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December 21, 2012

Jeffrey Fowlow, On-Scene Coordinator
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1200 Sixth Avenue, ECL-116
Seattle, Washington 98102

Re: Draft Engineering Evaluation/Cost Analysis for the Stubblefield Salvage Yard Site, Walla Walla, Washington
Contract Number EP-S7-06-02, Technical Direction Document Number 12-09-0003

Dear Mr. Fowlow:

Enclosed please find the draft Engineering Evaluation/Cost Analysis for the Stubblefield Salvage Yard Site. If you have any questions regarding this submittal, please call Jake Moersen at (206) 624-9537 or me at (206) 920-1739.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

Steven G. Hall
START-3 Project Leader

cc: Jake Moersen, START-3 Project Manager, Seattle, Washington

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Draft Engineering Evaluation / Cost Analysis

Stubblefield Salvage Yard Site
Walla Walla, Washington
TDD: 12-09-0003

REGION 10
START-3
SUPERFUND TECHNICAL ASSESSMENT & RESPONSE TEAM

Prepared for:

U.S. Environmental Protection Agency, Region 10
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Seattle, Washington 98102

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December 2012

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Table of Contents

Executive Summary xi

1 Introduction 1-1

2 Site Characterization 2-1
2.1 Site Description and History 2-1
2.1.1 Site Ownership History 2-2
2.1.2 Site Operations and Waste Characteristics 2-2
2.2 Physical Characteristics of the Site 2-3
2.2.1 Topography and Hydrology 2-3
2.2.2 Geology and Hydrogeology 2-4
2.2.3 Soils 2-4
2.2.4 Meteorology 2-4
2.2.5 Sensitive Ecosystems 2-5
2.3 Surrounding Land Uses 2-5
2.4 Previous Investigations and Removal Actions 2-5
2.4.1 Washington State Department of Ecology Inspections 2-5
2.4.2 Phase I and II Environmental Site Assessment of Myra Road Extension Project Salvage Yard 2-6
2.4.3 EPA Removal Site Evaluation 2-7
2.4.4 EPA Preliminary Assessment 2-11
2.4.5 EPA Site Inspection 2-11
2.5 Source, Nature and Extent of Contamination 2-12
2.5.1 Soil 2-12
2.5.2 Groundwater 2-13
2.6 Streamlined Risk Evaluation 2-14

3 Removal Action Objectives 3-1
3.1 Statutory Considerations on Removal Actions 3-1
3.2 Determination of Removal Action Scope and Objectives 3-1
3.3 Applicable or Relevant and Appropriate Requirements 3-2
3.4 Determination of Removal Schedule 3-2

4 Identification and Development of Removal Action Alternatives 4-1
4.1 Identification of Potential Removal Action Alternatives 4-1
4.1.1 No Action 4-1
4.1.2 Institutional and Access Controls 4-1
4.1.3 Containment 4-2
4.1.4 Treatment 4-2
4.1.5 Excavation and Off-Site Disposal 4-2
4.2 Development of Removal Action Alternatives 4-3
4.2.1 Alternative 1 – No Action 4-3
4.2.2 Alternative 2 – Excavation and Off-Site Disposal 4-3

Table of Contents (cont.)

Section **Page**

5 Analysis of Removal Action Alternatives 5-1
5.1 Alternative 1 – No Action 5-1
5.2 Alternative 2 – Excavation and Off-Site Disposal 5-1

6 Recommended Removal Action Alternative 6-1

7 References 7-1

A Removal Site Evaluation Data Tables and Figures A-1

B Comprehensive Analytical Data for Soil B-1

C Comprehensive Analytical Data for Water C-1

D Streamlined Human Health Risk Evaluation D-1

E Applicable or Relevant and Appropriate Requirements E-1

F Cost Estimate F-1

List of Tables

Table		Page
2-1	Summary of HHRE Soil Screening Comparisons for COPCs	2-17
2-2	Summary of HHRE Groundwater Screening Comparisons for COPCs	2-18
3-1	Soil Cleanup Action Levels	3-3
4-1	Total Constituent Analysis	4-7
5-1	Comparative Analysis	5-3

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List of Figures

Figure		Page
2-1	Site Location Map	2-19
2-2	Site Layout Map	2-21
2-3	RSE Sample Locations in and Around the Process Area	2-22
2-4	Metal Contamination in Soil	2-23
2-5	PCB Contamination in Soil	2-24
2-6	TPH Contamination in Soil	2-25
2-7	SVOC Contamination in Soil	2-26
2-8	Metal Contamination in Groundwater	2-27
2-9	PCB Contamination in Groundwater	2-28
2-10	TPH Contamination in Groundwater	2-29
2-11	SVOC Contamination in Groundwater	2-30
2-12	Human Health Conceptual Site Model	2-31
2-13	Population Radius Map	2-33
4-1	Soil Removal Areas	4-9

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List of Abbreviations

Abbreviation	Definition
°F	degrees Fahrenheit
ACM	asbestos-containing material
ARAR	applicable and relevant and appropriate requirement
bgs	below ground surface
BMP	best management practice
CDF	controlled density fill
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COPC	contaminant of potential concern
CSM	conceptual site model
Ecology	Washington State Department of Ecology
EE/CA	Engineering Evaluation / Cost Analysis
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
ESA	environmental site assessment
FID	flame ionization detector
gpm	gallons per minute
HDR	HDR Engineering, Inc.
HHRE	human health risk evaluation
μg/kg	micrograms per kilogram
μg/L	micrograms per liter
LCY	loose cubic yard
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTCA	Model Toxics Control Act
NCP	National Contingency Plan
OSC	On-Scene Coordinator
PA	preliminary assessment
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
ppm	parts per million

List of Abbreviations and Acronyms (cont.)

process area	metal salvage process area
PRSC	post-removal site control
RAO	removal action objective
RCRA	Resource Conservation and Recovery Act
RSE	removal site evaluation
RSL	Regional Screening Level
SARA	Superfund Amendments and Reauthorization Act
SI	site investigation
SPLP	Synthetic Precipitation Leaching Procedure
START	Superfund Technical Assessment and Response Team
SVOCs	semivolatile organic compounds
TAL	Target Analyte List
TCLP	Toxicity Characteristic Leaching Procedure
TDD	Technical Direction Document
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
USACE	United States Army Corps of Engineers
VOCs	volatile organic compounds
USC	United States Code
XRF	x-ray fluorescence

Executive Summary

The Stubblefield Salvage Yard Site is a former metals salvage yard in Walla Walla, Washington. The salvage yard operated from the 1950s until mid-2010 at which time site operations were suspended and the majority of salvageable material was moved off site. During operation of the metals salvage yard, the facility received metal wastes such as vehicles, drums, appliances, transformers, structural metal, agricultural machines, batteries, spent ammunition casings, and household waste including metal cans. Once received, the waste products were processed in a variety of ways and were either disposed of or recycled (i.e., sold as scrap).

The metal salvage process area (process area) is located in the north-central section of the site. The main salvaging features consisted of a large hydraulic shear used to cut scrap metal and a baler used to compact the metal into bales; in 2010 the shear and baler were removed from the site by the property owners. An abandoned two-story wooden shop building is located south of the process area and east of the former location of the shear and baler.

The Washington State Department of Ecology (Ecology) conducted inspections at the site in 1999, 2002, 2006, and 2007. During the inspections, Ecology documented ongoing hydraulic fluid leaks from equipment used at the site in addition to other suspected environmental conditions such as improper handling of used oil, spent batteries, incinerator ash, and automotive fluids. In April 2009, Ecology referred the site to EPA and requested that "immediate intervention and action" be taken, as Ecology did not have the capacity to intervene at the time.

In 2009, an EPA On-Scene Coordinator visited the site and documented conditions that indicated a release and threat of a release of hazardous substances to the environment. EPA proceeded to conduct a removal action to mitigate the uncontrolled containers of hazardous substances, including leaking drums of waste, piles of asbestos-containing material, and stained soil with elevated concentrations of metals, polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs) including polycyclic aromatic hydrocarbons (PAHs), and other contaminants.

EPA determined a need to characterize soil and groundwater at the site, especially in the process area. EPA conducted seven sampling events from 2009 to 2012 to address the presence of hazardous substances in soil and groundwater, including metals, PCBs, pesticides, total petroleum hydrocarbons (TPH), SVOCs, and volatile organic compounds. Substances found at the site, including the substances identified above, constitute “hazardous substances” as defined by Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 United States Code (USC) § 9601(14).

The actual or threatened release of hazardous substances at the site may present an imminent and substantial endangerment to the public health, welfare, or the environment within the meaning of Section 104(a) of CERCLA, 42 USC § 9604(a), and 40 Code of Federal Regulations (CFR) § 300.415. This engineering evaluation/cost analysis (EE/CA) identifies and evaluates removal action alternatives to reduce human exposure to the contaminants of concern, to reduce potential migration of the contaminants of concern from soil to groundwater, and to implement a removal action that is consistent with future use of the site for residential development.

Analytical data from EPA sampling events during the period of 2009 to 2012 were used to prepare a streamlined human health risk evaluation.

The objectives for the proposed removal actions evaluated in this EE/CA are to protect human health and the environment by preventing human and ecological receptor contact with associated hazardous substances found at the site, and to comply with applicable or relevant and appropriate requirements to the extent practicable. Specific removal action objectives include either excavating the contaminated soil in the process area for off-site disposal or providing an engineered solution that affords sufficient reduction of human exposure and prevention of contaminant migration with limited post-removal site controls.

The alternatives developed to achieve the removal action objectives are described and evaluated in this report. The alternatives include institutional and access controls, containment, treatment, or contaminant excavation and off-site disposal. The removal action alternatives were analyzed individually and also compared against each other using the criteria of effectiveness, implementability, and cost. Of the alternatives evaluated, only contaminant excavation and off-site disposal effectively reduces human exposure to the contaminants of concern, reduces potential migration of the contaminants of concern from soil to groundwater, and is consistent with future use of the site for residential development. The estimated cost for this alternative is $1.75 million with no post-removal site control costs. Contaminant excavation and off-site disposal is recommended as the preferred alternative.

1 Introduction

This Engineering Evaluation / Cost Analysis (EE/CA) was prepared for the Stubblefield Salvage Yard Site in Walla Walla, Washington. Ecology and Environment, Inc. (E & E) prepared this EE/CA for the United States Environmental Protection Agency (EPA) under Superfund Technical Assessment and Response Team (START)-3 contract EP-S7-06-02, Technical Direction Document (TDD) 12-09-0003. The removal action described in this EE/CA will be conducted pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986. This EE/CA was prepared in accordance with and in a manner consistent with the National Contingency Plan (NCP) and the EPA document *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* (EPA 1993).

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2 Site Characterization

This section provides general site information including the location and physical description, site operations and ownership history, and surrounding land uses. The physical description of the site includes information pertaining to topography and hydrology, regional geology and soils, meteorology, and sensitive ecosystems. Previous investigations and removal actions are summarized and pertinent information related to the source, nature, and extent of contamination are presented. Finally, the streamlined risk evaluation is presented, which evaluates the actual or potential threat to human health and the environment posed by the site contamination.

2.1 Site Description and History

The Stubblefield Salvage Yard Site encompasses approximately 11 acres located in Walla Walla, Washington (Figure 2-1). The site is located at 980 NE Myra Road, at approximately Latitude 46.065 North, Longitude -118.369 West within Section 24, Township 7 North, Range 35 East. The site is bordered to the north by Mill Creek, to the west by Myra Road, to the east by agricultural land, and to the south by residences (EPA 2009). A “swale” is present in the northwest portion of the site and is marked by dense vegetation. A levee constructed in 1949 separates the site from Mill Creek (Kuttel 2001, USACE 1993).

The site operated as a metals salvage yard beginning in the 1950s and is currently inactive. The site was purchased by Emory N. Stubblefield in 1944. During his ownership, the site was used as a residence and later as the location of Mr. Stubblefield’s metal salvage and recycling business. With Mr. Stubblefield’s death in 2008, his children took ownership of the site and formed a new business called Stubblefield Salvage and Recycling, LLC to continue salvage operations at the site. Salvage operations ceased between March and October 2010.

The metal salvage process area (process area) is located in the north-central section of the site. The main salvaging features consisted of a large hydraulic shear used to cut scrap metal and a baler used to compact the metal into bales. An abandoned two-story wooden shop building, which housed the hydraulic oil tank, was located adjacent to the shear and baler, and piles of scrap metal once covered most of the site. The main salvaging features listed above, with the exception of the two-story shop building, were recently removed (approximately September 2010), as depicted on Figure 2-2 (EPA 2009). An unoccupied residence of 2,034 square feet built in 1950 remains to the southeast of the process area (Figure 2-2).

Historical operations at the site included a fat-rendering plant where dead animals were skinned and cut before rendering them in open cookers. A petition by neighbors was served to the property owner, Mr. Stubblefield, in the summer of 1946, requesting that he cease rendering operations, which were considered a nuisance. It is not known how long the rendering operations continued (WA v. Stubblefield 1949).

The salvage yard formerly occupied a parcel that was approximately 40 acres in size. Sometime around 1995, the western half of the 40-acre site was sold to the County of Walla Walla for construction of a waste water treatment plant. Surface material located on the purchased parcel was apparently consolidated onto the portion of the site still under ownership of Mr. Stubblefield. In the fall of 2008, approximately 9 acres of the remaining Stubblefield property was purchased by Walla Walla County for the purpose of constructing the Myra Road Extension (EPA 2009). Surface debris was pushed onto the operational portion of property owned by Mr. Stubblefield following the division of the property. Currently, the estate of Emory N. Stubblefield owns 11 acres of the original 40 acres (EPA 2009). Due to a challenge contesting the validity of Emory Stubblefield's will, probate of the estate has not been completed.

Two domestic groundwater wells are present at the site (one shallow and one deep). It was believed that one was used for salvage yard process water and one was used as a domestic well for site workers and residents. Although the wells have not been abandoned, they are not currently in use.

2.1.1 Site Ownership History

The original 40-acre property was purchased in 1945 by Mr. Emory Stubblefield (WA v. Stubblefield 1949). Land use and ownership prior to 1945 is unknown.

Mr. Stubblefield operated a fat-rending plant on the property from 1945 until the 1950s when he transitioned the business operation to a metals salvage yard.

In 1995, the western 20 acres of the property was sold to the County of Walla Walla for construction of a waste water treatment plant, and, in 2008, the County acquired approximately nine additional acres for the construction of Myra Road. The metals salvage yard was owned by Mr. Stubblefield until his death in 2008, after which his children took ownership of the site and formed a new business called Stubblefield Salvage and Recycling, LLC to continue salvage operations at the site. The Walla Walla Superior Court recently invalidated the transfer of ownership of the site to Mr. Stubblefield's children and the property is currently owned by the estate of Emory N. Stubblefield.

2.1.2 Site Operations and Waste Characteristics

The site was first operated as a fat-rendering plant, and later as a metals salvage yard. During operations of the metals salvage yard, the site received metal wastes such as vehicles, drums, appliances, transformers, structural metal, agricultural machines, batteries, spent ammunition casings, and household waste including metal cans. Once received, the waste products were processed in a variety of ways and were either disposed of or recycled (i.e., sold as scrap). Many of the metal materials were cut into smaller pieces using either hand-held acetylene torches or a large hydraulic shear. The resulting smaller pieces of metals were then compacted by a hydraulic baler and sold as scrap metal. The shear was filled with oil obtained from scrapped vehicles and contained in a tank located inside the two-story building. Oil is reported to have leaked into the soils adjacent to the shear.

Vehicles were also crushed at the site. It is not known whether fluids were removed from the automobiles prior to crushing; however, during at least one phase of assessment by EPA, hydraulic fluid and oil was observed spraying from vehicles being crushed. These crushing activities have resulted in the contamination of adjacent soils (E & E 2012b).

Thirty to forty 55-gallon drums suspected of containing oil, grease, paints, solvents, corrosives, and other automotive or mechanical fluids and solids were dispersed across the property. These drums were consolidated and removed as part of an EPA removal action in October 2009. Approximately 60 drums were generated and abandoned when the site was shut down in the summer of 2010 which were removed during a second EPA mobilization in April 2012. Surface materials, including scrap metal and heavy equipment, have been removed from the site with the exception of bailing wire, old tires, and a few trucks and trailers

Piles of batteries were present at the site (EPA 2009). Additionally, transformers were reported to have been processed for disposal at the site. Based on sampling events which revealed polychlorinated biphenyl (PCB) contamination in soils at the site, these transformers likely contained PCBs.

Contaminants associated with automobile salvage operations include semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), and Target Analyte List (TAL) metals.

The rendering plant operated from the 1940s to the 1950s; however, operations at the rendering plant and the potential associated hazardous substances are not known.

2.2 Physical Characteristics of the Site

2.2.1 Topography and Hydrology

The site is bordered to the north by Mill Creek. Mill Creek flows west from the site for approximately 6.47 miles to its confluence with the Walla Walla River.

The site topography is generally flat with a gentle slope to the north toward Mill Creek, with the exception of a low-lying swale in the northwest corner of the property that appeared to be partially filled with debris from historical site operations. Due to the gentle slope at the site, it is expected that runoff from land adjacent to the creek travels north-northwest by sheet flow. A levee separates the site from Mill Creek.

In response to flooding (in particular, the floods of 1931) and studies of the Mill Creek drainage system by the Washington Department of Conservation and Development and the United States Army Corps of Engineers (USACE), a petition was started to secure federal funding to build flood control devices in and along Mill Creek. On June 28, 1938, the Flood Control Act was passed in Congress, which called for two projects to be built in the Walla Walla Valley: the Improved Channel (of Mill Creek); and the off-channel reservoir now known as Bennington Lake (Garret 2011, USACE 1993). Bennington Lake is located approximately 4 miles east of Walla Walla and was completed in late 1941 to hold and divert flood waters from Mill Creek.

Channelization of Mill Creek was completed from Bennington Lake to South Gose Street (approximately 1 mile west [downstream] of the site) in January 1949. Approximately 3.5 miles of Mill Creek flow through the city of Walla Walla. Channelization near the site is characterized by riprapped banks and cross weirs spaced about every 100 feet (Kuttel 2001). The center portion of the channel is concrete-lined with a low flow channel and baffles placed at regular intervals in an attempt to allow fish passage (Kuttel 2001, USACE 1993).

2.2.2 Geology and Hydrogeology

Walla Walla is an east-west trending topographic and structural basin that lies astride the Washington-Oregon boundary. This basin, about 1,300 square miles in area, is bounded on the north by the Touchet slope, on the east by the Blue Mountains uplift, on the south by the Horse Heaven uplift, and on the west by a rimrock ledge in the lower valley of the Walla Walla River. The Walla Walla basin is underlain by various rock formations, most predominantly by a series of lava flows that are a part of the basaltic materials designated the Columbia River basalt (Price 1960).

In the Walla Walla River basin, groundwater is obtained from two geologically distinct aquifers. The most extensive of these is the basalt aquifer which underlies the entire basin. This aquifer is at least 2,000 feet thick in most parts of the basin, and wells in this aquifer have yields that range from 20 to 3,000 gallons per minute (gpm). Less extensive, but of great importance, is an aquifer composed of unconsolidated sediments (also known as the gravel aquifer) underlying the central lowland part of the Walla Walla River basin. The gravel aquifer is as much as 700 feet thick in the western portion of the basin. Yields of wells screened in this aquifer range from 5 to 900 gpm (Mac Nish et al. 1973). The basalt aquifer is overlain by the gravel aquifer.

In the process area of the site, the average depth to groundwater is 8 feet below ground surface (bgs) and groundwater flow direction is to the northwest (E & E 2012b).

2.2.3 Soils

Soils at the site primarily consist of Hermiston silt loam, Touchet silt loam, and Yakima silt loam. Hermiston silt loam is well drained and moderately permeable. It is moderately to highly fertile and has a high water supplying capacity. Runoff is very slow and the hazard of erosion is slight. Touchet silt loam is moderately permeable. It is moderate to high in fertility and high in water supplying capacity, runoff is slow, and there is little or no hazard of erosion. Yakima silt loam is somewhat excessively drained. It is low in fertility and in water supplying capacity. It is moderately to rapidly permeable above the gravel and very rapidly permeable in the gravel. Root penetration is shallow. Runoff is very slow, and the hazard of erosion is slight (USDA 2011 and 1964).

2.2.4 Meteorology

According to Western Regional Climate Center data collected from the Walla Walla, Washington, weather station (458931) from 1948 to 2005, the average maximum temperatures recorded for the summer months (June through August) range from 79.6 to 88.5 degrees Fahrenheit (°F), and the average maximum temperatures recorded for the winter months (December through February) range from 39.4 to 47.1 °F. The average minimum temperatures recorded for the summer months range from 55.9 to 62.0 °F, and the average minimum temperatures recorded for the winter months range from 27.8 to 30.6 °F (WRCC 2012).

The average total precipitation for the Walla Walla area is 16.62 inches. November, December and January receive the highest amount of precipitation, with averages of 2.03, 2.19, and 2.01 inches respectively. July and August are the driest months, with averages of 0.41 and 0.63 inches respectively. The average total snowfall is 19.3 inches, with the most falling in December and January at 5.4, and 7.4 inches respectively (WRCC 2012).

2.2.5 Sensitive Ecosystems

Three federal and/or state listed endangered or threatened species occur in the vicinity of the site (Zawistoski 2011):

- Federal listed threatened Middle Columbia River Steelhead Evolutionarily Significant Unit (*Oncorhynchus mykiss*);
- Federal listed threatened bull trout (*Salvelinus confluentus*); and
- Federal listed threatened Chinook salmon (*Oncorhynchus tshawytscha*).

Additionally, Mill Creek and the Walla Walla River provide critical habitat for the federal listed threatened Middle Columbia River Steelhead Evolutionarily Significant Unit (*Oncorhynchus mykiss*) (NOAA 2005).

2.3 Surrounding Land Uses

The site is bounded to the north by Mill Creek, to the west by Myra Road, to the south by private residences, and to the east by agricultural land (EPA 2009).

Mill Creek, from the mouth to Bennington Lake (located approximately 6 miles upstream of the site), and all its tributaries are closed to fishing (WDFW 2011). Mill Creek is closed to fishing because the state is attempting to improve fish passage for steelhead (*Oncorhynchus mykiss*), bull trout (*Salvelinus confluentus*), and Chinook salmon (*Oncorhynchus tshawytscha*) (Mendel 2011).

Fishing is known to occur in the Walla Walla River. The most recent sport catch data are for 2004 to 2005 (Kraig and Smith 2011). Fish catch is only recorded on the river for steelhead and is reported as one value for the entire the Walla Walla River. The river, from its headwaters to the confluence with the Columbia River, is 61 miles.

2.4 Previous Investigations and Removal Actions

The following sections describe previous environmental investigations and other related investigations that have been conducted at the site.

2.4.1 Washington State Department of Ecology Inspections

The Washington State Department of Ecology (Ecology) conducted Dangerous Waste Compliance Inspections at the site in 1999 and 2002. During the inspections, improper handling of used oil, spent batteries, incinerator ash, and automotive fluids were noted. Information on actions taken by the state or the property owner regarding these inspections is not available (EPA 2009).

A 2006 Dangerous Waste Compliance Inspection documented batteries scattered on the ground, a large spill of hydraulic fluid to the ground, and a minimum of twenty-five 55-gallon drums of used oil (some the drums were bulging and many had dark staining on the surrounding soils). Follow-up information regarding this inspection is not available (EPA 2009).

In April 2007, Ecology conducted an inspection of the property. During this inspection, releases of used oil and other heavy oils, hydraulic fluids, and damaged batteries laying uncovered on the ground were observed and, as a result, there was a concern that polycyclic aromatic hydrocarbons (PAHs) may have been released from spills of used oil and from the incineration of various automobile components on the ground. No samples were collected as part of this inspection (EPA 2009).

The site was referred to the EPA by Ecology in April 2009, and Ecology requested that "immediate intervention and action" be taken, as Ecology did not have the capacity to intervene at the time (EPA 2009).

2.4.2 Phase I and II Environmental Site Assessment of Myra Road Extension Project Salvage Yard

In August 2005, HDR Engineering, Inc. (HDR) conducted a Phase I Environmental Site Assessment (ESA) for the Walla Walla County Department of Public Works. The objective of the ESA was to provide "an independent, professional opinion regarding recognized environmental conditions" at the salvage yard. The ESA consisted of a walk-through of the property, a review of pertinent records for evidence of historical and present use of the subject and adjoining properties, an interview with the current owner as well as local government officials, and an evaluation of gathered information (HDR 2005).

The assessment identified the following recognized environmental conditions at the property:

- Used oil releases to the ground;
- Improper storage of automobile batteries and containers that previously held hazardous materials;
- Illegal disposal of ash; and
- Unpermitted burning of waste.

Based on these conditions, a Phase II ESA was recommended to include selective soil and groundwater sampling prior to purchasing any portion of the property (HDR 2005).

In February 2006, HDR conducted a Phase II ESA for the Walla Walla County Department of Public Works. The purpose of the Phase II ESA was to determine if contamination existed on the right-of-way property that the county was considering for purchase. As part of the Phase II ESA, eight borehole locations (BH-1 through BH-8) were installed. At least three soil samples were collected from each borehole. The sample intervals ranged in depth from 0 to 1 foot bgs to 14.5 to 15.5 feet bgs. A total of 28 soil samples were collected. Following soil sample collection, groundwater samples were collected from six of the eight boreholes (HDR 2006).

Samples were submitted for off-site fixed laboratory analyses of varying combinations of the following: SVOCs (EPA SW-846 Method 8270C), VOCs (EPA SW-846 Method 8260B), oil and grease (EPA Method 1664), PCBs (EPA SW-846 Method 8082), pesticides (EPA SW-846 Method 8081A), and TAL metals (EPA SW-846 Methods 7060A, 6010B, 7421, 7470A, and 7740). The analytical data were compared to Ecology Model Toxics Control Act (MTCA) cleanup levels. Further, the groundwater sample results were also compared to federal Maximum Contaminant Levels (MCLs) for tap water. One sample from BH-5, collected from 10.5 to 11.5 feet bgs, contained methylene chloride at concentrations that exceeded cleanup criteria. No other analytes were detected in soil samples at concentrations that exceeded cleanup criteria. Barium and lead were detected at concentrations that exceeded the federal MCLs for each in two groundwater samples. No other analytes were detected at concentrations above the federal MCLs in groundwater samples (HDR 2006).

2.4.3 EPA Removal Site Evaluation

E & E START performed a Removal Site Evaluation (RSE) at the site for the EPA from May 2009 through April 2012. Seven field events were conducted during this period to address the presence of hazardous substances in soil and groundwater, including metals, PCBs, pesticides, TPH, SVOCs including PAHs, and VOCs. The first three field events (May, September, and October 2009) focused on general site characterization and identifying potential source areas. The following two field events (March and October 2010) focused on delineating the major source area (i.e., the process area) and included the installation of monitoring wells to evaluate potential impacts to shallow groundwater. The final two field events (June 2011 and April 2012) focused on characterization of the horizontal extent of subsurface soil contamination and additional groundwater monitoring.

In May 2009, an EPA On-Scene Coordinator (OSC) visited the site and documented the following conditions indicating possible environmental impacts:

- Six large electrical transformers, some of which did not have markings identifying them as containing non-PCB oil, and some of which were leaking oil onto the ground;
- The appearance of heavy oil-stained soils in a low area near the hydraulic shear, and other smaller areas of oil-stained soil;
- Over 20 drums with unmarked and unknown contents, some of which were open and/or in rusted or damaged condition, and some of which gave off a distinct solvent odor; and
- Several large open-top tanks, the largest of which was approximately 800 gallons and contained a heavy oily substance.

Based on these observations, EPA proceeded to initiate an RSE at the site to better understand the nature and extent of the contamination and to identify major source areas.

Each RSE field event is summarized below in chronological order. A detailed description of each RSE field event can be found in the *Removal Site Evaluation Report* (E & E 2012b). Figure 2-3 presents all sample locations collected throughout the RSE in and near the process area. Sample data tables and figures for each field event were excerpted from the *Removal Site Evaluation Report* and included in Appendix A. Comprehensive soil and water analytical data are included in Appendices B and C, respectively.

Samples collected during the seven RSE field events were submitted to an off-site fixed laboratory in varying combinations for the following analyses: TAL metals including mercury (EPA SW-846 Methods 7060A, 6010B, 7421, 7470A, and 7740), PCBs (EPA SW-846 Method 8082A); pesticides (EPA SW-846 Method 8081A); SVOCs (EPA SW-846 Method 8270C); VOCs (EPA SW-846 Method 8260B); dioxins/furans (EPA SW-846 Method 8280A); total petroleum hydrocarbons (TPH) (NWTPH-Dx); and/or asbestos (EPA 600/R-93/116).

The analytical data from soil samples were compared to EPA Regional Screening Levels (RSLs) (EPA 2009) for residential and industrial properties, and data from groundwater samples were compared to EPA RSLs for tap water and federal MCLs for drinking water. Because there are no RSLs for TPH, this data (both soil and groundwater) was compared to Ecology MTCA cleanup levels (Ecology 2007). TPH soil sample data was compared to Ecology MTCA soil cleanup levels for unrestricted land use (Methods A and C) and industrial properties (Methods A and C), and TPH groundwater sample data was compared to Ecology MTCA cleanup levels for groundwater (Methods A and B).

May 2009

E & E START initiated the RSE in May 2009, which included:

- An air monitoring and radiation survey;
- A rough inventory of drum fields, aboveground storage tanks, and pressurized tanks;
- An inventory of transformers and research to determine the previous storage location of transformers;
- Collection of four product and five wipe samples from transformers;
- Collection of four soil samples, two of which were collected from the process area (SS02 between the baler and Mill Creek and SS03 near the baler);
- Collection of eight product samples from five vented drums and three open oil above-ground storage tanks;
- Collection of groundwater samples from both out-of-use and on-site drinking water wells (GW01 and GW02); and
- Collection of three samples of suspected asbestos-containing material (ACM) near the shop building including suspected concrete asbestos board and insulation.

Soil sample results for SS02 and SS03 indicated the presence of TAL metals (arsenic and lead), PCBs (Aroclor-1248, -1254, and -1260), and SVOCs (benzo[a]pyrene, benzo[a]anthracene, and other PAHs) at concentrations that exceeded screening criteria values. No pesticides, VOCs, or dioxins/furans were detected at concentrations which exceeded screening criteria values.

Groundwater sample results for GW01 and GW02 indicated the presence of VOCs (chloroform and tetrachloroethene) at concentrations which exceeded the RSL tap water criteria, although at concentrations below the MCLs. No TAL metals, PCBs, pesticides, TPH, or SVOCs were detected above their screening criteria values.

Surface soil and groundwater sample results revealed contamination near the process area that warranted further investigation.

September 2009

Additional surface and subsurface soil sampling was conducted in September 2009 to determine the vertical and horizontal extent of contamination in the process area.

Soil samples were collected from ten locations in and near the process area ranging in depth from 0 to 8 feet bgs. Samples were collected from the spill area near the hydraulic equipment (SA01 through SA07), the swale (SW01 and SW02), and the shop building (SH01).

These samples were analyzed for TAL metals, SVOCs, pesticides/PCBs, and TPH. In addition, one soil sample (SA01) was analyzed for SVOCs using the Toxic Characteristic Leaching Procedure (TCLP) and Synthetic Precipitation Leaching Procedure (SPLP) methods, and a second soil sample (SH01) was analyzed for TCLP metals and TCLP pesticides. Sample results indicated the presence of TAL metals, SVOCs, and PCBs above EPA RSLs. All TCLP analytical results were less than Resource Conservation and Recovery Act (RCRA) TCLP limits, and all SPLP SVOC analytical results were non-detect.

During the September 2009 field event, soil samples were also collected from the drum field and battery storage areas. Bulk samples of suspected ACM were also collected from the northeast corner of the property.

Results from the soil samples collected in September 2009 indicated that contamination in subsurface soil in the process area extended to the water table. Additionally, the results from this sampling event document the presence of SVOCs above screening criteria in the swale. Following this sampling event, EPA identified the following data gaps for future sampling events: horizontal extent of contamination, depth and direction of groundwater in the process area, potential contamination of groundwater and surface water in Mill Creek, potential contamination beneath the shop building, and assessment for potential SVOC contamination between the swale and the process area.

October 2009

A removal action and additional characterization sampling was conducted in October 2009 to address contamination identified during the previous two field events. The removal action consisted of consolidation and off-site disposal of drums, ACM, and other material. Characterization sampling included excavation of a test pit in the process area to assess physical properties of on-site soils, and collection of surface water samples from Mill Creek. The test pit was excavated in the process area near the baler to approximately 6 feet bgs and one soil sample (TP01) was collected near the bottom of the test pit. Four surface water samples (MC01SW through MC04SW) were collected from Mill Creek, including one sample upstream, two samples adjacent to the northern boundary of the site property, and one sample downstream.

During the removal action, it became apparent that the largest contiguous area of contamination was the area north of the retaining wall which extended west from the shop building. Contamination at this location was viewed to be ongoing, as the site was still in operation and oil and hydraulic fluids were noted to be “spraying” out of the crushing machine.

Samples from the test pit and from Mill Creek were submitted for off-site fixed laboratory analysis of TPH, TAL metals, SVOCs, and PCBs. TPH, lead, PCBs, and one SVOC were detected at concentrations above the RSL in the soil sample. Analytical results for the surface water samples did not detect any analytes at concentrations above the RSLs.

START prepared an *Alternatives Evaluation Technical Memorandum* (E & E 2010) evaluating potential cleanup alternatives for the process area. This memorandum also recommended the installation of monitoring wells to determine if soil was impacting shallow groundwater at the site.

March 2010

In March 2010, four monitoring wells were installed to determine depth and direction of groundwater flow, characterize potential groundwater contamination, and collect additional soil samples from near the process area. One background well was installed upgradient of the source area (MW01), two wells were installed downgradient of the source area (MW02 and MW03), and one well (MW04) was installed cross-gradient of the source area. Groundwater elevations and contours are discussed in the *Removal Site Evaluation Report* (E & E 2012b).

Two investigative boreholes were also installed to further delineate the extent of contamination and to evaluate whether contamination extended beneath the baler. One soil boring (SB1) was installed west of the process area to evaluate how far the source area extended in that direction, addressing a data gap identified October 2009 field event. The second soil boring (SB2) was installed at an approximately 45-degree angle under the baler, which was believed to be the source of the hydraulic fluid (i.e., TPH) and associated organic and inorganic contaminants observed in the site soils.

A total of 11 soil samples from the boreholes and four groundwater samples from the newly completed and developed monitoring wells were collected during this field event. Samples were submitted to an off-site fixed laboratory for analysis of PCBs, SVOCs, and TAL metals. PCBs, SVOCs, and iron were detected at concentrations which exceeded cleanup criteria in the soil samples. The analytical results for the groundwater sample downgradient from the source area (MW02) indicated that only Aroclor-1242 was detected above the RSLs, which was interpreted to imply that impacts to shallow groundwater were minimal. This phase of work led to the recommendation for seasonal groundwater sampling to determine fluctuations of groundwater direction and depth, as well as to determine whether there were seasonal variations in contaminant concentrations.

October 2010

Based on the recommendation following the March 2010 field event, another round of groundwater sampling was conducted in October 2010 by START. Groundwater samples were collected from the existing monitoring wells and submitted to an off-site fixed laboratory for analysis of TAL metals, pesticides/PCBs, SVOCS, VOCs, and TPH. Analytical results indicated the presence of VOCs and SVOCs at concentrations that exceeded RSLs. No other analytes were detected above RSLs.

June 2011

In June 2011, additional sampling was conducted to further delineate the extent of soil and groundwater contamination around the process area and evaluate whether contamination extended beneath the shop building. An additional round of groundwater sampling from the monitoring wells installed in March 2010 was also conducted to assess seasonal variations in contaminant concentrations and determine fluctuations of groundwater direction and depth.

As part of the June 2011 field event, START installed 25 investigative boreholes at depths from 4 to 12 feet bgs to collect additional subsurface soil samples. A START subcontractor was hired to core through the concrete floor of the shop building to allow the installation of five boreholes. Groundwater samples were collected from eight of the investigative boreholes and four groundwater samples from the previously installed monitoring wells.

A total of 45 soil samples and 12 groundwater samples were collected during this phase. All samples were submitted to an off-site fixed laboratory for analysis of TPH, TAL metals, SVOCs, and PCBs. Analytical results indicated the presence of TPH, PCBs, lead, and SVOCs at concentrations that exceeded their respective RSLs in both soil and groundwater.

April 2012

In April 2012, EPA mobilized to the site to perform additional removal activities to address abandoned drums at the site, which is discussed in a separate *Removal Action Report* (E & E 2012a). During the mobilization, EPA collected soil samples from the swale, an area to the northwest of the process area that was sampled in September 2009, to further characterize the contamination outside the process area.

EPA collected one surface soil sample (SW03) from the southern edge of the swale and another surface soil sample (SW04) from the eastern edge. The soil samples were analyzed for metals, PCBs, and SVOCs. Analytical results indicated the presence of arsenic and SVOCs at concentrations that exceeded their respective RSLs. No other metal analytes were detected above screening criteria, and no PCBs were detected above screening criteria.

2.4.4 EPA Preliminary Assessment

In November 2011, START prepared a Preliminary Assessment (PA) of the site for the EPA. No site visit was conducted as part of the PA. The PA was based on a review of existing site information, receptor information within the range of site influence, and regional characteristics. The PA report (E & E 2011) discussed site history, summarized previous work completed by the EPA and other entities, and identified sources of hazardous substances at the site. The PA concluded that documentation was clear regarding contamination being present at the site; however, it was not clear if it had migrated off site to targets in Mill Creek. Additional sampling was recommended.

2.4.5 EPA Site Inspection

START conducted a Site Inspection (SI) on behalf of the EPA in April 2012 to characterize contamination outside of the process area (contamination present within the process area is described in Section 2.4.3) and collect receptor information within the range of site influence. As part of the SI, ten sediment samples (MC01SD through MC10SD) were collected from the southern shoreline of Mill Creek. Sample collection began approximately 700 feet downstream of the waste water treatment plant and progressed upstream (E & E 2012c).

Samples were submitted for off-site fixed laboratory analyses of PCBs, SVOCs, TAL metals, and grain size. One SVOC (4-methylphenol) was detected at sample location MC05SD and one metal (arsenic) was detected at sample location MC04SD at elevated concentrations with respect to background concentrations. Based on a review of analytical data from samples collected from previous EPA assessments, 4-methylphenol has not been detected at the site, though arsenic was detected at two sampling locations (SS-02 and SS-03) in May 2009. Because 4-methylphenol was not similarly detected in sources at the site, it is not considered attributable to the site. Even though arsenic was detected at the site, it is not likely attributed to sources at the site based on the low concentration at which it was detected (2.5 milligrams per kilogram [mg/kg]). This arsenic concentration may be attributed to naturally occurring arsenic as it was detected at concentrations less than the median arsenic value for Washington State (Ecology 1994). The presence of other potential sources of arsenic to Mill Creek such as stormwater outfalls may have attributed to the arsenic detection in Mill Creek.

2.5 Source, Nature and Extent of Contamination

The source, nature and extent of contamination were characterized during the seven field events that comprised the RSE, summarized in Section 2.4.3. The RSE was performed primarily to characterize contaminated soil and groundwater in and around the metal salvage process area of the site, and as such, the process area is the focus of this EE/CA. The RSE did not address the entire property, and based on site operations and general site observations, it is possible that additional soil and groundwater contamination may be present at other areas of the site.

Contaminants were selected for RSE sampling in the process area based on historical site activities and analytical results from prior investigations. Previous investigations observed hydraulic fluid leaking from the hydraulic equipment located adjacent to the shop building. Larger releases associated with the hydraulic oil storage tank utilized by this equipment have been reported by on-site personnel, but were never documented. It has also been reported that various used oils, including used motor oils and transformer oils (potentially containing PCBs), have been used in this equipment and subsequently spilled to the ground surface by leaks and possibly by larger releases. Contaminants identified during the RSE included metals, PCBs, pesticides, TPH, SVOCs including PAHs, and VOCs.

2.5.1 Soil

Analytical data from soil samples collected as part of the RSE was compared to EPA RSLs for residential and industrial properties for all compounds except TPH which was compared to MTCA cleanup standards for unrestricted and restricted properties. Analytical data from water samples was compared to EPA RSLs for tap water and federal MCLs for all compounds except TPH which was compared to MTCA cleanup standards for unrestricted and restricted properties.

Based on the comparison of RSE soil sample data to the RSLs, the process area contamination zone is estimated to cover an area of approximately 25,000 square feet, and with an estimated maximum depth to groundwater of 8 feet bgs, the volume of soil in the process area is estimated to be approximately 7,400 cubic yards.

Figures 2-4 through 2-7 summarize the process area soil sample results from the RSE. The figures are divided by type of compound, with metals presented in Figure 2-4, PCBs in Figure 2-5, TPH in Figure 2-6, and SVOCs in Figure 2-7. Each figure includes the sample/borehole locations from all RSE sampling events, and the symbols are color-coded to indicate whether a sample (i.e., surface or subsurface soil sample) at that location exceeded the industrial or residential RSL (for metals, PCBs, and SVOCs) or the MTCA cleanup levels (for TPH).

Metals in soil were detected in and around the process area, including the swale, at seven locations with concentrations that exceed EPA RSLs for industrial properties for arsenic and lead. The maximum concentration for arsenic was 5.4 mg/kg at SS02, and for lead was 4,400 mg/kg at P206. Additional metal analytes detected above the more conservative EPA RSL for residential properties include antimony, arsenic, cobalt, iron, and lead. Iron was the only contaminant detected under the shop building at concentrations slightly above the EPA RSL for residential properties, with a maximum of 86,000 mg/kg at P217.

PCBs in soil were detected in and around the process area at 12 locations with concentrations that exceed EPA RSLs for industrial properties, and one additional location had concentrations greater that EPA RSLs for residential properties. The maximum concentrations were detected at SA06 with 41,000 micrograms per kilogram (µg/kg) of Aroclor-1254, P203 with 38,000 µg/kg of Aroclor-1242, and SA07 with 37,000 µg/kg of Aroclor-1242. The PCB contaminated soil generally appears to be located near the previous location of the hydraulic equipment in the process area with the exception of a few outlying samples. Pesticides were detected above the conservative RSL for residential properties at only two locations, SA04 and SA07, and sampling for pesticides was therefore discontinued after the September 2009 field event.

TPH in soil was detected at nine locations above the MTCA screening criteria of 2,000 mg/kg, and eight of these locations have PCB concentrations greater than RSLs for industrial properties. All TPH locations are located within the process area.

SVOCs in soil were detected in and around the process area and a majority of sample locations indicated concentrations that exceeded screening criteria. The most heavily contaminated soil was located in the process area, including SA06 (84 mg/kg for benzo[a]pyrene), although four locations outside the process area had SVOC concentrations greater than RSLs for industrial properties. Samples to the south of the process area and under the shop building had concentrations of SVOCs less than the screening criteria, and samples to the northeast of the process area exceeded only RSLs for residential properties. Samples to the west of the process exceeded only RSLs for residential properties with the exception of P211 (0.29 mg/kg of benzo[a]pyrene) which exceeded RSLs for industrial properties. Three samples to the north of the process area, including SW04 in the swale, exceeded RSLs for industrial properties, which may imply that SVOC contamination in the swale is contiguous with contamination found in the process area.

2.5.2 Groundwater

Figures 2-8 through 2-11 summarize the process area groundwater sample results from the RSE. Similar to the presentation of soil sample results, the figures are divided by type of compound, with metals presented in Figure 2-8, PCBs in Figure 2-9, TPH in Figure 2-10, and SVOCs in Figure 2-11. Each figure includes color-coded symbols to indicate whether a sample exceeded the tap water RSL or federal MCLs (for metals, PCBs, and SVOCs) or the MTCA cleanup level (for TPH).

Groundwater samples collected from the two domestic wells on site indicated concentrations of

VOCs above the conservative RSL for tap water in the form of chloroform (0.31 J micrograms per liter [μg/L] at GW01, and 0.19 J μg/L at GW02). The domestic well contaminant concentrations were otherwise below screening levels for metals, PCBs, pesticides, TPH, and SVOCs. The surface water samples from Mill Creek also did not contain concentrations of metals, PCBs, pesticides, TPH, and SVOCs above screening levels.

Five groundwater samples contained concentrations of metals greater than site screening criteria, including arsenic (maximum of 6.1 μg/L at P220), lead (maximum of 380 μg/L at P221), and other analytes including cobalt, iron, manganese, and vanadium. Four groundwater samples contained concentrations of PCBs with a maximum of 1,500 μg/L of Aroclor-1242 at P221. Pesticides were not detected above screening criteria, and after October 2009 sampling for pesticides was discontinued. TPH was detected at three locations with a maximum of 3,600 milligrams per liter (mg/L) of oil range organics at P221. SVOCs were occasionally detected with bis(2-ethylhexyl)phthalate, a common cross-contaminant found in PVC sampling equipment, the most commonly encountered analyte. Benzo[a]pyrene was detected at five locations above screening criteria with a maximum of 14 μg/L at P221. Additional SVOCs, not including bis(2-ethylhexylphthalate), were detected at six other locations above screening criteria.

The groundwater sample locations that appear to contain the greatest number of analytes above screening criteria include MW02, P208, P214, P220, P221, and P222. Analysis of groundwater samples collected from within the process area indicated elevated concentrations of metals, PCBs, TPH, and SVOCs that appear to be directly impacted by subsurface soil contamination. Although contamination in the groundwater in the processing area has been confirmed, there is insufficient data to evaluate the degree to which groundwater contamination may be migrating beyond the process area or off site.

2.6 Streamlined Risk Evaluation

This section presents a summary of the streamlined human health risk evaluation (HHRE) provided in Appendix D. EPA's document *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* (EPA 1993) requires a streamlined risk evaluation to assist in determining whether a removal action is justified and to identify the potential current and future exposures that should be prevented. In a streamlined risk evaluation, the contaminants of potential concern (COPCs) for which actions may be taken are identified by defining potential exposure pathways and receptors, and comparing contaminant concentrations to published screening levels. Screening levels are conservative risk-based concentrations or applicable state and federal standards consistent with the pathways and receptors identified.

Based on local land use and zoning information for the site, exposure scenarios evaluated in the HHRE include current and future residential and future worker. Potential residential and worker receptors could be exposed to site contaminants through contact with surface soil, subsurface soil, groundwater, surface water, and indoor air. Potential routes of exposure include ingestion, dermal absorption, and inhalation. A human health conceptual site model (CSM) is presented in Figure 2-12 to depict the potential exposure pathways and receptors identified for the site. A population radius map, showing the current population residing within a 0.5-mile and 1-mile radius of the site, is provided in Figure 2-13.

To evaluate potential risks at the site in a streamlined manner, maximum concentrations of contaminants detected during the RSE sampling events were compared to the following conservative screening criteria that are considered protective of human health:

- EPA RSLs for residential soil;
- EPA RSLs for industrial/commercial soil;
- EPA RSLs for residential tap water;
- EPA Vapor Intrusion Pathway Generic Screening Levels;
- Federal MCLs; and
- Ecology MTCA soil and water cleanup levels for TPH.

The screening level comparison identified contaminants with soil and groundwater concentrations exceeding residential and industrial screening levels. These contaminants were identified as COPCs for use in determining the scope of the removal action for the site.

Soil and groundwater COPCs and screening criteria comparisons are presented in Tables 2-1 and 2-2, respectively. Maximum soil concentrations of metals, pesticides, PCBs, TPH, SVOCs, and VOCs exceeded screening criteria. Maximum groundwater concentrations of metals, PCBs, TPH, SVOCs, and one VOC (chloroform) exceeded screening criteria. Screening criteria comparisons are discussed in detail in the HHRE (Appendix D).

The streamlined HHRE for the site was performed to preliminarily characterize the potential risks associated with the process area contaminated soil, which is the primary source of contamination at the site. Due to the uncertainties described in the HHRE (Appendix D), potential exposures may be less than estimated, and the risk identified by the HHRE is considered to be conservative.

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Table 2-1 Summary of HHRE Soil Screening Comparisons for COPCs

COPC	Maximum Detected Concentration	EPA RSL - Residential Soil		EPA RSL - Industrial Soil		EPA RSL - Soil to Groundwater [2]	
		Value	Frequency of Exceedance[3]	Value	Frequency of Exceedance[3]	Value	Frequency of Exceedance[3]
Metals (mg/kg)							
Aluminum	38,800	77,000	0 / 71	990,000	0 / 71	23,000	4 / 71
Antimony (Metallic)	54	31	1 / 71	410	0 / 71	0.27	9 / 71
Arsenic (Inorganic)	5.4	0.39	3 / 73	1.6	1 / 73	0.0013	3 / 73
Barium	540	15,000	0 / 73	190,000	0 / 73	82	67 / 73
Cobalt	24	23	1 / 71	300	0 / 71	0.21	71 / 71
Copper	2,420	3,100	0 / 73	41,000	0 / 73	22	30 / 73
Iron	86,000	55,000	14 / 71	720,000	0 / 71	270	71 / 71
Lead & Compounds	4,400	400	8 / 73	800	6 / 73	14	36 / 73
Manganese (Non-Diet)	920	1,800	0 / 71	23,000	0 / 71	21	71 / 71
Mercury (Elemental)	3.1	10	0 / 73	43	0 / 73	0.01	7 / 73
Nickel (Soluble Salts)	120	1,500	0 / 73	20,000	0 / 73	20	12 / 73
Selenium	3.2	390	0 / 73	5,100	0 / 73	0.26	4 / 73
Silver	6.3	390	0 / 73	5,100	0 / 73	0.6	2 / 73
Vanadium & Compounds	290	390	0 / 71	5,200	0 / 71	78	58 / 71
Zinc & Compounds	5,300	23,000	0 / 71	310,000	0 / 71	290	17 / 71
PCBs (µg/kg)							
Aroclor-1242	38,000	220	14 / 82	740	7 / 82	5.3	22 / 82
Aroclor-1248	19,000	220	2 / 82	740	2 / 82	5.2	4 / 82
Aroclor-1254	41,000	220	10 / 82	740	8 / 82	8.8	17 / 82
Aroclor-1260	2,300	220	5 / 82	740	2 / 82	24	15 / 82
Pesticides (µg/kg)							
4,4'-DDD	84	2,000	0 / 23	7,200	0 / 23	66	1 / 23
4,4'-DDE	300	1,400	0 / 23	5,100	0 / 23	46	5 / 23
4,4'-DDT	380	1,700	0 / 23	7,000	0 / 23	67	4 / 23
beta-BHC	280	270	1 / 23	960	0 / 23	0.13	1 / 23
Dieldrin	100	30	1 / 23	110	0 / 23	0.061	2 / 23
gamma-BHC	110	520	0 / 23	2,100	0 / 23	0.21	2 / 23
Heptachlor Epoxide	50	53	0 / 23	190	0 / 23	0.068	3 / 23
TPH (mg/kg)							
Diesel Range Organics	43,000	2,000 [1]	7 / 59	2,000 [1]	7 / 59	NA	NA
Oil Range Organics	110,000	2,000 [1]	12 / 59	2,000 [1]	12 / 59	NA	NA
SVOCs (mg/kg)							
1-Methylnaphthalene	3	22	0 / 77	99	0 / 77	0.0051	20 / 77
2,4-Dichlorophenol	0.1	180	0 / 81	1,800	0 / 81	0.041	1 / 81
2,4-Dinitrophenol	6.2	120	0 / 70	1,200	0 / 70	0.034	1 / 70
2-Methylnaphthalene	2.2	310	0 / 79	4,100	0 / 79	0.14	14 / 79
Acenaphthene	18	3,400	0 / 81	33,000	0 / 81	4.1	1 / 81
Anthracene	53	17,000	0 / 81	170,000	0 / 81	42	1 / 81
Benzo(a)anthracene	130	0.15	23 / 81	2.1	10 / 81	0.01	38 / 81
Benzo(a)pyrene	84	0.015	39 / 81	0.21	20 / 81	0.0035	42 / 81
Benzo(b)fluoranthene	90	0.15	23 / 81	2.1	11 / 81	0.035	40 / 81
Benzo(k)fluoranthene	66	1.5	8 / 81	21	0 / 81	0.35	13 / 81
Bis(2-ethylhexyl)phthalate	17	35	0 / 81	120	0 / 81	0.017	32 / 81
Butylbenzylphthalate	9	260	0 / 81	310	0 / 81	0.2	9 / 81
Chrysene	130	15	3 / 81	210	0 / 81	1.1	11 / 81
Dibenzo(a,h)anthracene	18	0.015	28 / 81	0.21	8 / 81	0.011	28 / 81
Dibenzofuran	7.8	78	0 / 81	1,000	0 / 81	0.11	3 / 81
Indeno(1,2,3-cd)pyrene	52	0.15	17 / 81	2.1	7 / 81	0.12	19 / 81
N-Nitrosodiphenylamine	0.31	99	0 / 79	350	0 / 79	0.057	2 / 79
Napthalene	2.2	3.6	0 / 81	18	0 / 81	0.00047	19 / 81
Pyrene	340	1,700	0 / 81	17,000	0 / 81	9.5	10 / 81
VOCs (µg/kg)							
Methylene Chloride	7.2	11,000	0 / 2	53,000	0 / 2	1.3	2 / 2
Naphthalene	1.9	3,600	0 / 2	18,000	0 / 2	0.47	2 / 2

Note:

1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted and industrial properties.
2. = Refers to either risk-based or MCL-based EPA soil to groundwater RSLs, whichever is lowest.
3. = Frequency of exceedance = # screening level exceedances/total # samples.

Key:

COPC = Contaminant of Potential Concern.
EPA = Environmental Protection Agency.
HHRE = Human Health Risk Evaluation.
MCL = Maximum Contaminant Level.
MTCA = Model Toxics Control Act.
mg/kg = Milligrams per kilogram (parts per million).
µg/kg = Micrograms per kilogram (parts per billion).
NA = Not applicable.
PCBs = Polychlorinated biphenyls.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SVOCs = Semivolatile organic hydrocarbons.
TPH = Total petroleum hydrocarbons.
VOCs = Volatile organic hydrocarbons.

Table 2-2 Summary of HHRE Groundwater Screening Comparisons for COPCs

COPC	Maximum Detected Concentration	EPA RSL - Tapwater		Federal Drinking Water MCL		EPA Vapor Intrusion SL - Target Groundwater Concentration	
		Value	Frequency of Exceedance[2]	Value	Frequency of Exceedance[2]	Value	Frequency of Exceedance[2]
Metals (µg/L)							
Arsenic (Inorganic)	6.1	0.045	1 / 22	10	0 / 22	NA	NA
Cobalt	29	4.7	3 / 22	NA	NA	NA	NA
Iron	68,000	11,000	4 / 22	NA	NA	NA	NA
Lead & Compounds	380	NA	NA	15	3 / 22	NA	NA
Manganese (Non-Diet)	4,500	320	5 / 22	NA	NA	NA	NA
Vanadium & Compounds	300	78	3 / 22	NA	NA	NA	NA
PCBs (µg/L)							
Aroclor-1242	1,500	0.034	3 / 22	NA	NA	NA	NA
Aroclor-1254	0.64	0.034	1 / 22	NA	NA	NA	NA
Aroclor-1260	0.091	0.034	1 / 22	NA	NA	NA	NA
TPH (mg/L)							
Diesel Range Organics	2,000	0.5 [1]	2 / 22	NA	NA	NA	NA
Oil Range Organics	3,600	0.5 [1]	2 / 22	NA	NA	NA	NA
SVOCs (µg/L)							
1-Methylnaphthalene	270	0.97	2 / 22	NA	NA	NA	NA
2-Methylnaphthalene	210	27	1 / 22	NA	NA	3,300	0/ 22
Benzo(a)pyrene	14	0.0029	7 / 22	0.2	2 / 22	NA	NA
Benzo(b)fluoranthene	9.6	0.029	2 / 22	NA	NA	NA	NA
Benzo(k)fluoranthene	26	0.29	1 / 22	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	80,000	0.071	15 / 22	6	10 / 22	NA	NA
Butylbenzylphthalate	600	14	1 / 22	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.017	0.0029	1 / 22	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	4.1	0.029	2 / 22	NA	NA	NA	NA
Napthalene	30	0.14	2 / 22	NA	NA	150	0 / 22
VOCs (µg/L)							
Chloroform	0.31	0.19	1 / 6	80	0 / 6	80	0 / 6

Note:

1. = Refers to Washington State MTCA cleanup levels for groundwater.
2. = Frequency of exceedance = # screening level exceedances/total # samples.

Key:

COPC = Contaminant of Potential Concern.
EPA = Environmental Protection Agency.
HHRE = Human Health Risk Evaluation.
MCL = Maximum Contaminant Level.
MTCA = Model Toxics Control Act.
mg/L = Milligrams per liter (parts per million).
µg/L = Micrograms per liter (parts per billion).
NA = Not applicable.
PCBs = Polychlorinated biphenyls.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SL = Screening levels.
SVOCs = Semivolatile organic hydrocarbons.
TPH = Total petroleum hydrocarbons.
VOCs = Volatile organic hydrocarbons.

R:\3 START 3\Stubblefield\march 2010\figure 1 site map.mxd 1/14/2009- edited in Illustrator 9-17-12

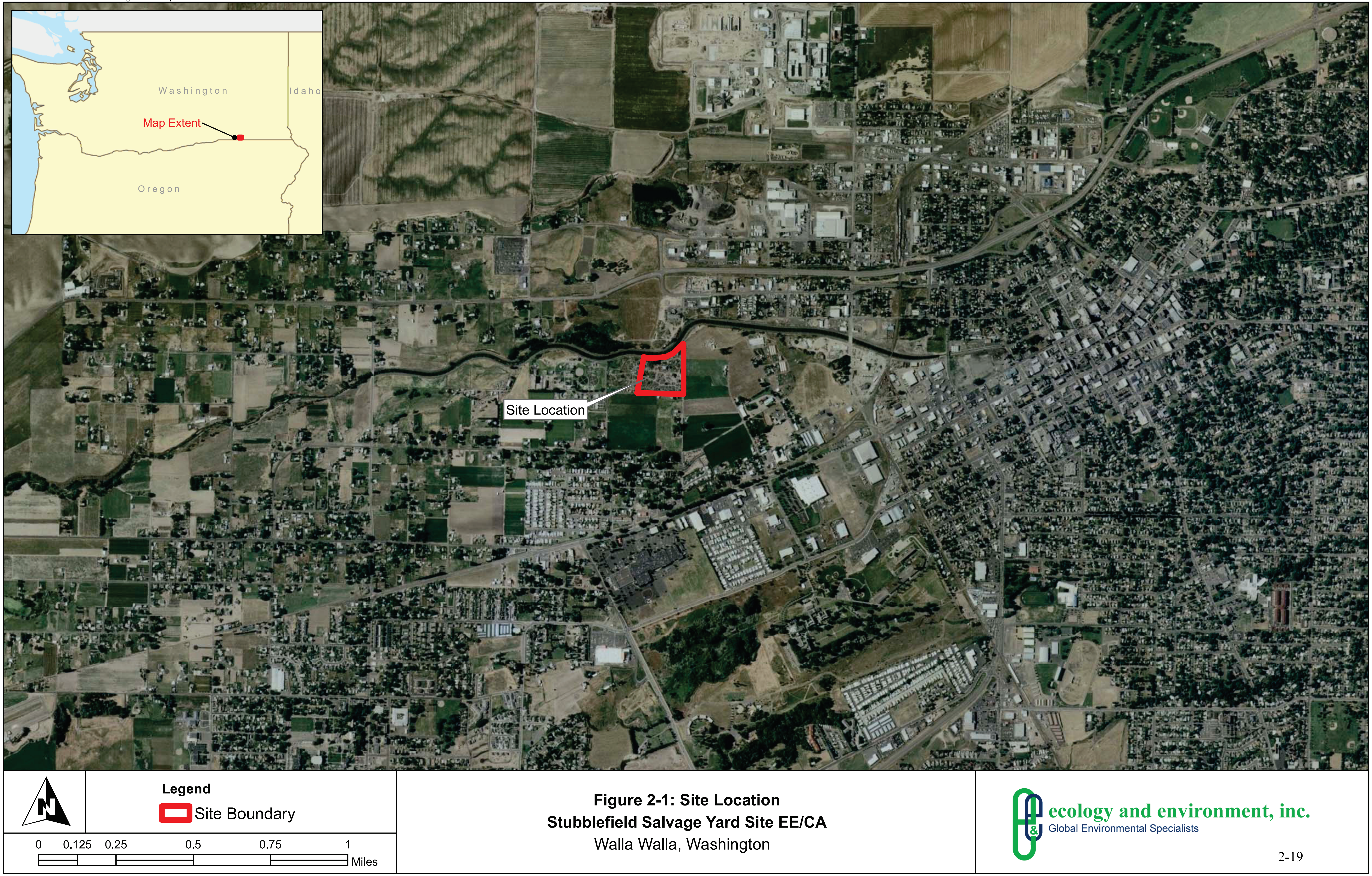

Figure 2-1: Site Location
Stubblefield Salvage Yard Site EE/CA
Walla Walla, Washington

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0 200 400
Approximate Scale in Feet

Figure 2-2: Site Layout Map
Stubblefield Salvage Yard Site EE/CA
Walla Walla, Washington

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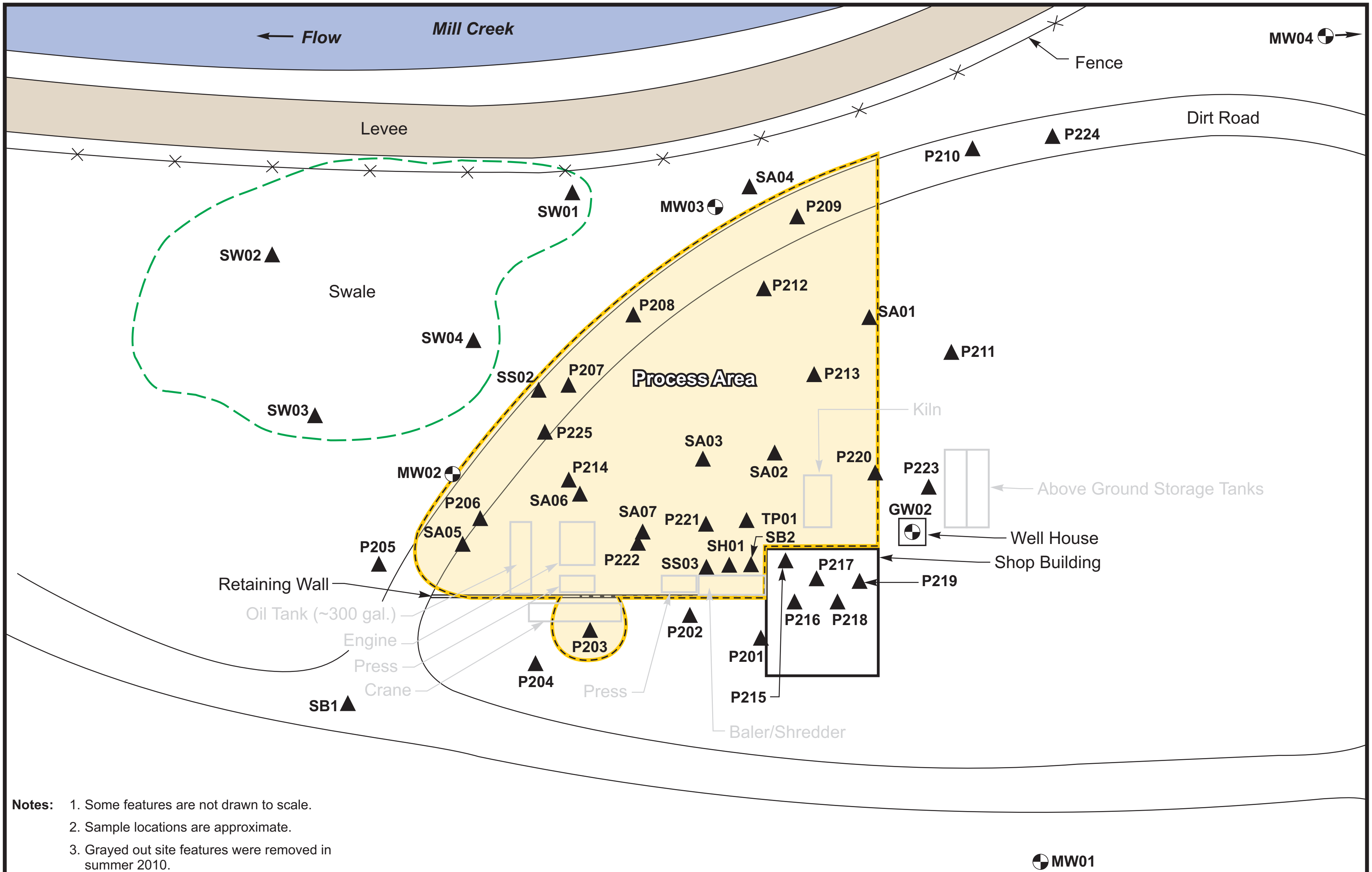

Notes:
1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. Grayed out site features were removed in summer 2010.

Legend

- Monitoring Well or Domestic Well
- Process Area
- Soil Sample

0 36 72

Approximate Scale in Feet

Figure 2-3: RSE Sample Locations in and Around the Process Area Stubblefield Salvage Yard Site

Walla Walla, Washington

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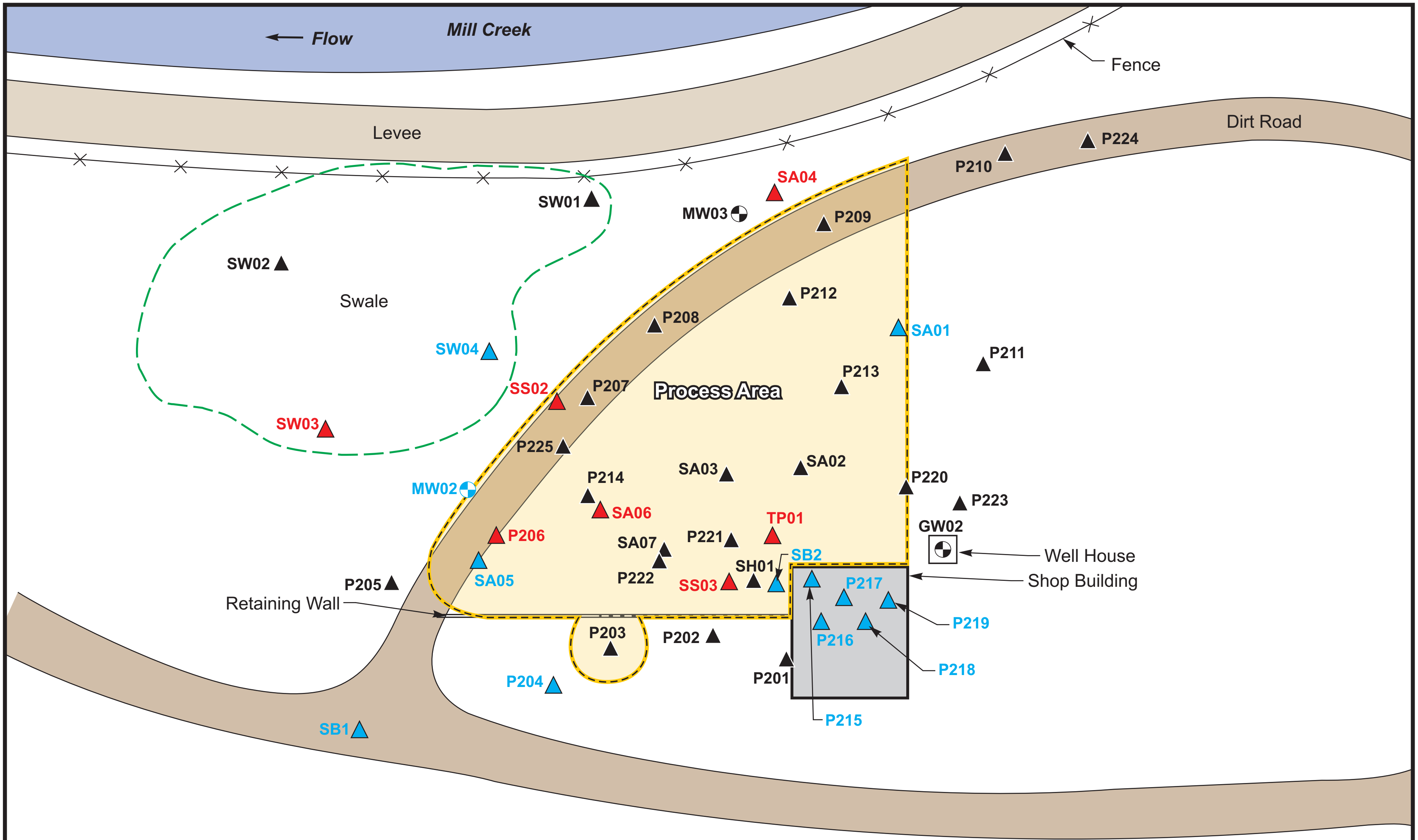

Notes: 1. Some features are not drawn to scale.
2. Sample locations are approximate.

Legend

- Monitoring Well or Domestic Well
- Soil Sample
- Process Area
- Exceeds EPA RSL Industrial Criteria for Metals
- Exceeds EPA RSL Residential Criteria for Metals

0 36 72
Approximate Scale in Feet

Figure 2-4: Metal Contamination in Soil
Stubblefield Salvage Yard Site
Walla Walla, Washington

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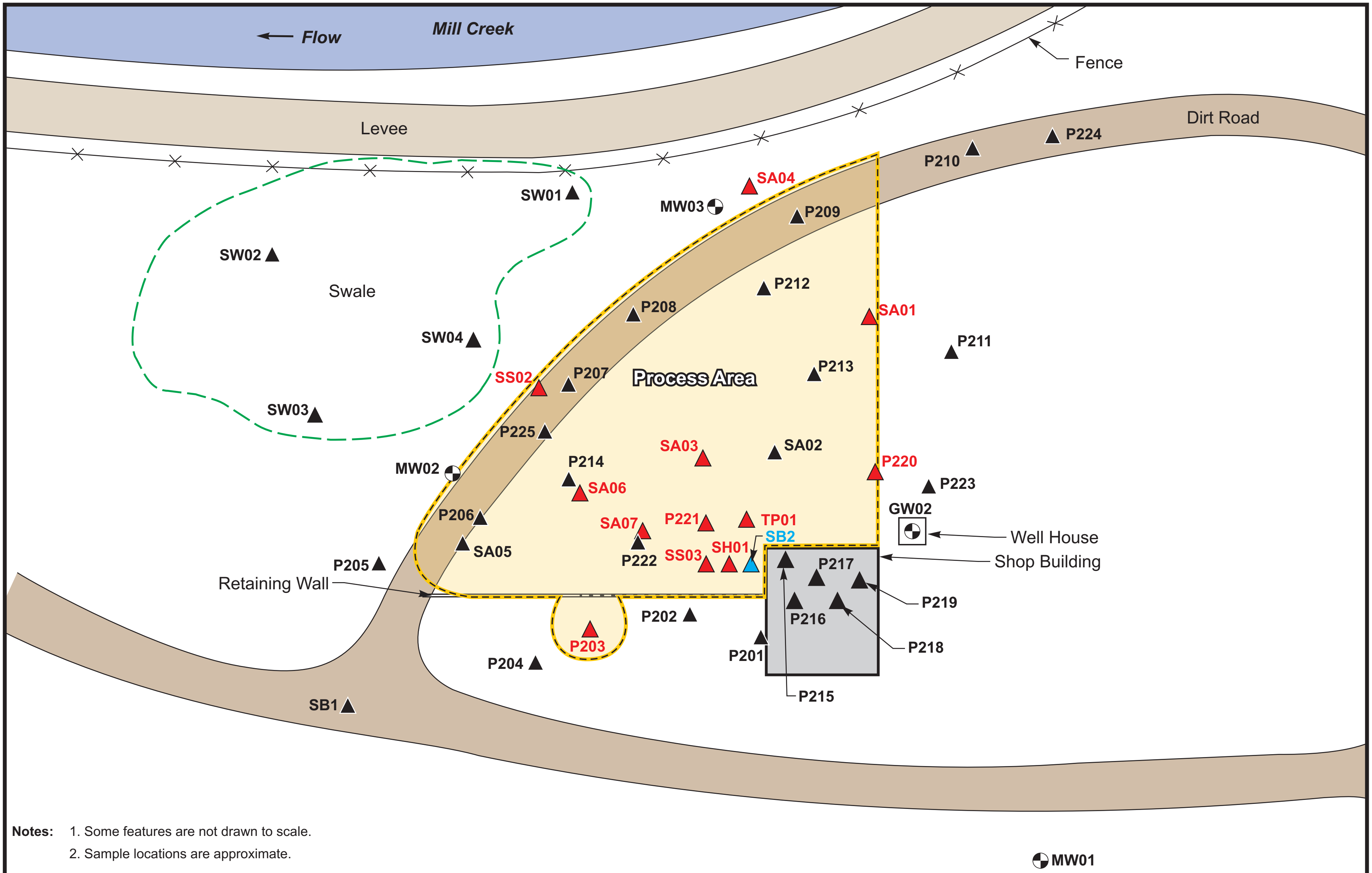

Notes: 1. Some features are not drawn to scale.
2. Sample locations are approximate.

Legend

- Monitoring Well or Domestic Well
- Soil Sample
- Process Area
- Exceeds EPA RSL Industrial Criteria for PCBs
- Exceeds EPA RSL Residential Criteria for PCBs

0 36 72
Approximate Scale in Feet

Figure 2-5: PCB Contamination in Soil
Stubblefield Salvage Yard Site
Walla Walla, Washington

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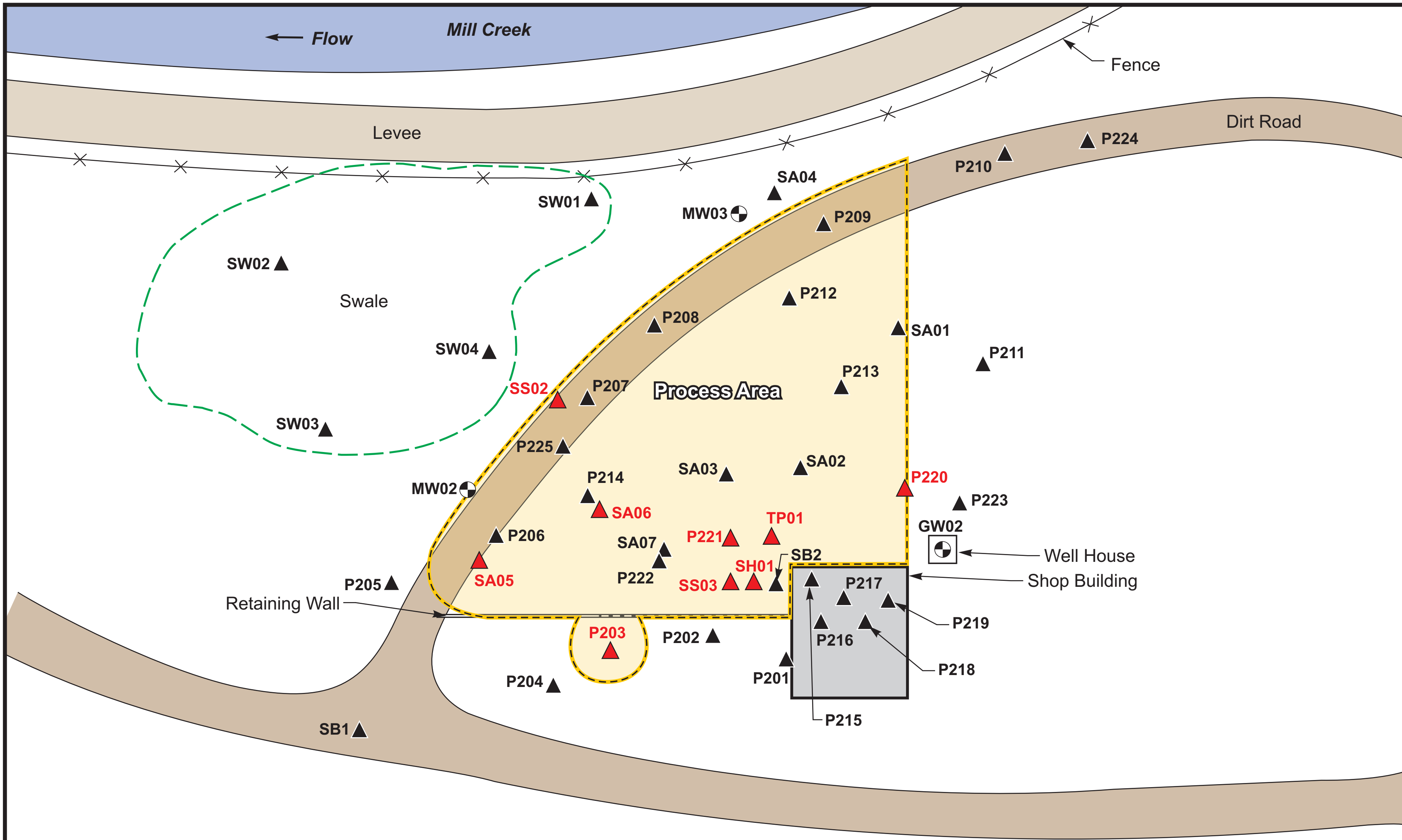

Notes: 1. Some features are not drawn to scale.
2. Sample locations are approximate.

Legend

- Monitoring Well or Domestic Well
- Soil Sample
- Process Area
- Exceed Washington MTCA for TPH

0 36 72
Approximate Scale in Feet

Figure 2-6: TPH Contamination in Soil
Stubblefield Salvage Yard Site
Walla Walla, Washington

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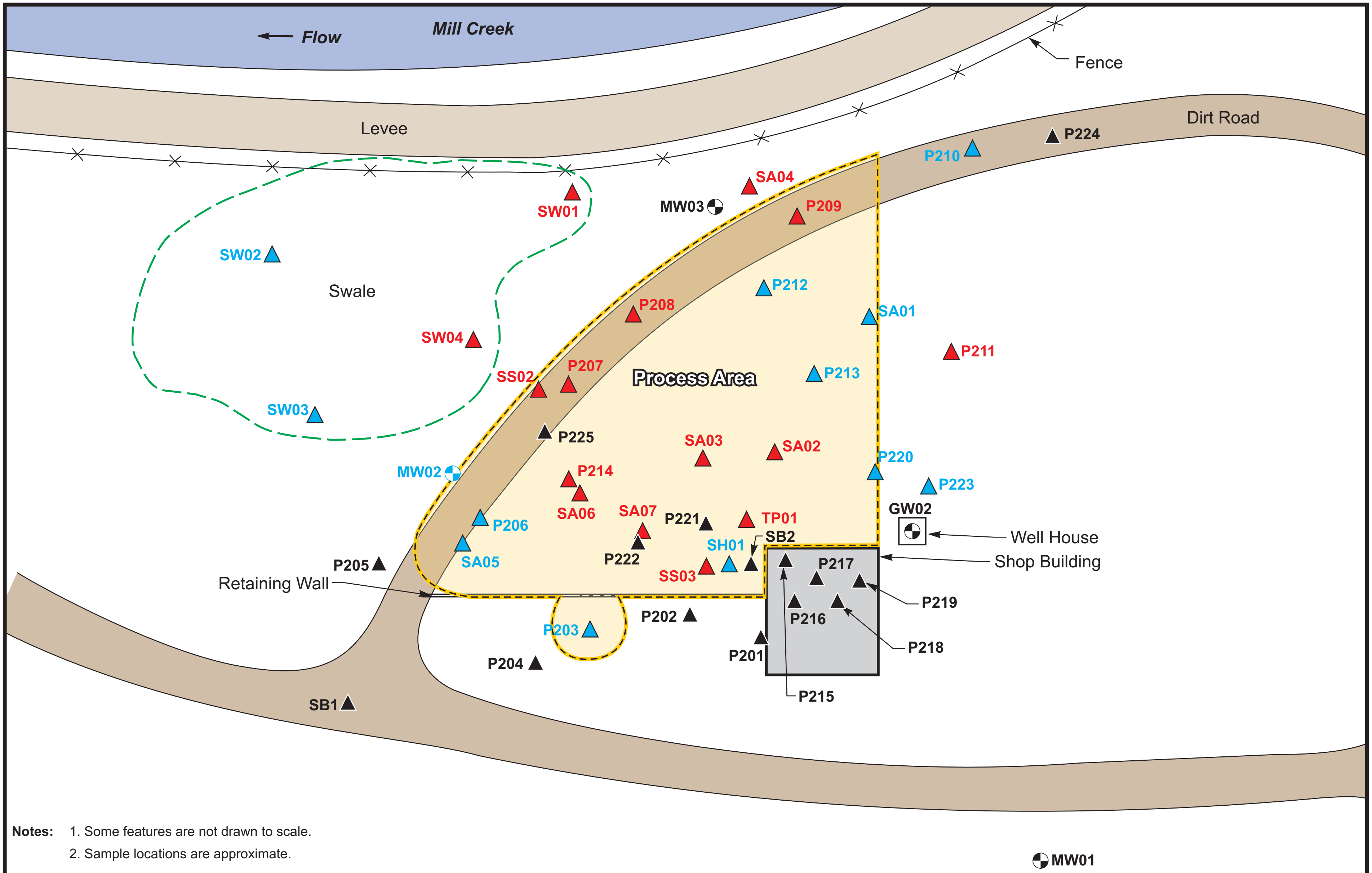
Seattle, Washington



Legend

- Monitoring Well or Domestic Well
- Soil Sample
- Process Area
- Exceeds EPA RSL Industrial Criteria for SVOCs
- Exceeds EPA RSL Residential Criteria for SVOCs

0 36 72
Approximate Scale in Feet

Figure 2-7: SVOC Contamination in Soil
Stubblefield Salvage Yard Site
Walla Walla, Washington

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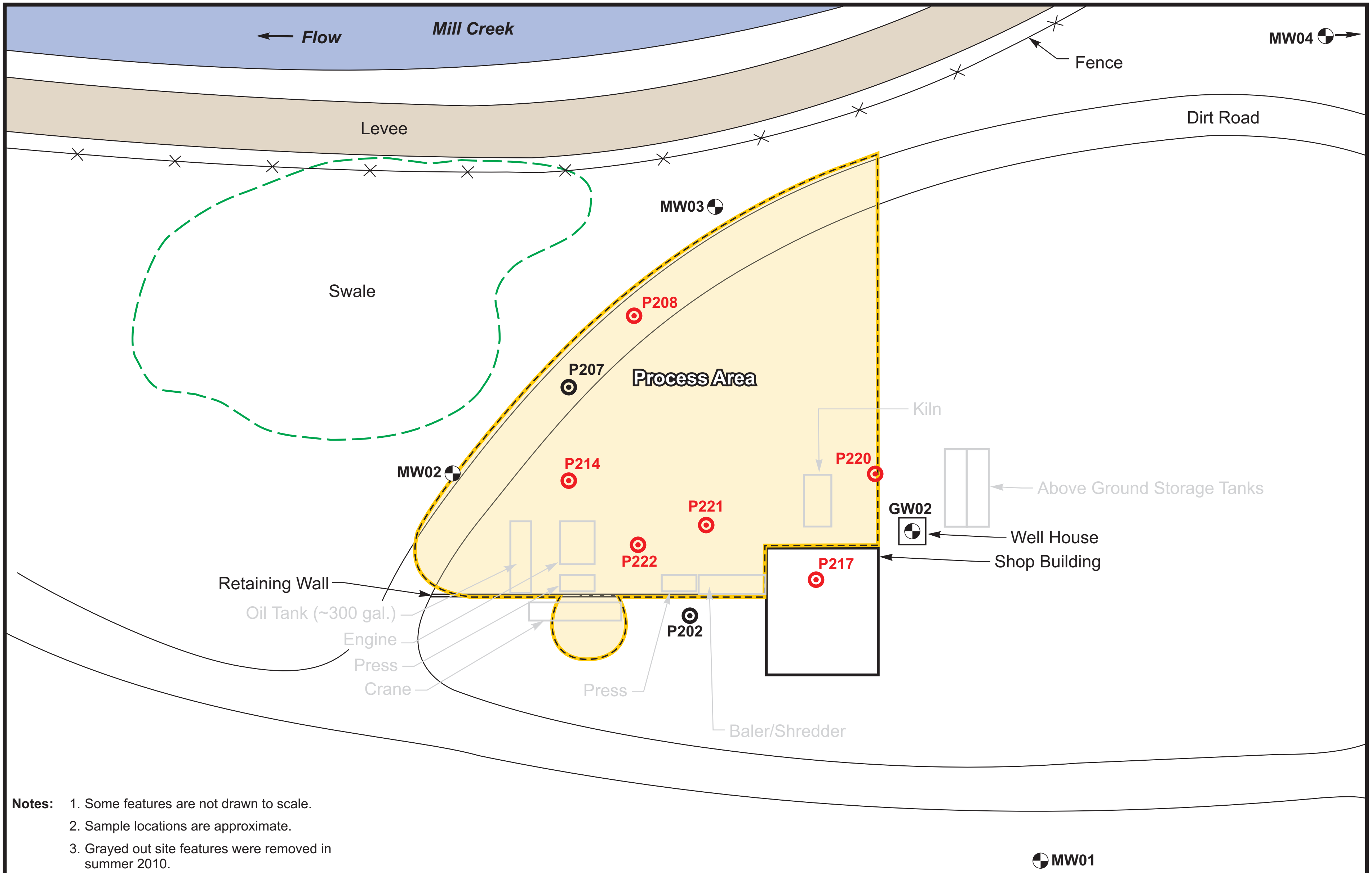

Notes:
1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. Grayed out site features were removed in summer 2010.

Legend

- Monitoring Well or Domestic Well
- Process Area
- Targeted Groundwater Sample
- Exceeds EPA RSL Tapwater or Federal MCL's for Metals

0 36 72
Approximate Scale in Feet

Figure 2-8: Metal Contamination in Groundwater
Stubblefield Salvage Yard Site
Walla Walla, Washington

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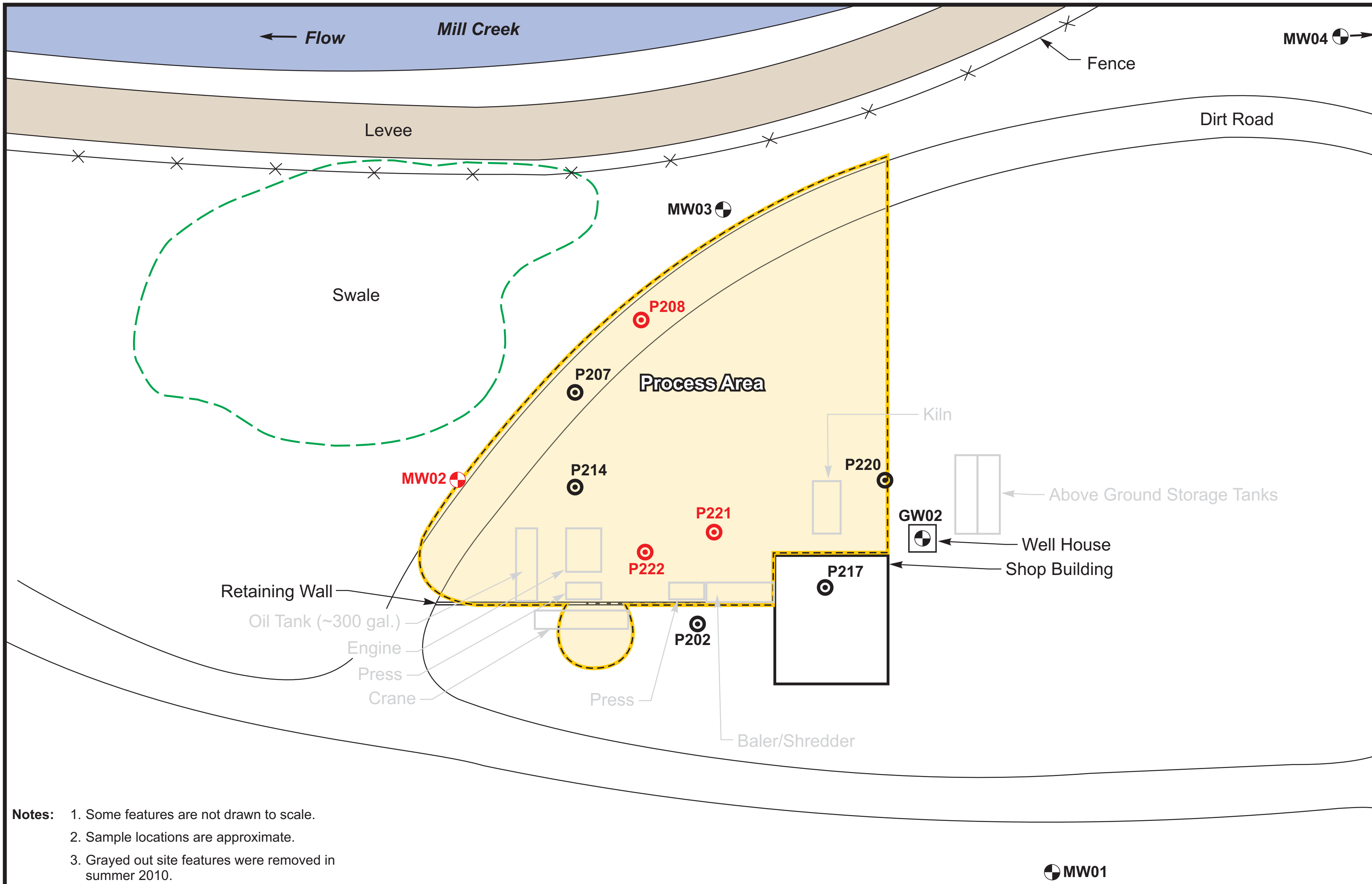
Seattle, Washington



Notes:
1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. Grayed out site features were removed in summer 2010.

Legend

- Monitoring Well or Domestic Well
- Process Area
- Targeted Groundwater Sample
- Exceeds EPA RSL Tapwater or Federal MCL's for PCBs

0 36 72

Approximate Scale in Feet

Figure 2-9: PCB Contamination in Groundwater
Stubblefield Salvage Yard Site
Walla Walla, Washington

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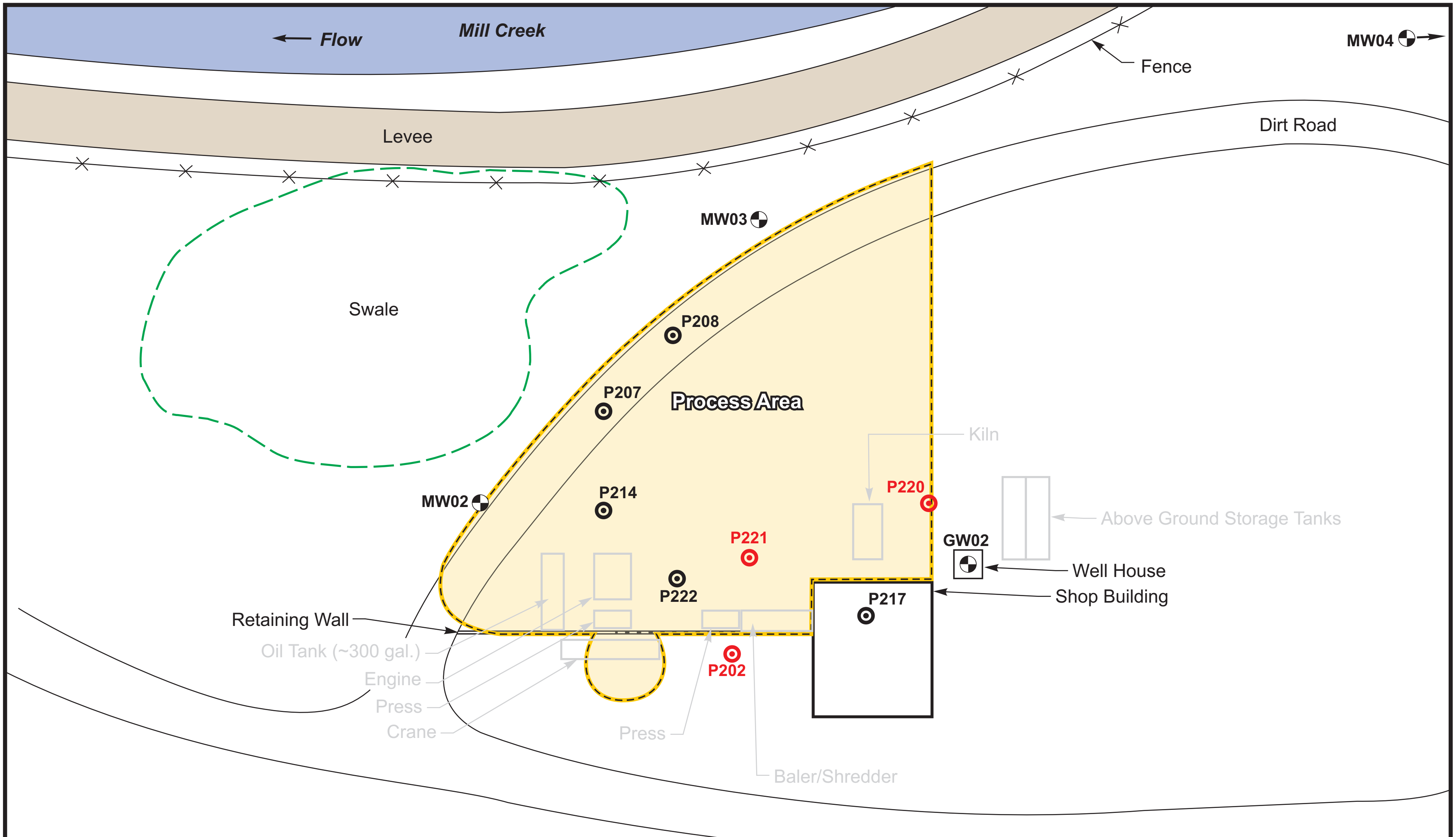

Notes:
1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. Grayed out site features were removed in summer 2010.

Legend

- Monitoring Well or Domestic Well
- Process Area
- Targeted Groundwater Sample
- Exceeds Washington MTCA for TPH

0 36 72
Approximate Scale in Feet

Figure 2-10: TPH Contamination in Groundwater
Stubblefield Salvage Yard Site
Walla Walla, Washington

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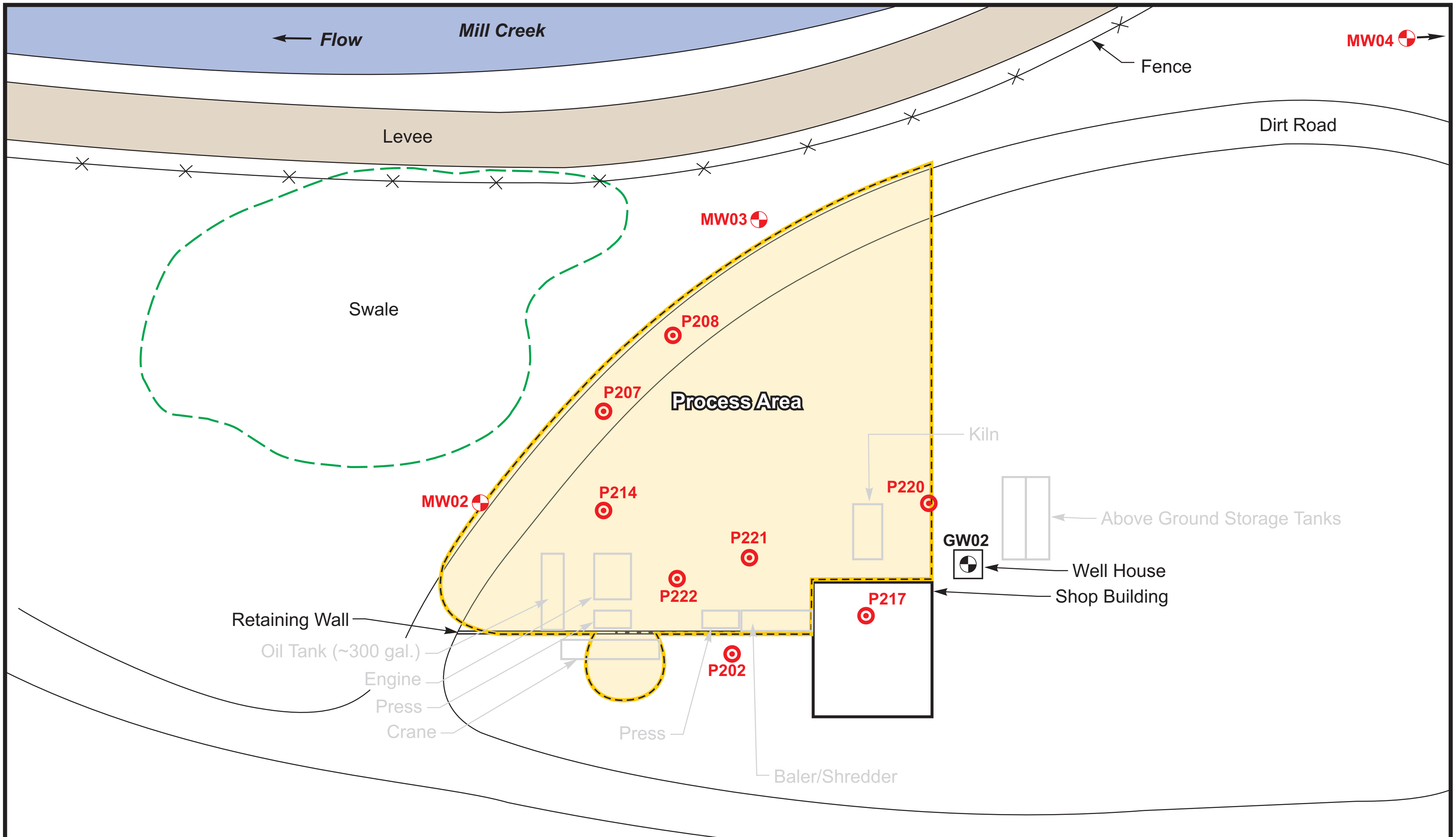

Notes:
1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. Grayed out site features were removed in summer 2010.

Legend

- Monitoring Well or Domestic Well
- Process Area
- Targeted Groundwater Sample
- Exceeds EPA RSL Tapwater or Federal MCL's for SVOCs

0 36 72
Approximate Scale in Feet

Figure 2-11: SVOC Contamination in Groundwater
Stubblefield Salvage Yard Site
Walla Walla, Washington

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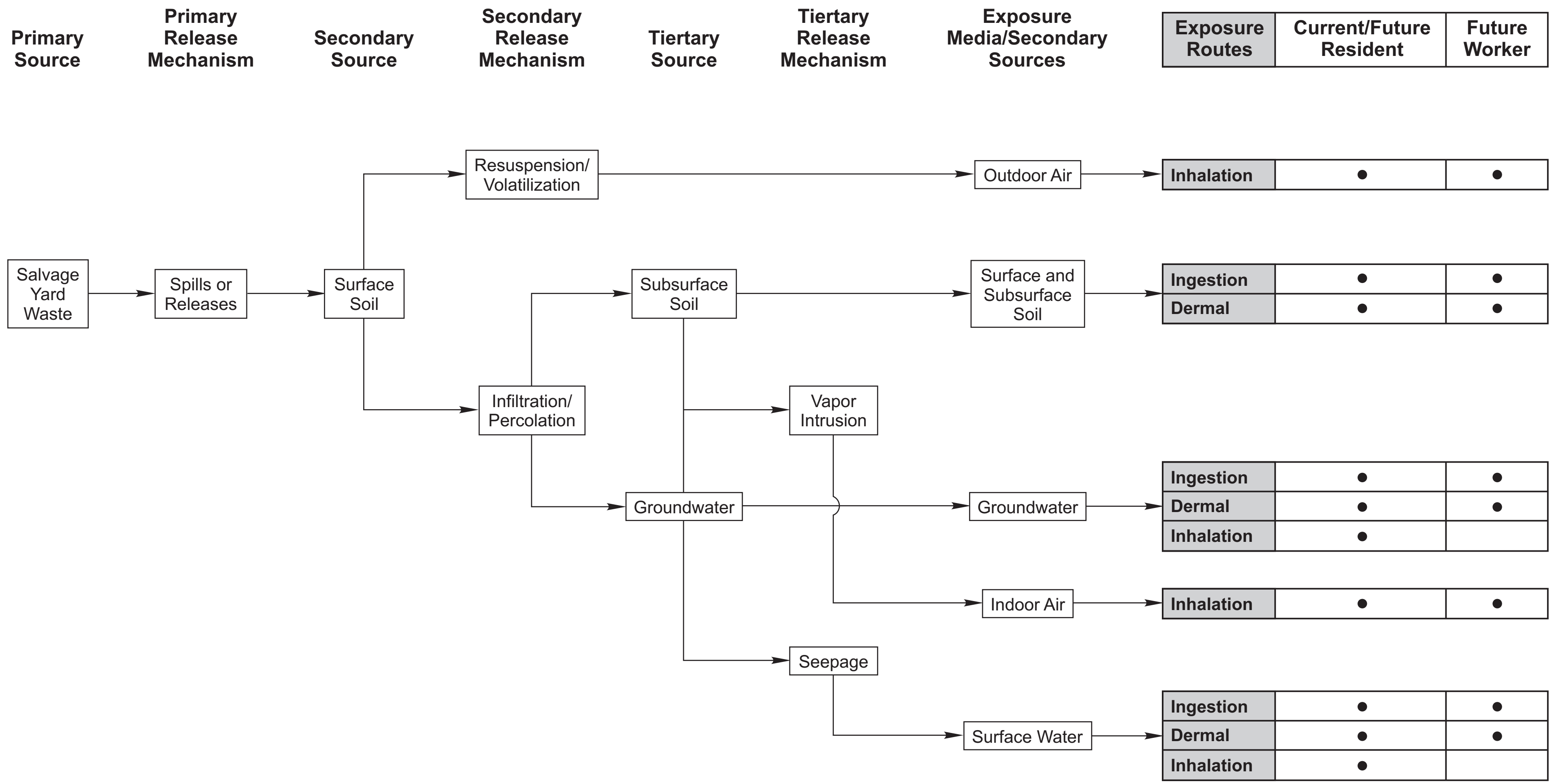
Seattle, Washington



Legend

→ Potential Migration Pathway

● Complete Exposure Pathway

Figure 2-12: Human Health Conceptual Site Model
Stubblefield Salvage Yard Site
Walla Walla, Washington

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Seattle, Washington

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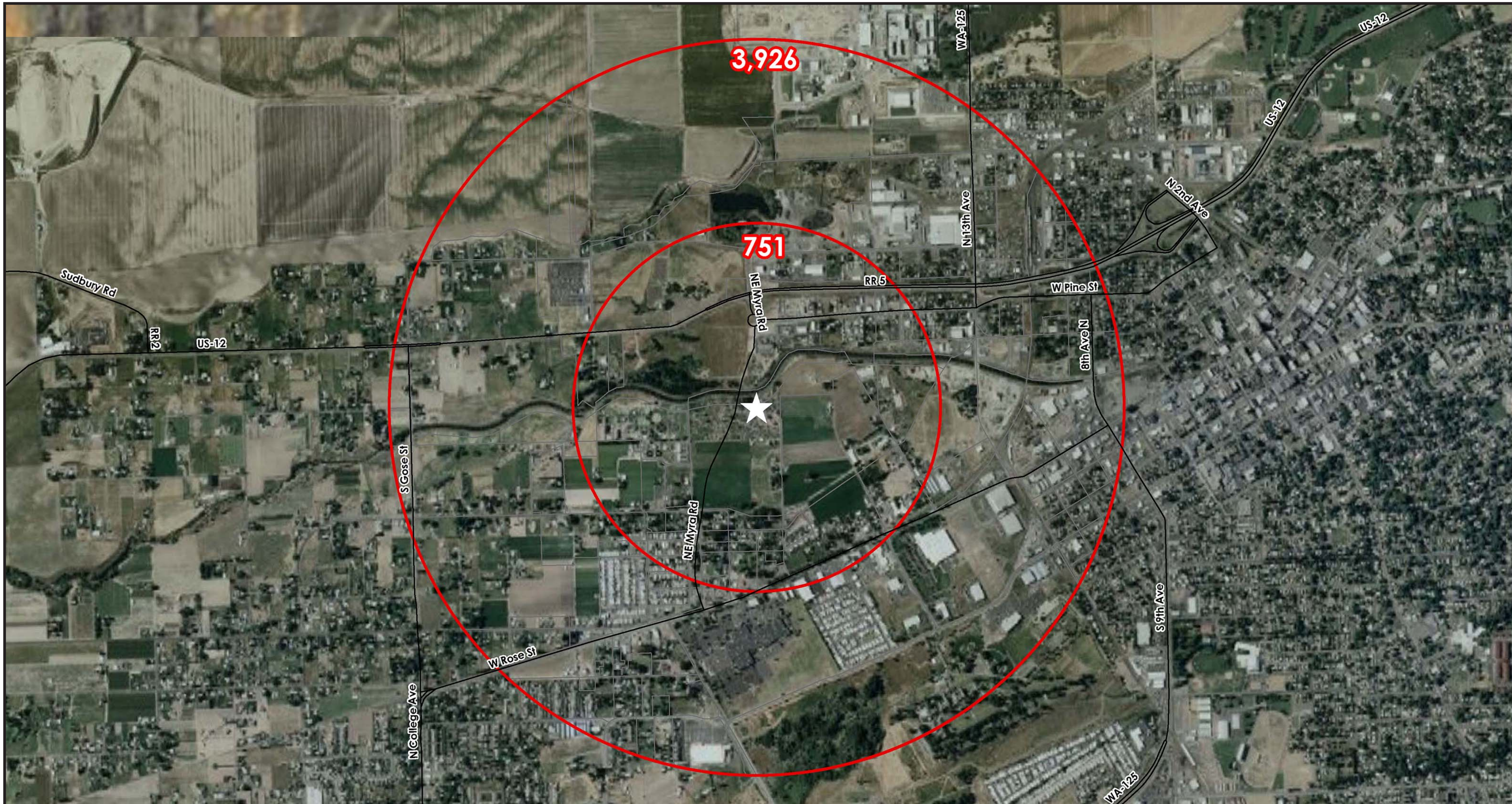

SOURCE: ESRI 2012.

0.25 0.125 0 0.25 Miles

N

Figure 2-13: Population Radius Map
Stubblefield Salvage Yard Site
Walla Walla, Washington

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3 Removal Action Objectives

According to the NCP, where the EPA determines there is a threat to public health, welfare, or the environment, a removal action may be taken to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of hazardous substances.

This section describes the statutory considerations for removal actions, the objectives of the proposed removal action at the site, the scope of the removal action, and compliance with potential applicable or relevant and appropriate requirements (ARARs), and the general schedule for removal activities.

3.1 Statutory Considerations on Removal Actions

Section 300.415(b)(5) of the NCP stipulates that cost and duration of a removal action be limited to $2 million and 12 months for EPA-financed removal actions. Cost and implementation time exemptions may be granted if the EPA determines that the removal action is necessary to mitigate an immediate risk to human health, welfare, or the environment or that the removal action is otherwise appropriate and consistent with an anticipated long-term remedial action. EPA funds expended to conduct an EE/CA are CERCLA §104(b)(1) monies and are not counted toward the $2 million statutory limit for removal actions.

3.2 Determination of Removal Action Scope and Objectives

The goals of the removal action are to protect human health and the environment by addressing the risks identified in the streamlined risk evaluation, comply with ARARs to the extent practicable, and limit the number of restrictions for future use of the site.

As described in Section 2.5, COPCs were identified for both soil and groundwater based on concentrations that exceed screening criteria and potentially pose a risk to human health and the environment. This EE/CA addresses process area contaminated soil, the main source of contamination at the site, but does not directly address groundwater. Groundwater monitoring may be conducted following removal of process area contaminated soil to determine whether future action may be required to address groundwater contamination. Removal of the source area will reduce the potential for soil contamination to migrate into the groundwater; thereby allowing for the potential for groundwater contamination to attenuate naturally over time.

To achieve the above goals, the following removal action objectives (RAOs) have been developed:

1. Reduce human exposure (through inhalation, ingestion, and dermal contact) to COPCs above action levels (EPA RSLs for residential soil; see Table 3-1) in process area soil;
2. Reduce potential migration of COPCs from soil to groundwater and to surface water from potential groundwater recharge; and
3. Implement a removal action that is consistent with future use of the site for residential development.

Out of the applicable screening criteria, EPA residential RSLs were selected as the soil cleanup action levels. EPA residential RSLs are more conservative than the industrial RSLs, and local land use and zoning information indicates future residential development is likely to occur at the site and/or surrounding area. The soil cleanup action levels presented in Table 3-1 are intended for use as guidance during the removal action under the direction of the EPA OSC.

3.3 Applicable or Relevant and Appropriate Requirements

Potential ARARs have been screened to aid in the development of removal action alternatives. For the removal action, on-site actions are to comply with the substantive requirements of any identified ARARs, to the extent practicable considering the exigencies of the situation. On-site actions do not have to comply with the corresponding procedural requirements such as permit applications, reporting, and recordkeeping. Off-site actions are to comply with ARARs to the extent practicable considering the exigencies of the situation.

ARARs are divided into the following categories:

- Chemical-specific requirements are health- or risk-based concentration limits or ranges in various environmental media for specific hazardous substances, pollutants, or contaminants.

- Action-specific requirements are controls or restrictions on particular types of activities, such as hazardous waste management or wastewater treatment. Examples of action-specific requirements would be state and federal air emissions standards as applied to an in situ soil vapor extraction treatment unit.

- Location-specific requirements are restrictions on activities that are based on the characteristics of a site or its immediate environment.

Additionally, to-be-considered materials are advisories, criteria, guidance or policy documents, or proposed standards that are not legally binding but that may provide useful information or recommended procedures relevant to a cleanup action. The potential chemical-, location-, and action-specific ARARs and to-be-considered materials for the EE/CA are summarized in Appendix E.

3.4 Determination of Removal Schedule

The removal action may be initiated within two to six months following approval of this EE/CA, depending on appropriate construction weather conditions, available funding, and other determinations to be made by the EPA. The time required for implementation of the removal action will depend on the alternative selected.

Table 3-1 Soil Cleanup Action Levels

COPC	EPA RSL - Residential Soil
Metals (mg/kg)	
Antimony (Metallic)	31
Arsenic (Inorganic)	0.39
Cobalt	23
Iron	55,000
Lead & Compounds	400
PCBs (µg/kg)	
Aroclor-1242	220
Aroclor-1248	220
Aroclor-1254	220
Aroclor-1260	220
Pesticides (µg/kg)	
beta-BHC	270
Dieldrin	30
TPH (mg/kg)	
Diesel Range Organics	2,000 [1]
Oil Range Organics	2,000 [1]
SVOCs (mg/kg)	
Benzo(a)anthracene	0.15
Benzo(a)pyrene	0.015
Benzo(b)fluoranthene	0.15
Benzo(k)fluoranthene	1.5
Chrysene	15
Dibenzo(a,h)anthracene	0.015
Indeno(1,2,3-cd)pyrene	0.15

Note:

1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted properties.

Key:

COPC = Contaminant of Potential Concern.
EPA = Environmental Protection Agency.
MTCA = Model Toxics Control Act.
mg/kg = Milligrams per kilogram (parts per million).
µg/kg = Micrograms per kilogram (parts per billion).
PCBs = Polychlorinated biphenyls.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SVOCs = Semivolatile organic hydrocarbons.
TPH = Total petroleum hydrocarbons.

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4 Identification and Development of Removal Action Alternatives

Based on the analysis of the nature and extent of contamination and results of the streamlined risk evaluation, a limited number of removal action alternatives were identified to meet the RAOs developed in Section 3.2. Within this section, broad categories of removal actions and technologies potentially applicable for the site were identified and screened. Then removal action alternatives were developed by assembling the retained categories and technologies, and each alternative was analyzed against the criteria specified in the EPA document *Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA* (EPA 1993).

4.1 Identification of Potential Removal Action Alternatives

The potential removal action alternatives considered are:

- No Action;
- Institutional and Access Controls;
- Containment;
- Treatment; and
- Excavation and Off-Site Disposal.

4.1.1 No Action

The No Action Alternative is included as a baseline for comparison with other alternatives as required by the NCP. This alternative would leave contamination in its current condition and assumes no further removal or monitoring activities would occur at the site.

4.1.2 Institutional and Access Controls

Institutional controls are administrative and/or legal controls (i.e., land use restrictions or permits) intended to minimize the potential for human exposure to contamination and/or protect the integrity of a removal action by limiting land or resource use. Institutional controls do not actively address contamination and do not include any physical changes to the site, but attempt to meet the RAOs by reducing the potential for exposure to contamination. Access controls are physical controls (i.e., fencing or warning signs) put in place to prevent human and ecological receptor exposure to contamination and/or protect the integrity of a removal action by limiting direct contact with particular areas of concern. Like institutional controls, access controls do not actively address contamination, but attempt to meet the RAOs by reducing the potential for exposure to contamination. Institutional controls and access controls are often used together, and in conjunction with an active technology.

One of the RAOs is to implement a removal action that is consistent with future use of the site for residential development. Therefore, the number of restrictions on land use should be limited, making the overall use of institutional and/or access controls impractical for the site. However, it may be feasible to impose restrictions on the use of groundwater for drinking water at the site, if determined necessary.

4.1.3 Containment

Containment alternatives limit contaminant mobility and reduce the potential for human or ecological exposure via measures such as capping, vertical barrier walls, surface water controls, and erosion and sediment controls. An impermeable cap could be used to prevent human and ecological exposure through direct contact and a vertical barrier wall could be used to minimize migration of contaminants through groundwater. However, implementation of a containment alternative would pose significant limitations on the future use of the site since contamination would remain on site, impacting development capabilities in the containment area and posing a greater potential for human exposure. In addition, a containment alternative would require extensive use of post-removal site controls (PRSCs) and long-term monitoring, and additional site investigation and engineering to implement. For these reasons, containment alternatives are not retained for assembly into removal action alternatives in the following section.

4.1.4 Treatment

Treatment alternatives reduce the toxicity, mobility, or volume of contaminants through physical, chemical, or biological processes. Several treatment methods were considered for the site, but no potentially feasible treatment methods were identified to address the wide range of contaminants present in the process area: metals, PCBs, TPH, and SVOCs.

Chemical oxidation is commonly used to treat TPH and SVOCs, but is not effective for treatment of metals or PCBs. Furthermore, process area soil contamination is present in the vadose zone (above the groundwater table, which is at an average depth of 8 ft bgs) where chemical oxidation is not effective because the chemicals are not able to make sufficient contact with the contaminants. Thermal desorption is commonly used to treat PCBs, TPH, and SVOCs, but is not effective for treatment of metals. Stabilization/solidification or soil mixing is effective in reducing the toxicity and/or mobility of metals and some SVOCs, but is not effective for treatment of PCBs or TPH.

Implementation of a combination of treatment alternatives may be possible to address the wide range of contaminants; however, additional site characterization and pilot studies would be required to determine potential effectiveness. Even after additional site characterization and pilot studies have been performed and the treatment alternative has been implemented, PRSCs may still need to be put in place and long-term monitoring would be required to ensure effectiveness. For these reasons, treatment alternatives are not retained for assembly into removal action alternatives in the following section.

4.1.5 Excavation and Off-Site Disposal

This potential removal action alternative includes excavation of contaminated material from the site and disposal at an off-site, appropriately licensed disposal facility. Due to the wide range of contaminants present in the process area and RAO of limiting the number of restrictions for future use of the site, excavation and off-site disposal is considered to be most practical for the site, and is retained for assembly into removal action alternatives in the following section.

4.2 Development of Removal Action Alternatives

Detailed removal action alternatives are assembled and described in this section based on the identification and screening of potential removal action alternatives in the previous section and compliance with ARARs.

4.2.1 Alternative 1 – No Action

This alternative would leave contamination in its current condition and assumes that no further removal or monitoring activities would occur at the site. This alternative provides a baseline for comparison to the other removal action alternatives. There would be no capital or PRSC costs associated with this alternative.

4.2.2 Alternative 2 – Excavation and Off-Site Disposal

Under this alternative, contaminated soil would be removed from the process area and transported off site for disposal at an appropriately licensed disposal facility. Following excavation, the removal area would be regraded and backfilled with imported clean material.

In preparation for the removal action, work areas would be cleared of debris. Field trailers, an equipment staging area, a decontamination area, and a stockpile area would be set up. Rock would be placed across access roads and work areas for stability. Temporary fencing and sediment controls would be installed. Site security would be procured for non-working hours. Prior to excavation, the concrete pad adjacent to the north side of the shop building and the retaining wall adjacent to the west side of the shop building would be demolished, and if necessary, the well house located adjacent to the northeast corner of the shop building would be demolished. Concrete, metal, wood and miscellaneous debris would either be taken to a solid waste landfill, or decontaminated and hauled off site to an approved recycling facility, as appropriate.

Based on RSE soil sampling results, the removal area is estimated to be 25,000 square feet (2,800 square yards) to encompass process area soil sample locations where contaminants exceeded the EPA RSLs for residential soil. The removal area and RSE soil sample locations are depicted in Figure 4-1. PCBs, TPH, metals, and SVOCs were detected above the EPA RSLs to an average depth of approximately 8 feet bgs across the removal area; therefore, the volume of contaminated soil for excavation is estimated to be approximately 7,400 cubic yards. Assuming an expansion factor of 20 percent following excavation and a density of 1.3 tons per cubic yard, approximately 8,880 loose cubic yards (LCY, or excavated cubic yards), or 11,554 tons, of contaminated soil would require off-site disposal.

Figure 4-1 also depicts potential removal areas that may be addressed during the removal action; however, the main process area is the focus of this removal action and the determination of whether or not these additional areas will be addressed will be made in the field during execution of the removal action. The potential removal area located north of the process area is estimated to be 7,700 square feet (850 square yards) and the potential removal area located east of the process area is estimated to be 3,600 square feet (400 square yards). Metals and SVOCs were detected above the EPA RSLs to an average depth of approximately 2 feet bgs across the potential removal area located north of the process area; and PCBs, metals and SVOCs were detected above the EPA RSLs to an average depth of approximately 4 feet bgs across the potential removal area located east of the process area. Therefore, the volume of contaminated soil is estimated to be approximately 570 cubic yards and 530 cubic yards for the northern and eastern potential removal areas, respectively.

Soil sample results indicate PCBs may be encountered in product-saturated soils at concentrations greater than 50 parts per million (ppm), which requires disposal at a chemical waste landfill under the Toxic Substances Control Act (TSCA), as specified in 40 Code of Federal Regulations [CFR] Part 761.75). The highest concentration of PCBs in soil was encountered at sample location SA06 at 41 ppm, which is below the TSCA limit of 50 ppm; however, this concentration might not be representative of product-saturated soils that could potentially be present below the hydraulic equipment area.

Additionally, soil sample results indicate lead may be present at concentrations considered to be hazardous based on the toxicity characteristic under RCRA (40 CFR Part 261). A solid waste exhibits the toxicity characteristic if, using the TCLP (EPA Method 1311), the extract from a representative sample of the waste contains any of the contaminants listed in the table provided in 40 CFR 261.24, at the concentration equal to or greater than the respective value given in that table (the maximum concentration of the contaminant for the toxicity characteristic). As mentioned in Section 2.4.3, one soil sample (SA01) was analyzed for TCLP SVOCs and one soil sample (SH01) was analyzed for TCLP metals and TCLP pesticides, and the results were less than the RCRA TCLP regulatory levels; however, these locations may not be representative of the entire removal area. According to EPA Method 1311, in the absence of TCLP analytical data, a total constituent analysis can be used, where the concentrations of total constituents (in mg/kg) may be divided by 20 to convert the total results to the theoretical maximum leachable concentration (in mg/L). The factor of 20 is derived from the 20:1 liquid-to-solid ratio employed in the TCLP. The calculated maximum leachable concentration can show that the theoretical maximum concentration in a leachate from the waste could not exceed the concentration specified for the toxicity characteristic. A total constituent analysis was performed for the site contaminants that are applicable to the toxicity characteristic, and is presented in Table 4-1. According to the total constituent analysis, lead is present in soil at concentrations that may potentially exhibit the toxicity characteristic, and therefore may be considered hazardous waste. Therefore, a portion of the contaminated soil may need to be disposed of in a RCRA Subtitle C landfill.

Due to the potential presence of PCBs and lead at concentrations that may require disposal as hazardous and/or TSCA waste, excavated contaminated soil shall be stockpiled and characterized prior to disposal. A stockpile area of approximately 100 feet by 100 feet would be prepared prior to excavation. Stockpiles would include heavy duty plastic and tear-resistant bottom liners, berms for containment, and plastic sheeting to cover the stockpiles during non-working hours. Based on visual and/or olfactory observations, excavated soil would be segregated into like material for disposal characterization sampling. Initially, a minimum of one composite sample would be collected for every 500 cubic yards of material within a given stockpile. Depending on the sample results, the frequency of characterization sample collection may be reduced. The cost estimate for this alternative (see Appendix F) assumes that 10 composite soil samples will be required to characterize excavated soil. These samples will be submitted for fixed laboratory analysis of PCBs (EPA SW-846 Method 8082A) and TCLP metals (EPA SW-846 Method 1311) with 24-hour turnaround. For cost estimating purposes, it is assumed that 30 percent of the excavated contaminated soil (corresponding to the area of the highest contamination near the hydraulic equipment area) will be characterized as hazardous and/or TSCA waste, which equates to approximately 2,664 LCY or 3,463 tons.

Waste Management Northwest was contacted regarding criteria and rates for disposal of excavated contaminated soil. The Columbia Ridge Landfill (Subtitle D, Nonhazardous) and Chemical Waste Management Landfill (Subtitle C, Hazardous) are closest to the site, located in Arlington, Oregon, approximately 117 miles southwest of the site by road. Quotes obtained from these landfills were incorporated into the cost estimate for this alternative.

Excavation activities can commence in the process area following demolition of the concrete pad adjacent to the north side of the shop building. Excavation near P203, on the elevated side of the retaining wall, should occur prior to demolition of the retaining wall. That way clean material can be pulled back prior to demolition of the retaining wall, and regraded and used as backfill material after contaminated soil has been removed from the process area. In order to maintain stability of the shop building, excavation of contaminated material bordering the shop building shall occur in sections and while using controlled density fill (CDF), a self-compacting cement material used in lieu of compacted backfill. A 20-foot wide swath bordering the building is assumed to require careful excavation using CDF, and the remainder of the excavation would be backfilled with compacted, imported clean backfill. A geotechnical/structural engineering evaluation should be performed prior to the removal action to confirm the appropriate excavation method.

Excavation of contaminated soil would continue until suspected clean material is reached based on visual and olfactory observations, as well as field screening using a flame ionization detector (FID) and x-ray fluorescence (XRF) unit. Once suspected clean material is reached, or as otherwise directed by the OSC, confirmation soil samples would be collected from the side walls and bottom of the excavation for fixed laboratory analysis to confirm that remaining soil meets cleanup regulatory criteria. The cost estimate for this alternative includes one field technician to perform construction oversight, field screening, and confirmation sampling, and fixed laboratory analysis of 10 soil samples for TAL metals (EPA SW-846 Methods 7060A, 6010B, 7421, 7470A, and 7740), PCBs (EPA SW-846 Method 8082A) and SVOCs (EPA SW-846 Method 8270C) with 24-hour turnaround. The excavation would be backfilled with approximately 10,982 tons of clean backfill material to be imported and stockpiled at the site. Backfill material would be compacted and graded to control for erosion and manage stormwater.

Best management practices (BMPs) would be implemented during construction to protect workers, the community, and the environment from short-term construction impacts such as erosion and fugitive dust. Groundwater monitoring will be conducted following removal of process area contaminated soil to determine whether or not future action may be required to address any groundwater contamination. Removal of the source area may address potential groundwater contamination and/or groundwater may attenuate naturally over time. If additional groundwater monitoring indicates a risk to human health through drinking water, future action may include the abandonment of affected wells, and the placement of restrictions on the use of groundwater as drinking water in the vicinity of the site.

The estimated cost for this alternative is $1.75 million. There would be no PRSC costs associated with this alternative.

Table 4-1 Total Constituent Analysis

Constituent	Regulatory Level for the Toxicity Characteristic (mg/L)	Maximum Concentration Detected in Soil (mg/kg)	Calculated Maximum Leachable Concentration in Soil (mg/L)
Metals (mg/kg)			
Arsenic (Inorganic)	5.0	5.4	0.27
Barium	100.0	540	27
Cadmium (Diet)	1.0	18	0.9
Chromium (Total)	5.0	77	3.85
Lead & Compounds	5.0	4,400	220
Mercury (Elemental)	0.2	3.1	0.16
Selenium	1.0	3.2	0.16
Silver	5.0	6.3	0.32
Pesticides (µg/kg)			
Endrin	0.02	0.048	0.0024
Methoxychlor	10.0	0.086	0.0043

Note:

[yellow highlight] = Greater than the regulatory level for the toxicity characteristic from 40 CFR 261.24.

Key:

mg/kg = Milligrams per kilogram (parts per million).

µg/kg = Micrograms per kilogram (parts per billion).

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ecology and environment, inc.
Global Specialists in the Environment

N

50 25 0 50 100 Feet

Figure 4-1 Soil Removal Areas
Stubblefield Salvage
Walla Walla, Washington

- Sample Locations (April 2012)
- Sample Locations (June 2011)
- Sample Locations (Sept 2009)
- Bore Holes (March 2010)
- Monitoring Wells
- Domestic Well
- Removal Area
- Potential Removal Areas
- Concrete Pad

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5 Analysis of Removal Action Alternatives

Within this section, an individual analysis of each removal action alternative is conducted followed by a comparative analysis between the alternatives (presented in Table 5-1) using the three general criteria for evaluation of alternatives as specified in the EPA document *Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA* (EPA 1993): effectiveness, implementability, and cost. The specific components of each criterion are defined below.

Effectiveness

- Overall protectiveness of human health and the environment
- Ability to achieve RAOs/ARARs
- Reduction of toxicity, mobility, or volume through treatment
- Long-term effectiveness and permanence
- Short-term effectiveness

Implementability

- Technical feasibility
- Administrative feasibility
- Availability of materials and sources
- State acceptance
- Community acceptance

Cost

- Capital cost
- PRSC cost

5.1 Alternative 1 – No Action

Alternative 1 would not be protective of human health or the environment and would not meet the RAOs. Soil containing COPCs above the action levels would remain in the process area in its current condition and no further removal activities would occur to control contaminant migration or to reduce toxicity of volume.

Alternative 1 is readily implementable based on technical feasibility, administrative feasibility, and the availability of materials and sources because no work will be performed, administrative coordination is not required, and there are no materials to be obtained. However, the community and Ecology are likely to find the no action alternative to be unacceptable.

There would be no monetary costs associated with Alternative 1 because no work would occur under the alternative.

5.2 Alternative 2 – Excavation and Off-Site Disposal

Alternative 2 would be protective of human health and the environment and meet the RAOs because process area soil containing COPCs above the action levels would be excavated and transported off site for disposal, thereby eliminating direct exposure to human and ecological receptors and protecting against any further migration of COPCs above action levels to groundwater (and potential recharge to surface water). Furthermore, removal and off-site disposal of contaminated process area soil is consistent with future use of the site in that no restrictions would likely need to be placed for residential development to take place. Although, additional groundwater monitoring may determine that restrictions on the use of groundwater for drinking water are necessary.

With regard to implementability, Alternative 2 is technically feasible, requiring the use of conventional heavy equipment and commonly used materials which are readily available in the Walla Walla area. The removal action would likely be completed within one construction season. Alternative 2 is also administratively feasible, with the main requirements being compliance with RCRA for management and off-site disposal of hazardous waste, and compliance with TSCA for the disposal of PCB-contaminated material. BMPs would be implemented during construction to protect workers, the community, and the environment from short-term construction impacts such as water and wind erosion, dust from excavation and material handling, and other similar potential impacts.

The estimated cost for Alternative 2 is $1.75 million. The cost estimate is provided in Appendix F. A contingency of 20 percent was applied due to uncertainties in material volumes and waste characterization. The cost estimate is based on the alternative description presented in Section 4.2.2 and is not intended for budgetary purposes.

Table 5-1 Comparative Analysis

Evaluation Criteria		Alternative 1 No Action	Alternative 2 Excavation and Off-Site Disposal
Effectiveness	Overall protectiveness of human health and the environment.	Not protective - contamination would remain at concentrations above action levels.	Protective - contamination at concentrations above action levels would be removed.
	Ability to achieve RAOs/ARARs.	Would not achieve RAOs/ARARs.	Would achieve RAOs/ARARs.
	Reduction of toxicity, mobility, or volume through treatment.	No reduction would occur.	Provides for a reduction in mobility; however, no reduction in toxicity or volume.
	Long-term effectiveness and permanence.	No long-term effectiveness or permanence would be achieved.	Long-term effectiveness and permanence would be achieved by placing contaminated material in a secured landfill.
	Short-term effectiveness.	Effective in the short-term.	Construction activities and increased truck traffic will cause adverse short-term impacts.
Implementability	Technical feasibility.	Technically feasible - no work to be performed.	Technically feasible - required equipment and materials are readily available. Disposal facilities are within a reasonable distance.
	Administrative feasibility.	Administratively feasible - no administrative coordination would be required.	Administratively feasible - construction permits can easily be obtained.
	Availability of materials and sources.	No materials to be obtained.	Required materials and sources are readily available.
	State acceptance.	Likely considered unacceptable.	Likely considered acceptable.
	Community acceptance.	Likely considered unacceptable.	Likely considered acceptable.
Cost	Capital cost.	$0	$1.75 million
	PRSC cost.	$0	$0

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6 Recommended Removal Action Alternative

Alternative 2 is the recommended removal action because it satisfies the criteria of effectiveness and implementability. Alternative 1 does not satisfy the effectiveness criterion because process area soil containing COPCs above the action levels would remain in-place, posing a risk to human health and the environment. Alternative 1 also does not satisfy the implementability criterion due to the likelihood of the community and Ecology finding the no action alternative to be unacceptable.

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A Removal Site Evaluation Data Tables and Figures

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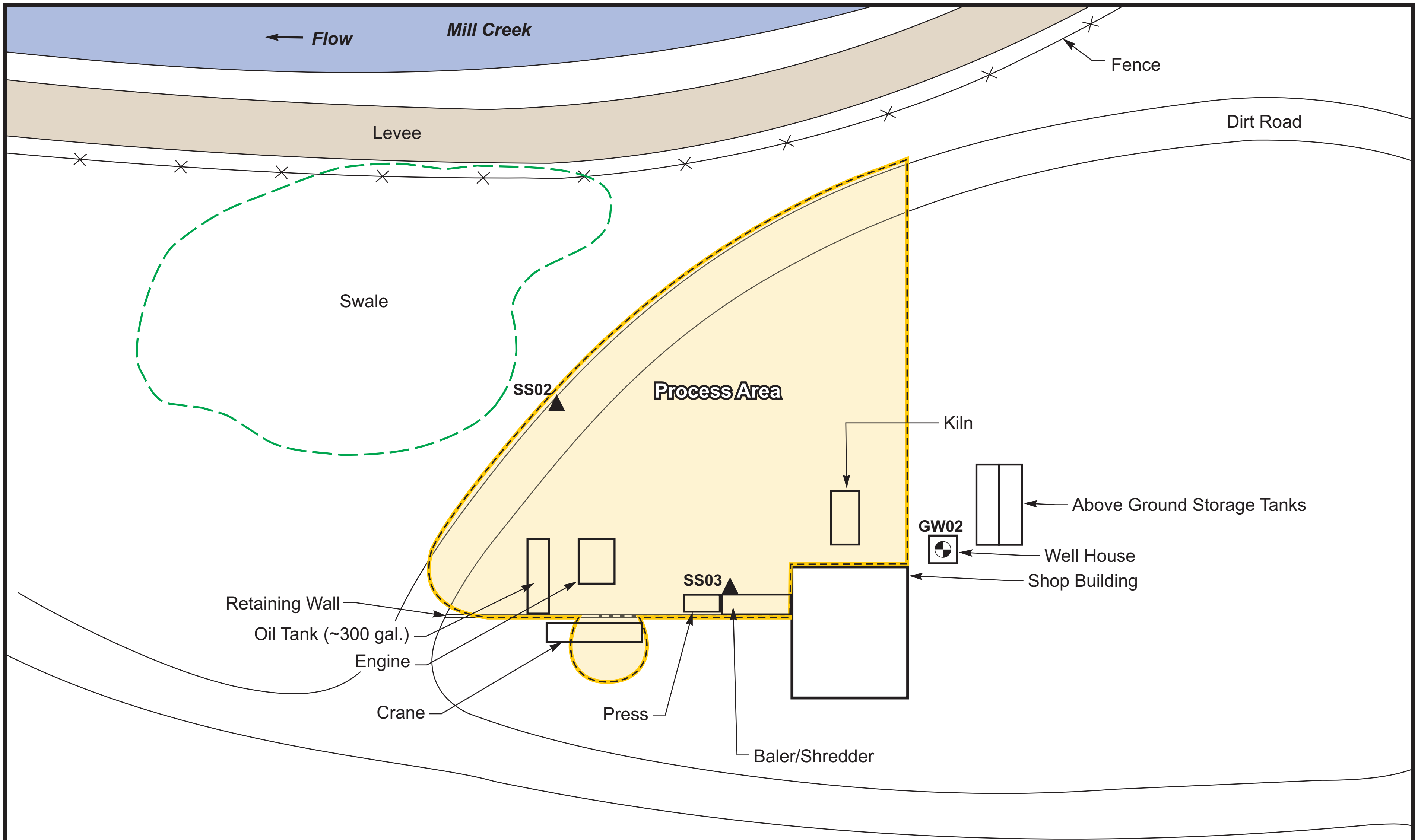


Notes: 1. Some features are not drawn to scale.
2. Sample locations are approximate.

Legend

- Monitoring Well or Domestic Well
- Soil Sample
- Process Area

0 36 72
Approximate Scale in Feet

May 2009 RSE Sample Locations
Stubblefield Salvage Yard Site
Walla Walla, Washington

ecology and environment, inc.
Global Specialists in the Environment
Seattle, Washington

Summary of Soil Sample Results from May 2009

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	09-05-0702	09-05-0703
Sample Location			SS02	SS03
Sample Depth			Surface	Surface
Sample Collection Event			May-09	May-09
Metals (mg/kg)				
Antimony (Metallic)	31	410	**4.7 J**	4.7 UJ
Arsenic (Inorganic)	0.39	1.6	5.5 UJ	**5.4**
Cobalt	23	300	**10.9 J**	**15.7 J**
Iron	55,000	720,000	**36,800 J**	**49,500 J**
Lead & Compounds	400	800	**1,140**	**1,250**
PCBs (µg/kg)				
Aroclor-1242	220	740	200 UJ	210 U
Aroclor-1248	220	740	**16,000 J**	**19,000 J**
Aroclor-1254	220	740	**5,700 J**	**6,100 J**
Aroclor-1260	220	740	**2,300 J**	210 U
Pesticides (µg/kg)				
beta-BHC	270	960	16 U	16 U
Dieldrin	30	110	**29 J**	33 U
TPH (mg/kg)				
Diesel Range Organics	2,000 [1]	2,000 [1]	**20,000 J**	**43,000 J**
Oil Range Organics	2,000 [1]	2,000 [1]	**110,000 J**	**99,000 J**
SVOCs (mg/kg)				
Benzo(a)anthracene	0.15	2.1	**7.1 J**	**10.0**
Benzo(a)pyrene	0.015	0.21	**3.9 J**	**8.1**
Benzo(b)fluoranthene	0.15	2.1	**4.7 J**	**10.0**
Benzo(k)fluoranthene	1.5	21	**4.7 J**	**9.4**
Chrysene	15	210	**8.4 J**	**14.0**
Dibenzo(a,h)anthracene	0.015	0.21	2.1 UJ	**1.3 J**
Indeno(1,2,3-cd)pyrene	0.15	2.1	**2.4 J**	**7.1**
N-Nitroso-di-n-propylamine	0.069	0.25	3.1 UJ	3.0 U

Note:

(red) = Greater than or equal to EPA RSL industrial screening criteria for soil.
(yellow) = Greater than or equal to EPA RSL residential, but less than RSL industrial, screening criteria in soil.
(hatched) = Not analyzed.
1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted and industrial properties.

Key:

BGS = Below ground surface.
EPA = Environmental Protection Agency.
J = The analyte was positively identified; the associated numerical value is the approximate concentration.
JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
JL = The analyte was positively identified; the associated numerical value is the approximate concentration with a low bias.
JQ = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias and falls between the method detection limit and the minimum, or practical, quantitation limit.
MTCA = Model Toxics Control Act.
mg/kg = Milligrams per kilogram (parts per million).
µg/kg . = Micrograms per kilogram (parts per billion).
PCBs = Polychlorinated biphenyls.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SVOCs = Semivolatile organic hydrocarbons.
TPH = Total petroleum hydrocarbons.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Summary of Water Sample Results from May 2009

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	09-05-0705	09-05-0706
Sample Location			GW01	GW02
Sample Details			Domestic Well	Domestic Well
Sample Collection Event			May-09	May-09
Metals (µg/L)				
Arsenic (Inorganic)	0.045	10	1.3 U	1.3 U
Cobalt	4.7	NA	0.36 UJ	0.36 UJ
Iron	11,000	NA	**845**	**210**
Lead & Compounds	NA	15	**6.1 J**	1.8 U
Manganese (Non-Diet)	320	NA	**8.8 J**	**7.3 J**
Vanadium & Compounds	78	NA	**6.4 J**	**7.6 J**
PCBs (µg/L)				
Aroclor-1242	0.034	NA	0.48 U	0.48 U
Aroclor-1254	0.034	NA	0.48 U	0.48 U
Aroclor-1260	0.034	NA	0.48 U	0.48 UJ
Pesticides (µg/L)				
Aldrin	0.00021	NA	0.038 UJ	0.038 UJ
Dieldrin	0.0015	NA	0.077 U	0.077 U
TPH (mg/L)				
Diesel Range Organics	0.5 [1]	NA	0.077 U	0.078 U
Oil Range Organics	0.5 [1]	NA	0.38 U	0.39 U
SVOCs (µg/L)				
1-Methylnaphthalene	0.97	NA		
2-Methylnaphthalene	27	NA	5 U	4.8 U
Benzo[a]anthracene	0.029	NA	5 U	4.8 U
Benzo[a]pyrene	0.0029	0.2	5 U	4.8 U
Benzo[b]fluoranthene	0.029	NA	5 U	4.8 U
Benzo[k]fluoranthene	0.29	NA	5 U	4.8 U
bis(2-Ethylhexyl)phthalate	0.071	6	5 U	4.8 U
Butylbenzylphthalate	14	NA	5 U	4.8 U
Dibenz[a,h]anthracene	0.0029	NA	5 U	4.8 U
Indeno[1,2,3-cd]pyrene	0.029	NA	5 U	4.8 U
Naphthalene	0.14	NA	5 U	4.8 U
VOCs (µg/L)				
Chloroform	0.19	80	**0.31 J**	**0.19 J**
Tetrachloroethene	9.7	5	**0.6 J**	1 U

Note:

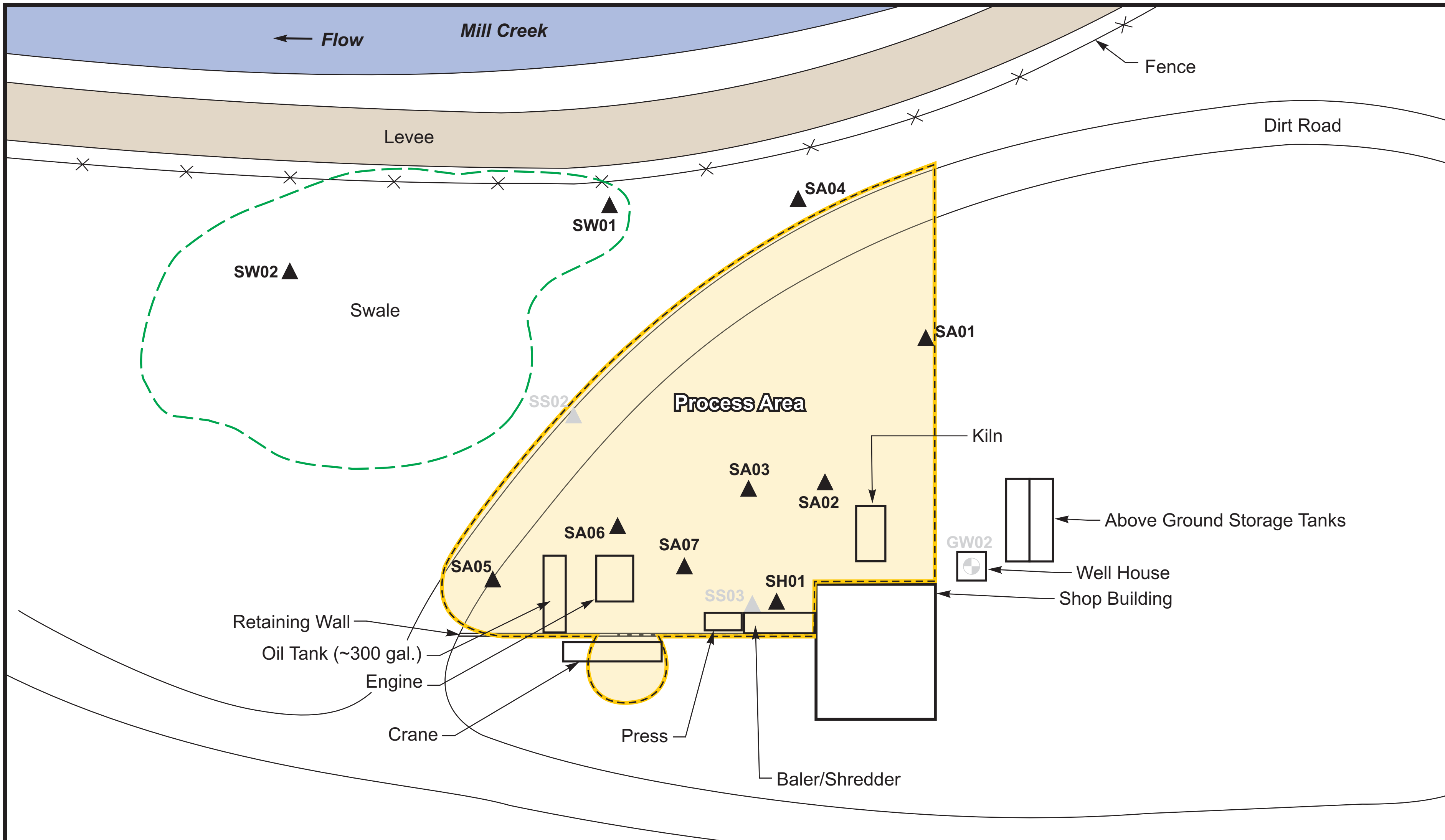
(yellow) = Greater than or equal to EPA RSL and/or Federal MCL.

(hatched) = Not analyzed.

1. = Refers to Washington State MTCA cleanup levels for TPH in groundwater.

Key:

EPA = Environmental Protection Agency.
IDW = Investigation derived waste.
J = The analyte was identified; the associated numerical result is an estimate.
JH = The analyte was positively identified; the assoicated numerical value is the approximate concentration with a high bias.
JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
MCL = Federal Maximum Contaminant Level drinking water standards.
MTCA = Model Toxics Control Act.
mg/L = Milligrams per liter (parts per million).
µg/L . = Micrograms per liter (parts per billion).
NA = Not applicable.
R = The sample results are rejected due to serious deficiencies; the presence or absence of the analyte cannot be verified.
RSL = Regional Screening Levels for Chemical Contaminants at Superfund Sites.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.



Notes:
1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. A light-gray sample location indicates a sample collected during a previous sampling event.

Legend

- Monitoring Well or Domestic Well
- Soil Sample
- Process Area

0 36 72

Approximate Scale in Feet

September 2009 RSE Sample Locations
Stubblefield Salvage Yard Site
Walla Walla, Washington

ecology and environment, inc.
Global Specialists in the Environment
Seattle, Washington

Summary of Soil Sample Results from September 2009 (Page 1 of 2)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	09-09-0903	09-09-0904	09-09-0908	09-09-0909	09-09-0912	09-09-0915	09-09-0916	09-09-0917	09-09-0919	09-09-0920	09-09-0921	09-09-0924	09-09-0925	09-09-0927
Sample Location			BG01SB04	BG01SS	SA07SB04	SA07SB08	SA04SB04	SA04SS	SA01SB04	SA01SB08	SA01SS	SA03SB04	SA03SB08	SA06SB04	SA06SB08	SA06SS
Sample Depth			4' BGS	Surface	4' BGS	8' BGS	4' BGS	Surface	4' BGS	8' BGS	Surface	4' BGS	8' BGS	4' BGS	8' BGS	Surface
Sample Collection Event			Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09
Metals (mg/kg)																
Antimony (Metallic)	31	410	6.5 U	5.2 UJ			**6.6**	**21**	6.1 U	5.6 U	**16**			6.4 U	7.2 U	**54**
Arsenic (Inorganic)	0.39	1.6	13 U	10 UJ			11 U	10 U	12 U	11 U	10 U			13 U	14 U	10 U
Cobalt	23	300	**7.1**	**10 J**			**16**	**16**	**16**	**14**	**18**			**12**	**16**	**21**
Iron	55,000	720,000	**21,000**	**34,000 J**			**45,000**	**76,000**	**43,000**	**43,000**	**63,000**			**39,000**	**43,000**	**76,000**
Lead & Compounds	400	800	**18**	**19 J**			**52 J**	**830 J**	**140 J**	**63 J**	**660 J**			**600**	**180**	**1,400 J**
PCBs (µg/kg)																
Aroclor-1242	220	740	65 U	52 UJ	**35,000**	**18,000**	55 U	**710**	61 U	56 U	**300**	**280**	**420**	**270**	360 U	**10,000**
Aroclor-1248	220	740	65 U	52 UJ	6,700 U	1,400 U	55 U	510 U	61 U	56 U	52 U	63 U	59 U	64 U	360 U	5,200 U
Aroclor-1254	220	740	65 U	52 UJ	6,700 U	1,400 U	55 U	**4,100**	61 U	56 U	**840**	**780**	**490**	**700**	**2,300**	**41,000**
Aroclor-1260	220	740	65 U	52 UJ	6,700 U	1,400 U	55 U	510 U	**110**	56 U	**450**	**740**	**180**	**200 J**	**710**	5,200 U
Pesticides (µg/kg)																
beta-BHC	270	960	6.5 U	5.2 UJ	**280 J**	6.8 UJ	5.5 UJ	**9.6**	6.1 U	5.6 U	5.2 U	6.3 U	5.9 U	6.4 UJ		
Dieldrin	30	110	13 U	10 UJ	**100 J**	14 UJ	11 UJ	**51**	12 UJ	11 U	**22 J**	13 UJ	12 UJ	13 UJ		
TPH (mg/kg)																
Diesel Range Organics	2,000 [1]	2,000 [1]	33 U	26 UJ			28 U	93 U	31 U	28 U				130 U	570 U	11,000 U
Oil Range Organics	2,000 [1]	2,000 [1]	65 U	52 UJ			55 U	**700**	**91**	**62**				**1,400**	**3,400**	**100,000**
SVOCs (mg/kg)																
Benzo(a)anthracene	0.15	2.1	**0.016**	**0.39 J**	**17**	**8**	**0.12**	**0.64**	**0.13**	**0.048**		**0.55**	**1.9**	**5.3**	**33**	**130**
Benzo(a)pyrene	0.015	0.21	**0.032**	**0.39 J**	**12**	**5.3**	**0.13**	**0.74**	**0.14**	**0.05**		**0.43**	**1.3**	**3.5**	**22**	**84**
Benzo(b)fluoranthene	0.15	2.1	**0.039**	**0.46 J**	**13**	**6.5**	**0.089**	**0.85**	**0.11**	**0.044**		**0.64**	**1.4**	**3.7**	**20**	**90**
Benzo(k)fluoranthene	1.5	21	**0.015**	**0.31 J**	**9.1**	**3.6**	**0.12**	**0.77**	**0.13**	**0.045**		**0.19**	**1**	**2.9**	**21**	**66**
Chrysene	15	210	**0.027**	**0.44 J**	**18**	**8.3**	**0.13**	**0.9**	**0.13**	**0.054**		**0.62**	**2**	**5.2**	**34**	**130**
Dibenzo(a,h)anthracene	0.015	0.21	0.0087 U	**0.071 J**	**1.8**	**0.78**	**0.018**	**0.19**	**0.021**	0.0075 U		**0.091**	**0.15**	**0.7**	**2.9**	**18**
Indeno(1,2,3-cd)pyrene	0.15	2.1	**0.023**	**0.21 J**	**5**	**2.2**	**0.058**	**0.54**	**0.086**	**0.02**		**0.22**	**0.47**	**1.9**	**11**	**52**
N-Nitroso-di-n-propylamine	0.069	0.25	0.043 U	**0.13 J**	0.44 U	0.22 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U

Note:

= Greater than or equal to EPA RSL industrial screening criteria for soil.

= Greater than or equal to EPA RSL residential, but less than RSL industrial, screening criteria in soil.

= Not analyzed.

1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted and industrial properties.

Key:

- BGS = Below ground surface.
- EPA = Environmental Protection Agency.
- J = The analyte was positively identified; the associated numerical value is the approximate concentration.
- JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
- JL = The analyte was positively identified; the associated numerical value is the approximate concentration with a low bias.
- JQ = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias and falls between the method detection limit and the minimum, or practical, quantitation limit.
- MTCA = Model Toxics Control Act.
- mg/kg = Milligrams per kilogram (parts per million).
- µg/kg . = Micrograms per kilogram (parts per billion).
- PCBs = Polychlorinated biphenyls.
- RSL = Regional screening levels for chemical contaminants at Superfund sites.
- SVOCs = Semivolatile organic hydrocarbons.
- TPH = Total petroleum hydrocarbons.
- U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Summary of Soil Sample Results from September 2009 (Page 2 of 2)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	09-09-0928	09-09-0929	09-09-0932	09-09-0933	09-09-0936	09-09-0937	09-09-0953	09-09-0954	09-09-0956	09-09-0957
Sample Location			SA02SB04	SA02SB08	SA05SB04	SA05SB08	SH01SB04	SH01SB08	SW01SB08	SW01SB04	SW02SS	SW02SB02
Sample Depth			4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	8' BGS	8' BGS	4' BGS	Surface	2' BGS
Sample Collection Event			Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09
Metals (mg/kg)												
Antimony (Metallic)	31	410			**8.8**	6.8 U	**8.8**	7.8 U	5.8 U	**11**	7.8 U	8.1 U
Arsenic (Inorganic)	0.39	1.6			13 U	14 U	14 U	16 U	12 U	11 U	16 U	16 U
Cobalt	23	300			**13**	**19**	**7.2**	**3.4**	**12**	**13**	**8**	**14**
Iron	55,000	720,000			**40,000**	**57,000**	**23,000**	**9,200**	**35,000**	**42,000**	**29,000 J**	**41,000 J**
Lead & Compounds	400	800			**120**	**40**	**21**	7.8 U	**32 J**	**51 J**	**100**	**18**
PCBs (µg/kg)												
Aroclor-1242	220	740	**62**	65 U	**75 J**	**160**	**4,500**	**540**	58 U	560 U	78 U	81 U
Aroclor-1248	220	740	61 U	65 U	66 U	68 U	710 U	78 U	58 U	560 U	78 U	81 U
Aroclor-1254	220	740	**180**	65 U	**160**	68 U	710 U	78 U	58 U	560 U	78 U	81 U
Aroclor-1260	220	740	**200**	65 U	**85**	**150**	710 U	78 U	58 U	560 U	**120 J**	81 U
Pesticides (µg/kg)												
beta-BHC	270	960	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	7.1 UJ	7.8 UJ	5.8 U	5.6 U	7.8 UJ	8.1 UJ
Dieldrin	30	110	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 UJ	11 UJ	16 UJ	16 UJ
TPH (mg/kg)												
Diesel Range Organics	2,000 [1]	2,000 [1]			2,200 U	2,200 U	**27,000**	**2,600**	29 U	**33**	39 U	40 U
Oil Range Organics	2,000 [1]	2,000 [1]			**35,000**	**29,000**	**46,000**	**4,400**	58 U	**140**	**210**	**110**
SVOCs (mg/kg)												
Benzo(a)anthracene	0.15	2.1	**0.37**	**0.37**	**0.0144**	**0.071**	0.19 U	0.01 U	**0.24**	**2.5**	**0.077**	**0.13**
Benzo(a)pyrene	0.015	0.21	**0.41**	**0.35**	**0.12**	**0.2**	0.19 U	0.01 U	**0.26**	**2.8**	**0.088**	**0.17**
Benzo(b)fluoranthene	0.15	2.1	**0.32**	**0.22**	**0.11**	**0.14**	**0.19**	0.01 U	**0.15**	**1.7**	**0.067**	**0.12**
Benzo(k)fluoranthene	1.5	21	**0.32**	**0.3**	**0.032**	**0.2**	0.19 U	0.01 U	**0.23**	**2.4**	**0.072**	**0.11**
Chrysene	15	210	**0.4**	**0.36**	**0.0432**	**0.26**	0.19 U	**0.011**	**0.25**	**2.6**	**0.082**	**0.14**
Dibenzo(a,h)anthracene	0.015	0.21	**0.058**	**0.05**	0.0088 U	0.018 U	0.19 U	0.01 U	**0.037**	**0.29**	**0.013**	**0.022**
Indeno(1,2,3-cd)pyrene	0.15	2.1	**0.26**	**0.13**	0.0088 U	0.018 U	0.19 U	0.01 U	**0.11**	**1.1**	**0.054**	**0.1**
N-Nitroso-di-n-propylamine	0.069	0.25	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U	0.039 U	0.19 U	0.052 U	0.054 U

Note:

= Greater than or equal to EPA RSL industrial screening criteria for soil.

= Greater than or equal to EPA RSL residential, but less than RSL industrial, screening criteria in soil.

= Not analyzed.

1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted and industrial properties.

Key:

BGS = Below ground surface.
EPA = Environmental Protection Agency.
J = The analyte was positively identified; the associated numerical value is the approximate concentration.
JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
JL = The analyte was positively identified; the associated numerical value is the approximate concentration with a low bias.
JQ = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias and falls between the method detection limit and the minimum, or practical, quantitation limit.
MTCA = Model Toxics Control Act.
mg/kg = Milligrams per kilogram (parts per million).
µg/kg . = Micrograms per kilogram (parts per billion).
PCBs = Polychlorinated biphenyls.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SVOCs = Semivolatile organic hydrocarbons.
TPH = Total petroleum hydrocarbons.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Soil Sample Results for TCLP in September 2009

EPA Sample ID	RCRA TCLP[1]	09-09-0907	09-09-0919
Sample Location		SH01SS	SA01SS
Sample Depth		Surface	Surface
Sample Collection Event		Sep-09	Sep-09
TCLP Metals (mg/L)			
Arsenic	5	0.4 U	
Barium	100	**22**	
Cadmium	1	0.02 U	
Chromium	5	**0.02**	
Lead	5	0.2 U	
Mercury	0.2	0.005 U	
Selenium	1	0.4 U	
Silver	5	0.02 U	
TCLP Pesticides (µg/L)			
alpha-Chlordane	30		
Endrin	20	0.05 UJ	
gamma-BHC (Lindane)	40	0.05 UJ	
gamma-Chlordane	30		
Heptachlor	8	0.05 UJ	
Heptachlor epoxide	8	0.05 UJ	
Methoxychlor	10,000	0.1 UJ	
Toxaphene	500	0.5 UJ	
TCLP SVOCs (µg/L)			
1,4-Dichlorobenzene	2.4		10 U
2,4,5-Trichlorophenol	400,000		10 U
2,4,6-Trichlorophenol	2,000		10 U
2,4-Dinitrotoluene	130		10 U
2-Methylphenol	200,000		10 U
3 & 4-Methylphenol	200,000		10 U
Hexachlorobenzene	130		10 U
Hexachlorobutadiene	500		10 U
Hexachloroethane	3,000		10 U
Nitrobenzene	2,000		10 U
Pentachlorophenol	100,000		50 U
Pyridine	5,000		10 U

Table 3-2C Soil Sample Results for SPLP in September 2009

EPA Sample ID	EPA RSL - Tapwater[2]	09-09-0907	09-09-0919
Sample Location		SH01SS	SA01SS
Sample Depth		Surface	Surface
Sample Collection Event		Sep-09	Sep-09
SPLP SVOCs (µg/L)			
1,4-Dichlorobenzene	370		10 U
2,4,5-Trichlorophenol	3,700		10 U
2,4,6-Trichlorophenol	6.1		10 U
2,4-Dinitrotoluene	0.22		10 U
2-Methylphenol	1,800		10 U
3 & 4-Methylphenol	1,800		10 U
Hexachlorobenzene	0.042		10 U
Hexachlorobutadiene	0.86		10 U
Hexachloroethane	4.8		10 U
Nitrobenzene	0.12		10 U
Pentachlorophenol	0.17		50 U
Pyridine	37		10 U

Note:

= Greater than or equal to RCRA TCLP screening criteria.

= Greater than or equal to EPA RSL residential screening criteria.

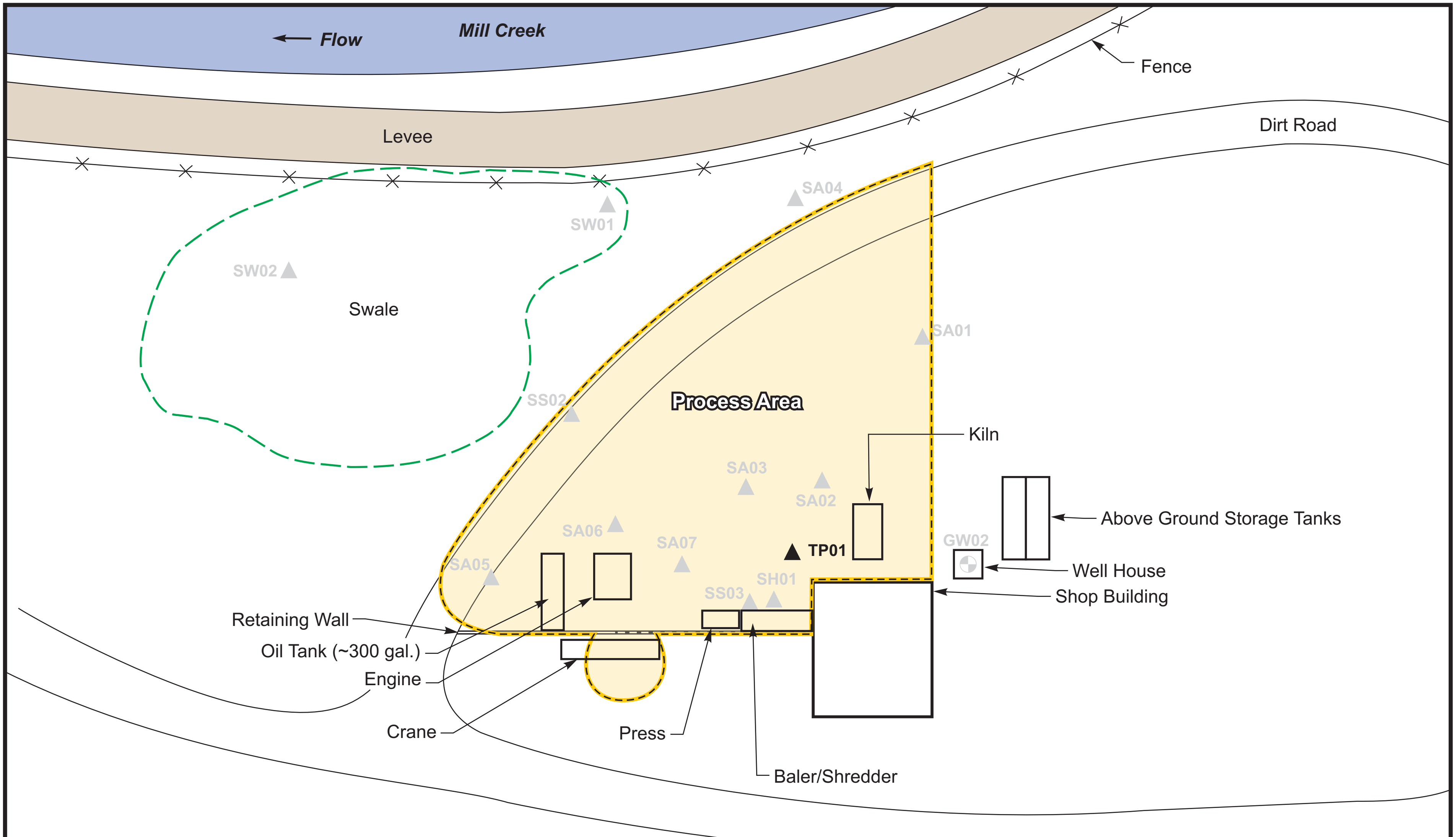
= Not analyzed.

1. = TCLP data compared to RCRA TCLP screening criteria.

2. = SPLP data compared to EPA RSL tapwater screening criteria.

Key:

EPA = Environmental Protection Agency.
mg/L = Milligrams per liter (parts per million).
µg/L . = Micrograms per liter (parts per billion).
RCRA = Resource Conservation and Recovery Act.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SPLP = Synthetic Precipitation Leaching Procedure.
SVOCs = Semivolatile organic hydrocarbons.
TCLP = Toxic Characteristic Leaching Procedure.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.



Notes:
1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. A light-gray sample location indicates a sample collected during a previous sampling event.

Legend

- Monitoring Well or Domestic Well
- Soil Sample
- Process Area

0 36 72

Approximate Scale in Feet

October 2009 RSE Sample Location
Stubblefield Salvage Yard Site
Walla Walla, Washington

ecology and environment, inc.
Global Specialists in the Environment
Seattle, Washington

Summary of Soil Sample Results from October 2009

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	09-10-1047
Sample Location			TP01
Sample Depth			6' BGS
Sample Collection Event			Oct-09
Metals (mg/kg)			
Antimony (Metallic)	31	410	**7.5**
Arsenic (Inorganic)	0.39	1.6	13 U
Cobalt	23	300	**22**
Iron	55,000	720,000	**48,000**
Lead & Compounds	400	800	**840 J**
PCBs (µg/kg)			
Aroclor-1242	220	740	**4,000**
Aroclor-1248	220	740	660 U
Aroclor-1254	220	740	**2,600**
Aroclor-1260	220	740	660 U
Pesticides (µg/kg)			
beta-BHC	270	960	
Dieldrin	30	110	
TPH (mg/kg)			
Diesel Range Organics	2,000 [1]	2,000 [1]	**12,000 J**
Oil Range Organics	2,000 [1]	2,000 [1]	**18,000 J**
SVOCs (mg/kg)			
Benzo(a)anthracene	0.15	2.1	**2.5 J**
Benzo(a)pyrene	0.015	0.21	**1.2 J**
Benzo(b)fluoranthene	0.15	2.1	**2.6 J**
Benzo(k)fluoranthene	1.5	21	**0.86 J**
Chrysene	15	210	**2.8 J**
Dibenzo(a,h)anthracene	0.015	0.21	**0.18 J**
Indeno(1,2,3-cd)pyrene	0.15	2.1	**0.51 J**
N-Nitroso-di-n-propylamine	0.069	0.25	2.2 UJ

Note:

(red) = Greater than or equal to EPA RSL industrial screening criteria for soil.
(yellow) = Greater than or equal to EPA RSL residential, but less than RSL industrial, screening criteria in soil.
(hatched) = Not analyzed.
1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted and industrial properties.

Key:

BGS = Below ground surface.
EPA = Environmental Protection Agency.
J = The analyte was positively identified; the associated numerical value is the approximate concentration.
JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
JL = The analyte was positively identified; the associated numerical value is the approximate concentration with a low bias.
JQ = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias and falls between the method detection limit and the minimum, or practical, quantitation limit.
MTCA = Model Toxics Control Act.
mg/kg = Milligrams per kilogram (parts per million).
µg/kg . = Micrograms per kilogram (parts per billion).
PCBs = Polychlorinated biphenyls.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SVOCs = Semivolatile organic hydrocarbons.
TPH = Total petroleum hydrocarbons.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Summary of Water Sample Results from October 2009

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	09-10-1021		09-10-1022		09-10-1023		09-10-1024	
Sample Location			MC01SW		MC02SW		MC03SW		MC04SW	
Sample Details			Surface Water		Surface Water		Surface Water		Surface Water	
Sample Collection Event			Oct-09		Oct-09		Oct-09		Oct-09	
Metals (µg/L)										
Arsenic (Inorganic)	0.045	10	3.3	UJ	3.3	U	3.3	U	3.3	U
Cobalt	4.7	NA	11	UJ	11	U	11	U	11	U
Iron	11,000	NA	**120**	**J**	**190**		**82**		**110**	
Lead & Compounds	NA	15	1.1	UJ	1.1	U	1.1	U	1.1	U
Manganese (Non-Diet)	320	NA	11	UJ	11	U	11	U	11	U
Vanadium & Compounds	78	NA	11	UJ	11	U	11	U	11	U
PCBs (µg/L)										
Aroclor-1242	0.034	NA	0.048	U	0.048	U	0.048	U	0.048	U
Aroclor-1254	0.034	NA	0.048	U	0.048	U	0.048	U	0.048	U
Aroclor-1260	0.034	NA	0.048	U	0.048	U	0.048	U	0.048	U
Pesticides (µg/L)										
Aldrin	0.00021	NA	0.0049	UJ	0.0048	U	0.0048	U	0.0048	U
Dieldrin	0.0015	NA	0.0049	UJ	0.0048	UJ	0.0048	UJ	0.0048	UJ
TPH (mg/L)										
Diesel Range Organics	0.5 [1]	NA	0.24	U	0.25	U	0.24	U	0.25	U
Oil Range Organics	0.5 [1]	NA	0.39	U	0.4	U	0.39	U	0.4	U
SVOCs (µg/L)										
1-Methylnaphthalene	0.97	NA	0.098	U	0.098	U	0.096	U	0.096	U
2-Methylnaphthalene	27	NA	0.098	U	0.098	U	0.096	U	0.096	U
Benzo[a]anthracene	0.029	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
Benzo[a]pyrene	0.0029	0.2	0.0098	U	0.0098	U	0.0096	U	0.0096	U
Benzo[b]fluoranthene	0.029	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
Benzo[k]fluoranthene	0.29	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
bis(2-Ethylhexyl)phthalate	0.071	6	0.98	U	0.98	U	0.96	U	0.96	U
Butylbenzylphthalate	14	NA	0.98	U	0.98	U	0.96	U	0.96	U
Dibenz[a,h]anthracene	0.0029	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
Indeno[1,2,3-cd]pyrene	0.029	NA	0.0098	U	0.0098	U	0.0096	U	0.0096	U
Naphthalene	0.14	NA	0.098	U	0.098	U	0.096	U	0.096	U
VOCs (µg/L)										
Chloroform	0.19	80	0.2	U	0.2	U	0.2	U	0.2	U
Tetrachloroethene	9.7	5	0.2	U	0.2	U	0.2	U	0.2	U

Note:

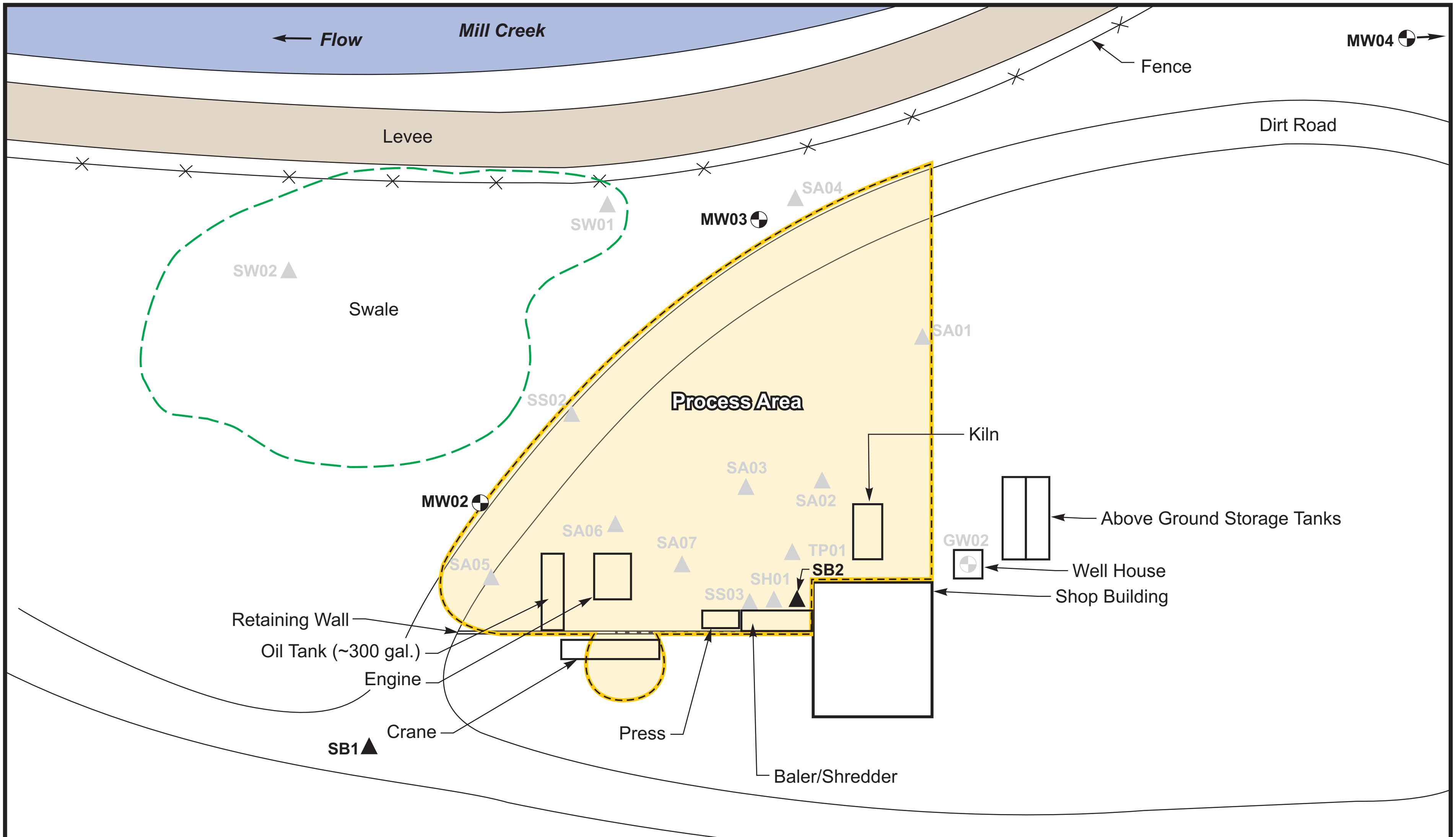
(yellow) = Greater than or equal to EPA RSL and/or Federal MCL.

(hatched) = Not analyzed.

1. = Refers to Washington State MTCA cleanup levels for TPH in groundwater.

Key:

EPA = Environmental Protection Agency.
IDW = Investigation derived waste.
J = The analyte was identified; the associated numerical result is an estimate.
JH = The analyte was positively identified; the assoicated numerical value is the approximate concentration with a high bias.
JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
MCL = Federal Maximum Contaminant Level drinking water standards.
MTCA = Model Toxics Control Act.
mg/L = Milligrams per liter (parts per million).
µg/L . = Micrograms per liter (parts per billion).
NA = Not applicable.
R = The sample results are rejected due to serious deficiencies; the presence or absence of the analyte cannot be verified.
RSL = Regional Screening Levels for Chemical Contaminants at Superfund Sites.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.



Notes:

1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. A light-gray sample location indicates a sample collected during a previous sampling event.

Legend

- Monitoring Well or Domestic Well
- Soil Sample
- Process Area

0 36 72

Approximate Scale in Feet

March 2010 RSE Sample Locations

Stubblefield Salvage Yard Site

Walla Walla, Washington

ecology and environment, inc.

Global Specialists in the Environment

Seattle, Washington

Summary of Soil Sample Results from March 2010

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	10-03-0001	10-03-0003	10-03-0004	10-03-0006	10-03-0009	10-03-0010	10-03-0011
Sample Location			MW04SB07	MW02SB05	MW02SB07	MW01SB06	SB01SB14	SB02SB04	SB02SB06
Sample Depth			7' BGS	5' BGS	7' BGS	6' BGS	14' BGS	4' BGS	6' BGS
Sample Collection Event			Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10
Metals (mg/kg)									
Antimony (Metallic)	31	410	6.8 U	6.5 U	9.3 U	6.7 U	6.7 U	7.3 U	7.6 U
Arsenic (Inorganic)	0.39	1.6	14 U	13 U	19 U	13 U	13 U	15 U	15 U
Cobalt	23	300	**15**	**10**	**9.1**	**12**	**15**	**10**	**15**
Iron	55,000	720,000	**64,000**	**47,000**	**57,000**	**56,000**	**72,000**	**67,000**	**76,000**
Lead & Compounds	400	800	**9.4**	**46**	**17**	**8.1**	**11**	7.3 U	**7.7**
PCBs (µg/kg)									
Aroclor-1242	220	740	68 U	65 U	93 U	67 U	67 U	**220**	76 U
Aroclor-1248	220	740	68 U	65 U	93 U	67 U	67 U	72 U	76 U
Aroclor-1254	220	740	68 U	65 U	93 U	67 U	67 U	72 U	76 U
Aroclor-1260	220	740	68 U	65 U	93 U	67 U	67 U	72 U	76 U
Pesticides (µg/kg)									
beta-BHC	270	960							
Dieldrin	30	110							
TPH (mg/kg)									
Diesel Range Organics	2,000 [1]	2,000 [1]							
Oil Range Organics	2,000 [1]	2,000 [1]							
SVOCs (mg/kg)									
Benzo(a)anthracene	0.15	2.1	0.0091 U	**0.093**	**0.015**	0.0089 U	0.0089 U	0.0097 U	0.01 U
Benzo(a)pyrene	0.015	0.21	0.0091 U	**0.094**	**0.016**	0.0089 U	0.0089 U	0.0097 U	0.01 U
Benzo(b)fluoranthene	0.15	2.1	0.0091 U	**0.055**	0.012 U	0.0089 U	0.0089 U	0.0097 U	0.01 U
Benzo(k)fluoranthene	1.5	21	0.0091 U	**0.071**	0.012 U	0.0089 U	0.0089 U	0.0097 U	0.01 U
Chrysene	15	210	0.0091 U	**0.090**	**0.015**	0.0089 U	0.0089 U	0.0097 U	0.01 U
Dibenzo(a,h)anthracene	0.015	0.21	0.0091 U	**0.015**	0.012 U	0.0089 U	0.0089 U	0.0097 U	0.01 U
Indeno(1,2,3-cd)pyrene	0.15	2.1	0.0091 U	**0.048**	0.012 U	0.0089 U	0.0089 U	0.0097 U	0.01 U
N-Nitroso-di-n-propylamine	0.069	0.25	0.046 U	0.043 U	0.062 U	0.044 U	0.044 U	0.048 U	0.051 U

Note:
(red) = Greater than or equal to EPA RSL industrial screening criteria for soil.
(yellow) = Greater than or equal to EPA RSL residential, but less than RSL industrial, screening criteria in soil.
(hatched) = Not analyzed.
1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted and industrial properties.

Key:
BGS = Below ground surface.
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J = The analyte was positively identified; the associated numerical value is the approximate concentration.
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JL = The analyte was positively identified; the associated numerical value is the approximate concentration with a low bias.
JQ = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias and falls between the method detection limit and the minimum, or practical, quantitation limit.
MTCA = Model Toxics Control Act.
mg/kg = Milligrams per kilogram (parts per million).
µg/kg . = Micrograms per kilogram (parts per billion).
PCBs = Polychlorinated biphenyls.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SVOCs = Semivolatile organic hydrocarbons.
TPH = Total petroleum hydrocarbons.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
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Summary of Water Sample Results from March 2010

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	10-03-0012		10-03-0013		10-03-0014		10-03-0015	
Sample Location			MW04GW15		MW02GW20		MW01GW20		MW03GW15	
Sample Details			Groundwater		Groundwater		Groundwater		Groundwater	
Sample Collection Event			Mar-10		Mar-10		Mar-10		Mar-10	
Metals (µg/L)										
Arsenic (Inorganic)	0.045	10	3.3	U	3.3	U	3.3	U	3.3	U
Cobalt	4.7	NA	11	U	11	U	11	U	11	U
Iron	11,000	NA	**88**		**160**		**2,900**		**59**	
Lead & Compounds	NA	15	1.1	U	1.1	U	1.1	U	1.1	U
Manganese (Non-Diet)	320	NA	**45**		**34**		**91**		11	U
Vanadium & Compounds	78	NA	11	U	11	U	**14**		11	U
PCBs (µg/L)										
Aroclor-1242	0.034	NA	0.047	U	**0.088**		0.048	U	0.047	U
Aroclor-1254	0.034	NA	0.047	U	0.047	U	0.048	U	0.047	U
Aroclor-1260	0.034	NA	0.047	U	0.047	U	0.048	U	0.047	U
Pesticides (µg/L)										
Aldrin	0.00021	NA								
Dieldrin	0.0015	NA								
TPH (mg/L)										
Diesel Range Organics	0.5 [1]	NA								
Oil Range Organics	0.5 [1]	NA								
SVOCs (µg/L)										
1-Methylnaphthalene	0.97	NA	0.094	U	0.094	U	0.095	U	0.094	U
2-Methylnaphthalene	27	NA	0.094	U	0.094	U	0.095	U	0.094	U
Benzo[a]anthracene	0.029	NA	0.0094	U	0.0094	U	0.0095	U	0.0094	U
Benzo[a]pyrene	0.0029	0.2	0.0094	U	0.0094	U	0.0095	U	0.0094	U
Benzo[b]fluoranthene	0.029	NA	0.0094	U	0.0094	U	0.0095	U	0.0094	U
Benzo[k]fluoranthene	0.29	NA	0.0094	U	0.0094	U	0.0095	U	0.0094	U
bis(2-Ethylhexyl)phthalate	0.071	6	0.94	U	0.94	U	**6.5**		0.94	U
Butylbenzylphthalate	14	NA	0.94	U	0.94	U	0.95	U	0.94	U
Dibenz[a,h]anthracene	0.0029	NA	0.0094	U	0.0094	U	0.0095	U	0.0094	U
Indeno[1,2,3-cd]pyrene	0.029	NA	0.0094	U	0.0094	U	0.0095	U	0.0094	U
Naphthalene	0.14	NA	0.094	U	0.094	U	0.095	U	0.094	U
VOCs (µg/L)										
Chloroform	0.19	80								
Tetrachloroethene	9.7	5								

Note:

(yellow) = Greater than or equal to EPA RSL and/or Federal MCL.

(hatched) = Not analyzed.

1. = Refers to Washington State MTCA cleanup levels for TPH in groundwater.

Key:

EPA	= Environmental Protection Agency.
IDW	= Investigation derived waste.
J	= The analyte was identified; the associated numerical result is an estimate.
JH	= The analyte was positively identified; the assoicated numerical value is the approximate concentration with a high bias.
JK	= The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
MCL	= Federal Maximum Contaminant Level drinking water standards.
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NA	= Not applicable.
R	= The sample results are rejected due to serious deficiencies; the presence or absence of the analyte cannot be verified.
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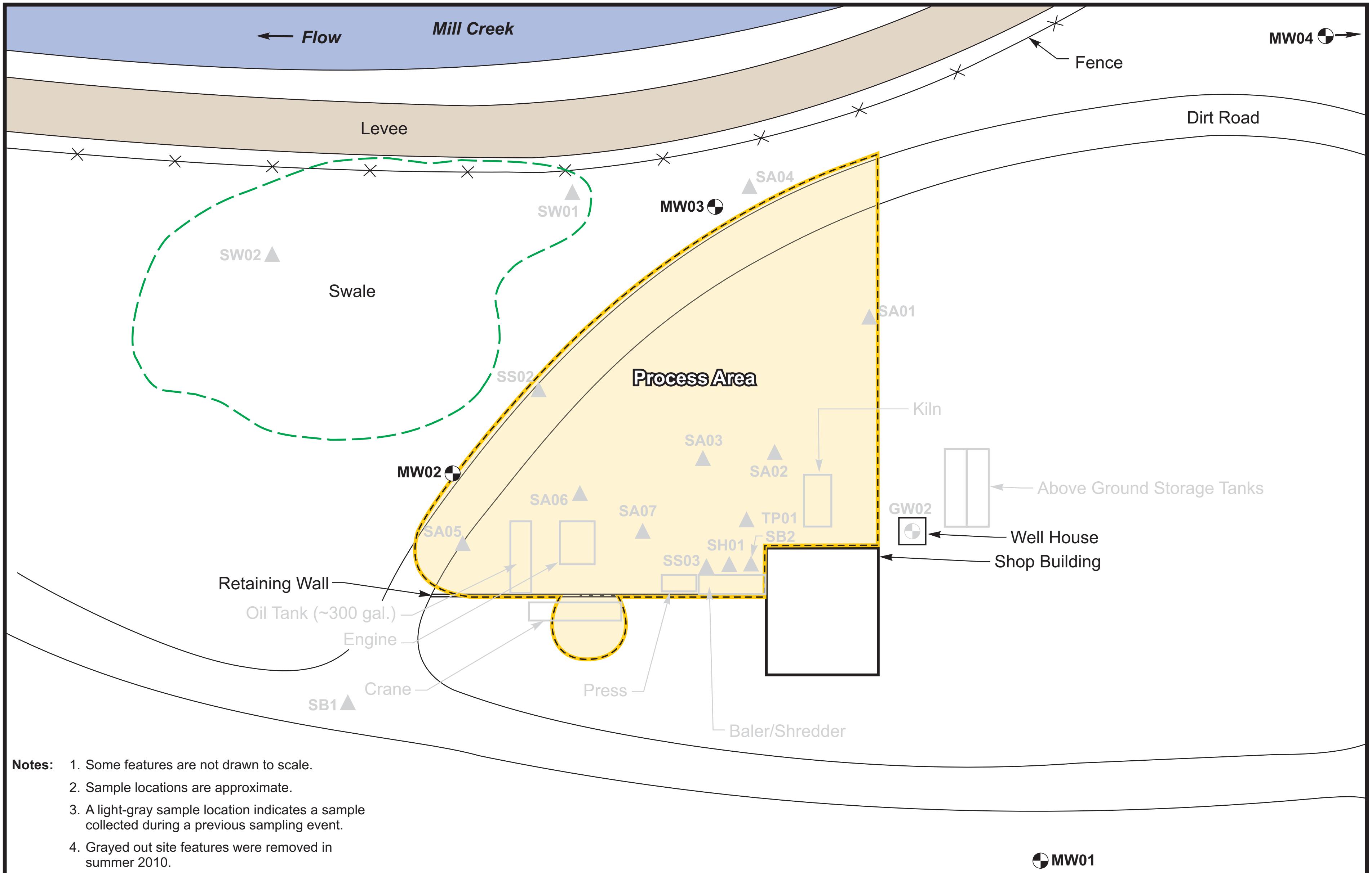

Notes:
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3. A light-gray sample location indicates a sample collected during a previous sampling event.
4. Grayed out site features were removed in summer 2010.

Legend
- Monitoring Well or Domestic Well
- Soil Sample
- Process Area

0 36 72
Approximate Scale in Feet

October 2010 RSE Sample Locations
Stubblefield Salvage Yard Site
Walla Walla, Washington

ecology and environment, inc.
Global Specialists in the Environment
Seattle, Washington

Summary of Water Sample Results from October 2010

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	10-10-0001		10-10-0002		10-10-0003		10-10-0004	
Sample Location			MW01		MW02		MW03		MW04	
Sample Details			Groundwater		Groundwater		Groundwater		Groundwater	
Sample Collection Event			Oct-10		Oct-10		Oct-10		Oct-10	
Metals (µg/L)										
Arsenic (Inorganic)	0.045	10	3.3	U	3.3	U	3.3	U	3.3	U
Cobalt	4.7	NA	11	U	11	U	11	U	11	U
Iron	11,000	NA	**1,800**	**J**	**260**	**J**	56	UJ	**94**	**J**
Lead & Compounds	NA	15	**1.5**		1.1	U	1.1	U	1.1	U
Manganese (Non-Diet)	320	NA	**42**		**20**		11	U	11	U
Vanadium & Compounds	7.8	NA	**12**		11	U	11	U	11	U
PCBs (µg/L)										
Aroclor-1242	0.034	NA	0.051	U	0.052	U	0.051	U	0.051	U
Aroclor-1254	0.034	NA	0.051	U	0.052	U	0.051	U	0.051	U
Aroclor-1260	0.034	NA	0.051	U	0.052	U	0.051	U	0.051	U
Pesticides (µg/L)										
Aldrin	0.00021	NA								
Dieldrin	0.0015	NA								
TPH (mg/L)										
Diesel Range Organics	0.5 [1]	NA	0.28	U	0.27	U	0.24	U	0.27	U
Oil Range Organics	0.5 [1]	NA	0.44	U	0.44	U	0.38	U	0.43	U
SVOCs (µg/L)										
1-Methylnaphthalene	0.97	NA	0.12	U	0.11	U	0.1	U	0.11	U
2-Methylnaphthalene	27	NA	0.12	U	0.11	U	0.1	U	0.11	U
Benzo[a]anthracene	0.029	NA	0.012	U	0.011	U	0.01	U	0.011	U
Benzo[a]pyrene	0.0029	0.2	0.012	U	0.011	U	0.01	U	0.011	U
Benzo[b]fluoranthene	0.029	NA	0.012	U	0.011	U	0.01	U	0.011	U
Benzo[k]fluoranthene	0.29	NA	0.012	U	0.011	U	0.01	U	0.011	U
bis(2-Ethylhexyl)phthalate	0.071	6	**3.2**		**20**		**5.2**		1.1	U
Butylbenzylphthalate	14	NA	1.2	U	1.1	U	1	U	1.1	U
Dibenz[a,h]anthracene	0.0029	NA	0.012	U	0.011	U	0.01	U	0.011	U
Indeno[1,2,3-cd]pyrene	0.029	NA	0.012	U	0.011	U	0.01	U	0.011	U
Naphthalene	0.14	NA	0.12	U	0.11	U	0.1	U	0.11	U
VOCs (µg/L)										
Chloroform	0.19	80	0.2	U	0.2	U	0.2	U	0.2	U
Tetrachloroethene	9.7	5	0.2	U	**0.25**		**0.36**		0.2	U

Note:

= Greater than or equal to EPA RSL and/or Federal MCL.

= Not analyzed.

1. = Refers to Washington State MTCA cleanup levels for TPH in groundwater.

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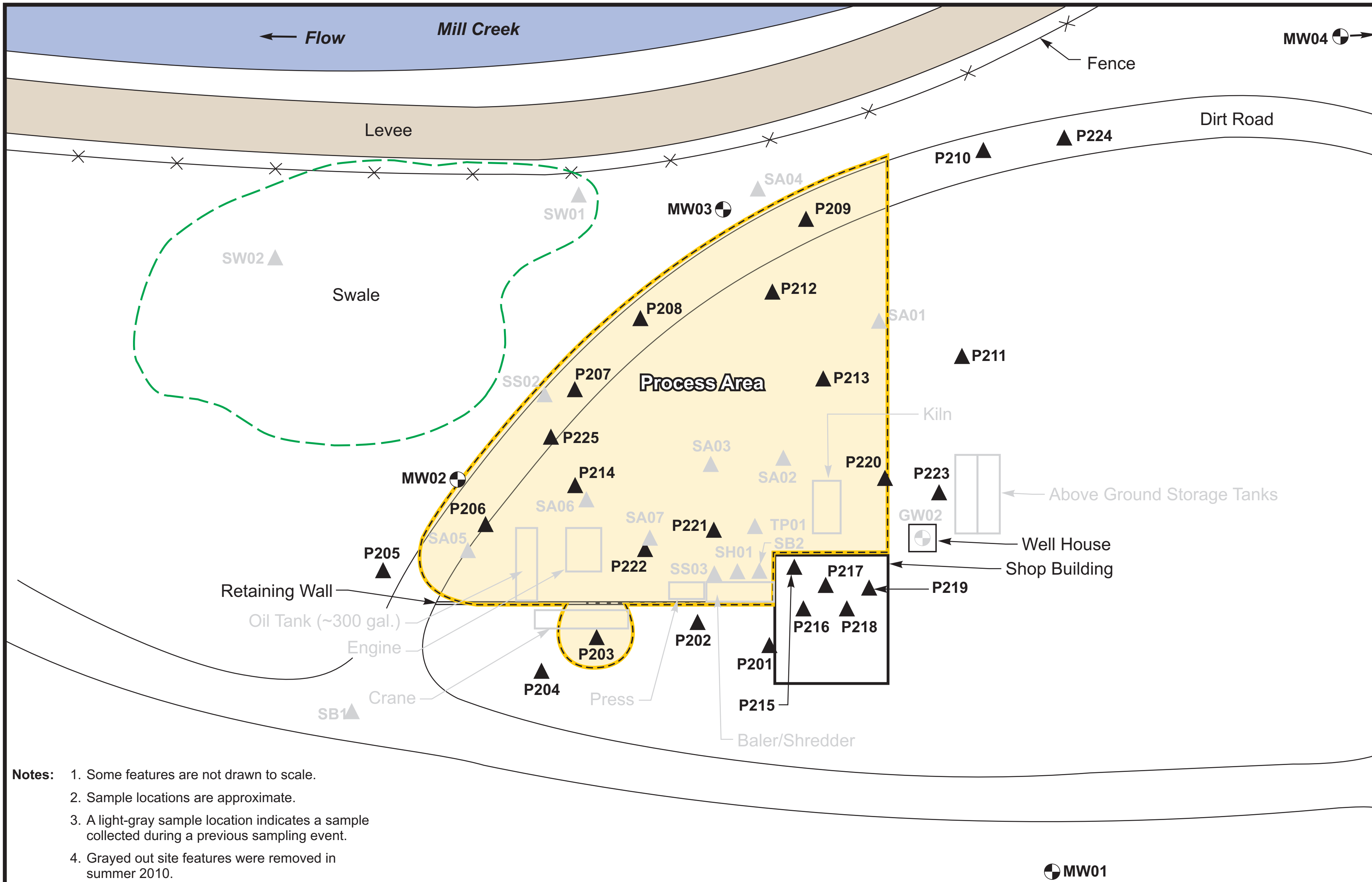

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- Monitoring Well or Domestic Well
- Soil Sample
- Process Area

0 36 72
Approximate Scale in Feet

June 2011 RSE Sample Locations
Stubblefield Salvage Yard Site
Walla Walla, Washington

ecology and environment, inc.
Global Specialists in the Environment
Seattle, Washington

Summary of Soil Sample Results from June 2011 (Page 1 of 2)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	11-06-0012	11-06-0015	11-06-0018	11-06-0022	11-06-0023	11-06-0024	11-06-0025	11-06-0026	11-06-0027	11-06-0028	11-06-0029	11-06-0030	11-06-0033	11-06-0036
Sample Location			P203SB04	P204SB12	P206SB04	P207SB04	P208SB04	P209SB04	P210SB04	P211SB04	P212SB04	P213SB04	P214SB04	P214SB08	P215SB12	P216SB12
Sample Depth			4' BGS	8' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	8' BGS	12' BGS	12' BGS
Sample Collection Event			Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
Metals (mg/kg)																
Antimony (Metallic)	31	410	6.3 U	7.4 U	**25**	6.5 U	6.1 U			6.2 U		6.6 U	6.6 U	7.1 U	7.5 U	7.4 U
Arsenic (Inorganic)	0.39	1.6	13 U	15 U	13 U	13 U	12 U			12 U		13 U	13 U	14 U	15 U	15 U
Cobalt	23	300	**15**	**17**	**13**	**15**	**15**			**15**		**17**	**14**	**13**	**20**	**21**
Iron	55,000	720,000	**45,000**	**55,000**	**39,000**	**34,000**	**38,000**			**38,000**		**43,000**	**42,000**	**36,000**	**61,000**	**55,000**
Lead & Compounds	400	800	**220**	7.4 U	**4,400**	**26**	**310**			**45**		**30**	**9.8**	**15**	7.5 U	7.4 U
PCBs (µg/kg)																
Aroclor-1242	220	740	**38,000**	74 U	64 U	65 U	61 U	58 U	62 U	62 U	61 U	66 U	**120**	**85 JK**	75 U	**99**
Aroclor-1248	220	740	6,300 U	74 U	64 U	65 U	61 U	58 U	62 U	62 U	61 U	66 U	66 U	71 U	75 U	74 U
Aroclor-1254	220	740	6,300 U	74 U	64 U	65 U	61 U	29 U	62 U	62 U	61 U	66 U	**180**	71 U	75 U	74 U
Aroclor-1260	220	740	6,300 U	74 U	64 U	65 U	61 U	**96 JK**	62 U	62 U	61 U	66 U	0.066 U	71 U	75 U	74 U
Pesticides (µg/kg)																
beta-BHC	270	960														
Dieldrin	30	110														
TPH (mg/kg)																
Diesel Range Organics	2000 [1]	2000 [1]	**1,200**	37 U	32 U	33 U	31 U			31 U		33 U	**86**	**74**	**240**	**590**
Oil Range Organics	2000 [1]	2000 [1]	**3,200**	74 U	64 U	65 U	61 U			62 U		66 U	**180**	**180**	**460**	**1,100**
SVOCs (mg/kg)																
Benzo(a)anthracene	0.15	2.1	**0.064**	0.0099 U	**0.013**	**0.47**	**0.22**	**5.3**	**0.12**	**0.28**	**0.17**	**0.11**	**0.32**	**0.16**	0.01 U	0.0099 U
Benzo(a)pyrene	0.015	0.21	**0.073**	0.0099 U	**0.027**	**0.5**	**0.25**	**5.4**	**0.14**	**0.29**	**0.18**	**0.12**	**0.21**	**0.15**	0.01 U	0.0099 U
Benzo(b)fluoranthene	0.15	2.1	**0.094**	0.0099 U	**0.021**	**0.17**	**0.25**	**5.3**	**0.14**	**0.29**	**0.19**	**0.14**	**0.28**	**0.18**	0.01 U	0.0099 U
Benzo(k)fluoranthene	1.5	21	**0.11**	0.0099 U	**0.02**	**0.57**	**0.098**	**1.4**	**0.064**	**0.13**	**0.072**	**0.048**	**0.098**	**0.06**	0.01 U	0.0099 U
Chrysene	15	210	**0.07**	0.0099 U	**0.016**	**0.47**	**0.2**	**4.7**	**0.12**	**0.27**	**0.17**	**0.11**	**0.31**	**0.16**	0.01 U	0.0099 U
Dibenzo(a,h)anthracene	0.015	0.21	**0.033**	0.0099 U	0.0085 U	**0.071**	**0.037**	**0.53**	**0.024**	**0.042**	**0.027**	**0.021**	**0.041**	**0.026**	0.01 U	0.0099 U
Indeno(1,2,3-cd)pyrene	0.15	2.1	**0.068**	0.0099 U	**0.043**	**0.32**	**0.16**	**2.9**	**0.085**	**0.18**	**0.11**	**0.077**	**0.13**	**0.072**	0.01 U	0.0099 U
N-Nitroso-di-n-propylamine	0.069	0.25	0.042 U	0.049 U	0.042 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.05 U	0.049 U

Note:

(red) = Greater than or equal to EPA RSL industrial screening criteria for soil.

(yellow) = Greater than or equal to EPA RSL residential, but less than RSL industrial, screening criteria in soil.

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1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted and industrial properties.

Key:

BGS = Below ground surface.

EPA = Environmental Protection Agency.

J = The analyte was positively identified; the associated numerical value is the approximate concentration.

JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.

JL = The analyte was positively identified; the associated numerical value is the approximate concentration with a low bias.

JQ = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias and falls between the method detection limit and the minimum, or practical, quantitation limit.

MTCA = Model Toxics Control Act.

mg/kg = Milligrams per kilogram (parts per million).

µg/kg . = Micrograms per kilogram (parts per billion).

PCBs = Polychlorinated biphenyls.

RSL = Regional screening levels for chemical contaminants at Superfund sites.

SVOCs = Semivolatile organic hydrocarbons.

TPH = Total petroleum hydrocarbons.

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Summary of Soil Sample Results from June 2011 (Page 2 of 2)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	11-06-0038	11-06-0040	11-06-0044	11-06-0047	11-06-0048	11-06-0049	11-06-0057
Sample Location			P217SB08	P218SB08	P219SB12	P220SB04	P221SB04	P221SB08	P223SB04
Sample Depth			8' BGS	8' BGS	12' BGS	4' BGS	4' BGS	8' BGS	4' BGS
Sample Collection Event			Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
Metals (mg/kg)									
Antimony (Metallic)	31	410	7 U	6.8 U	7.9 U	7.6 U	7.1 U	7.8 U	5.9 U
Arsenic (Inorganic)	0.39	1.6	14 U	14 U	16 U	15 U	14 U	16 U	12 U
Cobalt	23	300	**21**	**24**	**23**	**15**	**16**	**13**	**16**
Iron	55,000	720,000	**86,000**	**59,000**	**57,000**	**36,000**	**42,000**	**41,000**	**41,000**
Lead & Compounds	400	800	7 U	6.8 U	7.9 U	**31**	**30**	**8.6**	**210**
PCBs (µg/kg)									
Aroclor-1242	220	740	70 U	68 U	79 U	76 U	**290**	**1,500**	59 U
Aroclor-1248	220	740	70 U	68 U	79 U	76 U	71 U	78 U	59 U
Aroclor-1254	220	740	70 U	68 U	79 U	76 U	**140 JK**	**210**	59 U
Aroclor-1260	220	740	70 U	68 U	79 U	**1,100 JK**	71 U	78 U	59 U
Pesticides (µg/kg)									
beta-BHC	270	960							
Dieldrin	30	110							
TPH (mg/kg)									
Diesel Range Organics	2000 [1]	2000 [1]	35 U	34 U	40 U	**9,600**	**1,300**	**5,800**	**120**
Oil Range Organics	2000 [1]	2000 [1]	70 U	68 U	79 U	1,800 U	**3,200**	**12,000**	**160**
SVOCs (mg/kg)									
Benzo(a)anthracene	0.15	2.1	0.0093 U	0.0091 U	0.011 U	**0.046**	0.0095 U	**0.025**	**0.04**
Benzo(a)pyrene	0.015	0.21	0.0093 U	0.0091 U	0.011 U	**0.057**	0.0095 U	0.01 U	**0.045**
Benzo(b)fluoranthene	0.15	2.1	0.0093 U	0.0091 U	0.011 U	**0.071**	0.0095 U	**0.015**	**0.072**
Benzo(k)fluoranthene	1.5	21	0.0093 U	0.0091 U	0.011 U	**0.04**	0.0095 U	0.01 U	**0.042**
Chrysene	15	210	0.0093 U	0.0091 U	0.011 U	**0.061**	0.0095 U	**0.048**	**0.041**
Dibenzo(a,h)anthracene	0.015	0.21	0.0093 U	0.0091 U	0.011 U	0.01 U	0.0095 U	0.01 U	**0.0092**
Indeno(1,2,3-cd)pyrene	0.15	2.1	0.0093 U	0.0091 U	0.011 U	**0.029**	0.0095 U	0.01 U	**0.04**
N-Nitroso-di-n-propylamine	0.069	0.25	0.047 U	0.045 U	0.053 U	0.051 U	0.047 U	0.052 U	0.039 U

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Summary of Water Sample Results from June 2011

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	11-06-0001	11-06-0002	11-06-0003	11-06-0004	11-06-0005	11-06-0020	11-06-0021	11-06-0052	11-06-0053	11-06-0055	11-06-0056	11-06-0058
Sample Location			MW01	MW02	MW03	MW04	P202GW20	P207GW08	P208GW08	P217GW12	P222GW12	P221GW12	P214GW12	P220GW09
Sample Details			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event			Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
Metals (µg/L)														
Arsenic (Inorganic)	0.045	10	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	11 U	8.3 U	3.3 U	**6.1**
Cobalt	4.7	NA	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	**16**	**12**	**29**
Iron	11,000	NA	**250**	**190**	56 U	**520**	**5,200**	**190**	**13,000**	**7,600 JK**	**19,000 JK**	**7,100 JK**	**24,000 JK**	**68,000 JK**
Lead & Compounds	NA	15	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	**2.9**	**42**	1.1 U	**9.4**	**380**	**7.3**	**170**
Manganese (Non-Diet)	320	NA	11 U	11 U	11 U	**11**	**210**	11 U	**190**	**480**	**2,500**	**4,500**	**880**	**2,300**
Vanadium & Compounds	78	NA	11 U	11 U	11 U	**12**	**22**	11 U	**45**	**34**	**53**	**150**	**97**	**300**
PCBs (µg/L)														
Aroclor-1242	0.034	NA	0.05 U	0.048 U	0.049 U	0.05 U	0.048 U	0.048 U	**0.28**	0.049 U	0.51 U	**1,500**	0.049 U	0.05 U
Aroclor-1254	0.034	NA	0.05 U	0.048 U	0.049 U	0.05 U	0.048 U	0.048 U	0.049 U	0.049 U	**0.64 JK**	200 U	0.049 U	0.05 U
Aroclor-1260	0.034	NA	0.05 U	0.048 U	0.049 U	0.05 U	0.048 U	0.048 U	**0.091 JK**	0.049 U	0.051 U	200 U	0.049 U	0.05 U
Pesticides (µg/L)														
Aldrin	0.00021	NA												
Dieldrin	0.0015	NA												
TPH (mg/L)														
Diesel Range Organics	0.5 [1]	NA	0.25 U	0.24 U	0.25 U	0.25 U	0.26 U	0.24 U	0.26 U	0.24 U	**0.45 JH**	**2,000**	0.24 U	**2.4**
Oil Range Organics	0.5 [1]	NA	0.4 U	0.38 U	0.4 U	0.4 U	**0.77**	0.39 U	0.41 U	0.39 U	0.41 U	**3,600**	0.39 U	0.54 U
SVOCs (µg/L)														
1-Methylnaphthalene	0.97	NA	0.1 U	0.096 U	0.098 U	0.1 U	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**270**	0.1 U	**21**
2-Methylnaphthalene	27	NA	0.1 U	0.096 U	0.098 U	0.1 U	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**210**	0.1 U	**8.1**
Benzo[a]anthracene	0.029	NA	0.01 U	**0.018**	**0.01**	0.01 U	**0.014**	**0.011**	**0.012**	0.0096 U	0.24 U	21 U	**0.015**	0.0099 U
Benzo[a]pyrene	0.0029	0.2	0.01 U	**0.017**	0.0098 U	0.01 U	0.01 U	0.0097 U	**0.018**	0.0096 U	**0.32**	**14**	**0.012**	0.0099 U
Benzo[b]fluoranthene	0.029	NA	0.01 U	**0.016**	0.0098 U	0.01 U	**0.01**	0.0097 U	**0.024**	0.0096 U	**0.31**	**9.6**	**0.011**	0.0099 U
Benzo[k]fluoranthene	0.29	NA	0.01 U	**0.016**	0.0098 U	0.01 U	0.01 U	0.0097 U	**0.019**	0.0096 U	24 U	**26**	0.01 U	0.0099 U
bis(2-Ethylhexyl)phthalate	0.071	6	**350**	**10**	**5.3**	**7.8**	**240**	**1.5**	0.99 U	**770**	**51**	**80,000**	**24**	**200**
Butylbenzylphthalate	14	NA	1 U	0.96 U	0.98 U	1 U	1 U	0.97 U	0.99 U	0.96 U	24 U	**600**	1 U	0.99 U
Dibenz[a,h]anthracene	0.0029	NA	0.01 U	**0.017**	0.0098 U	0.01 U	0.01 U	0.0097 U	0.0099 U	0.0096 U	0.24 U	2.1 U	0.01 U	0.0099 U
Indeno[1,2,3-cd]pyrene	0.029	NA	0.01 U	**0.016**	0.0098 U	0.01 U	0.01 U	0.0097 U	**0.019**	0.0096 U	**0.27**	**4.1**	0.01 U	0.0099 U
Naphthalene	0.14	NA	0.1 U	0.096 U	0.098 U	0.1 U	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**30**	0.1 U	**0.52**
VOCs (µg/L)														
Chloroform	0.19	80												
Tetrachloroethene	9.7	5												

Note:

(yellow shading) = Greater than or equal to EPA RSL and/or Federal MCL.

(hatching) = Not analyzed.

1. = Refers to Washington State MTCA cleanup levels for TPH in groundwater.

Key:

EPA = Environmental Protection Agency.
IDW = Investigation derived waste.
J = The analyte was identified; the associated numerical result is an estimate.
JH = The analyte was positively identified; the assoicated numerical value is the approximate concentration with a high bias.
JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
MCL = Federal Maximum Contaminant Level drinking water standards.
MTCA = Model Toxics Control Act.
mg/L = Milligrams per liter (parts per million).
µg/L . = Micrograms per liter (parts per billion).
NA = Not applicable.
R = The sample results are rejected due to serious deficiencies; the presence or absence of the analyte cannot be verified.
RSL = Regional Screening Levels for Chemical Contaminants at Superfund Sites.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

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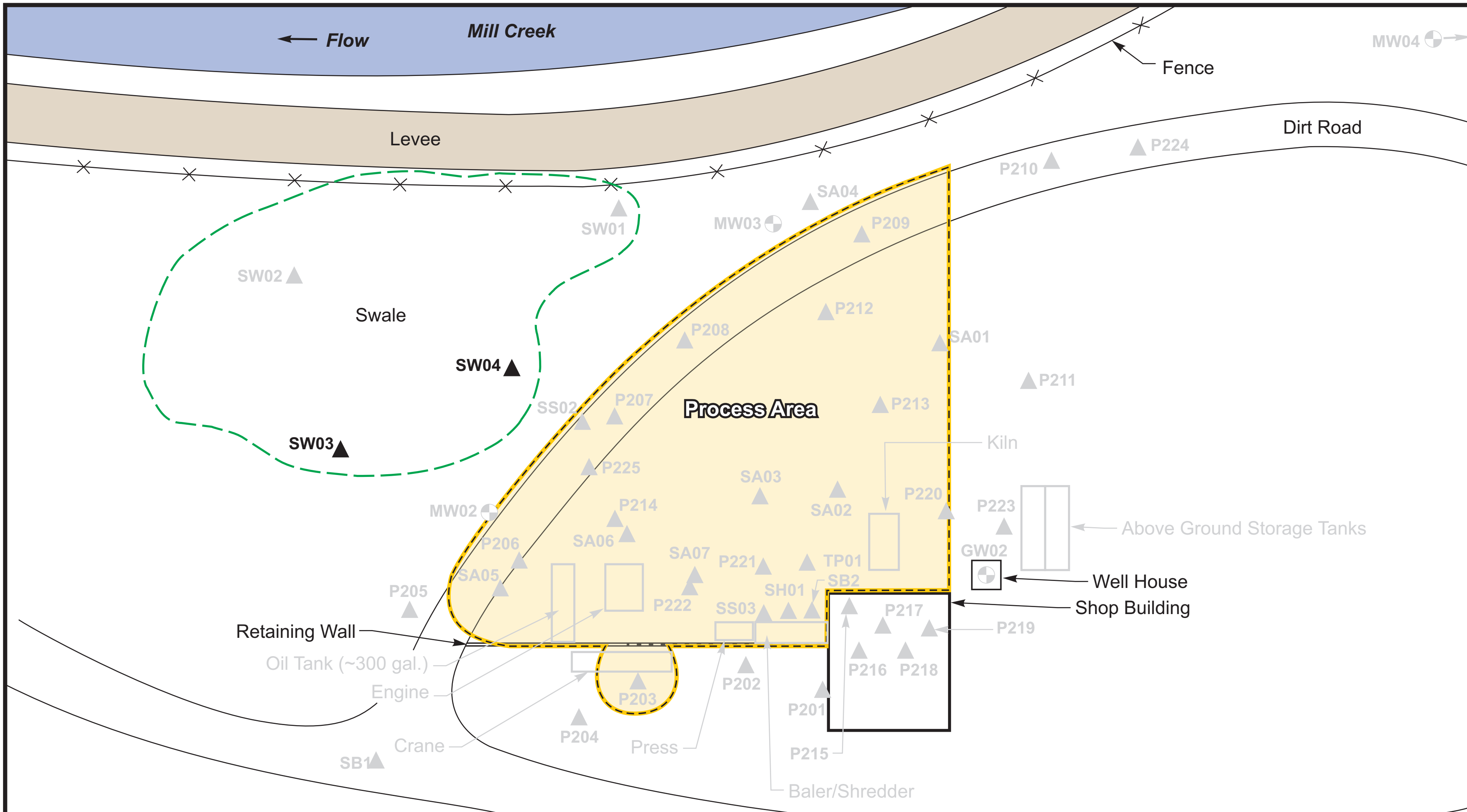

Notes:
1. Some features are not drawn to scale.
2. Sample locations are approximate.
3. A light-gray sample location indicates a sample collected during a previous sampling event.
4. Grayed out site features were removed in summer 2010.

Legend
- Monitoring Well or Domestic Well
- Soil Sample
- Process Area

0 36 72
Approximate Scale in Feet

April 2012 RSE Sample Locations
Stubblefield Salvage Yard Site
Walla Walla, Washington

ecology and environment, inc.
Global Specialists in the Environment
Seattle, Washington

Summary of Soil Sample Results from April 2012

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	12-04-0001	12-04-0002
Sample Location			SW03SS	SW04SS
Sample Depth			Surface	Surface
Sample Collection Event			Apr-12	Apr-12
Metals (mg/kg)				
Antimony (Metallic)	31	410	Not analyzed	Not analyzed
Arsenic (Inorganic)	0.39	1.6	**2.25**	**0.822**
Cobalt	23	300	Not analyzed	Not analyzed
Iron	55,000	720,000	Not analyzed	Not analyzed
Lead & Compounds	400	800	**251**	**142**
PCBs (µg/kg)				
Aroclor-1242	220	740	4.46 U	4.21 U
Aroclor-1248	220	740	**127**	**70.2**
Aroclor-1254	220	740	**152**	**112**
Aroclor-1260	220	740	**151**	**121 JK**
Pesticides (µg/kg)				
beta-BHC	270	960	Not analyzed	Not analyzed
Dieldrin	30	110	Not analyzed	Not analyzed
TPH (mg/kg)				
Diesel Range Organics	2,000 [1]	2,000 [1]	Not analyzed	Not analyzed
Oil Range Organics	2,000 [1]	2,000 [1]	Not analyzed	Not analyzed
SVOCs (mg/kg)				
Benzo(a)anthracene	0.15	2.1	**0.0511**	**0.205**
Benzo(a)pyrene	0.015	0.21	**0.0684**	**0.228 JL**
Benzo(b)fluoranthene	0.15	2.1	**0.131**	**0.349 JL**
Benzo(k)fluoranthene	1.5	21	**0.0333 JQ**	**0.117 JL**
Chrysene	15	210	**0.0533**	**0.222**
Dibenzo(a,h)anthracene	0.015	0.21	0.0444 U	0.0419 U
Indeno(1,2,3-cd)pyrene	0.15	2.1	**0.0351 JQ**	**0.108 JL**
N-Nitroso-di-n-propylamine	0.069	0.25	0.444 U	0.419 U

Note:

(red) = Greater than or equal to EPA RSL industrial screening criteria for soil.
(yellow) = Greater than or equal to EPA RSL residential, but less than RSL industrial, screening criteria in soil.
(hatched) = Not analyzed.
1. = Refers to Washington State MTCA cleanup levels for TPH in soil at unrestricted and industrial properties.

Key:

BGS = Below ground surface.
EPA = Environmental Protection Agency.
J = The analyte was positively identified; the associated numerical value is the approximate concentration.
JK = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
JL = The analyte was positively identified; the associated numerical value is the approximate concentration with a low bias.
JQ = The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias and falls between the method detection limit and the minimum, or practical, quantitation limit.
MTCA = Model Toxics Control Act.
mg/kg = Milligrams per kilogram (parts per million).
µg/kg . = Micrograms per kilogram (parts per billion).
PCBs = Polychlorinated biphenyls.
RSL = Regional screening levels for chemical contaminants at Superfund sites.
SVOCs = Semivolatile organic hydrocarbons.
TPH = Total petroleum hydrocarbons.
U = The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

B Comprehensive Analytical Data for Soil

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Key for Appendix B Tables

Note:

(red)	= Greater than EPA RSL industrial screening criteria for soil, or for TPH the value is greater than Washington MTCA cleanup levels for soil at unrestricted and industrial properties.
(yellow)	= Greater than EPA RSL residential, but less than or equal to RSL industrial, screening criteria in soil.
(peach)	= Greater than EPA soil to groundwater RSLs (either risk-based or MCL-based, whichever is lowest), but less than or equal to RSL residential screening criteria in soil.
(hatched)	= Not analyzed.

Key:

BGS	= Below ground surface.
EPA	= Environmental Protection Agency.
J	= The analyte was positively identified; the associated numerical value is the approximate concentration.
JK	= The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
JL	= The analyte was positively identified; the associated numerical value is the approximate concentration with a low bias.
JQ	= The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias and falls between the method detection limit and the minimum, or practical, quantitation limit.
MCL	= Maximum Contaminant Level.
MTCA	= Model Toxics Control Act.
mg/kg	= Milligrams per kilogram (parts per million).
µg/kg .	= Micrograms per kilogram (parts per billion).
ng/kg	= Nanograms per kilogram (parts per trillion).
PCBs	= Polychlorinated biphenyls.
RSL	= Regional screening levels for chemical contaminants at Superfund sites.
SVOCs	= Semivolatile organic hydrocarbons.
TPH	= Total petroleum hydrocarbons.
U	= The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ	= The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

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Table B-1 Comprehensive Analytical Data for Metals in Soil (Page 1 of 3)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	09-05-0702	09-05-0703	09-09-0908	09-09-0909	09-09-0912	09-09-0913	09-09-0915	09-09-0916	9090917	9090919	09-09-0920	09-09-0921	09-09-0924	09-09-0925
Sample Location					SS02	SS03	SA07SB04	SA07SB08	SA04SB04	SA04SB08	SA04SS	SA01SB04	SA01SB08	SA01SS	SA03SB04	SA03SB08	SA06SB04	SA06SB08
Sample Depth					Surface	Surface	4' BGS	8' BGS	4' BGS	8' BGS	Surface	4' BGS	8' BGS	Surface	4' BGS	8' BGS	4' BGS	8' BGS
Sample Collection Event					May-09	May-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09
Metals (mg/kg)																		
Aluminum	77,000	990,000	23,000	NA	23,900	38,800			17,000	7,700	16,000	16,000	10,000	15,000			13,000	20,000
Antimony (Metallic)	31	410	0.27	NA	4.7 J	4.7 UJ			6.6	5.6 U	21	6.1 U	5.6 U	16			6.4 U	7.2 U
Arsenic (Inorganic)	0.39	1.6	0.0013	0.29	5.5 UJ	5.4			11 U	11 U	10 U	12 U	11 U	10 U			13 U	14 U
Barium	15,000	190,000	120	82	253	387			140	87	540	150	100	270			140	160
Beryllium & Compounds	160	2,000	13	3.2	0.32	0.33			0.55 U	0.56 U	0.51 U	0.61 U	0.56 U	0.52 U			0.64 U	0.72 U
Cadmium (Diet)	70	800	NA	NA	10.7 J	16.5 J			0.59	0.56 U	14	1.9	0.62	5.6			0.98	2.3
Calcium	NA	NA	NA	NA	6,330	9,140			7,500	4,700	9,700	8,200	7,100	11,000			8,600	5,900
Chromium (Total)	NA	NA	NA	180,000	41.6	71.6			13	6.7	37	19	11	33			13	22
Chromium (VI)	0.29	5.6	0.00059	NA														
Cobalt	23	300	0.21	NA	10.9 J	15.7 J			16	14	16	16	14	18			12	16
Copper	3,100	41,000	22	46	1,730 J	2,420 J			36	17	490	320	110	620			47	120
Iron	55,000	720,000	270	NA	36,800 J	49,500 J			45,000	42,000	76,000	43,000	43,000	63,000			39,000	43,000
Lead & Compounds	400	800	NA	14	1,140	1,250			52 J	5.6 UJ	830 J	140 J	63 J	660 J			600	180
Magnesium	NA	NA	NA	NA	3,280 J	4,540 J			2,900	1,900	3,200	2,800	2,500	4,700			4,000	3,200
Manganese (Non-Diet)	1,800	23,000	21	NA	483 J	613 J			540	700	680	470	440	810			450	440
Mercury (Elemental)	10	43	0.033	0.01	1.33 J	3.11 J			0.27 U	0.28 U	0.58	0.3 U	0.28 U	0.26 U			0.32 U	0.36 U
Nickel (Soluble Salts)	1,500	20,000	20	NA	48.7 J	86.1 J			11 J	6.2 J	64 J	17 J	25 J	54 J			16	20
Potassium	NA	NA	NA	NA	1,920	1,370			1,800	750	2,500	2,000	1,200	2,100			2,800	1,900
Selenium	390	5,100	0.4	0.26	1.8 J	1.5 J			11 U	11 U	10 U	12 U	11 U	10 U			13 U	14 U
Silver	390	5,100	0.6	NA	6.3 J	2 UJ			0.55 U	0.56 U	0.51 U	0.61 U	0.56 U	0.52 U			0.64 U	0.72 U
Sodium	NA	NA	NA	NA	282 J	370			730 J	490 J	590 J	730 J	720 J	700 J			720	680
Thallium (Soluble Salts)	0.78	10	0.011	0.14	0.3 UJ	0.30 UJ			5.5 U	5.6 U	5.1 U	6.1 U	5.6 U	5.2 U			6.4 U	7.2 U
Vanadium & Compounds	390	5,200	78	NA	80.6	74			140	140	120	140	140	140			160	140
Zinc & Compounds	23,000	310,000	290	NA	5,300 J	4,350 J			950	69	3,100	380 J	180 J	1,300			350	930

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	09-09-0927	09-09-0928	09-09-0929	09-09-0932	09-09-0933	09-09-0936	09-09-0937	09-09-0953	09-09-0954	09-09-0956	09-09-0957	09-10-1047	10-03-0001	10-03-0002
Sample Location					SA06SS	SA02SB04	SA02SB08	SA05SB04	SA05SB08	SH01SB04	SH01SB08	SW01SB08	SW01SB04	SW02SS	SW02SB02	TP01	MW04SB07	MW03SB05
Sample Depth					Surface	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	8' BGS	8' BGS	4' BGS	Surface	2' BGS	6' BGS	7' BGS	5' BGS
Sample Collection Event					Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Oct-09	Mar-10	Mar-10
Metals (mg/kg)																		
Aluminum	77,000	990,000	23,000	NA	27,000			32,000	16,000	12,000	11,000	10,000	9,000	13,000 J	19,000 J	12,000	8,700	3,900
Antimony (Metallic)	31	410	0.27	NA	54			8.8	6.8 U	8.8	7.8 U	5.8 U	11	7.8 U	8.1 U	7.5	6.8 U	5.4 U
Arsenic (Inorganic)	0.39	1.6	0.0013	0.29	10 U			13 U	14 U	14 U	16 U	12 U	11 U	16 U	16 U	13 U	14 U	11 U
Barium	15,000	190,000	120	82	490			140	120	120	92	91	120	100	130	300 J	100	67
Beryllium & Compounds	160	2,000	13	3.2	0.52 U			0.66 U	0.68 U	0.71 U	0.78 U	0.58 U	0.56 U	0.78 U	0.81 U	0.66 U	0.68 U	0.54 U
Cadmium (Diet)	70	800	NA	NA	18			1.2	0.68 U	0.71 U	0.78 U	0.58 U	0.7	0.78 U	0.81 U	10	0.68 U	0.54 U
Calcium	NA	NA	NA	NA	13,000			7,600	5,900	5,000	2,700	4,000	4,600	4,700	5,400	7,800	4,400	3,200
Chromium (Total)	NA	NA	NA	180,000	77			44	18	13	4.8	9.7	9.9	12	15	46	7.5	4.5
Chromium (VI)	0.29	5.6	0.00059	NA														
Cobalt	23	300	0.21	NA	21			13	19	7.2	3.4	12	13	8	14	22	15	6.0
Copper	3,100	41,000	22	46	1,600			780	41	260	20	18	28	33	28	300	16	11
Iron	55,000	720,000	270	NA	76,000			40,000	57,000	23,000	9,200	35,000	42,000	29,000 J	41,000 J	48,000	64,000	54,000
Lead & Compounds	400	800	NA	14	1,400 J			120	40	21	7.8 U	32 J	51 J	100	18	840 J	9.4	36
Magnesium	NA	NA	NA	NA	4,300			4,100	3,800	2,900	870	2,300	2,200	2,800	3,500	3,300	2,100	1,000
Manganese (Non-Diet)	1,800	23,000	21	NA	710			420	490	340	78	260	300	180	230	440	670	510
Mercury (Elemental)	10	43	0.033	0.01	2.1			0.33 U	0.34 U	0.36 U	0.39 U	0.29 U	0.28 U	0.39 U	0.4 U	0.33 U	0.34 U	0.27 U
Nickel (Soluble Salts)	1,500	20,000	20	NA	120 J			22	11	7.8	3.9	7.5 J	8.1	9.6	11	42	5.9	3.4
Potassium	NA	NA	NA	NA	2,300			2,100	1,600	2,000	640	1,100	1,100	1,600 J	2,300 J	2,600	1,000	460
Selenium	390	5,100	0.4	0.26	10 U			13 U	14 U	14 U	16 U	12 U	11 U	16 U	16 U	13 U	14 UJ	11 UJ
Silver	390	5,100	0.6	NA	1.1			0.66 U	0.68 U	0.71 U	0.78 U	0.58 U	1.2	0.78 U	0.81 U	0.66 U	0.68 U	0.54 U
Sodium	NA	NA	NA	NA	890 J			640	620	690	1,100	570 J	460	530	480	590	240	170
Thallium (Soluble Salts)	0.78	10	0.011	0.14	5.2 U			6.6 U	6.8 U	7.1 U	7.8 U	5.8 U	5.6 U	7.8 U	8.1 U	6.6 U	6.8 U	5.4 U
Vanadium & Compounds	390	5,200	78	NA	110			160	200	90	31	130	140	150	170	130	97	38
Zinc & Compounds	23,000	310,000	290	NA	4,800			400	120	140	16	96	270	170	95	1,500	56	28

Table B-1 Comprehensive Analytical Data for Metals in Soil (Page 2 of 3)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	10-03-0003	10-03-0004	10-03-0005	10-03-0006	10-03-0007	10-03-0008	10-03-0009	10-03-0010	10-03-0011	11-06-0006	11-06-0007	11-06-0008	11-06-0009	11-06-0010
Sample Location					MW02SB05	MW02SB07	MW01SB03	MW01SB06	MW01SB12	SB01SB05	SB01SB14	SB02SB04	SB02SB06	P201SB04	P201SB08	P201SB12	P202SB04	P202SB08
Sample Depth					5' BGS	7' BGS	3' BGS	6' BGS	12' BGS	5' BGS	14' BGS	4' BGS	6' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS
Sample Collection Event					Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
Metals (mg/kg)																		
Aluminum	77,000	990,000	23,000	NA	**9,700**	**12,000**	**7,500**	**10,000**	**9,500**	**8,600**	**11,000**	**8,600**	**12,000**	**11,000**	**16,000**	**13,000**	**12,000**	**13,000**
Antimony (Metallic)	31	410	0.27	NA	6.5 U	9.3 U	6.1 U	6.7 U	7.7 U	6.6 U	6.7 U	7.3 U	7.6 U	6.1 U	7 U	7.9 U	6.6 U	7.3 U
Arsenic (Inorganic)	0.39	1.6	0.0013	0.29	13 U	19 U	12 U	13 U	15 U	13 U	13 U	15 U	15 U	12 U	14 U	16 U	13 U	15 U
Barium	15,000	190,000	120	82	**120**	**130**	**110**	**120**	**110**	**89**	**130**	**100**	**120**	**95**	**120**	**75**	**110**	**120**
Beryllium & Compounds	160	2,000	13	3.2	0.65 U	0.93 U	0.61 U	0.67 U	0.77 U	0.66 U	0.67 U	0.73 U	0.76 U	0.61 U	0.7 U	0.79 U	0.66 U	0.73 U
Cadmium (Diet)	70	800	NA	NA	0.65 U	0.93 U	0.61 U	0.67 U	0.77 U	0.66 U	0.67 U	0.73 U	0.76 U	0.61 U	0.7 U	0.79 U	0.66 U	0.73 U
Calcium	NA	NA	NA	NA	**5,200**	**4,700**	**8,800**	**8,100**	**3,000**	**3,500**	**4,900**	**5,000**	**5,400**	**15,000**	**5,100**	**2,900**	**5,500**	**5,100**
Chromium (Total)	NA	NA	NA	180,000	**9.4**	**11**	**6.2**	**7.2**	**6.0**	**7.7**	**11**	**9.2**	**11**	**7.2**	**8.8**	**5.7**	**8.9**	**9.3**
Chromium (VI)	0.29	5.6	0.00059	NA														
Cobalt	23	300	0.21	NA	**10**	**9.1**	**9.4**	**12**	**4.6**	**8.6**	**15**	**10**	**15**	**14**	**21**	**3.4**	**13**	**19**
Copper	3,100	41,000	22	46	**730**	**39**	**16**	**17**	**12**	**13**	**17**	**21**	**21**	**11**	**11**	**15**	**12**	**12**
Iron	55,000	720,000	270	NA	**47,000**	**57,000**	**46,000**	**56,000**	**18,000**	**51,000**	**72,000**	**67,000**	**76,000**	**44,000**	**54,000**	**12,000**	**37,000**	**53,000**
Lead & Compounds	400	800	NA	14	**46**	**17**	**20**	**8.1**	7.7 U	6.6 U	**11**	7.3 U	**7.7**	**12**	7 U	7.9 U	**14**	7.3 U
Magnesium	NA	NA	NA	NA	**2,400**	**2,500**	**4,100**	**4,200**	**1,800**	**3,200**	**3,400**	**2,700**	**3,600**	**5,400**	**4,400**	**2,000**	**3,900**	**4,200**
Manganese (Non-Diet)	1,800	23,000	21	NA	**660**	**330**	**610**	**590**	**150**	**300**	**560**	**390**	**620**	**550**	**440**	**80**	**380**	**460**
Mercury (Elemental)	10	43	0.033	0.01	0.32 U	0.46 U	0.30 U	0.33 U	0.39 U	0.33 U	0.33 U	0.36 U	0.38 U	0.3 U	0.35 U	0.4 U	0.33 U	0.37 U
Nickel (Soluble Salts)	1,500	20,000	20	NA	**12**	**7.2**	**6.1**	**6.8**	**5.2**	**5.2**	**8.0**	**5.2**	**8.2**	**7.5**	**8.2**	**6.5**	**7.4**	**8.1**
Potassium	NA	NA	NA	NA	**1,900**	**1,300**	**2,800**	**1,900**	**900**	**1,100**	**1,100**	**1,300**	**1,300**	**2,800**	**1,600**	**1,200**	**2,400**	**1,800**
Selenium	390	5,100	0.4	0.26	13 UJ	19 UJ	12 UJ	13 UJ	15 UJ	13 UJ	13 UJ	15 UJ	15 UJ	12 U	14 U	16 U	13 U	15 U
Silver	390	5,100	0.6	NA	0.65 U	0.93 U	0.61 U	0.67 U	0.77 U	0.66 U	0.67 U	0.73 U	0.76 U	0.61 U	0.7 U	0.79 U	0.66 U	0.73 U
Sodium	NA	NA	NA	NA	**280**	**260**	**250**	**450**	**640**	**940**	**260**	**270**	**360**	**910**	**1,500**	**1,100**	**610**	**770**
Thallium (Soluble Salts)	0.78	10	0.011	0.14	6.5 U	9.3 U	6.1 U	6.7 U	7.7 U	6.6 U	6.7 U	7.3 U	7.6 U	3 U	3.5 U	4 U	3.3 U	3.7 U
Vanadium & Compounds	390	5,200	78	NA	**68**	**140**	**57**	**90**	**30**	**81**	**63**	**69**	**97**	**230**	**140**	**38**	**140**	**140**
Zinc & Compounds	23,000	310,000	290	NA	**110**	**91**	**66**	**57**	**24**	**47**	**57**	**100**	**80**	**65**	**61**	**28**	**59**	**58**

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	11-06-0011	11-06-0012	11-06-0013	11-06-0014	11-06-0015	11-06-0016	11-06-0017	11-06-0018	11-06-0019	11-06-0022	11-06-0023	11-06-0024	11-06-0025	11-06-0026
Sample Location					P202SB12	P203SB04	P204SB04	P204SB08	P204SB12	P205SB04	P205SB08	P206SB04	P206SB08	P207SB04	P208SB04	P209SB04	P210SB04	P211SB04
Sample Depth					12' BGS	4' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS
Sample Collection Event					Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
Metals (mg/kg)																		
Aluminum	77,000	990,000	23,000	NA	**14,000**	**11,000**	**9,800**	**11,000**	**16,000**	**9,700**	**16,000**	**11,000**	**17,000**	**14,000**	**12,000**			**11,000**
Antimony (Metallic)	31	410	0.27	NA	7.5 U	6.3 U	6 U	6.6 U	7.4 U	6.2 U	8.1 U	**25**	7.1 U	6.5 U	6.1 U			6.2 U
Arsenic (Inorganic)	0.39	1.6	0.0013	0.29	15 U	13 U	12 U	13 U	15 U	12 U	16 U	13 U	14 U	13 U	12 U			12 U
Barium	15,000	190,000	120	82	**130**	**200**	**120**	**110**	**110**	**160**	**150**	**190**	**140**	**120**	**130**			**120**
Beryllium & Compounds	160	2,000	13	3.2	0.75 U	0.63 U	0.6 U	0.66 U	0.74 U	0.62 U	0.81 U	0.64 U	0.71 U	0.65 U	0.61 U			0.62 U
Cadmium (Diet)	70	800	NA	NA	0.75 U	**3.6**	0.6 U	0.66 U	0.74 U	**2.4**	0.81 U	**1.2**	0.71 U	0.65 U	**0.72**			0.62 U
Calcium	NA	NA	NA	NA	**4,500**	**12,000**	**10,000**	**6,100**	**5,500**	**9,500**	**6,600**	**8,800**	**6,600**	**5,300**	**5,300**			**5,800**
Chromium (Total)	NA	NA	NA	180,000	**9.1**	**18**	**8.4**	**8.6**	**12**	**11**	**16**	**11**	**12**	**12**	**12**			**12**
Chromium (VI)	0.29	5.6	0.00059	NA														
Cobalt	23	300	0.21	NA	**7.6**	**15**	**13**	**15**	**17**	**14**	**9.9**	**13**	**17**	**15**	**15**			**15**
Copper	3,100	41,000	22	46	**14**	**280**	**15**	**12**	**11**	**62**	**23**	**83**	**16**	**20**	**22**			**18**
Iron	55,000	720,000	270	NA	**26,000**	**45,000**	**37,000**	**47,000**	**55,000**	**43,000**	**29,000**	**39,000**	**46,000**	**34,000**	**38,000**			**38,000**
Lead & Compounds	400	800	NA	14	7.5 U	**220**	**76**	6.6 U	7.4 U	**110**	**9.9**	**4,400**	**9.6**	**26**	**310**			**45**
Magnesium	NA	NA	NA	NA	**2,900**	**4,900**	**5,300**	**4,600**	**3,200**	**4,200**	**3,100**	**4,000**	**3,700**	**2,900**	**2,700**			**2,600**
Manganese (Non-Diet)	1,800	23,000	21	NA	**150**	**500**	**560**	**470**	**410**	**480**	**250**	**460**	**610**	**560**	**600**			**610**
Mercury (Elemental)	10	43	0.033	0.01	0.37 U	**1.5**	0.3 U	0.33 U	0.37 U	0.31 U	0.41 U	0.32 U	0.36 U	0.33 U	0.31 U			0.31 U
Nickel (Soluble Salts)	1,500	20,000	20	NA	**6.3**	**21**	**7.2**	**7.3**	**7.9**	**69**	**8.7**	**11**	**8.4**	**8.9**	**13**			**8.3**
Potassium	NA	NA	NA	NA	**1,200**	**2,900**	**3,800**	**2,700**	**1,100**	**2,800**	**1,600**	**3,000**	**1,700**	**1,900**	**1,700**			**1,100**
Selenium	390	5,100	0.4	0.26	15 U	13 U	12 U	13 U	15 U	12 U	16 U	13 U	14 U	13 U	12 U			12 U
Silver	390	5,100	0.6	NA	0.75 U	0.63 U	0.6 U	0.66 U	0.74 U	0.62 U	0.81 U	0.64 U	0.71 U	0.65 U	0.61 U			0.62 U
Sodium	NA	NA	NA	NA	**1,100**	**770**	**570**	**690**	**1,300**	**630**	**490**	**550**	**470**	**340**	**420**			**350**
Thallium (Soluble Salts)	0.78	10	0.011	0.14	3.7 U	3.2 U	3 U	3.3 U	3.7 U	3.1 U	4.1 U	3.2 U	3.6 U	3.3 U	3.1 U			3.1 U
Vanadium & Compounds	390	5,200	78	NA	**130**	**160**	**150**	**190**	**270**	**160**	**160**	**160**	**200**	**120**	**150**			**150**
Zinc & Compounds	23,000	310,000	290	NA	**43**	**1,200**	**150**	**63**	**95**	**1,200**	**100**	**530**	**78**	**95**	**140**			**88**

Table B-1 Comprehensive Analytical Data for Metals in Soil (Page 3 of 3)

EPA Sample ID / Sample Location / Sample Depth / Sample Collection Event	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	11-06-0027 P212SB04 4' BGS Jun-11	11-06-0028 P213SB04 4' BGS Jun-11	11-06-0029 P214SB04 4' BGS Jun-11	11-06-0030 P214SB08 8' BGS Jun-11	11-06-0031 P215SB04 4' BGS Jun-11	11-06-0032 P215SB08 8' BGS Jun-11	11-06-0033 P215SB12 12' BGS Jun-11	11-06-0034 P216SB04 4' BGS Jun-11	11-06-0035 P216SB08 8' BGS Jun-11	11-06-0036 P216SB12 12' BGS Jun-11	11-06-0037 P217SB04 4' BGS Jun-11	11-06-0038 P217SB08 8' BGS Jun-11	11-06-0039 P218SB04 4' BGS Jun-11	11-06-0040 P218SB08 8' BGS Jun-11
Metals (mg/kg)																		
Aluminum	77,000	990,000	23,000	NA		12,000	12,000	12,000	12,000	11,000	16,000	12,000	12,000	17,000	12,000	13,000	11,000	14,000
Antimony (Metallic)	31	410	0.27	NA		6.6 U	6.6 U	7.1 U	7.4 U	7.6 U	7.5 U	7.8 U	7.4 U	7.4 U	7 U	7 U	7.8 U	6.8 U
Arsenic (Inorganic)	0.39	1.6	0.0013	0.29		13 U	13 U	14 U	15 U	15 U	15 U	16 U	15 U	15 U	14 U	14 U	16 U	14 U
Barium	15,000	190,000	120	82		130	120	110	60	110	120	100	150	110	100	100	70	120
Beryllium & Compounds	160	2,000	13	3.2		0.66 U	0.66 U	0.71 U	0.74 U	0.76 U	0.75 U	0.78 U	0.74 U	0.74 U	0.7 U	0.7 U	0.78 U	0.68 U
Cadmium (Diet)	70	800	NA	NA		0.66 U	0.66 U	0.71 U	0.74 U	0.76 U	0.75 U	0.78 U	0.74 U	0.74 U	0.7 U	0.7 U	0.78 U	0.68 U
Calcium	NA	NA	NA	NA		5,900	7,200	4,100	2,800	1,800	5,600	2,600	3,200	5,600	4,000	4,800	2,400	5,100
Chromium (Total)	NA	NA	NA	180,000		14	9.6	9.9	7.2	4.3	13	10	9.8	12	9.7	13	6.5	13
Chromium (VI)	0.29	5.6	0.00059	NA														
Cobalt	23	300	0.21	NA		17	14	13	4.5	5	20	10	16	21	11	21	2.8	24
Copper	3,100	41,000	22	46		46	14	15	12	9.3	23	18	17	21	17	23	10	22
Iron	55,000	720,000	270	NA		43,000	42,000	36,000	14,000	11,000	61,000	26,000	38,000	55,000	30,000	86,000	11,000	59,000
Lead & Compounds	400	800	NA	14		30	9.8	15	7.4 U	7.6 U	7.5 U	7.8 U	7.4 U	7.4 U	7 U	7 U	7.8 U	6.8 U
Magnesium	NA	NA	NA	NA		3,000	4,200	2,400	2,100	980	4,100	2,600	3,100	3,700	2,900	4,100	1,800	4,200
Manganese (Non-Diet)	1,800	23,000	21	NA		690	510	260	120	89	520	180	420	510	200	760	73	920
Mercury (Elemental)	10	43	0.033	0.01		0.33 U	0.33 U	0.36 U	0.37 U	0.38 U	0.37 U	0.39 U	0.37 U	0.37 U	0.35 U	0.35 U	0.39 U	0.34 U
Nickel (Soluble Salts)	1,500	20,000	20	NA		50	9.2	6.6	6	6.3	9	8.4	7.9	9.2	7.7	9.8	5.2	10
Potassium	NA	NA	NA	NA		1,500	2,600	1,300	1,100	530	1,400	1,300	1,100	1,300	1,200	1,200	1,100	1,900
Selenium	390	5,100	0.4	0.26		13 U	13 U	14 U	15 U	15 U	15 U	16 U	15 U	15 U	14 U	14 U	16 U	14 U
Silver	390	5,100	0.6	NA		0.66 U	0.66 U	0.71 U	0.74 U	0.76 U	0.75 U	0.78 U	0.74 U	0.74 U	0.7 U	0.7 U	0.78 U	0.68 U
Sodium	NA	NA	NA	NA		380	390	360	1,200	760	670	2,500	580	630	950	790	480	570
Thallium (Soluble Salts)	0.78	10	0.011	0.14		3.3 U	3.3 U	3.6 U	3.7 U	3.8 U	3.7 U	3.9 U	3.7 U	3.7 U	3.5 U	3.5 U	3.9 U	3.4 U
Vanadium & Compounds	390	5,200	78	NA		170	160	180	46	31	210	120	140	200	150	290	37	240
Zinc & Compounds	23,000	310,000	290	NA		86	86	110	36	12	93	39	38	94	54	82	25	89

EPA Sample ID / Sample Location / Sample Depth / Sample Collection Event	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	11-06-0041 P218SB12 12' BGS Jun-11	11-06-0042 P219SB04 4' BGS Jun-11	11-06-0043 P219SB08 8' BGS Jun-11	11-06-0044 P219SB12 12' BGS Jun-11	11-06-0047 P220SB04 4' BGS Jun-11	11-06-0048 P221SB04 4' BGS Jun-11	11-06-0049 P221SB08 8' BGS Jun-11	11-06-0050 P222SB04 4' BGS Jun-11	11-06-0051 P222SB08 8' BGS Jun-11	11-06-0057 P223SB04 4' BGS Jun-11	11-06-0059 P224SB04 4' BGS Jun-11	11-06-0060 P225SB04 4' BGS Jun-11	12-04-0001 SW03SS Surface Apr-12	12-04-0002 SW04SS Surface Apr-12
Metals (mg/kg)																		
Aluminum	77,000	990,000	23,000	NA	13,000	21,000	12,000	15,000	16,000	13,000	16,000	13,000	7,100	14,000				
Antimony (Metallic)	31	410	0.27	NA	7 U	7 U	7.3 U	7.9 U	7.6 U	7.1 U	7.8 U	7.7 U	8 U	5.9 U				
Arsenic (Inorganic)	0.39	1.6	0.0013	0.29	14 U	14 U	15 U	16 U	15 U	14 U	16 U	15 U	16 U	12 U			2.25	0.822
Barium	15,000	190,000	120	82	90	100	130	110	130	120	130	68	73	140			332	164
Beryllium & Compounds	160	2,000	13	3.2	0.7 U	0.7 U	0.73 U	0.79 U	0.76 U	0.71 U	0.78 U	0.77 U	0.8 U	0.59 U				
Cadmium (Diet)	70	800	NA	NA	0.7 U	0.7 U	0.73 U	0.79 U	0.76 U	0.71 U	0.78 U	0.77 U	0.8 U	1.3			4.85	2.9
Calcium	NA	NA	NA	NA	5,100	3,100	2,900	5,200	5,600	5,100	4,700	2,900	2,700	7,600				
Chromium (Total)	NA	NA	NA	180,000	10	8.1	7.3	11	11	11	12	4.6	8.4	12			18.8	11.6
Chromium (VI)	0.29	5.6	0.00059	NA											1.1 U	1.3 U		
Cobalt	23	300	0.21	NA	18	9.6	12	23	15	16	13	2.7	10	16				
Copper	3,100	41,000	22	46	20	15	14	21	25	19	21	9	14	24			488 JK	126 JK
Iron	55,000	720,000	270	NA	49,000	23,000	24,000	57,000	36,000	42,000	41,000	9,200	29,000	41,000				
Lead & Compounds	400	800	NA	14	7 U	7 U	7.3 U	7.9 U	31	30	8.6	7.7 U	8 U	210			251	142
Magnesium	NA	NA	NA	NA	3,200	2,600	2,000	3,800	2,400	3,000	2,900	1,400	2,100	3,000				
Manganese (Non-Diet)	1,800	23,000	21	NA	600	240	290	600	440	390	270	53	140	540				
Mercury (Elemental)	10	43	0.033	0.01	0.35 U	0.35 U	0.37 U	0.39 U	0.38 U	0.35 U	0.39 U	0.39 U	0.4 U	0.29 U			0.173 JK	0.244 JK
Nickel (Soluble Salts)	1,500	20,000	20	NA	7.3	6.3	6.1	7.7	9	7.9	6.7	4	5.9	8.7			33.9 JK	12.5 JK
Potassium	NA	NA	NA	NA	1,400	1,400	920	1,300	1,600	1,600	1,400	880	1,100	2,100				
Selenium	390	5,100	0.4	0.26	14 U	14 U	15 U	16 U	15 U	14 U	16 U	15 U	16 U	12 U			3.22	2.94
Silver	390	5,100	0.6	NA	0.7 U	0.7 U	0.73 U	0.79 U	0.76 U	0.71 U	0.78 U	0.77 U	0.8 U	0.59 U			0.572	0.352
Sodium	NA	NA	NA	NA	350	1,700	900	570	250	420	420	1,200	650	360				
Thallium (Soluble Salts)	0.78	10	0.011	0.14	3.5 U	3.5 U	3.7 U	3.9 U	3.8 U	3.5 U	3.9 U	3.9 U	4 U	2.9 U				
Vanadium & Compounds	390	5,200	78	NA	210	100	88	230	170	210	230	27	150	170				
Zinc & Compounds	23,000	310,000	290	NA	89	45	33	87	150	99	70	21	36	630			2,840 JK	551 JK

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Table B-2 Comprehensive Analytical Data for PCBs in Soil (Page 1 of 2)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	09-05-0702	09-05-0703	09-09-0908	09-09-0909	09-09-0912	09-09-0913	09-09-0915	09-09-0916	9090917	9090919	09-09-0920	09-09-0921	09-09-0924	09-09-0925
Sample Location				SS02	SS03	SA07SB04	SA07SB08	SA04SB04	SA04SB08	SA04SS	SA01SB04	SA01SB08	SA01SS	SA03SB04	SA03SB08	SA06SB04	SA06SB08
Sample Depth				Surface	Surface	4' BGS	8' BGS	4' BGS	8' BGS	Surface	4' BGS	8' BGS	Surface	4' BGS	8' BGS	4' BGS	8' BGS
Sample Collection Event				May-09	May-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09
PCBs (µg/kg)																	
Aroclor-1016	3,900	21,000	92	200 UJ	210 UJ	6,700 U	1,400 U	55 U	56 U	510 U	61 U	56 U	52 U	63 U	59 U	64 U	360 U
Aroclor-1221	140	540	0.074	200 UJ	210 U	6,700 U	1,400 U	55 U	56 U	510 U	61 U	56 U	52 U	63 U	59 U	64 U	360 U
Aroclor-1232	140	540	0.074	200 UJ	210 U	6,700 U	1,400 U	55 U	56 U	510 U	61 U	56 U	52 U	63 U	59 U	64 U	360 U
Aroclor-1242	220	740	5.3	200 UJ	210 U	**35,000**	**18,000**	55 U	56 U	**710**	61 U	56 U	**300**	**280**	**420**	**270**	360 U
Aroclor-1248	220	740	5.2	**16,000 J**	**19,000 J**	6,700 U	1,400 U	55 U	56 U	510 U	61 U	56 U	52 U	63 U	59 U	64 U	360 U
Aroclor-1254	220	740	8.8	**5,700 J**	**6,100 J**	6,700 U	1,400 U	55 U	56 U	**4,100**	61 U	56 U	**840**	**780**	**490**	**700**	**2,300**
Aroclor-1260	220	740	24	**2,300 J**	210 U	6,700 U	1,400 U	55 U	56 U	510 U	**110**	56 U	**450**	**740**	**180**	**200 J**	**710**

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	09-09-0927	09-09-0928	09-09-0929	09-09-0932	09-09-0933	09-09-0936	09-09-0937	09-09-0953	09-09-0954	09-09-0956	09-09-0957	09-10-1047	10-03-0001	10-03-0002
Sample Location				SA06SS	SA02SB04	SA02SB08	SA05SB04	SA05SB08	SH01SB04	SH01SB08	SW01SB08	SW01SB04	SW02SS	SW02SB02	TP01	MW04SB07	MW03SB05
Sample Depth				Surface	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	8' BGS	8' BGS	4' BGS	Surface	2' BGS	6' BGS	7' BGS	5' BGS
Sample Collection Event				Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Oct-09	Mar-10	Mar-10
PCBs (µg/kg)																	
Aroclor-1016	3,900	21,000	92	5,200 U	61 U	65 U	66 U	68 U	710 U	78 U	58 U	560 U	78 U	81 U	660 U	68 U	54 U
Aroclor-1221	140	540	0.074	5,200 U	61 U	65 U	66 U	68 U	710 U	78 U	58 U	560 U	78 U	81 U	660 U	68 U	54 U
Aroclor-1232	140	540	0.074	5,200 U	61 U	65 U	66 U	68 U	710 U	78 U	58 U	560 U	78 U	81 U	660 U	68 U	54 U
Aroclor-1242	220	740	5.3	**10,000**	**62**	65 U	**75 J**	**160**	**4,500**	**540**	58 U	560 U	78 U	81 U	**4,000**	68 U	54 U
Aroclor-1248	220	740	5.2	5,200 U	61 U	65 U	66 U	68 U	710 U	78 U	58 U	560 U	78 U	81 U	660 U	68 U	54 U
Aroclor-1254	220	740	8.8	**41,000**	**180**	65 U	**160**	68 U	710 U	78 U	58 U	560 U	78 U	81 U	**2,600**	68 U	54 U
Aroclor-1260	220	740	24	5,200 U	**200**	65 U	**85**	**150**	710 U	78 U	58 U	560 U	**120 J**	81 U	660 U	68 U	54 U

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	10-03-0003	10-03-0004	10-03-0005	10-03-0006	10-03-0007	10-03-0008	10-03-0009	10-03-0010	10-03-0011	11-06-0006	11-06-0007	11-06-0008	11-06-0009	11-06-0010
Sample Location				MW02SB05	MW02SB07	MW01SB03	MW01SB06	MW01SB12	SB01SB05	SB01SB14	SB02SB04	SB02SB06	P201SB04	P201SB08	P201SB12	P202SB04	P202SB08
Sample Depth				5' BGS	7' BGS	3' BGS	6' BGS	12' BGS	5' BGS	14' BGS	4' BGS	6' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS
Sample Collection Event				Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
PCBs (µg/kg)																	
Aroclor-1016	3,900	21,000	92	65 U	93 U	61 U	67 U	77 U	67 U	67 U	72 U	76 U	61 U	70 U	79 U	66 U	73 U
Aroclor-1221	140	540	0.074	65 U	93 U	61 U	67 U	77 U	67 U	67 U	72 U	76 U	61 U	70 U	79 U	66 U	73 U
Aroclor-1232	140	540	0.074	65 U	93 U	61 U	67 U	77 U	67 U	67 U	72 U	76 U	61 U	70 U	79 U	66 U	73 U
Aroclor-1242	220	740	5.3	65 U	93 U	61 U	67 U	77 U	67 U	67 U	**220**	76 U	61 U	70 U	79 U	66 U	73 U
Aroclor-1248	220	740	5.2	65 U	93 U	61 U	67 U	77 U	67 U	67 U	72 U	76 U	61 U	70 U	79 U	66 U	73 U
Aroclor-1254	220	740	8.8	65 U	93 U	61 U	67 U	77 U	67 U	67 U	72 U	76 U	61 U	70 U	79 U	66 U	73 U
Aroclor-1260	220	740	24	65 U	93 U	61 U	67 U	77 U	67 U	67 U	72 U	76 U	61 U	70 U	79 U	66 U	73 U

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	11-06-0011	11-06-0012	11-06-0013	11-06-0014	11-06-0015	11-06-0016	11-06-0017	11-06-0018	11-06-0019	11-06-0022	11-06-0023	11-06-0024	11-06-0025	11-06-0026
Sample Location				P202SB12	P203SB04	P204SB04	P204SB08	P204SB12	P205SB04	P205SB08	P206SB04	P206SB08	P207SB04	P208SB04	P209SB04	P210SB04	P211SB04
Sample Depth				12' BGS	4' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS
Sample Collection Event				Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
PCBs (µg/kg)																	
Aroclor-1016	3,900	21,000	92	75 U	6,200 U	60 U	66 U	74 U	31 U	81 U	64 U	71 U	65 U	61 U	56 U	62 U	62 U
Aroclor-1221	140	540	0.074	75 U	6,300 U	60 U	66 U	74 U	31 U	81 U	64 U	71 U	65 U	61 U	58 U	62 U	62 U
Aroclor-1232	140	540	0.074	75 U	6,300 U	60 U	66 U	74 U	31 U	81 U	64 U	71 U	65 U	61 U	58 U	62 U	62 U
Aroclor-1242	220	740	5.3	75 U	**38,000**	60 U	66 U	74 U	31 U	81 U	64 U	71 U	65 U	61 U	58 U	62 U	62 U
Aroclor-1248	220	740	5.2	75 U	6,300 U	60 U	66 U	74 U	31 U	81 U	64 U	71 U	65 U	61 U	58 U	62 U	62 U
Aroclor-1254	220	740	8.8	75 U	6,300 U	60 U	66 U	74 U	31 U	81 U	64 U	71 U	65 U	61 U	29 U	62 U	62 U
Aroclor-1260	220	740	24	75 U	6,300 U	60 U	66 U	74 U	31 U	81 U	64 U	71 U	65 U	61 U	**96 JK**	62 U	62 U

Table B-2 Comprehensive Analytical Data for PCBs in Soil (Page 2 of 2)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	11-06-0027	11-06-0028	11-06-0029	11-06-0030	11-06-0031	11-06-0032	11-06-0033	11-06-0034	11-06-0035	11-06-0036	11-06-0037	11-06-0038	11-06-0039	11-06-0040
Sample Location				P212SB04	P213SB04	P214SB04	P214SB08	P215SB04	P215SB08	P215SB12	P216SB04	P216SB08	P216SB12	P217SB04	P217SB08	P218SB04	P218SB08
Sample Depth				4' BGS	4' BGS	4' BGS	8' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	4' BGS	8' BGS
Sample Collection Event				Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
PCBs (µg/kg)																	
Aroclor-1016	3,900	21,000	92	61 U	66 U	66 U	71 U	74 U	76 U	75 U	78 U	74 U	74 U	70 U	70 U	78 U	68 U
Aroclor-1221	140	540	0.074	61 U	66 U	66 U	71 U	74 U	76 U	75 U	78 U	74 U	74 U	70 U	70 U	78 U	68 U
Aroclor-1232	140	540	0.074	61 U	66 U	66 U	71 U	74 U	76 U	75 U	78 U	74 U	74 U	70 U	70 U	78 U	68 U
Aroclor-1242	220	740	5.3	61 U	66 U	**120**	**85 JK**	74 U	76 U	75 U	78 U	**74**	**99**	70 U	70 U	78 U	68 U
Aroclor-1248	220	740	5.2	61 U	66 U	66 U	71 U	74 U	76 U	75 U	78 U	74 U	74 U	70 U	70 U	78 U	68 U
Aroclor-1254	220	740	8.8	61 U	66 U	**180**	71 U	74 U	76 U	75 U	78 U	74 U	74 U	70 U	70 U	78 U	68 U
Aroclor-1260	220	740	24	61 U	66 U	0.066 U	71 U	74 U	76 U	75 U	78 U	74 U	74 U	70 U	70 U	78 U	68 U

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	11-06-0041	11-06-0042	11-06-0043	11-06-0044	11-06-0047	11-06-0048	11-06-0049	11-06-0050	11-06-0051	11-06-0057	11-06-0059	11-06-0060	12-04-0001	12-04-0002
Sample Location				P218SB12	P219SB04	P219SB08	P219SB12	P220SB04	P221SB04	P221SB08	P222SB04	P222SB08	P223SB04	P224SB04	P225SB04	SW03SS	SW04SS
Sample Depth				12' BGS	4' BGS	8' BGS	12' BGS	4' BGS	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	4' BGS	4' BGS	Surface	Surface
Sample Collection Event				Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Apr-12	Apr-12
PCBs (µg/kg)																	
Aroclor-1016	3,900	21,000	92	70 U	70 U	73 U	79 U	76 U	71 U	78 U	78 U	80 U	59 U			4.46 U	4.21 U
Aroclor-1221	140	540	0.074	70 U	70 U	73 U	79 U	76 U	71 U	78 U	78 U	80 U	59 U			4.46 U	4.21 U
Aroclor-1232	140	540	0.074	70 U	70 U	73 U	79 U	76 U	71 U	78 U	78 U	80 U	59 U			4.46 U	4.21 U
Aroclor-1242	220	740	5.3	70 U	70 U	73 U	79 U	76 U	**290**	**1,500**	78 U	80 U	59 U			4.46 U	4.21 U
Aroclor-1248	220	740	5.2	70 U	70 U	73 U	79 U	76 U	71 U	78 U	78 U	80 U	59 U			**127**	**70.2**
Aroclor-1254	220	740	8.8	70 U	70 U	73 U	79 U	76 U	**140 JK**	**210**	78 U	80 U	59 U			**152**	**112**
Aroclor-1260	220	740	24	70 U	70 U	73 U	79 U	**1,100 JK**	71 U	78 U	78 U	80 U	59 U			**151**	**121 JK**

Table B-3 Comprehensive Analytical Data for TPH in Soil (Page 1 of 1)

EPA Sample ID	MTCA - Unrestricted Soil	MTCA - Industrial Soil	09-05-0702	09-05-0703	09-09-0908	09-09-0909	09-09-0912	09-09-0913	09-09-0915	09-09-0916	9090917	9090919	09-09-0920	09-09-0921	09-09-0924	09-09-0925
Sample Location			SS02	SS03	SA07SB04	SA07SB08	SA04SB04	SA04SB08	SA04SS	SA01SB04	SA01SB08	SA01SS	SA03SB04	SA03SB08	SA06SB04	SA06SB08
Sample Depth			Surface	Surface	4' BGS	8' BGS	4' BGS	8' BGS	Surface	4' BGS	8' BGS	Surface	4' BGS	8' BGS	4' BGS	8' BGS
Sample Collection Event			May-09	May-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09
TPH (mg/kg)																
Diesel Range Organics	2,000	2,000	20,000 J	43,000 J			28 U	28 U	93 U	31 U	28 U				130 U	570 U
Oil Range Organics	2,000	2,000	110,000 J	99,000 J			55 U	56 U	**700**	**91**	**62**				**1,400**	3,400

EPA Sample ID	MTCA - Unrestricted Soil	MTCA - Industrial Soil	09-09-0927	09-09-0928	09-09-0929	09-09-0932	09-09-0933	09-09-0936	09-09-0937	09-09-0953	09-09-0954	09-09-0956	09-09-0957	09-10-1047	10-03-0001	10-03-0002
Sample Location			SA06SS	SA02SB04	SA02SB08	SA05SB04	SA05SB08	SH01SB04	SH01SB08	SW01SB08	SW01SB04	SW02SS	SW02SB02	TP01	MW04SB07	MW03SB05
Sample Depth			Surface	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	8' BGS	8' BGS	4' BGS	Surface	2' BGS	6' BGS	7' BGS	5' BGS
Sample Collection Event			Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Oct-09	Mar-10	Mar-10
TPH (mg/kg)																
Diesel Range Organics	2,000	2,000	11,000 U			2,200 U	2,200 U	27,000	2,600	29 U	**33**	39 U	40 U	12,000 J		
Oil Range Organics	2,000	2,000	100,000			35,000	29,000	46,000	4,400	58 U	**140**	**210**	**110**	18,000 J		

EPA Sample ID	MTCA - Unrestricted Soil	MTCA - Industrial Soil	10-03-0003	10-03-0004	10-03-0005	10-03-0006	10-03-0007	10-03-0008	10-03-0009	10-03-0010	10-03-0011	11-06-0006	11-06-0007	11-06-0008	11-06-0009	11-06-0010
Sample Location			MW02SB05	MW02SB07	MW01SB03	MW01SB06	MW01SB12	SB01SB05	SB01SB14	SB02SB04	SB02SB06	P201SB04	P201SB08	P201SB12	P202SB04	P202SB08
Sample Depth			5' BGS	7' BGS	3' BGS	6' BGS	12' BGS	5' BGS	14' BGS	4' BGS	6' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS
Sample Collection Event			Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
TPH (mg/kg)																
Diesel Range Organics	2,000	2,000										30 U	35 U	40 U	33 U	37 U
Oil Range Organics	2,000	2,000										61 U	70 U	79 U	**100**	73 U

EPA Sample ID	MTCA - Unrestricted Soil	MTCA - Industrial Soil	11-06-0011	11-06-0012	11-06-0013	11-06-0014	11-06-0015	11-06-0016	11-06-0017	11-06-0018	11-06-0019	11-06-0022	11-06-0023	11-06-0024	11-06-0025	11-06-0026
Sample Location			P202SB12	P203SB04	P204SB04	P204SB08	P204SB12	P205SB04	P205SB08	P206SB04	P206SB08	P207SB04	P208SB04	P209SB04	P210SB04	P211SB04
Sample Depth			12' BGS	4' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS
Sample Collection Event			Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
TPH (mg/kg)																
Diesel Range Organics	2,000	2,000	37 U	**1,200**	30 U	33 U	37 U	**34**	41 U	32 U	36 U	33 U	31 U			31 U
Oil Range Organics	2,000	2,000	75 U	3,200	60 U	66 U	74 U	62 U	81 U	64 U	71 U	65 U	61 U			62 U

EPA Sample ID	MTCA - Unrestricted Soil	MTCA - Industrial Soil	11-06-0027	11-06-0028	11-06-0029	11-06-0030	11-06-0031	11-06-0032	11-06-0033	11-06-0034	11-06-0035	11-06-0036	11-06-0037	11-06-0038	11-06-0039	11-06-0040
Sample Location			P212SB04	P213SB04	P214SB04	P214SB08	P215SB04	P215SB08	P215SB12	P216SB04	P216SB08	P216SB12	P217SB04	P217SB08	P218SB04	P218SB08
Sample Depth			4' BGS	4' BGS	4' BGS	8' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	4' BGS	8' BGS
Sample Collection Event			Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
TPH (mg/kg)																
Diesel Range Organics	2,000	2,000		33 U	**86**	**74**	37 U	**310**	**240**	39 U	**370**	**590**	35 U	35 U	39 U	34 U
Oil Range Organics	2,000	2,000		66 U	**180**	**180**	74 U	**640**	**460**	78 U	**710**	**1,100**	70 U	70 U	78 U	68 U

EPA Sample ID	MTCA - Unrestricted Soil	MTCA - Industrial Soil	11-06-0041	11-06-0042	11-06-0043	11-06-0044	11-06-0047	11-06-0048	11-06-0049	11-06-0050	11-06-0051	11-06-0057	11-06-0059	11-06-0060	12-04-0001	12-04-0002
Sample Location			P218SB12	P219SB04	P219SB08	P219SB12	P220SB04	P221SB04	P221SB08	P222SB04	P222SB08	P223SB04	P224SB04	P225SB04	SW03SS	SW04SS
Sample Depth			12' BGS	4' BGS	8' BGS	12' BGS	4' BGS	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	4' BGS	4' BGS	Surface	Surface
Sample Collection Event			Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Apr-12	Apr-12
TPH (mg/kg)																
Diesel Range Organics	2,000	2,000	35 U	35 U	37 U	40 U	9,600	**1,300**	5,800	39 U	40 U	**120**				
Oil Range Organics	2,000	2,000	70 U	70 U	73 U	79 U	1,800 U	3,200	12,000	78 U	80 U	**160**				

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Table B-4 Comprehensive Analytical Data for SVOCs in Soil (Page 1 of 4)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundater Risk-Based SSL	EPA RSL - Soil to Groundater MCL-Based SSL	09-05-0702	09-05-0703	09-09-0908	09-09-0909	09-09-0912	09-09-0913	09-09-0915	09-09-0916	9090917	9090919	09-09-0920	09-09-0921	09-09-0924	09-09-0925	09-09-0927	09-09-0928	09-09-0929	09-09-0932	09-09-0933	09-09-0936	09-09-0937
Sample Location					SS02	SS03	SA07SB04	SA07SB08	SA04SB04	SA04SB08	SA04SS	SA01SB04	SA01SB08	SA01SS	SA03SB04	SA03SB08	SA06SB04	SA06SB08	SA06SS	SA02SB04	SA02SB08	SA05SB04	SA05SB08	SH01SB04	SH01SB08
Sample Depth					Surface	Surface	4' BGS	8' BGS	4' BGS	8' BGS	Surface	4' BGS	8' BGS	Surface	4' BGS	8' BGS	4' BGS	8' BGS	Surface	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	8' BGS
Sample Collection Event					May-09	May-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09
SVOCs (mg/kg)																									
1,2,4-Trichlorobenzene	22	99	0.0029	0.2	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
1,2-Dichlorobenzene	1,900	9,800	0.27	0.58	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
1,2-Dinitrobenzene	6.1	62	0.0014	NA			0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
1,2-Diphenylhydrazine	0.61	2.2	0.00022	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
1,3-Dichlorobenzene	NA	NA	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
1,3-Dinitrobenzene	6.1	62	0.0014	NA			0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
1,4-Dichlorobenzene	2.4	12	0.0004	0.072	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		0.042 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
1,4-Dinitrobenzene	6.1	62	0.0014	NA			0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
1-Methylnaphthalene	22	99	0.0051	NA			**0.12**	**0.04**	0.0073 U	0.0074 U	**0.0086**	0.0081 U	0.0075 U		0.042 U	**0.012**	**0.014**	**0.37**	**0.74**	0.0081 U	0.0087 U	**0.067**	**0.048**	**2**	**0.31**
2,3,4,6-Tetrachlorophenol	1,800	18,000	1.1	NA			0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
2,3,5,6-Tetrachlorophenol	NA	NA	NA	NA			0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
2,3-Dichloroaniline	NA	NA	NA	NA			0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
2,4,5-Trichlorophenol	6,100	62,000	3.3	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
2,4,6-Trichlorophenol	44	160	0.013	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
2,4-Dichlorophenol	180	1,800	0.041	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
2,4-Dimethylphenol	1,200	12,000	0.32	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
2,4-Dinitrophenol	120	1,200	0.034	NA	**6.2 J**	6.0 U																			
2,4-Dinitrotoluene	1.6	5.5	0.00028	NA	3.1 UJ	3.0 U																			
2,6-Dinitrotoluene	61	620	0.02	NA	3.1 UJ	3.0 U																			
2-Chloronaphthalene	6,300	82,000	2.9	NA	3.1 UJ	3.0 U																			
2-Chlorophenol	390	5,100	0.057	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
2-Methylnaphthalene	310	4,100	0.14	NA	3.1 UJ	3.0 U	**0.17**	**0.053**	0.0073 U	0.0074 U	**0.013**	**0.011**	0.0075 U		0.042 U	**0.014**	**0.016**	**0.49**	**0.89**	0.0081 U	0.0087 U	**0.018**	**0.067**	**2.2**	**0.38**
2-Methylphenol	3,100	31,000	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
2-Nitroaniline	610	6000	0.062	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
2-Nitrophenol	NA	NA	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
3 & 4-Methylphenol	3,100	31,000	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	**0.071**	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
3,3'-Dichlorobenzidine	1.1	3.8	0.00071	NA	3.1 UJ	3.0 U	4.4 U	2.2 U	0.37 U	0.37 U	1.7 U	0.41 U	0.37 U		2.1 U	0.39 U	4.3 U	48 U	34 UJ	2 U	2.2 U	2.2 U	4.5 U	48 U	2.6 U
3-Nitroaniline	NA	NA	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
4,6-Dinitro-2-methylphenol	4.9	49	NA	NA	3.1 UJ	3.0 U	2.2 U	1.1 U	0.18 U	0.19 U	0.85 UJ	0.2 U	0.19 U		2.1 UJ	0.2 UJ	2.1 UJ	24 UJ	17 UJ	1 UJ	1.1 UJ	1.1 UJ	2.3 UJ	24 UJ	1.3 UJ
4-Bromophenyl-phenyl ether	NA	NA	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
4-Chloro-3-methylphenol	6,100	62,000	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
4-Chloroaniline	2.4	8.6	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
4-Chlorophenyl-phenylether	NA	NA	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
4-Nitroaniline	24	86	0.0014	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
4-Nitrophenol	NA	NA	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
Acenaphthene	3,400	33,000	4.1	NA	**1.6 J**	3.0 U	**2**	**1**	0.0073 U	0.0074 U	**0.019**	0.0081 U	0.0075 U		**0.049**	**0.26**	**0.56**	**7.3**	**18**	0.0081 U	0.0087 U	**0.029**	**0.023**	**0.37**	**0.029**
Acenaphthylene	NA	NA	NA	NA	3.1 UJ	3.0 U	**0.05**	**0.018**	**0.013**	0.0074 U	**0.04**	**0.01**	0.0075 U		2.1 U	0.0078 U	**0.16**	0.19 U	**0.37**	**0.019**	**0.03**	0.0088 U	0.018 U	0.19 U	0.01 U
Aniline	85	300	0.0039	NA			0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Anthracene	17,000	170,000	42	NA	**3.0 J**	**2.0 J**	**5.7**	**3.6**	**0.018**	0.0074 U	**0.099**	**0.02**	0.0075 U		**0.22**	**0.85**	**2.2**	**18**	**53**	**0.066**	**0.03**	**0.034**	**0.03**	0.19 U	0.01 U
Benzidine	0.0005	0.0075	0.00000024	NA			4.4 U	2.2 U	0.37 U	0.37 U	1.7 UJ	0.41 U	0.37 U		2.1 UJ	0.39 UJ	4.3 UJ	48 UJ	34 UJ	2 UJ	2.2 UJ	2.2 U	4.5 UJ	48 UJ	2.6 UJ
Benzo(a)anthracene	0.15	2.1	0.01	NA	**7.1 J**	**10.0**	**17**	**8**	**0.12**	0.0074 U	**0.64**	**0.13**	**0.048**		**0.55**	**1.9**	**5.3**	**33**	**130**	**0.37**	**0.37**	**0.0144**	**0.071**	0.19 U	0.01 U
Benzo(a)pyrene	0.015	0.21	0.0035	0.24	**3.9 J**	**8.1**	**12**	**5.3**	**0.13**	0.0074 U	**0.74**	**0.14**	**0.05**		**0.43**	**1.3**	**3.5**	**22**	**84**	**0.41**	**0.35**	**0.12**	**0.2**	0.19 U	0.01 U
Benzo(b)fluoranthene	0.15	2.1	0.035	NA	**4.7 J**	**10.0**	**13**	**6.5**	**0.089**	0.0074 U	**0.85**	**0.11**	**0.044**		**0.64**	**1.4**	**3.7**	**20**	**90**	**0.32**	**0.22**	**0.11**	**0.14**	**0.19**	0.01 U
Benzo(g,h,i)perylene	NA	NA	NA	NA	**2.1 J**	**5.7**	**5.1**	**2.1**	**0.061**	0.0074 U	**0.62**	**0.099**	**0.024**		**0.26**	**0.44**	**1.9**	**11**	**53**	**0.34**	**0.13**	**0.071**	0.018 U	0.19 U	0.01 U
Benzo(k)fluoranthene	1.5	21	0.35	NA	**4.7 J**	**9.4**	**9.1**	**3.6**	**0.12**	0.0074 U	**0.77**	**0.13**	**0.045**		**0.19**	**1**	**2.9**	**21**	**66**	**0.32**	**0.3**	**0.032**	**0.2**	0.19 U	0.01 U
Benzyl alcohol	6,100	62,000	0.37	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
Bis(2-chloroethoxy)methane	180	1,800	0.011	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Bis(2-Chloroethyl)ether	0.21	1	0.0000031	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Bis(2-chloroisopropyl)ether	4.6	22	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Bis(2-ethylhexyl)phthalate	35	120	0.017	1.4	**3.8 J**	**17.0**	**6.1**	**3.5**	0.037 U	0.037 U	**0.56**	**0.07**	**0.076**		2.1 U	**0.28**	0.43 U	4.8 U	**11**	0.2 U	0.22 U	**0.59**	0.45 U	**5.2**	**0.42**
Bis-2-ethylhexyladipate	410	1,400	NA	NA			0.44 U	0.22 U	0.037 U	0.037 U	**0.17**	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 UJ	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Butylbenzylphthalate	260	910	0.2	NA	3.1 UJ	3.0 U	**3.3**	**0.48**	0.037 U	0.037 U	**0.87**	**0.079**	0.037 U		0.042 U	**0.18**	0.43 U	4.8 U	3.4 UJ	**0.49**	0.22 U	0.22 U	0.45 U	**9**	**1.4**
Carbazole	NA	NA	NA	NA	**3.1 J**	3.0 U	**3.1**	**2.2**	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		0.042 U	**0.5**	0.43 U	**12**	**23**	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Chrysene	15	210	1.1	NA	**8.4 J**	**14.0**	**18**	**8.3**	**0.13**	0.0074 U	**0.9**	**0.13**	**0.054**		**0.62**	**2**	**5.2**	**34**	**130**	**0.4**	**0.36**	**0.0432**	**0.26**	0.19 U	**0.011**
Dibenzo(a,h)anthracene	0.015	0.21	0.011	NA	2.1 UJ	**1.3 J**	**1.8**	**0.78**	**0.018**	0.0074 U	**0.19**	**0.021**	0.0075 U		**0.091**	**0.15**	**0.7**	**2.9**	**18**	**0.058**	**0.05**	0.0088 U	0.018 U	0.19 U	0.01 U
Dibenzofuran	78	1,000	0.11	NA	3.1 UJ	3.0 U	**1.1**	**0.38**	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	**0.11**	0.43 U	4.8 U	**7.8**	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Diethylphthalate	49,000	490,000	4.7	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Dimethylphthalate	NA	NA	NA	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		21 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Di-n-butylphthalate	6,100	62,000	NA	NA	3.1 UJ	3.0 U																			
Di-n-octylphthalate	NA	NA	NA	NA	3.1 UJ	3.0 U																			
Fluoranthene	2,300	22,000	70	NA	**25.0 J**	**25.0**																			
Fluorene	2,300	22,000	4.0	NA	**1.7 J**	3.0 U																			
Hexachlorobenzene	0.3	1.1	0.00053	0.013	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Hexachlorobutadiene	6.2	22	0.0005	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Hexachlorocyclopentadiene	370	3,700	0.07	0.16			0.44 U	0.22 U	0.037 U	0.037 U	0.17 UJ	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 UJ	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Hexachloroethane	35	120	0.00048	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Indeno(1,2,3-cd)pyrene	0.15	2.1	0.12	NA	**2.4 J**	**7.1**	**5**	**2.2**	**0.058**	0.0074 U	**0.54**	**0.086**	**0.02**		**0.22**	**0.47**	**1.9**	**11**	**52**	**0.26**	**0.13**	0.0088 U	0.018 U	0.19 U	0.01 U
Isophorone	510	1,800	0.022	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
Naphthalene	3.6	18	0.00047	NA	3.1 UJ	3.0 U	**0.78**	**0.086**	0.0073 U	0.0074 U	**0.015**	**0.0081**	0.0075 U		2.1 U	**0.023**	**0.016**	**1.4**	**2.2**	0.0081 U	0.0087 U	**0.018**	**0.027**	**0.43**	**0.041**
Nitrobenzene	4.8	24	0.000079	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
N-Nitrosodimethylamine	0.0023	0.034	0.0000001	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
N-Nitroso-di-n-propylamine	0.069	0.25	0.000007	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U
N-Nitrosodiphenylamine	99	350	0.057	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	**0.31**
Pentachlorophenol	0.89	2.7	0.0017	0.01	3.1 UJ	3.0 U	2.2 U	1.1 U	0.18 U	0.19 U	0.85 U	0.2 U	0.19 U		2.1 U	0.2 U	2.1 U	24 U	17 U	1 U	1.1 U	1.1 UJ	2.3 U	24 U	1.3 U
Phenanthrene	NA	NA	NA	NA	**13.0 J**	**6.5**	**19**	**11**	**0.04**	0.0074 U	**0.52**	**0.073**	**0.016**		**0.66**	**3.1**	**5.7**	**59**	**130**	**0.14**	**0.058**	**0.22**	**0.14**	**0.97**	**0.14**
Phenol	18,000	180,000	2.6	NA	3.1 UJ	3.0 U	0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 UJ	0.45 U	4.8 U	0.26 U
Pyrene	1,700	17,000	9.5	NA	**22.0 J**	3.0 U	**39**	**18**	**0.17**	0.0074 U	**1.1**	**0.22**	**0.084**		**1**	**4.2**	**10**	**67**	**340**	**0.69**	**0.5**	**0.22**	**0.63**	**0.46**	**0.032**
Pyridine	78	1,000	0.0053	NA			0.44 U	0.22 U	0.037 U	0.037 U	0.17 U	0.041 U	0.037 U		2.1 U	0.039 U	0.43 U	4.8 U	3.4 U	0.2 U	0.22 U	0.22 U	0.45 U	4.8 U	0.26 U

Table B-4 Comprehensive Analytical Data for SVOCs in Soil (Page 2 of 4)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundater Risk-Based SSL	EPA RSL - Soil to Groundater MCL-Based SSL	09-09-0953	09-09-0954	09-09-0956	09-09-0957	09-10-1047	10-03-0001	10-03-0002	10-03-0003	10-03-0004	10-03-0005	10-03-0006	10-03-0007	10-03-0008	10-03-0009	10-03-0010	10-03-0011	11-06-0006	11-06-0007	11-06-0008	11-06-0009	11-06-0010
Sample Location					SW01SB08	SW01SB04	SW02SS	SW02SB02	TP01	MW04SB07	MW03SB05	MW02SB05	MW02SB07	MW01SB03	MW01SB06	MW01SB12	SB01SB05	SB01SB14	SB02SB04	SB02SB06	P201SB04	P201SB08	P201SB12	P202SB04	P202SB08
Sample Depth					8' BGS	4' BGS	Surface	2' BGS	6' BGS	7' BGS	5' BGS	5' BGS	7' BGS	3' BGS	6' BGS	12' BGS	5' BGS	14' BGS	4' BGS	6' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS
Sample Collection Event					Sep-09	Sep-09	Sep-09	Sep-09	Oct-09	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Mar-10	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
SVOCs (mg/kg)																									
1,2,4-Trichlorobenzene	22	99	0.0029	0.2	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
1,2-Dichlorobenzene	1,900	9,800	0.27	0.58	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
1,2-Dinitrobenzene	6.1	62	0.0014	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
1,2-Diphenylhydrazine	0.61	2.2	0.00022	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
1,3-Dichlorobenzene	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
1,3-Dinitrobenzene	6.1	62	0.0014	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
1,4-Dichlorobenzene	2.4	12	0.0004	0.072	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
1,4-Dinitrobenzene	6.1	62	0.0014	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
1-Methylnaphthalene	22	99	0.0051	NA	0.0078 U	0.0074 U	0.01 U	0.011 U	**0.066 J**	0.0091 U	0.01 U	0.0087 U	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	**0.070**	**0.013**	0.0081 U	0.0093 U	0.011 U	**0.025**	0.0097 U
2,3,4,6-Tetrachlorophenol	1,800	18,000	1.1	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2,3,5,6-Tetrachlorophenol	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2,3-Dichloroaniline	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2,4,5-Trichlorophenol	6,100	62,000	3.3	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2,4,6-Trichlorophenol	44	160	0.013	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2,4-Dichlorophenol	180	1,800	0.041	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2,4-Dimethylphenol	1,200	12,000	0.32	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.4 U	0.46 U	0.53 U	0.44 U	0.49 U
2,4-Dinitrophenol	120	1,200	0.034	NA					11 UJ	0.23 U	0.18 UJ	0.22 UJ	0.31 UJ	0.2 UJ	0.22 UJ	0.26 UJ	0.22 UJ	0.22 UJ	0.24 UJ	0.25 UJ	0.2 UJL	0.23 UJL	0.26 UJL	0.22 UJL	0.24 UJL
2,4-Dinitrotoluene	1.6	5.5	0.00028	NA					2.2 UJ	0.046 UJ	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2,6-Dinitrotoluene	61	620	0.02	NA					2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2-Chloronaphthalene	6,300	82,000	2.9	NA					2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2-Chlorophenol	390	5,100	0.057	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2-Methylnaphthalene	310	4,100	0.14	NA	0.0078 U	**0.0095**	0.01 U	0.011 U	**0.097 J**	0.0091 U	0.0072 U	0.0087 U	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	**0.097**	0.01 U	0.0081 U	0.0093 U	0.011 U	**0.053**	0.0097 U
2-Methylphenol	3,100	31,000	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2-Nitroaniline	610	6000	0.062	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
2-Nitrophenol	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
3 & 4-Methylphenol	3,100	31,000	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
3,3'-Dichlorobenzidine	1.1	3.8	0.00071	NA	0.39 U	1.9 U	0.52 U	0.54 U	22 UJ	0.46 U	0.36 U	0.43 U	0.62 U	0.41 U	0.44 U	0.51 U	0.44 U	0.44 U	0.48 U	0.51 U	0.4 U	0.46 U	0.53 U	0.44 U	0.49 U
3-Nitroaniline	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
4,6-Dinitro-2-methylphenol	4.9	49	NA	NA	0.19 U	0.93 U	0.26 U	0.27 U	11 UJ	0.23 U	0.18 U	0.22 U	0.31 U	0.2 U	0.22 U	0.26 U	0.22 U	0.22 U	0.24 U	0.25 U	0.2 U	0.23 U	0.26 U	0.22 U	0.24 U
4-Bromophenyl-phenyl ether	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
4-Chloro-3-methylphenol	6,100	62,000	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
4-Chloroaniline	2.4	8.6	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
4-Chlorophenyl-phenylether	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
4-Nitroaniline	24	86	0.0014	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
4-Nitrophenol	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Acenaphthene	3,400	33,000	4.1	NA	0.0078 U	**0.0093**	0.01 U	0.011 U	**0.18 J**	0.0091 U	0.0072 U	0.0087 U	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	**0.016**	0.01 U	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Acenaphthylene	NA	NA	NA	NA	**0.011**	**0.11**	0.01 U	**0.013**	**0.061 J**	0.0091 U	0.0072 U	**0.011**	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Aniline	85	300	0.0039	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Anthracene	17,000	170,000	42	NA	**0.048**	**0.94**	**0.01**	**0.029**	**0.53 J**	0.0091 U	0.0072 U	**0.023**	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Benzidine	0.0005	0.0075	0.00000024	NA	0.39 U	1.9 U	0.52 U	0.54 U	22 UJ	0.46 U	0.36 U	0.43 U	0.62 U	0.41 U	0.44 U	0.51 U	0.44 U	0.44 U	0.48 U	0.51 U	0.4 U	0.46 U	0.53 U	0.44 U	0.49 U
Benzo(a)anthracene	0.15	2.1	0.01	NA	**0.24**	**2.5**	**0.077**	**0.13**	**2.5 J**	0.0091 U	**0.0072**	**0.093**	**0.015**	**0.0097**	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	**0.013**	0.0097 U
Benzo(a)pyrene	0.015	0.21	0.0035	0.24	**0.26**	**2.8**	**0.088**	**0.17**	**1.2 J**	0.0091 U	0.0072 U	**0.094**	**0.016**	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	**0.01**	0.0097 U
Benzo(b)fluoranthene	0.15	2.1	0.035	NA	**0.15**	**1.7**	**0.067**	**0.12**	**2.6 J**	0.0091 U	0.0072 U	**0.055**	0.012 U	**0.0098**	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Benzo(g,h,i)perylene	NA	NA	NA	NA	**0.12**	**1.2**	**0.063**	**0.12**	**0.57 J**	0.0091 U	0.0072 U	**0.051**	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Benzo(k)fluoranthene	1.5	21	0.35	NA	**0.23**	**2.4**	**0.072**	**0.11**	**0.86 J**	0.0091 U	0.0072 U	**0.071**	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Benzyl alcohol	6,100	62,000	0.37	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Bis(2-chloroethoxy)methane	180	1,800	0.011	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Bis(2-Chloroethyl)ether	0.21	1	0.0000031	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Bis(2-chloroisopropyl)ether	4.6	22	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Bis(2-ethylhexyl)phthalate	35	120	0.017	1.4	0.039 U	0.19 U	**0.33**	0.054 U	**12 J**	0.046 U	**2.5**	0.043 U	0.062 U	**0.14**	**0.11**	0.051 U	0.044 U	**0.047**	**0.32**	**0.15**	**0.054**	0.046 U	0.053 U	0.044 U	0.049 U
bis-2-Ethylhexyladipate	410	1,400	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Butylbenzylphthalate	260	910	0.2	NA	0.039 U	0.19 U	0.052 U	0.054 U	**3.6 J**	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	**1.4 J**	**0.72 J**	0.4 U	0.46 U	0.53 U	0.44 U	0.49 U
Carbazole	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Chrysene	15	210	1.1	NA	**0.25**	**2.6**	**0.082**	**0.14**	**2.8 J**	0.0091 U	**0.0075**	**0.090**	**0.015**	**0.012**	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	**0.014**	0.0097 U
Dibenzo(a,h)anthracene	0.015	0.21	0.011	NA	**0.037**	**0.29**	**0.013**	**0.022**	**0.18 J**	0.0091 U	0.0072 U	**0.015**	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Dibenzofuran	78	1,000	0.11	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Diethylphthalate	49,000	490,000	4.7	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.2 U	0.23 U	0.26 U	0.22 U	0.24 U
Dimethylphthalate	NA	NA	NA	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Di-n-butylphthalate	6,100	62,000	NA	NA					2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.4 U	0.46 U	0.53 U	0.44 U	0.49 U
Di-n-octylphthalate	NA	NA	NA	NA					2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Fluoranthene	2,300	22,000	70	NA					**7.8 J**	0.0091 U	**0.010**	**0.15**	**0.013**	**0.016**	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	**0.021**	0.0097 U
Fluorene	2,300	22,000	4.0	NA					**0.13 J**	0.0091 U	0.0072 U	0.0087 U	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	**0.017**	**0.013**	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Hexachlorobenzene	0.3	1.1	0.00053	0.013	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Hexachlorobutadiene	6.2	22	0.0005	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Hexachlorocyclopentadiene	370	3,700	0.07	0.16	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 UJ	0.036 UJ	0.043 UJ	0.062 UJ	0.041 UJ	0.044 UJ	0.051 UJ	0.044 UJ	0.044 UJ	0.048 UJ	0.051 UJ	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Hexachloroethane	35	120	0.00048	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Indeno(1,2,3-cd)pyrene	0.15	2.1	0.12	NA	**0.11**	**1.1**	**0.054**	**0.1**	**0.51 J**	0.0091 U	0.0072 U	**0.048**	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	0.0089 U	0.0097 U
Isophorone	510	1,800	0.022	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Naphthalene	3.6	18	0.00047	NA	0.0078 U	**0.036**	0.01 U	0.011 U	**0.053 J**	0.0091 U	0.0072 U	0.0087 U	0.012 U	0.0081 U	0.0089 U	0.01 U	0.0089 U	0.0089 U	**0.012**	0.01 U	0.0081 U	0.0093 U	0.011 U	**0.029**	0.0097 U
Nitrobenzene	4.8	24	0.000079	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
N-Nitrosodimethylamine	0.0023	0.034	0.0000001	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
N-Nitroso-di-n-propylamine	0.069	0.25	0.000007	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
N-Nitrosodiphenylamine	99	350	0.057	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	**0.070**	**0.054**	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Pentachlorophenol	0.89	2.7	0.0017	0.01	0.19 U	0.93 U	0.26 U	0.27 U	11 UJ	0.23 U	0.18 U	0.22 U	0.31 U	0.2 U	0.22 U	0.26 U	0.22 U	0.22 U	0.24 U	0.25 U	0.2 U	0.23 U	0.26 U	0.22 U	0.24 U
Phenanthrene	NA	NA	NA	NA	**0.091**	**0.82**	**0.029**	**0.035**	**0.96 J**	0.0091 U	0.0072 U	**0.055**	0.012 U	**0.011**	0.0089 U	0.01 U	0.0089 U	0.0089 U	**0.061**	**0.034**	0.0081 U	0.0093 U	0.011 U	**0.013**	0.0097 U
Phenol	18,000	180,000	2.6	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.046 U	0.036 U	0.043 U	0.062 U	0.041 U	0.044 U	0.051 U	0.044 U	0.044 U	0.048 U	0.051 U	0.04 U	0.046 U	0.053 U	0.044 U	0.049 U
Pyrene	1,700	17,000	9.5	NA	**0.34**	**5.6**	**0.12**	**0.12**	**7.6 J**	0.0091 U	**0.013**	**0.16**	**0.017**	**0.018**	0.0089 U	0.01 U	0.0089 U	0.0089 U	0.0097 U	0.01 U	0.0081 U	0.0093 U	0.011 U	**0.021**	0.0097 U
Pyridine	78	1,000	0.0053	NA	0.039 U	0.19 U	0.052 U	0.054 U	2.2 UJ	0.46 U	0.36 U	0.43 U	0.62 U	0.41 U	0.44 U	0.51 U	0.44 U	0.44 U	0.48 U	0.51 U	0.4 U	0.46 U	0.53 U	0.44 U	0.49 U

Table B-4 Comprehensive Analytical Data for SVOCs in Soil (Page 3 of 4)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundater Risk-Based SSL	EPA RSL - Soil to Groundater MCL-Based SSL	11-06-0011	11-06-0012	11-06-0013	11-06-0014	11-06-0015	11-06-0016	11-06-0017	11-06-0018	11-06-0019	11-06-0022	11-06-0023	11-06-0024	11-06-0025	11-06-0026	11-06-0027	11-06-0028	11-06-0029	11-06-0030	11-06-0031	11-06-0032	11-06-0033
Sample Location					P202SB12	P203SB04	P204SB04	P204SB08	P204SB12	P205SB04	P205SB08	P206SB04	P206SB08	P207SB04	P208SB04	P209SB04	P210SB04	P211SB04	P212SB04	P213SB04	P214SB04	P214SB08	P215SB04	P215SB08	P215SB12
Sample Depth					12' BGS	4' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	4' BGS	8' BGS	4' BGS	8' BGS	12' BGS
Sample Collection Event					Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
SVOCs (mg/kg)																									
1,2,4-Trichlorobenzene	22	99	0.0029	0.2	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
1,2-Dichlorobenzene	1,900	9,800	0.27	0.58	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
1,2-Dinitrobenzene	6.1	62	0.0014	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
1,2-Diphenylhydrazine	0.61	2.2	0.00022	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
1,3-Dichlorobenzene	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
1,3-Dinitrobenzene	6.1	62	0.0014	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
1,4-Dichlorobenzene	2.4	12	0.0004	0.072	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
1,4-Dinitrobenzene	6.1	62	0.0014	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
1-Methylnaphthalene	22	99	0.0051	NA	0.01 U	0.0084 U	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	0.0087 U	0.0082 U	0.0078 U	0.0083 U	0.0083 U	0.0081 U	0.0088 U	**0.012**	0.0095 U	0.0099 U	0.01 U	0.01 U
2,3,4,6-Tetrachlorophenol	1,800	18,000	1.1	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2,3,5,6-Tetrachlorophenol	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2,3-Dichloroaniline	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2,4,5-Trichlorophenol	6,100	62,000	3.3	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2,4,6-Trichlorophenol	44	160	0.013	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2,4-Dichlorophenol	180	1,800	0.041	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2,4-Dimethylphenol	1,200	12,000	0.32	NA	0.5 U	0.42 U	0.4 U	0.44 U	0.49 U	0.41 U	0.54 U	0.42 U	0.48 U	0.43 U	0.41 U	0.39 U	0.42 U	0.41 U	0.4 U	0.44 U	0.44 U	0.47 U	0.49 U	0.51 U	0.5 U
2,4-Dinitrophenol	120	1,200	0.034	NA	0.25 U	0.21 U	0.2 U	0.22 UJL	0.25 U	0.21 U	0.27 U	0.21 U	0.24 U	0.22 U	0.2 U	0.19 U	0.21 U	0.21 U	0.2 U	0.22 U	0.22 U	0.24 U	0.25 U	0.25 U	0.25 U
2,4-Dinitrotoluene	1.6	5.5	0.00028	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2,6-Dinitrotoluene	61	620	0.02	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2-Chloronaphthalene	6,300	82,000	2.9	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2-Chlorophenol	390	5,100	0.057	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2-Methylnaphthalene	310	4,100	0.14	NA	0.01 U	0.0084 U	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	0.0087 U	0.0082 U	0.0094	0.0083 U	0.0083 U	0.0081 U	0.0088 U	**0.012**	0.0095 U	0.0099 U	0.01 U	0.01 U
2-Methylphenol	3,100	31,000	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2-Nitroaniline	610	6000	0.062	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
2-Nitrophenol	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
3 & 4-Methylphenol	3,100	31,000	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
3,3'-Dichlorobenzidine	1.1	3.8	0.00071	NA	0.5 U	0.42 U	0.4 U	0.44 U	0.49 U	0.41 U	0.54 U	0.42 U	0.48 U	0.43 U	0.41 U	0.39 U	0.42 U	0.41 U	0.4 U	0.44 U	0.44 UJL	0.47 UJL	0.49 UJL	0.51 UJL	0.5 UJL
3-Nitroaniline	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
4,6-Dinitro-2-methylphenol	4.9	49	NA	NA	0.25 U	0.21 U	0.2 U	0.22 U	0.25 U	0.21 U	0.27 U	0.21 U	0.24 U	0.22 U	0.2 U	0.19 U	0.21 U	0.21 U	0.2 U	0.22 U	0.22 U	0.24 U	0.25 U	0.25 U	0.25 U
4-Bromophenyl-phenyl ether	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
4-Chloro-3-methylphenol	6,100	62,000	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
4-Chloroaniline	2.4	8.6	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
4-Chlorophenyl-phenylether	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
4-Nitroaniline	24	86	0.0014	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
4-Nitrophenol	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Acenaphthene	3,400	33,000	4.1	NA	0.01 U	0.0084 U	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	0.0087 U	0.0082 U	**0.026**	0.0083 U	0.0083 U	0.0081 U	0.0088 U	**0.023**	0.0095 U	0.0099 U	0.01 U	0.01 U
Acenaphthylene	NA	NA	NA	NA	0.01 U	**0.018**	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	**0.048**	**0.017**	**0.23**	**0.015**	**0.029**	**0.017**	**0.013**	0.0087 U	**0.013**	0.0099 U	0.01 U	0.01 U
Aniline	85	300	0.0039	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Anthracene	17,000	170,000	42	NA	0.01 U	**0.023**	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	**0.098**	**0.028**	**1.8**	**0.011**	**0.078**	**0.029**	**0.015**	**0.098**	**0.022**	0.0099 U	0.01 U	0.01 U
Benzidine	0.0005	0.0075	0.00000024	NA	0.5 U	0.42 U	0.4 U	0.44 U	0.49 U	0.41 U	0.54 U	0.42 U	0.48 U	0.43 U	0.41 U	0.39 U	0.42 U	0.41 U	0.4 U	0.44 U	0.44 U	0.47 U	0.49 U	0.51 U	0.5 U
Benzo(a)anthracene	0.15	2.1	0.01	NA	0.01 U	**0.064**	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	**0.013**	0.0095 U	**0.47**	**0.22**	**5.3**	**0.12**	**0.28**	**0.17**	**0.11**	**0.32**	**0.16**	0.0099 U	0.01 U	0.01 U
Benzo(a)pyrene	0.015	0.21	0.0035	0.24	0.01 U	**0.073**	**0.01**	0.0088 U	0.0099 U	0.0083 U	0.011 U	**0.027**	**0.0098**	**0.5**	**0.25**	**5.4**	**0.14**	**0.29**	**0.18**	**0.12**	**0.21**	**0.15**	0.0099 U	0.01 U	0.01 U
Benzo(b)fluoranthene	0.15	2.1	0.035	NA	0.01 U	**0.094**	**0.0092**	0.0088 U	0.0099 U	0.0083 U	0.011 U	**0.021**	0.0095 U	**0.17**	**0.25**	**5.3**	**0.14**	**0.29**	**0.19**	**0.14**	**0.28**	**0.18**	0.0099 U	0.01 U	0.01 U
Benzo(g,h,i)perylene	NA	NA	NA	NA	0.01 U	**0.075**	**0.015**	0.0088 U	0.0099 U	**0.0089**	0.011 U	**0.05**	0.0095 U	**0.34**	**0.18**	**3.4**	**0.077**	**0.18**	**0.11**	**0.077**	**0.13**	**0.077**	0.0099 U	0.01 U	0.01 U
Benzo(k)fluoranthene	1.5	21	0.35	NA	0.01 U	**0.11**	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	**0.02**	0.0095 U	**0.57**	**0.098**	**1.4**	**0.064**	**0.13**	**0.072**	**0.048**	**0.098**	**0.06**	0.0099 U	0.01 U	0.01 U
Benzyl alcohol	6,100	62,000	0.37	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Bis(2-chloroethoxy)methane	180	1,800	0.011	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Bis(2-Chloroethyl)ether	0.21	1	0.0000031	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Bis(2-chloroisopropyl)ether	4.6	22	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Bis(2-ethylhexyl)phthalate	35	120	0.017	1.4	0.05 U	**0.1**	0.04 U	**0.048**	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	**0.047**	0.042 U	0.041 U	**0.28**	0.044 U	0.044 U	**0.28**	0.049 U	**0.12**	**0.1**
bis-2-Ethylhexyladipate	410	1,400	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Butylbenzylphthalate	260	910	0.2	NA	0.5 U	0.42 U	0.4 U	0.44 U	0.49 U	0.41 U	0.54 U	0.42 U	0.48 U	0.43 U	0.41 U	0.39 U	0.42 U	0.41 U	0.4 U	0.44 U	0.44 U	0.47 U	0.49 U	0.51 U	0.5 U
Carbazole	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	**0.1**	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Chrysene	15	210	1.1	NA	0.01 U	**0.07**	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	**0.016**	0.0095 U	**0.47**	**0.2**	**4.7**	**0.12**	**0.27**	**0.17**	**0.11**	**0.31**	**0.16**	0.0099 U	0.01 U	0.01 U
Dibenzo(a,h)anthracene	0.015	0.21	0.011	NA	0.01 U	**0.033**	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	**0.071**	**0.037**	**0.53**	**0.024**	**0.042**	**0.027**	**0.021**	**0.041**	**0.026**	0.0099 U	0.01 U	0.01 U
Dibenzofuran	78	1,000	0.11	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	**0.05**	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Diethylphthalate	49,000	490,000	4.7	NA	0.25 U	0.21 U	0.2 U	0.22 U	0.25 U	0.21 U	0.27 U	0.21 U	0.24 U	0.22 U	0.2 U	0.19 U	0.21 U	0.21 U	0.2 U	0.22 U	0.22 U	0.24 U	0.25 U	0.25 U	0.25 U
Dimethylphthalate	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Di-n-butylphthalate	6,100	62,000	NA	NA	0.5 U	0.42 U	0.4 U	0.44 U	0.49 U	0.41 U	0.54 U	0.42 U	0.48 U	0.43 U	0.41 U	0.39 U	0.42 U	0.41 U	0.4 U	0.44 U	0.44 U	0.47 U	0.49 U	0.51 U	0.5 U
Di-n-octylphthalate	NA	NA	NA	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Fluoranthene	2,300	22,000	70	NA	0.01 U	**0.13**	**0.0095**	0.0088 U	0.0099 U	0.0083 U	0.011 U	**0.016**	**0.0097**	**0.84**	**0.38**	**12**	**0.16**	**0.53**	**0.3**	**0.18**	**0.77**	**0.19**	0.0099 U	0.01 U	0.01 U
Fluorene	2,300	22,000	4.0	NA	0.01 U	0.0084 U	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	**0.012**	0.0082 U	**0.26**	0.0083 U	0.0083 U	0.0081 U	0.0088 U	**0.025**	0.0095 U	0.0099 U	0.01 U	0.01 U
Hexachlorobenzene	0.3	1.1	0.00053	0.013	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Hexachlorobutadiene	6.2	22	0.0005	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Hexachlorocyclopentadiene	370	3,700	0.07	0.16	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Hexachloroethane	35	120	0.00048	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Indeno(1,2,3-cd)pyrene	0.15	2.1	0.12	NA	0.01 U	**0.068**	**0.011**	0.0088 U	0.0099 U	0.0083 U	0.011 U	**0.043**	0.0095 U	**0.32**	**0.16**	**2.9**	**0.085**	**0.18**	**0.11**	**0.077**	**0.13**	**0.072**	0.0099 U	0.01 U	0.01 U
Isophorone	510	1,800	0.022	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Naphthalene	3.6	18	0.00047	NA	0.01 U	0.0084 U	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	**0.0093**	0.0082 U	**0.041**	0.0083 U	0.0083 U	0.0081 U	0.0088 U	0.0087 U	0.0095 U	0.0099 U	0.01 U	0.01 U
Nitrobenzene	4.8	24	0.000079	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
N-Nitrosodimethylamine	0.0023	0.034	0.0000001	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
N-Nitroso-di-n-propylamine	0.069	0.25	0.000007	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
N-Nitrosodiphenylamine	99	350	0.057	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Pentachlorophenol	0.89	2.7	0.0017	0.01	0.25 U	0.21 U	0.2 U	0.22 U	0.25 U	0.21 U	0.27 U	0.21 U	0.24 U	0.22 U	0.2 U	0.19 U	0.21 U	0.21 U	0.2 U	0.22 U	0.22 UJL	0.24 UJL	0.25 UJL	0.25 UJL	0.25 UJL
Phenanthrene	NA	NA	NA	NA	0.01 U	**0.074**	0.008 U	0.0088 U	0.0099 U	0.0083 U	0.011 U	0.0085 U	0.0095 U	**0.26**	**0.068**	**5**	**0.025**	**0.13**	**0.059**	**0.046**	**0.3**	**0.054**	0.0099 U	0.01 U	0.01 U
Phenol	18,000	180,000	2.6	NA	0.05 U	0.042 U	0.04 U	0.044 U	0.049 U	0.041 U	0.054 U	0.042 U	0.048 U	0.043 U	0.041 U	0.039 U	0.042 U	0.041 U	0.04 U	0.044 U	0.044 U	0.047 U	0.049 U	0.051 U	0.05 U
Pyrene	1,700	17,000	9.5	NA	0.01 U	**0.13**	**0.012**	0.0088 U	0.0099 U	0.0083 U	0.011 U	**0.022**	**0.012**	**0.77**	**0.37**	**8.8**	**0.17**	**0.51**	**0.27**	**0.17**	**0.75**	**0.19**	0.0099 U	0.01 U	0.01 U
Pyridine	78	1,000	0.0053	NA	0.5 U	0.42 U	0.4 U	0.44 U	0.49 U	0.41 U	0.54 U	0.42 U	0.48 U	0.43 U	0.41 U	0.39 U	0.42 U	0.41 U	0.4 U	0.44 U	0.44 U	0.47 U	0.49 U	0.51 U	0.5 U

Table B-4 Comprehensive Analytical Data for SVOCs in Soil (Page 4 of 4)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundater Risk-Based SSL	EPA RSL - Soil to Groundater MCL-Based SSL	11-06-0034	11-06-0035	11-06-0036	11-06-0037	11-06-0038	11-06-0039	11-06-0040	11-06-0041	11-06-0042	11-06-0043	11-06-0044	11-06-0047	11-06-0048	11-06-0049	11-06-0050	11-06-0051	11-06-0057	11-06-0059	11-06-0060	12-04-0001	12-04-0002
Sample Location					P216SB04	P216SB08	P216SB12	P217SB04	P217SB08	P218SB04	P218SB08	P218SB12	P219SB04	P219SB08	P219SB12	P220SB04	P221SB04	P221SB08	P222SB04	P222SB08	P223SB04	P224SB04	P225SB04	SW03SS	SW04SS
Sample Depth					4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	4' BGS	8' BGS	12' BGS	4' BGS	8' BGS	12' BGS	4' BGS	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	4' BGS	4' BGS	Surface	Surface
Sample Collection Event					Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Apr-12	Apr-12
SVOCs (mg/kg)																									
1,2,4-Trichlorobenzene	22	99	0.0029	0.2	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
1,2-Dichlorobenzene	1,900	9,800	0.27	0.58	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
1,2-Dinitrobenzene	6.1	62	0.0014	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
1,2-Diphenylhydrazine	0.61	2.2	0.00022	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
1,3-Dichlorobenzene	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
1,3-Dinitrobenzene	6.1	62	0.0014	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
1,4-Dichlorobenzene	2.4	12	0.0004	0.072	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
1,4-Dinitrobenzene	6.1	62	0.0014	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
1-Methylnaphthalene	22	99	0.0051	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.11**	**0.013**	0.011 U	**3**	0.0095 U	**0.13**	0.01 U	0.011 U	0.0078 U				
2,3,4,6-Tetrachlorophenol	1,800	18,000	1.1	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
2,3,5,6-Tetrachlorophenol	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
2,3-Dichloroaniline	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
2,4,5-Trichlorophenol	6,100	62,000	3.3	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
2,4,6-Trichlorophenol	44	160	0.013	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
2,4-Dichlorophenol	180	1,800	0.041	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	**0.1**	0.054 U	0.039 U			0.444 U	0.419 U
2,4-Dimethylphenol	1,200	12,000	0.32	NA	0.52 U	0.49 U	0.49 U	0.47 U	0.47 U	0.52 U	0.45 U	0.47 U	0.47 U	0.49 U	0.53 U	0.51 U	0.47 U	0.52 U	0.52 U	0.54 U	0.39 U			0.444 U	0.419 U
2,4-Dinitrophenol	120	1,200	0.034	NA	0.26 U	0.25 U	0.25 U	0.23 U	0.23 U	0.26 U	0.23 U	0.23 U	0.23 U	0.24 U	0.26 U	0.25 U	0.24 U	0.26 U	0.26 U	0.27 U	0.2 U			0.888 U	0.837 U
2,4-Dinitrotoluene	1.6	5.5	0.00028	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
2,6-Dinitrotoluene	61	620	0.02	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
2-Chloronaphthalene	6,300	82,000	2.9	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.0444 U	0.0419 U
2-Chlorophenol	390	5,100	0.057	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
2-Methylnaphthalene	310	4,100	0.14	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.034**	0.0098 U	0.011 U	**1.9**	0.0095 U	**0.035**	0.01 U	0.011 U	0.0078 U			0.0444 U	0.0419 U
2-Methylphenol	3,100	31,000	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
2-Nitroaniline	610	6000	0.062	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
2-Nitrophenol	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
3 & 4-Methylphenol	3,100	31,000	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
3,3'-Dichlorobenzidine	1.1	3.8	0.00071	NA	0.52 UJL	0.49 UJL	0.49 UJL	0.47 UJL	0.47 UJL	0.52 UJL	0.45 UJL	0.47 UJL	0.47 UJL	0.49 U	0.53 U	0.51 U	0.47 U	0.52 U	0.52 U	0.54 U	0.39 U			0.444 U	0.419 U
3-Nitroaniline	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
4,6-Dinitro-2-methylphenol	4.9	49	NA	NA	0.26 U	0.25 U	0.25 U	0.23 U	0.23 U	0.26 U	0.23 U	0.23 U	0.23 U	0.24 U	0.26 U	0.25 U	0.24 U	0.26 U	0.26 U	0.27 U	0.2 U			0.444 U	0.419 U
4-Bromophenyl-phenyl ether	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
4-Chloro-3-methylphenol	6,100	62,000	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	**0.089**	0.039 U			0.444 U	0.419 U
4-Chloroaniline	2.4	8.6	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
4-Chlorophenyl-phenylether	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
4-Nitroaniline	24	86	0.0014	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
4-Nitrophenol	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Acenaphthene	3,400	33,000	4.1	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.031**	0.0098 U	0.011 U	**0.4**	0.0095 U	**0.029**	0.01 U	0.011 U	0.0078 U			0.0444 U	0.0419 U
Acenaphthylene	NA	NA	NA	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.015**	0.0098 U	0.011 U	**0.13**	0.0095 U	**0.025**	0.01 U	0.011 U	0.0078 U			0.0444 U	**0.0176 JQ**
Aniline	85	300	0.0039	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
Anthracene	17,000	170,000	42	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.011**	0.0098 U	0.011 U	**0.42**	0.0095 U	**0.04**	0.01 U	0.011 U	0.0078 U			0.0444 U	**0.023 JQ**
Benzidine	0.0005	0.0075	0.00000024	NA	0.52 U	0.49 U	0.49 U	0.47 U	0.47 U	0.52 U	0.45 U	0.47 U	0.47 U	0.49 U	0.53 U	0.51 U	0.47 U	0.52 U	0.52 U	0.54 U	0.39 U				
Benzo(a)anthracene	0.15	2.1	0.01	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.013**	0.0098 U	0.011 U	**0.046**	0.0095 U	**0.025**	0.01 U	0.011 U	**0.04**			**0.0511**	**0.205**
Benzo(a)pyrene	0.015	0.21	0.0035	0.24	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	0.0094 U	0.0098 U	0.011 U	**0.057**	0.0095 U	0.01 U	0.01 U	0.011 U	**0.045**			**0.0684**	**0.228 JL**
Benzo(b)fluoranthene	0.15	2.1	0.035	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.014**	0.0098 U	0.011 U	**0.071**	0.0095 U	**0.015**	0.01 U	0.011 U	**0.072**			**0.131**	**0.349 JL**
Benzo(g,h,i)perylene	NA	NA	NA	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	0.0094 U	0.0098 U	0.011 U	**0.051**	0.0095 U	0.01 U	0.01 U	0.011 U	**0.051**			**0.048**	**0.118 JL**
Benzo(k)fluoranthene	1.5	21	0.35	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	0.0094 U	0.0098 U	0.011 U	**0.04**	0.0095 U	0.01 U	0.01 U	0.011 U	**0.042**			**0.0333 JQ**	**0.117 JL**
Benzyl alcohol	6,100	62,000	0.37	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
Bis(2-chloroethoxy)methane	180	1,800	0.011	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Bis(2-Chloroethyl)ether	0.21	1	0.0000031	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Bis(2-chloroisopropyl)ether	4.6	22	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Bis(2-ethylhexyl)phthalate	35	120	0.017	1.4	0.052 U	**0.058**	**0.13**	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	**0.11**	**0.53**	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
bis-2-Ethylhexyladipate	410	1,400	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
Butylbenzylphthalate	260	910	0.2	NA	0.52 U	0.49 U	0.49 U	0.47 U	0.47 U	0.52 U	0.45 U	0.47 U	0.47 U	0.49 U	0.53 U	0.51 U	0.47 U	0.52 U	0.52 U	0.54 U	0.39 U			**0.156 JQ**	0.419 U
Carbazole	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.0444 U	0.0419 U
Chrysene	15	210	1.1	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.035**	**0.0098**	0.011 U	**0.061**	0.0095 U	**0.048**	0.01 U	0.011 U	**0.041**			**0.0533**	**0.222**
Dibenzo(a,h)anthracene	0.015	0.21	0.011	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	0.0094 U	0.0098 U	0.011 U	0.01 U	0.0095 U	0.01 U	0.01 U	0.011 U	**0.0092**			0.0444 U	0.0419 U
Dibenzofuran	78	1,000	0.11	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Diethylphthalate	49,000	490,000	4.7	NA	0.26 U	0.25 U	0.25 U	0.23 U	0.23 U	0.26 U	0.23 U	0.23 U	0.23 U	0.24 U	0.26 U	0.25 U	0.24 U	0.26 U	0.26 U	0.27 U	0.2 U			0.444 U	0.419 U
Dimethylphthalate	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Di-n-butylphthalate	6,100	62,000	NA	NA	0.52 U	0.49 U	0.49 U	0.47 U	0.47 U	0.52 U	0.45 U	0.47 U	0.47 U	0.49 U	0.53 U	0.51 U	0.47 U	0.52 U	0.52 U	0.54 U	0.39 U			0.444 U	0.419 U
Di-n-octylphthalate	NA	NA	NA	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Fluoranthene	2,300	22,000	70	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.018**	0.0098 U	0.011 U	**0.068**	0.0095 U	**0.035**	0.01 U	0.011 U	**0.06**			**0.0719**	**0.268**
Fluorene	2,300	22,000	4.0	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.056**	**0.016**	0.011 U	**0.58**	0.0095 U	**0.092**	0.01 U	0.011 U	0.0078 U			0.0444 U	0.0419 U
Hexachlorobenzene	0.3	1.1	0.00053	0.013	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Hexachlorobutadiene	6.2	22	0.0005	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Hexachlorocyclopentadiene	370	3,700	0.07	0.16	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Hexachloroethane	35	120	0.00048	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Indeno(1,2,3-cd)pyrene	0.15	2.1	0.12	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	0.0094 U	0.0098 U	0.011 U	**0.029**	0.0095 U	0.01 U	0.01 U	0.011 U	**0.04**			**0.0351 JQ**	**0.108 JL**
Isophorone	510	1,800	0.022	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Naphthalene	3.6	18	0.00047	NA	0.01 U	0.0099 U	0.0099 U	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	0.0094 U	0.0098 U	0.011 U	**0.19**	0.0095 U	0.01 U	0.01 U	0.011 U	0.0078 U			0.0444 U	0.0419 U
Nitrobenzene	4.8	24	0.000079	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
N-Nitrosodimethylamine	0.0023	0.034	0.0000001	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
N-Nitroso-di-n-propylamine	0.069	0.25	0.000007	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
N-Nitrosodiphenylamine	99	350	0.057	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U				
Pentachlorophenol	0.89	2.7	0.0017	0.01	0.26 UJL	0.25 UJL	0.25 UJL	0.23 UJL	0.23 UJL	0.26 UJL	0.23 UJL	0.23 UJL	0.23 UJL	0.24 U	0.26 U	0.25 U	0.24 U	0.26 U	0.26 U	0.27 U	0.2 U			0.444 U	0.419 U
Phenanthrene	NA	NA	NA	NA	0.01 U	0.0099 U	**0.018**	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.16**	**0.027**	0.011 U	**1.3**	0.0095 U	**0.19**	0.01 U	0.011 U	**0.011**			**0.0209 JQ**	**0.0841**
Phenol	18,000	180,000	2.6	NA	0.052 U	0.049 U	0.049 U	0.047 U	0.047 U	0.052 U	0.045 U	0.047 U	0.047 U	0.049 U	0.053 U	0.051 U	0.047 U	0.052 U	0.052 U	0.054 U	0.039 U			0.444 U	0.419 U
Pyrene	1,700	17,000	9.5	NA	0.01 U	0.0099 U	**0.013**	0.0093 U	0.0093 U	0.01 U	0.0091 U	0.0093 U	**0.035**	**0.014**	0.011 U	**0.22**	0.0095 U	**0.057**	0.01 U	0.011 U	**0.056**			**0.0861**	**0.439 JK**
Pyridine	78	1,000	0.0053	NA	0.52 U	0.49 U	0.49 U	0.47 U	0.47 U	0.52 U	0.45 U	0.47 U	0.47 U	0.49 U	0.53 U	0.51 U	0.47 U	0.52 U	0.52 U	0.54 U	0.39 U				

Table B-5 Comprehensive Analytical Data for Pesticides in Soil (Page 1 of 1)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	09-05-0702	09-05-0703	09-09-0908	09-09-0909	09-09-0912	09-09-0913	09-09-0915	09-09-0916	9090917	9090919	09-09-0920	09-09-0921
Sample Location					SS02	SS03	SA07SB04	SA07SB08	SA04SB04	SA04SB08	SA04SS	SA01SB04	SA01SB08	SA01SS	SA03SB04	SA03SB08
Sample Depth					Surface	Surface	4' BGS	8' BGS	4' BGS	8' BGS	Surface	4' BGS	8' BGS	Surface	4' BGS	8' BGS
Sample Collection Event					May-09	May-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09
Pesticides (µg/kg)																
4,4'-DDD	2,000	7,200	66	NA	**49**	**25 J**	**84 J**	14 UJ	11 UJ	11 UJ	10 UJ	12 UJ	11 U	10 UJ	13 U	12 U
4,4'-DDE	1,400	5,100	46	NA	**290**	**300 J**	**160 J**	14 UJ	11 UJ	11 UJ	**52 J**	**31 J**	**29**	**77 J**	**19**	12 U
4,4'-DDT	1,700	7,000	67	NA	**190 J**	**380 J**	13 U	14 UJ	11 UJ	11 UJ	**72 J**	12 UJ	11 U	**89 J**	**60 J**	12 UJ
Aldrin	29	100	0.034	NA	16 U	16 U	6.7 UJ	6.8 UJ	5.5 UJ	5.6 UJ	5.1 UJ	6.1 U	5.6 U	5.2 UJ	6.3 U	5.9 U
alpha-BHC	77	270	0.036	NA	16 U	16 U	6.7 UJ	6.8 UJ	5.5 UJ	5.6 U	5.1 U	6.1 UJ	5.6 U	5.2 U	6.3 U	5.9 U
alpha-Chlordane	NA	NA	NA	NA	16 U	16 U	13 UJ	14 UJ	11 UJ	11 UJ	10 UJ	12 UJ	11 U	10 UJ	13 UJ	12 UJ
beta-BHC	270	960	0.13	NA	16 U	16 U	**280 J**	6.8 UJ	5.5 UJ	5.6 U	**9.6**	6.1 U	5.6 U	5.2 U	6.3 U	5.9 U
delta-BHC	NA	NA	NA	NA	16 U	16 U	6.7 UJ	6.8 UJ	5.5 UJ	5.6 UJ	5.1 UJ	6.1 UJ	5.6 U	5.2 UJ	6.3 U	5.9 U
Dieldrin	30	110	0.061	NA	**29 J**	33 U	**100 J**	14 UJ	11 UJ	11 UJ	**51**	12 UJ	11 U	**22 J**	13 UJ	12 UJ
Endosulfan I	NA	NA	NA	NA	16 U	16 U	6.7 UJ	6.8 UJ	5.5 UJ	5.6 UJ	5.1 UJ	6.1 UJ	5.6 UJ	5.2 UJ	6.3 U	5.9 U
Endosulfan II	NA	NA	NA	NA	**53**	**84 J**	13 UJ	14 UJ	11 UJ	11 UJ	10 UJ	12 UJ	11 U	10 UJ	13 UJ	12 UJ
Endosulfan sulfate	NA	NA	NA	NA	32 U	33 U	13 UJ	14 UJ	11 UJ	11 UJ	10 UJ	12 UJ	11 U	10 UJ	13 UJ	12 U
Endrin	18,000	180,000	68	81	**27 J**	33 U	13 UJ	14 UJ	11 UJ	11 UJ	10 UJ	12 UJ	11 U	10 UJ	**48 J**	12 U
Endrin aldehyde	NA	NA	NA	NA	32 U	33 U	**140 J**	14 UJ	11 UJ	11 UJ	**68 J**	12 UJ	11 U	**77 J**	13 U	12 UJ
Endrin ketone	NA	NA	NA	NA	32 U	**30 J**	30 UJ	14 UJ	11 UJ	11 UJ	10 UJ	12 UJ	11 U	10 UJ	13 U	12 U
gamma-BHC	520	2,100	0.21	1.2	16 U	**16 J**	**110 J**	6.8 UJ	5.5 UJ	5.6 U	5.1 U	6.1 U	5.6 U	5.2 U	6.3 U	5.9 U
gamma-Chlordane	NA	NA	NA	NA	**29 J**	**74 J**	13 UJ	14 UJ	11 UJ	11 UJ	**26 J**	12 UJ	11 U	10 UJ	13 U	12 U
Heptachlor	110	380	0.14	33	16 U	16 U	6.7 UJ	6.8 UJ	5.5 UJ	5.6 U	5.1 U	6.1 U	5.6 U	5.2 U	6.3 U	5.9 U
Heptachlor epoxide	53	190	0.068	4.1	**35 J**	**50 J**	6.7 UJ	6.8 UJ	5.5 UJ	5.6 UJ	5.1 UJ	6.1 UJ	5.6 U	5.2 UJ	6.3 U	5.9 U
Methoxychlor	310,000	3,100,000	1500	2200	160 U	160 U	**86 J**	14 UJ	11 UJ	11 UJ	**26 J**	12 UJ	11 U	10 UJ	13 U	12 U
Toxaphene	440	1,600	2.1	460	2,000 U	2,100 U	67 UJ	68 UJ	55 UJ	56 U	51 UJ	61 U	56 U	52 U	63 U	59 U

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	09-09-0924	09-09-0928	09-09-0929	09-09-0932	09-09-0933	09-09-0936	09-09-0937	09-09-0953	09-09-0954	09-09-0956	09-09-0957
Sample Location					SA06SB04	SA02SB04	SA02SB08	SA05SB04	SA05SB08	SH01SB04	SH01SB08	SW01SB08	SW01SB04	SW02SS	SW02SB02
Sample Depth					4' BGS	4' BGS	8' BGS	4' BGS	8' BGS	4' BGS	8' BGS	8' BGS	4' BGS	Surface	2' BGS
Sample Collection Event					Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09	Sep-09
Pesticides (µg/kg)															
4,4'-DDD	2,000	7,200	66	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	**26 J**	16 UJ	12 U	11 UJ	16 UJ	16 UJ
4,4'-DDE	1,400	5,100	46	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 UJ	**45 J**	16 UJ
4,4'-DDT	1700	7,000	67	NA	13 UJ	**24 J**	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 UJ	11 UJ	16 UJ	16 UJ
Aldrin	29	100	0.034	NA	6.4 UJ	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	7.1 UJ	7.8 UJ	5.8 U	5.6 UJ	7.8 UJ	8.1 UJ
alpha-BHC	77	270	0.036	NA	6.4 UJ	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	7.1 UJ	7.8 UJ	5.8 U	5.6 U	7.8 UJ	8.1 UJ
alpha-Chlordane	NA	NA	NA	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 UJ	16 UJ	16 UJ
beta-BHC	270	960	0.13	NA	6.4 UJ	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	7.1 UJ	7.8 UJ	5.8 U	5.6 U	7.8 UJ	8.1 UJ
delta-BHC	NA	NA	NA	NA	6.4 UJ	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	**54 J**	7.8 UJ	5.8 U	5.6 UJ	7.8 UJ	8.1 UJ
Dieldrin	30	110	0.061	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 UJ	11 UJ	16 UJ	16 UJ
Endosulfan I	NA	NA	NA	NA	6.4 UJ	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	7.1 UJ	7.8 UJ	5.8 U	5.6 UJ	7.8 UJ	8.1 UJ
Endosulfan II	NA	NA	NA	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 UJ	16 UJ	16 UJ
Endosulfan sulfate	NA	NA	NA	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 U	16 UJ	16 UJ
Endrin	18,000	180,000	68	81	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 UJ	16 UJ	16 UJ
Endrin aldehyde	NA	NA	NA	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 UJ	16 UJ	16 UJ
Endrin ketone	NA	NA	NA	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 UJ	16 UJ	16 UJ
gamma-BHC	520	2,100	0.21	1.2	6.4 UJ	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	7.1 UJ	7.8 UJ	5.8 U	5.6 U	7.8 UJ	8.1 UJ
gamma-Chlordane	NA	NA	NA	NA	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 UJ	16 UJ	16 UJ
Heptachlor	110	380	0.14	33	6.4 UJ	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	7.1 UJ	7.8 UJ	5.8 U	5.6 U	7.8 UJ	8.1 UJ
Heptachlor epoxide	53	190	0.068	4.1	6.4 UJ	6.1 UJ	6.5 UJ	6.6 UJ	6.8 UJ	**24 J**	7.8 UJ	5.8 U	5.6 UJ	7.8 UJ	8.1 UJ
Methoxychlor	310,000	3,100,000	1500	2200	13 UJ	12 UJ	13 UJ	13 UJ	14 UJ	14 UJ	16 UJ	12 U	11 UJ	16 UJ	16 UJ
Toxaphene	440	1,600	2.1	460	64 UJ	61 UJ	65 UJ	66 UJ	68 UJ	71 UJ	78 UJ	58 U	56 U	78 UJ	81 UJ

Note: No other samples were submitted for pesticide analysis as part of the removal site evaluation.

Table B-6 Comprehensive Analytical Data for VOCs in Soil (Page 1 of 1)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	09-05-0702	09-05-0703
Sample Location					SS02	SS03
Sample Depth					Surface	Surface
Sample Collection Event					May-09	May-09
VOCs (µg/kg)						
1,1,1,2-Tetrachloroethane	1,900	9,300	0.19	NA	4.6 UJ	5.6 U
1,1,1-Trichloroethane	8,700,000	38,000,000	2,600	7	4.6 UJ	5.6 U
1,1,2,2-Tetrachloroethane	560	2,800	0.026	NA	4.6 UJ	5.6 U
1,1,2-Trichloroethane	1,100	5,300	0.077	1.6	4.6 UJ	5.6 U
1,1-Dichloroethane	3,300	17,000	0.68	NA	4.6 UJ	5.6 U
1,1-Dichloroethene	240,000	1,100,000	93	2.5	4.6 UJ	5.6 U
1,1-Dichloropropene	NA	NA	NA	NA	4.6 UJ	5.6 U
1,2,3-Trichlorobenzene	NA	NA	15	NA	4.6 UJ	5.6 U
1,2,3-Trichloropropane	5	95	0.00028	NA	4.6 UJ	5.6 U
1,2,4-Trichlorobenzene	22,000	99,000	2.9	200	4.6 UJ	5.6 U
1,2,4-Trimethylbenzene	62,000	260,000	21	NA	4.6 UJ	**2 J**
1,2-Dibromo-3-chloropropane	5.4	69	0.00014	0.086	4.6 UJ	5.6 U
1,2-Dibromoethane	34	170	0.0018	0.014	4.6 UJ	5.6 U
1,2-Dichlorobenzene	1,900,000	9,800,000	270	580	4.6 UJ	5.6 U
1,2-Dichloroethane	430	2,200	0.042	1.4	4.6 UJ	5.6 U
1,2-Dichloropropane	940	4,700	0.13	1.7	4.6 UJ	5.6 U
1,3,5-Trimethylbenzene	780,000	10,000,000	120	NA	4.6 UJ	5.6 U
1,3-Dichlorobenzene	NA	NA	NA	NA	4.6 UJ	5.6 U
1,3-Dichloropropane	1,600,000	20,000,000	99	NA	4.6 UJ	5.6 U
1,4-Dichlorobenzene	2,400	12,000	0.4	72	4.6 UJ	5.6 U
2,2-Dichloropropane	NA	NA	NA	NA	4.6 UJ	5.6 U
2-Butanone	28,000,000	200,000,000	1,000	NA	**3.5 J**	**43**
2-Chlorotoluene	1,600,000	20,000,000	170	NA	4.6 UJ	5.6 U
2-Hexanone	210,000	1,400,000	7.9	NA	15 UJ	**6.6 J**
4-Chlorotoluene	1,600,000	20,000,000	180	NA	4.6 UJ	5.6 U
4-Isopropyltoluene	NA	NA	NA	NA	4.6 UJ	5.6 U
4-Methyl-2-pentanone	5,300,000	53,000,000	230	NA	**31 J**	**44**
Acetone	61,000,000	630,000,000	2,400	NA	**130 J**	**230**
Benzene	1,100	5,400	0.2	2.6	4.6 UJ	5.6 U
Bromobenzene	300,000	1,800,000	36	NA	4.6 UJ	5.6 U
Bromochloromethane	160,000	680,000	21	NA	4.6 UJ	5.6 U
Bromodichloromethane	270	1,400	0.032	22	4.6 UJ	5.6 U
Bromoform	62,000	220,000	2.1	21	4.6 UJ	5.6 U
Bromomethane	7,300	32,000	1.8	NA	4.6 UJ	5.6 UJ
Carbon disulfide	820,000	3,700,000	210	NA	4.6 UJ	5.6 U
Carbon tetrachloride	610	3,000	0.15	1.9	4.6 UJ	5.6 U
Chlorobenzene	290,000	1,400,000	49	68	4.6 UJ	5.6 U
Chloroethane	15,000,000	61,000,000	5,900	NA	4.6 UJ	5.6 UJ
Chloroform	290	1,500	0.053	22	4.6 UJ	5.6 U
Chloromethane	120,000	500,000	49	NA	4.6 UJ	5.6 U
cis-1,2-Dichloroethene	160,000	2,000,000	8.2	21	4.6 UJ	5.6 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	4.6 UJ	5.6 U
Dibromochloromethane	680	3,300	0.039	21	4.6 UJ	5.6 U
Dibromomethane	25,000	110,000	1.9	NA	4.6 UJ	5.6 U
Dichlorodifluoromethane	94,000	400,000	300	NA	4.6 UJ	5.6 U
Ethylbenzene	5,400	27,000	1.5	780	4.6 UJ	5.6 U
Hexachlorobutadiene	6,200	22,000	0.5	NA	4.6 UJ	5.6 U
Isopropylbenzene	2,100,000	11,000,000	640	NA	4.6 UJ	5.6 U
m,p-Xylene	NA	NA	NA	NA	9.2 UJ	**2.9 J**
Methyl tert-butyl ether	43,000	220,000	2.8	NA	4.6 UJ	5.6 U
Methylene chloride	11,000	53,000	2.5	1.3	**7.0 J**	**7.2**
Naphthalene	3,600	18,000	0.47	NA	**1.8 J**	**1.9 J**
n-Butylbenzene	3,900,000	51,000,000	2,500	NA	4.6 UJ	5.6 U
n-Propylbenzene	3,400,000	21,000,000	990	NA	4.6 UJ	5.6 U
o-Xylene	690,000	3,000,000	190	NA	4.6 UJ	5.6 U
sec-Butylbenzene	NA	NA	NA	NA	4.6 UJ	5.6 U
Styrene	6,300,000	36,000,000	1,200	110	4.6 UJ	5.6 U
tert-Butylbenzene	NA	NA	NA	NA	4.6 UJ	5.6 U
Tetrachloroethene	550	2,600	4.4	2.3	4.6 UJ	5.6 U
Toluene	5,000,000	45,000,000	590	690	4.6 UJ	**1.9 J**
trans-1,2-Dichloroethene	150,000	690,000	25	29	4.6 UJ	5.6 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	4.6 UJ	5.6 U
Trichloroethene	2,800	14,000	0.16	1.8	4.6 UJ	5.6 U
Trichlorofluoromethane	790,000	3,400,000	690	NA	4.6 UJ	**6.3**
Vinyl chloride	60	1,700	0.0053	0.69	4.6 UJ	5.6 U

Note: No other samples were submitted for VOC analysis as part of the removal site evaluation.

Table B-7 Comprehensive Analytical Data for Dioxins in Soil (Page 1 of 1)

EPA Sample ID	EPA RSL - Residential Soil	EPA RSL - Industrial Soil	EPA RSL - Soil to Groundwater Risk-Based SSL	EPA RSL - Soil to Groundwater MCL-Based SSL	09-05-0702	09-05-0703
Sample Location					SS02	SS03
Sample Depth					Surface	Surface
Sample Collection Event					May-09	May-09
Dioxin (ng/kg)						
2,3,7,8-TCDD	4.5	18	0.26	15	2.7 U	3.3 U
1,2,3,7,8-PeCDD	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA	6.8 U	**1.1 J**
OCDD	NA	NA	NA	NA	**8.1 J**	**14 J**
2,3,7,8-TCDF	NA	NA	NA	NA	2.7 U	3.3 U
1,2,3,7,8-PeCDF	NA	NA	NA	NA	6.8 U	8.2 U
2,3,4,7,8-PeCDF	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA	6.8 U	8.2 U
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA	6.8 U	8.2 U
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA	6.8 U	8.2 U
OCDF	NA	NA	NA	NA	14 U	16 U

Note: No other samples were submitted for dioxin analysis as part of the removal site evaluation.

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C Comprehensive Analytical Data for Water

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Key for Appendix C Tables

Note:

(yellow highlight)	= Greater than values of EPA RSL tapwater, Federal MCL, Washington State MTCA groundwater, and/or EPA vapor intrusion SL - target groundwater concentration.
(hatched)	= Not analyzed.
Bold	= Detected Concentration

Key:

EPA	= Environmental Protection Agency.
IDW	= Investigation derived waste.
J	= The analyte was identified; the associated numerical result is an estimate.
JH	= The analyte was positively identified; the assoicated numerical value is the approximate concentration with a high bias.
JK	= The analyte was positively identified; the associated numerical value is the approximate concentration with an unknown direction of bias.
MCL	= Federal Maximum Contaminant Level drinking water standards.
MTCA	= Model Toxics Control Act.
mg/L	= Milligrams per liter (parts per million).
µg/L .	= Micrograms per liter (parts per billion).
NA	= Not applicable.
R	= The sample results are rejected due to serious deficiencies; the presence or absence of the analyte cannot be verified.
RSL	= Regional Screening Levels for Chemical Contaminants at Superfund Sites.
U	= The analyte was analyzed for, but not detected above the reported sample quantitation limit.
UJ	= The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

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Table C-1 Comprehensive Analytical Data for Metals in Water (Page 1 of 1)

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	09-05-0705	09-05-0706	09-10-1021	09-10-1022	09-10-1023	09-10-1024	10-03-0012	10-03-0013	10-03-0014	10-03-0015	10-10-0001	10-10-0002	10-10-0003
Sample Location			GW01	GW02	SW01	SW02	SW03	SW04	MW04GW15	MW02GW20	MW01GW20	MW03GW15	MW01	MW02	MW03
Sample Details			Domestic Well	Domestic Well	Surface Water	Surface Water	Surface Water	Surface Water	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event			May-09	May-09	Oct-09	Oct-09	Oct-09	Oct-09	Mar-10	Mar-10	Mar-10	Mar-10	Oct-10	Oct-10	Oct-10
Metals (µg/L)															
Aluminum	16,000	NA	54.5 U	54.6 U	110 UJ	**120**	110 U	110 U	56 U	56 U	**1,300**	56 U	**940**	**130**	56 U
Antimony (Metallic)	6	6	3 U	3 U	5.6 UJ	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U
Arsenic (Inorganic)	0.045	10	1.3 U	1.3 U	3.3 UJ	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U
Barium	2,900	2,000	**25.1 J**	**26 J**	28 UJ	28 U	28 U	28 U	28 U	28 U	**51**	28 U	**33**	28 U	28 U
Beryllium & Compounds	16	4	0.51 U	0.51 U	11 UJ	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Cadmium (Water)	6.9	5	1.1 U	1.1 U	4.4 UJ	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Calcium	NA	NA	**17,700**	**18,700**	**9,600 J**	**10,000**	**9,900**	**10,000**	**17,000**	**21,000**	**31,000**	**16,000**	**21,000**	**20,000**	**17,000**
Chromium (Total)	NA	100	0.31 U	0.31 U	11 UJ	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Chromium (VI)	0.031	NA													
Cobalt	4.7	NA	0.36 UJ	0.36 UJ	11 UJ	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Copper	620	1,300	**31**	6.5 U	11 UJ	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Iron	11,000	NA	**845**	**210**	**120 J**	**190**	**82**	**110**	**88**	**160**	**2,900**	**59**	**1,800 J**	**260 J**	56 UJ
Lead & Compounds	NA	15	**6.1 J**	1.8 U	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	**1.5**	1.1 U	1.1 U
Magnesium	NA	NA	**7,440 J**	**7,790 J**	**3,700 J**	**3,900**	**3,800**	**3,900**	**6,600**	**8,300**	**12,000**	**6,100**	**8,000**	**7,800**	**6,500**
Manganese (Non-Diet)	320	NA	**8.8 J**	**7.3 J**	11 UJ	11 U	11 U	11 U	**45**	**34**	**91**	11 U	**42**	**20**	11 U
Mercury (Elemental)	0.63	2	0.072 UJ	0.072 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nickel (Soluble Salts)	300	NA	1.2 U	1.2 U	22 UJ	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U
Potassium	NA	NA	**3,990 J**	**4,430 J**	**2,800 J**	**2,900**	**2,800**	**2,700**	**3,800**	**4,100**	**6,200**	**3,300**	**4,700**	**4,200**	**3,700**
Selenium	78	50	**0.89 J**	0.55 UJ	5.6 UJ	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U
Silver	71	NA	1.2 U	0.77 U	11 UJ	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Sodium	NA	NA	**6,360**	**7,600**	**4,200 J**	**4,600**	**4,300**	**4,300**	**12,000**	**9,300**	**28,000**	**5,900**	**9,700**	**7,900**	**6,000**
Thallium (Soluble Salts)	0.16	2	5.9 UJ	5.9 UJ	5.6 UJ	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U
Vanadium & Compounds	78	NA	**6.4 J**	**7.6 J**	11 UJ	11 U	11 U	11 U	11 U	11 U	**14**	11 U	**12**	11 U	11 U
Zinc & Compounds	4,700	NA	**82.4**	**81.4**	56 UJ	56 U	56 U	56 U	56 U	56 U	56 U	56 U	56 U	56 U	56 U

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	10-10-0004	11-06-0001	11-06-0002	11-06-0003	11-06-0004	11-06-0005	11-06-0020	11-06-0021	11-06-0052	11-06-0053	11-06-0055	11-06-0056	11-06-0058
Sample Location			MW04	MW01	MW02	MW03	MW04	P202GW20	P207GW08	P208GW08	P217GW12	P222GW12	P221GW12	P214GW12	P220GW09
Sample Details			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event			Oct-10	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
Metals (µg/L)															
Aluminum	16,000	NA	56 U	**140**	110 U	110 U	**270**	**2,400**	110 U	**8,400**	**3,100**	**7,200**	**1,000**	**6,400**	**29,000**
Antimony (Metallic)	6	6	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U
Arsenic (Inorganic)	0.045	10	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	11 U	8.3 U	3.3 U	**6.1**
Barium	2,900	2,000	28 U	**33**	**34**	28 U	**31**	**92**	**28**	**82**	**97**	**250**	**190**	**120**	**360**
Beryllium & Compounds	16	4	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Cadmium (Water)	6.9	5	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Calcium	NA	NA	**15,000**	**20,000**	**22,000**	**16,000**	**21,000**	**37,000**	**20,000**	**22,000**	**48,000**	**93,000**	**130,000**	**37,000**	**32,000**
Chromium (Total)	NA	100	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	**14**	**15**	**31**	**36**
Chromium (VI)	0.031	NA													
Cobalt	4.7	NA	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	**16**	**12**	**29**
Copper	620	1,300	11 U	11 U	11 U	11 U	11 U	11 U	11 U	**41**	11 U	**13**	**45**	**22**	**180**
Iron	11,000	NA	**94 J**	**250**	**190**	56 U	**520**	**5,200**	**190**	**13,000**	**7,600 JK**	**19,000 JK**	**7,100 JK**	**24,000 JK**	**68,000 JK**
Lead & Compounds	NA	15	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	**2.9**	**42**	1.1 U	**9.4**	**380**	**7.3**	**170**
Magnesium	NA	NA	**5,700**	**8,500**	**9,600**	**6,500**	**8,600**	**16,000**	**8,400**	**9,200**	**22,000**	**43,000**	**63,000**	**17,000**	**12,000**
Manganese (Non-Diet)	320	NA	11 U	11 U	11 U	11 U	**11**	**210**	11 U	**190**	**480**	**2,500**	**4,500**	**880**	**2,300**
Mercury (Elemental)	0.63	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nickel (Soluble Salts)	300	NA	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U	**36**	**24**	22 U	**33**
Potassium	NA	NA	**3,900**	**4,400**	**4,500**	**3,700**	**4,600**	**7,100**	**4,400**	**5,400**	**7,500**	**13,000**	**9,100**	**6,200**	**13,000**
Selenium	78	50	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	22 U	8.3 U	5.6 U	5.6 U
Silver	71	NA	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Sodium	NA	NA	**6,700**	**7,900**	**8,800**	**6,000**	**8,300**	**59,000**	**7,800**	**8,300**	**53,000**	**150,000**	**30,000**	**16,000**	**10,000**
Thallium (Soluble Salts)	0.16	2	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U
Vanadium & Compounds	78	NA	11 U	11 U	11 U	11 U	**12**	**22**	11 U	**45**	**34**	**53**	**150**	**97**	**300**
Zinc & Compounds	4,700	NA	56 U	56 U	56 U	56 U	56 U	56 U	56 U	**100**	56 U	**230**	56 U	**100**	**1,100**

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Table C-2 Comprehensive Analytical Data for PCBs in Water (Page 1 of 1)

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	09-05-0705	09-05-0706	09-10-1021	09-10-1022	09-10-1023	09-10-1024	10-03-0012	10-03-0013	10-03-0014
Sample Location			GW01	GW02	SW01	SW02	SW03	SW04	MW04GW15	MW02GW20	MW01GW20
Sample Details			Domestic Well	Domestic Well	Surface Water	Surface Water	Surface Water	Surface Water	Groundwater	Groundwater	Groundwater
Sample Collection Event			May-09	May-09	Oct-09	Oct-09	Oct-09	Oct-09	Mar-10	Mar-10	Mar-10
PCBs (µg/L)											
Aroclor-1016	0.96	NA	**0.48 J**	0.48 UJ	0.048 U	0.048 U	0.048 U	0.048 U	0.047 U	0.047 U	0.048 U
Aroclor-1221	0.0043	NA	0.48 U	0.48 U	0.048 U	0.048 U	0.048 U	0.048 U	0.047 U	0.047 U	0.048 U
Aroclor-1232	0.0043	NA	0.48 U	0.48 U	0.048 U	0.048 U	0.048 U	0.048 U	0.047 U	0.047 U	0.048 U
Aroclor-1242	0.034	NA	0.48 U	0.48 U	0.048 U	0.048 U	0.048 U	0.048 U	0.047 U	**0.088**	0.048 U
Aroclor-1248	0.034	NA	0.48 U	0.48 U	0.048 U	0.048 U	0.048 U	0.048 U	0.047 U	0.047 U	0.048 U
Aroclor-1254	0.034	NA	0.48 U	0.48 U	0.048 U	0.048 U	0.048 U	0.048 U	0.047 U	0.047 U	0.048 U
Aroclor-1260	0.034	NA	0.48 U	0.48 UJ	0.048 U	0.048 U	0.048 U	0.048 U	0.047 U	0.047 U	0.048 U

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	10-03-0015	10-10-0001	10-10-0002	10-10-0003	10-10-0004	11-06-0001	11-06-0002	11-06-0003	11-06-0004
Sample Location			MW03GW15	MW01	MW02	MW03	MW04	MW01	MW02	MW03	MW04
Sample Details			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event			Mar-10	Oct-10	Oct-10	Oct-10	Oct-10	Jun-11	Jun-11	Jun-11	Jun-11
PCBs (µg/L)											
Aroclor-1016	0.96	NA	0.047 U	0.051 U	0.052 U	0.051 U	0.051 U	0.05 U	0.048 U	0.049 U	0.05 U
Aroclor-1221	0.0043	NA	0.047 U	0.051 U	0.052 U	0.051 U	0.051 U	0.05 U	0.048 U	0.049 U	0.05 U
Aroclor-1232	0.0043	NA	0.047 U	0.051 U	0.052 U	0.051 U	0.051 U	0.05 U	0.048 U	0.049 U	0.05 U
Aroclor-1242	0.034	NA	0.047 U	0.051 U	0.052 U	0.051 U	0.051 U	0.05 U	0.048 U	0.049 U	0.05 U
Aroclor-1248	0.034	NA	0.047 U	0.051 U	0.052 U	0.051 U	0.051 U	0.05 U	0.048 U	0.049 U	0.05 U
Aroclor-1254	0.034	NA	0.047 U	0.051 U	0.052 U	0.051 U	0.051 U	0.05 U	0.048 U	0.049 U	0.05 U
Aroclor-1260	0.034	NA	0.047 U	0.051 U	0.052 U	0.051 U	0.051 U	0.05 U	0.048 U	0.049 U	0.05 U

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	11-06-0005	11-06-0020	11-06-0021	11-06-0052	11-06-0053	11-06-0055	11-06-0056	11-06-0058
Sample Location			P202GW20	P207GW08	P208GW08	P217GW12	P222GW12	P221GW12	P214GW12	P220GW09
Sample Details			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event			Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
PCBs (µg/L)										
Aroclor-1016	0.96	NA	0.048 U	0.048 U	0.049 U	0.049 U	0.51 U	200 U	0.049 U	0.05 U
Aroclor-1221	0.0043	NA	0.048 U	0.048 U	0.049 U	0.049 U	0.51 U	200 U	0.049 U	0.05 U
Aroclor-1232	0.0043	NA	0.048 U	0.048 U	0.049 U	0.049 U	0.51 U	200 U	0.049 U	0.05 U
Aroclor-1242	0.034	NA	0.048 U	0.048 U	**0.28**	0.049 U	0.51 U	**1,500**	0.049 U	0.05 U
Aroclor-1248	0.034	NA	0.048 U	0.048 U	0.049 U	0.049 U	0.51 U	200 U	0.049 U	0.05 U
Aroclor-1254	0.034	NA	0.048 U	0.048 U	0.049 U	0.049 U	**0.64 JK**	200 U	0.049 U	0.05 U
Aroclor-1260	0.034	NA	0.048 U	0.048 U	**0.091 JK**	0.049 U	0.051 U	200 U	0.049 U	0.05 U

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Table C-3 Comprehensive Analytical Data for TPH in Water (Page 1 of 1)

EPA Sample ID	MTCA Groundwater	Federal Drinking Water MCL	09-05-0705	09-05-0706	09-10-1021	09-10-1022	09-10-1023	09-10-1024	10-03-0012	10-03-0013	10-03-0014
Sample Location			GW01	GW02	SW01	SW02	SW03	SW04	MW04GW15	MW02GW20	MW01GW20
Sample Details			Domestic Well	Domestic Well	Surface Water	Surface Water	Surface Water	Surface Water	Groundwater	Groundwater	Groundwater
Sample Collection Event			May-09	May-09	Oct-09	Oct-09	Oct-09	Oct-09	Mar-10	Mar-10	Mar-10
TPH (mg/L)											
Diesel Range Organics	0.5	NA	0.077 U	0.078 U	0.24 U	0.25 U	0.24 U	0.25 U			
Oil Range Organics	0.5	NA	0.38 U	0.39 U	0.39 U	0.4 U	0.39 U	0.4 U			
Gasoline Range Organics	0.8	NA									

EPA Sample ID	MTCA Groundwater	Federal Drinking Water MCL	10-03-0015	10-10-0001	10-10-0002	10-10-0003	10-10-0004	11-06-0001	11-06-0002	11-06-0003	11-06-0004
Sample Location			MW03GW15	MW01	MW02	MW03	MW04	MW01	MW02	MW03	MW04
Sample Details			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event			Mar-10	Oct-10	Oct-10	Oct-10	Oct-10	Jun-11	Jun-11	Jun-11	Jun-11
TPH (mg/L)											
Diesel Range Organics	0.5	NA		0.28 U	0.27 U	0.24 U	0.27 U	0.25 U	0.24 U	0.25 U	0.25 U
Oil Range Organics	0.5	NA		0.44 U	0.44 U	0.38 U	0.43 U	0.4 U	0.38 U	0.4 U	0.4 U
Gasoline Range Organics	0.8	NA		0.1 U	0.1 U	0.1 U	0.1 U				

EPA Sample ID	MTCA Groundwater	Federal Drinking Water MCL	11-06-0005	11-06-0020	11-06-0021	11-06-0052	11-06-0053	11-06-0055	11-06-0056	11-06-0058
Sample Location			P202GW20	P207GW08	P208GW08	P217GW12	P222GW12	P221GW12	P214GW12	P220GW09
Sample Details			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event			Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
TPH (mg/L)										
Diesel Range Organics	0.5	NA	0.26 U	0.24 U	0.26 U	0.24 U	**0.45 JH**	**2,000**	0.24 U	**2.4**
Oil Range Organics	0.5	NA	**0.77**	0.39 U	0.41 U	0.39 U	0.41 U	**3,600**	0.39 U	0.54 U
Gasoline Range Organics	0.8	NA								

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Table C-4 Comprehensive Analytical Data for SVOCs in Water (Page 1 of 2)

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	EPA Vapor Intrusion SL - Target Groundwater Concentration	09-05-0705	09-05-0706	09-10-1021	09-10-1022	09-10-1023	09-10-1024	10-03-0012	10-03-0013	10-03-0014	10-03-0015	10-10-0001	10-10-0002	10-10-0003	10-10-0004	11-06-0001	11-06-0002	11-06-0003	11-06-0004
Sample Location				GW01	GW02	SW01	SW02	SW03	SW04	MW04GW15	MW02GW20	MW01GW20	MW03GW15	MW01	MW02	MW03	MW04	MW01	MW02	MW03	MW04
Sample Details				Domestic Well	Domestic Well	Surface Water	Surface Water	Surface Water	Surface Water	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event				May-09	May-09	Oct-09	Oct-09	Oct-09	Oct-09	Mar-10	Mar-10	Mar-10	Mar-10	Oct-10	Oct-10	Oct-10	Oct-10	Jun-11	Jun-11	Jun-11	Jun-11
SVOCs (µg/L)																					
1,2,4-Trichlorobenzene	0.99	70	3,400	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
1,2-Dichlorobenzene	280	600	2,600	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
1,2-Dinitrobenzene	1.5	NA	NA			0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
1,2-Diphenylhydrazine	0.067	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
1,3-Dichlorobenzene	NA	NA	830	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
1,3-Dinitrobenzene	1.5	NA	NA			0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
1,4-Dichlorobenzene	0.42	75	8,200	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
1,4-Dinitrobenzene	1.5	NA	NA			0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
1-Methylnaphthalene	0.97	NA	NA			0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
2,3,4,6-Tetrachlorophenol	170	NA	NA			0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2,3,5,6-Tetrachlorophenol	NA	NA	NA			0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2,3-Dichloroaniline	NA	NA	NA			0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2,4,5-Trichlorophenol	890	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2,4,6-Trichlorophenol	3.5	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2,4-Dichlorophenol	35	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2,4-Dimethylphenol	270	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 UJ	0.94 UJ	0.95 UJ	0.94 UJ	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2,4-Dinitrophenol	30	NA	NA	9.9 UJ	9.6 U	9.8 U	9.8 U	9.6 U	9.6 U	9.4 U	9.4 U	9.5 U	9.4 U	12 U	11 U	10 U	11 U	5 U	4.8 U	4.9 U	5.1 U
2,4-Dinitrotoluene	0.2	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2,6-Dinitrotoluene	15	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2-Chloronaphthalene	550	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2-Chlorophenol	71	NA	1,100	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2-Methylnaphthalene	27	NA	3,300	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
2-Methylphenol (o-Cresol)	720	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2-Nitroaniline	150	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
2-Nitrophenol	NA	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
3 & 4-Methylphenol (m,p-Cresol)	720	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
3,3'-Dichlorobenzidine	0.11	NA	NA	5 U	4.8 U	9.8 U	9.8 U	9.6 U	9.6 U	9.4 U	9.4 U	9.5 U	9.4 U	12 U	11 U	10 U	11 U	1 U	0.96 U	0.98 U	1 U
3-Nitroaniline	NA	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
4,6-Dinitro-2-methylphenol	1.2	NA	NA	5 U	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	4.7 U	4.7 U	4.8 U	4.7 U	5.8 U	5.3 U	5.1 U	5.3 U	5 U	4.8 U	4.9 U	5.1 U
4-Bromophenyl-phenylether	NA	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
4-Chloro-3-methylphenol	1,100	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
4-Chloroaniline	0.32	NA	NA	5 U	4.8 U	9.8 U	9.8 U	9.6 U	9.6 U	9.4 U	9.4 U	9.5 U	9.4 U	12 U	11 U	10 U	11 U	1 U	0.96 U	0.98 U	1 U
4-Chlorophenyl-phenylether	NA	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
4-Nitroaniline	3.3	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
4-Nitrophenol	NA	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Acenaphthene	400	NA	NA	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
Acenaphthylene	NA	NA	NA	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
Aniline	12	NA	NA			4.9 U	4.9 U	4.8 U	4.8 U	4.7 U	4.7 U	4.8 U	4.7 U	5.8 U	5.3 U	5.1 U	5.3 U	5 U	4.8 U	4.9 U	5.1 U
Anthracene	1,300	NA	NA	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
Benzidine	0.000092	NA	NA			9.8 U	9.8 U	9.6 U	9.6 U	9.4 U	9.4 U	9.5 U	9.4 U	12 U	11 U	10 U	11 U	5 U	4.8 U	4.9 U	5.1 U
Benzo[a]anthracene	0.029	NA	NA	5 U	4.8 U	0.0098 U	0.0098 U	0.0096 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0094 U	0.012 U	0.011 U	0.01 U	0.011 U	0.01 U	**0.018**	**0.01**	0.01 U
Benzo[a]pyrene	0.0029	0.2	NA	5 U	4.8 U	0.0098 U	0.0098 U	0.0096 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0094 U	0.012 U	0.011 U	0.01 U	0.011 U	0.01 U	**0.017**	0.0098 U	0.01 U
Benzo[b]fluoranthene	0.029	NA	NA	5 U	4.8 U	0.0098 U	0.0098 U	0.0096 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0094 U	0.012 U	0.011 U	0.01 U	0.011 U	0.01 U	**0.016**	0.0098 U	0.01 U
Benzo[g,h,i]perylene	NA	NA	NA	5 U	4.8 U	0.0098 U	0.0098 U	0.0096 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0094 U	0.012 U	0.011 U	0.01 U	0.011 U	0.01 U	**0.015**	0.0098 U	0.01 U
Benzo[k]fluoranthene	0.29	NA	NA	5 U	4.8 U	0.0098 U	0.0098 U	0.0096 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0094 U	0.012 U	0.011 U	0.01 U	0.011 U	0.01 U	**0.016**	0.0098 U	0.01 U
Benzyl alcohol	1,500	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
bis(2-Chloroethoxy)methane	47	NA	0.0045	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
bis(2-Chloroethyl)ether	0.012	NA	10	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
bis(2-Chloroisopropyl)ether	0.31	NA	51	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
bis(2-Ethylhexyl)phthalate	0.071	6	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	**6.5**	0.94 U	**3.2**	**20**	**5.2**	1.1 U	**350**	**10**	**5.3**	**7.8**
bis-2-Ethylhexyladipate	56	400	NA			0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Butylbenzylphthalate	14	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Carbazole	NA	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Chrysene	2.9	NA	NA	5 U	4.8 U	0.0098 U	0.0098 U	0.0096 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0094 U	0.012 U	0.011 U	0.01 U	0.011 U	0.01 U	**0.017**	0.0098 U	0.01 U
Dibenz[a,h]anthracene	0.0029	NA	NA	5 U	4.8 U	0.0098 U	0.0098 U	0.0096 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0094 U	0.012 U	0.011 U	0.01 U	0.011 U	0.01 U	**0.017**	0.0098 U	0.01 U
Dibenzofuran	15	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Diethylphthalate	11,000	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Dimethylphthalate	NA	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Di-n-butylphthalate	670	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Di-n-octylphthalate	NA	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Fluoranthene	630	NA	NA	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
Fluorene	220	NA	NA	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
Hexachlorobenzene	0.042	1	1	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Hexachlorobutadiene	0.26	NA	0.33	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Hexachlorocyclopentadiene	22	50	50			0.98 U	0.98 U	0.96 U	0.96 U	0.94 UJ	0.94 UJ	0.95 UJ	0.94 UJ	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Hexachloroethane	0.79	NA	3.8	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Indeno[1,2,3-cd]pyrene	0.029	NA	NA	5 U	4.8 U	0.0098 U	0.0098 U	0.0096 U	0.0096 U	0.0094 U	0.0094 U	0.0095 U	0.0094 U	0.012 U	0.011 U	0.01 U	0.011 U	0.01 U	**0.016**	0.0098 U	0.01 U
Isophorone	67	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Naphthalene	0.14	NA	150	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
Nitrobenzene	0.12	NA	2,000	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
n-Nitrosodimethylamine	0.00042	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
n-Nitroso-di-n-propylamine	0.0093	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
n-Nitrosodiphenylamine	10	NA	NA	5 U	4.8 U	9.8 U	9.8 U	9.6 U	9.6 U	9.4 U	9.4 U	9.5 U	9.4 U	12 U	11 U	10 U	11 U	1 U	0.96 U	0.98 U	1 U
Pentachlorophenol	0.17	1	NA	5 U	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	4.7 U	4.7 U	4.8 U	4.7 U	5.8 U	5.3 U	5.1 U	5.3 U	5 U	4.8 U	4.9 U	5.1 U
Phenanthrene	NA	NA	NA	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
Phenol	4,500	NA	NA	5 U	4.8 U	0.98 U	0.98 U	0.96 U	0.96 U	0.94 U	0.94 U	0.95 U	0.94 U	1.2 U	1.1 U	1 U	1.1 U	1 U	0.96 U	0.98 U	1 U
Pyrene	87	NA	NA	5 U	4.8 U	0.098 U	0.098 U	0.096 U	0.096 U	0.094 U	0.094 U	0.095 U	0.094 U	0.12 U	0.11 U	0.1 U	0.11 U	0.1 U	0.096 U	0.098 U	0.1 U
Pyridine	15	NA	NA			9.8 U	9.8 U	9.6 U	9.6 U	9.4 U	9.4 U	9.5 U	9.4 U	12 U	11 U	10 U	11 U	1 U	0.96 U	0.98 U	1 U

Table C-4 Comprehensive Analytical Data for SVOCs in Water (Page 2 of 2)

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	EPA Vapor Intrusion SL - Target Groundwater Concentration	11-06-0005	11-06-0020	11-06-0021	11-06-0052	11-06-0053	11-06-0055	11-06-0056	11-06-0058
Sample Location				P202GW20	P207GW08	P208GW08	P217GW12	P222GW12	P221GW12	P214GW12	P220GW09
Sample Details				Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event				Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11	Jun-11
SVOCs (µg/L)											
1,2,4-Trichlorobenzene	0.99	70	3,400	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
1,2-Dichlorobenzene	280	600	2,600	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
1,2-Dinitrobenzene	1.5	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
1,2-Diphenylhydrazine	0.067	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
1,3-Dichlorobenzene	NA	NA	830	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
1,3-Dinitrobenzene	1.5	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
1,4-Dichlorobenzene	0.42	75	8,200	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
1,4-Dinitrobenzene	1.5	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
1-Methylnaphthalene	0.97	NA	NA	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**270**	0.1 U	**21**
2,3,4,6-Tetrachlorophenol	170	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2,3,5,6-Tetrachlorophenol	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2,3-Dichloroaniline	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2,4,5-Trichlorophenol	890	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2,4,6-Trichlorophenol	3.5	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2,4-Dichlorophenol	35	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2,4-Dimethylphenol	270	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2,4-Dinitrophenol	30	NA	NA	5.1 U	4.9 U	5 U	4.8 U	120 U	1,000 UJL	5 U	5 U
2,4-Dinitrotoluene	0.2	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2,6-Dinitrotoluene	15	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2-Chloronaphthalene	550	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2-Chlorophenol	71	NA	1,100	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2-Methylnaphthalene	27	NA	3,300	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**210**	0.1 U	**8.1**
2-Methylphenol (o-Cresol)	720	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2-Nitroaniline	150	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
2-Nitrophenol	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
3 & 4-Methylphenol (m,p-Cresol)	720	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
3,3'-Dichlorobenzidine	0.11	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
3-Nitroaniline	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
4,6-Dinitro-2-methylphenol	1.2	NA	NA	5.1 U	4.9 U	5 U	4.8 U	120 U	1,000 U	5 U	5 U
4-Bromophenyl-phenylether	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
4-Chloro-3-methylphenol	1,100	NA	NA	1 U	0.97 U	0.99 U	0.96 U	**120**	210 U	1 U	0.99 U
4-Chloroaniline	0.32	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
4-Chlorophenyl-phenylether	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
4-Nitroaniline	3.3	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
4-Nitrophenol	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Acenaphthene	400	NA	NA	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**31**	0.1 U	**2**
Acenaphthylene	NA	NA	NA	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	21 U	0.1 U	**0.29**
Aniline	12	NA	NA	5.1 U	4.9 U	5 U	4.8 U	120 U	1,000 U	5 U	5 U
Anthracene	1,300	NA	NA	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**54**	0.1 U	**0.33**
Benzidine	0.000092	NA	NA	5.1 U	4.9 U	5 U	4.8 U	120 U	1,000 U	5 U	5 U
Benzo[a]anthracene	0.029	NA	NA	**0.014**	**0.011**	**0.012**	0.0096 U	0.24 U	21 U	**0.015**	0.0099 U
Benzo[a]pyrene	0.0029	0.2	NA	0.01 U	0.0097 U	**0.018**	0.0096 U	**0.32**	**14**	**0.012**	0.0099 U
Benzo[b]fluoranthene	0.029	NA	NA	**0.01**	0.0097 U	**0.024**	0.0096 U	**0.31**	**9.6**	**0.011**	0.0099 U
Benzo[g,h,i]perylene	NA	NA	NA	0.01 U	0.0097 U	**0.022**	0.0096 U	**0.27**	**17**	0.01 U	0.0099 U
Benzo[k]fluoranthene	0.29	NA	NA	0.01 U	0.0097 U	**0.019**	0.0096 U	24 U	**26**	0.01 U	0.0099 U
Benzyl alcohol	1,500	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
bis(2-Chloroethoxy)methane	47	NA	0.0045	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
bis(2-Chloroethyl)ether	0.012	NA	10	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
bis(2-Chloroisopropyl)ether	0.31	NA	51	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
bis(2-Ethylhexyl)phthalate	0.071	6	NA	**240**	**1.5**	0.99 U	**770**	**51**	**80,000**	**24**	**200**
bis-2-Ethylhexyladipate	56	400	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Butylbenzylphthalate	14	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	**600**	1 U	0.99 U
Carbazole	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Chrysene	2.9	NA	NA	**0.01**	0.0097 U	**0.022**	0.0096 U	0.24 U	2.1 U	**0.013**	**0.044**
Dibenz[a,h]anthracene	0.0029	NA	NA	0.01 U	0.0097 U	0.0099 U	0.0096 U	0.24 U	2.1 U	0.01 U	0.0099 U
Dibenzofuran	15	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Diethylphthalate	11,000	NA	NA	**1**	0.97 U	**2.2**	0.96 U	24 U	210 U	1 U	**28**
Dimethylphthalate	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Di-n-butylphthalate	670	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Di-n-octylphthalate	NA	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Fluoranthene	630	NA	NA	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	21 U	0.1 U	0.099 U
Fluorene	220	NA	NA	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	21 U	0.1 U	**3**
Hexachlorobenzene	0.042	1	1	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Hexachlorobutadiene	0.26	NA	0.33	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Hexachlorocyclopentadiene	22	50	50	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Hexachloroethane	0.79	NA	3.8	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Indeno[1,2,3-cd]pyrene	0.029	NA	NA	0.01 U	0.0097 U	**0.019**	0.0096 U	**0.27**	**4.1**	0.01 U	0.0099 U
Isophorone	67	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Naphthalene	0.14	NA	150	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**30**	0.1 U	**0.52**
Nitrobenzene	0.12	NA	2,000	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
n-Nitrosodimethylamine	0.00042	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
n-Nitroso-di-n-propylamine	0.0093	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
n-Nitrosodiphenylamine	10	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Pentachlorophenol	0.17	1	NA	5.1 U	4.9 U	5 U	4.8 U	120 U	1,000 U	5 U	5 U
Phenanthrene	NA	NA	NA	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	**40**	0.1 U	**3.4**
Phenol	4,500	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U
Pyrene	87	NA	NA	0.1 U	0.097 U	0.099 U	0.096 U	2.4 U	21 U	0.1 U	**0.18**
Pyridine	15	NA	NA	1 U	0.97 U	0.99 U	0.96 U	24 U	210 U	1 U	0.99 U

Table C-5 Comprehensive Analytical Data for Pesticides in Water (Page 1 of 1)

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	EPA Vapor Intrusion SL - Target Groundwater Concentration	09-05-0705	09-05-0706	09-10-1021	09-10-1022	09-10-1023	09-10-1024
Sample Location				GW01	GW02	SW01	SW02	SW03	SW04
Sample Details				Domestic Well	Domestic Well	Surface Water	Surface Water	Surface Water	Surface Water
Sample Collection Event				May-09	May-09	Oct-09	Oct-09	Oct-09	Oct-09
Pesticides (µg/L)									
4,4'-DDD	0.28	NA	NA	0.077 U	0.077 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
4,4'-DDE	0.2	NA	29	0.077 U	0.077 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
4,4'-DDT	0.2	NA	NA	0.077 U	0.077 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
Aldrin	0.00021	NA	0.071	0.038 UJ	0.038 UJ	0.0049 UJ	0.0048 U	0.0048 U	0.0048 U
alpha-BHC	0.0062	NA	3.1	0.038 U	0.038 U	0.0049 UJ	0.0048 UJ	0.0048 UJ	0.0048 UJ
alpha-Chlordane	NA	NA	NA	0.038 U	0.038 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
beta-BHC	0.022	NA	NA	0.038 U	0.038 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
delta-BHC	NA	NA	NA	0.038 U	0.038 U	0.0049 UJ	0.0048 UJ	0.0048 UJ	0.0048 UJ
Dieldrin	0.0015	NA	0.86	0.077 U	0.077 U	0.0049 UJ	0.0048 UJ	0.0048 UJ	0.0048 UJ
Endosulfan I	NA	NA	NA	0.038 U	0.038 U	0.0049 UJ	0.0048 UJ	0.0048 UJ	0.0048 UJ
Endosulfan II	NA	NA	NA	0.077 U	0.077 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
Endosulfan sulfate	NA	NA	NA	0.077 U	0.077 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
Endrin	1.7	2	NA	0.077 U	0.077 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
Endrin aldehyde	NA	NA	NA	0.077 U	0.077 U	0.02 U	0.019 U	0.019 U	0.019 U
Endrin ketone	NA	NA	NA	0.077 U	0.077 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
gamma-BHC	0.036	0.2	11	0.038 U	0.038 U	0.0049 UJ	0.0048 UJ	0.0048 UJ	0.0048 UJ
gamma-Chlordane	NA	NA	NA	0.038 U	0.038 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
Heptachlor	0.0018	0.4	0.4	0.038 U	0.038 U	0.0049 UJ	0.0048 UJ	0.0048 UJ	0.0048 UJ
Heptachlor epoxide	0.0033	0.2	NA	0.038 U	0.038 U	0.0049 U	0.0048 U	0.0048 U	0.0048 U
Methoxychlor	27	40	NA	0.38 U	0.38 U	0.0098 UJ	0.0097 UJ	0.0097 UJ	0.0096 UJ
Toxaphene	0.013	3	NA	4.8 U	4.8 U	0.049 U	0.048 U	0.048 U	0.048 U

Note: No other samples were submitted for pesticide analysis as part of the removal site evaluation.

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Table C-6 Comprehensive Analytical Data for VOCs in Water (Page 1 of 1)

EPA Sample ID	EPA RSL - Tapwater	Federal Drinking Water MCL	EPA Vapor Intrusion SL - Target Groundwater Concentration	09-05-0705	09-05-0706	09-10-1021	09-10-1022	09-10-1023	09-10-1024	10-10-0001	10-10-0002	10-10-0003	10-10-0004
Sample Location				GW01	GW02	SW01	SW02	SW03	SW04	MW01	MW02	MW03	MW04
Sample Details				Domestic Well	Domestic Well	Surface Water	Surface Water	Surface Water	Surface Water	Groundwater	Groundwater	Groundwater	Groundwater
Sample Collection Event				May-09	May-09	Oct-09	Oct-09	Oct-09	Oct-09	Oct-10	Oct-10	Oct-10	Oct-10
VOCs (µg/L)													
1,1,1,2-Tetrachloroethane	0.5	NA	3.3	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,1-Trichloroethane	7,500	200	3,100	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2,2-Tetrachloroethane	0.066	NA	3	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1,2-Trichloroethane	0.24	5	5	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethane	2.4	NA	2,200	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	260	7	190	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloropropene	NA	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,3-Trichlorobenzene	5.2	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
1,2,3-Trichloropropane	0.00065	NA	290	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2,4-Trichlorobenzene	0.99	70	3,400	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
1,2,4-Trimethylbenzene	15	NA	24	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dibromo-3-chloropropane	0.00032	0.2	33	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ
1,2-Dibromoethane	0.0065	0.05	0.36	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichlorobenzene	280	600	2,600	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloroethane	0.15	5	5	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	0.38	5	35	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3,5-Trimethylbenzene	87	NA	25	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichlorobenzene	NA	NA	830	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-Dichloropropane	290	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,4-Dichlorobenzene	0.42	75	8,200	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2,2-Dichloropropane	NA	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Butanone	4,900	NA	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 UJ	5 UJ	5 UJ
2-Chloroethyl Vinyl Ether	NA	NA	NA			1 U	1 U	1 U	1 U	1 R	1 R	1 R	1 R
2-Chlorotoluene	180	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Hexanone	34	NA	NA	5 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4-Chlorotoluene	190	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Isopropyltoluene	NA	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
4-Methyl-2-pentanone	1,000	NA	NA	5 U	5 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Acetone	12,000	NA	220,000	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	0.39	5	5	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromobenzene	54	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromochloromethane	83	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	0.12	80	2.1	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromoform	7.9	80	0.0083	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	7	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Carbon Disulfide	720	NA	560	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Carbon Tetrachloride	0.39	5	5	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	72	100	390	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloroethane	21,000	NA	28,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Chloroform	0.19	80	80	**0.31 J**	**0.19 J**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloromethane	190	NA	6.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
(cis) 1,2-Dichloroethene	28	70	210	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
(cis) 1,3-Dichloropropene	NA	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromochloromethane	0.15	80	3.2	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dibromomethane	7.9	NA	990	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Dichlorodifluoromethane	190	NA	14	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	1.3	700	700	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Hexachlorobutadiene	0.26	NA	0.33	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Iodomethane	NA	NA	NA			1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	390	NA	8.4	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
m,p-Xylene	190	NA	NA	2 U	2 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Methyl t-Butyl Ether	12	NA	120,000	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Methylene Chloride	9.9	5	58	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Naphthalene	0.14	NA	150	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ	1 UJ
n-Butylbenzene	780	NA	260	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
n-Propylbenzene	530	NA	320	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
o-Xylene	190	NA	33,000	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
sec-Butylbenzene	NA	NA	250	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Styrene	1,100	100	8,900	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
tert-Butylbenzene	NA	NA	290	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	9.7	5	5	**0.6 J**	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.25**	**0.36**	0.2 U
Toluene	860	1,000	1,500	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
(trans) 1,2-Dichloroethene	86	100	180	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
(trans) 1,3-Dichloropropene	NA	NA	NA	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	0.44	5	5	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichlorofluoromethane	1,100	NA	180	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Acetate	410	NA	9,600			2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vinyl Chloride	0.015	2	2	1 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U

Note: No other samples were submitted for VOC analysis as part of the removal site evaluation.

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D Streamlined Human Health Risk Evaluation

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Appendix D – Stubblefield Human Health Risk Evaluation

This section presents a streamlined human health risk evaluation (HHRE) for the Stubblefield Salvage Yard Site in Walla Walla, Washington. The streamlined evaluation is intended to focus on the specific problem that the engineering evaluation / cost analysis (EE/CA) for the site is addressing, which is to identify the scope of the removal action for the site. In this case, the metal salvage process area (process area), which is approximately 25,000 square feet, is the primary source of contamination at the site and is, therefore, the focus of the removal action and the HHRE. The HHRE for the site was performed to preliminarily characterize the potential hazards and risks associated with the metal salvage process area.

In a streamlined evaluation, the chemicals of potential concern (COPCs) for which actions may be taken are identified by defining potential exposure pathways and receptors, and comparing analyte concentrations to published screening levels. Screening levels are conservative risk-based concentrations or applicable state and Federal standards consistent with the pathways and receptors identified. This evaluation was performed in accordance with Federal guidance for assessing risks associated with non-time critical removal actions (EPA 1993) and other applicable Federal and state human health risk assessment guidance (EPA 2012 and 1989, Ecology 2007).

D.1 Site Description, Setting, and History

The Stubblefield Salvage Yard Site consists of approximately 11 acres of land located in Walla Walla, Washington. The salvaging facility on the site is no longer active. Other than a few abandoned buildings and machinery, the site is generally covered with bare soil and patches of grass and weeds. A swale is present in the northwest portion of the site and is marked by dense vegetation. The site is bordered to the north by Mill Creek, to the west by Myra Road, to the east by agricultural land, and to the south by residences.

The salvage yard began operation in the 1950s to process metal wastes for recycling or disposal until mid-2010. The facility received metal wastes such as vehicles, drums, appliances, transformers, structural metal, agricultural machines, batteries, spent ammunition casings, and household waste including metal cans. The waste products, processed in a variety of ways, were either disposed of or recycled. Many of the metal materials were cut into smaller pieces using either acetylene torches or a large hydraulic shear. Large metal wastes such as vehicles were crushed. Hydraulic fluid and oil are reported to have sprayed onto soils from the crushing vehicles. Oil from the hydraulic oil tank, once housed in the abandoned shop building, was reported to have leaked onto soils (E & E 2012).

In addition, several 55-gallon drums suspected of containing oil, grease, paints, solvents, corrosives, and other automotive or mechanical fluids and solids were dispersed across the property, but have been consolidated into one location as part of Environmental Protection Agency (EPA) activities at the site. The drums, scrap metal and vehicles have been removed from the site (E & E 2012).

For additional details on the setting and history of the site, refer to Section 2.1 of the EE/CA.

D.2 Data Used for HHRE

Environmental media samples have been collected at the site during several different investigations as part of a removal site evaluation (RSE) initiated by EPA in 2009 (See Figure 2-3 of the EE/CA for RSE sampling locations). Surface and subsurface soil samples were collected in May, September, and October 2009; March 2010; June 2011; and April 2012. While possible background soil samples were collected during some of these dates, the data were considered not useable as background samples in evaluations because the sample locations turned out to be in a contaminated area. Groundwater samples were collected in May 2009, March and October 2010, and June 2011. One well (MW01) was installed upgradient from the process area. Samples collected from this well were designated as background. Four surface water samples were collected from Mill Creek in October 2009, including one sample upstream (background), two samples adjacent to the northern boundary of the site, and one sample downstream.

Media samples were analyzed for dioxins, metals, polychlorinated biphenyls (PCBs), pesticides, total petroleum hydrocarbons (TPH), semivolatile organic compounds (SVOCs), and/or volatile organic compounds (VOCs). Analytical results for the samples are presented in Appendix B for soil and Appendix C for water. For further details about the sampling events and laboratory analyses, refer to Section 2.4 of the EE/CA. Data associated with all samples collected during the RSE (except soil background) are considered useable for risk assessment purposes and, therefore, included in the human health screening evaluation.

D.3 Human Health Conceptual Site Model

The human health conceptual site model (CSM) provides an overall picture of site conditions as they relate to the HHRE. The CSM is a tool used to identify the following:

- The primary source of contamination in the environment;
- How chemicals at the original point of release migrate through the environment;
- The types of human populations who might come into contact with contaminated media; and
- Potential exposure pathways that may occur for each population.

In risk assessment, exposure pathways are means by which chemicals move from the contaminated media to a point of contact by receptors. They describe the exposure medium (e.g., surface soil) and the exposure route (e.g., incidental ingestion). A complete exposure pathway must exist for exposure and subsequent risks to occur. If one or more of the aforementioned elements is not present, the exposure pathway is not considered complete and is not evaluated in the risk assessment (EPA 1989).

The CSM for the site is provided in Figure 2-12. Based on local land use and zoning information, exposure scenarios evaluated in the HHRE include current and future residential and future worker. Potential residential and worker receptors could be exposed to chemicals from the site through contact with surface soil, subsurface soil, groundwater, surface water, and indoor air. Potential routes of exposure include ingestion, dermal absorption, and inhalation. A more detailed description of these exposure pathways and receptors, including a summary of area land use and zoning, is provided in the following section.

D.4 Summary of Exposure Pathways and Receptors

This section presents all exposure scenarios considered for inclusion in the HHRE. Exposure pathways initially considered in the HHRE, but eliminated because they did not meet the criteria for being complete exposure pathways, are described in Section D.4.1. The description includes the basis for exclusion of the pathways. Section D.4.2 discusses the exposure pathways considered potentially complete for receptors and, therefore, carried forward for the screening assessment in Section D.6.

D.4.1 Incomplete Exposure Pathways

Recreational and site trespasser scenarios were initially considered in the HHRE because of the presence of contamination in soils and the potential for runoff to flow from the site to Mill Creek, which borders the northern end of the site. However, based on land use information and site conditions these scenarios were eliminated from the evaluation because one or more of the exposure pathway elements was absent. Specifically, the site is surrounded by a maintenance fence, which restricts access, and the site and immediate surrounding area is not used for recreational purposes. Therefore, neither site trespassers nor recreational users were considered potential receptors coming into contact with site-related chemicals.

In addition, Mill Creek is not an appealing water body for recreational wading or swimming. The creek was channelized in the 1940s to prevent flooding. Channelization near the site is characterized by riprapped banks and cross weirs spaced about every 100 feet (Kuttel 2001). The middle portion of the channel is concrete-lined with a low flow channel and baffles placed at regular intervals in an attempt to allow fish passage (Kuttel 2001, USACE 1993). A concrete levee is present between the site and Mill Creek, thereby preventing runoff from the site to flow into the creek.

Mill Creek, from the mouth to Bennington Lake (located approximately 6 miles upstream of the site), and all its tributaries are closed to fishing (WDFW 2011). This closure is a measure used by the state to improve fish passage for trout and salmon (Mendel 2011). Therefore, fishing and any other recreational activities on Mill Creek are not considered potential exposure pathways related to the site.

Mill Creek flows into the Walla Walla River, 6.5 miles from the shoreline adjacent to the Stubblefield site. Fishing is known to occur in the Walla Walla River; however, it is not considered a major water recreation area (E & E 2011). Due to the distance of the creek confluence with the river from the site, and the limited amount of fishing that occurs on the river, exposure pathways related to the recreational scenario were considered incomplete.

D.4.2 Complete Exposure Pathways

Current and Future Residential

A residential exposure scenario is included in the HHRE due to the proximity of current residential properties and the potential for future development of residential housing on the site and adjacent properties. The population residing within a 0.5-mile and 1-mile radius of the site includes 751 people and 3,926 people, respectively (See Figure 2-13) (USCB 2010). No schools are located in the immediate vicinity of the site. Two schools (Blue Ridge Elementary and Garrison Middle) are located within 1 to 1.5 miles southeast of the site. No other schools are located within a 1-mile radius of the site (City of Walla Walla 2010).

Both the Walla Walla County and the City of Walla Walla zoning maps designate the site property as R-96 (9,600 ft^2) suburban single family residential (WWJCDA 2012, City of Walla Walla 2010). Land use planned for the site property and surrounding area is primarily low density residential, with some medium density residential nearby. A rural residential 5 land use is designated for properties within half-mile radius of the site (WWCCDD 2009).

Groundwater present below the site and throughout the Walla Walla River basin is used as a drinking water and an irrigation source. The groundwater is obtained from two geologically distinct aquifers: one is basalt and the other is gravel. The depths of these aquifers are unknown; however, the basalt aquifer is reported to be 2,000 feet thick throughout the basin and the gravel aquifer is 200 feet thick. The gravel aquifer is intimately coupled with the network of streams, canals, and ditches that web its surface (E & E 2011). Numerous domestic, irrigation, and community water systems are present in these aquifers (E & E 2011).

A search of the WDOH Sentry Internet database for populations within a 4-mile radius of the site revealed the presence of 13 community water systems serving a population of almost 25,000 people (E & E 2011). Approximately 830 domestic drinking water wells are also located within a 4-mile radius of the site. It is estimated that these domestic wells serve a total population of 2,075 people (E & E 2011). Given the nearby agricultural land uses, it is assumed that groundwater within the 4-mile radius is used for the irrigation of 5 or more acres of commercial food crops or for the watering of commercial livestock (E & E 2011). In addition, while Mill Creek is considered useable for drinking water and irrigation, no surface water intakes are located downstream of the site (E & E 2011). In the event that intakes are developed downstream of the site, exposure to chemicals in surface water could be a complete pathway for residents.

Due to the presence of VOCs in soil and groundwater, vapor intrusion to indoor air could occur with the existing abandoned building if it remains in place or if residential housing is developed on the site in the future.

Based on the information presented, the exposure pathways considered complete for current residents include consumption of and dermal contact with groundwater as drinking water. Inhalation of VOCs during showering or bathing could also occur, although ingestion is likely the predominant pathway for residents. There are no residents occupying the site at this time; therefore, contact with soil is not a complete pathway for the current residential scenario. Assuming future residential development can occur on site property, exposure pathways for the future residential scenario include consumption of and dermal contact with groundwater and surface water as drinking water, incidental ingestion, dermal contact, and inhalation of chemicals in surface soil and subsurface soil, as well as inhalation of VOCs due to indoor air vapor intrusion.

Future Workers

While zoning and land use indicate that future residential development may occur on site property and surrounding area, commercial and industrial development may also occur. Comparing industrial land use screening levels in addition to the residential screening levels provides additional relevant information for decision-making purposes.

Hypothetical future workers may contact chemicals from the site through similar exposure pathways described above for residents.

D.5 Screening Values for the HHRE

The EPA (1989) suggests that, at sites where a large number of chemicals are present, it can be useful to eliminate from further consideration those chemicals that represent a small contribution to risk. To accomplish this, site concentrations of chemicals are compared to numerical screening values. If the maximum concentration of a chemical is above a screening value, the chemical is considered a COPC for the site. Generally, at sites where contaminant concentrations fall below screening levels, no further action or study is warranted for that COPC to ensure the protection of human health.

Several metrics are used for screening and selecting COPCs, including:

- Health-based screening values based on toxicological characteristics of each chemical;
- Comparison to background concentrations; and
- Evaluation of essential nutrients.

The sources of the screening levels selected for the HHRE are described below and the values are presented in Tables 2-1 and 2-2 (for COPCs only), as well as in data tables provided in Appendices B and C (all detected chemicals). Background concentration data were available for groundwater samples collected from the upgradient monitoring well, MW01, and are included in Appendix C tables for comparison to detected concentrations. Data for surface water samples collected from the upstream location in Mill Creek are also presented in Appendix C tables.

The EPA (1989) recommends removing chemicals from further consideration if they are considered "essential nutrients"; that is, naturally occurring chemicals essential to human life that are toxic only at very high doses. Essential nutrients (e.g., calcium, magnesium, potassium and sodium) were eliminated from further consideration.

The health-based screening levels used to compare analytical results for the site include:

- EPA residential soil regional screening levels (RSLs),
- EPA industrial/commercial soil RSLs,
- EPA residential tap water RSLs,
- EPA Vapor Intrusion Pathway Generic Screening Levels (SLs),
- Federal Maximum Contaminant Levels (MCLs), and
- Ecology Model Toxics Control Act (MTCA) soil and water cleanup levels for TPH.

The EPA RSLs are risk-based concentrations derived from standard risk equations that combine default reasonable maximum exposure (RME) assumptions with EPA toxicity data. Exposure assumptions used to calculate residential RSLs for carcinogenic chemicals include those for both childhood and adulthood exposure via incidental soil ingestion, dermal contact with soil, and inhalation of soil particulates, with a total of 30 years exposure at 350 days per year. Residential RSLs for noncarcinogens are based on childhood exposures only because children are more sensitive to the adverse health effects of chemicals (EPA 2012).

Exposure assumptions for industrial soil RSLs are based on a full-time (8 hours per day) worker who may work both indoors and outdoors (i.e., composite worker) and may contact chemicals in soil via incidental ingestion, dermal absorption, or particulate inhalation. Exposure frequency and duration for the worker are assumed to be 250 days per year for 25 years (EPA 2012).

RSLs for tap water are based on exposure assumptions for a resident who consumes 2 liters of water per day and showers once per day. During a shower a resident may contact chemicals in the water via incidental ingestion, dermal contact, and volatile inhalation (EPA 2012).

Target risk levels in the RSL equations are set to $1x10^{-6}$ (or one in one million) for carcinogenic chemicals and a hazard index of 1 for noncarcinogens. The screening levels are considered by the EPA to be protective for humans (including sensitive groups) over a lifetime.

Vapor intrusion pathway screening levels are based on groundwater concentrations corresponding to target indoor air concentrations where the soil gas to indoor air attenuation factor is assumed to be 0.001. The target indoor air concentrations are based on residential inhalation exposures corresponding to a cancer target risk level of $1x10^{-6}$ or hazard index of 1 for noncarcinogens. If the target indoor air concentration for a chemical is due to a groundwater concentration greater than the MCL, the generic screening level for vapor intrusion is set to the MCL (e.g., chloroform) (EPA 2002).

MCLs are EPA standards for public water systems and are developed under the National Primary Drinking Water Regulations per the Safe Drinking Water Act (SDWA). Under the SDWA, EPA sets legal limits on the levels of certain contaminants in the drinking water. The limits reflect both the level that protects human health and the level that water systems can achieve using the best available technology (EPA 2011).

Because there are no EPA RSLs for TPH, the soil and groundwater data for this compound group were compared to Method A TPH cleanup levels set forth in the MTCA Cleanup Regulation, Chapter 173-340 WAC (Ecology 2012). Cleanup levels are based on unrestricted land use in which calculations assume a RME childhood scenario with residential land use conditions. Calculation of Method A unrestricted soil cleanup levels consider both direct contact exposure pathways (i.e., ingestion and dermal) and soil to groundwater leaching (Ecology 2005a, 2004). Method A unrestricted groundwater cleanup levels are based on protection of drinking water sources for residential purposes (Ecology 2005b).

In addition, MTCA requires evaluation of the vapor pathway under certain conditions. Specifically, the pathway should be evaluated when diesel range TPH concentrations in soil are greater than 10,000 mg/kg (Ecology 2009), as they are at the site. However, to evaluate TPH in soil, soil gas data are required. These data are not available for the site. The vapor intrusion screening levels for TPH in groundwater are also not applicable because the analytical data specific to aliphatic and aromatic fractions identified in Ecology (2009) are not available for the site. The analytical method used to test the site soil and groundwater samples for TPH was based on the NWTPH-Dx analysis, which does not provide a breakdown of these fractions.

D.6 Screening Evaluation Results

This section presents the human health screening evaluation of chemical concentrations in soil, groundwater, and surface water (Mill Creek) samples using the screening levels described above and maximum detected concentrations. If the maximum concentration of a chemical is above a screening value, the chemical is considered a COPC for the site. Generally, at sites where contaminant concentrations fall below screening and/or natural background levels, no further action or study is warranted to ensure the protection of human health.

The screening level comparisons for soil, groundwater, and surface water are shown in the data tables provided in Appendices B and C. Tables 2-1 and 2-2 provide a summary of all screening level exceedances and COPCs for soil and groundwater, respectively. The results for each medium are discussed below.

Soil

Table 2-1 summarizes the chemicals with soil concentrations exceeding applicable screening levels. These chemicals are considered COPCs for surface and subsurface soil at the site. As shown in Table 2-1, maximum soil concentrations of metals, pesticides, PCBs, TPH, SVOCs, and VOCs exceeded screening levels. No dioxins were detected in soil samples.

Antimony, arsenic, cobalt, iron, and lead concentrations in soil exceeded the EPA residential RSLs. Lead and arsenic also exceeded the industrial RSLs. Lead had a maximum concentration (4,400 mg/kg) that was one to several orders of magnitude greater than the RSLs, although most of the other detected lead concentrations were much less than the maximum. All metal exceedances occurred at relatively low frequencies, ranging from 1 to 20 percent. All detected metals had soil concentrations that were greater than the soil-to-groundwater RSLs at frequencies ranging from 3 to 100 percent.

The soil concentrations of four PCB aroclors were above all three screening values used in the evaluation, with frequency of exceedances ranging from 2 to 27 percent. In some cases, the maximum concentrations of these aroclors were several orders of magnitude higher than the screening levels, particularly the soil-to-groundwater RSLs.

Two pesticides (beta-BHC and dieldrin) had soil concentrations that exceeded the residential soil RSL, while no pesticides had concentrations that exceeded the industrial RSL. The exceedances of the residential RSL occurred at only one sample location (SA07 at 4 ft bgs). All detected pesticides had soil concentrations greater than the soil-to-groundwater RSLs at 6 out of 23 sample locations.

TPH concentrations in the oil and diesel ranges exceeded both the residential and industrial MTCA cleanup levels (which are both 2,000 mg/kg) by one to two orders of magnitude. The concentrations of oil range TPH were above MTCA cleanup levels in 12 out of 59 (20 percent) samples collected, while concentrations of diesel range TPH were above MTCA cleanup levels in 7 out of 59 samples (12 percent). Applicable soil-to-groundwater screening levels were not available for comparison.

Several SVOCs were detected in soil above one or more of the screening levels. Specifically, the polycyclic aromatic hydrocarbons (PAHs), predominately the carcinogenic compounds, exceeded both the residential and industrial soil RSLs. All 19 of the detected SVOCs had concentrations exceeding the soil-to-groundwater RSLs.

Two VOCs (methylene chloride and naphthalene) were 4 to 5 times greater than the soil-to-groundwater RSLs in the two surface soil samples collected. Neither VOC had concentrations exceeding the residential and industrial soil RSLs.

Groundwater

Table 2-2 summarizes the chemicals with groundwater concentrations that exceeded applicable screening levels. These chemicals are considered COPCs for groundwater below the site. As shown in Table 2-2, maximum groundwater concentrations of metals, PCBs, TPH, SVOCs, and one VOC (chloroform) exceeded screening levels. Elevated concentrations in groundwater were generally above background levels reported for the upgradient monitoring well (MW-01). Neither pesticides nor dioxins were detected in groundwater samples.

Arsenic, cobalt, iron, manganese, and vanadium concentrations all exceeded the EPA tap water RSL, while lead exceeded the MCL. Frequency of exceedance was generally low for all metals, ranging from 5 to 20 percent. Groundwater concentrations of the PCBs and TPH also exceeded the EPA tap water RSLs (PCBs) or MTCA cleanup levels (TPH), with generally low frequency (5 to 14 percent).

The SVOCs with concentrations greater than screening levels included several PAHs and two phthalate compounds. With the exception of benzo(a)pyrene, concentrations of the PAHs exceeded only the EPA tap water RSLs with low frequency (5 to 9 percent). Benzo(a)pyrene concentrations exceeded both the tap water RSL and MCL at frequencies of 32 percent and 9 percent, respectively. No PAHs had detected concentrations above the soil-to-groundwater RSLs.

Bis(2-ethylhexyl)phthalate had concentrations greater than both the EPA RSL and MCL, at frequencies ranging from 45 to 68 percent. For butylbenzylphthalate, only the maximum concentration exceeded the EPA tap water RSL. The one detected VOC in groundwater, chloroform, had one sample with a concentration greater than the EPA tap water RSL (0.19 ug/L), but it was significantly below the MCL and soil-to-groundwater RSL of 80 ug/L.

Surface Water

The analytical results for the surface water samples from Mill Creek indicated that PCBs, pesticides, TPH, SVOCs, and VOCs were not detected. The only metal analytes detected are common constituents of natural waters and are below EPA tap water RSLs and drinking water MCLs (see Appendix C).

D.7 HHRE Uncertainties

Uncertainty is inherent in each step of the risk evaluation process. Significant sources of uncertainty in the HHRE include the following:

- The standard methodology for risk assessment relies on fixed input parameters in the equations used to calculate risk estimates, cleanup levels, or screening levels. These parameters are based on a considerable number of assumptions and do not characterize the variability inherent in a population or in environmental media concentrations.

- Screening criteria are based on published screening levels or standards, both of which tend to rely on conservative default assumptions. These assumptions are selected to represent a high-end estimate of exposure for an individual (i.e., RME) that is a conservative, or protective, estimate of actual exposures. Potential exposures may be less than estimated.

- The HHRE relied on maximum concentrations for comparison to screening levels due to the streamlined nature of the evaluation. In standard risk assessment methodology, statistical averages of concentrations are typically used to estimate exposure (e.g., 95% UCL). Inherent in this approach is the assumption that receptors that contact an environmental medium containing a COPC do so randomly. Thus, an estimate of the average concentration represents the concentration to which a receptor might be exposed. In addition, a better understanding of the spatial and temporal trends in concentrations would provide a more accurate picture of potential exposures that could occur in the future.

- The lack of background data for comparing to soil concentrations could lead to an assumption that screening level exceedances are due entirely to the site. Also, some elevated concentrations of metals could be within natural background for the region.

D.8 HHRE Summary and Conclusions

In summary, the streamlined HHRE for the Stubblefield Salvage Yard Site was performed to preliminarily characterize the potential hazards and risks associated with the metal salvage process area, which is the primary source of contamination at the site.

Based on local land use and zoning information, exposure scenarios evaluated in the site HHRE include current and future residential and future worker. Potential residential and worker receptors could be exposed to chemicals from the site through contact with surface soil, subsurface soil, groundwater, surface water, and indoor air. Potential routes of exposure include ingestion, dermal absorption, and inhalation.

To evaluate potential risks at the site in a streamlined manner, maximum concentrations of detected analytes were compared to conservative screening levels that are considered protective of human health. The screening level comparison revealed several chemicals with soil and groundwater concentrations exceeding residential and industrial screening levels. These chemicals were identified as COPCs for use in determining the scope of the removal action for the site. The site COPCs are summarized in Tables 2-1 and 2-2.

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E Applicable or Relevant and Appropriate Requirements

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Standard, Requirement, Criterion, or Limitation	Citation	Description	ARAR/TBC
Chemical-Specific			
Federal			
Federal Water Pollution Control Act (a.k.a. Clean Water Act)	33 USC §§ 1251- 1387 40 CFR 129	Toxic Pollutant Effluent Standards	Relevant and appropriate
Federal Safe Drinking Water Act	42 USC 300f et seq. 40 CFR 141, 143	Defines Maximum Contaminant Levels (MCLs) for drinking water.	Applicable
EPA Regional Screening Levels (RSLs)	EPA 2011	Chemical-specific risk-based concentrations derived from standard risk equations for soil, groundwater, surface water, and sediment.	To be considered
Ambient Water Quality Criteria (AWQC)	33 USC Sec. 304; http://water.epa.gov/scitech/swguidance/standards/current/index.cfm	Published pursuant to the Clean Water Act, numeric values limiting the amount of chemicals present in surface water bodies.	To be considered
Washington State			
Model Toxics Control Act (MTCA)	RCW 70.105D WAC 173-340	Identifies procedures for establishing cleanup levels for groundwater, surface water, sediments, and soil.	Applicable
Water Quality Standards for Surface Waters of the State of Washington	RCW 90.48 WAC 173-201A	Establishes water quality standards for surface waters of the State of Washington consistent with public health and public enjoyment of the waters and the propagation and protection of fish, shellfish, and wildlife.	Applicable
State Water Pollution Control Act, State Water Resources Act of 1971	RCW 90.54 WAC 173-200	Establishes ground water quality standards and applies to all ground waters of the state that occur in a saturated zone or stratum beneath the surface of land or below a surface water body.	Applicable
Action-Specific			
Federal			
Resource Conservation and Recovery Act (RCRA)	42 USC 6902 et seq. 40 CFR 261 et seq.	Defines hazardous waste management requirements. Applies to management of hazardous/dangerous waste. If wastes are removed from the site, they will be managed in accordance with these requirements.	Relevant and appropriate (State is authorized for RCRA)
Toxic Substances Control Act (TSCA)	15 U.S.C § 2601 et seq. 40 CFR 761 et seq.	Provides requirements for reporting, record-keeping, testing, and disposal of certain chemical substances and/or mixtures, including polychlorinated biphenyls [PCB]s.	Applicable if PCB concentrations exceed specific thresholds.
Federal Water Pollution Control Act (a.k.a. Clean Water Act)	33 USC 1251-1387 33 CFR 320-330 40 CFR 230	Establishes permit program for activities performed within 200 feet of shorelines.	Applicable
Federal Water Pollution Control Act (a.k.a. Clean Water Act), National Pollutant Discharge Elimination System (NPDES)	33 USC Sec. 303, 304 40 CFR Part 122, 125	Establishes State permit program for discharge of pollutants and wastewater to surface waters. Requires all known, available, and reasonable methods of treatment (AKART).	Applicable for any point source discharge of pollutants to surface water, including storm water runoff at the site.
Clean Air Act, 42 USC s/s 7401 et seq. (1970)	40 CFR Parts 61 and 63	Part 61- National Emission Standards for Hazardous Air Pollutants. Part 63 - National Emission Standards for Hazardous Air Pollutants for Source Categories.	Applicable
Federal Endangered Species Act (1973)	16 USC 1531 et seq. 50 CFR 200, 402	Establishes program to conserve and protect threatened or endangered species.	Applicable to the site for listed and proposed to be listed threatened or endangered species and their habitat areas which will, or could, be

Standard, Requirement, Criterion, or Limitation	Citation	Description	ARAR/TBC
			impacted by removal action.
U.S. Fish and Wildlife Coordination Act	16 USC 661 et seq.	Prohibits water pollution with any substance deleterious to fish, plant life, or bird life. Discharges to surface water controlled through state NPDES program. However, discharges to surface water may require a consultation with the United States Fish and Wildlife Service.	Applicable if threatened or endangered species could be impacted by the response action.
Migratory Bird Treaty Act (MBTA)	16 USC § 703 et seq.	Makes it unlawful to “hunt, take, capture, kill” or take various other actions adversely affecting a broad range of migratory birds, including tundra swans, hawks, falcons, songbirds, without prior approval by the U.S. Fish and Wildlife Service. (See 50 CFR 10.13 for the list of birds protected under the MBTA.) Under the MBTA, permits may be issued for take (e.g., for research) or killing of migratory birds (e.g., hunting licenses). The mortality of migratory birds due to ingestion of contaminated sediment is not a permitted take under the MBTA.	Applicable for protecting migratory bird species identified. The selected removal action to be carried out in a manner that avoids the taking or killing of protected migratory bird species, including individual birds or their nests or eggs.
Archaeological Resources Protection Act	16 USC § 470aa et seq.; 43 CFR Part 7	Prohibits the unauthorized disturbance of archaeological resources on public or Indian lands. Archaeological resources are “any material remains of past human life and activities which are of archaeological interest,” including pottery, baskets, tools, and human skeletal remains. The unauthorized removal of archaeological resources from public or Indian lands is prohibited without a permit, and any archaeological investigations at a site must be conducted by a professional archeologist.	Applicable for the conduct of any selected response actions that may result in ground disturbance.
American Indian Religious Freedom Act	42 USC § 1996 et seq	The American Indian Religious Freedom Act and implementing regulations are intended to protect Native American religious, ceremonial, and burial sites, and the free practice of religions by Native American groups. The requirements of this Act must be followed if sacred sites graves are discovered in the course of ground-disturbing activities.	Potentially applicable to a site where response actions involve disturbance/alteration of the ground and/or site terrain.
Native American Graves Protection and Repatriation Act	25 USC § 3001 et seq 43 CFR Part 10 25 USC 3001 et seq. 43 CFR 10	Intended to protect Native American graves from desecration through the removal and trafficking of human remains and “cultural items” including funerary and sacred objects. The requirements of this Act must be followed when graves are discovered or ground-disturbing activities encounter Native American burial sites.	Potentially applicable to a site where response actions involve disturbance/ alteration of the ground and/or site terrain.
Washington State			
Model Toxics Control Act (MTCA)	RCW 70.105D.090 WAC 173-340	Establishes administrative processes and standards to identify, investigate, and clean up facilities where hazardous substances have come to be located. Applies to any facility (including landfills) where hazardous substance releases to the environment have been confirmed. Also specifies application of cleanup levels.	Applicable
Minimum Functional Standards for Solid Waste Handling	WAC 173-304	Defines requirements for solid waste management and disposal facilities. Applies to closure of solid waste landfill, including capping, installation of gas system, and environmental monitoring.	Does not apply if dangerous wastes are present.
Hazardous Waste Management Act	RCW 70.105	Defines threshold levels and criteria to determine whether	Applicable

Standard, Requirement, Criterion, or Limitation	Citation	Description	ARAR/TBC
(HWMA)		materials are hazardous/dangerous wastes. Applies to designation, handling, and disposal of wastes. Treatment residuals meeting these criteria will be handled and disposed of in accordance with regulatory requirements.	
Dangerous Waste Regulations	WAC 173-303-140	Defines pre-treatment and land disposal restrictions for certain wastes. Applies to disposal of hazardous/dangerous wastes off-site. Wastes probably will not require additional treatment or be subject to restrictions.	Applicable if any waste is disposed off-site.
State Clean Air Act: Source Registration, Emissions Limits, Air Quality Standards	RCW 70.94 WAC 173-400	Establishes state approved program for source registration and fee payment to restrict emissions, use of BACT, and ensures compliance with air quality standards. Applies to installing or operating source having emissions to atmosphere. Alternatives emitting contaminants to atmosphere will comply with substantive requirements of these regulations.	Applicable

Key:
ARAR = Applicable or Relevant and Appropriate Requirement
CFR = Code of Federal Regulations
EPA = Environmental Protection Agency
RCW = Revised Code of Washington
TBC = to be considered
USC = United States Code
WAC = Washington Administrative Code

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F Cost Estimate

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Cost Estimate
Alternative 2 - Excavation and Off-Site Disposal
Stubblefield Salvage Yard Site EE/CA

Assumptions:
1. Construction duration = 6 weeks (36 days). Working 6 days per week, 10 hours per day.
2. Removal area (per GIS) = 25,000 SF = 2,800 SY.
3. Removal volume = 25,000 SF x 8 feet bgs = 200,000 CF = 7,400 BCY.
4. 20% expansion from bank to loose state; excavated loose removal volume = 8,880 LCY.
5. Excavated material and backfill material density = 1.3 tons per LCY; 8,880 LCY = 11,544 tons.
6. Backfill with CDF required along building (approximate 60' length) in 20' wide swath. CDF backfill volume = 1,200 SF x 8 feet bgs = 9,600 CF = 360 CY.
7. Common earth backfill required: 7,400 BCY - 360 BCY = 7,040 BCY = 8,448 LCY = 10,982 tons.
8. Approximately 30% excavated contaminated soil (3,463 tons) characterized as hazardous and/or TSCA waste for off-site disposal.

Item Description	Quantity	Unit	Unit Cost	Total Cost	References and Notes
Direct Capital Costs					
Site Preparation					
Mob/demob and set-up		LS		$40,000	Engineering estimate
Site security	648	hr	$25.00	$16,200	RS Means 01 56 32.50 0020, watchman, uniformed person, non-working hours
Temporary fencing	1,000	LF	$5.16	$5,160	RS Means 01 56 26.50 0250, rented chain link, 6' high
Rock for improvement of access roads and work areas	100	ton	$13.00	$1,300	Engineering estimate
Office trailers (x2)	2	mo	$365.00	$1,460	RS Means 01 52 13.20 0550, office trailer, furnished, no hookups, 50' x 10' + air conditioning
Field office expenses (x2)	2	mo	$508.00	$2,032	RS Means 01 52 13.40, office equipment, supplies, telephone, lights and HVAC
Generator	2	mo	$765.00	$3,060	RS Means 01 54 33.40 2400, rent generator, 25 kW
Fuel	360	gal	$4.00	$1,440	Assume 10 gallons of fuel used per day for construction duration
Portable toilets (x2)	2	mo	$180.00	$720	RS Means 01 54 33.40 6410, toilet, portable chemical
Storage box	2	mo	$72.00	$288	RS Means 01 52 13.20 1250, storage box, 20' x 8'
Water truck for dust control	2	mo	$7,200.00	$14,400	RS Means 01 54 33.6950, water truck, off-highway, 6,000 gallons
			Subtotal:	$86,060	
Excavation of Process Area Contaminated Soil					
Demolish concrete pad	33	SY	$10.89	$363	RS Means 02 41 13.17 5200, demolish concrete to 6" thick, hydraulic hammer, mesh reinforced
Excavate and stockpile material	7,400	BCY	$1.20	$8,880	RS Means 31 23 16.42 0305, excavator, hydraulic, crawler mtd., 3-1/2 CY capacity
Backfill material, stockpiled on-site	10,982	ton	$12.00	$131,784	Engineering estimate
Backfill with CDF	360	CY	$82.00	$29,520	RS Means 03 31 05.35 4250, backfill with flowable fill, 140 psi
Backfill with common earth	8,520	LCY	$1.60	$13,632	RS Means 31 23 23.14 4220, dozer or front end loader, from stockpile, 200 hp, 150' haul, common earth
Compaction of backfill material	7,100	BCY	$0.20	$1,420	RS Means 31 23 23.23 5060, riding, vibrating roller, 12" lifts, 2 passes
Grading	2,800	SY	$3.16	$8,848	RS Means 31 22 16.10 0012, grader, finish grading small area
Load stockpile material onto trucks for disposal	7,400	BCY	$0.57	$4,218	RS Means 31 23 23.15 4080, front end loader, 5 CY bucket
			Subtotal:	$198,665	
Disposal					
Disposal of construction debris at Arlington Subtitle D (non-hazardous waste) Landfill	100	ton	$17.00	$1,700	Vendor quote
Disposal of contaminated soil at Arlington Subtitle D (non-hazardous waste) Landfill	8,081	ton	$17.00	$137,377	Vendor quote
Disposal of contaminated soil at Arlington Subtitle C (hazardous and/or TSCA waste) Landfill	3,463	ton	$70.00	$242,410	Vendor quote
Transportation of excavated soil via dump truck and pup, 30-ton minimum per load	11,544	ton	$40.25	$464,646	Vendor quote
Liners for transportation of hazardous loads, 30 tons per load	115	load	$60.00	$6,926	Vendor quote
Non-hazardous waste disposal tax	8,181	ton	$1.24	$10,144	Vendor quote
Hazardous waste disposal tax	3,463	ton	$10.00	$34,630	Vendor quote
Energy and environmental fee (13% of disposal cost)				$49,593	Vendor quote
			Subtotal:	$947,427	
Construction Oversight and Sampling					
Field technician (assumes one staff for construction oversight, field screening, and characterization/confirmation sampling)	4	week	$9,000.00	$36,000	Engineering estimate
Analytical testing during removal action	1	LS	$11,000.00	$11,000	Vendor quote
Groundwater monitoring (six months following removal action, including analytical testing)	1	ea	$20,000.00	$20,000	Engineering estimate
			Subtotal:	$67,000	
	Direct Capital Costs Subtotal:			$1,299,152	
	Construction Contingency (20%):			$259,830	
	Direct Capital Costs Total:			**$1,558,982**	
Indirect Capital Costs*					
Project Management (6%)				$36,693.32	EPA FS Guidance
Engineering Design (12%)				$73,387	EPA FS Guidance
Legal and Administrative (5%)				$30,578	Engineering estimate
Construction Management (8%)				$48,924	EPA FS Guidance
	Indirect Capital Costs Total:			**$189,582**	
		Total Capital Costs:		**$1,750,000**	

References:
RS Means, 2012, Heavy Construction Cost Data 26th Annual Edition.
EPA, 2000, A Guide to Developing and Documenting Cost Estimates During the Feasibility Study, EPA 540-R-00-002, OSWER Directive 9355.0-75 (EPA FS Guidance).

Note:
* = Indirect capital costs taken as percentages of direct capital costs, excluding disposal costs.

Key:
BCY = bank (in-place) cubic yards
bgs = below ground surface
CDF = controlled density fill
CF = cubic feet
LCY = loose (excavated) cubic yards
LF = linear feet
LS = lump sum
PCBs = polychlorinated biphenyls
SF = square feet
SVOCs = semi-volatile organic compounds
SY = square yards
TAL = Target Analyte List
TCLP = Toxicity Characteristic Leaching Procedure
TSCA = Toxic Substances Control Act

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