--	--	--	--	--	--	--	--
Silver	1	100	--	4.90E+00	4.90E+00	4.90E+00	--	4.90E+00	Unknown	1.75E+03	--	--
PCBs												
Aroclor 1248	1	100	--	2.90E-01	2.90E-01	2.90E-01	--	2.90E-01	Unknown	6.56E+00	--	--
Aroclor 1254	1	100	--	2.40E-01	2.40E-01	2.40E-01	--	2.40E-01	Unknown	6.56E+00	--	--
Aroclor 1260	1	0	7.90E-02 - 7.90E-02	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Benzene	3	0	1.20E-02 - 4.30E-01	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	2	0	1.50E-02 - 9.90E+00	--	--	--	--	--	--	--	--	--
CPAH TEQ	2	50	1.70E-02 - 1.70E-02	2.63E+00	2.63E+00	1.32E+00	1.50E+202	2.63E+00	Unknown	4.18E-01	Yes	Yes
Ethyl Benzene	3	0	1.20E-02 - 4.30E-01	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	2	100	--	3.00E-01	2.40E+00	1.35E+00	3.41E+26	2.40E+00	Unknown	6.67E+02	--	--
Naphthalene	2	50	3.00E-02 - 3.00E-02	7.50E-01	7.50E-01	3.83E-01	3.14E+93	7.50E-01	Unknown	1.63E+03	--	--
Toluene	3	0	1.20E-02 - 4.30E-01	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	3	67	4.00E+01 - 4.00E+01	3.90E+01	2.00E+04	6.69E+03	7.05E+63	2.00E+04	Lognormal	2.67E+03	Yes	Yes
Total Gasoline	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Total Heavy Oil	4	75	5.00E+01 - 5.00E+01	4.80E+01	2.20E+04	5.56E+03	7.72E+19	2.20E+04	Lognormal	9.80E+04	--	--
Total Kerosene/Jet Fuel	1	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Xylenes	3	33	5.00E-02 - 8.70E-01	2.60E-02	2.60E-02	1.62E-01	1.47E+10	2.60E-02	Unknown	3.00E+04	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	2	100	--	5.20E-01	2.20E+00	1.36E+00	5.82E+12	2.20E+00	Unknown	2.10E+04	--	--
Acenaphthylene	2	0	2.50E-02 - 9.90E+00	--	--	--	--	--	--	--	--	--
Anthracene	2	100	--	3.00E+00	3.20E+00	3.10E+00	3.64E+00	3.20E+00	Unknown	1.05E+05	--	--
Bis(2-ethylhexyl)Phthalate (DEHP)	1	100	--	1.90E+00	1.90E+00	1.90E+00	--	1.90E+00	Unknown	9.38E+02	--	--
Di-n-Octylphthalate	1	0	9.90E+00 - 9.90E+00	--	--	--	--	--	--	--	--	--
Dibenzofuran	1	100	--	2.00E+00	2.00E+00	2.00E+00	--	2.00E+00	Unknown	--	--	--
Dichlorobenzene, 1,2-	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	1	0	9.90E+00 - 9.90E+00	--	--	--	--	--	--	--	--	--
Fluoranthene	2	100	--	3.00E+00	4.50E+00	3.75E+00	2.72E+01	4.50E+00	Unknown	1.40E+04	--	--
Fluorene	2	100	--	2.40E+00	5.20E+00	3.80E+00	1.22E+04	5.20E+00	Unknown	1.40E+04	--	--
Isopropyltoluene	1	100	--	2.00E-01	2.00E-01	2.00E-01	--	2.00E-01	Unknown	--	--	--
Nitrosodiphenylamine, N-	1	0	9.90E+00 - 9.90E+00	--	--	--	--	--	--	--	--	--
Phenanthrene	2	100	--	4.90E+00	1.50E+01	9.95E+00	3.50E+08	1.50E+01	Unknown	--	--	--
Phenol	1	0	9.90E+00 - 9.90E+00	--	--	--	--	--	--	--	--	--
Pyrene	2	100	--	2.60E+00	5.00E+00	3.80E+00	1.02E+03	5.00E+00	Unknown	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	1	0	3.00E-02 - 3.00E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	1	100	--	1.00E+00	1.00E+00	1.00E+00	--	1.00E+00	Unknown	--	--	--
1,3,5-Trimethylbenzene	1	100	--	3.40E-01	3.40E-01	3.40E-01	--	3.40E-01	Unknown	1.75E+04	--	--
1-Phenylpropane	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--

Table E-9. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
2-chlorotoluene	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
4-chlorotoluene	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Bromomethane	1	0	3.00E-02 - 3.00E-02	--	--	--	--	--	--	--	--	--
CFC-12	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Chloromethane	1	0	3.00E-02 - 3.00E-02	--	--	--	--	--	--	--	--	--
Cumene	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	2	0	1.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloromethane	1	0	6.00E-02 - 6.00E-02	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Styrene	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	2	0	1.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethylene	1	0	1.20E-02 - 1.20E-02	--	--	--	--	--	--	--	--	--
n-Butylbenzene	1	100	--	2.10E-01	2.10E-01	2.10E-01	--	2.10E-01	Unknown	--	--	--
sec-Butylbenzene	1	0	3.00E-02 - 3.00E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-10. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	9	78	2.00E+00 - 2.00E+00	2.60E+00	1.70E+01	5.37E+00	1.58E+01	1.58E+01	Lognormal	9.00E+00	Yes	Yes
Barium	9	67	1.00E+01 - 1.00E+01	2.79E+01	2.10E+02	6.75E+01	1.04E+03	2.10E+02	Normal/Lognormal	7.00E+04	--	--
Cadmium	9	33	3.00E-01 - 1.00E+00	7.00E-01	2.00E+00	7.54E-01	1.78E+00	1.78E+00	Lognormal	3.50E+02	--	--
Chromium	9	78	2.00E+00 - 2.00E+00	3.90E+00	2.30E+02	3.20E+01	4.31E+02	2.30E+02	Lognormal	5.25E+05	--	--
Lead (inorganic)	16	81	1.00E+00 - 1.70E+01	3.10E+00	1.40E+03	2.11E+02	2.83E+03	1.40E+03	Unknown	1.00E+03	Yes	Yes
Mercury (inorganic)	9	11	1.00E-02 - 5.00E-01	1.50E-01	1.50E-01	1.19E-01	2.46E+00	1.50E-01	Unknown	1.05E+02	--	--
Selenium (and compounds)	9	0	2.90E-01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Silver	9	11	2.90E-01 - 2.00E+00	2.00E+00	2.00E+00	6.44E-01	2.36E+00	2.00E+00	Lognormal	1.75E+03	--	--
PCBs												
Aroclor 1248	25	12	1.00E-02 - 2.00E-01	3.10E-01	2.60E+00	1.69E-01	4.17E-01	4.17E-01	Unknown	6.56E+00	--	--
Aroclor 1254	25	4	1.00E-02 - 2.00E-01	1.30E-01	1.30E-01	5.18E-02	1.25E-01	1.25E-01	Unknown	6.56E+00	--	--
Aroclor 1260	25	8	1.00E-02 - 2.00E-01	4.00E-02	4.80E-02	5.12E-02	1.13E-01	4.80E-02	Unknown	6.56E+00	--	--
Petroleum-Related Constituents												
1-Methylnaphthalene	3	0	1.90E-02 - 1.90E-02	--	--	--	--	--	--	--	--	--
Benzene	13	8	5.10E-03 - 5.80E-02	1.60E-02	1.60E-02	1.59E-02	4.46E-02	1.60E-02	Unknown	1.36E+02	--	--
Benzo(g,h,i)perylene	15	40	3.70E-03 - 5.80E+00	5.10E-03	4.70E-01	3.24E-01	7.79E+00	4.70E-01	Lognormal	--	--	--
CPAH TEQ	15	60	6.52E-02 - 8.76E+00	2.87E-03	7.12E-01	4.70E-01	9.65E+00	7.12E-01	Lognormal	4.18E-01	Yes	Yes
Ethyl Benzene	13	46	5.10E-03 - 5.80E-02	6.60E-02	6.80E+00	6.60E-01	5.39E+01	6.80E+00	Lognormal	1.51E+04	--	--
Methylnaphthalene, 2-	11	64	1.90E-02 - 5.80E+00	1.50E-03	8.20E+00	1.14E+00	6.04E+02	8.20E+00	Lognormal	6.67E+02	--	--
Naphthalene	15	33	1.90E-02 - 1.90E-01	8.00E-02	1.60E+00	2.82E-01	2.86E+00	1.60E+00	Unknown	1.63E+03	--	--
Toluene	13	46	5.10E-03 - 5.80E-02	3.20E-02	3.80E+00	4.22E-01	2.43E+01	3.80E+00	Lognormal	1.23E+04	--	--
Total Diesel/Fuel Oil	128	48	3.00E+01 - 7.00E+01	1.99E+01	4.30E+04	1.16E+03	1.25E+03	1.25E+03	Unknown	2.67E+03	Yes	Yes
Total Gasoline	126	1	5.00E+00 - 2.00E+01	3.40E+02	3.40E+02	8.15E+00	6.54E+00	6.54E+00	Unknown	2.91E+03	--	--
Total Heavy Oil	128	66	5.00E+01 - 2.00E+02	4.30E+01	1.70E+05	3.58E+03	7.29E+03	7.29E+03	Lognormal	9.80E+04	Yes	Yes
Total Kerosene/Jet Fuel	126	18	1.00E+01 - 2.00E+01	9.30E+00	1.70E+03	7.21E+01	4.27E+01	4.27E+01	Unknown	4.36E+03	--	--
Total Stoddard/Mineral Spirits	126	6	5.00E+00 - 2.00E+01	2.00E+01	3.35E+02	1.12E+01	7.97E+00	7.97E+00	Unknown	3.13E+03	--	--
Xylenes	13	46	5.10E-03 - 5.80E-02	2.75E-01	3.50E+01	3.31E+00	7.95E+03	3.50E+01	Lognormal	3.00E+04	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	15	33	5.00E-03 - 5.80E+00	1.40E-03	6.30E-01	3.54E-01	1.32E+01	6.30E-01	Lognormal	2.10E+04	--	--
Acenaphthylene	15	7	5.00E-03 - 5.80E+00	1.60E-03	1.60E-03	2.65E-01	2.33E+00	1.60E-03	Lognormal	--	--	--
Anthracene	15	33	1.90E-03 - 5.80E+00	2.20E-02	1.30E+00	3.74E-01	2.65E+01	1.30E+00	Lognormal	1.05E+05	--	--
Bis(2-ethylhexyl)Phthalate (DEHP)	4	0	1.90E-01 - 5.80E+00	--	--	--	--	--	--	--	--	--
Di-n-Octylphthalate	6	0	1.90E-01 - 5.80E+00	--	--	--	--	--	--	--	--	--
Dibenzofuran	8	38	5.00E-03 - 5.80E+00	2.50E-03	7.85E-01	5.67E-01	4.40E+03	7.85E-01	Lognormal	--	--	--
Dichlorobenzene, 1,2-	10	10	5.10E-03 - 9.50E-01	1.20E-02	1.20E-02	6.66E-02	1.19E+00	1.20E-02	Lognormal	3.15E+04	--	--
Dichlorobenzene, 1,3-	10	0	5.10E-03 - 9.50E-01	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	6	0	1.00E-01 - 5.80E+00	--	--	--	--	--	--	--	--	--
Fluoranthene	15	53	3.70E-03 - 5.80E+00	6.20E-03	5.30E+00	8.96E-01	3.44E+01	5.30E+00	Lognormal	1.40E+04	--	--
Fluorene	15	53	3.70E-03 - 5.80E+00	1.00E-02	2.30E+00	5.67E-01	2.51E+01	2.30E+00	Lognormal	1.40E+04	--	--
Isopropyltoluene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Nitrosodiphenylamine, N-	6	17	1.00E-01 - 5.80E+00	6.00E-01	6.00E-01	7.14E-01	3.72E+01	6.00E-01	Lognormal	2.68E+03	--	--
Phenanthrene	15	53	1.90E-03 - 5.80E+00	4.00E-02	8.50E+00	1.09E+00	1.33E+02	8.50E+00	Lognormal	--	--	--
Phenol	6	0	1.90E-01 - 5.80E+00	--	--	--	--	--	--	--	--	--
Pyrene	15	47	1.90E-03 - 5.80E+00	7.70E-03	2.55E+00	5.00E-01	1.29E+01	2.55E+00	Lognormal	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	10	0	2.10E-02 - 9.50E-01	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	8	38	2.10E-02 - 5.00E-02	2.60E+00	3.20E+01	5.31E+00	4.09E+07	3.20E+01	Unknown	--	--	--
1,3,5-Trimethylbenzene	8	25	2.10E-02 - 5.00E-02	7.10E-01	2.20E+00	3.75E-01	7.68E+01	2.20E+00	Unknown	1.75E+04	--	--

Table E-10. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
1-Phenylpropane	8	38	2.10E-02 - 5.00E-02	4.30E-01	6.45E+00	9.76E-01	2.90E+03	6.45E+00	Unknown	--	--	--
2-chlorotoluene	8	25	2.10E-02 - 1.90E-01	2.40E-01	5.65E-01	1.21E-01	2.94E+00	5.65E-01	Unknown	7.00E+03	--	--
4-chlorotoluene	8	25	2.10E-02 - 1.90E-01	1.10E-01	5.90E-01	1.08E-01	1.65E+00	5.90E-01	Unknown	--	--	--
4-isopropyltoluene	6	33	2.10E-02 - 2.20E-02	5.50E-01	7.05E+00	1.27E+00	2.15E+06	7.05E+00	Unknown	--	--	--
Acetone	9	56	2.10E-02 - 1.90E+00	2.20E-02	7.10E-01	3.29E-01	6.41E+00	7.10E-01	Normal/Lognormal	3.15E+05	--	--
Bromomethane	11	0	5.10E-03 - 5.80E-01	--	--	--	--	--	--	--	--	--
CFC-12	8	0	5.10E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Carbon Disulfide	9	11	5.10E-03 - 5.80E-02	8.75E-02	8.75E-02	2.31E-02	2.37E-01	8.75E-02	Unknown	3.50E+04	--	--
Chloromethane	11	0	5.10E-03 - 5.80E-01	--	--	--	--	--	--	--	--	--
Cumene	8	38	2.10E-02 - 5.00E-02	1.30E-01	8.50E-01	1.61E-01	6.25E+00	8.50E-01	Unknown	3.50E+04	--	--
Dichlorobenzene, 1,4-	10	0	5.10E-03 - 9.50E-01	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	11	0	5.10E-03 - 5.80E-02	--	--	--	--	--	--	--	--	--
Dichloromethane	11	9	1.10E-02 - 2.90E-01	2.80E-02	2.80E-02	5.41E-02	4.20E-01	2.80E-02	Unknown	1.75E+03	--	--
Hexanone, 2-	9	0	2.10E-02 - 2.00E+00	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	9	11	2.10E-02 - 2.00E+00	3.30E-02	3.30E-02	3.20E-01	2.78E+01	3.30E-02	Lognormal	2.10E+05	--	--
Styrene	11	0	5.10E-03 - 5.80E-02	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	8	38	2.10E-02 - 5.00E-02	3.10E-02	3.30E-01	5.99E-02	3.07E-01	3.07E-01	Unknown	--	--	--
Tetrachloroethylene	11	0	5.10E-03 - 5.80E-02	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	11	0	5.10E-03 - 5.80E-02	--	--	--	--	--	--	--	--	--
Trichloroethylene	11	0	5.10E-03 - 5.80E-02	--	--	--	--	--	--	--	--	--
n-Butylbenzene	8	25	2.10E-02 - 1.30E+00	4.60E-01	7.60E+00	1.10E+00	3.19E+03	7.60E+00	Unknown	--	--	--
sec-Butylbenzene	8	38	2.10E-02 - 5.00E-02	3.10E-01	6.50E+00	9.14E-01	1.00E+03	6.50E+00	Unknown	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-11. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Oil/Water Emulsion Spill Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Petroleum-Related Constituents												
Total Diesel/Fuel Oil	8	13	2.00E+01 - 2.00E+01	6.50E+01	6.50E+01	1.69E+01	3.06E+01	3.06E+01	Unknown	2.67E+03	--	--
Total Gasoline	8	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	8	75	1.00E+01 - 1.00E+01	2.10E+01	1.40E+02	5.13E+01	4.61E+02	1.40E+02	Normal/Lognormal	9.80E+04	--	--
Total Kerosene/Jet Fuel	8	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	8	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-12. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Fuel Oil Spill Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Petroleum-Related Constituents												
Benzene	2	0	5.30E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	3	67	2.60E-03 - 2.60E-03	8.50E-03	9.20E-03	6.33E-03	7.16E+02	9.20E-03	Normal/Lognormal	--	--	--
CPAH TEQ	3	100	--	8.28E-04	1.89E-02	1.15E-02	3.73E+10	1.89E-02	Normal/Lognormal	4.18E-01	--	--
Ethyl Benzene	2	0	5.30E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	3	100	--	4.55E-04	9.05E-03	5.80E-03	3.68E+09	9.05E-03	Normal/Lognormal	6.67E+02	--	--
Naphthalene	3	67	5.00E-03 - 5.00E-03	5.20E-03	6.00E-03	4.57E-03	3.61E-02	6.00E-03	Normal/Lognormal	1.63E+03	--	--
Toluene	2	0	5.30E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	3	33	4.00E+01 - 4.00E+01	2.30E+01	2.30E+01	2.10E+01	2.45E+01	2.30E+01	Unknown	2.67E+03	--	--
Total Heavy Oil	3	0	5.00E+01 - 1.00E+02	--	--	--	--	--	--	--	--	--
Total Kerosene/Jet Fuel	3	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	2	0	5.30E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	3	67	2.60E-03 - 2.60E-03	5.55E-04	6.00E-04	8.18E-04	6.45E-03	6.00E-04	Normal/Lognormal	2.10E+04	--	--
Acenaphthylene	3	100	--	3.40E-04	4.65E-04	4.22E-04	6.30E-04	4.65E-04	Normal/Lognormal	--	--	--
Anthracene	3	67	2.60E-03 - 2.60E-03	1.20E-03	1.55E-03	1.35E-03	1.77E-03	1.55E-03	Normal/Lognormal	1.05E+05	--	--
Dibenzofuran	3	100	--	2.00E-04	2.60E-03	1.67E-03	5.38E+05	2.60E-03	Normal/Lognormal	--	--	--
Dichlorobenzene, 1,2-	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Fluoranthene	3	100	--	9.60E-04	1.70E-02	1.04E-02	2.91E+08	1.70E-02	Normal/Lognormal	1.40E+04	--	--
Fluorene	3	67	2.60E-03 - 2.60E-03	7.80E-04	8.10E-04	9.63E-04	2.17E-03	8.10E-04	Normal/Lognormal	1.40E+04	--	--
Phenanthrene	3	100	--	6.60E-04	1.10E-02	7.47E-03	1.74E-02	1.10E-02	Normal	--	--	--
Pyrene	3	100	--	9.10E-04	1.90E-02	1.14E-02	4.75E+09	1.90E-02	Normal/Lognormal	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
1-Phenylpropane	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
2-chlorotoluene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
4-chlorotoluene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
4-isopropyltoluene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Acetone	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Bromomethane	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
CFC-12	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Carbon Disulfide	1	100	--	4.50E-03	4.50E-03	4.50E-03	--	4.50E-03	Unknown	3.50E+04	--	--
Chloromethane	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Cumene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Dichloromethane	1	0	1.10E-02 - 1.10E-02	--	--	--	--	--	--	--	--	--
Hexanone, 2-	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Styrene	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Trichloroethylene	1	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
n-Butylbenzene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	1	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--

Table E-12. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Fuel Oil Spill Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-13. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Antimony (metallic)	1	0	2.90E+00 - 2.90E+00	--	--	--	--	--	--	--	--	--
Arsenic (inorganic)	1	100	--	9.20E+00	9.20E+00	9.20E+00	--	9.20E+00	Unknown	9.00E+00	Yes	Yes
Beryllium	1	100	--	5.20E-01	5.20E-01	5.20E-01	--	5.20E-01	Unknown	7.00E+02	--	--
Cadmium	1	100	--	1.80E+00	1.80E+00	1.80E+00	--	1.80E+00	Unknown	3.50E+02	--	--
Chromium	25	100	--	5.20E+00	3.40E+02	7.39E+01	2.08E+02	2.08E+02	Unknown	5.25E+05	--	--
Chromium (VI)	9	0	1.00E+00 - 1.00E+00	--	--	--	--	--	--	--	--	--
Copper	1	100	--	2.20E+01	2.20E+01	2.20E+01	--	2.20E+01	Unknown	1.30E+04	--	--
Lead (inorganic)	1	100	--	2.80E+01	2.80E+01	2.80E+01	--	2.80E+01	Unknown	1.00E+03	--	--
Mercury (inorganic)	1	0	8.90E-02 - 8.90E-02	--	--	--	--	--	--	--	--	--
Nickel (soluble salts)	1	100	--	1.20E+01	1.20E+01	1.20E+01	--	1.20E+01	Unknown	7.00E+03	--	--
Selenium (and compounds)	1	0	3.20E-01 - 3.20E-01	--	--	--	--	--	--	--	--	--
Silver	1	0	2.90E-01 - 2.90E-01	--	--	--	--	--	--	--	--	--
Zinc	1	100	--	7.10E+01	7.10E+01	7.10E+01	--	7.10E+01	Unknown	1.05E+05	--	--
PCBs												
Aroclor 1248	1	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1254	1	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1260	1	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Benzene	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	1	100	--	1.90E-01	1.90E-01	1.90E-01	--	1.90E-01	Unknown	--	--	--
CPAH TEQ	1	100	--	4.90E-01	4.90E-01	4.90E-01	--	4.90E-01	Unknown	4.18E-01	Yes	Yes
Ethyl Benzene	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Naphthalene	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Toluene	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	14	7	2.00E+01 - 1.10E+02	4.00E+01	4.00E+01	3.02E+01	5.60E+01	4.00E+01	Unknown	2.67E+03	--	--
Total Gasoline	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Xylenes	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	1	100	--	1.20E-01	1.20E-01	1.20E-01	--	1.20E-01	Unknown	2.10E+04	--	--
Acenaphthylene	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Anthracene	1	100	--	2.70E-01	2.70E-01	2.70E-01	--	2.70E-01	Unknown	1.05E+05	--	--
Bis(2-ethylhexyl)Phthalate (DEHP)	1	100	--	3.70E-01	3.70E-01	3.70E-01	--	3.70E-01	Unknown	9.38E+02	--	--
Di-n-Octylphthalate	1	100	--	1.50E-01	1.50E-01	1.50E-01	--	1.50E-01	Unknown	7.00E+03	--	--
Dibenzofuran	1	100	--	6.30E-02	6.30E-02	6.30E-02	--	6.30E-02	Unknown	--	--	--
Dichlorobenzene, 1,2-	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Fluoranthene	1	100	--	1.20E+00	1.20E+00	1.20E+00	--	1.20E+00	Unknown	1.40E+04	--	--
Fluorene	1	100	--	1.10E-01	1.10E-01	1.10E-01	--	1.10E-01	Unknown	1.40E+04	--	--
Nitrosodiphenylamine, N-	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Phenanthrene	1	100	--	1.10E+00	1.10E+00	1.10E+00	--	1.10E+00	Unknown	--	--	--
Phenol	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Pyrene	1	100	--	8.90E-01	8.90E-01	8.90E-01	--	8.90E-01	Unknown	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
Acetone	14	0	1.00E+00 - 1.30E+00	--	--	--	--	--	--	--	--	--
Bromomethane	14	0	5.00E-01 - 5.50E-01	--	--	--	--	--	--	--	--	--

Table E-13. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Carbon Disulfide	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Chloromethane	14	0	5.00E-01 - 5.50E-01	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	1	0	1.80E-01 - 1.80E-01	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Dichloromethane	14	0	2.50E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Hexanone, 2-	14	0	5.00E-01 - 5.50E-01	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	14	0	5.10E-01 - 2.70E+00	--	--	--	--	--	--	--	--	--
Styrene	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--
Trichloroethylene	14	0	5.00E-02 - 5.50E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-14. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Chromium Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Chromium	27	100	--	5.00E+00	5.35E+03	3.71E+02	8.44E+02	8.44E+02	Lognormal	5.25E+05	--	--
Chromium (VI)	14	7	1.00E+00 - 1.00E+00	1.00E+00	1.00E+00	5.36E-01	5.86E-01	5.86E-01	Unknown	1.05E+03	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-15. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Coater Line Tank Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Petroleum-Related Constituents												
Benzene	2	50	5.00E-01 - 5.00E-01	4.20E-02	4.20E-02	1.46E-01	3.66E+18	4.20E-02	Unknown	1.36E+02	--	--
Ethyl Benzene	2	50	5.00E-01 - 5.00E-01	1.30E-01	1.30E-01	1.90E-01	5.12E+01	1.30E-01	Unknown	1.51E+04	--	--
Toluene	2	0	2.50E-02 - 1.00E+00	--	--	--	--	--	--	--	--	--
Xylenes	2	100	--	1.00E+00	1.80E+00	1.40E+00	1.15E+02	1.80E+00	Unknown	3.00E+04	--	--
Volatile Organics Constituents												
Acetone	1	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Bromomethane	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Carbon Disulfide	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Chloromethane	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Dichloromethane	1	0	3.00E+00 - 3.00E+00	--	--	--	--	--	--	--	--	--
Hexanone, 2-	1	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	2	0	5.00E-01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Styrene	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Trichloroethylene	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-16. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Transformer Yard Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
PCBs												
Aroclor 1248	9	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--
Aroclor 1254	9	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--
Aroclor 1260	9	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Total Diesel/Fuel Oil	9	0	7.00E+01 - 7.00E+01	--	--	--	--	--	--	--	--	--
Total Gasoline	9	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	9	0	1.00E+02 - 1.00E+02	--	--	--	--	--	--	--	--	--
Total Kerosene/Jet Fuel	9	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	9	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-17. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	3	100	--	4.64E+00	9.99E+00	8.03E+00	4.50E+01	9.99E+00	Normal/Lognormal	9.00E+00	Yes	Yes
Barium	3	100	--	3.08E+01	6.31E+01	4.98E+01	1.99E+02	6.31E+01	Normal/Lognormal	7.00E+04	--	--
Cadmium	3	100	--	7.00E-02	8.00E-02	7.33E-02	8.49E-02	8.00E-02	Unknown	3.50E+02	--	--
Chromium	3	100	--	5.22E+00	8.61E+00	7.08E+00	1.41E+01	8.61E+00	Normal/Lognormal	5.25E+05	--	--
Lead (inorganic)	3	100	--	6.20E+00	7.97E+00	7.24E+00	9.53E+00	7.97E+00	Normal/Lognormal	1.00E+03	--	--
Manganese	3	100	--	2.44E+02	3.18E+02	2.82E+02	3.71E+02	3.18E+02	Normal/Lognormal	4.90E+04	--	--
Mercury (inorganic)	3	100	--	1.00E-03	1.00E-03	1.00E-03	1.00E-03	1.00E-03	Unknown	1.05E+02	--	--
Selenium (and compounds)	3	100	--	3.00E-01	4.00E-01	3.33E-01	4.81E-01	4.00E-01	Unknown	1.75E+03	--	--
Silver	3	100	--	6.90E-02	8.20E-02	7.47E-02	8.85E-02	8.20E-02	Normal/Lognormal	1.75E+03	--	--
PCBs												
Aroclor 1248	5	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--
Aroclor 1254	5	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--
Aroclor 1260	5	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Benzene	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	3	67	5.00E-03 - 5.00E-03	6.00E-04	1.04E-03	1.38E-03	1.78E-01	1.04E-03	Normal/Lognormal	--	--	--
CPAH TEQ	3	67	7.55E-03 - 7.55E-03	6.01E-04	1.75E-03	2.04E-03	6.25E+00	1.75E-03	Normal/Lognormal	4.18E-01	--	--
Ethyl Benzene	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	3	100	--	5.30E-04	2.30E-03	1.14E-03	6.62E-01	2.30E-03	Normal/Lognormal	6.67E+02	--	--
Naphthalene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
Toluene	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	5	20	4.00E+01 - 7.00E+01	2.11E+03	2.11E+03	4.44E+02	4.39E+06	2.11E+03	Unknown	2.67E+03	--	--
Total Gasoline	5	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	5	0	5.00E+01 - 2.00E+02	--	--	--	--	--	--	--	--	--
Total Kerosene/Jet Fuel	5	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	5	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	3	33	5.00E-03 - 5.00E-03	2.60E-04	2.60E-04	1.75E-03	1.96E+04	2.60E-04	Unknown	2.10E+04	--	--
Acenaphthylene	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Anthracene	3	33	5.00E-03 - 5.00E-03	2.60E-04	2.60E-04	1.75E-03	1.96E+04	2.60E-04	Unknown	1.05E+05	--	--
Dibenzofuran	3	67	5.00E-03 - 5.00E-03	2.60E-04	6.10E-03	2.95E-03	2.46E+08	6.10E-03	Normal/Lognormal	--	--	--
Dichlorobenzene, 1,2-	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Fluoranthene	3	100	--	4.40E-04	2.15E-03	1.23E-03	4.82E-01	2.15E-03	Normal/Lognormal	1.40E+04	--	--
Fluorene	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Phenanthrene	3	67	5.00E-03 - 5.00E-03	5.20E-04	1.35E-03	1.46E-03	5.29E-01	1.35E-03	Normal/Lognormal	--	--	--
Pyrene	3	67	5.00E-03 - 5.00E-03	1.10E-03	2.25E-03	1.95E-03	1.27E-02	2.25E-03	Normal/Lognormal	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
1-Phenylpropane	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
2-chlorotoluene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
4-chlorotoluene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
4-isopropyltoluene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
Acetone	3	100	--	1.30E-02	7.80E-02	3.57E-02	2.89E+02	7.80E-02	Normal/Lognormal	3.15E+05	--	--
Bromomethane	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--

Table E-17. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
CFC-12	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Carbon Disulfide	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Chloromethane	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Cumene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Dichloromethane	3	0	9.70E-03 - 1.20E-02	--	--	--	--	--	--	--	--	--
Hexanone, 2-	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	3	33	2.00E-02 - 2.30E-02	1.50E-02	1.50E-02	1.22E-02	1.99E-02	1.50E-02	Normal/Lognormal	2.10E+05	--	--
Styrene	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
Trichloroethylene	3	0	4.90E-03 - 5.90E-03	--	--	--	--	--	--	--	--	--
n-Butylbenzene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	3	0	2.00E-02 - 2.40E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-18. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	2	0	2.00E+00 - 2.00E+00	--	--	--	--	--	--	--	--	--
Barium	2	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Cadmium	2	50	1.00E+00 - 1.00E+00	1.50E+00	1.50E+00	1.00E+00	1.87E+07	1.50E+00	Unknown	3.50E+02	--	--
Chromium	2	100	--	7.60E+00	1.60E+01	1.18E+01	2.01E+04	1.60E+01	Unknown	5.25E+05	--	--
Lead (inorganic)	2	100	--	5.50E+00	9.10E+01	4.83E+01	7.30E+49	9.10E+01	Unknown	1.00E+03	--	--
Mercury (inorganic)	2	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Selenium (and compounds)	2	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Silver	2	0	1.00E+00 - 1.00E+00	--	--	--	--	--	--	--	--	--
PCBs												
Aroclor 1248	35	46	9.80E-03 - 2.00E-01	2.90E-03	1.20E+01	1.53E+00	9.77E+00	9.77E+00	Unknown	6.56E+00	Yes	Yes
Aroclor 1254	35	11	9.80E-03 - 2.00E-01	4.50E+00	7.20E+00	7.22E-01	1.48E+00	1.48E+00	Unknown	6.56E+00	Yes	Yes
Aroclor 1260	35	0	9.80E-03 - 2.00E-01	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Benzene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	2	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
CPAH TEQ	2	50	1.51E-01 - 1.51E-01	7.68E-02	7.68E-02	7.62E-02	7.93E-02	7.68E-02	Unknown	4.18E-01	--	--
Ethyl Benzene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Naphthalene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Toluene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	29	3	9.20E+00 - 7.00E+01	2.80E+01	2.80E+01	3.27E+01	4.17E+01	2.80E+01	Unknown	2.67E+03	--	--
Total Gasoline	26	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	29	48	1.00E+02 - 2.00E+02	5.30E+00	1.41E+04	2.07E+03	1.34E+04	1.34E+04	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	26	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	26	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	2	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Acenaphthylene	2	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Anthracene	2	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Di-n-Octylphthalate	2	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,2-	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	2	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Fluoranthene	2	50	1.00E-01 - 1.00E-01	2.90E-01	2.90E-01	1.70E-01	1.16E+18	2.90E-01	Unknown	1.40E+04	--	--
Fluorene	2	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Isopropyltoluene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Nitrosodiphenylamine, N-	2	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Phenanthrene	2	50	1.00E-01 - 1.00E-01	1.60E-01	1.60E-01	1.05E-01	1.54E+07	1.60E-01	Unknown	--	--	--
Phenol	2	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Pyrene	2	50	1.00E-01 - 1.00E-01	4.30E-01	4.30E-01	2.40E-01	4.56E+27	4.30E-01	Unknown	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
1-Phenylpropane	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
2-chlorotoluene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
4-chlorotoluene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Bromomethane	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--

Table E-18. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Chloromethane	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Cumene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloromethane	2	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Styrene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethylene	2	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
n-Butylbenzene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	2	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-19. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
PCBs												
Aroclor 1248	2	0	5.20E-03 - 5.20E-03	--	--	--	--	--	--	--	--	--
Aroclor 1254	2	0	5.20E-03 - 5.20E-03	--	--	--	--	--	--	--	--	--
Aroclor 1260	2	50	5.20E-03 - 5.20E-03	3.30E-03	3.30E-03	2.95E-03	6.51E-03	3.30E-03	Unknown	6.56E+00	--	--
Petroleum-Related Constituents												
Benzene	2	0	4.60E-03 - 2.00E-02	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	2	100	--	4.00E-03	4.20E-02	2.30E-02	1.42E+32	4.20E-02	Unknown	--	--	--
CPAH TEQ	2	100	--	3.61E-03	1.07E-01	5.51E-02	8.70E+68	1.07E-01	Unknown	4.18E-01	--	--
Ethyl Benzene	2	0	4.60E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	2	100	--	8.70E-03	1.00E-02	9.35E-03	1.37E-02	1.00E-02	Unknown	6.67E+02	--	--
Naphthalene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Toluene	2	0	5.00E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	16	6	3.00E+01 - 7.00E+01	2.10E+02	2.10E+02	3.88E+01	5.28E+01	5.28E+01	Unknown	2.67E+03	--	--
Total Gasoline	16	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	16	19	5.00E+01 - 1.00E+02	1.40E+02	3.60E+02	7.94E+01	1.26E+02	1.26E+02	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	16	0	1.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	16	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	2	50	5.00E-01 - 5.00E-01	2.40E-04	2.40E-04	1.25E-01	1.29E+296	2.40E-04	Unknown	3.00E+04	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	2	100	--	3.90E-04	6.70E-03	3.55E-03	1.08E+47	6.70E-03	Unknown	2.10E+04	--	--
Acenaphthylene	2	100	--	1.00E-03	3.30E-03	2.15E-03	8.79E+05	3.30E-03	Unknown	--	--	--
Anthracene	2	100	--	1.50E-03	1.90E-02	1.03E-02	2.69E+37	1.90E-02	Unknown	1.05E+05	--	--
Dibenzofuran	2	100	--	2.10E-03	3.60E-03	2.85E-03	1.08E-01	3.60E-03	Unknown	--	--	--
Dichlorobenzene, 1,2-	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Fluoranthene	2	100	--	5.00E-03	1.40E-01	7.25E-02	8.17E+66	1.40E-01	Unknown	1.40E+04	--	--
Fluorene	2	100	--	2.00E-03	5.90E-03	3.95E-03	4.39E+04	5.90E-03	Unknown	1.40E+04	--	--
Phenanthrene	2	100	--	6.20E-03	8.80E-02	4.71E-02	5.20E+41	8.80E-02	Unknown	--	--	--
Pyrene	2	100	--	7.10E-03	1.40E-01	7.36E-02	1.94E+53	1.40E-01	Unknown	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	2	50	2.00E-02 - 2.00E-02	1.60E-04	1.60E-04	5.08E-03	4.71E+102	1.60E-04	Unknown	--	--	--
1,3,5-Trimethylbenzene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
1-Phenylpropane	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
2-chlorotoluene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
4-chlorotoluene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
4-isopropyltoluene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Acetone	2	50	2.00E-02 - 2.00E-02	6.50E-02	6.50E-02	3.75E-02	8.84E+19	6.50E-02	Unknown	3.15E+05	--	--
Bromomethane	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
CFC-12	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Carbon Disulfide	2	100	--	4.20E-04	7.10E-04	5.65E-04	1.74E-02	7.10E-04	Unknown	3.50E+04	--	--
Chloromethane	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Cumene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Dichloromethane	2	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--
Hexanone, 2-	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Styrene	2	50	5.00E-03 - 5.00E-03	1.10E-04	1.10E-04	1.31E-03	7.46E+56	1.10E-04	Unknown	7.00E+04	--	--

Table E-19. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
G2 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Tert-butylbenzene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Trichloroethylene	2	0	4.60E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
n-Butylbenzene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	2	0	1.90E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-20. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	2	100	--	4.10E+00	4.50E+00	4.30E+00	5.46E+00	4.50E+00	Unknown	9.00E+00	--	--
Barium	2	100	--	5.37E+01	1.95E+02	1.24E+02	1.46E+12	1.95E+02	Unknown	7.00E+04	--	--
Cadmium	2	0	9.00E-01 - 9.00E-01	--	--	--	--	--	--	--	--	--
Chromium	2	100	--	7.10E+00	1.69E+01	1.20E+01	3.53E+05	1.69E+01	Unknown	5.25E+05	--	--
Lead (inorganic)	2	50	1.70E+01 - 1.70E+01	2.40E+01	2.40E+01	1.63E+01	4.86E+07	2.40E+01	Unknown	1.00E+03	--	--
Mercury (inorganic)	2	100	--	2.00E-02	3.00E-02	2.50E-02	1.81E-01	3.00E-02	Unknown	1.05E+02	--	--
Selenium (and compounds)	2	0	2.20E+00 - 2.20E+00	--	--	--	--	--	--	--	--	--
Silver	2	0	1.70E+00 - 1.80E+00	--	--	--	--	--	--	--	--	--
PCBs												
Aroclor 1248	2	0	7.90E-02 - 8.00E-02	--	--	--	--	--	--	--	--	--
Aroclor 1254	2	0	7.90E-02 - 8.00E-02	--	--	--	--	--	--	--	--	--
Aroclor 1260	2	0	7.90E-02 - 8.00E-02	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Benzene	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	2	0	3.10E-01 - 3.10E+00	--	--	--	--	--	--	--	--	--
CPAH TEQ	2	0	4.68E-01 - 4.37E+00	--	--	--	--	--	--	--	--	--
Ethyl Benzene	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Naphthalene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Toluene	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	18	11	3.00E+01 - 7.00E+01	4.30E+01	4.10E+03	2.58E+02	1.95E+02	1.95E+02	Unknown	2.67E+03	Yes	Yes
Total Gasoline	16	0	1.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	18	17	5.00E+01 - 1.00E+02	1.90E+02	6.90E+03	4.47E+02	4.25E+02	4.25E+02	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	16	0	1.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	16	0	1.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Acenaphthylene	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Anthracene	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)Phthalate (DEHP)	2	50	3.10E-01 - 3.10E-01	2.90E+00	2.90E+00	1.53E+00	4.97E+52	2.90E+00	Unknown	9.38E+02	--	--
Di-n-Octylphthalate	2	0	3.10E-01 - 3.10E+00	--	--	--	--	--	--	--	--	--
Dibenzofuran	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,2-	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	2	50	3.10E-01 - 3.10E-01	3.90E-01	3.90E-01	2.73E-01	3.31E+04	3.90E-01	Unknown	--	--	--
Fluoranthene	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Fluorene	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Isopropyltoluene	1	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Nitrosodiphenylamine, N-	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Phenanthrene	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Phenol	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Pyrene	2	0	3.10E-01 - 3.10E-01	--	--	--	--	--	--	--	--	--
Trichlorobenzene, 1,2,4-	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
1-Phenylpropane	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--

Table E-20. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
2-chlorotoluene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
4-chlorotoluene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
4-isopropyltoluene	2	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Acetone	2	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Bromomethane	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
CFC-12	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Carbon Disulfide	2	0	5.40E-03 - 5.40E-03	--	--	--	--	--	--	--	--	--
Chloromethane	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Cumene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloromethane	3	0	1.10E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Hexanone, 2-	2	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	2	0	2.20E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Styrene	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	3	0	5.40E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethylene	3	0	5.40E-03 - 2.00E-02	--	--	--	--	--	--	--	--	--
n-Butylbenzene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	3	0	2.20E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-21. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	2	100	--	5.20E+00	6.60E+00	5.90E+00	1.30E+01	6.60E+00	Unknown	9.00E+00	--	--
Barium	2	100	--	8.20E+01	1.30E+02	1.06E+02	1.40E+03	1.30E+02	Unknown	7.00E+04	--	--
Cadmium	2	50	2.80E-01 - 2.80E-01	2.80E-01	2.80E-01	2.10E-01	1.22E+02	2.80E-01	Unknown	3.50E+02	--	--
Chromium	2	100	--	9.90E+00	1.00E+01	9.95E+00	1.02E+01	1.00E+01	Unknown	5.25E+05	--	--
Lead (inorganic)	2	100	--	1.30E+01	2.90E+01	2.10E+01	1.30E+05	2.90E+01	Unknown	1.00E+03	--	--
Mercury (inorganic)	2	50	1.10E-01 - 1.10E-01	5.00E-01	5.00E-01	2.78E-01	1.61E+29	5.00E-01	Unknown	1.05E+02	--	--
Selenium (and compounds)	2	0	2.80E-01 - 2.90E-01	--	--	--	--	--	--	--	--	--
Silver	2	0	2.80E-01 - 5.50E-01	--	--	--	--	--	--	--	--	--
PCBs												
Aroclor 1248	5	0	9.10E-03 - 2.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1254	5	0	9.10E-03 - 2.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1260	5	0	9.10E-03 - 2.00E-01	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
1-Methylnaphthalene	2	50	1.80E-01 - 1.80E-01	4.10E-01	4.10E-01	2.50E-01	2.37E+13	4.10E-01	Unknown	2.16E+02	--	--
Benzene	4	25	4.30E-03 - 5.00E-02	1.10E-03	1.10E-03	7.75E-03	9.62E+00	1.10E-03	Lognormal	1.36E+02	--	--
Benzo(g,h,i)perylene	5	40	3.20E-04 - 3.30E-04	5.40E-01	8.40E-01	2.76E-01	6.50E-01	6.50E-01	Normal	--	--	--
CPAH TEQ	5	40	4.83E-04 - 4.98E-04	8.08E-01	1.21E+00	4.04E-01	9.49E-01	9.49E-01	Normal	4.18E-01	Yes	Yes
Ethyl Benzene	4	75	5.00E-02 - 5.00E-02	3.45E-04	7.70E-04	6.62E-03	6.83E+04	7.70E-04	Lognormal	1.51E+04	--	--
Methylnaphthalene, 2-	5	20	3.20E-04 - 1.80E-01	9.80E-01	9.80E-01	2.14E-01	1.42E+19	9.80E-01	Unknown	6.67E+02	--	--
Naphthalene	5	0	3.20E-04 - 1.90E-01	--	--	--	--	--	--	--	--	--
Toluene	4	75	5.00E-02 - 5.00E-02	2.40E-03	4.10E-03	8.53E-03	9.08E-01	4.10E-03	Lognormal	1.23E+04	--	--
Total Diesel/Fuel Oil	38	32	3.00E+01 - 4.00E+01	3.40E+01	7.41E+03	3.70E+02	3.68E+02	3.68E+02	Unknown	2.67E+03	Yes	Yes
Total Gasoline	38	0	5.00E+00 - 1.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	38	53	5.00E+01 - 5.00E+01	4.50E+01	9.70E+03	7.96E+02	1.66E+03	1.66E+03	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	38	0	1.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	38	0	5.00E+00 - 1.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	4	75	5.00E-02 - 5.00E-02	1.05E-03	1.80E-03	7.24E-03	4.75E+01	1.80E-03	Lognormal	3.00E+04	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	5	0	3.20E-04 - 1.90E-01	--	--	--	--	--	--	--	--	--
Acenaphthylene	5	0	3.20E-04 - 3.80E-01	--	--	--	--	--	--	--	--	--
Anthracene	5	40	3.20E-04 - 3.40E-04	9.80E-02	1.20E-01	4.37E-02	7.72E+12	1.20E-01	Unknown	1.05E+05	--	--
Dibenzofuran	3	0	3.20E-04 - 3.30E-04	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,2-	4	0	4.30E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	4	0	4.30E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Fluoranthene	5	40	3.20E-04 - 3.00E+00	1.60E-05	9.70E-01	4.94E-01	1.18E+33	9.70E-01	Normal/Lognormal	1.40E+04	--	--
Fluorene	5	0	3.20E-04 - 3.80E-02	--	--	--	--	--	--	--	--	--
Phenanthrene	5	40	3.20E-04 - 3.40E-04	4.00E-02	8.90E-01	1.86E-01	1.60E+17	8.90E-01	Lognormal	--	--	--
Pyrene	5	20	3.20E-04 - 8.50E-01	5.90E+00	5.90E+00	1.27E+00	6.54E+29	5.90E+00	Unknown	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	3	67	2.20E-02 - 2.20E-02	8.60E-05	3.50E-04	3.81E-03	1.65E+23	3.50E-04	Normal/Lognormal	--	--	--
1,3,5-Trimethylbenzene	3	33	1.80E-02 - 2.20E-02	1.30E-04	1.30E-04	6.71E-03	9.13E+23	1.30E-04	Normal/Lognormal	1.75E+04	--	--
1-Phenylpropane	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
2-chlorotoluene	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
4-chlorotoluene	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
4-isopropyltoluene	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Acetone	3	100	--	5.95E-03	3.30E-02	2.20E-02	8.83E+01	3.30E-02	Normal/Lognormal	3.15E+05	--	--
Bromomethane	4	0	4.30E-03 - 2.50E-01	--	--	--	--	--	--	--	--	--

Table E-21. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
CFC-12	3	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--
Carbon Disulfide	3	100	--	2.40E-04	8.10E-04	4.30E-04	4.33E-02	8.10E-04	Unknown	3.50E+04	--	--
Chloromethane	4	0	4.30E-03 - 2.50E-01	--	--	--	--	--	--	--	--	--
Cumene	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	4	0	4.30E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	4	0	4.30E-03 - 2.50E-01	--	--	--	--	--	--	--	--	--
Dichloromethane	4	0	8.60E-03 - 2.50E-01	--	--	--	--	--	--	--	--	--
Hexanone, 2-	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	3	67	1.80E-02 - 1.80E-02	3.90E-03	4.40E-03	5.77E-03	3.88E-02	4.40E-03	Normal/Lognormal	2.10E+05	--	--
Styrene	3	67	5.50E-03 - 5.50E-03	9.80E-05	1.40E-04	9.96E-04	5.09E+10	1.40E-04	Lognormal	7.00E+04	--	--
Tert-butylbenzene	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	4	75	5.00E-02 - 5.00E-02	8.40E-04	1.08E-03	6.98E-03	1.96E+02	1.08E-03	Unknown	3.50E+03	--	--
Trichloroethane, 1,1,1-	4	25	5.50E-03 - 5.00E-02	1.90E-04	1.90E-04	7.67E-03	6.41E+04	1.90E-04	Lognormal	7.00E+05	--	--
Trichloroethylene	4	75	5.00E-02 - 5.00E-02	2.40E-04	3.25E-04	6.46E-03	2.77E+06	3.25E-04	Unknown	1.01E+03	--	--
n-Butylbenzene	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	3	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-22. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Truck Shop Site
Truck Stop Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	1	100	--	3.20E+00	3.20E+00	3.20E+00	--	3.20E+00	Unknown	9.00E+00	--	--
Barium	1	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Cadmium	1	0	1.00E+00 - 1.00E+00	--	--	--	--	--	--	--	--	--
Chromium	1	100	--	6.00E+00	6.00E+00	6.00E+00	--	6.00E+00	Unknown	5.25E+05	--	--
Lead (inorganic)	1	100	--	6.70E+00	6.70E+00	6.70E+00	--	6.70E+00	Unknown	1.00E+03	--	--
Mercury (inorganic)	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Selenium (and compounds)	1	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--
Silver	1	0	1.00E+00 - 1.00E+00	--	--	--	--	--	--	--	--	--
PCBs												
Aroclor 1248	6	0	2.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1254	6	0	2.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1260	6	0	2.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Benzene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	1	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
CPAH TEQ	1	100	--	1.53E-01	1.53E-01	1.53E-01	--	1.53E-01	Unknown	4.18E-01	--	--
Ethyl Benzene	3	33	5.00E-02 - 5.00E-02	5.50E-02	5.50E-02	3.50E-02	2.42E-01	5.50E-02	Unknown	1.51E+04	--	--
Naphthalene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Toluene	3	33	5.00E-02 - 5.00E-02	6.20E-02	6.20E-02	3.73E-02	4.86E-01	6.20E-02	Unknown	1.23E+04	--	--
Total Diesel/Fuel Oil	6	33	7.00E+01 - 7.00E+01	2.70E+02	7.10E+02	1.87E+02	4.80E+03	7.10E+02	Unknown	2.67E+03	--	--
Total Gasoline	6	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	6	33	2.00E+02 - 2.00E+02	1.85E+03	5.45E+03	1.28E+03	5.04E+05	5.45E+03	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	6	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	6	33	2.00E+01 - 2.00E+01	2.00E+01	7.00E+02	1.27E+02	1.47E+04	7.00E+02	Unknown	3.13E+03	--	--
Xylenes	3	67	5.00E-02 - 5.00E-02	3.50E-01	4.70E-01	2.82E-01	1.76E+10	4.70E-01	Normal/Lognormal	3.00E+04	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	1	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Acenaphthylene	1	100	--	3.00E-01	3.00E-01	3.00E-01	--	3.00E-01	Unknown	--	--	--
Anthracene	1	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Di-n-Octylphthalate	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,2-	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dimethyl Phthalate	1	0	1.00E-01 - 1.00E-01	--	--	--	--	--	--	--	--	--
Fluoranthene	1	100	--	8.70E-01	8.70E-01	8.70E-01	--	8.70E-01	Unknown	1.40E+04	--	--
Fluorene	1	100	--	2.50E-01	2.50E-01	2.50E-01	--	2.50E-01	Unknown	1.40E+04	--	--
Isopropyltoluene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Nitrosodiphenylamine, N-	1	100	--	4.40E-01	4.40E-01	4.40E-01	--	4.40E-01	Unknown	2.68E+03	--	--
Phenanthrene	1	100	--	9.20E-01	9.20E-01	9.20E-01	--	9.20E-01	Unknown	--	--	--
Phenol	1	0	5.00E-01 - 5.00E-01	--	--	--	--	--	--	--	--	--
Pyrene	1	100	--	7.60E-01	7.60E-01	7.60E-01	--	7.60E-01	Unknown	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	3	100	--	3.90E-01	2.20E+00	1.04E+00	3.06E+03	2.20E+00	Normal/Lognormal	--	--	--
1,3,5-Trimethylbenzene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
1-Phenylpropane	3	67	5.00E-02 - 5.00E-02	1.90E-01	3.50E-01	1.88E-01	1.40E+07	3.50E-01	Normal/Lognormal	--	--	--
2-chlorotoluene	3	67	5.00E-02 - 5.00E-02	1.60E-01	2.80E-01	1.55E-01	6.02E+05	2.80E-01	Normal/Lognormal	7.00E+03	--	--
4-chlorotoluene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Bromomethane	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--

Table E-22. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Truck Shop Site
Truck Stop Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
CFC-12	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Chloromethane	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Cumene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloromethane	3	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
Styrene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	3	33	5.00E-02 - 5.00E-02	2.90E-01	2.90E-01	1.13E-01	1.67E+07	2.90E-01	Unknown	--	--	--
Tetrachloroethylene	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	3	0	5.00E-02 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethylene	3	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--
n-Butylbenzene	3	100	--	5.90E-02	9.40E-01	4.46E-01	5.24E+07	9.40E-01	Normal/Lognormal	--	--	--
sec-Butylbenzene	3	67	5.00E-02 - 5.00E-02	1.20E-01	3.50E-01	1.65E-01	2.87E+06	3.50E-01	Normal/Lognormal	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-23. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
PCBs												
Aroclor 1248	39	28	9.90E-03 - 1.00E-02	1.30E-01	7.10E+01	2.50E+00	2.11E+01	2.11E+01	Unknown	6.56E+00	Yes	Yes
Aroclor 1254	39	33	9.90E-03 - 1.30E+00	3.50E-03	3.50E+00	3.80E-01	2.01E+00	2.01E+00	Unknown	6.56E+00	--	--
Aroclor 1260	39	41	9.90E-03 - 1.30E+00	2.40E-03	1.20E+00	1.54E-01	5.72E-01	5.72E-01	Unknown	6.56E+00	--	--
Aroclor 1262	29	14	9.90E-03 - 1.30E+00	1.90E-02	5.20E-01	5.80E-02	8.07E-02	8.07E-02	Unknown	6.56E+00	--	--
Aroclor 1268	29	0	9.90E-03 - 1.30E+00	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Total Diesel/Fuel Oil	39	36	7.00E+01 - 7.00E+01	4.20E+01	1.33E+03	2.01E+02	2.77E+02	2.77E+02	Unknown	2.67E+03	--	--
Total Gasoline	39	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	39	15	1.00E+02 - 2.00E+02	1.60E+02	1.30E+04	4.63E+02	2.57E+02	2.57E+02	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	39	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	39	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-24. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
PCBs												
Aroclor 1248	89	90	9.50E-03 - 9.90E-02	1.00E-02	7.20E+01	6.75E+00	6.78E+01	6.78E+01	Lognormal	6.56E+00	Yes	Yes
Aroclor 1254	89	16	5.50E-03 - 1.00E+00	6.40E-03	9.60E+00	3.39E-01	1.00E+00	1.00E+00	Lognormal	6.56E+00	Yes	Yes
Aroclor 1260	89	0	5.50E-03 - 1.00E+00	--	--	--	--	--	--	--	--	--
Petroleum-Related Constituents												
Total Diesel/Fuel Oil	24	0	4.00E+01 - 4.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	24	13	5.00E+01 - 5.00E+01	3.80E+02	1.50E+03	1.22E+02	1.35E+02	1.35E+02	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	24	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table E-25. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
Metals												
Arsenic (inorganic)	15	100	--	1.10E+00	9.40E+00	4.16E+00	6.07E+00	6.07E+00	Normal/Lognormal	9.00E+00	Yes	Yes
Barium	8	100	--	3.35E+01	1.14E+02	6.20E+01	8.78E+01	8.78E+01	Normal/Lognormal	7.00E+04	--	--
Cadmium	15	40	1.00E+00 - 1.10E+00	4.30E-02	1.41E-01	3.42E-01	7.64E-01	1.41E-01	Unknown	3.50E+02	--	--
Chromium	19	100	--	5.58E+00	7.80E+01	2.53E+01	3.82E+01	3.82E+01	Lognormal	5.25E+05	--	--
Chromium (VI)	5	20	1.00E-01 - 1.00E-01	1.00E-01	1.00E-01	6.00E-02	8.78E-02	8.78E-02	Unknown	1.05E+03	--	--
Lead (inorganic)	15	67	1.00E+01 - 1.00E+01	3.09E+00	4.50E+01	1.03E+01	1.49E+01	1.49E+01	Lognormal	1.00E+03	--	--
Manganese	6	100	--	9.71E+01	4.81E+02	3.20E+02	8.51E+02	4.81E+02	Normal/Lognormal	4.90E+04	--	--
Mercury (inorganic)	8	25	1.50E-02 - 5.20E-02	1.20E-02	2.10E-02	1.34E-02	1.92E-02	1.92E-02	Lognormal	1.05E+02	--	--
Selenium (and compounds)	8	38	1.00E+00 - 1.10E+00	3.00E-01	4.00E-01	4.50E-01	5.19E-01	4.00E-01	Normal	1.75E+03	--	--
Silver	8	75	2.10E+00 - 2.10E+00	2.80E-02	2.84E-01	3.28E-01	5.29E+00	2.84E-01	Lognormal	1.75E+03	--	--
PCBs												
Aroclor 1248	20	10	9.50E-03 - 2.00E-01	7.20E-02	5.50E-01	4.03E-02	5.00E-02	5.00E-02	Unknown	6.56E+00	--	--
Aroclor 1254	20	35	9.50E-03 - 2.00E-01	7.00E-03	3.50E-01	3.71E-02	7.51E-02	7.51E-02	Unknown	6.56E+00	--	--
Aroclor 1260	20	5	9.50E-03 - 2.00E-01	2.20E-02	2.20E-02	1.06E-02	1.19E-02	1.19E-02	Unknown	6.56E+00	--	--
Aroclor 1262	1	0	2.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--	--
Aroclor 1268	3	67	2.00E-01 - 2.00E-01	5.90E-03	2.40E-02	4.33E-02	7.14E+06	2.40E-02	Normal/Lognormal	6.56E+00	--	--
Petroleum-Related Constituents												
Benzene	13	0	4.50E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	6	17	2.70E-03 - 5.00E-03	3.30E-03	3.30E-03	2.44E-03	2.95E-03	2.95E-03	Normal	--	--	--
CPAH TEQ	6	33	4.08E-03 - 7.55E-03	3.58E-03	4.21E-03	3.52E-03	4.58E-03	4.21E-03	Unknown	4.18E-01	--	--
Ethyl Benzene	13	0	4.50E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	6	17	2.70E-03 - 5.00E-03	7.00E-04	7.00E-04	2.01E-03	3.99E-03	7.00E-04	Unknown	6.67E+02	--	--
Naphthalene	6	17	1.80E-02 - 3.70E-02	2.70E-03	2.70E-03	1.25E-02	3.89E-02	2.70E-03	Normal/Lognormal	1.63E+03	--	--
Toluene	13	15	4.50E-03 - 5.00E-02	1.80E-03	1.80E-03	1.48E-02	5.35E-02	1.80E-03	Unknown	1.23E+04	--	--
Total Diesel/Fuel Oil	22	9	2.00E+01 - 7.00E+01	8.90E+00	3.30E+01	2.87E+01	3.54E+01	3.30E+01	Unknown	2.67E+03	--	--
Total Gasoline	20	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Heavy Oil	22	18	1.00E+01 - 2.00E+02	2.70E+01	4.45E+03	2.73E+02	3.36E+02	3.36E+02	Unknown	9.80E+04	--	--
Total Kerosene/Jet Fuel	20	0	1.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	20	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--
Xylenes	13	8	5.90E-03 - 5.00E-02	2.50E-04	2.50E-04	1.49E-02	1.02E-01	2.50E-04	Unknown	3.00E+04	--	--
Semi-Volatile Organic Constituents												
Acenaphthene	6	17	2.70E-03 - 5.00E-03	2.80E-04	2.80E-04	1.94E-03	9.97E-03	2.80E-04	Unknown	2.10E+04	--	--
Acenaphthylene	6	0	2.70E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--
Anthracene	6	17	2.70E-03 - 5.00E-03	6.60E-04	6.60E-04	2.00E-03	4.16E-03	6.60E-04	Unknown	1.05E+05	--	--
Dibenzofuran	6	33	2.70E-03 - 5.00E-03	2.60E-04	2.80E-04	1.57E-03	1.74E-02	2.80E-04	Unknown	--	--	--
Dichlorobenzene, 1,2-	6	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	6	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--
Fluoranthene	6	17	2.70E-03 - 5.00E-03	7.30E-03	7.30E-03	3.11E-03	6.14E-03	6.14E-03	Lognormal	1.40E+04	--	--
Fluorene	6	33	2.70E-03 - 5.00E-03	2.30E-04	3.00E-04	1.56E-03	1.87E-02	3.00E-04	Unknown	1.40E+04	--	--
Phenanthrene	6	17	2.70E-03 - 5.00E-03	4.60E-03	4.60E-03	2.66E-03	4.07E-03	4.07E-03	Lognormal	--	--	--
Pyrene	6	33	2.70E-03 - 5.00E-03	4.60E-04	7.90E-03	2.87E-03	1.62E-02	7.90E-03	Lognormal	1.05E+04	--	--
Trichlorobenzene, 1,2,4-	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents												
1,2,4-Trimethylbenzene	6	17	2.40E-02 - 3.70E-02	1.20E-04	1.20E-04	1.26E-02	1.81E-02	1.20E-04	Normal	--	--	--
1,3,5-Trimethylbenzene	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
1-Phenylpropane	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
2-chlorotoluene	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
4-chlorotoluene	6	17	2.40E-02 - 3.70E-02	1.20E-04	1.20E-04	1.26E-02	1.81E-02	1.20E-04	Normal	--	--	--

Table E-25. Statistical Summary and Identification of Indicator Hazardous Substances (mg/kg)
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	RBSC[4,5]	Exceed RBSC?	IHS?[6]
4-isopropyltoluene	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
Acetone	6	67	2.10E-02 - 3.50E-02	1.70E-02	4.60E-02	2.60E-02	5.30E-02	4.60E-02	Normal/Lognormal	3.15E+05	--	--
Bromomethane	6	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--
CFC-12	6	17	4.50E-03 - 9.20E-03	1.30E-03	1.30E-03	2.98E-03	4.98E-03	1.30E-03	Normal/Lognormal	7.00E+04	--	--
Carbon Disulfide	6	50	5.90E-03 - 9.20E-03	1.50E-03	3.70E-03	3.35E-03	5.22E-03	3.70E-03	Normal/Lognormal	3.50E+04	--	--
Chloromethane	6	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--
Cumene	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	6	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	13	0	4.50E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Dichloromethane	6	0	8.90E-03 - 1.90E-02	--	--	--	--	--	--	--	--	--
Hexanone, 2-	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	13	8	2.40E-02 - 5.00E-01	2.90E-03	2.90E-03	1.41E-01	1.74E+00	2.90E-03	Unknown	2.10E+05	--	--
Styrene	6	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	6	17	5.90E-03 - 9.20E-03	5.20E-04	5.20E-04	3.19E-03	4.39E-03	5.20E-04	Normal	3.50E+03	--	--
Trichloroethane, 1,1,1-	13	0	4.50E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--
Trichloroethylene	6	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--
n-Butylbenzene	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	6	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EPC = Exposure Point Concentration

IHS = Indicator Hazardous Substance

PCBs = Polychlorinated Biphenyls

RBSC = Risk Based Screening Concentration

TPH = Total Petroleum Hydrocarbon

UCL = Upper Confidence Limit

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, (2) Use the 95% UCL if the distribution type is normal, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty. When distribution was "Unknown", the 95% UCL was calculated assuming a lognormal distribution.

[4]RBSC is the lowest of the cancer or noncancer industrial risk-based screening criteria. For metals, if the background concentration was higher than the risk-based screening criteria, it was used as the screening concentration. Derivation of RBSC is presented in Appendix D.

[5]Risk-based screening criteria were developed based on a cancer risk of 1.0E-06 and a hazard quotient of 0.1.

[6]IHS are those constituents with maximum detected concentrations that exceeded the screening criteria.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Appendix F

Human Health Risk Assessment
Result Tables

LIST OF HUMAN HEALTH RISK ASSESSMENT RESULT TABLES

Table F-1.1. Daily Dose and Risk Calculations for All Detected Constituents
Drum Storage and French Drain Site
Oil House Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	2.90E+03	2.2E-04	2.00	4.4E-04
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	4.67E+02	1.2E+00	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	1.76E+03	4.7E+00	--	--
NonCancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	2.90E+03	8.3E-04	--	--
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	4.67E+02	4.7E+00	0.0038	1.8E-02
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	1.76E+03	1.8E+01	0.00010	1.8E-03

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-1.2. Cancer and Noncancer Risk Characterization
Drum Storage and French Drain Site
Oil House Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Aroclor 1248	4.4E-04	100%	--	--
Pathway Total	4.4E-04	100%		
TPH Mixtures_Integrated				
Total Diesel/Fuel Oil	--	--	1.8E-02	91%
Total Heavy Oil	--	--	1.8E-03	9%
Pathway Total			1.9E-02	100%
GRAND TOTAL	**4.4E-04**	**100%**	**1.9E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-2.1. Daily Dose and Risk Calculations for All Detected Constituents
Oil House Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	6.20E+00	4.7E-07	1.50	7.1E-07
Cancer	Ingestion Of Soil	7440-47-3	Chromium	2.90E+01	2.2E-06	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	3.35E+01	2.6E-06	--	--
Cancer	Ingestion Of Soil	75-34-3	Dichloroethane, 1,1-	5.30E-01	4.0E-08	--	--
Cancer	Ingestion Of Soil	71-55-6	Trichloroethane, 1,1,1-	1.30E+00	9.9E-08	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.25E+04	6.0E+01	--	--
Cancer	Tph Mixtures_integrated	100-41-4	Ethylbenzene	3.90E-01	1.0E-03	--	--
Cancer	Tph Mixtures_integrated	108-88-3	Toluene	1.60E+00	4.3E-03	--	--
Cancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	3.95E+00	1.1E-02	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	6.20E+00	1.8E-06	0.00030	5.9E-03
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	2.90E+01	8.3E-06	1.50	5.5E-06
NonCancer	Ingestion Of Soil	7439-92-1	Lead	3.35E+01	9.6E-06	--	--
NonCancer	Ingestion Of Soil	75-34-3	Dichloroethane, 1,1-	5.30E-01	1.5E-07	0.20	7.6E-07
NonCancer	Ingestion Of Soil	71-55-6	Trichloroethane, 1,1,1-	1.30E+00	3.7E-07	2.00	1.9E-07
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.25E+04	2.3E+02	0.0038	8.4E-01
NonCancer	Tph Mixtures_integrated	100-41-4	Ethylbenzene	3.90E-01	3.9E-03	0.00066	2.6E-06
NonCancer	Tph Mixtures_integrated	108-88-3	Toluene	1.60E+00	1.6E-02	0.00081	1.3E-05
NonCancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	3.95E+00	4.0E-02	0.00033	1.3E-05

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-2.2. Cancer and Noncancer Risk Characterization
Oil House Underground Storage Tank Site
Oil House Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	7.1E-07	100%	5.9E-03	1%
Chromium	--	--	5.5E-06	0%
Lead (inorganic)	--	--	--	--
Dichloroethane, 1,1-	--	--	7.6E-07	0%
Trichloroethane, 1,1,1-	--	--	1.9E-07	0%
Pathway Total	7.1E-07	100%	5.9E-03	1%
TPH Mixtures_Integrated				
Ethyl Benzene	--	--	2.6E-06	0%
Toluene	--	--	1.3E-05	0%
Total Diesel/Fuel Oil	--	--	8.4E-01	99%
Xylenes	--	--	1.3E-05	0%
Pathway Total			8.4E-01	99%
GRAND TOTAL	**7.1E-07**	**100%**	**8.5E-01**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-3.1. Daily Dose and Risk Calculations for All Detected Constituents
Eight Underground Storage Tanks Site
Oil House Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.40E+04	3.7E+01	--	--
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.40E+04	1.4E+02	0.0038	5.3E-01

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-3.2. Cancer and Noncancer Risk Characterization
Eight Underground Storage Tanks Site
Oil House Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Pathway Total				
TPH Mixtures_Integrated				
Total Diesel/Fuel Oil	--	--	5.3E-01	100%
Pathway Total			5.3E-01	100%
GRAND TOTAL			**5.3E-01**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-4.1. Daily Dose and Risk Calculations for All Detected Constituents
Tank Farm Kensol Spill Site
Oil House Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	75-09-2	Dichloromethane	5.00E-03	3.8E-10	0.0075	2.9E-12
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.20E+04	3.2E+01	--	--
Cancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	2.80E-02	7.5E-05	--	--
NonCancer	Ingestion Of Soil	75-09-2	Dichloromethane	5.00E-03	1.4E-09	0.060	2.4E-08
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.20E+04	1.2E+02	0.0038	4.5E-01
NonCancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	2.80E-02	2.8E-04	0.00033	9.3E-08

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-4.2. Cancer and Noncancer Risk Characterization
Tank Farm Kensol Spill Site
Oil House Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Dichloromethane	2.9E-12	100%	2.4E-08	0%
Pathway Total	2.9E-12	100%	2.4E-08	0%
TPH Mixtures_Integrated				
Total Diesel/Fuel Oil	--	--	4.5E-01	100%
Xylenes	--	--	9.3E-08	0%
Pathway Total			4.5E-01	100%
GRAND TOTAL	**2.9E-12**	**100%**	**4.5E-01**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-5.1. Daily Dose and Risk Calculations for All Detected Constituents
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-36-0	Antimony	2.16E-01	1.6E-08	--	--
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	1.43E+01	1.1E-06	1.50	1.6E-06
Cancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	6.43E+01	4.9E-06	--	--
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	2.30E-01	1.8E-08	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	1.31E+01	1.0E-06	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	1.88E+01	1.4E-06	--	--
Cancer	Ingestion Of Soil	7439-97-6	Mercury	2.50E-02	1.9E-09	--	--
Cancer	Ingestion Of Soil	7440-22-4	Silver	1.03E-01	7.8E-09	--	--
Cancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	8.43E-03	6.4E-10	2.00	1.3E-09
Cancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	7.27E-03	5.5E-10	2.00	1.1E-09
Cancer	Ingestion Of Soil	11096-82-5	Aroclor 1260	2.90E-03	2.2E-10	2.00	4.4E-10
Cancer	Ingestion Of Soil	83-32-9	Acenaphthene	8.62E-03	6.6E-10	--	--
Cancer	Ingestion Of Soil	208-96-8	Acenaphthylene	8.60E-04	6.6E-11	--	--
Cancer	Ingestion Of Soil	120-12-7	Anthracene	3.91E-03	3.0E-10	--	--
Cancer	Ingestion Of Soil	132-64-9	Dibenzofuran	4.97E-03	3.8E-10	--	--
Cancer	Ingestion Of Soil	206-44-0	Fluoranthene	9.04E-03	6.9E-10	--	--
Cancer	Ingestion Of Soil	86-73-7	Fluorene	1.22E-02	9.3E-10	--	--
Cancer	Ingestion Of Soil	85-01-8	Phenanthrene	7.90E-02	6.0E-09	--	--
Cancer	Ingestion Of Soil	129-00-0	Pyrene	2.24E-01	1.7E-08	--	--
Cancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	1.42E-01	1.1E-08	--	--
Cancer	Ingestion Of Soil	108-67-8	1,3,5-Trimethylbenzene	8.40E-02	6.4E-09	--	--
Cancer	Ingestion Of Soil	103-65-1	1-Phenylpropane	1.39E-02	1.1E-09	--	--
Cancer	Ingestion Of Soil	106-43-4	4-chlorotoluene	1.90E-04	1.4E-11	--	--
Cancer	Ingestion Of Soil	99-87-6	4-isopropyltoluene	3.01E-02	2.3E-09	--	--
Cancer	Ingestion Of Soil	67-64-1	Acetone	1.57E-01	1.2E-08	--	--
Cancer	Ingestion Of Soil	74-83-9	Bromomethane	2.10E-03	1.6E-10	--	--
Cancer	Ingestion Of Soil	75-71-8	CFC-12	4.88E-03	3.7E-10	--	--
Cancer	Ingestion Of Soil	75-15-0	Carbon Disulfide	5.77E-03	4.4E-10	--	--
Cancer	Ingestion Of Soil	74-87-3	Chloromethane	3.90E-04	3.0E-11	0.013	3.9E-13
Cancer	Ingestion Of Soil	98-82-8	Cumene	1.10E-02	8.4E-10	--	--

Table F-5.1. Daily Dose and Risk Calculations for All Detected Constituents
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	75-09-2	Dichloromethane	6.88E-03	5.2E-10	0.0075	3.9E-12
Cancer	Ingestion Of Soil	591-78-6	Hexanone, 2-	5.10E-03	3.9E-10	--	--
Cancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	1.80E-02	1.4E-09	--	--
Cancer	Ingestion Of Soil	100-42-5	Styrene	1.02E-02	7.7E-10	--	--
Cancer	Ingestion Of Soil	104-51-8	n-Butylbenzene	3.73E-02	2.8E-09	--	--
Cancer	Ingestion Of Soil	135-98-8	sec-Butylbenzene	1.91E-02	1.5E-09	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.16E+03	3.1E+00	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	9.96E+02	2.7E+00	--	--
Cancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	6.38E-01	1.7E-03	--	--
Cancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	6.35E-02	1.7E-04	--	--
Cancer	Tph Mixtures_integrated	91-20-3	Naphthalene	4.96E-02	1.3E-04	--	--
Cancer	Tph Mixtures_integrated	71-43-2	Benzene	1.10E-03	2.9E-06	0.0000028	8.1E-12
Cancer	Tph Mixtures_integrated	100-41-4	Ethylbenzene	9.90E-03	2.6E-05	--	--
Cancer	Tph Mixtures_integrated	108-88-3	Toluene	1.30E-02	3.5E-05	--	--
Cancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	3.80E-02	1.0E-04	--	--
NonCancer	Ingestion Of Soil	7440-36-0	Antimony	2.16E-01	6.2E-08	0.00040	1.5E-04
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	1.43E+01	4.1E-06	0.00030	1.4E-02
NonCancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	6.43E+01	1.8E-05	0.20	9.2E-05
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	2.30E-01	6.6E-08	0.00100	6.6E-05
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	1.31E+01	3.7E-06	1.50	2.5E-06
NonCancer	Ingestion Of Soil	7439-92-1	Lead	1.88E+01	5.4E-06	--	--
NonCancer	Ingestion Of Soil	7439-97-6	Mercury	2.50E-02	7.1E-09	0.00030	2.4E-05
NonCancer	Ingestion Of Soil	7440-22-4	Silver	1.03E-01	2.9E-08	0.0050	5.9E-06
NonCancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	8.43E-03	2.4E-09	--	--
NonCancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	7.27E-03	2.1E-09	0.000020	1.0E-04
NonCancer	Ingestion Of Soil	11096-82-5	Aroclor 1260	2.90E-03	8.3E-10	--	--
NonCancer	Ingestion Of Soil	83-32-9	Acenaphthene	8.62E-03	2.5E-09	0.060	4.1E-08
NonCancer	Ingestion Of Soil	208-96-8	Acenaphthylene	8.60E-04	2.5E-10	--	--
NonCancer	Ingestion Of Soil	120-12-7	Anthracene	3.91E-03	1.1E-09	0.30	3.7E-09
NonCancer	Ingestion Of Soil	132-64-9	Dibenzofuran	4.97E-03	1.4E-09	--	--

Table F-5.1. Daily Dose and Risk Calculations for All Detected Constituents
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
NonCancer	Ingestion Of Soil	206-44-0	Fluoranthene	9.04E-03	2.6E-09	0.040	6.5E-08
NonCancer	Ingestion Of Soil	86-73-7	Fluorene	1.22E-02	3.5E-09	0.040	8.7E-08
NonCancer	Ingestion Of Soil	85-01-8	Phenanthrene	7.90E-02	2.3E-08	--	--
NonCancer	Ingestion Of Soil	129-00-0	Pyrene	2.24E-01	6.4E-08	0.030	2.1E-06
NonCancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	1.42E-01	4.1E-08	--	--
NonCancer	Ingestion Of Soil	108-67-8	1,3,5-Trimethylbenzene	8.40E-02	2.4E-08	0.050	4.8E-07
NonCancer	Ingestion Of Soil	103-65-1	1-Phenylpropane	1.39E-02	4.0E-09	--	--
NonCancer	Ingestion Of Soil	106-43-4	4-chlorotoluene	1.90E-04	5.4E-11	--	--
NonCancer	Ingestion Of Soil	99-87-6	4-isopropyltoluene	3.01E-02	8.6E-09	--	--
NonCancer	Ingestion Of Soil	67-64-1	Acetone	1.57E-01	4.5E-08	0.90	5.0E-08
NonCancer	Ingestion Of Soil	74-83-9	Bromomethane	2.10E-03	6.0E-10	0.0014	4.3E-07
NonCancer	Ingestion Of Soil	75-71-8	CFC-12	4.88E-03	1.4E-09	0.20	7.0E-09
NonCancer	Ingestion Of Soil	75-15-0	Carbon Disulfide	5.77E-03	1.6E-09	0.100	1.6E-08
NonCancer	Ingestion Of Soil	74-87-3	Chloromethane	3.90E-04	1.1E-10	--	--
NonCancer	Ingestion Of Soil	98-82-8	Cumene	1.10E-02	3.1E-09	0.100	3.1E-08
NonCancer	Ingestion Of Soil	75-09-2	Dichloromethane	6.88E-03	2.0E-09	0.060	3.3E-08
NonCancer	Ingestion Of Soil	591-78-6	Hexanone, 2-	5.10E-03	1.5E-09	--	--
NonCancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	1.80E-02	5.1E-09	0.60	8.6E-09
NonCancer	Ingestion Of Soil	100-42-5	Styrene	1.02E-02	2.9E-09	0.20	1.5E-08
NonCancer	Ingestion Of Soil	104-51-8	n-Butylbenzene	3.73E-02	1.1E-08	--	--
NonCancer	Ingestion Of Soil	135-98-8	sec-Butylbenzene	1.91E-02	5.5E-09	--	--
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.16E+03	1.2E+01	0.0038	4.3E-02
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	9.96E+02	1.0E+01	0.00010	1.0E-03
NonCancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	6.38E-01	6.4E-03	--	--
NonCancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	6.35E-02	6.3E-04	0.015	9.5E-06
NonCancer	Tph Mixtures_integrated	91-20-3	Naphthalene	4.96E-02	5.0E-04	0.0062	3.0E-06
NonCancer	Tph Mixtures_integrated	71-43-2	Benzene	1.10E-03	1.1E-05	0.013	1.4E-07
NonCancer	Tph Mixtures_integrated	100-41-4	Ethylbenzene	9.90E-03	9.9E-05	0.00066	6.6E-08
NonCancer	Tph Mixtures_integrated	108-88-3	Toluene	1.30E-02	1.3E-04	0.00081	1.1E-07
NonCancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	3.80E-02	3.8E-04	0.00033	1.3E-07

Table F-5.1. Daily Dose and Risk Calculations for All Detected Constituents
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-5.2. Cancer and Noncancer Risk Characterization
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Antimony (metallic)	--	--	1.5E-04	0%
Arsenic (inorganic)	1.6E-06	100%	1.4E-02	23%
Barium	--	--	9.2E-05	0%
Cadmium	--	--	6.6E-05	0%
Chromium	--	--	2.5E-06	0%
Lead (inorganic)	--	--	--	--
Mercury (inorganic)	--	--	2.4E-05	0%
Silver	--	--	5.9E-06	0%
Aroclor 1248	1.3E-09	0%	--	--
Aroclor 1254	1.1E-09	0%	1.0E-04	0%
Aroclor 1260	4.4E-10	0%	--	--
Acenaphthene	--	--	4.1E-08	0%
Acenaphthylene	--	--	--	--
Anthracene	--	--	3.7E-09	0%
Dibenzofuran	--	--	--	--
Fluoranthene	--	--	6.5E-08	0%
Fluorene	--	--	8.7E-08	0%
Phenanthrene	--	--	--	--
Pyrene	--	--	2.1E-06	0%
1,2,4-Trimethylbenzene	--	--	--	--
1,3,5-Trimethylbenzene	--	--	4.8E-07	0%
1-Phenylpropane	--	--	--	--
4-chlorotoluene	--	--	--	--
4-isopropyltoluene	--	--	--	--
Acetone	--	--	5.0E-08	0%
Bromomethane	--	--	4.3E-07	0%
CFC-12	--	--	7.0E-09	0%
Carbon Disulfide	--	--	1.6E-08	0%
Chloromethane	3.9E-13	0%	--	--
Cumene	--	--	3.1E-08	0%
Dichloromethane	3.9E-12	0%	3.3E-08	0%
Hexanone, 2-	--	--	--	--
Methyl Ethyl Ketone	--	--	8.6E-09	0%
Styrene	--	--	1.5E-08	0%
n-Butylbenzene	--	--	--	--
sec-Butylbenzene	--	--	--	--
Pathway Total	1.6E-06	100%	1.4E-02	24%
TPH Mixtures_Integrated				
Benzene	8.1E-12	0%	1.4E-07	0%
Benzo(g,h,i)perylene	--	--	--	--
Ethyl Benzene	--	--	6.6E-08	0%
Methylnaphthalene, 2-	--	--	9.5E-06	0%
Naphthalene	--	--	3.0E-06	0%
Toluene	--	--	1.1E-07	0%
Total Diesel/Fuel Oil	--	--	4.3E-02	74%

Table F-5.2. Cancer and Noncancer Risk Characterization
Field-Constructed Tanks Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Total Heavy Oil	--	--	1.0E-03	2%
Xylenes	--	--	1.3E-07	0%
Pathway Total	8.1E-12	0%	4.4E-02	76%
GRAND TOTAL	**1.6E-06**	**100%**	**5.8E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-6.1. Daily Dose and Risk Calculations for All Detected Constituents
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	1.20E+01	9.1E-07	1.50	1.4E-06
Cancer	Ingestion Of Soil	7440-41-7	Beryllium	1.90E-01	1.4E-08	--	--
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	3.70E+00	2.8E-07	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	2.50E+01	1.9E-06	--	--
Cancer	Ingestion Of Soil	7440-50-8	Copper	7.90E+01	6.0E-06	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	5.80E+01	4.4E-06	--	--
Cancer	Ingestion Of Soil	7439-97-6	Mercury	5.40E-01	4.1E-08	--	--
Cancer	Ingestion Of Soil	7440-02-0	Nickel Soluble Salts	1.10E+01	8.4E-07	--	--
Cancer	Ingestion Of Soil	7440-66-6	Zinc	5.60E+01	4.3E-06	--	--
Cancer	Ingestion Of Soil	208-96-8	Acenaphthylene	8.30E+00	6.3E-07	--	--
Cancer	Ingestion Of Soil	108-95-2	Phenol	7.00E+00	5.3E-07	--	--
Cancer	Ingestion Of Soil	67-64-1	Acetone	6.30E-01	4.8E-08	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	3.30E+04	8.8E+01	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	1.20E+01	3.4E-06	0.00030	1.1E-02
NonCancer	Ingestion Of Soil	7440-41-7	Beryllium	1.90E-01	5.4E-08	0.0020	2.7E-05
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	3.70E+00	1.1E-06	0.00100	1.1E-03
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	2.50E+01	7.1E-06	1.50	4.8E-06
NonCancer	Ingestion Of Soil	7440-50-8	Copper	7.90E+01	2.3E-05	0.037	6.1E-04
NonCancer	Ingestion Of Soil	7439-92-1	Lead	5.80E+01	1.7E-05	--	--
NonCancer	Ingestion Of Soil	7439-97-6	Mercury	5.40E-01	1.5E-07	0.00030	5.1E-04
NonCancer	Ingestion Of Soil	7440-02-0	Nickel Soluble Salts	1.10E+01	3.1E-06	0.020	1.6E-04
NonCancer	Ingestion Of Soil	7440-66-6	Zinc	5.60E+01	1.6E-05	0.30	5.3E-05
NonCancer	Ingestion Of Soil	208-96-8	Acenaphthylene	8.30E+00	2.4E-06	--	--
NonCancer	Ingestion Of Soil	108-95-2	Phenol	7.00E+00	2.0E-06	0.30	6.7E-06
NonCancer	Ingestion Of Soil	67-64-1	Acetone	6.30E-01	1.8E-07	0.90	2.0E-07
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	3.30E+04	3.3E+02	0.0038	1.2E+00

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

Table F-6.1. Daily Dose and Risk Calculations for All Detected Constituents
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-6.2. Cancer and Noncancer Risk Characterization
Hoffman Tank Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	1.4E-06	100%	1.1E-02	1%
Beryllium	--	--	2.7E-05	0%
Cadmium	--	--	1.1E-03	0%
Chromium	--	--	4.8E-06	0%
Copper	--	--	6.1E-04	0%
Lead (inorganic)	--	--	--	--
Mercury (inorganic)	--	--	5.1E-04	0%
Nickel (soluble salts)	--	--	1.6E-04	0%
Zinc	--	--	5.3E-05	0%
Acenaphthylene	--	--	--	--
Phenol	--	--	6.7E-06	0%
Acetone	--	--	2.0E-07	0%
Pathway Total	1.4E-06	100%	1.4E-02	1%
TPH Mixtures_Integrated				
Total Diesel/Fuel Oil	--	--	1.2E+00	99%
Pathway Total			1.2E+00	99%
GRAND TOTAL	**1.4E-06**	**100%**	**1.3E+00**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-7.1. Daily Dose and Risk Calculations for All Detected Constituents
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	1.10E+01	8.4E-07	1.50	1.3E-06
Cancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	1.80E+02	1.4E-05	--	--
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	1.40E+00	1.1E-07	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	2.20E+02	1.7E-05	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	3.20E+02	2.4E-05	--	--
Cancer	Ingestion Of Soil	7439-97-6	Mercury	2.40E-01	1.8E-08	--	--
Cancer	Ingestion Of Soil	7440-22-4	Silver	4.90E+00	3.7E-07	--	--
Cancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	2.90E-01	2.2E-08	2.00	4.4E-08
Cancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	2.40E-01	1.8E-08	2.00	3.7E-08
Cancer	Ingestion Of Soil	83-32-9	Acenaphthene	2.20E+00	1.7E-07	--	--
Cancer	Ingestion Of Soil	120-12-7	Anthracene	3.20E+00	2.4E-07	--	--
Cancer	Ingestion Of Soil	117-81-7	Bis(2-ethylhexyl)Phthalate	1.90E+00	1.4E-07	0.014	2.0E-09
Cancer	Ingestion Of Soil	132-64-9	Dibenzofuran	2.00E+00	1.5E-07	--	--
Cancer	Ingestion Of Soil	206-44-0	Fluoranthene	4.50E+00	3.4E-07	--	--
Cancer	Ingestion Of Soil	86-73-7	Fluorene	5.20E+00	4.0E-07	--	--
Cancer	Ingestion Of Soil	25155-15-1	Isopropyltoluene	2.00E-01	1.5E-08	--	--
Cancer	Ingestion Of Soil	85-01-8	Phenanthrene	1.50E+01	1.1E-06	--	--
Cancer	Ingestion Of Soil	129-00-0	Pyrene	5.00E+00	3.8E-07	--	--
Cancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	1.00E+00	7.6E-08	--	--
Cancer	Ingestion Of Soil	108-67-8	1,3,5-Trimethylbenzene	3.40E-01	2.6E-08	--	--
Cancer	Ingestion Of Soil	104-51-8	n-Butylbenzene	2.10E-01	1.6E-08	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.00E+04	5.3E+01	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	2.20E+04	5.9E+01	--	--
Cancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	2.40E+00	6.4E-03	--	--
Cancer	Tph Mixtures_integrated	91-20-3	Naphthalene	7.50E-01	2.0E-03	--	--
Cancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	2.60E-02	6.9E-05	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	1.10E+01	3.1E-06	0.00030	1.0E-02
NonCancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	1.80E+02	5.1E-05	0.20	2.6E-04
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	1.40E+00	4.0E-07	0.00100	4.0E-04
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	2.20E+02	6.3E-05	1.50	4.2E-05

Table F-7.1. Daily Dose and Risk Calculations for All Detected Constituents
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
NonCancer	Ingestion Of Soil	7439-92-1	Lead	3.20E+02	9.1E-05	--	--
NonCancer	Ingestion Of Soil	7439-97-6	Mercury	2.40E-01	6.9E-08	0.00030	2.3E-04
NonCancer	Ingestion Of Soil	7440-22-4	Silver	4.90E+00	1.4E-06	0.0050	2.8E-04
NonCancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	2.90E-01	8.3E-08	--	--
NonCancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	2.40E-01	6.9E-08	0.000020	3.4E-03
NonCancer	Ingestion Of Soil	83-32-9	Acenaphthene	2.20E+00	6.3E-07	0.060	1.0E-05
NonCancer	Ingestion Of Soil	120-12-7	Anthracene	3.20E+00	9.1E-07	0.30	3.0E-06
NonCancer	Ingestion Of Soil	117-81-7	Bis(2-ethylhexyl)Phthalate	1.90E+00	5.4E-07	0.020	2.7E-05
NonCancer	Ingestion Of Soil	132-64-9	Dibenzofuran	2.00E+00	5.7E-07	--	--
NonCancer	Ingestion Of Soil	206-44-0	Fluoranthene	4.50E+00	1.3E-06	0.040	3.2E-05
NonCancer	Ingestion Of Soil	86-73-7	Fluorene	5.20E+00	1.5E-06	0.040	3.7E-05
NonCancer	Ingestion Of Soil	25155-15-1	Isopropyltoluene	2.00E-01	5.7E-08	--	--
NonCancer	Ingestion Of Soil	85-01-8	Phenanthrene	1.50E+01	4.3E-06	--	--
NonCancer	Ingestion Of Soil	129-00-0	Pyrene	5.00E+00	1.4E-06	0.030	4.8E-05
NonCancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	1.00E+00	2.9E-07	--	--
NonCancer	Ingestion Of Soil	108-67-8	1,3,5-Trimethylbenzene	3.40E-01	9.7E-08	0.050	1.9E-06
NonCancer	Ingestion Of Soil	104-51-8	n-Butylbenzene	2.10E-01	6.0E-08	--	--
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.00E+04	2.0E+02	0.0038	7.5E-01
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	2.20E+04	2.2E+02	0.00010	2.2E-02
NonCancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	2.40E+00	2.4E-02	0.015	3.6E-04
NonCancer	Tph Mixtures_integrated	91-20-3	Naphthalene	7.50E-01	7.5E-03	0.0062	4.6E-05
NonCancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	2.60E-02	2.6E-04	0.00033	8.7E-08

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-7.2. Cancer and Noncancer Risk Characterization
Hydrogen Sulfide Scrubber Building Site
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	1.3E-06	94%	1.0E-02	1%
Barium	--	--	2.6E-04	0%
Cadmium	--	--	4.0E-04	0%
Chromium	--	--	4.2E-05	0%
Lead (inorganic)	--	--	--	--
Mercury (inorganic)	--	--	2.3E-04	0%
Silver	--	--	2.8E-04	0%
Aroclor 1248	4.4E-08	3%	--	--
Aroclor 1254	3.7E-08	3%	3.4E-03	0%
Acenaphthene	--	--	1.0E-05	0%
Anthracene	--	--	3.0E-06	0%
Bis(2-ethylhexyl)Phthalate (DEHP)	2.0E-09	0%	2.7E-05	0%
Dibenzofuran	--	--	--	--
Fluoranthene	--	--	3.2E-05	0%
Fluorene	--	--	3.7E-05	0%
Isopropyltoluene	--	--	--	--
Phenanthrene	--	--	--	--
Pyrene	--	--	4.8E-05	0%
1,2,4-Trimethylbenzene	--	--	--	--
1,3,5-Trimethylbenzene	--	--	1.9E-06	0%
n-Butylbenzene	--	--	--	--
Pathway Total	1.3E-06	100%	1.5E-02	2%
TPH Mixtures_Integrated				
Methylnaphthalene, 2-	--	--	3.6E-04	0%
Naphthalene	--	--	4.6E-05	0%
Total Diesel/Fuel Oil	--	--	7.5E-01	95%
Total Heavy Oil	--	--	2.2E-02	3%
Xylenes	--	--	8.7E-08	0%
Pathway Total			7.7E-01	98%
GRAND TOTAL	**1.3E-06**	**100%**	**7.9E-01**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-8.1. Daily Dose and Risk Calculations for All Detected Constituents
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	1.58E+01	1.2E-06	1.50	1.8E-06
Cancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	2.10E+02	1.6E-05	--	--
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	1.78E+00	1.4E-07	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	2.30E+02	1.8E-05	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	1.40E+03	1.1E-04	--	--
Cancer	Ingestion Of Soil	7439-97-6	Mercury	1.50E-01	1.1E-08	--	--
Cancer	Ingestion Of Soil	7440-22-4	Silver	2.00E+00	1.5E-07	--	--
Cancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	4.17E-01	3.2E-08	2.00	6.3E-08
Cancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	1.25E-01	9.6E-09	2.00	1.9E-08
Cancer	Ingestion Of Soil	11096-82-5	Aroclor 1260	4.80E-02	3.7E-09	2.00	7.3E-09
Cancer	Ingestion Of Soil	83-32-9	Acenaphthene	6.30E-01	4.8E-08	--	--
Cancer	Ingestion Of Soil	208-96-8	Acenaphthylene	1.60E-03	1.2E-10	--	--
Cancer	Ingestion Of Soil	120-12-7	Anthracene	1.30E+00	9.9E-08	--	--
Cancer	Ingestion Of Soil	132-64-9	Dibenzofuran	7.85E-01	6.0E-08	--	--
Cancer	Ingestion Of Soil	206-44-0	Fluoranthene	5.30E+00	4.0E-07	--	--
Cancer	Ingestion Of Soil	86-73-7	Fluorene	2.30E+00	1.8E-07	--	--
Cancer	Ingestion Of Soil	86-30-6	Nitrosodiphenylamine, N-	6.00E-01	4.6E-08	0.0049	2.2E-10
Cancer	Ingestion Of Soil	85-01-8	Phenanthrene	8.50E+00	6.5E-07	--	--
Cancer	Ingestion Of Soil	129-00-0	Pyrene	2.55E+00	1.9E-07	--	--
Cancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	3.20E+01	2.4E-06	--	--
Cancer	Ingestion Of Soil	108-67-8	1,3,5-Trimethylbenzene	2.20E+00	1.7E-07	--	--
Cancer	Ingestion Of Soil	103-65-1	1-Phenylpropane	6.45E+00	4.9E-07	--	--
Cancer	Ingestion Of Soil	95-49-8	2-chlorotoluene	5.65E-01	4.3E-08	--	--
Cancer	Ingestion Of Soil	106-43-4	4-chlorotoluene	5.90E-01	4.5E-08	--	--
Cancer	Ingestion Of Soil	99-87-6	4-isopropyltoluene	7.05E+00	5.4E-07	--	--
Cancer	Ingestion Of Soil	67-64-1	Acetone	7.10E-01	5.4E-08	--	--
Cancer	Ingestion Of Soil	75-15-0	Carbon Disulfide	8.75E-02	6.7E-09	--	--
Cancer	Ingestion Of Soil	98-82-8	Cumene	8.50E-01	6.5E-08	--	--
Cancer	Ingestion Of Soil	95-50-1	Dichlorobenzene, 1,2-	1.20E-02	9.1E-10	--	--
Cancer	Ingestion Of Soil	75-09-2	Dichloromethane	2.80E-02	2.1E-09	0.0075	1.6E-11

Table F-8.1. Daily Dose and Risk Calculations for All Detected Constituents
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	3.30E-02	2.5E-09	--	--
Cancer	Ingestion Of Soil	98-06-6	Tert-butylbenzene	3.07E-01	2.3E-08	--	--
Cancer	Ingestion Of Soil	104-51-8	n-Butylbenzene	7.60E+00	5.8E-07	--	--
Cancer	Ingestion Of Soil	135-98-8	sec-Butylbenzene	6.50E+00	5.0E-07	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.25E+03	3.3E+00	--	--
Cancer	Tph Mixtures_integrated	TOT_GASOLINE	Total Gasoline	6.54E+00	1.7E-02	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	7.29E+03	1.9E+01	--	--
Cancer	Tph Mixtures_integrated	TOT_KEROSENE	Total Kerosene/Jet Fuel	4.27E+01	1.1E-01	--	--
Cancer	Tph Mixtures_integrated	TOT_MINERALSP	Total Stoddard/MIneral Spirits	7.97E+00	2.1E-02	--	--
Cancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	4.70E-01	1.3E-03	--	--
Cancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	8.20E+00	2.2E-02	--	--
Cancer	Tph Mixtures_integrated	91-20-3	Naphthalene	1.60E+00	4.3E-03	--	--
Cancer	Tph Mixtures_integrated	71-43-2	Benzene	1.60E-02	4.3E-05	0.0000028	1.2E-10
Cancer	Tph Mixtures_integrated	100-41-4	Ethylbenzene	6.80E+00	1.8E-02	--	--
Cancer	Tph Mixtures_integrated	108-88-3	Toluene	3.80E+00	1.0E-02	--	--
Cancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	3.50E+01	9.3E-02	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	1.58E+01	4.5E-06	0.00030	1.5E-02
NonCancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	2.10E+02	6.0E-05	0.20	3.0E-04
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	1.78E+00	5.1E-07	0.00100	5.1E-04
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	2.30E+02	6.6E-05	1.50	4.4E-05
NonCancer	Ingestion Of Soil	7439-92-1	Lead	1.40E+03	4.0E-04	--	--
NonCancer	Ingestion Of Soil	7439-97-6	Mercury	1.50E-01	4.3E-08	0.00030	1.4E-04
NonCancer	Ingestion Of Soil	7440-22-4	Silver	2.00E+00	5.7E-07	0.0050	1.1E-04
NonCancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	4.17E-01	1.2E-07	--	--
NonCancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	1.25E-01	3.6E-08	0.000020	1.8E-03
NonCancer	Ingestion Of Soil	11096-82-5	Aroclor 1260	4.80E-02	1.4E-08	--	--
NonCancer	Ingestion Of Soil	83-32-9	Acenaphthene	6.30E-01	1.8E-07	0.060	3.0E-06
NonCancer	Ingestion Of Soil	208-96-8	Acenaphthylene	1.60E-03	4.6E-10	--	--
NonCancer	Ingestion Of Soil	120-12-7	Anthracene	1.30E+00	3.7E-07	0.30	1.2E-06
NonCancer	Ingestion Of Soil	132-64-9	Dibenzofuran	7.85E-01	2.2E-07	--	--

Table F-8.1. Daily Dose and Risk Calculations for All Detected Constituents
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
NonCancer	Ingestion Of Soil	206-44-0	Fluoranthene	5.30E+00	1.5E-06	0.040	3.8E-05
NonCancer	Ingestion Of Soil	86-73-7	Fluorene	2.30E+00	6.6E-07	0.040	1.6E-05
NonCancer	Ingestion Of Soil	86-30-6	Nitrosodiphenylamine, N-	6.00E-01	1.7E-07	--	--
NonCancer	Ingestion Of Soil	85-01-8	Phenanthrene	8.50E+00	2.4E-06	--	--
NonCancer	Ingestion Of Soil	129-00-0	Pyrene	2.55E+00	7.3E-07	0.030	2.4E-05
NonCancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	3.20E+01	9.1E-06	--	--
NonCancer	Ingestion Of Soil	108-67-8	1,3,5-Trimethylbenzene	2.20E+00	6.3E-07	0.050	1.3E-05
NonCancer	Ingestion Of Soil	103-65-1	1-Phenylpropane	6.45E+00	1.8E-06	--	--
NonCancer	Ingestion Of Soil	95-49-8	2-chlorotoluene	5.65E-01	1.6E-07	0.020	8.1E-06
NonCancer	Ingestion Of Soil	106-43-4	4-chlorotoluene	5.90E-01	1.7E-07	--	--
NonCancer	Ingestion Of Soil	99-87-6	4-isopropyltoluene	7.05E+00	2.0E-06	--	--
NonCancer	Ingestion Of Soil	67-64-1	Acetone	7.10E-01	2.0E-07	0.90	2.3E-07
NonCancer	Ingestion Of Soil	75-15-0	Carbon Disulfide	8.75E-02	2.5E-08	0.100	2.5E-07
NonCancer	Ingestion Of Soil	98-82-8	Cumene	8.50E-01	2.4E-07	0.100	2.4E-06
NonCancer	Ingestion Of Soil	95-50-1	Dichlorobenzene, 1,2-	1.20E-02	3.4E-09	0.090	3.8E-08
NonCancer	Ingestion Of Soil	75-09-2	Dichloromethane	2.80E-02	8.0E-09	0.060	1.3E-07
NonCancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	3.30E-02	9.4E-09	0.60	1.6E-08
NonCancer	Ingestion Of Soil	98-06-6	Tert-butylbenzene	3.07E-01	8.8E-08	--	--
NonCancer	Ingestion Of Soil	104-51-8	n-Butylbenzene	7.60E+00	2.2E-06	--	--
NonCancer	Ingestion Of Soil	135-98-8	sec-Butylbenzene	6.50E+00	1.9E-06	--	--
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.25E+03	1.2E+01	0.0038	4.7E-02
NonCancer	Tph Mixtures_integrated	TOT_GASOLINE	Total Gasoline	6.54E+00	6.5E-02	0.0034	2.2E-04
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	7.29E+03	7.3E+01	0.00010	7.4E-03
NonCancer	Tph Mixtures_integrated	TOT_KEROSENE	Total Kerosene/Jet Fuel	4.27E+01	4.3E-01	0.0038	1.6E-03
NonCancer	Tph Mixtures_integrated	TOT_MINERALSP	Total Stoddard/MIneral Spirits	7.97E+00	8.0E-02	0.0032	2.6E-04
NonCancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	4.70E-01	4.7E-03	--	--
NonCancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	8.20E+00	8.2E-02	0.015	1.2E-03
NonCancer	Tph Mixtures_integrated	91-20-3	Naphthalene	1.60E+00	1.6E-02	0.0062	9.8E-05
NonCancer	Tph Mixtures_integrated	71-43-2	Benzene	1.60E-02	1.6E-04	0.013	2.0E-06
NonCancer	Tph Mixtures_integrated	100-41-4	Ethylbenzene	6.80E+00	6.8E-02	0.00066	4.5E-05

Table F-8.1. Daily Dose and Risk Calculations for All Detected Constituents
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
NonCancer	Tph Mixtures_integrated	108-88-3	Toluene	3.80E+00	3.8E-02	0.00081	3.1E-05
NonCancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	3.50E+01	3.5E-01	0.00033	1.2E-04

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-8.2. Cancer and Noncancer Risk Characterization
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	1.8E-06	95%	1.5E-02	20%
Barium	--	--	3.0E-04	0%
Cadmium	--	--	5.1E-04	1%
Chromium	--	--	4.4E-05	0%
Lead (inorganic)	--	--	--	--
Mercury (inorganic)	--	--	1.4E-04	0%
Silver	--	--	1.1E-04	0%
Aroclor 1248	6.3E-08	3%	--	--
Aroclor 1254	1.9E-08	1%	1.8E-03	2%
Aroclor 1260	7.3E-09	0%	--	--
Acenaphthene	--	--	3.0E-06	0%
Acenaphthylene	--	--	--	--
Anthracene	--	--	1.2E-06	0%
Dibenzofuran	--	--	--	--
Dichlorobenzene, 1,2-	--	--	3.8E-08	0%
Fluoranthene	--	--	3.8E-05	0%
Fluorene	--	--	1.6E-05	0%
Nitrosodiphenylamine, N-	2.2E-10	0%	--	--
Phenanthrene	--	--	--	--
Pyrene	--	--	2.4E-05	0%
1,2,4-Trimethylbenzene	--	--	--	--
1,3,5-Trimethylbenzene	--	--	1.3E-05	0%
1-Phenylpropane	--	--	--	--
2-chlorotoluene	--	--	8.1E-06	0%
4-chlorotoluene	--	--	--	--
4-isopropyltoluene	--	--	--	--
Acetone	--	--	2.3E-07	0%
Carbon Disulfide	--	--	2.5E-07	0%
Cumene	--	--	2.4E-06	0%
Dichloromethane	1.6E-11	0%	1.3E-07	0%
Methyl Ethyl Ketone	--	--	1.6E-08	0%
Tert-butylbenzene	--	--	--	--
n-Butylbenzene	--	--	--	--
sec-Butylbenzene	--	--	--	--
Pathway Total	1.9E-06	100%	1.8E-02	24%
TPH Mixtures_Integrated				
Benzene	1.2E-10	0%	2.0E-06	0%
Benzo(g,h,i)perylene	--	--	--	--
Ethyl Benzene	--	--	4.5E-05	0%
Methylnaphthalene, 2-	--	--	1.2E-03	2%
Naphthalene	--	--	9.8E-05	0%
Toluene	--	--	3.1E-05	0%
Total Diesel/Fuel Oil	--	--	4.7E-02	62%
Total Gasoline	--	--	2.2E-04	0%
Total Heavy Oil	--	--	7.4E-03	10%

Table F-8.2. Cancer and Noncancer Risk Characterization
Oil Reclamation Building Site
Oil Reclamation Building and Surrounding Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Total Kerosene/Jet Fuel	--	--	1.6E-03	2%
Total Stoddard/Mineral Spirits	--	--	2.6E-04	0%
Xylenes	--	--	1.2E-04	0%
Pathway Total	1.2E-10	0%	5.8E-02	76%
GRAND TOTAL	**1.9E-06**	**100%**	**7.6E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-9.1. Daily Dose and Risk Calculations for All Detected Constituents
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	9.20E+00	7.0E-07	1.50	1.1E-06
Cancer	Ingestion Of Soil	7440-41-7	Beryllium	5.20E-01	4.0E-08	--	--
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	1.80E+00	1.4E-07	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	2.08E+02	1.6E-05	--	--
Cancer	Ingestion Of Soil	7440-50-8	Copper	2.20E+01	1.7E-06	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	2.80E+01	2.1E-06	--	--
Cancer	Ingestion Of Soil	7440-02-0	Nickel Soluble Salts	1.20E+01	9.1E-07	--	--
Cancer	Ingestion Of Soil	7440-66-6	Zinc	7.10E+01	5.4E-06	--	--
Cancer	Ingestion Of Soil	83-32-9	Acenaphthene	1.20E-01	9.1E-09	--	--
Cancer	Ingestion Of Soil	120-12-7	Anthracene	2.70E-01	2.1E-08	--	--
Cancer	Ingestion Of Soil	117-81-7	Bis(2-ethylhexyl)Phthalate	3.70E-01	2.8E-08	0.014	3.9E-10
Cancer	Ingestion Of Soil	117-84-0	Di-n-Octylphthalate	1.50E-01	1.1E-08	--	--
Cancer	Ingestion Of Soil	132-64-9	Dibenzofuran	6.30E-02	4.8E-09	--	--
Cancer	Ingestion Of Soil	206-44-0	Fluoranthene	1.20E+00	9.1E-08	--	--
Cancer	Ingestion Of Soil	86-73-7	Fluorene	1.10E-01	8.4E-09	--	--
Cancer	Ingestion Of Soil	85-01-8	Phenanthrene	1.10E+00	8.4E-08	--	--
Cancer	Ingestion Of Soil	129-00-0	Pyrene	8.90E-01	6.8E-08	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	4.00E+01	1.1E-01	--	--
Cancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	1.90E-01	5.1E-04	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	9.20E+00	2.6E-06	0.00030	8.8E-03
NonCancer	Ingestion Of Soil	7440-41-7	Beryllium	5.20E-01	1.5E-07	0.0020	7.4E-05
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	1.80E+00	5.1E-07	0.00100	5.1E-04
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	2.08E+02	5.9E-05	1.50	4.0E-05
NonCancer	Ingestion Of Soil	7440-50-8	Copper	2.20E+01	6.3E-06	0.037	1.7E-04
NonCancer	Ingestion Of Soil	7439-92-1	Lead	2.80E+01	8.0E-06	--	--
NonCancer	Ingestion Of Soil	7440-02-0	Nickel Soluble Salts	1.20E+01	3.4E-06	0.020	1.7E-04
NonCancer	Ingestion Of Soil	7440-66-6	Zinc	7.10E+01	2.0E-05	0.30	6.8E-05
NonCancer	Ingestion Of Soil	83-32-9	Acenaphthene	1.20E-01	3.4E-08	0.060	5.7E-07
NonCancer	Ingestion Of Soil	120-12-7	Anthracene	2.70E-01	7.7E-08	0.30	2.6E-07
NonCancer	Ingestion Of Soil	117-81-7	Bis(2-ethylhexyl)Phthalate	3.70E-01	1.1E-07	0.020	5.3E-06

Table F-9.1. Daily Dose and Risk Calculations for All Detected Constituents
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
NonCancer	Ingestion Of Soil	117-84-0	Di-n-Octylphthalate	1.50E-01	4.3E-08	0.020	2.1E-06
NonCancer	Ingestion Of Soil	132-64-9	Dibenzofuran	6.30E-02	1.8E-08	--	--
NonCancer	Ingestion Of Soil	206-44-0	Fluoranthene	1.20E+00	3.4E-07	0.040	8.6E-06
NonCancer	Ingestion Of Soil	86-73-7	Fluorene	1.10E-01	3.1E-08	0.040	7.9E-07
NonCancer	Ingestion Of Soil	85-01-8	Phenanthrene	1.10E+00	3.1E-07	--	--
NonCancer	Ingestion Of Soil	129-00-0	Pyrene	8.90E-01	2.5E-07	0.030	8.5E-06
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	4.00E+01	4.0E-01	0.0038	1.5E-03
NonCancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	1.90E-01	1.9E-03	--	--

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-9.2. Cancer and Noncancer Risk Characterization
Continuous Can Process Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	1.1E-06	100%	8.8E-03	77%
Beryllium	--	--	7.4E-05	1%
Cadmium	--	--	5.1E-04	5%
Chromium	--	--	4.0E-05	0%
Copper	--	--	1.7E-04	2%
Lead (inorganic)	--	--	--	--
Nickel (soluble salts)	--	--	1.7E-04	2%
Zinc	--	--	6.8E-05	1%
Acenaphthene	--	--	5.7E-07	0%
Anthracene	--	--	2.6E-07	0%
Bis(2-ethylhexyl)Phthalate (DEHP)	3.9E-10	0%	5.3E-06	0%
Di-n-Octylphthalate	--	--	2.1E-06	0%
Dibenzofuran	--	--	--	--
Fluoranthene	--	--	8.6E-06	0%
Fluorene	--	--	7.9E-07	0%
Phenanthrene	--	--	--	--
Pyrene	--	--	8.5E-06	0%
Pathway Total	1.1E-06	100%	9.8E-03	87%
TPH Mixtures_Integrated				
Benzo(g,h,i)perylene	--	--	--	--
Total Diesel/Fuel Oil	--	--	1.5E-03	13%
Pathway Total			1.5E-03	13%
GRAND TOTAL	**1.1E-06**	**100%**	**1.1E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-10.1. Daily Dose and Risk Calculations for All Detected Constituents
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	9.99E+00	7.6E-07	1.50	1.1E-06
Cancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	6.31E+01	4.8E-06	--	--
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	8.00E-02	6.1E-09	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	8.61E+00	6.6E-07	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	7.97E+00	6.1E-07	--	--
Cancer	Ingestion Of Soil	7439-96-5	Manganese	3.18E+02	2.4E-05	--	--
Cancer	Ingestion Of Soil	7439-97-6	Mercury	1.00E-03	7.6E-11	--	--
Cancer	Ingestion Of Soil	7782-49-2	Selenium And Compounds	4.00E-01	3.0E-08	--	--
Cancer	Ingestion Of Soil	7440-22-4	Silver	8.20E-02	6.2E-09	--	--
Cancer	Ingestion Of Soil	83-32-9	Acenaphthene	2.60E-04	2.0E-11	--	--
Cancer	Ingestion Of Soil	120-12-7	Anthracene	2.60E-04	2.0E-11	--	--
Cancer	Ingestion Of Soil	132-64-9	Dibenzofuran	6.10E-03	4.6E-10	--	--
Cancer	Ingestion Of Soil	206-44-0	Fluoranthene	2.15E-03	1.6E-10	--	--
Cancer	Ingestion Of Soil	85-01-8	Phenanthrene	1.35E-03	1.0E-10	--	--
Cancer	Ingestion Of Soil	129-00-0	Pyrene	2.25E-03	1.7E-10	--	--
Cancer	Ingestion Of Soil	67-64-1	Acetone	7.80E-02	5.9E-09	--	--
Cancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	1.50E-02	1.1E-09	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.11E+03	5.6E+00	--	--
Cancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	1.04E-03	2.8E-06	--	--
Cancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	2.30E-03	6.1E-06	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	9.99E+00	2.9E-06	0.00030	9.5E-03
NonCancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	6.31E+01	1.8E-05	0.20	9.0E-05
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	8.00E-02	2.3E-08	0.00100	2.3E-05
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	8.61E+00	2.5E-06	1.50	1.6E-06
NonCancer	Ingestion Of Soil	7439-92-1	Lead	7.97E+00	2.3E-06	--	--
NonCancer	Ingestion Of Soil	7439-96-5	Manganese	3.18E+02	9.1E-05	0.14	6.5E-04
NonCancer	Ingestion Of Soil	7439-97-6	Mercury	1.00E-03	2.9E-10	0.00030	9.5E-07
NonCancer	Ingestion Of Soil	7782-49-2	Selenium And Compounds	4.00E-01	1.1E-07	0.0050	2.3E-05
NonCancer	Ingestion Of Soil	7440-22-4	Silver	8.20E-02	2.3E-08	0.0050	4.7E-06
NonCancer	Ingestion Of Soil	83-32-9	Acenaphthene	2.60E-04	7.4E-11	0.060	1.2E-09

Table F-10.1. Daily Dose and Risk Calculations for All Detected Constituents
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
NonCancer	Ingestion Of Soil	120-12-7	Anthracene	2.60E-04	7.4E-11	0.30	2.5E-10
NonCancer	Ingestion Of Soil	132-64-9	Dibenzofuran	6.10E-03	1.7E-09	--	--
NonCancer	Ingestion Of Soil	206-44-0	Fluoranthene	2.15E-03	6.1E-10	0.040	1.5E-08
NonCancer	Ingestion Of Soil	85-01-8	Phenanthrene	1.35E-03	3.9E-10	--	--
NonCancer	Ingestion Of Soil	129-00-0	Pyrene	2.25E-03	6.4E-10	0.030	2.1E-08
NonCancer	Ingestion Of Soil	67-64-1	Acetone	7.80E-02	2.2E-08	0.90	2.5E-08
NonCancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	1.50E-02	4.3E-09	0.60	7.1E-09
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.11E+03	2.1E+01	0.0038	7.9E-02
NonCancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	1.04E-03	1.0E-05	--	--
NonCancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	2.30E-03	2.3E-05	0.015	3.5E-07

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-10.2. Cancer and Noncancer Risk Characterization
Cold Mill Transfer Line Site
Cold Mill/Finishing Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	1.1E-06	100%	9.5E-03	11%
Barium	--	--	9.0E-05	0%
Cadmium	--	--	2.3E-05	0%
Chromium	--	--	1.6E-06	0%
Lead (inorganic)	--	--	--	--
Manganese	--	--	6.5E-04	1%
Mercury (inorganic)	--	--	9.5E-07	0%
Selenium (and compounds)	--	--	2.3E-05	0%
Silver	--	--	4.7E-06	0%
Acenaphthene	--	--	1.2E-09	0%
Anthracene	--	--	2.5E-10	0%
Dibenzofuran	--	--	--	--
Fluoranthene	--	--	1.5E-08	0%
Phenanthrene	--	--	--	--
Pyrene	--	--	2.1E-08	0%
Acetone	--	--	2.5E-08	0%
Methyl Ethyl Ketone	--	--	7.1E-09	0%
Pathway Total	1.1E-06	100%	1.0E-02	12%
TPH Mixtures_Integrated				
Benzo(g,h,i)perylene	--	--	--	--
Methylnaphthalene, 2-	--	--	3.5E-07	0%
Total Diesel/Fuel Oil	--	--	7.9E-02	88%
Pathway Total			7.9E-02	88%
GRAND TOTAL	**1.1E-06**	**100%**	**8.9E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-11.1. Daily Dose and Risk Calculations for All Detected Constituents
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	1.50E+00	1.1E-07	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	1.60E+01	1.2E-06	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	9.10E+01	6.9E-06	--	--
Cancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	9.77E+00	7.4E-07	2.00	1.5E-06
Cancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	1.48E+00	1.1E-07	2.00	2.3E-07
Cancer	Ingestion Of Soil	206-44-0	Fluoranthene	2.90E-01	2.2E-08	--	--
Cancer	Ingestion Of Soil	85-01-8	Phenanthrene	1.60E-01	1.2E-08	--	--
Cancer	Ingestion Of Soil	129-00-0	Pyrene	4.30E-01	3.3E-08	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.80E+01	7.5E-02	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	1.34E+04	3.6E+01	--	--
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	1.50E+00	4.3E-07	0.00100	4.3E-04
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	1.60E+01	4.6E-06	1.50	3.0E-06
NonCancer	Ingestion Of Soil	7439-92-1	Lead	9.10E+01	2.6E-05	--	--
NonCancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	9.77E+00	2.8E-06	--	--
NonCancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	1.48E+00	4.2E-07	0.000020	2.1E-02
NonCancer	Ingestion Of Soil	206-44-0	Fluoranthene	2.90E-01	8.3E-08	0.040	2.1E-06
NonCancer	Ingestion Of Soil	85-01-8	Phenanthrene	1.60E-01	4.6E-08	--	--
NonCancer	Ingestion Of Soil	129-00-0	Pyrene	4.30E-01	1.2E-07	0.030	4.1E-06
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.80E+01	2.8E-01	0.0038	1.1E-03
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	1.34E+04	1.3E+02	0.00010	1.4E-02

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-11.2. Cancer and Noncancer Risk Characterization
Remelt/Hotline Area Site
Remelt/Hot Line Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Cadmium	--	--	4.3E-04	1%
Chromium	--	--	3.0E-06	0%
Lead (inorganic)	--	--	--	--
Aroclor 1248	1.5E-06	87%	--	--
Aroclor 1254	2.3E-07	13%	2.1E-02	58%
Fluoranthene	--	--	2.1E-06	0%
Phenanthrene	--	--	--	--
Pyrene	--	--	4.1E-06	0%
Pathway Total	1.7E-06	100%	2.2E-02	59%
TPH Mixtures_Integrated				
Total Diesel/Fuel Oil	--	--	1.1E-03	3%
Total Heavy Oil	--	--	1.4E-02	38%
Pathway Total			1.5E-02	41%
GRAND TOTAL	**1.7E-06**	**100%**	**3.6E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-12.1. Daily Dose and Risk Calculations for All Detected Constituents
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	4.50E+00	3.4E-07	1.50	5.1E-07
Cancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	1.95E+02	1.5E-05	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	1.69E+01	1.3E-06	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	2.40E+01	1.8E-06	--	--
Cancer	Ingestion Of Soil	7439-97-6	Mercury	3.00E-02	2.3E-09	--	--
Cancer	Ingestion Of Soil	117-81-7	Bis(2-ethylhexyl)Phthalate	2.90E+00	2.2E-07	0.014	3.1E-09
Cancer	Ingestion Of Soil	131-11-3	Dimethyl Phthalate	3.90E-01	3.0E-08	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.95E+02	5.2E-01	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	4.25E+02	1.1E+00	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	4.50E+00	1.3E-06	0.00030	4.3E-03
NonCancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	1.95E+02	5.6E-05	0.20	2.8E-04
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	1.69E+01	4.8E-06	1.50	3.2E-06
NonCancer	Ingestion Of Soil	7439-92-1	Lead	2.40E+01	6.9E-06	--	--
NonCancer	Ingestion Of Soil	7439-97-6	Mercury	3.00E-02	8.6E-09	0.00030	2.9E-05
NonCancer	Ingestion Of Soil	117-81-7	Bis(2-ethylhexyl)Phthalate	2.90E+00	8.3E-07	0.020	4.1E-05
NonCancer	Ingestion Of Soil	131-11-3	Dimethyl Phthalate	3.90E-01	1.1E-07	--	--
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	1.95E+02	1.9E+00	0.0038	7.3E-03
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	4.25E+02	4.2E+00	0.00010	4.3E-04

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-12.2. Cancer and Noncancer Risk Characterization
G1/G3 Lines Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	5.1E-07	99%	4.3E-03	35%
Barium	--	--	2.8E-04	2%
Chromium	--	--	3.2E-06	0%
Lead (inorganic)	--	--	--	--
Mercury (inorganic)	--	--	2.9E-05	0%
Bis(2-ethylhexyl)Phthalate (DEHP)	3.1E-09	1%	4.1E-05	0%
Dimethyl Phthalate	--	--	--	--
Pathway Total	5.2E-07	100%	4.6E-03	38%
TPH Mixtures_Integrated				
Total Diesel/Fuel Oil	--	--	7.3E-03	59%
Total Heavy Oil	--	--	4.3E-04	4%
Pathway Total			7.7E-03	63%
GRAND TOTAL	**5.2E-07**	**100%**	**1.2E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-13.1. Daily Dose and Risk Calculations for All Detected Constituents
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	6.60E+00	5.0E-07	1.50	7.5E-07
Cancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	1.30E+02	9.9E-06	--	--
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	2.80E-01	2.1E-08	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	1.00E+01	7.6E-07	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	2.90E+01	2.2E-06	--	--
Cancer	Ingestion Of Soil	7439-97-6	Mercury	5.00E-01	3.8E-08	--	--
Cancer	Ingestion Of Soil	120-12-7	Anthracene	1.20E-01	9.1E-09	--	--
Cancer	Ingestion Of Soil	206-44-0	Fluoranthene	9.70E-01	7.4E-08	--	--
Cancer	Ingestion Of Soil	85-01-8	Phenanthrene	8.90E-01	6.8E-08	--	--
Cancer	Ingestion Of Soil	129-00-0	Pyrene	5.90E+00	4.5E-07	--	--
Cancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	3.50E-04	2.7E-11	--	--
Cancer	Ingestion Of Soil	108-67-8	1,3,5-Trimethylbenzene	1.30E-04	9.9E-12	--	--
Cancer	Ingestion Of Soil	67-64-1	Acetone	3.30E-02	2.5E-09	--	--
Cancer	Ingestion Of Soil	75-15-0	Carbon Disulfide	8.10E-04	6.2E-11	--	--
Cancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	4.40E-03	3.4E-10	--	--
Cancer	Ingestion Of Soil	100-42-5	Styrene	1.40E-04	1.1E-11	--	--
Cancer	Ingestion Of Soil	127-18-4	Tetrachloroethylene	1.08E-03	8.2E-11	--	--
Cancer	Ingestion Of Soil	71-55-6	Trichloroethane, 1,1,1-	1.90E-04	1.4E-11	--	--
Cancer	Ingestion Of Soil	79-01-6	Trichloroethylene	3.25E-04	2.5E-11	0.013	3.2E-13
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	3.68E+02	9.8E-01	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	1.66E+03	4.4E+00	--	--
Cancer	Tph Mixtures_integrated	90-12-0	1-Methylnaphthalene	4.10E-01	1.1E-03	0.0000023	2.5E-09
Cancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	6.50E-01	1.7E-03	--	--
Cancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	9.80E-01	2.6E-03	--	--
Cancer	Tph Mixtures_integrated	71-43-2	Benzene	1.10E-03	2.9E-06	0.0000028	8.1E-12
Cancer	Tph Mixtures_integrated	100-41-4	Ethylbenzene	7.70E-04	2.1E-06	--	--
Cancer	Tph Mixtures_integrated	108-88-3	Toluene	4.10E-03	1.1E-05	--	--
Cancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	1.80E-03	4.8E-06	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	6.60E+00	1.9E-06	0.00030	6.3E-03
NonCancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	1.30E+02	3.7E-05	0.20	1.9E-04

Table F-13.1. Daily Dose and Risk Calculations for All Detected Constituents
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	2.80E-01	8.0E-08	0.00100	8.0E-05
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	1.00E+01	2.9E-06	1.50	1.9E-06
NonCancer	Ingestion Of Soil	7439-92-1	Lead	2.90E+01	8.3E-06	--	--
NonCancer	Ingestion Of Soil	7439-97-6	Mercury	5.00E-01	1.4E-07	0.00030	4.8E-04
NonCancer	Ingestion Of Soil	120-12-7	Anthracene	1.20E-01	3.4E-08	0.30	1.1E-07
NonCancer	Ingestion Of Soil	206-44-0	Fluoranthene	9.70E-01	2.8E-07	0.040	6.9E-06
NonCancer	Ingestion Of Soil	85-01-8	Phenanthrene	8.90E-01	2.5E-07	--	--
NonCancer	Ingestion Of Soil	129-00-0	Pyrene	5.90E+00	1.7E-06	0.030	5.6E-05
NonCancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	3.50E-04	1.0E-10	--	--
NonCancer	Ingestion Of Soil	108-67-8	1,3,5-Trimethylbenzene	1.30E-04	3.7E-11	0.050	7.4E-10
NonCancer	Ingestion Of Soil	67-64-1	Acetone	3.30E-02	9.4E-09	0.90	1.0E-08
NonCancer	Ingestion Of Soil	75-15-0	Carbon Disulfide	8.10E-04	2.3E-10	0.100	2.3E-09
NonCancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	4.40E-03	1.3E-09	0.60	2.1E-09
NonCancer	Ingestion Of Soil	100-42-5	Styrene	1.40E-04	4.0E-11	0.20	2.0E-10
NonCancer	Ingestion Of Soil	127-18-4	Tetrachloroethylene	1.08E-03	3.1E-10	0.0100	3.1E-08
NonCancer	Ingestion Of Soil	71-55-6	Trichloroethane, 1,1,1-	1.90E-04	5.4E-11	2.00	2.7E-11
NonCancer	Ingestion Of Soil	79-01-6	Trichloroethylene	3.25E-04	9.3E-11	--	--
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	3.68E+02	3.7E+00	0.0038	1.4E-02
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	1.66E+03	1.7E+01	0.00010	1.7E-03
NonCancer	Tph Mixtures_integrated	90-12-0	1-Methylnaphthalene	4.10E-01	4.1E-03	--	--
NonCancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	6.50E-01	6.5E-03	--	--
NonCancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	9.80E-01	9.8E-03	0.015	1.5E-04
NonCancer	Tph Mixtures_integrated	71-43-2	Benzene	1.10E-03	1.1E-05	0.013	1.4E-07
NonCancer	Tph Mixtures_integrated	100-41-4	Ethylbenzene	7.70E-04	7.7E-06	0.00066	5.1E-09
NonCancer	Tph Mixtures_integrated	108-88-3	Toluene	4.10E-03	4.1E-05	0.00081	3.3E-08
NonCancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	1.80E-03	1.8E-05	0.00033	6.0E-09

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

Table F-13.1. Daily Dose and Risk Calculations for All Detected Constituents
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-13.2. Cancer and Noncancer Risk Characterization
Railcar Unloading Site
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	7.5E-07	100%	6.3E-03	28%
Barium	--	--	1.9E-04	1%
Cadmium	--	--	8.0E-05	0%
Chromium	--	--	1.9E-06	0%
Lead (inorganic)	--	--	--	--
Mercury (inorganic)	--	--	4.8E-04	2%
Anthracene	--	--	1.1E-07	0%
Fluoranthene	--	--	6.9E-06	0%
Phenanthrene	--	--	--	--
Pyrene	--	--	5.6E-05	0%
1,2,4-Trimethylbenzene	--	--	--	--
1,3,5-Trimethylbenzene	--	--	7.4E-10	0%
Acetone	--	--	1.0E-08	0%
Carbon Disulfide	--	--	2.3E-09	0%
Methyl Ethyl Ketone	--	--	2.1E-09	0%
Styrene	--	--	2.0E-10	0%
Tetrachloroethylene	--	--	3.1E-08	0%
Trichloroethane, 1,1,1-	--	--	2.7E-11	0%
Trichloroethylene	3.2E-13	0%	--	--
Pathway Total	7.5E-07	100%	7.1E-03	31%
TPH Mixtures_Integrated				
1-Methylnaphthalene	2.5E-09	0%	--	--
Benzene	8.1E-12	0%	1.4E-07	0%
Benzo(g,h,i)perylene	--	--	--	--
Ethyl Benzene	--	--	5.1E-09	0%
Methylnaphthalene, 2-	--	--	1.5E-04	1%
Toluene	--	--	3.3E-08	0%
Total Diesel/Fuel Oil	--	--	1.4E-02	61%
Total Heavy Oil	--	--	1.7E-03	7%
Xylenes	--	--	6.0E-09	0%
Pathway Total	2.5E-09	0%	1.6E-02	69%
GRAND TOTAL	**7.6E-07**	**100%**	**2.3E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-14.1. Daily Dose and Risk Calculations for All Detected Constituents
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	2.11E+01	1.6E-06	2.00	3.2E-06
Cancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	2.01E+00	1.5E-07	2.00	3.1E-07
Cancer	Ingestion Of Soil	11096-82-5	Aroclor 1260	5.72E-01	4.4E-08	2.00	8.7E-08
Cancer	Ingestion Of Soil	37324-23-5	Aroclor 1262	8.07E-02	6.1E-09	2.00	1.2E-08
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.77E+02	7.4E-01	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	2.57E+02	6.9E-01	--	--
NonCancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	2.11E+01	6.0E-06	--	--
NonCancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	2.01E+00	5.8E-07	0.000020	2.9E-02
NonCancer	Ingestion Of Soil	11096-82-5	Aroclor 1260	5.72E-01	1.6E-07	--	--
NonCancer	Ingestion Of Soil	37324-23-5	Aroclor 1262	8.07E-02	2.3E-08	--	--
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	2.77E+02	2.8E+00	0.0038	1.0E-02
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	2.57E+02	2.6E+00	0.00010	2.6E-04

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-14.2. Cancer and Noncancer Risk Characterization
South Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Aroclor 1248	3.2E-06	89%	--	--
Aroclor 1254	3.1E-07	8%	2.9E-02	73%
Aroclor 1260	8.7E-08	2%	--	--
Aroclor 1262	1.2E-08	0%	--	--
Pathway Total	3.6E-06	100%	2.9E-02	73%
TPH Mixtures_Integrated				
Total Diesel/Fuel Oil	--	--	1.0E-02	26%
Total Heavy Oil	--	--	2.6E-04	1%
Pathway Total			1.1E-02	27%
GRAND TOTAL	**3.6E-06**	**100%**	**3.9E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-15.1. Daily Dose and Risk Calculations for All Detected Constituents
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	6.78E+01	5.2E-06	2.00	1.0E-05
Cancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	1.00E+00	7.6E-08	2.00	1.5E-07
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	1.35E+02	3.6E-01	--	--
NonCancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	6.78E+01	1.9E-05	--	--
NonCancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	1.00E+00	2.9E-07	0.000020	1.4E-02
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	1.35E+02	1.3E+00	0.00010	1.4E-04

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-15.2. Cancer and Noncancer Risk Characterization
Western Discharge Ravine Site
Discharge Ravines Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Aroclor 1248	1.0E-05	99%	--	--
Aroclor 1254	1.5E-07	1%	1.4E-02	99%
Pathway Total	1.0E-05	100%	1.4E-02	99%
TPH Mixtures_Integrated				
Total Heavy Oil	--	--	1.4E-04	1%
Pathway Total			1.4E-04	1%
GRAND TOTAL	**1.0E-05**	**100%**	**1.4E-02**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Table F-16.1. Daily Dose and Risk Calculations for All Detected Constituents
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	6.07E+00	4.6E-07	1.50	6.9E-07
Cancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	8.78E+01	6.7E-06	--	--
Cancer	Ingestion Of Soil	7440-43-9	Cadmium	1.41E-01	1.1E-08	--	--
Cancer	Ingestion Of Soil	7440-47-3	Chromium	3.82E+01	2.9E-06	--	--
Cancer	Ingestion Of Soil	18540-29-9	Chromium (IV)	8.78E-02	6.7E-09	--	--
Cancer	Ingestion Of Soil	7439-92-1	Lead	1.49E+01	1.1E-06	--	--
Cancer	Ingestion Of Soil	7439-96-5	Manganese	4.81E+02	3.7E-05	--	--
Cancer	Ingestion Of Soil	7439-97-6	Mercury	1.92E-02	1.5E-09	--	--
Cancer	Ingestion Of Soil	7782-49-2	Selenium And Compounds	4.00E-01	3.0E-08	--	--
Cancer	Ingestion Of Soil	7440-22-4	Silver	2.84E-01	2.2E-08	--	--
Cancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	5.00E-02	3.8E-09	2.00	7.6E-09
Cancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	7.51E-02	5.7E-09	2.00	1.1E-08
Cancer	Ingestion Of Soil	11096-82-5	Aroclor 1260	1.19E-02	9.0E-10	2.00	1.8E-09
Cancer	Ingestion Of Soil	11100-14-4	Aroclor 1268	2.40E-02	1.8E-09	2.00	3.7E-09
Cancer	Ingestion Of Soil	83-32-9	Acenaphthene	2.80E-04	2.1E-11	--	--
Cancer	Ingestion Of Soil	120-12-7	Anthracene	6.60E-04	5.0E-11	--	--
Cancer	Ingestion Of Soil	132-64-9	Dibenzofuran	2.80E-04	2.1E-11	--	--
Cancer	Ingestion Of Soil	206-44-0	Fluoranthene	6.14E-03	4.7E-10	--	--
Cancer	Ingestion Of Soil	86-73-7	Fluorene	3.00E-04	2.3E-11	--	--
Cancer	Ingestion Of Soil	85-01-8	Phenanthrene	4.07E-03	3.1E-10	--	--
Cancer	Ingestion Of Soil	129-00-0	Pyrene	7.90E-03	6.0E-10	--	--
Cancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	1.20E-04	9.1E-12	--	--
Cancer	Ingestion Of Soil	106-43-4	4-chlorotoluene	1.20E-04	9.1E-12	--	--
Cancer	Ingestion Of Soil	67-64-1	Acetone	4.60E-02	3.5E-09	--	--
Cancer	Ingestion Of Soil	75-71-8	CFC-12	1.30E-03	9.9E-11	--	--
Cancer	Ingestion Of Soil	75-15-0	Carbon Disulfide	3.70E-03	2.8E-10	--	--
Cancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	2.90E-03	2.2E-10	--	--
Cancer	Ingestion Of Soil	127-18-4	Tetrachloroethylene	5.20E-04	4.0E-11	--	--
Cancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	3.30E+01	8.8E-02	--	--
Cancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	3.36E+02	9.0E-01	--	--

Table F-16.1. Daily Dose and Risk Calculations for All Detected Constituents
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
Cancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	2.95E-03	7.9E-06	--	--
Cancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	7.00E-04	1.9E-06	--	--
Cancer	Tph Mixtures_integrated	91-20-3	Naphthalene	2.70E-03	7.2E-06	--	--
Cancer	Tph Mixtures_integrated	108-88-3	Toluene	1.80E-03	4.8E-06	--	--
Cancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	2.50E-04	6.7E-07	--	--
NonCancer	Ingestion Of Soil	7440-38-2	Arsenic, Inorganic	6.07E+00	1.7E-06	0.00030	5.8E-03
NonCancer	Ingestion Of Soil	7440-39-3	Barium And Compounds	8.78E+01	2.5E-05	0.20	1.3E-04
NonCancer	Ingestion Of Soil	7440-43-9	Cadmium	1.41E-01	4.0E-08	0.00100	4.0E-05
NonCancer	Ingestion Of Soil	7440-47-3	Chromium	3.82E+01	1.1E-05	1.50	7.3E-06
NonCancer	Ingestion Of Soil	18540-29-9	Chromium (IV)	8.78E-02	2.5E-08	0.0030	8.4E-06
NonCancer	Ingestion Of Soil	7439-92-1	Lead	1.49E+01	4.2E-06	--	--
NonCancer	Ingestion Of Soil	7439-96-5	Manganese	4.81E+02	1.4E-04	0.14	9.8E-04
NonCancer	Ingestion Of Soil	7439-97-6	Mercury	1.92E-02	5.5E-09	0.00030	1.8E-05
NonCancer	Ingestion Of Soil	7782-49-2	Selenium And Compounds	4.00E-01	1.1E-07	0.0050	2.3E-05
NonCancer	Ingestion Of Soil	7440-22-4	Silver	2.84E-01	8.1E-08	0.0050	1.6E-05
NonCancer	Ingestion Of Soil	12672-29-6	Aroclor 1248	5.00E-02	1.4E-08	--	--
NonCancer	Ingestion Of Soil	11097-69-1	Aroclor 1254	7.51E-02	2.1E-08	0.000020	1.1E-03
NonCancer	Ingestion Of Soil	11096-82-5	Aroclor 1260	1.19E-02	3.4E-09	--	--
NonCancer	Ingestion Of Soil	11100-14-4	Aroclor 1268	2.40E-02	6.9E-09	--	--
NonCancer	Ingestion Of Soil	83-32-9	Acenaphthene	2.80E-04	8.0E-11	0.060	1.3E-09
NonCancer	Ingestion Of Soil	120-12-7	Anthracene	6.60E-04	1.9E-10	0.30	6.3E-10
NonCancer	Ingestion Of Soil	132-64-9	Dibenzofuran	2.80E-04	8.0E-11	--	--
NonCancer	Ingestion Of Soil	206-44-0	Fluoranthene	6.14E-03	1.8E-09	0.040	4.4E-08
NonCancer	Ingestion Of Soil	86-73-7	Fluorene	3.00E-04	8.6E-11	0.040	2.1E-09
NonCancer	Ingestion Of Soil	85-01-8	Phenanthrene	4.07E-03	1.2E-09	--	--
NonCancer	Ingestion Of Soil	129-00-0	Pyrene	7.90E-03	2.3E-09	0.030	7.5E-08
NonCancer	Ingestion Of Soil	95-63-6	1,2,4-Trimethylbenzene	1.20E-04	3.4E-11	--	--
NonCancer	Ingestion Of Soil	106-43-4	4-chlorotoluene	1.20E-04	3.4E-11	--	--
NonCancer	Ingestion Of Soil	67-64-1	Acetone	4.60E-02	1.3E-08	0.90	1.5E-08
NonCancer	Ingestion Of Soil	75-71-8	CFC-12	1.30E-03	3.7E-10	0.20	1.9E-09

Table F-16.1. Daily Dose and Risk Calculations for All Detected Constituents
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Risk Model	Exposure Pathway[1]	Cas No.	Constituent	Exposure Point Concentration	Average Daily Dose[2]	Toxicity Value	Risk Result[3]
NonCancer	Ingestion Of Soil	75-15-0	Carbon Disulfide	3.70E-03	1.1E-09	0.100	1.1E-08
NonCancer	Ingestion Of Soil	78-93-3	Methyl Ethyl ketone	2.90E-03	8.3E-10	0.60	1.4E-09
NonCancer	Ingestion Of Soil	127-18-4	Tetrachloroethylene	5.20E-04	1.5E-10	0.0100	1.5E-08
NonCancer	Tph Mixtures_integrated	TOT_DIESEL	Total Diesel/Fuel Oil	3.30E+01	3.3E-01	0.0038	1.2E-03
NonCancer	Tph Mixtures_integrated	TOT_HEAVYOIL	Total Heavy Oil	3.36E+02	3.4E+00	0.00010	3.4E-04
NonCancer	Tph Mixtures_integrated	191-24-2	Benzo(g,h,i)perylene	2.95E-03	3.0E-05	--	--
NonCancer	Tph Mixtures_integrated	91-57-6	Methylnaphthalene,2-	7.00E-04	7.0E-06	0.015	1.1E-07
NonCancer	Tph Mixtures_integrated	91-20-3	Naphthalene	2.70E-03	2.7E-05	0.0062	1.7E-07
NonCancer	Tph Mixtures_integrated	108-88-3	Toluene	1.80E-03	1.8E-05	0.00081	1.5E-08
NonCancer	Tph Mixtures_integrated	1330-20-7	Total Xylenes	2.50E-04	2.5E-06	0.00033	8.3E-10

Notes:

[1]The exposure pathways of incidental soil ingestion and dermal contact with soil (i.e., "TPH Mixtures_Integrated") were evaluated for petroleum-related constituents, as identified in Table 2-1. The exposure pathway of incidental soil ingestion was evaluated for all other constituents.

[2]The average daily dose was calculated using the exposure point concentration and the equations and exposure parameters presented in Tables 5-1, 5-2, and 5-3. In these equations, the Csoil is the exposure point concentration.

[3]The risk result is the hazard quotient for the noncancer risk model calculations and is the cancer risk for the cancer risk model calculations.

Table F-16.2. Cancer and Noncancer Risk Characterization
Buffer Site
Buffer Area
Kaiser Trentwood Facility

Detected Constituent	Cancer		Noncancer	
	Industrial Worker		Industrial Worker	
	CR	Percent	HI	Percent
Ingestion of Soil				
Arsenic (inorganic)	6.9E-07	97%	5.8E-03	60%
Barium	--	--	1.3E-04	1%
Cadmium	--	--	4.0E-05	0%
Chromium	--	--	7.3E-06	0%
Chromium (VI)	--	--	8.4E-06	0%
Lead (inorganic)	--	--	--	--
Manganese	--	--	9.8E-04	10%
Mercury (inorganic)	--	--	1.8E-05	0%
Selenium (and compounds)	--	--	2.3E-05	0%
Silver	--	--	1.6E-05	0%
Aroclor 1248	7.6E-09	1%	--	--
Aroclor 1254	1.1E-08	2%	1.1E-03	11%
Aroclor 1260	1.8E-09	0%	--	--
Aroclor 1268	3.7E-09	1%	--	--
Acenaphthene	--	--	1.3E-09	0%
Anthracene	--	--	6.3E-10	0%
Dibenzofuran	--	--	--	--
Fluoranthene	--	--	4.4E-08	0%
Fluorene	--	--	2.1E-09	0%
Phenanthrene	--	--	--	--
Pyrene	--	--	7.5E-08	0%
1,2,4-Trimethylbenzene	--	--	--	--
4-chlorotoluene	--	--	--	--
Acetone	--	--	1.5E-08	0%
CFC-12	--	--	1.9E-09	0%
Carbon Disulfide	--	--	1.1E-08	0%
Methyl Ethyl Ketone	--	--	1.4E-09	0%
Tetrachloroethylene	--	--	1.5E-08	0%
Pathway Total	7.2E-07	100%	8.1E-03	84%
TPH Mixtures_Integrated				
Benzo(g,h,i)perylene	--	--	--	--
Methylnaphthalene, 2-	--	--	1.1E-07	0%
Naphthalene	--	--	1.7E-07	0%
Toluene	--	--	1.5E-08	0%
Total Diesel/Fuel Oil	--	--	1.2E-03	13%
Total Heavy Oil	--	--	3.4E-04	4%
Xylenes	--	--	8.3E-10	0%
Pathway Total			1.6E-03	16%
GRAND TOTAL	**7.2E-07**	**100%**	**9.7E-03**	**100%**

Notes:
CR = Cancer risk
HI = Noncancer hazard index
Percent = Percent of grand total cancer risk or hazard index
-- Not calculated

Appendix G

Soil Survey of Kaiser Trentwood Facility Area

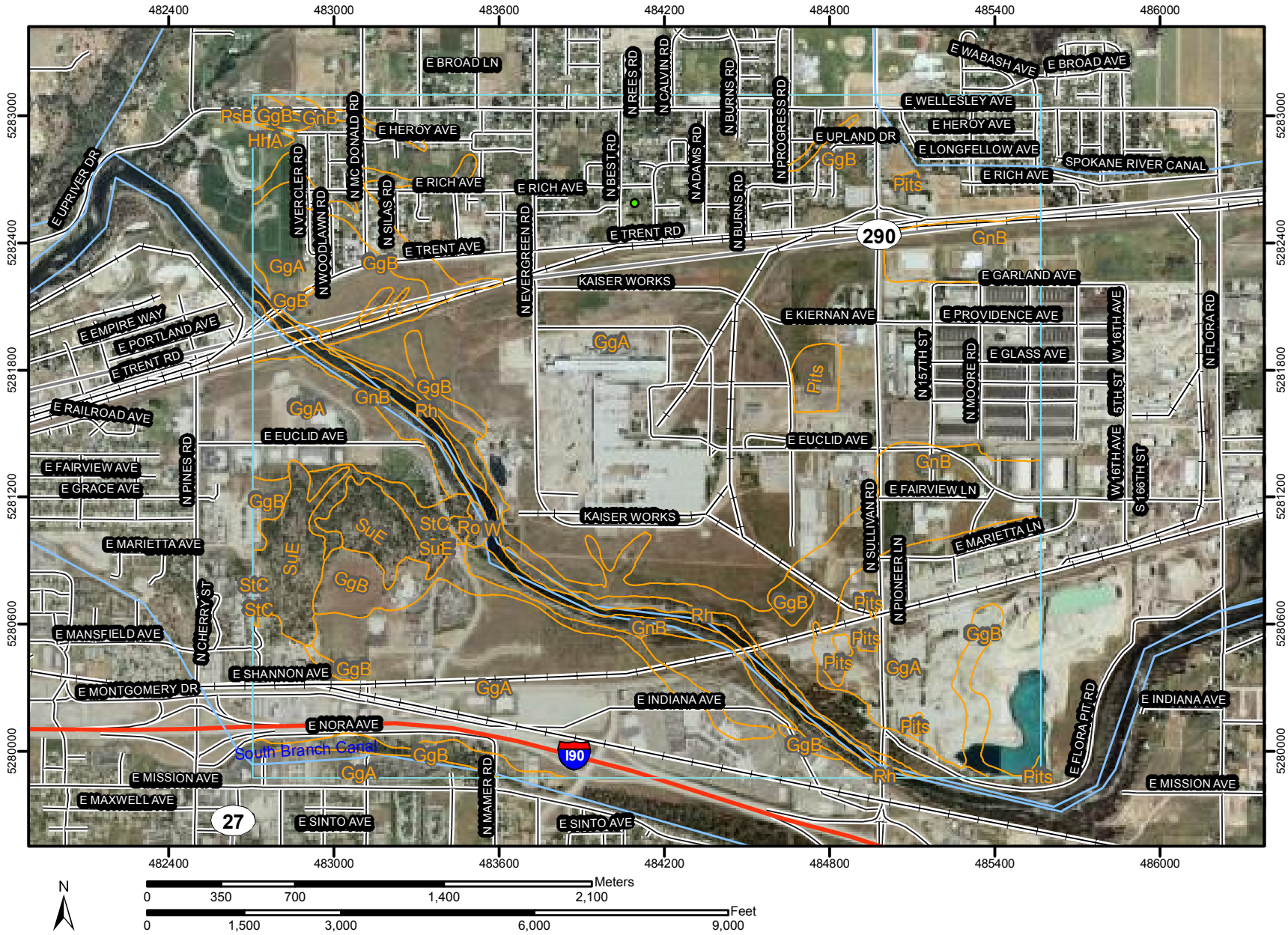
INTRODUCTION

This appendix shows the major native soil types that occur on and around the Kaiser Trentwood facility. This information was obtained online from the Natural Resource Conservation Service soil survey for Spokane County[1]. The Natural Resource Conservation Service is in the process of updating the Spokane County soil survey and that update will contain additional information including classifications for anthropogenically-modified soil types (e.g., agriculture)[2].

[1] Soil survey information was obtained from the Natural Resources Conservation Service available online at http://websoilsurvey.nrcs.usda.gov/app/.

[2] Personal communication with Mr. Scott Bare (Project Leader, Natural Resources Conservation Service, Spokane, WA) on February 17, 2009.

Soil Map–Spokane County, Washington
(Kaiser Facility Area Soils)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features

Municipalities
- Cities
- Urban Areas

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 11N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
Survey Area Data: Version 1, May 3, 2006

Date(s) aerial images were photographed: 7/16/1995

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Spokane County, Washington (WA063)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
GgA	Garrison gravelly loam, 0 to 5 percent slopes	2,224.4	75.0%
GgB	Garrison gravelly loam, 5 to 20 percent slopes	203.9	6.9%
GnB	Garrison very stony loam, 0 to 20 percent slopes	316.3	10.7%
HhA	Hardesty silt loam, 0 to 5 percent slopes	4.2	0.1%
Pits	Pits	28.9	1.0%
PsB	Phoebe sandy loam, 5 to 20 percent slopes	0.5	0.0%
Rh	Riverwash	29.6	1.0%
Ro	Rock outcrop	3.9	0.1%
StC	Spokane very rocky complex, 0 to 30 percent slopes	27.4	0.9%
SuE	Spokane extremely rocky complex, 20 to 70 percent slope s	82.5	2.8%
W	Water	43.2	1.5%
Totals for Area of Interest (AOI)		2,964.7	100.0%

Appendix H

Soil Macroinvertebrate Evaluation

TABLE OF CONTENTS

LIST OF TABLES

SECTION 1 – INTRODUCTION

This appendix characterizes the soil macroinvertebrate community found on the terrestrial cover types (i.e., landscape, compacted mineral soil, open field and semi-native vegetation) present at the Kaiser Trentwood Facility (Trentwood Facility). This information is important because two of the wildlife species (i.e., the American robin and shrew) used in the MTCA site-specific terrestrial ecological evaluation consume invertebrates and therefore information on this exposure pathway is required to refine the evaluation. Particular attention is given to earthworms because earthworms potentially accumulate relatively-high levels of constituents from the soil.

Information used to characterize the macroinvertebrate community for the Trentwood Facility included field observations, published studies characterizing earthworm distribution, and an evaluation of habitat requirements for earthworms.

1.1 Background

Common soil macroinvertebrates include earthworms (Oligocheata), ground beetles (Carabidae), true weevils (Curculionidae), termites (Isoptera), ants (Fomicidae), and woodlice/pillbugs (Isopoda) (Lilleskov et al. 2008). Other soil macroinvertebrate taxa include centipedes (Chilopoda), millipedes (Diplodoa), rove beetles (Staphylinidae) and slugs/snails (Gastropoda). The distribution, abundance and diversity of populations of these invertebrates is controlled by numerous natural (e.g., soil type, climate, plant community) and anthropogenic (e.g., land use, pest control, hydrologic alteration) factors.

More than 150 species of terrestrial snails and slugs and as many as 50,000 to 70,000 arthropods have been identified in the Pacific Northwest (Mac et al. 1998). More arthropod species are found on the west-side of the Cascade Mountain range than of the east-side because the climate is milder and plant richness is higher on the west-side. An estimated 380 mollusk and 3,400 insect species have already been identified in the Columbia River basin, while the total number of mollusk species is estimated to be 790 mollusk and the total number of insect species is estimated to be 23,500 (Niwa et al. 2001).

Although no published information was found describing the terrestrial invertebrate community present on or around the Kaiser Trentwood Facility, a suitable analogue is the Department of Energy Hanford Site located in south-central Washington. Hanford lies within the Columbia Plateau ecoregion of the United States and Spokane is located on the border between the Columbia Plateau and the Northern Rockies ecoregions[1]. Since an ecoregion is defined as an area within which ecosystems are generally similar, the terrestrial invertebrate community present at Hanford is expected to be similar to the one found at the Trentwood Facility.

Rogers and Woodley (1978) characterized the invertebrate community of an abandoned wheat field located at Hanford. The field was dominated by the introduced cheatgrass (*Bromus tectorum*), but yellow

[1] U.S. EPA ecoregion descriptions are available online at http://www.epa.gov/wed/pages/ecoregions/level_iii.htm.

salsify (*Tragopogon dubius*), lanceleaf microseris (*Microseris lacinata*), jagged chickweed (*Holosteum umbellatum*) and tumble mustard (*Sisymbrium altissimum*) were also common. Cheatgrass is also common to the Spokane area and is expected to be present on the Kaiser Facility[2]. Rogers and Woodley (1978) collected all invertebrates on a monthly basis from April to August within 0.5 m^2 sample areas using box-trap method. Invertebrate density ranged from a high of approximately 300 animals per m^2 in April to a low of less than 10 animals per m^2 in August. The most abundant taxa at Hanford were mites, beetles, thrips, bugs, and ants/bees/wasps (Table H-1). In terms of biomass, beetles and grasshoppers accounted for over 70 percent of the biomass. Darkling beetles (Tenebrionidae) were the dominant beetles found at Hanford. Grasshoppers and darkling beetles were also observed at the Kaiser Facility during a site visit in August 2009.

Darkling beetles are conspicuous components of the plant communities at Hanford (Rogers and Fitzner 1980). Eleven different species of darkling beetles were found at Hanford during a two year study (Rogers and Fitzner 1980) and abundance was highest in April and August/September. Adult darkling beetles feed on vegetation and lay eggs in the soil during the summer (Rickard 1970). While some species of darkling beetles overwinter as adults in burrows of other animals, other species do not survive the winter[3]. Darkling beetle eggs produce larvae which reside in the soil for periods of two years or more feeding on roots. Rickard et al. (1974) measured populations of two species of autumn-emerging darkling beetles inhabiting two cheatgrass-dominated old field sites at Hanford in 1968 and 1969. Mean beetle densities ranged from 0.1 to 12.6 beetles per m^2 during October-November with a biomass of 20 kg per hectare at peak emergence.

Numerous species of grasshoppers occur in the Spokane area[4]. Females typically lay eggs in the shallow soil during summer months. Eggs over-winter in the soil and hatch the following year when soil temperatures reach 50 to 55^{o}F. The newly hatched grasshoppers, called nymphs, emerge from the soil and are flightless. Nymphs go through metamorphosis that includes up to 6 stages that typically last four to seven days. While going through nymphal stages, called instars, the grasshoppers feed on succulent vegetation including grasses and forbs. Mature grasshoppers are able to fly and reproduce. Adults can live up to 50 days under laboratory conditions.

The diversity and abundance of soil macroinvertebrate taxa at the Kaiser Facility is expected to be high in areas having semi-native plant communities. In addition, landscape areas should provide many of the requirements needed to support a robust macroinvertebrate community. An important difference between the semi-natural and landscape cover types is the use of irrigation. The landscape cover type is irrigated to maintain plantings of exotic trees, shrub, and grasses. This added soil moisture provides unique

[2] See the Addendum Cultural Resources Survey Report for the Bigelow Gulch/Forker Road Urban Connector Project available online at http://www.spokanecounty.org/data/engineers/bigelowgulch_revisedeanov2007/App5_CR_Report_103107.pdf.

[3] See Pacific Northwest National Laboratory darkling beetles description available online at http://science-ed.pnl.gov/pals/resource/cards/darklingbeetles.stm

environmental conditions that may allow certain types of invertebrate populations (e.g., earthworms) to become established.

[4] See U.S. Department of Agriculture, Agricultural Research Service grasshopper website at http://www.sidney.ars.usda.gov/grasshopper/index.htm.

SECTION 2 – FIELD OBSERVATIONS

Mr. Bruce McDonald is a geologist with more than 20 years of field experience working at the Kaiser Trentwood Facility[5]. He has conducted a large portion of the environmental soil sampling and soil removal activities at the Trentwood Facility. In particular, Mr. McDonald conducted a Phase I investigation of the Trentwood Facility's South Discharge Ravine and West Discharge Ravine in 2006, an Interim Action at the West Discharge Ravine in 2007, and removal actions at the Field-Constructed Tanks and Railroad Car Unloading sites in 2008. Mr. McDonald has observed robin foraging and mole mounds in landscape areas. Earthworms or other soil biota may have been prey items for these species in landscape areas. Environmental field sampling and soil removal actions have occurred year-round at numerous locations within the compacted mineral soil, open field, and semi-native vegetation cover types. Mr. McDonald has never observed earthworms during any of these activities.

Dr. Dana Houkal (terrestrial ecologist) conducted a reconnaissance survey of the Trentwood Facility on December 8, 2008. Although the season was not optimal for assessing the soil-dwelling macroinvertebrate community, several important observations were made during the survey.

- The lack of vegetation and compacted soil conditions present on the compacted mineral soil cover type impede populations of macroinvertebrate from becoming established.
- The sparse ruderal vegetation and disturbed soil conditions found in the open field cover type are not conducive to supporting a diverse and abundant macroinvertebrate community.
- The semi-native vegetation cover type contains a variety of micro-habitats and a varied plant community which should be able to support a diverse and abundant macroinvertebrate community.

SECTION 3 –EARTHWORM LITERATURE REVIEW

Although little is known about earthworms in eastern Washington, two studies characterizing earthworm populations in the region were found.

Earthworms (Annelida:Oligochaeta) of the Columbia River Basin Assessment Area summarizes existing published information on earthworms in the Columbia River basin, including the Spokane area (James, 2000). Few native earthworms have been documented in the basin; exotic Lumbricid earthworms imported from Europe are most common. Although most of the basin is too arid to support earthworms, they have been found in areas with favorable habitat. Factors most important for earthworms are soil moisture, soil temperature, organic matter quantity and quality, and pH (James, 2000). Soil compaction may also limit earthworm ranges. Although two exotic species were observed across the state line in

[5] Personal communication with Mr. Bruce McDonald (geologist, Hart Crowser, Seattle WA) on 2/27/2009.

Idaho, no earthworms were observed in the greater Spokane area, including the area between Spokane and the state line.

In 1999, Fauci and Bezdicek surveyed earthworms at 46 sites in the Palouse region of Washington and Idaho (Fauci and Bezdicek, 2002). Twenty-nine of the 46 sites were located in dry-land wheat fields. An additional 17 sites were opportunistically sampled during travel between the wheat fields. These 17 sites included areas adjacent to waterways, in perennial vegetation, along road rights-of-way, or old homesteads. These 17 sites potentially-contained habitats favorable to earthworms and potentially had sources for exotic species introductions (e.g., planting of ornamentals with earthworms in the rootball).

Nine of the 29 wheat field sites were located in the northern portion of the Palouse region in Spokane County, Lincoln County (located immediately west of Spokane County), and the northwest portion of Whitman County (located immediately south of Spokane County) (Fauci and Bezdicek, 2002). No earthworms were found in any of these nine sites. No-till/direct-seeding management was practiced on these nine sites. Although these sites were located in arid environments, they were also located in colder climates than sites further south, which was considered significant by the authors. Two exotic earthworm species were found adjacent to an abandoned homestead near one of these nine wheat field sites (exact location not stated).

SECTION 4 – EARTHWORM HABITAT REQUIREMENTS

Earthworms are found in all but the driest and coldest land areas of the world and have a significant effect upon the soil which they inhabit (Lee, 1985; Satchell, 1983).

Earthworms have basic environmental requirements that include adequate moisture, adequate and suitable food supply, suitable temperature, adequate respiratory exchange, protection from light, suitable soil texture, suitable pH and electrolyte concentrations, and soil compaction (Lee, 1985). Variation in these physical and chemical characteristics affects the presence, abundance, and diversity of earthworm populations. Selected environmental requirements for earthworms are described below.

4.1 Moisture

Earthworms can persist in relatively dry environments by burrowing deeply into moist soil or aestivating during drought (Fauci and Bezdicek 2002). However, climate and soil characteristics that affect soil moisture can limit the distribution of earthworms. Regions of temperate Australia receiving less than 23.6 inches of rainfall per year are unlikely to support appreciably numbers of earthworms. However, regions receiving as little as 11.8 inches of rain per year occasionally support earthworms (Buckerfield, 1992). Similar to the United States, most Australian earthworms are exotic species of Lumbricids, which were introduced from Europe. The average annual precipitation in Spokane is 16.7 inches[6]. Adequate soil moisture is considered the most significant factor affecting earthworm populations in the Columbia River Basin (James, 2000).

Soil in the landscape cover type receives adequate moisture throughout the dry season from irrigation. Soil in the compacted mineral soil and open field cover types is coarse grained with little water holding capacity. Low summer rainfall creates prolonged dry soil conditions limiting earthworms from becoming established in these cover types. The native soil at the Trentwood Facility is characterized as well drained[7]. Although the topsoil horizon found in native soil in the semi-native vegetation cover type has a higher potential to retain water, the topsoil layer is relatively thin (20 inches) and subject to summer drying. It should be noted that the soil within the West Discharge Ravine and South Discharge Ravine sites varies from other areas with the semi-native vegetation cover type due to interim actions that occurred in those areas between 2006 and 2008 (see Section 2 of this appendix). As a result of the interim actions, the West Drainage Ravine site is comprised of sand, cobbles, and native soil and the South Drainage Ravine site is comprised of coarse-grained material and cobbles, making these sites less able to retain the moisture needed for earthworms.

This information suggests that soil moisture is limiting to earthworms in all cover types at the Trentwood Facility except the Landscape cover type, which is irrigated during dry periods.

[6] The National Oceanic and Atmospheric Administration, National Weather Service, Spokane Office, http://www.weather.gov/climate/xmacis.php?wfo=otx

[7] Soil survey information was obtained from the Natural Resources Conservation Service available online at http://websoilsurvey.nrcs.usda.gov/app/.

4.2 Food Supply

An adequate and suitable food supply is a basic environmental requirement of earthworms (Lee, 1985). Although earthworms are known to feed on dung, fungi, microorganisms, and nematodes, their primary food is decaying plant matter. Some earthworm species feed at the soil surface on decomposing plant litter (detritivores). Other species feed deeper beneath the surface, ingesting large quantities of soil, selecting portions higher in organic matter (geophages). A minimum quantity and quality of organic material is required to maintain viable earthworm populations. Hendrix studied the effect of ecosystem types, management practices, landscape position, soil textures and soil erosion status on the abundance and distribution of earthworm populations. Earthworm density dropped from over 500-worms/m^2 in soil (with greater than two percent organic carbon), to zero-worms/m^2 when organic carbon fell below 0.75 percent (Hendrix et al, 1992).

Soil in the landscape cover type at the Trentwood Facility likely had a topsoil amendment prior to planting grass and ornamental trees/shrubs. In addition, organic matter has been added as litter falls from the plantings. Observations from the qualitative field survey indicate the organic matter content is relatively high in areas with this cover type. The topsoil layer is absent from the compacted mineral soil and open field cover types and organic matter levels are low.

Soil in the semi-native vegetation cover type largely consists of native soil with a topsoil layer approximately 20-inches thick with relatively high organic matter content. The organic matter content in the upper 15 inches of the native soil type ranges from 2.0 to 5.0 percent[8].

This information suggests that food is not limiting to earthworms in the landscape and semi-native vegetation cover types.

4.3 Soil Texture

A suitable soil texture is another basic environmental requirement of earthworms (Lee, 1985). Earthworms are absent from or rare in soils with very coarse texture. The abrasiveness of coarse-textured soil and the earthworms' susceptibility to drought limit the species' diversity and abundance of earthworms. Hendrix found that earthworm density dropped from 255 - 301 worms/m^2 in finer textured soils (55-65% sand, 10-20% clay, 25% silt) to 60 worms/m^2 in soil with relatively coarse texture (80% sand, 15% clay, 5% silt) (Hendrix et al, 1992).

Topsoil is absent from soil in the compacted mineral soil and open field cover types. Field survey and field observations indicate soil texture is sandy gravel in these cover types. Topsoil is present in the landscape and semi-native vegetation cover types. The field survey found soil texture to be a sandy loam in these covers types.

[8] Soil survey information was obtained from the Natural Resources Conservation Service available online at http://websoilsurvey.nrcs.usda.gov/app/.

This information suggests that soil texture is not limiting earthworms in the landscape and semi-native vegetation cover types, but is likely limiting in the compacted mineral soil and open field cover types.

4.4 Soil Compaction

Earthworms move through soil by mechanical locomotion (i.e., elongating their bodies into pore spaces and then expanding their bodies to push the soil particles sideways to form a burrow) and, if insufficient pore space is available, by engulfing soil particles and excreting them as casts (Lee, 1985). Compaction of the soil increases bulk density, decreases gas exchange through decreased pore spaces, and decreases water-holding capacity and percolation. Highly compacted soils can significantly inhibit earthworm movement. For example, Sochtig and Larnik investigated the effect of three levels of soil compaction associated with standard machinery use on agricultural soils (Sochtig and Larnik, 1992). Earthworm abundance was reduced from 51.5 to 22.1 earthworms/m^2 and earthworm biomass was reduced from 19.1 to 9.5 g/m^2 when the bulk density of the soil increased from 1.32 g/cm^3 under control conditions to 1.52 g/cm^3 under the heaviest level of machine use. Similarly, Pizl investigated the effect of heavy machinery and extensive vehicular traffic on the abundance and biomass of earthworms in three apple orchards. Soil and earthworm samples were collected from trafficked and traffic-less areas in each orchard. The soil bulk density was higher and earthworm density and biomass were lower in the trafficked area of each orchard (Table H-2) (Pizl, 1992).

The field survey showed that soil within the compacted mineral soil cover type was highly compacted and would prohibit earthworm populations from becoming established. Soil in the open field, landscape, and semi-native vegetation cover types were not compacted.

This information suggests that soil density is not limiting to earthworms in the open field, landscape and semi-native vegetation cover types, but is likely limiting in the compacted mineral soil cover type.

SECTION 5 – CONCLUSIONS

Table H-3 summarizes information concerning the potential presence of earthworms on cover types at the Trentwood Facility.

Important conclusions of this evaluation are:

- A relatively-diverse macroinvertebrate community should be present in the landscape cover type, which probably includes earthworms. Artificially-enhanced soil organic matter content and soil moisture (via irrigation) are likely responsible for this community.
- Macroinvertebrates are expected to be virtually absent from the compacted mineral soil cover type. The absence of macroinvertebrates is due to the absence of vegetation, which in turn is due to the modified soil characteristics (i.e., loss of topsoil and physical compaction of mineral soil) and dry summer climate.
- An impoverished macroinvertebrate community is expected in the open field cover type. Earthworms are absent from this community[9]. Historical use of this cover type for agriculture has degraded the native soil resulting in a sparse cover of native and exotic plants.
- The semi-native vegetation cover type should be able to support a macroinvertebrate community. However, earthworms are absent from this community[10]. Although the native soil present in this cover type does have a minimal topsoil horizon, the soil is well drained and less able to retain the moisture needed to sustain earthworms. Low summer rainfall creates dry soil conditions that prohibit earthworms from becoming established.
- Beetles and grasshoppers are conspicuous components of the ground-dwelling invertebrate community found at the Trentwood Facility.

[9] Personal communication with Mr. Bruce McDonald (geologist, Hart Crowser, Seattle WA) on 2/27/2009.
[10] Personal communication with Mr. Bruce McDonald (geologist, Hart Crowser, Seattle WA) on 2/27/2009.

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Table H-1. Invertebrate Fauna Composition from an Abandoned Wheat Field at the Hanford Site

Taxa		Density (percent)	Biomass (percent)
Acari	(Mites)	37	1
Araneida	(Spiders)	1	3
Chilopoda	(Centipedes)	<1	<1
Coleoptera	(Beetles)	18	51
Diptera	(Flies)	4	6
Hemiptera	(Bugs)	8	3
Homoptera	(Cicadas, aphids, etc.)	1	<1
Hymenoptera	(Ants, bees, wasps)	8	7
Lepidoptera	(Butterflies and moths)	<1	7
Orthoptera	(Grasshoppers)	<1	20
Psocoptera	(Book lice)	7	<1
Thysanoptera	(Thrips)	15	1

Note:
Source: Rogers and Woodley (1978)

Table H-2. Soil and Earthworm Properties in Trafficked and Untrafficked Areas in Three Apple Orchards

Characteristic	Orchard 1		Orchard 2		Orchard 3	
	Untrafficked	Trafficked	Untrafficked	Trafficked	Untrafficked	Trafficked
Soil Bulk Density (g/cm^3)	1.45	1.78	1.59	1.81	1.22	1.47
Earthworm Density (individuals/m^2)	369.1	146.1	243.2	163.2	129.1	30.9
Earthworm Biomass (g/m^2)	53.3	21.2	37.9	31.0	21.6	6.8

Notes:
Date was obtained from Pizl, V. 1992. Effect of soil composition on earthworms (Lumbricidae) in apple orchard soil. Soil Biology & Biochemistry 24(12): 1573-1575.

Table H-3. Summary of Earthworm Information for the Trentwood Facility

Cover Type	Site-Specific Observations			Environmental Requirements			
	Earthworms Observed	Vegetative Cover	Topsoil Present	Soil Moisture	Food Supply	Soil Texture	Soil Compaction
Landscape	+/-	+	+	+	+	+	+
Compacted Mineral Soil	-	-	-	-	-	-	-
Open Field	-	+/-	-	-	-	-	-
Semi-native Vegetation	-	+	+	-	+	+	+

Notes:

+ = earthworms observed or parameter may be conducive to supporting earthworm populations

- = earthworms not observed or parameter likely a limiting factor for earthworms

+/- = earthworm observations inconclusive or parameter ability to support earthworm populations is inconclusive

Appendix I

Ecological Indicator Hazardous Substances Evaluation

INTRODUCTION

Tables I-1 through I-12 show results of the ecological indicator hazardous substance screening that was conducted for the six sites included in the site-specific ecological evaluation (Section 11.2.2). The six sites are the Field-Constructed Tanks, Hoffman Tank, Railcar Unloading, Industrial Wastewater Treatment Area Buffer, West Drainage Ravine, and South Drainage Ravine. Screening was done for soil in the 0 – 6 foot and 0 – 15 foot strata for each site.

LIST OF TABLES

Table I-1. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Field-Constructed Tanks Site - 0 to 6 feet
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
Metals														
Antimony (metallic)	1	100	--	9.00E-02	9.00E-02	9.00E-02	--	9.00E-02	Unknown	4.23E+00	--	--	--	--
Arsenic (inorganic)	3	100	--	1.70E+00	1.02E+01	4.70E+00	3.10E+04	1.02E+01	Normal/Lognormal	9.00E+00	Yes	7.00E+00	Yes	Yes
Barium	1	100	--	1.27E+02	1.27E+02	1.27E+02	--	1.27E+02	Unknown	2.55E+02	--	1.02E+02	--	--
Cadmium	3	33	1.00E+00 - 1.00E+00	1.05E-01	1.05E-01	3.68E-01	7.97E+02	1.05E-01	Unknown	1.00E+00	--	1.40E+01	--	--
Chromium	3	100	--	1.44E+01	3.40E+01	2.35E+01	1.32E+02	3.40E+01	Normal/Lognormal	1.80E+01	Yes	6.70E+01	--	--
Lead (inorganic)	3	67	1.00E+01 - 1.00E+01	1.11E+01	1.20E+02	4.54E+01	6.91E+12	1.20E+02	Normal/Lognormal	1.50E+01	Yes	1.18E+02	Yes	Yes
Mercury (inorganic)	1	100	--	4.00E-03	4.00E-03	4.00E-03	--	4.00E-03	Unknown	2.00E-02	--	4.00E-01	--	--
Selenium (and compounds)	1	0	1.08E+00 - 1.08E+00	--	--	--	--	--	--	--	--	--	--	--
Silver	1	100	--	1.19E-01	1.19E-01	1.19E-01	--	1.19E-01	Unknown	3.80E-01	--	--	--	--
PCBs														
Aroclor 1248	1	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	1	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	1	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	1	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
etroleum-Related Constituents														
Benzene	3	0	5.00E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	1	100	--	2.50E-02	2.50E-02	2.50E-02	--	2.50E-02	Unknown	--	--	1.20E+01	--	--
Ethyl Benzene	3	0	5.00E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	1	100	--	2.30E-03	2.30E-03	2.30E-03	--	2.30E-03	Unknown	--	--	--	--	--
Naphthalene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
Toluene	3	0	5.00E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--	--	--
Total Diesel/Fuel Oil	16	50	4.00E+01 - 7.00E+01	7.00E+01	7.31E+03	8.68E+02	1.06E+04	7.31E+03	Unknown	--	--	6.00E+03	Yes	Yes
Total Gasoline	14	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	16	50	5.00E+01 - 1.00E+02	1.03E+02	3.30E+03	5.06E+02	3.32E+03	3.30E+03	Unknown	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	14	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	14	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Xylenes	3	0	5.00E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--	--	--
hi-Volatile Organic Constituents														
Acenaphthene	1	100	--	7.20E-04	7.20E-04	7.20E-04	--	7.20E-04	Unknown	--	--	1.20E+01	--	--
Acenaphthylene	1	0	4.80E-03 - 4.80E-03	--	--	--	--	--	--	--	--	--	--	--
Anthracene	1	100	--	1.50E-03	1.50E-03	1.50E-03	--	1.50E-03	Unknown	--	--	1.20E+01	--	--
Dibenzofuran	1	0	4.80E-03 - 4.80E-03	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,2-	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	1	100	--	3.60E-03	3.60E-03	3.60E-03	--	3.60E-03	Unknown	--	--	1.20E+01	--	--
Fluorene	1	100	--	1.70E-03	1.70E-03	1.70E-03	--	1.70E-03	Unknown	--	--	1.20E+01	--	--
Phenanthrene	1	100	--	1.20E-02	1.20E-02	1.20E-02	--	1.20E-02	Unknown	--	--	1.20E+01	--	--
Pyrene	1	100	--	2.10E-02	2.10E-02	2.10E-02	--	2.10E-02	Unknown	--	--	1.20E+01	--	--
Trichlorobenzene, 1,2,4-	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
olatile Organics Constituents														
1,2,4-Trimethylbenzene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
1-Phenylpropane	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
2-chlorotoluene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
4-chlorotoluene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
4-isopropyltoluene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
Acetone	1	100	--	4.50E-02	4.50E-02	4.50E-02	--	4.50E-02	Unknown	--	--	--	--	--
Bromomethane	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
CFC-12	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	1	100	--	4.10E-04	4.10E-04	4.10E-04	--	4.10E-04	Unknown	--	--	--	--	--

Table I-1. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Field-Constructed Tanks Site - 0 to 6 feet
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
Chloromethane	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Cumene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	3	0	5.00E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	1	100	--	3.30E-03	3.30E-03	3.30E-03	--	3.30E-03	Unknown	--	--	--	--	--
Hexanone, 2-	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	3	33	5.00E-01 - 5.00E+00	4.50E-03	4.50E-03	9.18E-01	2.85E+42	4.50E-03	Normal/Lognormal	--	--	--	--	--
Styrene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	3	0	5.00E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene	1	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	1	0	2.00E-02 - 2.00E-02	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-2. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Field-Constructed Tanks Site - 0 to 15 feet
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
Metals														
Antimony (metallic)	16	100	--	6.00E-02	3.20E-01	1.74E-01	2.16E-01	2.16E-01	Normal/Lognormal	4.23E+00	--	--	--	--
Arsenic (inorganic)	18	100	--	1.70E+00	3.57E+01	9.59E+00	1.43E+01	1.43E+01	Unknown	9.00E+00	Yes	7.00E+00	Yes	Yes
Barium	16	100	--	1.69E+01	1.27E+02	5.06E+01	6.43E+01	6.43E+01	Lognormal	2.55E+02	--	1.02E+02	--	--
Cadmium	18	89	1.00E+00 - 1.00E+00	1.80E-02	5.20E-01	1.45E-01	2.30E-01	2.30E-01	Unknown	1.00E+00	--	1.40E+01	--	--
Chromium	18	100	--	3.24E+00	3.40E+01	9.90E+00	1.31E+01	1.31E+01	Lognormal	1.80E+01	--	6.70E+01	--	--
Lead (inorganic)	18	94	1.00E+01 - 1.00E+01	3.95E+00	1.20E+02	1.53E+01	1.88E+01	1.88E+01	Unknown	1.50E+01	Yes	1.18E+02	--	--
Mercury (inorganic)	16	50	1.10E-02 - 2.00E-02	1.00E-03	7.00E-02	1.32E-02	2.50E-02	2.50E-02	Lognormal	2.00E-02	Yes	4.00E-01	--	--
Selenium (and compounds)	16	0	1.00E+00 - 1.11E+00	--	--	--	--	--	--	--	--	--	--	--
Silver	16	100	--	3.00E-02	2.00E-01	7.75E-02	1.03E-01	1.03E-01	Lognormal	3.80E-01	--	--	--	--
PCBs														
Aroclor 1248	16	25	9.90E-03 - 1.00E-02	7.60E-03	1.90E-02	6.88E-03	8.43E-03	8.43E-03	Unknown	--	--	6.50E-01	--	--
Aroclor 1254	16	19	9.90E-03 - 1.00E-02	8.00E-03	1.80E-02	6.21E-03	7.27E-03	7.27E-03	Unknown	--	--	6.50E-01	--	--
Aroclor 1260	16	6	9.90E-03 - 1.00E-02	2.90E-03	2.90E-03	4.85E-03	5.17E-03	2.90E-03	Unknown	--	--	6.50E-01	--	--
Total PCBs	16	31	9.90E-03 - 1.00E-02	2.90E-03	3.70E-02	8.91E-03	1.26E-02	1.26E-02	Unknown	--	--	6.50E-01	--	--
etroleum-Related Constituents														
Benzene	18	6	3.70E-03 - 5.00E-01	1.10E-03	1.10E-03	1.86E-02	2.46E-02	1.10E-03	Unknown	--	--	--	--	--
Benzo(g,h,i)perylene	16	63	4.40E-03 - 5.00E-03	7.80E-04	7.25E-01	7.63E-02	6.38E-01	6.38E-01	Unknown	--	--	1.20E+01	--	--
Ethyl Benzene	18	22	3.70E-03 - 5.00E-01	1.80E-04	9.90E-03	1.76E-02	2.80E-02	9.90E-03	Unknown	--	--	--	--	--
Methylnaphthalene, 2-	16	81	4.80E-03 - 4.90E-03	4.80E-04	1.50E-01	1.49E-02	6.35E-02	6.35E-02	Lognormal	--	--	--	--	--
Naphthalene	17	29	1.50E-02 - 2.20E-02	5.80E-04	1.70E-01	2.28E-02	4.96E-02	4.96E-02	Unknown	--	--	1.20E+01	--	--
Toluene	18	11	3.70E-03 - 5.00E-01	2.30E-03	1.30E-02	1.80E-02	2.04E-02	1.30E-02	Unknown	--	--	--	--	--
Total Diesel/Fuel Oil	42	48	4.00E+01 - 7.00E+01	5.60E+01	7.31E+03	5.40E+02	1.06E+03	1.06E+03	Unknown	--	--	6.00E+03	--	--
Total Gasoline	40	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	42	45	5.00E+01 - 1.00E+02	1.03E+02	3.50E+03	4.22E+02	9.25E+02	9.25E+02	Unknown	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	40	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	40	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Xylenes	18	72	4.30E-03 - 5.00E-01	1.50E-04	3.80E-02	1.84E-02	1.14E-01	3.80E-02	Unknown	--	--	--	--	--
mi-Volatile Organic Constituents														
Acenaphthene	16	69	4.80E-03 - 5.00E-03	2.50E-04	3.60E-02	4.37E-03	8.62E-03	8.62E-03	Lognormal	--	--	1.20E+01	--	--
Acenaphthylene	16	6	4.40E-03 - 5.00E-03	8.60E-04	8.60E-04	2.34E-03	2.67E-03	8.60E-04	Unknown	--	--	1.20E+01	--	--
Anthracene	16	44	4.40E-03 - 1.10E-02	1.00E-03	1.10E-02	2.90E-03	3.91E-03	3.91E-03	Lognormal	--	--	1.20E+01	--	--
Dibenzofuran	16	38	4.40E-03 - 5.00E-03	8.10E-04	1.90E-02	3.55E-03	4.97E-03	4.97E-03	Unknown	--	--	--	--	--
Dichlorobenzene, 1,2-	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	16	63	4.80E-03 - 5.00E-03	9.10E-04	3.10E-02	5.33E-03	9.04E-03	9.04E-03	Unknown	--	--	1.20E+01	--	--
Fluorene	16	56	4.70E-03 - 5.00E-03	1.70E-03	7.70E-02	8.38E-03	1.22E-02	1.22E-02	Unknown	--	--	1.20E+01	--	--
Phenanthrene	16	69	4.80E-03 - 5.80E-03	8.90E-04	1.10E-01	2.05E-02	7.90E-02	7.90E-02	Lognormal	--	--	1.20E+01	--	--
Pyrene	16	75	4.80E-03 - 5.00E-03	5.00E-04	5.00E-01	4.77E-02	2.24E-01	2.24E-01	Lognormal	--	--	1.20E+01	--	--
Trichlorobenzene, 1,2,4-	16	0	1.50E-02 - 2.00E-01	--	--	--	--	--	--	--	--	--	--	--
Volatile Organics Constituents														
1,2,4-Trimethylbenzene	16	56	1.50E-02 - 2.10E-02	1.40E-04	1.70E-01	1.73E-02	1.42E-01	1.42E-01	Lognormal	--	--	--	--	--
1,3,5-Trimethylbenzene	16	44	1.50E-02 - 2.20E-02	1.20E-04	8.40E-02	1.13E-02	9.77E-02	8.40E-02	Unknown	--	--	--	--	--
1-Phenylpropane	16	19	1.50E-02 - 2.20E-02	1.40E-03	1.90E-02	9.24E-03	1.39E-02	1.39E-02	Unknown	--	--	--	--	--
2-chlorotoluene	16	0	1.50E-02 - 2.00E-01	--	--	--	--	--	--	--	--	--	--	--
4-chlorotoluene	16	6	1.50E-02 - 2.00E-01	1.90E-04	1.90E-04	1.47E-02	4.31E-02	1.90E-04	Unknown	--	--	--	--	--
4-isopropyltoluene	16	25	1.50E-02 - 2.20E-02	4.00E-04	3.70E-02	9.74E-03	3.01E-02	3.01E-02	Unknown	--	--	--	--	--
Acetone	16	75	1.80E-02 - 2.10E-02	1.25E-02	3.10E-01	6.55E-02	1.57E-01	1.57E-01	Lognormal	--	--	--	--	--
Bromomethane	16	25	4.30E-03 - 5.00E-02	1.10E-03	2.10E-03	3.61E-03	4.55E-03	2.10E-03	Unknown	--	--	--	--	--
CFC-12	16	19	3.70E-03 - 5.20E-03	5.10E-04	2.30E-02	3.42E-03	4.88E-03	4.88E-03	Unknown	--	--	--	--	--
Carbon Disulfide	16	88	4.60E-03 - 5.00E-02	8.00E-05	6.05E-03	2.42E-03	5.77E-03	5.77E-03	Unknown	--	--	--	--	--

Table I-2. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Field-Constructed Tanks Site - 0 to 15 feet
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
Chloromethane	16	31	4.30E-03 - 5.00E-02	1.50E-04	3.90E-04	3.16E-03	1.16E-02	3.90E-04	Unknown	--	--	--	--	--
Cumene	16	19	1.50E-02 - 2.20E-02	6.10E-04	1.10E-02	8.61E-03	1.77E-02	1.10E-02	Unknown	--	--	--	--	--
Dichlorobenzene, 1,4-	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	18	0	3.70E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	16	38	8.90E-03 - 1.10E-02	1.95E-03	2.10E-02	5.45E-03	6.88E-03	6.88E-03	Unknown	--	--	--	--	--
Hexanone, 2-	16	19	1.80E-02 - 2.00E+00	2.30E-03	5.10E-03	7.05E-02	6.98E-02	5.10E-03	Unknown	--	--	--	--	--
Methyl Ethyl Ketone	18	61	1.80E-02 - 5.00E+00	3.10E-03	1.80E-02	2.17E-01	6.65E-01	1.80E-02	Unknown	--	--	--	--	--
Styrene	16	25	3.70E-03 - 5.40E-03	1.40E-04	1.60E-02	2.82E-03	1.02E-02	1.02E-02	Unknown	--	--	--	--	--
Tert-butylbenzene	16	0	1.50E-02 - 2.00E-01	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
Trichloroethane, 1,1,1-	18	0	3.70E-03 - 5.00E-01	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene	16	0	3.70E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	16	25	1.50E-02 - 2.20E-02	2.70E-04	7.50E-02	1.22E-02	3.73E-02	3.73E-02	Unknown	--	--	--	--	--
sec-Butylbenzene	16	19	1.50E-02 - 2.20E-02	7.60E-04	3.30E-02	1.00E-02	1.91E-02	1.91E-02	Unknown	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-3. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Hoffman Tank Site - 0 to 6 feet
Hoffman Tank Site Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
etroleum-Related Constituents														
Total Diesel/Fuel Oil	4	100	--	4.40E+01	2.60E+02	1.19E+02	1.14E+03	2.60E+02	Normal/Lognormal	--	--	6.00E+03	--	--
Total Gasoline	2	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	2	50	5.00E+01 - 5.00E+01	9.90E+01	9.90E+01	6.20E+01	1.90E+13	9.90E+01	Unknown	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	2	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	2	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-4. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Hoffman Tank Site - 0 to 15 feet
Hoffman Tank Site Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
etroleum-Related Constituents														
Total Diesel/Fuel Oil	7	100	--	3.40E+01	1.10E+03	2.89E+02	3.28E+03	1.10E+03	Lognormal	--	--	6.00E+03	--	--
Total Gasoline	3	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	3	67	5.00E+01 - 5.00E+01	5.30E+01	9.90E+01	5.90E+01	5.11E+03	9.90E+01	Normal/Lognormal	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	3	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	3	0	1.00E+01 - 1.00E+01	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-5. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Railcar Unloading Site - 0 to 6 feet
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
etroleum-Related Constituents														
Total Diesel/Fuel Oil	4	0	4.00E+01 - 4.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Gasoline	4	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	4	0	5.00E+01 - 5.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Kerosene/Jet Fuel	4	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	4	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-6. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Railcar Unloading Site - 0 to 15 feet
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
PCBs														
Aroclor 1248	2	0	9.50E-03 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	2	0	9.50E-03 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	2	0	9.50E-03 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	2	0	9.50E-03 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
etroleum-Related Constituents														
Benzene	2	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Ethyl Benzene	2	100	--	3.45E-04	3.50E-04	3.48E-04	3.60E-04	3.50E-04	Unknown	--	--	--	--	--
Methylnaphthalene, 2-	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Toluene	2	100	--	2.40E-03	2.60E-03	2.50E-03	3.06E-03	2.60E-03	Unknown	--	--	--	--	--
Total Diesel/Fuel Oil	8	0	4.00E+01 - 4.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Gasoline	8	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	8	0	5.00E+01 - 5.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Kerosene/Jet Fuel	8	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	8	0	5.00E+00 - 5.00E+00	--	--	--	--	--	--	--	--	--	--	--
Xylenes	2	100	--	1.05E-03	1.10E-03	1.07E-03	1.22E-03	1.10E-03	Unknown	--	--	--	--	--
mi-Volatile Organic Constituents														
Acenaphthene	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Anthracene	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,2-	2	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	2	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	2	50	3.20E-04 - 3.20E-04	1.60E-05	1.60E-05	8.80E-05	2.21E+28	1.60E-05	Unknown	--	--	1.20E+01	--	--
Fluorene	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Pyrene	2	0	3.20E-04 - 3.20E-04	--	--	--	--	--	--	--	--	--	--	--
Trichlorobenzene, 1,2,4-	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
/olatile Organics Constituents														
1,2,4-Trimethylbenzene	2	50	2.20E-02 - 2.20E-02	8.60E-05	8.60E-05	5.54E-03	2.14E+142	8.60E-05	Unknown	--	--	--	--	--
1,3,5-Trimethylbenzene	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
1-Phenylpropane	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
2-chlorotoluene	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
4-chlorotoluene	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
4-isopropyltoluene	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
Acetone	2	100	--	5.95E-03	3.30E-02	1.95E-02	1.48E+16	3.30E-02	Unknown	--	--	--	--	--
Bromomethane	2	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--	--	--
CFC-12	2	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--	--	--
Carbon Disulfide	2	100	--	2.40E-04	8.10E-04	5.25E-04	4.62E+05	8.10E-04	Unknown	--	--	--	--	--
Chloromethane	2	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--	--	--
Cumene	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	2	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	2	0	4.30E-03 - 5.50E-03	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	2	0	8.60E-03 - 1.10E-02	--	--	--	--	--	--	--	--	--	--	--
Hexanone, 2-	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	2	50	1.80E-02 - 1.80E-02	3.90E-03	3.90E-03	6.45E-03	8.91E+01	3.90E-03	Unknown	--	--	--	--	--
Styrene	2	50	5.50E-03 - 5.50E-03	1.40E-04	1.40E-04	1.45E-03	2.76E+51	1.40E-04	Unknown	--	--	--	--	--
Tert-butylbenzene	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	2	100	--	1.00E-03	1.08E-03	1.04E-03	1.24E-03	1.08E-03	Unknown	--	--	--	--	--

Table I-6. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Railcar Unloading Site - 0 to 15 feet
Oil Reclamation to Wastewater Transfer Lines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
Trichloroethane, 1,1,1-	2	50	5.50E-03 - 5.50E-03	1.90E-04	1.90E-04	1.47E-03	7.07E+40	1.90E-04	Unknown	--	--	--	--	--
Trichloroethylene	2	100	--	2.60E-04	3.25E-04	2.93E-04	5.99E-04	3.25E-04	Unknown	--	--	--	--	--
n-Butylbenzene	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	2	0	1.80E-02 - 2.20E-02	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-7. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
South Discharge Ravine Site - 0 to 6 feet
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
PCBs														
Aroclor 1248	38	29	9.90E-03 - 1.00E-02	1.30E-01	7.10E+01	2.56E+00	2.57E+01	2.57E+01	Unknown	--	--	6.50E-01	Yes	Yes
Aroclor 1254	38	34	9.90E-03 - 1.30E+00	3.50E-03	3.50E+00	3.90E-01	2.29E+00	2.29E+00	Unknown	--	--	6.50E-01	Yes	Yes
Aroclor 1260	38	42	9.90E-03 - 1.30E+00	2.40E-03	1.20E+00	1.58E-01	6.36E-01	6.36E-01	Unknown	--	--	6.50E-01	--	--
Aroclor 1262	29	14	9.90E-03 - 1.30E+00	1.90E-02	5.20E-01	5.80E-02	8.07E-02	8.07E-02	Unknown	--	--	6.50E-01	--	--
Aroclor 1268	29	0	9.90E-03 - 1.30E+00	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	38	61	9.90E-03 - 1.00E-02	3.30E-03	7.10E+01	3.08E+00	1.01E+02	7.10E+01	Unknown	--	--	6.50E-01	Yes	Yes
etroleum-Related Constituents														
Total Diesel/Fuel Oil	38	34	7.00E+01 - 7.00E+01	6.30E+01	1.33E+03	2.06E+02	2.91E+02	2.91E+02	Unknown	--	--	6.00E+03	--	--
Total Gasoline	38	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	38	16	1.00E+02 - 2.00E+02	1.60E+02	1.30E+04	4.72E+02	2.65E+02	2.65E+02	Unknown	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	38	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	38	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-8. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
South Discharge Ravine Site - 0 to 15 feet
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
PCBs														
Aroclor 1248	39	28	9.90E-03 - 1.00E-02	1.30E-01	7.10E+01	2.50E+00	2.11E+01	2.11E+01	Unknown	--	--	6.50E-01	Yes	Yes
Aroclor 1254	39	33	9.90E-03 - 1.30E+00	3.50E-03	3.50E+00	3.80E-01	2.01E+00	2.01E+00	Unknown	--	--	6.50E-01	Yes	Yes
Aroclor 1260	39	41	9.90E-03 - 1.30E+00	2.40E-03	1.20E+00	1.54E-01	5.72E-01	5.72E-01	Unknown	--	--	6.50E-01	--	--
Aroclor 1262	29	14	9.90E-03 - 1.30E+00	1.90E-02	5.20E-01	5.80E-02	8.07E-02	8.07E-02	Unknown	--	--	6.50E-01	--	--
Aroclor 1268	29	0	9.90E-03 - 1.30E+00	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	39	59	9.90E-03 - 1.00E-02	3.30E-03	7.10E+01	3.00E+00	8.46E+01	7.10E+01	Unknown	--	--	6.50E-01	Yes	Yes
etroleum-Related Constituents														
Total Diesel/Fuel Oil	39	36	7.00E+01 - 7.00E+01	4.20E+01	1.33E+03	2.01E+02	2.77E+02	2.77E+02	Unknown	--	--	6.00E+03	--	--
Total Gasoline	39	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	39	15	1.00E+02 - 2.00E+02	1.60E+02	1.30E+04	4.63E+02	2.57E+02	2.57E+02	Unknown	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	39	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	39	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-9. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Western Discharge Ravine Site - 0 to 6 feet
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
PCBs														
Aroclor 1248	29	79	9.70E-03 - 9.90E-02	1.50E-02	7.20E+01	1.15E+01	3.71E+03	7.20E+01	Unknown	--	--	6.50E-01	Yes	Yes
Aroclor 1254	29	28	8.20E-03 - 1.00E+00	6.40E-03	1.20E+00	2.86E-01	1.77E+00	1.20E+00	Unknown	--	--	6.50E-01	Yes	Yes
Aroclor 1260	29	0	8.20E-03 - 1.00E+00	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	29	100	--	6.40E-03	7.20E+01	1.16E+01	8.27E+02	7.20E+01	Unknown	--	--	6.50E-01	Yes	Yes
roleum-Related Constituents														
Total Diesel/Fuel Oil	10	0	4.00E+01 - 4.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	10	20	5.00E+01 - 5.00E+01	5.30E+02	1.50E+03	2.23E+02	1.44E+03	1.44E+03	Unknown	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	10	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-10. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Western Discharge Ravine Site - 0 to 15 feet
Discharge Ravines Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
PCBs														
Aroclor 1248	89	90	9.50E-03 - 9.90E-02	1.00E-02	7.20E+01	6.75E+00	6.78E+01	6.78E+01	Lognormal	--	--	6.50E-01	Yes	Yes
Aroclor 1254	89	16	5.50E-03 - 1.00E+00	6.40E-03	9.60E+00	3.39E-01	1.00E+00	1.00E+00	Lognormal	--	--	6.50E-01	Yes	Yes
Aroclor 1260	89	0	5.50E-03 - 1.00E+00	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	89	100	--	6.40E-03	7.20E+01	6.95E+00	3.80E+01	3.80E+01	Lognormal	--	--	6.50E-01	Yes	Yes
oleum-Related Constituents														
Total Diesel/Fuel Oil	24	0	4.00E+01 - 4.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	24	13	5.00E+01 - 5.00E+01	3.80E+02	1.50E+03	1.22E+02	1.35E+02	1.35E+02	Unknown	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	24	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

Biphenyls

TPH = Total Petroleum Hydrocarbon

Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-11. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Industrial Wastewater Treatment Area Buffer Site - 0 to 6 feet
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
PCBs														
Aroclor 1248	1	100	--	7.20E-02	7.20E-02	7.20E-02	--	7.20E-02	Unknown	--	--	6.50E-01	--	--
Aroclor 1254	1	100	--	7.60E-02	7.60E-02	7.60E-02	--	7.60E-02	Unknown	--	--	6.50E-01	--	--
Aroclor 1260	1	0	1.00E-02 - 1.00E-02	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	1	100	--	1.48E-01	1.48E-01	1.48E-01	--	1.48E-01	Unknown	--	--	6.50E-01	--	--
etroleum-Related Constituents														
Total Diesel/Fuel Oil	1	0	7.00E+01 - 7.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Gasoline	1	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	1	0	1.00E+02 - 1.00E+02	--	--	--	--	--	--	--	--	--	--	--
Total Kerosene/Jet Fuel	1	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	1	0	2.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Table I-12. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Industrial Wastewater Treatment Area Buffer Site - 0 to 15 feet
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
Metals														
Arsenic (inorganic)	4	100	--	2.00E+00	7.12E+00	4.63E+00	1.58E+01	7.12E+00	Normal/Lognormal	9.00E+00	--	7.00E+00	--	--
Barium	3	100	--	3.74E+01	1.14E+02	6.70E+01	1.54E+03	1.14E+02	Normal/Lognormal	2.55E+02	--	1.02E+02	--	--
Cadmium	4	75	1.00E+00 - 1.00E+00	4.30E-02	1.41E-01	2.06E-01	1.13E+01	1.41E-01	Normal/Lognormal	1.00E+00	--	1.40E+01	--	--
Chromium	4	100	--	6.95E+00	3.70E+01	1.66E+01	1.29E+02	3.70E+01	Normal/Lognormal	1.80E+01	Yes	6.70E+01	--	--
Lead (inorganic)	4	75	1.00E+01 - 1.00E+01	4.55E+00	1.17E+01	7.77E+00	2.10E+01	1.17E+01	Normal/Lognormal	1.50E+01	--	1.18E+02	--	--
Manganese	3	100	--	9.71E+01	4.81E+02	3.22E+02	4.06E+05	4.81E+02	Normal/Lognormal	7.00E+02	--	1.50E+03	--	--
Mercury (inorganic)	3	33	1.90E-02 - 2.00E-02	1.20E-02	1.20E-02	1.05E-02	1.35E-02	1.20E-02	Normal/Lognormal	2.00E-02	--	4.00E-01	--	--
Selenium (and compounds)	3	33	1.00E+00 - 1.10E+00	4.00E-01	4.00E-01	4.83E-01	6.92E-01	4.00E-01	Normal/Lognormal	3.30E-01	Yes	3.00E-01	Yes	Yes
Silver	3	100	--	2.80E-02	7.00E-02	5.10E-02	4.23E-01	7.00E-02	Normal/Lognormal	3.80E-01	--	--	--	--
PCBs														
Aroclor 1248	6	33	9.90E-03 - 2.00E-01	7.20E-02	5.50E-01	1.23E-01	2.34E+02	5.50E-01	Lognormal	--	--	6.50E-01	--	--
Aroclor 1254	6	33	9.90E-03 - 2.00E-01	7.60E-02	3.50E-01	9.02E-02	7.65E+01	3.50E-01	Lognormal	--	--	6.50E-01	--	--
Aroclor 1260	6	0	9.90E-03 - 2.00E-01	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1262	1	0	2.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1268	1	0	2.00E-01 - 2.00E-01	--	--	--	--	--	--	--	--	--	--	--
Total PCBs	6	33	9.90E-03 - 2.00E-01	1.48E-01	9.00E-01	1.94E-01	2.33E+03	9.00E-01	Lognormal	--	--	6.50E-01	Yes	Yes
etroleum-Related Constituents														
Benzene	4	0	4.50E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Ethyl Benzene	4	0	4.50E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
Methylnaphthalene, 2-	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
Toluene	4	25	4.50E-03 - 5.00E-02	1.80E-03	1.80E-03	8.34E-03	2.12E+00	1.80E-03	Lognormal	--	--	--	--	--
Total Diesel/Fuel Oil	6	0	2.00E+01 - 7.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Gasoline	6	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Heavy Oil	6	17	1.00E+01 - 2.00E+02	2.30E+02	2.30E+02	7.25E+01	2.06E+03	2.30E+02	Normal/Lognormal	--	--	6.00E+03	--	--
Total Kerosene/Jet Fuel	6	0	1.00E+01 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Total Stoddard/Mineral Spirits	6	0	5.00E+00 - 2.00E+01	--	--	--	--	--	--	--	--	--	--	--
Xylenes	4	25	8.60E-03 - 5.00E-02	2.50E-04	2.50E-04	8.54E-03	2.04E+04	2.50E-04	Normal/Lognormal	--	--	--	--	--
mi-Volatile Organic Constituents														
Acenaphthene	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Anthracene	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	3	33	5.00E-03 - 5.00E-03	2.60E-04	2.60E-04	1.75E-03	1.96E+04	2.60E-04	Unknown	--	--	--	--	--
Dichlorobenzene, 1,2-	3	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,3-	3	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Fluorene	3	33	5.00E-03 - 5.00E-03	2.30E-04	2.30E-04	1.74E-03	1.20E+05	2.30E-04	Unknown	--	--	1.20E+01	--	--
Phenanthrene	3	0	5.00E-03 - 5.00E-03	--	--	--	--	--	--	--	--	--	--	--
Pyrene	3	33	5.00E-03 - 5.00E-03	4.60E-04	4.60E-04	1.82E-03	1.54E+01	4.60E-04	Unknown	--	--	1.20E+01	--	--
Trichlorobenzene, 1,2,4-	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
olatile Organics Constituents														
1,2,4-Trimethylbenzene	3	33	3.50E-02 - 3.70E-02	1.20E-04	1.20E-04	1.20E-02	2.95E-02	1.20E-04	Normal	--	--	--	--	--
1,3,5-Trimethylbenzene	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
1-Phenylpropane	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
2-chlorotoluene	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
4-chlorotoluene	3	33	3.50E-02 - 3.70E-02	1.20E-04	1.20E-04	1.20E-02	2.95E-02	1.20E-04	Normal	--	--	--	--	--
4-isopropyltoluene	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
Acetone	3	33	2.10E-02 - 3.50E-02	4.60E-02	4.60E-02	2.47E-02	4.83E+00	4.60E-02	Normal/Lognormal	--	--	--	--	--
Bromomethane	3	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--	--	--

Table I-12. Statistical Summary and Identification of Ecological Indicator Hazardous Substances (mg/kg)
Industrial Wastewater Treatment Area Buffer Site - 0 to 15 feet
Industrial Wastewater Treatment Area
Kaiser Trentwood Facility

Constituent	Number of Samples	Frequency of Detection (%)	Detection Limits	Minimum Detect	Maximum Detect	Mean	95% UCL[1]	EPC[2]	Distribution Type[3]	Background[4]	Exceed Background?	ISC[5]	Exceed ISC?	EIHS?
CFC-12	3	33	4.50E-03 - 9.20E-03	1.30E-03	1.30E-03	2.72E-03	1.17E-01	1.30E-03	Normal/Lognormal	--	--	--	--	--
Carbon Disulfide	3	67	9.20E-03 - 9.20E-03	1.50E-03	3.70E-03	3.27E-03	9.04E-02	3.70E-03	Normal/Lognormal	--	--	--	--	--
Chloromethane	3	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--	--	--
Cumene	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
Dichlorobenzene, 1,4-	3	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--	--	--
Dichloroethane, 1,1-	4	0	4.50E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
Dichloromethane	3	0	8.90E-03 - 1.90E-02	--	--	--	--	--	--	--	--	--	--	--
Hexanone, 2-	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
Methyl Ethyl Ketone	4	25	3.50E-02 - 5.00E-01	2.90E-03	2.90E-03	7.22E-02	4.07E+04	2.90E-03	Lognormal	--	--	--	--	--
Styrene	3	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--	--	--
Tert-butylbenzene	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	3	33	8.60E-03 - 9.20E-03	5.20E-04	5.20E-04	3.14E-03	6.85E+03	5.20E-04	Normal/Lognormal	--	--	--	--	--
Trichloroethane, 1,1,1-	4	0	4.50E-03 - 5.00E-02	--	--	--	--	--	--	--	--	--	--	--
Trichloroethylene	3	0	4.50E-03 - 9.20E-03	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	3	0	1.80E-02 - 3.70E-02	--	--	--	--	--	--	--	--	--	--	--

Notes:

CPAH TEQ - Carcinogenic Polycyclic Hydrocarbons Toxic Equivalency Concentrations

EIHS = Ecological Indicator Hazardous Substance

EPC = Exposure Point Concentration

ISC - Indicator Soil Concentration

PCBs - Polychlorinated Biphenyls

TPH = Total Petroleum Hydrocarbon

VOC = Volatile Organic Compound

[1]95% UCL value is the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown or the 95% UCL if the distribution type is normal.

[2]EPCs - EPCs were calculated using a series of decision rules: (1) Use the 95% UCL if the distribution type is normal, (2) Use the Log 95% UCL if the distribution type is lognormal, normal/lognormal, or unknown, and (3) Use the maximum detected concentration as the EPC if it is less than the 95% UCL or the 95% Log UCL. For Soil RFI units with a sample count less than 10, the maximum detected value was used for the EPC.

[3]Distribution Type - The distribution type was determined using the Wilk-Shapiro test for sample sizes less than 50 samples and the D'Agostino test for sample sizes greater than 50 samples. Normal = 95% certain that the samples were obtained from a population with a normal distribution. Lognormal = 95% certain that the samples were obtained from a population with a lognormal distribution. Unknown = samples are not normally or lognormally distributed with 95% certainty.

[4]Natural background concentration for metals (Appendix C).

[5]ISCs are default Wildlife ISCs from MTCA Table 749-3.

-- Constituent not detected or detected at concentrations below RBSC. No further evaluation.

Appendix J

Potential Impacts of Selected Organic Constituents to Wildlife

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SECTION 1 – INTRODUCTION

Twenty-four organic constituents detected in soil samples from sites included in the Tier 3 site-specific Terrestrial Ecological Evaluation for the Kaiser Trentwood Facility were not considered ecological indicator hazardous substance. Twenty three of these 24 constituents were volatile organic constituents and one was a semi-volatile organic constituent. Default Model Toxics Control Act (MTCA) wildlife indicator soil concentrations[1] were not available for these constituents. The following evaluation provides supporting information for excluding these constituents from the ecological indicator hazardous substance list for the Trentwood Facility Ecological Risk Assessment (ERA).

SECTION 2 – EXPOSURE MODELS SUMMARY

Wildlife indicator soil concentration exposure models (described in Section 11.3.2 of the HHERA) were used to provide a quantitative evaluation of the potential hazards of these 24 organic constituents to wildlife. The models consisted of exposure parameters for three indicator wildlife species (i.e., shrew, vole, and robin), constituent-specific bioaccumulation factors, and chemical- and species-specific toxicity reference values. Wildlife exposure parameter values shown in Table J-1 and bioaccumulation factors were estimated using methodologies described in MTCA[2]. Since avian toxicity data for the 24 organic constituents were very limited, exposure models for the shrew and vole were used to evaluate potential impacts to wildlife.

2.1 Toxicological Endpoints

Wildlife toxicity values are typically based on toxicological endpoints of ecological relevance that potentially manifest themselves by decreasing individual and/or population fitness. Acceptable toxicity endpoints for wildlife toxicity values include growth, reproduction, and survival. MTCA stipulates that toxicity values be based on the lowest observed adverse effect level from a toxicological study or group of studies. Toxicological studies evaluating relevant ecological endpoints on wildlife species were limited for the 24 organic constituents that were detected at Trentwood Facility. Therefore, this evaluation utilized toxicity data from the United States Environmental Protection Agency's (USEPA's) Integrated Risk Information System as a source of mammalian toxicity values.

The Integrated Risk Information System provides protective oral reference doses for use in human health risk assessments that include summaries of the toxicological studies on which the oral reference dose was

[1] Default wildlife indicator soil concentrations are shown in MTCA Table 749-3.

[2] Default methods for estimating earthworm and plant bioaccumulation factors for organic constituents are provided in footnotes to MTCA Table 749-5.

based[3]. These studies are typically conducted in the laboratory on rats and mice, but occasionally are based on epidemiological studies in occupational settings. Endpoints for the oral reference dose toxicological studies do not typically include growth, reproduction, or survival, but usually include more sensitive endpoints such as increased organ weight, altered blood chemistry, and histopathological effects on specific organs. The ecological relevance for some of the oral reference dose toxicity endpoints is unclear. For example, a rat's liver weight might increase in response to constituent exposure, but the impact of increased liver weight on growth, reproduction, or survival to animal in the wild is uncertain. In general, health protective oral reference dose toxicity endpoints are considered protective of mammalian wildlife. The lowest observed adverse effect level from the primary oral reference doses toxicological study was preferentially selected as the mammalian toxicity value for the 24 organic constituents. For some constituents, a lowest observed adverse effect level was not available. In those instances, more conservative toxicity values were selected from the primary toxicological summaries (e.g., the no observed effect level).

SECTION 3 – RESULTS

Table J-2 presents the results of the quantitative evaluation of the potential ecological hazards posed by the 24 organic constituents to wildlife. Mammalian toxicity values were available for 12 of the 24 constituents. Provisional indicator soil concentrations for the shrew (insectivorous mammal) and vole (herbivorous mammal) were calculated to evaluate the major routes of wildlife (mammalian) exposure to soil-borne constituents. A comparison of the provisional indicator soil concentrations to the maximum-detected concentration for each constituent in soil samples from the Trentwood Facility shows the indicator soil concentrations are approximately two to six orders of magnitude greater than the maximum detected concentrations.

Although the lack of mammalian toxicity values prevented calculation of provisional indicator soil concentrations for 12 constituents, the indicator soil concentrations that were calculated had a range of toxicity values and bioaccumulation factors that likely bracket those of the remaining 12 constituents. In addition, this evaluation conservatively assumed that these organic constituents would not volatilize from soil. Generally, volatile organic constituents in soil are not considered a potential hazard to mammalian and avian species because of their relatively-low potential to bioaccumulate and persist in soil.

SECTION 4 – CONCLUSIONS

Based on the results of this evaluation, it can be concluded the 24 organic constituents that were detected at the Trentwood Facility but did not have wildlife indicator soil concentrations available, do not pose a

[3] The Integrated Risk Information System was accessed online through the U.S. National Library of Medicine Toxicology Data Network at http://toxnet.nlm.nih.gov/.

potential hazard to wildlife. Therefore, these 24 constituents were not identified as ecological indicator hazardous substances in the site-specific ecological evaluation.

Table J-1. Wildlife Exposure Parameter Values

Species	Proportion of Contaminated Food in Diet (unitless) (*P*)	Food Ingestion Rate (kg DW/kg body weight-day) (*FIR*)	Soil Ingestion Rate (kg DW/kg body weight-day) (*SIR*)	Home Range (acres)
Shrew	0.5	0.209	0.00627	0.1
Vole	1.0	0.0875	0.0028	0.08
Robin	0.52	0.207	0.0215	0.6

Notes:
Highlighted parameter values are modified from the default values from MTCA (Table 749-4) as explained in Section 11.3.2.
DW – dry weight
kg – kilogram

Table J-2. Provisional Wildlife Soil Indicator Concentrations for Selected Organic Compounds

Constituent	CAS #	Constituent Group	Is Constituent Chlorinated?	Log Kowa	Mammalian Toxicity Value (mg/kg/d)b	Toxicity Value Comment	Earthworm BAF	Plant BAF	Shrew ISC (mg/kg)	Vole ISC (mg/kg)	Max. Detected Concentration (mg/kg)c	Max. Detect / Shrew ISC	Max. Detect / Vole ISC
1,1,1-Trichloroethane	71-55-6	VOC	YES	2.49	na	--	4.7	1.41	--	--	1.3	--	--
1,2,4-Trimethylbenzene	95-63-6	VOC		3.78	na	--	0.7	0.25	--	--	7.8	--	--
1,3,5-Trimethylbenzene	108-67-8	VOC	NO	3.42	na	--	0.7	0.41	--	--	2.2	--	--
1-Phenylpropane	103-65-1	VOC	NO	3.69	na	--	0.7	0.28	--	--	6.45	--	--
2-Hexanone	591-78-6	VOC	NO	1.38	na	--	4.7	6.17	--	--	0.0051	--	--
4-Chlorotoluene	106-43-4	VOC	YES	3.33	na	--	4.7	0.46	--	--	0.59	--	--
4-Isopropyltoluene	99-87-6	VOC	NO	4.1	na	--	0.7	0.17	--	--	7.05	--	--
Acetone	67-64-1	VOC	NO	-0.24	1,700	LOAEL subchronic oral rat study based on increased kidny and liver weight	0.7	53.30	21,405	364	0.63	33,976	578
Bromomethane	74-83-9	VOC	NO	1.19	7.1	LOAEL subchorinc oral rat study based on epithelial hyperplasia in the forestomach	0.7	7.94	89	10	0.0021	42,571	4,844
Carbon disulfide	75-15-0	VOC	NO	1.94	10	NOEL rat inhalation study route-to-route adjusted based on reproductive effects	0.7	2.93	126	39	0.0875	1,439	441
CFC-12	75-71-8	VOC	YES	2.16	150	LOAEL rat chronic oral study based on decreased growth	4.7	2.18	302	774	0.023	13,111	33,631
Chloromethane	74-87-3	VOC	YES	0.91	na	--	4.7	11.53	--	--	0.00039	--	--
Cumene	98-82-8	VOC	NO	3.66	331	LOAEL chronic oral rat study based on increased kidney weight	0.7	0.30	4,168	11,512	0.85	4,903	13,544
Dibenzofuran	132-64-9	SVOC	NO	4.12	na	--	0.7	0.16	--	--	2	--	--
Dichloromethane	75-09-2	VOC	YES	1.25	52.58	LOAEL chronic rat oral study based on histological effects	4.7	7.33	106	82	0.028	3,775	2,913
Ethyl benzene	100-41-4	VOC	NO	3.15	291	LOAEL chronic rat oral study based on histopathological changes to liver and kidney	0.7	0.58	3,664	5,392	6.8	539	793
Methyl ethyl ketone	78-93-3	VOC	NO	0.29	1,771	LOAEL multigeneration oral rat study based on reproductive developmental effects	0.7	26.32	22,299	768	0.033	675,732	23,271
n-Butylbenzene	104-51-8	VOC	NO	4.38	na	--	0.7	0.11	--	--	7.6	--	--
sec-Butylbenzene	135-98-8	VOC	NO	4.57	na	--	0.7	0.09	--	--	6.5	--	--
Styrene	100-42-5	VOC	NO	2.95	400	LOAEL subchronic oral dog study based on hematological effetcs	0.7	0.76	5,037	5,749	0.016	314,782	359,325
Tetrachloroethylene	127-18-4	VOC	YES	3.4	71	LOAEL subchronic oral mouse study based on liver effects	4.7	0.42	143	1,798	0.0011	129,760	1,634,754
Toluene	108-88-3	VOC	NO	2.73	446	LOAEL subchronic oral rat study based on incresed kidney weight	0.7	1.02	5,616	4,832	3.8	1,478	1,272
Trichloroethylene	79-01-6	VOC	YES	2.61	NA	--	4.7	1.20	--	--	0.000325	--	--
Xylenes	1330-20-7	VOC	NO	3.12	500	LOAEL chronic oral rat study oral study based on decreased body weight and survival	0.7	0.61	6,296	8,920	35	180	255

Notes:

MTCA (Table 749-5) default bioaccumulation factors (BAFs) for organic chemicals in earthworms are:

Nonchlorinated organic chemicals:

Log Kow < 5 = 0.7

Log Kow > 5 = 0.9

Chlorinated organic chemicals:

Log Kow < 5 = 4.7

Log Kow > 5 = 11.8

MTCA (Table 749-5) default BAFs for organic chemicals in plants are calculated as $10^{(1.588-(0.5781*LogKow))}$

[a]Log octanol/water partition coefficient (Log Kow) values were obtained from the National Library of Medicine's Hazardous Substances Data Bank (HSDB) available at http://toxnet.nlm.nih.gov/ on February 23, 2009.

[b]Mammalian toxicity values were obtained from USEPA's Integrated Risk Information System (IRIS) available **online at http://toxnet.nlm.nih.gov/ on February 23, 2009.**

[c]These values are the maximum detected concentrations of the compound in soil samples (0 - 15 feet bgs) collected from the Kaiser Trentwood facility and included in this TEE.

BAF = Bioaccumulation Factor

ISC - Indicator Soil Concentration

IRIS - Integrated Risk Information System

LOAEL - Lowest Observed Adverse Effect Level

na - Toxicity Not Available in IRIS

NOAEL - No Observed Adverse Effect Level

NOEL - No Observed Effect Level

SVOC - Semi-Volatile Organic Constituent

VOC - Volatile Organic Constituent

USEPA - United States Environmental Protection Agency

Appendix K

Bioaccumulation Factors and Site-Specific Indicator Soil Concentrations

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SECTION 1 – INTRODUCTION

This appendix identifies site-specific bioaccumulation factors and presents the calculations used to derive site-specific indicator soil concentrations for Polychlorinated Biphenyls (PCBs) based on these site-specific bioaccumulation factors.

A bioaccumulation factor is defined as the concentration of a constituent in tissue divided by its concentration in the diet. Bioaccumulation factors provide an estimate of the ability of a constituent to accumulate in animal tissues. The Model Toxics Control Act (MTCA) provides default bioaccumulation factors for soil-dwelling invertebrates and includes bioaccumulation factors for the ecological indicator hazardous substances that were identified in the Terrestrial Ecological Evaluation (see Section 11.2.2 of the Kaiser Trentwood Facility Human Health and Ecological Risk Assessments [HHERA]). However, the MTCA bioaccumulation factors for PCBs were not considered appropriate for use at the Trentwood Facility because the soil biota bioaccumulation factors for PCBs are based upon accumulation into earthworms, and earthworms are not present in most cover types at the Trentwood Facility. Therefore, it was more appropriate to identify site-specific bioaccumulation factors for PCBs at the Trentwood Facility.

The identification of site-specific bioaccumulation factors for PCBs and calculation of the associated indicator soil concentration was based on methods prescribed in MTCA[1]. Calculation of site-specific bioaccumulation factors included a review of current literature and selection of studies that reported accumulation in soil biota that are more applicable to the Trentwood Facility than earthworms. Two scientific bibliographic databases, BIOSYS® and ScienceDirect®, were queried to identify appropriate studies on which to base the selection of site-specific bioaccumulation factors.

SECTION 2 – SOIL MACROINVERTEBRATE BIOACCUMULATION FACTORS FOR PCBS

2.1 Background

PCBs were identified as environmental indicator hazardous substances at three of the Trentwood Facility sites (i.e., Industrial Wastewater Treatment Area Buffer, South Drainage Ravine, and West Drainage Ravine). PCBs were selected as environmental indicator hazardous substances at these sites using the default MTCA wildlife indicator soil concentration of 0.65 mg/kg, which is based on a food-chain model for the shrew consuming earthworms. The default MTCA soil invertebrate bioaccumulation factor for PCBs of 4.58 used to calculate the indicator soil concentration is based on accumulation in earthworms. Earthworms are often used to estimate bioaccumulation of constituents in soil because they are highly exposed to the constituents. Earthworms can accumulate constituents directly through their integument by uptake from soil pore water and they also accumulate constituents from ingesting soil and soil organic

[1] WAC 173-340-7493(4) and (6).

matter. Other soil macroinvertebrate taxa often exhibit different levels of constituent accumulation than earthworms.

Appendix H provides information relating to the potential presence of earthworms at the Trentwood Facility, and concludes that they are not present in the cover types present at the Industrial Wastewater Treatment Area Buffer, South Drainage Ravine and West Drainage Ravine sites where PCBs were identified as environmental indicator hazardous substances. Since earthworms are not present in those sites, it is unrealistic to use a PCB bioaccumulation factor based on earthworms to estimate exposure and risks to invertebrate-consuming birds and mammals. Therefore, other soil macroinvertebrates were considered for developing a site-specific PCB bioaccumulation factor for the Trentwood Facility.

2.2 Evaluation of Soil Macroinvertebrates

As described in Appendix H soil macroinvertebrates include many species of insects (e.g., ground beetles, ants, termites), crustaceans (e.g., woodline and pillbugs), gastropods (e.g., snails and slugs), and oligocheates (earthworms). These invertebrates are a food source for terrestrial birds and mammals and accumulate soil-born constituents to varying degrees depending upon their life-styles.

2.3 Scientific Literature Review

Soil macroinvertebrates accumulate hydrophobic constituents from soil to varying degrees. Polycyclic Aromatic Hydrocarbons (PAHs) are similar to PCBs in that they are hydrophobic organic constituents, and they share similar environmental fate and transport characteristics. Van Brummelen et al. (1996) studied the bioaccumulation PAHs from soil into several macroinvertebrate taxa. In the study, co-located samples of soil, earthworms, and three species of isopods (commonly called sow bugs) were collected from 10 locations along a PAH gradient from an industrial source (blast furnace plant). Sow bugs are crustaceans that feed on decaying plant matter and are typically found under logs, stones, and other debris which helps them conserve moisture. The earthworm *Lumbricus rubellus* also feeds on decaying plant matter, but lives in the top layer of the soil. Biota to soil accumulation factors were expressed as lipid-normalized concentrations in biota divided by the organic carbon normalized concentrations in soil. Use of normalized biota to soil accumulation factors reduces variability associated with the differences in lipid content of the biota and organic carbon concentrations in soil. Sow bug BSAFs were between four- to nine-times less than the earthworm biota to soil accumulation factors.

Hamers et al. (2006) studied the bioaccumulation of PAHs in soil into earthworms (*L. rubellus*) and wood snails (*Cepaea nemoralis*). Wood snails eat a variety of grasses and forbs. Co-located biota and soil samples were collected from two locations contaminated by PAHs. Whole depurated[2] earthworms were analyzed, while snail analysis was performed on the depurated digestive gland. The digestive gland may accumulate higher levels of PAHs than the whole animal (Dallenger, 1993). High performance liquid chromatography with ultraviolet fluorescence was used to measure PAHs in soil samples. PAHs were

[2] Earthworms typically contain soil in their gut. Depuration is a procedure by which the earthworms are allowed to naturally purge their gut of soil. Depuration usually entails placing the worms in a clean glass container with adequate moisture for a period of 24 to 48 hours and then rinsing the animals with water prior to sending them to the analytical laboratory.

measured in tissue samples using the DR-CALUX® bioassay. Bioaccumulation factors were calculated as the PAH concentration in biota (dry weight basis) divided by the PAH concentration in soil (dry weight basis). Bioaccumulation factors for snails were seven- to12-times lower than for earthworms. Results of studies by Van Brummelen and Hamers demonstrate there is considerable variation in bioaccumulation of hydrophobic constituents among taxonomic groups of soil-dwelling macroinvertebrates (Van Brummelen et al, 1996; Hamers et al., 2006).

Two studies were identified that characterized the bioaccumulation of PCBs into non-earthworm soil-dwelling macroinvertebrates. Paine et al., (1993) studied the accumulation of PCBs by the house cricket (*Acheta domesticus*) in a laboratory bioassay where soil was spiked with Aroclor 1254 at concentrations of zero, 100, 250, 500, 1,000, and 2,000 mg/kg (dry weight). The test duration was 14 days and animals were fed during the test. PCB concentrations in tissue samples were reported on the fresh weight basis and converted to a dry weight basis assuming 69 percent moisture content (USEPA, 1993). Bioaccumulation factors calculated as the PCB concentration in crickets (mg/kg dry weight) divided by the PCB concentrations in soil (mg/kg dry weight) ranged from 0.23 to 0.61.

Blankenship et al. (2005) studied the accumulation of PCBs within a terrestrial food web at the Kalamazoo River Superfund site in Michigan. Co-located samples of soil, plants, above-ground invertebrates, earthworms, and a variety of birds and mammals were collected from a contaminated area and a reference area. The above-ground invertebrates were collected by hand picking and sweep nets, and were sorted into orders before analysis. Although the authors did not identify all orders included in the above-ground invertebrate samples, they did mention orthoptera (i.e., crickets and grasshoppers) and coleoptera (beetles). Beetles samples included a considerable quantity of June bugs (*Phyllophaga sp.*) and Japanese beetles (*Popillia japocica*). Total PCB concentrations were measured on a gas chromatograph equipped with an electron-capture detector. Mean PCB concentrations in soil were 6.5 mg/kg (dry weight) at the contaminated site (Trowbridge Impoundment) and 0.0009 mg/kg (dry weight) at the reference site. Tissue concentrations were reported as the mean of available samples expressed on the fresh weight basis (Blankenship et al., 2005). Fresh weight concentrations were converted to a dry weight concentration assuming moisture contents of 65 percent for terrestrial invertebrates (mean of grasshopper and beetle values) and 84 percent for earthworms (USEPA, 1993). Bioaccumulation factors were calculated as the total PCB concentration in tissue (dry weight basis) divided by the total PCB concentration in soil (dry weight basis). The mean bioaccumulation factor for above-ground invertebrates was 0.15 and for depurated earthworms it was 1.25 (Table K-1).

The bioaccumulation factors calculated for crickets by Paine et al. (1993) suffer from two major limitations:

1. Crickets were exposed to fresh PCBs whereas the PCBs present in soils at the Kaiser facility are highly weathered. Bioavailability of hydrophobic organic constituents in soil is greatly reduced by weathering (Alexander, 2000).

2. Crickets were fed during the bioassay which reduces exposure via the most important route.

The study by Blankenship et al. (2005) is robust in that the data consists of multiple measurements of PCBs in terrestrial invertebrate samples (n = 30) and soil samples (n = 21) from the contaminated site. The study site is comparable to the South Drainage Ravine and West Drainage Ravine sites because they both contain weathered PCBs in soil and the mean total PCB concentrations are similar (6.5 mg/kg at Kalamazoo River site, 2.50 mg/kg at South Drainage Ravine, and 6.75 mg/kg at West Drainage Ravine [zero to 15 foot soil stratum]). Since individual soil and terrestrial invertebrate sample data was not presented in the Blankenship et al. (2005) study, only a single bioaccumulation factor could be calculated based upon the mean terrestrial invertebrate and mean soil concentrations of total PCBs.

2.4 Soil Invertebrate PCBs BAF Summary

For the Kaiser Trentwood Facility Terrestrial Ecological Evaluation, a site-specific BAF of 0.15 derived from the Blankenship et al. (2005) study was selected to derive site-specific ISCs for the shrew and robin. This PCB bioaccumulation factor is appropriate to use at the Facility because:

1. The weathered nature and concentrations of PCB present in soils at the Facility and the Michigan site studied by Blankenship et al. (2005) are comparable.

2. The above-ground invertebrates sampled by Blankenship et al. (2005) are representative of invertebrates likely to be present at the Kaiser Facility.

Although Blankenship et al. (2005) did not include a complete description of the above-ground invertebrates sampled in their study, they did state that beetles and grasshoppers were collected. Since grasshoppers and beetles are relatively large invertebrates, it is reasonable that they would constitute a large proportion of invertebrates collected by hand picking.

A large portion of the beetles sampled by Blankenship et al. (2005) were June bugs (*Phyllophaga* sp.) and Japanese beetles (*Popillia japonica*). June bugs are found in western North America[3] and are common throughout the Pacific Coast states (Hamm, Campbell, and Hansen 1990). The long-haired June beetle (*Polyphylla crinita*) is found in sandy habitats throughout Washington, Oregon, California and British Columbia[4]. Although Japanese beetles are an invasive species that have become well established in the eastern United States, they are also found in Washington State and Spokane County[5]. Therefore, both June bugs and Japanese beetles may be present at the Trentwood Facility.

Information presented in Appendix H suggests that darkling beetles and grasshoppers may be more abundant at the Facility than June bugs or Japanese beetles. The life cycle for June bugs in the Pacific Northwest typically takes three years to complete (Hamm, Campbell, and Hansen 1990). Female beetles lay their eggs in the soil of grass fields or other heavily vegetated areas. Eggs hatch within three to four

[3] See "Bugguide" website hosted by Iowa State University at http://bugguide.net/node/view/15740.

[4] See descriptions of eastern Washington beetles available online at http://www.bentler.us/eastern-washington/animals/insects/beetles/long-haired-june-beetle.aspx.

[5] See the National Agricultural Pest Information System Pest Tracker website at http://pest.ceris.purdue.edu/index.php.

weeks. The young white larvae (grubs) feed on decaying organic matter and fine roots. As winter approaches, larvae burrow 20 to 55 centimeters into the soil and become inactive. The second year, larvae move to shallow soil to feed on roots where they can damage lawns and other vegetation. In late May and June of the second year, larvae pupate to form adult beetles in about 6 to 8 weeks. These adults remain in the pupal cell beneath the soil until the following spring when they emerge to mate and lay eggs. The life cycle of the Japanese beetle is similar to that of the June bug with the exception that eggs are laid in the summer and mature beetles emerge the following summer. Darkling beetles have a similar life cycle to that of June bugs and Japanese beetles (see Appendix H) and therefore should have a similar capacity to accumulate PCBs from the soil.

As stated in Appendix H, grasshoppers are common components to the terrestrial invertebrate community at the Kaiser Trentwood Facility. Grasshoppers were also included in above-ground invertebrate samples in the Blankenship et al. (2005) study. The life cycle of grasshoppers is somewhat different than that of the beetles (see Appendix H). Grasshoppers lay eggs in the soil which hatch the following year to produce nymphs. The nymphs do not feed in the soil, but instead move to the soil surface where they feed on above-ground vegetation. Although both grasshoppers and beetles feed on vegetation, grasshoppers do not have a below-ground feeding stage and would not be expected to accumulate as much PCBs from the soil as beetles.

SECTION 3 – PLANT BIOACCUMULATION FACTORS FOR PCBS

3.1 Background

The default MTCA plant bioaccumulation factor for PCBs is 0.087. Ecology states this bioaccumulation factor was derived using an equation developed by Travis and Arms (1988) to estimate the plant uptake of organic constituents (Ecology, 2000). The equation is based on the octanol-water partition coefficient (log K_{ow}) of the organic constituents.

$$\log B_v = 1.588 – (0.578 \times \log K_{ow})$$

Where:

B_v = vegetation bioconcentration factor

3.2 Scientific Literature Review

There has been considerable scientific debate about the ability of plants to accumulate hydrophobic organic constituents from the soil. Kew et al. (1989) reviewed the literature on plant uptake of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) from soil and noted wide variation in reported plant uptake ratios. TCDD is similar to PCBs in that they are both hydrophobic organic constituents and share similar environmental fate characteristics. These authors suggested several explanations, including variable bioavailability for TCDD from different soil types, different experiments and scientific approaches, and attributing root uptake and translocation of TCDD to plant shoots without excluding TCDD volatilization

from the soil followed by adsorption onto leaf surfaces. Scientists believe that root uptake and translocation in the transportation stream of TCCD and other constituents with similar physiochemical properties (chlorinated pesticides and PCBs) is highly unlikely due to their strong adsorption to organic components of the plant xylem tissue (McCrady et al., 1990).

Bacci and Gaggi (1985) studied accumulation of PCBs in four agronomic crops (beans, broad beans, tomatoes, and cucumbers) in a 28-day greenhouse study. Sand was treated with Fenclor 64 (very similar to Aroclor 1260) to achieve a nominal concentration of 460 mg/kg. Plants were placed in individual containers with either treated or untreated sand and grown under uniform environmental conditions in the same greenhouse. At the end of the test period, root and foliage samples were analyzed for PCBs. Roots of plants grown on the PCB-treated sand accumulated relatively-high levels of PCBs that were probably associated with the surface of the roots. Similar, low-levels of PCBs detected in leaves of plants grown on PCB-treated and untreated sand led the authors to conclude that the foliar accumulation of PCBs was due to volatilization of PCBs from the treated sand containers.

McCrady et al. (1990) conducted an elegant experiment to confirm the lack of root uptake and translocation of hydrophobic organic constituents in plants. The authors grew soybean and corn plants in growth chambers for five days to evaluate the uptake of TCDD. Plants were grown in a hydroponic solution that was treated with tritium-labeled TCDD. The volatility pathway-of-migration for TCDD from the hydroponic solution to shoots was completely prohibited by placing the shoot and root portions of the plant into separate glass enclosures. In addition, purified air was continuously pumped into the shoot enclosures to create a positive air pressure ensuring no air from the growth chamber would flow into the shoot enclosure. At the end of the test period, root and shoot portions of the plants were excised and analyzed for the presence of tritium-labeled TCDD using a liquid scintillation analyzer. Approximately 70 percent of the TCDD added to the hydroponic solution was adsorbed by the roots. Translocation of TCDD from contaminated roots to shoot tissue was undetectable in both soybean and corn. Transpirational-stream translocation of TCDD, chlorinated pesticides, and PCBs are so low that even their relatively-low volatility from soil becomes a significant transport mechanism for these extremely hydrophobic organic constituents.

Blankenship et al. (2005) collected co-located plant and soil samples from the Kalamazoo River Superfund site in Michigan and analyzed them for total PCB content. Composite plant samples were collected from above the root crown and were not rinsed before chemical analysis. Although a complete list of species included in the composite plant tissue samples was not provided, species included grasses, quackgrass, sumac, and aspen. Plant tissue concentrations for total PCBs were reported on a fresh-weight basis (Blankenship et al., 2005) and converted to a dry-weight basis assuming 80 percent moisture content (USEPA, 1993). A bioaccumulation factor of 0.018 was calculated as the total PCB concentration in tissue (dry weight basis) divided by the total PCB concentration in soil (dry weight basis) (Table K-1).

3.3 Plant PCBs Bioaccumulation Factor Summary

Based on the reviewed studies it was concluded that root uptake and translocation of PCBs to plant shoots is negligible. Since the default MTCA herbivorous mammalian receptor is the vole and voles consume

leaves and shoots of plants, the plant bioaccumulation factor for PCBs must also be negligible. For purposes of the Kaiser Trentwood Facility Terrestrial Ecological Evaluation, the plant bioaccumulation factor for PCBs of 0.018 derived from Blankenship et al. (2005) was used to derive a site-specific indicator soil concentration for the vole.

Blankenship et al. (2005) included grasses, quackgrass, sumac, and aspen in their plant tissue samples. Grasses form a major floral component of the Landscaped, Open Field, and Semi-native Vegetation cover types at the Facility. Quackgrass (*Elymus repens*) is an invasive exotic species found across the U.S.[6], including Spokane County[7], and may occur on the Kaiser Facility. Although the ranges of most species of sumac are limited to specific areas of the U.S., smooth sumac (*Rhus glabra*) is a cosmopolitan species found across the U.S.[7], including Michigan and Washington State. Smooth sumac is present in Spokane County[8] and likely occurs on the Kaiser Facility. Quacking aspen (*Populus tremuloides*) is found across much of the U.S., including Michigan and Washington State[7]. Although quacking aspen is found in Spokane County[8], it probably does not occur on the Kaiser Facility. However, the closely related black cottonwood (*Populus balsamifera*) does occur in the Semi-Native Vegetation cover type found along the Spokane River and in the South and West Drainage Ravines.

The PCB plant bioaccumulation factor derived from Blankenship et al. (2005) is appropriate to use at the Trentwood Facility because:

3. Investigations have shown that plants cannot take up hydrophobic organic chemicals (e.g., PCBs) from the soil and translocate them to above ground tissues. Therefore, a plant bioaccumulation factor for PCBs greater than zero is considered a conservative estimate of potential accumulation.

4. Since plants cannot take up hydrophobic organic chemicals (e.g., PCBs) from the soil and translocate them to above ground tissues, there should not be any inter-specific variability in potential bioaccumulation.

5. The plant species (or closely related taxa) sampled by the Blankenship et al. (2005) are representative of species present at the Trentwood Facility.

SECTION 4 – SITE-SPECIFIC ECOLOGICAL INDICATOR SOIL CONCENTRATIONS FOR TOTAL PCBS

Site-specific indicator soil concentrations were calculated for Total PCBs using the exposure models prescribed by MTCA Table 749-4). Toxicity values for the shrew, robin, and vole are from Table 749-5 of MTCA, while values for percentage of prey from the contaminated site and gut absorptions factors for

[6] See U.S. Department of Agriculture, Natural Resources Conservation Service, Plants Database available online at http://plants.usda.gov/.

[7] See University of Washington Burke Museum herbarium information available online at http://www.washington.edu/burkemuseum/.

constituents in soil are from Table 749-4 of MTCA. The site-specific soil macroinvertebrate and plant bioaccumulation factors for PCBs were presented in previous sections of this appendix.

The site-specific indicator soil concentrations and exposure factors used in the exposure models are shown in Tables K-2 through K-4. The lowest wildlife site-specific indicator soil concentration for Total PCBs is 30.4 mg/kg.

The site-specific indicator soil concentrations for Total PCBs were derived using literature-based bioaccumulation factors for soil macroinvertebrates and plants. These updated bioaccumulation factors represent the current state of the science and provide more site-specific estimates of potential bioaccumulation of Total PCBs at the Trentwood Facility. The resultant site-specific indicator soil concentrations are expected to be protective of wildlife that may become exposed to Total PCBs in soil at the Trentwood Facility.

SECTION 5 –REFERENCES

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Table K-1. Total PCB Bioaccumulation Factors from Blankenship et al. (2005)[a]

Matrix	Number of Samples	Lipid or Organic Carbon (%)	Mean PCB_{total} (mg/kg)[b]	Standard Deviation PCB_{total} (mg/kg)[b]	Moisture Content (%)[c]	Mean PCB_{total} (mg/kg)[d]	BAF[f]
Soil	21	5.4	6.5	4.7	--	6.5	--
Above-ground Invertebrates	30	5.6	0.34	0.57	65	0.97	0.15
Earthworms[e]	14	2.2	1.3	1.1	84	8.13	1.25
Plants	28	0.7	0.023	0.044	80	0.115	0.018

Notes:

[a]Data is for the Trowbridge Impoundment site.

[b]Blankenship et al. (2005) reported soil concentration reported on dry weight basis and tissue concentrations on fresh weight basis.

[c]Source: USEPA (1993)

[d]Concentrations expressed on dry weight basis.

[e]Data are for depurated earthworms.

[f]BAF = PCB_{total} Tissue (mg/kg dry weight)/PCB_{total} Soil (mg/kg dry weight)

BAF = Bioaccumulation Factor

PCB = Polychlorinated biphenyls

Table K-2. Total PCB Site-Specific Indicator Soil Concentration for the Shrew

$$ISC_{shrew} = \frac{T}{(FIR\ x\ P\ x\ BAF) + (SIR\ x\ RGAF)}$$

Parameter		Value	Description	Source
ISC_{shrew}	=	30.4	Indicator soil concentration for the shrew (mg/kg)	
T	=	0.668	Toxicity reference value for Total PCBs for shrew (mg/kg BW/day)	MTCA Table 749-5
FIR	=	0.209	Food ingestion rate for the shrew (kg dry weight/kg body weight/day)	USEPA (2007)
P	=	0.5	Proportion of contaminated food in the shrew diet (unitless)	MTCA Table 749-4
BAF	=	0.15	Site-specific PCB bioaccumulation factor for soil macroinvertebrates (kg biota dry weight/kg soil dry weight)	Appendix K
SIR	=	0.00627	Soil ingestion rate for the shrew (kg soil dry weight/kg body weight/day)	USEPA (2007)
RGAF	=	1	Gut absorption factor for PCBs in soil (unitless)	MTCA Table 749-5

Notes:
PCB = Polychlorinated biphenyls

Table K-3. Total PCB Site-Specific Indicator Soil Concentration for the Robin

$$ISC_{robin} = \frac{T}{(FIR \; x \; P \; x \; BAF) + (SIR \; x \; RGAF)}$$

Parameter		Value	Description	Source
ISC_{robin}	=	47.8	Indicator soil concentration for the robin (mg/kg)	
T	=	1.8	Toxicity reference value for Total PCBs for the robin (mg/kg-BW/day)	MTCA Table 749-5
FIR	=	0.207	Food ingestion rate for the robin (kg dry weight/kg body weight/day)	MTCA Table 749-4
P	=	0.52	Proportion of contaminated food in the robin diet (unitless)	MTCA Table 749-4
BAF	=	0.15	Site-specific PCB bioaccumulation factor for soil macroinvertebrates (kg biota dry weight/kg soil dry weight)	Appendix K
SIR	=	0.0215	Soil ingestion rate for the robin (kg soil dry weight/kg body weight/day)	MTCA Table 749-4
RGAF	=	1	Gut absorption factor for PCBs in soil (unitless)	MTCA Table 749-5

Notes:
PCB = Polychlorinated biphenyls

Table K-4. Total PCB Site-Specific Indicator Soil Concentration for the Vole

$$ISC_{vole} = \frac{T}{(FIR \ x \ P \ x \ BAF) + (SIR \ x \ RGAF)}$$

Parameter		Value	Description	Source
ISC_{vole}	=	116.6	Indicator soil concentration for the vole (mg/kg)	
T	=	0.51	Toxicity reference value for Total PCBs for the vole (mg/kg-BW/day)	MTCA Table 749-5
FIR	=	0.0875	Food ingestion rate for the vole (kg dry weight/kg body weight/day)	USEPA (2007)
P	=	1	Proportion of contaminated food in the vole diet (unitless)	MTCA Table 749-4
BAF	=	0.018	Site-specific PCB bioaccumulation factor for plants (kg biota dry weight/kg soil dry weight)	Appendix K
SIR	=	0.0028	Soil ingestion rate for the vole (kg soil dry weight/kg body weight/day)	USEPA (2007)
RGAF	=	1	Gut absorption factor for PCBs in soil (unitless)	MTCA Table 749-5

NOTES:
PCB = Polychlorinated biphenyls

Appendix L

ProUCL Statistical Output for Selected Sites and Constituents

PROUCL STATISTICAL OUTPUT FOR SELECTED SITES AND CONSTITUENTS

The United States Environmental Protection Agency's (USEPA's) statistical software ProUCL® was used to refine the estimation of ecological reasonable maximum exposure point concentrations for selected sites and constituents from the Trentwood Facility, as identified below and described in Section 11.5 of the Human Health and Ecological Risk Assessment (HHERA).

Specific runs were made for:

- Field Constructed Tank site, zero – six-foot soil stratum, Total diesel/fuel oil
- West Drainage Ravine site, zero – six-foot soil stratum, Total PCBs
- South Drainage Ravine site, zero – six-foot soil stratum, Total PCBs
- South Drainage Ravine site, zero – 15-foot soil stratum, Total PCBs

Results of the ProUCL queries are shown on the following pages.

LIST OF TABLES

Table L-1. ProUCL Results for the Field Constructed Tanks Site
0 - 6 feet soil stratum, Total diesel/fuel oil
Kaiser Trentwood Facility

General Statistics			
Number of Valid Data	14	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	8
		Percent Non-Detects	57.14%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	70	Minimum Detected	4.248
Maximum Detected	7310	Maximum Detected	8.897
Mean of Detected	1966	Mean of Detected	6.262
SD of Detected	2811	SD of Detected	2.026
Minimum Non-Detect	40	Minimum Non-Detect	3.689
Maximum Non-Detect	70	Maximum Non-Detect	4.248
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	57.14%
Warning: There are only 6 Detected Values in this data			
Note: It should be noted that even though bootstrap may be performed on this dataset			
the resulting calculations may not be reliable enough tp draw conclusions			
It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.			
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.759	Shapiro Wilk Test Statistic	0.845
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Table L-1. ProUCL Results for the Field Constructed Tanks Site
0 - 6 feet soil stratum, Total diesel/fuel oil
Kaiser Trentwood Facility

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	855	Mean	4.436
SD	2009	SD	2.072
95% DL/2 (t) UCL	1806	95% H-Stat (DL/2) UCL	4870
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.597
		SD in Log Scale	3.836
		Mean in Original Scale	844.2
		SD in Original Scale	2014
		95% Percentile Bootstrap UCL	1879
		95% BCA Bootstrap UCL	2306
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.353	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	5573		
nu star	4.233		
A-D Test Statistic	0.498	**Nonparametric Statistics**	
5% A-D Critical Value	0.738	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.738	Mean	882.5
5% K-S Critical Value	0.349	SD	1924
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	563.3
		95% KM (t) UCL	1880
Assuming Gamma Distribution		95% KM (z) UCL	1809
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1818
Minimum	1E-09	95% KM (bootstrap t) UCL	3839
Maximum	10433	95% KM (BCA) UCL	2215
Mean	2601	95% KM (Percentile Bootstrap) UCL	1927
Median	1718	95% KM (Chebyshev) UCL	3338

Table L-1. ProUCL Results for the Field Constructed Tanks Site
0 - 6 feet soil stratum, Total diesel/fuel oil
Kaiser Trentwood Facility

SD	3278	97.5% KM (Chebyshev) UCL	4400
k star	0.173	99% KM (Chebyshev) UCL	6487
Theta star	15010		
Nu star	4.853	**Potential UCLs to Use**	
AppChi2	1.085	95% KM (t) UCL	1880
95% Gamma Approximate UCL	11637		
95% Adjusted Gamma UCL	14496		

Note:

DL/2 is not a recommended method.

Table L-2. ProUCL Results for the West Drainage Ravine Site

0 - 6 feet soil stratum, Total PCBs

Kaiser Trentwood Facility

General Statistics			
Number of Valid Observations	29	Number of Distinct Observations	29
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.0064	Minimum of Log Data	-5.051
Maximum	72	Maximum of Log Data	4.277
Mean	11.64	Mean of log Data	0.608
Median	2.5	SD of log Data	2.684
SD	17.81		
Coefficient of Variation	1.531		
Skewness	2.053		
Relevant UCL Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.703	Shapiro Wilk Test Statistic	0.918
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	17.26	95% H-UCL	828.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	171.3
95% Adjusted-CLT UCL	18.42	97.5% Chebyshev (MVUE) UCL	226.7
95% Modified-t UCL	17.47	99% Chebyshev (MVUE) UCL	335.5
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.348	**Data Appear Gamma Distributed at 5% Significance Level**	
Theta Star	33.47		
nu star	20.16		
Approximate Chi Square Value (.05)	10.97	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0407	95% CLT UCL	17.08
Adjusted Chi Square Value	10.57	95% Jackknife UCL	17.26
		95% Standard Bootstrap UCL	17.05
Anderson-Darling Test Statistic	0.27	95% Bootstrap-t UCL	19.92
Anderson-Darling 5% Critical Value	0.842	95% Hall's Bootstrap UCL	19.25
Kolmogorov-Smirnov Test Statistic	0.11	95% Percentile Bootstrap UCL	17.19
Kolmogorov-Smirnov 5% Critical Value	0.175	95% BCA Bootstrap UCL	18.5

Table L-2. ProUCL Results for the West Drainage Ravine Site

0 - 6 feet soil stratum, Total PCBs

Kaiser Trentwood Facility

Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	26.05
		97.5% Chebyshev(Mean, Sd) UCL	32.29
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	44.54
95% Approximate Gamma UCL	21.38		
95% Adjusted Gamma UCL	22.2		
Potential UCL to Use		Use 95% Adjusted Gamma UCL	22.2

Table L-3. ProUCL Results for South Drainage Ravine Site
0 - 6 feet soil stratum, Total PCBs
Kaiser Trentwood Facility

General Statistics			
Number of Valid Data	39	Number of Detected Data	23
Number of Distinct Detected Data	23	Number of Non-Detect Data	16
		Percent Non-Detects	41.03%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.0033	Minimum Detected	-5.714
Maximum Detected	71	Maximum Detected	4.263
Mean of Detected	5.089	Mean of Detected	-1.066
SD of Detected	14.66	SD of Detected	2.894
Minimum Non-Detect	0.0099	Minimum Non-Detect	-4.615
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	20
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	19
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	51.28%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.36	Shapiro Wilk Test Statistic	0.948
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.003	Mean	-2.803
SD	11.44	SD	3.05
95% DL/2 (t) UCL	6.091	95% H-Stat (DL/2) UCL	15.02
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-2.936

Table L-3. ProUCL Results for South Drainage Ravine Site
0 - 6 feet soil stratum, Total PCBs
Kaiser Trentwood Facility

		SD in Log Scale	3.357
		Mean in Original Scale	3.006
		SD in Original Scale	11.44
		95% Percentile Bootstrap UCL	6.509
		95% BCA Bootstrap UCL	8.66
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.257	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	19.83		
nu star	11.81		
A-D Test Statistic	0.789	**Nonparametric Statistics**	
5% A-D Critical Value	0.866	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.866	Mean	3.003
5% K-S Critical Value	0.199	SD	11.29
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.848
		95% KM (t) UCL	6.12
Assuming Gamma Distribution			6.044
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	6.091
Minimum	1E-09	95% KM (bootstrap t) UCL	16.62
Maximum	71	95% KM (BCA) UCL	7.229
Mean	4.052	95% KM (Percentile Bootstrap) UCL	6.529
Median	0.193	95% KM (Chebyshev) UCL	11.06
SD	11.55	97.5% KM (Chebyshev) UCL	14.55
k star	0.128	99% KM (Chebyshev) UCL	21.4
Theta star	31.62		
Nu star	9.995	**Potential UCLs to Use**	
AppChi2	3.939	95% KM (BCA) UCL	7.229
95% Gamma Approximate UCL	10.28		
95% Adjusted Gamma UCL	10.69		

Note:

DL/2 is not a recommended method.

Table L-4. ProUCL Results for South Drainage Ravine Site

0 - 15 feet soil stratum, Total PCBs

Kaiser Trentwood Facility

General Statistics			
Number of Valid Data	40	Number of Detected Data	23
Number of Distinct Detected Data	23	Number of Non-Detect Data	17
		Percent Non-Detects	42.50%
Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.0033	Minimum Detected	-5.714
Maximum Detected	71	Maximum Detected	4.263
Mean of Detected	5.089	Mean of Detected	-1.066
SD of Detected	14.66	SD of Detected	2.894
Minimum Non-Detect	0.0099	Minimum Non-Detect	-4.615
Maximum Non-Detect	0.01	Maximum Non-Detect	-4.605
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	21
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	19
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	52.50%
UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.36	Shapiro Wilk Test Statistic	0.948
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.929	Mean	-2.865
SD	11.3	SD	3.036
95% DL/2 (t) UCL	5.939	95% H-Stat (DL/2) UCL	13.79
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.011
		SD in Log Scale	3.369
		Mean in Original Scale	2.931
		SD in Original Scale	11.3
		95% Percentile Bootstrap UCL	6.426
		95% BCA Bootstrap UCL	9.361

Table L-4. ProUCL Results for South Drainage Ravine Site

0 - 15 feet soil stratum, Total PCBs

Kaiser Trentwood Facility

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.257	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	19.83		
nu star	11.81		
A-D Test Statistic	0.789	**Nonparametric Statistics**	
5% A-D Critical Value	0.866	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.866	Mean	2.928
5% K-S Critical Value	0.199	SD	11.16
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.804
		95% KM (t) UCL	5.968
Assuming Gamma Distribution		95% KM (z) UCL	5.895
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.939
Minimum	1E-09	95% KM (bootstrap t) UCL	15.91
Maximum	71	95% KM (BCA) UCL	6.535
Mean	4.427	95% KM (Percentile Bootstrap) UCL	6.251
Median	0.192	95% KM (Chebyshev) UCL	10.79
SD	11.64	97.5% KM (Chebyshev) UCL	14.19
k star	0.123	99% KM (Chebyshev) UCL	20.88
Theta star	36.06		
Nu star	9.821	**Potential UCLs to Use**	
AppChi2	3.83	95% KM (BCA) UCL	6.535
95% Gamma Approximate UCL	11.35		
95% Adjusted Gamma UCL	11.78		

Note:

DL/2 is not a recommended method.