

**Report  
Interim Cleanup Action  
North Marina West End Site  
Port of Everett, Washington**

December 31, 2008

Prepared for

**Port of Everett**



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## LIST OF ABBREVIATIONS AND ACRONYMS

ABW	American Boiler Works
ACC	American Construction Company
Ag	Silver
AO	Agreed Order
ARARs	Applicable or Relevant and Appropriate Requirements
As	Arsenic
AST	Aboveground Storage Tank
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAOs	Cleanup Action Objectives
CAP	Cleanup Action Plan
CCP	Contamination Contingency Plan
Cd	Cadmium
CMPs	Compliance Monitoring Plans
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbons
Cr	Chromium
Cu	Copper
DGI	Data Gaps Investigation
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
EPH	Extractable Petroleum Hydrocarbons
ESA	Environmental Site Assessment
FS	Feasibility Study
ft	Feet
HCID	Hydrocarbon Identification
Hg	Mercury
IHS	Indicator Hazardous Substances
MLLW	Mean Lower Low Water
MEK	Methyl Ethyl Ketone
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MTCA	Model Toxics Control Act
NFA	No Further Action
NWTPH-Dx	Total Petroleum Hydrocarbon-Diesel/Oil Ranges
NWTPH-Gx	Total Petroleum Hydrocarbon-Gasoline Range
Pb	Lead
PCBs	Polychlorinated Biphenyls
PSI	Puget Sound Initiative
PSTL	Puget Sound Truck Lines
PQL	Practical Quantitation Limits
RI	Remedial Investigation
RPDs	Relevant Percent Differences
SVOCs	Semivolatile Organic Compounds
TEF	Toxicity Equivalency Factors
TEQ	Toxicity Equivalency Quotient
TPH	Total Petroleum Hydrocarbons
U.S.	United States
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOCs	Volatile Organic Compounds
yd <sup>3</sup>	Cubic Yards
Zn	Zinc

## **1.0 INTRODUCTION**

This report documents the interim cleanup action completed for the North Marina West End Site (Site or West End Site), located within the Port of Everett (Port) North Marina Redevelopment project boundary in Everett, Washington, and represents the initial submittal required under Agreed Order DE 5572 (AO) between the Port and the Washington State Department of Ecology (Ecology). This report summarizes current and historical Site use (Section 1.3), presents the results of previous Site characterization activities (Section 2.0), describes the development of the interim cleanup action (Section 3.0), presents the results of the interim cleanup action (Section 4.0), and provides conclusions regarding the effectiveness of the interim cleanup action (Section 5.0). Although this report discusses the adequacy of the interim cleanup action, the evaluation of the adequacy of previous investigations and the interim cleanup action in addressing the release, or potential release, of hazardous substances under the Model Toxics Control Act (MTCA; WAC 173-340) will be addressed in the remedial investigation/feasibility study (RI/FS) work plan, which is the second submittal required under the AO.

The Site was formerly part of the North Marina Redevelopment site, for which cleanup was being conducted under Ecology's Voluntary Cleanup Program (VCP; VCP No. 1249). However, Ecology requested that cleanup for the North Marina Redevelopment project be conducted as part of the Puget Sound Initiative (PSI); due to this and a number of other considerations, the North Marina Redevelopment site was eliminated from the VCP on November 14, 2007 and was reclassified into six separate sites. This Site is one of three sites that are being addressed under formal cleanup agreements with Ecology as part of the PSI. The other three sites within the former North Marina Redevelopment site will be addressed as separate sites under the VCP. The location of this Site is shown on Figure 1. The former North Marina Redevelopment site will be referred to as the North Marina Area in this document.

Because the work described in this report was performed under the VCP, some of the terminology used in previous reports does not conform to the terminology used in the MTCA formal process. For instance, active remediation under the interim cleanup actions was described as "cleanup action," even though under the formal process the cleanup action is not performed until after the RI/FS and cleanup action plan (CAP) have been approved. Another example is the reference to "cleanup action areas," which would normally be referred to as "interim action areas" if the site had been processed under the formal program from the beginning.

Interim cleanup action for the Site was conducted between June 2006 and March 2008 in accordance with two CAPs developed for the North Marina Area under the VCP (Landau Associates 2006a and 2007a). The first CAP was developed for the cleanup of soil located across a majority of the North Marina Area (Landau Associates 2006a). The second CAP, the West End CAP (Landau Associates



2007a), was developed for cleanup of soil and groundwater within the western portion of the North Marina Area.

It should be noted that a Contamination Contingency Plan (CCP) was developed for the North Marina Area (Landau Associates 2008). Any unanticipated soil or groundwater contamination encountered at the Site during future redevelopment activities will be managed using the approach and procedures outlined in the CCP.

## **1.1 SITE DESCRIPTION**

The Site is located in the western portion of the North Marina Area and includes approximately 16 acres of upland and may include adjacent aquatic land. Figure 2 presents the location of the Site with respect to the North Marina Area; the final Site boundary will be determined based on the results of the upcoming RI/FS for the Site. Figure 3 presents a site plan showing relevant historic Site features and Figure 4 presents the preliminary boundary for the Site showing the new property tax lots for the redevelopment that were established throughout the North Marina Area.

As shown on Figure 4, future tax lots 8, 11, 13, and 14 are included within the Site boundary. The Site also includes Tract 997 and the following planned streets: Ballard Street, Dillon Street, McKenzie Walk, Farrington Place, North Gardner Way, South Gardner Way, Saratoga Street, and West Gardner Way. Figure 4 provides survey information for each of the lots, the tract, the streets, and the West End Site boundary. The approximate center of the Site is located North 48.00029° and West 122.22211°. The Port currently owns the property within the Site, although the lots will ultimately be transferred to private ownership as part of the redevelopment.

## **1.2 SITE DEVELOPMENT HISTORY**

The North Marina Area has been used for a variety of commercial, industrial, and marine-related activities since the late 1800s. From about 1890 until about 1950, timber-product operations dominated waterfront industrial activities. Over that period, the shoreline of Port Gardner Bay was near the current location of West Marine View Drive, with shingle and lumber mills either along the shoreline or located on wharfs to the west of the shoreline. The North Marina Area was filled to its current configuration between about 1947 and 1955, using dredge fill from the Snohomish River to create the Site uplands from the tidelands to the west of the original shoreline.

After the additional uplands were created, businesses transitioned from primarily the wood products industry to a broader range of industries and commercial enterprises, with a large percentage of

marine services operations. Although turnover in businesses has occurred over the intervening years, the area is still dominated by businesses with a marine services orientation.

### **1.3 CURRENT AND HISTORICAL SITE USE**

This section identifies and describes the current and historical uses for properties and leaseholds located within the Site. The Site usage history is based on the Phase I Environmental Site Assessment (ESA; Landau Associates 2001), which should be reviewed for a more thorough description of Site historical uses and recognized environmental conditions.

A number of leaseholds within the Site were leased by the Port to various tenants. At the time that this report was prepared, all tenants had vacated their leaseholds in anticipation of redevelopment activities. The tenants utilized the leaseholds for a variety of business ventures, primarily related to marine repair and other marine support services. Although a number of historical leaseholds occupied the Site, the Port does not have any surviving documentation on some of the leaseholds as they occurred in the distant past. The following list includes the names of current and known former leaseholds within the Site:

- American Boiler Works (ABW), Plant II
- American Construction Company
- Everett Engineering
- Milltown Sailing
- Puget Sound Truck Lines
- Co-op Boatyard
- United States (U.S.) Coast Guard Station.

In addition to the leaseholds listed above, the Port operated three parcels within the Site known as Jordan Park, the Port of Everett Marine View Reception/Conference Center, and the Port of Everett Overflow Parking Lot.

The following subsections provide a description of each leasehold listed above, including a description of identified environmental concerns [e.g., Underground Storage Tanks (UST)] known at the time the interim cleanup action was commenced and associated with tenant activities. Later sections of this report describe the characterization and intrusive remedial actions (e.g., excavation) performed as part of the interim cleanup action. Each parcel is organized below in alphabetical order of the name of the most recent tenant or facility name. The leaseholds are labeled on Figure 3.

### **1.3.1 AMERICAN BOILER WORKS, PLANT II**

The American Boiler Works Plant II (ABW Plant II) former leasehold was located at 801 13<sup>th</sup> Street, and consisted of one building and the associated work area. The building was demolished in 2006 as part of redevelopment activities. Only a small portion of the former building's western end is included in the Site. The building was approximately 300 feet (ft) long by 80 ft wide and was built prior to 1969. The building was located along the north side of a former rail spur and was constructed with several loading docks facing the rail spur. The former leasehold was historically used for boiler manufacturing and more recently was used for custom steel fabrication. Painting and sandblasting activities occurred within the facility. No known USTs were documented in association with the former leasehold. General environmental concerns at this parcel included potential heavy metals soil contamination associated with sandblast grit waste, and potential petroleum hydrocarbon contamination related to the machinery operated inside and outside of the former building. Stained soils were observed in the vicinity of the ABW Plant II building during the Phase I ESA (ESA; Landau Associates 2001). Other potential sources of hazardous waste associated with Plant II (identified in the Phase I ESA) include the following:

- Paint and paint thinner were stored in 5-gallon and 55-gallon containers at Plant II.
- Sandblast grit and paint thinners were reused onsite.
- An aboveground storage tank (AST) containing methyl ethyl ketone (MEK) was located outside to the west of Plant No. II.
- Solids from used paints and thinners were placed in drums for disposal.

### **1.3.2 AMERICAN CONSTRUCTION COMPANY (ACC)**

The former ACC leasehold was located at 411 13<sup>th</sup> Street and consisted of two buildings and a north and south work yard. The buildings were located in the north yard and consisted of an office/shop building and a storage building that were constructed sometime after 1955 and were demolished in 2007. The former office/shop building was located in the southern portion of the north yard and was about 135 ft long by 50 ft wide; the office was located in the western half of the building and the shop was located in the eastern half of the building. The former storage building was located in the eastern portion of the north yard and was about 95 ft long by 30 ft wide. A small shed used for flammable chemical storage was located north of the office/shop building and was about 15 ft wide by 15 ft long.

ACC specialized in pile driving, dredging, and marine construction activities, and has operated at this location for approximately 50 years. Historical maritime construction activities on the former ACC leasehold included, among other things, sandblasting, painting, and storage of creosote-treated timbers.

ACC operated two large industrial cranes in the north yard. One crane was situated on a crane rail that ran along the western shoreline of the north yard. The crane rail extended from just north of the office/shop building to the northwest corner of the former leasehold. The other crane was fixed in position in the northeast corner of the north yard. The cranes were typically used for loading and offloading water craft and barges that would dock along the west and north shorelines of the leasehold, but were also used for moving industrial equipment and materials throughout the north yard.

Two 5,000-gallon ASTs used for storage of diesel and gasoline were located north of the former office/shop building and immediately west of the former flammable chemical storage shed. The ASTs were situated in an unlined containment area that included an unlined gravel floor, a concrete containment dike, and a free draining sump. The sump consisted of a vertical, 2-ft diameter, open-ended concrete pipe; a 4-inch diameter pipe was connected to the east side of the sump and appeared to originate from the floor drain of the former flammable chemical storage building to the east of the ASTs. The fuel dispenser was located immediately east of the containment dike. One 500-gallon AST used for storage of waste oil was located immediately south of the former storage building. The former flammable storage shed had a concrete floor with a central floor drain, which appeared to be connected to the AST sump.

ACC constructed and operated a graving dock in the northern portion of the former leasehold that consisted of a concrete bottom located at approximately 12 to 14 ft below ground surface (BGS), and floodgates penetrating the northern bulkhead. ACC decommissioned the graving dock by backfilling with soil previously excavated from the graving dock following its use in 1989 and 1991.

A number of potential sources of spills and/or releases of hazardous substances were noted during the Phase I ESA, with primary concerns being potential heavy metal contamination associated with sandblasting activities, contamination by carcinogenic polycyclic aromatic hydrocarbons (cPAH) resulting from the presence of creosoted timbers and piling, and petroleum hydrocarbon releases from the ASTs and heavy equipment. Stained soils were observed on the ground surface in the north and south yards during the Phase I ESA. Also, roughly 50 drums containing motor oil, used antifreeze, and hydraulic oil were noted along the north yard leasehold east fence line. The environmental quality of the soil used to backfill the graving dock was also a concern.

The ACC south yard was used by ACC for support of its maritime construction activities, including storage of materials and equipment from 1989 until 2004. Prior to ACC, the American Tugboat Company leased the ACC south yard as part of a larger leasehold that included Areas H-1 and H-2 from 1963 to 1965, and Manson Osberg Construction leased the same leasehold from 1975 to 1985. Specific activities that occurred in this area prior to ACC's tenancy are not known, but likely included activities similar to ACC since the previous tenants also used the former leasehold for support of marine construction activities.

ACC vacated its south yard leasehold in 2006 and its north yard leasehold in 2007, in advance of redevelopment activities. The cranes and other industrial equipment and materials were removed, the buildings were demolished, and the three ASTs were decommissioned and removed from the Site in conjunction with the departure of ACC.

### **1.3.3 CO-OP BOATYARD**

The Co-op Boatyard former leasehold was located to the north of 13<sup>th</sup> Street behind the former Everett Engineering Building, which was located at 731 13<sup>th</sup> Street. The boatyard did not include any buildings and came into operation sometime after 1989. The boatyard had a gravel surface, was surrounded by a security fence, and was historically leased and operated by a private entity. Boat maintenance activities were terminated in the boatyard in 2007 in advance of redevelopment activities. This area appeared to be used by Everett Engineering (described below) prior to it being used as a boatyard. Primary environmental concerns for the boatyard were related to boat maintenance activities, and included shallow soil heavy metals contamination, and potential petroleum hydrocarbons associated with used oil or other fluids associated with vessel maintenance.

### **1.3.4 EVERETT ENGINEERING**

The former Everett Engineering leasehold was located at 731 13<sup>th</sup> Street and consisted of one building and an outdoor work/storage yard. The building was demolished in the summer of 2006, in advance of Site redevelopment activities. Everett Engineering reportedly fabricated and repaired equipment, primarily related to marine-based businesses. The building was located along 13<sup>th</sup> Street, was approximately 140 ft long by 80 ft wide, and was constructed sometime prior to 1970. For reference, the building is also known as Building 10 or Building M-11.

The work yard was located north of the building and was used for extensive storage of industrial machinery and materials; poor housekeeping was noted in this area during previous investigations, including the Phase I ESA (Landau Associates 2001). General environmental concerns at this parcel included potential heavy metals soil contamination associated with industrial sandblasting, and potential petroleum hydrocarbon contamination associated with used oil or other fluids.

### **1.3.5 JORDAN PARK**

Jordan Park was a small recreational park. A portion of the park is located within the Site boundary, as shown on Figure 3. The park consisted of several grass-covered embankments constructed of fill material of unknown origin. The embankments were separated by concrete pathways. No specific

areas of environmental concern were identified for this area, other than the unknown fill source for the park.

### **1.3.6 MILLTOWN SAILING**

The Milltown Sailing building is located at 410 14<sup>th</sup> Street, consists of one current building and associated paved parking areas and was constructed sometime prior to 1969. The building is about 80 ft long by 40 ft wide. The Milltown Sailing building is currently used by sailing or other hobby clubs. It is unknown what type of businesses operated on this leasehold prior to Milltown Sailing. No specific conditions of environmental concern were identified for this leasehold.

### **1.3.7 PORT OF EVERETT MARINE VIEW RECEPTION/CONFERENCE CENTER**

The Port of Everett Marine View Reception/Conference Center and associated paved parking areas are located in the southwest corner of the Site at 404 14<sup>th</sup> Street. The building is about 175 ft long by 100 ft wide, and was built sometime after 1965. No specific conditions of environmental concern were noted for this parcel. However, the Port of Everett maintains a marina fueling system that includes USTs used to store diesel and gasoline, including associated conveyance piping to the marina fuel dock. The original USTs were located within the paved parking areas associated with this parcel. The USTs were relocated in the 1990's to the center of the parking area located west of Jordan Park as shown on Figure 3.

The relocated USTs were located immediately south of the Milltown Sailing building and consisted of five gasoline and diesel tanks and associated piping, and were decommissioned in 1992. About 80 cubic yards (yd<sup>3</sup>) of stained soil was removed from around the tank fill pipes at the time of decommissioning, and was remediated by aeration. Of the 14 soil samples collected from the excavation sidewalls and bottom and 2 water samples collected from the excavation, none contained detectable concentrations of petroleum hydrocarbons. The data submitted to Ecology appear adequate to conclude that the tanks were appropriately closed and minor releases associated with spillage at the fill pipes were adequately remediated (Phase I ESA Appendix E; Landau Associates 2001). In addition, groundwater samples were collected from three direct-push borings (H-3, H-4, and H-5) during the Phased II ESA (Landau Associates 2004) in the vicinity of the former USTs and piping. The samples did not contain any detectable concentrations of gasoline- or diesel-range petroleum hydrocarbons, indicating that no residual petroleum hydrocarbon contamination remains from the former USTs.

### **1.3.8 PORT OF EVERETT OVERFLOW PARKING**

The Port of Everett Overflow Parking is located off of 13<sup>th</sup> Street, east of Puget Sound Truck Lines (PSTL). The entire lot is unpaved. A majority of the lot was accessible to the public for general parking uses, and the northern portion of the lot was fenced off and was used by the Port for storage of general equipment and marine supplies (e.g., crab pots, rope, cable, etc). Based on a review of aerial photographs of this area, it appears that some soil fill was placed within the fenced portion of the property sometime prior to 1993, but it could not be confirmed. With the exception of the potential filling activities, no conditions of environmental concern were noted in this area.

### **1.3.9 PUGET SOUND TRUCK LINES (PSTL)**

The PSTL former leasehold was located at 615 13<sup>th</sup> Street and consists of one building and a partially paved work yard. The building is approximately 80 ft long by 40 ft wide, and was built sometime prior to 1970. Available information indicates that two diesel USTs and a heating oil UST were located on the property, as shown on Figure 3. PSTL also operated a diesel AST on the property following removal of the diesel USTs, but removed it prior to vacating the property in 2002.

PSTL removed its two diesel USTs (10,000- and 4,000-gallon tanks) in 1990 and its heating oil UST in 2002. Releases from the diesel UST locations were encountered during tank removal and contaminated soil (approximately 140 yd<sup>3</sup>) was land-farmed onsite prior to being used for surface fill on the property. Although PSTL filed a tank removal report with Ecology for removal of the diesel USTs, the information in Ecology's files is incomplete and does not provide an adequate basis for Ecology to issue a no further action (NFA) determination (Phase I ESA Appendix E; Landau Associates 2001). It does not appear that PSTL filed a report on the heating oil UST removal with Ecology.

Documented and potential releases from the USTs and ASTs were the only identified environmental concerns for the PSTL Leasehold prior to conducting environmental characterization in this area. Subsequent environmental characterization also indicated the presence of arsenic (As) in shallow soil.

### **1.3.10 U.S. COAST GUARD STATION**

The U.S. Coast Guard Station was located in the southern portion of the Site on 14<sup>th</sup> Street (no known address). The coast guard station, demolished sometime in 2002, was approximately 50 long by 30 ft wide and was built sometime prior to 1970. No conditions of environmental concern were identified for this leasehold.

## **2.0 SITE CHARACTERIZATION**

This section presents Site characterization activities that were conducted to delineate the nature and extent of contamination prior to implementation of the interim cleanup actions. The following sections present a description of the investigation activities (Section 2.1), the physical and hydrogeologic setting (Section 2.2), the development of preliminary cleanup standards (Section 2.3), and environmental conditions (Section 2.4).

### **2.1 ENVIRONMENTAL INVESTIGATIONS**

Prior to the Site's conversion to the MTCA formal program, a number of environmental investigations were conducted to determine the nature and extent of contamination within the North Marina Area, including the Site. These investigations include:

- A Phase I ESA conducted in 2001 (Landau Associates 2001)
- A Phase II ESA conducted in late 2003 and early 2004 (Landau Associates 2004)
- A Data Gaps Investigation (DGI) conducted in late 2004 and early 2005 to fill data gaps in environmental characterization that remained following the completion of the previous investigations (Landau Associates 2005a)
- A Supplemental DGI (Landau Associates 2006b) conducted in late 2005 to provide, among other things, further delineation of isolated areas of shallow soil contamination at the Site.
- 2006 Additional Soil Delineation (not previously reported) conducted between February and July 2006 to better delineate the extent of contamination in a number of areas located across the North Marina Area to be used for cleanup action design.
- PSTL Investigation (Landau Associates 2006c) conducted in May 2006 to investigate petroleum hydrocarbon contamination associated with releases from diesel USTs formerly located on the former PSTL leasehold.
- Area F Supplemental Soil Investigation (Landau Associates 2006d) conducted in September 2006 to delineate and evaluate an area of affected soil encountered during cleanup of Cleanup Action Areas F-1 and F-4.
- 2007 Additional Delineation (not previously reported) conducted in January and April of 2007 to better delineate the extent of contamination in the former ACC and former PSTL leaseholds to be used for cleanup action design.
- Sub-slab soil sampling (not previously reported) conducted in late 2007 and early 2008 to characterize soil quality beneath the floor slabs of larger buildings with long usage histories within the Site boundary. Sampling was conducted following building demolition.

For organizational purposes during the site characterization phase of the interim cleanup action, the North Marina Area was subdivided into investigation areas a through l, as shown on Figure 2. The Site includes Investigation Areas d, e, and h, and a portion of Investigation Area f. Sampling location identifications were assigned prefixes that match the investigation area in which they are located. For



example, sample location E-GC-4f was collected from Investigation Area e. Similarly, identifications of cleanup action areas (described in Section 2.4) have a prefix that matches the investigation area in which they are located. For example, Cleanup Action Area D-9 is located in Investigation Area d.

During previous investigations, a total of 557 soil samples and 69 groundwater samples were collected throughout the Site. An additional 20 soil samples and 2 groundwater samples were collected from the areas adjacent to the northeast and southeast Site boundaries shown in shading on Figures 5 and 6. All investigations were conducted under sampling and analysis plans. All sampling and analysis plans prepared subsequent to completion of the Phase II ESA were reviewed by Ecology under its VCP, including the DGI work plan (Landau Associates 2005b). Site soil and groundwater sampling locations are shown on Figures 5 and 6, respectively. Note that some sampling locations that lie outside of the Site boundary are included because they are associated with leaseholds and former leaseholds that are being evaluated as part of the Site.

Selected laboratory analytical testing was conducted on Site soil and groundwater samples. Samples were tested using one or more of the following laboratory analytical methods:

- **Soil:** U.S. Environmental Protection Agency (EPA) Method Series 6000/7000 and Method 200.8 for total metals; EPA Method 6010B for toxicity characteristic leaching procedure (TCLP) of metals; EPA Method 8270 for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and semivolatile organic compounds (SVOCs); EPA Method 8082 for polychlorinated biphenyls (PCBs); Method Krone 1988 SIM for tributyl tin ion (TBT); Northwest (NW) Hydrocarbon Identification (HCID) method; NWTPH-D (extended) for diesel- and oil-range petroleum hydrocarbons; NWTPH-Gx for gasoline-range petroleum hydrocarbons; EPA Method 8260 for volatile organic compounds (VOCs); EPA Method extended petroleum hydrocarbons (EPH) 8015B for EPH; and SW8270C-SIM for naphthalene.
- **Groundwater:** EPA Method Series 6000/7000 and Method 200.8 for total and dissolved metals; EPA Method 8270-SIM for cPAHs; EPA Method 8270 for SVOCs; method NWHCID for hydrocarbon identification; NWTPH-D (extended) for diesel- and oil-range petroleum hydrocarbons; NWTPH-Gx for gasoline-range petroleum hydrocarbons; EPA Method 8260/8021 for (benzene, toluene, ethylbenzene, and xylenes); and EPA Method 8260 for VOCs.

All analytical results from these investigations were determined acceptable based on data quality evaluations completed for each data set, which consisted of reviewing data for holding times, method blank results, surrogate spike recovery results, matrix spike/matrix spike duplicate (MS/MSD) recoveries and relative percent differences (RPDs), laboratory duplicate samples, and reporting limits.

A summary of these investigations, as related to the Site, are presented in the following subsections. A detailed description of sampling methods employed during these investigations is presented in Appendix A and should be reviewed to obtain a more complete understanding of sampling methods. It should be noted that all metals groundwater samples collected from the Site represent

dissolved concentrations; total metals sample data were collected for other portions of the North Marina Area and determined not to be representative of groundwater quality (see further discussions in Section 2.3.7.2). A full listing of all laboratory analytical results associated with the investigations discussed below is presented in Appendix B.

### 2.1.1 PHASE II ESA

The Phase II ESA was conducted in early 2003 and 2004 to provide initial characterization of the environmental conditions across the North Marina Area. The intent of the investigation was to evaluate locations where hazardous substances may have been released based on the understanding of present and historical potential sources of contamination. Sample locations and testing parameters were selected to determine whether soil or groundwater contamination had resulted from potential sources and activities identified as “high risk issues” in the Phase I ESA (Landau Associates 2001). A total of 30 soil and 45 groundwater samples were collected and tested during the Phase II ESA. Of these samples, 21 soil and 21 groundwater samples were obtained from the Site. Boring locations were labeled using a consistent format, including the investigation area from which the sample was collected as the prefix and a unique sequential number as the suffix (e.g., D-1).

The soil samples were collected using surface sampling methods and direct-push drilling techniques. Groundwater samples were collected from direct-push borings and newly constructed monitoring wells using low-flow groundwater sampling techniques (see Appendix A for sampling methods). Sampling locations and analyses were selected based on former site uses and features, and field screening results. Samples were tested for the following parameters:

- **Soil samples:** diesel- and gasoline-range petroleum hydrocarbons (TPH; NWTPH-Dx and NWTPH-Gx); metals [As, cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), mercury (Hg), silver (Ag), and zinc (Zn)]; PCBs; cPAHs; and/or BTEX.
- **Groundwater Samples:** TPH; dissolved metals (As, Cd, Cr, Cu, Pb, Hg, Ag, Zn); BTEX; cPAHs; and/or VOCs.

Sampling locations and analysis were selected during the Phase II ESA based on locations of high or moderate risk site uses identified during the Phase I ESA (e.g., areas of historic boat maintenance, industrial work yards, etc.). Soil and groundwater samples were not tested for SVOCs and VOCs because neither available information on past Site activities, or field screening results obtained during sampling, indicated the potential presence of SVOC or VOC constituents. A summary of the sample location rationale, sample collection methods, analytical testing, and other details related to the samples collected within the Site boundary during the Phase II ESA are presented in Table 1.

Based on the results of the Phase II ESA and historical Site uses, concentrations of several metals (As, Cu, Pb, and Zn), cPAHs, and TPH in soil and/or groundwater were identified as a concern at the Site. As such, analytical testing of soil and groundwater during subsequent North Marina Area investigations focused heavily on these data groups. It is noted that other data groups such as SVOCs and VOCs were also tested during subsequent investigations, but to a lesser degree. The results of this investigation are presented in conjunction with the other investigations results in Section 2.4.

### **2.1.2 DATA GAPS INVESTIGATION**

The DGI scope of work was developed to fill the data gaps in Site characterization data that remained following the Phase II ESA. The DGI scope was subdivided into two broad elements: 1) general characterization to provide sufficient data to delineate the extent of contamination throughout Site areas that were not evaluated during the Phase II ESA and did not have identified environmental concerns, and 2) focused investigation to better delineate contamination in affected areas identified during the Phase II ESA. Boring locations were labeled with the investigation area designation first, followed by “GC” or “FA” to designate the boring as a general characterization or focus area location, respectively, followed by a unique sequential number (e.g., F-FA-12).

A total of 102 direct-push borings were completed, and 193 soil samples and 34 groundwater samples were collected for analysis from the Site during the DGI conducted in late 2004/early 2005. The soil samples were collected using direct-push drilling techniques. Groundwater samples were collected from direct-push borings and monitoring wells using low-flow groundwater sampling techniques (see Appendix A for a description of sampling methods). The following subsections present summaries of the general characterization and focused investigation activities conducted during the DGI. The results of the DGI are presented in conjunction with the other investigation results in Section 2.4.

#### **2.1.2.1 General Characterization**

An area-wide (i.e., general characterization) sampling approach was used to characterize soil quality in areas with no specific environmental concern within the North Marina Area, including the Site, by obtaining samples that were distributed across the site on about a 100 to 150 ft spacing, and testing the samples for select metals, cPAHs, and TPH, which were detected at elevated concentrations for the North Marina Area during the Phase II ESA.

A total of 41 general characterization sample locations were tested within the Site boundary. Five additional samples locations were tested from each of the shaded areas to the northeast and southeast of the Site shown in shading on Figure 5. At each general characterization sample location, the total depth

of the borings ranged from 4 and 12 ft BGS and the top 3 ft of recovered soil below the pavement and base course section were separated into three sample intervals (0 to 0.5, 1 to 2, and 2 to 3 ft).

The uppermost sample interval from each general characterization location was tested for constituents detected above the preliminary cleanup levels during the Phase II ESA, including selected metals (As, Cd, Cu, Pb, Hg, and Zn); cPAHs; and petroleum hydrocarbons (i.e., NWTPHdx and NWTPHgx). Additionally, several samples were analyzed for BTEX and TBT in Areas e and f, respectively. Petroleum hydrocarbon testing was conducted by initially analyzing the sample for hydrocarbon identification (HCID); follow-up testing was conducted for specific hydrocarbon ranges detected by the HCID analysis. The vertical extent of soil contamination was evaluated at each location by testing the deeper samples if the uppermost sample exceeded the preliminary cleanup screening level established for each constituent.

#### **2.1.2.2 Focused Investigation**

Focused investigation methods were used in areas where preliminary cleanup screening level exceedances were detected during the Phase II ESA, and locations identified as historical operational work areas where contamination was considered likely. These areas were identified based on knowledge of current and past site uses and a review of historical aerial photographs. The following subsections present descriptions of the focused investigation areas.

##### ***Investigation Area d - American Construction Company North Yard***

During the DGI, a total of 32 borings were installed throughout the ACC north yard related to focus area investigations. These focus areas addressed:

- Delineation of arsenic and cPAH soil contamination located within the footprint of the former graving dock identified during the Phase II ESA
- Delineation of heavy-end petroleum hydrocarbons encountered during the Phases II ESA
- Investigation of two ASTs (diesel and gas) located north of the main office building
- Investigation of one AST (used oil) located northeast of the main office building.

Four borings (D-FA-1 through D-FA-4) were installed to further delineate the extent of arsenic soil contamination and heavy-end hydrocarbon contamination within the estimated footprint of the former graving dock identified during the Phase II ESA.

Four soil borings (D-FA-5 through D-FA-8) and four monitoring wells (P-17 through P-20) were advanced outside the estimated graving dock boundary to bound the extent of arsenic soil and

groundwater contamination associated with fill contained in the former graving dock. Two additional borings (D-FA-5b and D-FA-6b) were installed because planned boring locations D-FA-5 and D-FA-6 did not fully bound deep arsenic contamination to the south and east.

Two borings (D-FA-10 and D-FA-11) and one downgradient monitoring well (P-19) were installed in the vicinity of the gasoline and diesel ASTs and associated fuel line.

Diesel-range petroleum hydrocarbon contamination associated with releases from the diesel AST was observed in the planned borings. Eleven additional borings (D-FA-11c through D-FA-11m) and two additional monitoring wells (P-21 and P-25) were installed to delineate the observed diesel contamination. The additional borings were generally advanced to 8 ft BGS and selected samples were tested for diesel-range hydrocarbons at the capillary fringe, or where field screening indicated the highest level of contamination. Delineation of the diesel release was largely conducted based on field screening, with the presence or absence of diesel odor and sheen being the primary screening tools.

Three soil samples collected from additional borings in the diesel-affected area were tested for extractable petroleum hydrocarbons (EPH) and naphthalenes to evaluate human health direct contact risks associated with the observed diesel contamination. Additionally, two groundwater samples were collected and tested for VOCs to allow evaluation of potential human health risks associated with the vapor pathway. These samples were collected at the supplemental boring locations where field screening indicated the highest amount of hydrocarbon impact.

A boring downgradient from the used oil AST (D-FA-14) and a shallow hand-auger boring (D-FA-15) immediately adjacent to the AST were installed to evaluate the extent of impact from AST releases, as described in the DGI work plan. In addition to metals, cPAHs, and/or TPH, samples from these locations were also analyzed for SVOCs and VOCs. Evidence of waste oil contamination was observed in soil collected from location D-FA-15. A groundwater sample was also collected from Boring D-FA-14. Because of anomalously high metals concentrations detected in the groundwater sample, possibly the result of a failed water filter used during sample collection, a second boring (D-FA-14b) was advanced during a subsequent field effort to resample groundwater at this location for metals.

### ***Investigation Area e – Puget Sound Truck Lines***

Five focus area borings (E-FA-1 through E-FA-5) were planned for the DGI to investigate potential impacts to soil and groundwater by two former UST locations, including the former fuel USTs (which contained diesel) and the former heating oil UST shown on Figure 3. Soil and groundwater samples collected from this area were analyzed for TPH-dx and BTEX. No petroleum hydrocarbon contamination at the former heating oil UST location was indicated by observations or field screening in soil samples collected from Boring E-FA-5. However, petroleum hydrocarbon impacts associated with

the former fueling USTs location were observed during advancement of the four planned explorations for this location (E-FA-1 through E-FA-4), and additional characterization was conducted to better delineate the release associated with this location.

Additional investigation included installation of 12 borings and 3 monitoring wells (P-22 through P-24) to delineate petroleum hydrocarbon impacts to soil and groundwater related to releases from the former diesel fuel USTs. Delineation was accomplished using field screening methods and limited analytical testing for NWTPH-Dx. Based on field screening, soil samples collected from the borings within the plume area (E-GC-4c, E-GC-4d, and E-GC-4g) were also tested for EPH, naphthalenes, and BTEX to evaluate the risk to human health based on direct contact using Ecology's petroleum mixtures approach.

### ***Investigation Area f – Multiple Tenants***

During the DGI, 11 focus area borings (F-FA 2 through F-FA-12) and six monitoring wells (P-3, P-5, P-13, P-14, P-15, and P-16) were installed in Investigation Area f to better delineate shallow soil cPAH and arsenic contamination in groundwater identified during the Phase II ESA. In general, the focused investigation was conducted in the central portion of Investigation Area f, with general characterization occurring toward the east and west ends.

Five borings (F-FA-6b through F-FA-6f) were completed to visually delineate the horizontal and vertical limits of a dark soil layer at F-FA-6 that appeared to be impacted by heavy-end petroleum hydrocarbons, based on field screening. It should be noted that no samples were collected from these borings for laboratory testing purposes. A composite sample of this impacted soil layer (at a depth from 1 to 2 ft BGS) was collected at F-FA-6 and tested for TPH-HCID and EPH and naphthalenes.

Additional soil and groundwater testing was conducted to further evaluate the cause of elevated groundwater concentrations of arsenic detected in all Investigation Area f monitoring wells sampled during the originally planned round of DGI groundwater sampling. The additional characterization was conducted to evaluate whether the elevated arsenic groundwater concentrations were the result of elevated arsenic concentrations present in subsurface soil in contact with groundwater, or if it was the result of background arsenic soil concentrations mobilized by reducing (anoxic) groundwater conditions associated with the presence of organic material in subsurface soil.

A total of 43 subsurface soil samples archived from 13 boring locations (F-FA-2 through F-FA-12, and F-GC-8 through F-GC-10) were tested to characterize arsenic soil concentrations in the area affected by elevated arsenic groundwater concentrations. Additionally, groundwater samples were collected from all seven Investigation Area f monitoring wells. All groundwater samples were tested for

arsenic (in addition to Cd, Cu, Hg, and Zn) and conventional parameters (dissolved oxygen, oxidation-reduction potential, ferrous iron, alkalinity, total organic carbon, nitrate, and sulfate) to confirm the previous arsenic results and evaluate the oxidation-reduction state of groundwater in this area. The groundwater samples were measured for both total and dissolved metals concentrations.

Two shallow soil samples were collected from one boring location (F-FA-8) within the Co-op Boatyard and were tested for general characterization parameters (cPAHs, metals, and TPH-D) in addition to TBT. The samples were collected from the upper 6-inches of soil and from 1 to 2 ft BGS. TBT was analyzed within the Co-op boatyard to determine if historic boat maintenance activities had caused any releases of TBT.

### 2.1.3 SUPPLEMENTAL DATA GAPS INVESTIGATION

The supplemental DGI was conducted (in late 2005) to better delineate the extent of contamination identified during the DGI. Three specific areas within the Site boundary were investigated as part of the supplemental DGI:

- **Area e, former PSTL leasehold:** groundwater samples were collected from two wells (P-23 and P-24) and tested for dissolved metals (As, Cd, Cu, Pb, Hg, and Zn) to evaluate whether arsenic concentrations are elevated in groundwater in this area due to reducing conditions associated with the presence of diesel-range petroleum hydrocarbon contamination from previous UST releases at the Site.
- **Area h, immediately south of ACC South Yard:** soil samples were collected from two borings locations (H-GC-6 and H-GC-7), to evaluate an area that was not previously characterized. Samples were collected and tested for total metals (As, Cd, Cu, Pb, Hg, and Zn); cPAHs; and TPH-Dx, using the same sampling and analysis scheme and techniques used for the general characterization samples collected during the DGI.
- **Area h, arsenic soil contamination:** soil samples were collected from three borings (H-GC-1b through H-GC-1d) in the vicinity of DGI boring location H-GC-1 to better delineate the extent of arsenic soil contamination. Samples were collected at each boring location from the depth interval that corresponded to the depth of contamination and were tested for As, Cd, Cu, Pb, Hg, and Zn.

The results of these are reported in Section 2.4 in conjunction with other investigations results.

### 2.1.4 2006 ADDITIONAL SOIL DELINEATION

Multiple areas throughout the Site were investigated in 2006 following the supplemental DGI to provide additional delineation of identified contamination areas for design of the interim cleanup action. A total of 59 soil samples were collected within the Site from contaminated areas encountered during

previous investigations. The additional delineation samples were tested only for the constituent(s) that exceeded their respective preliminary cleanup levels within the identified cleanup area. Samples were collected from the following areas:

- **Investigation Area e, PSTL (2 locations):** Four surface soil samples (E-GC-1.1N, E-GC-1c.1N, E-GC-1.1S, and E-GC-1c.1SW) were collected in the vicinity of sample locations E-GC-1c and E-GC-1, which exhibited shallow soil arsenic contamination during the DGI. Two surface soil samples (E-GC-5.1N, E-GC-5.1E and E-GC-5.1S) were collected in the vicinity of sample location E-GC-5, which also exhibited shallow soil arsenic contamination during the DGI. All of these samples were analyzed for arsenic only.
- **Area f, ABW Plant II:** Shallow soil samples were collected from nine boring location (F-2-1 through F-2-9) in the vicinity of the western loading dock of the ABW Plant II building to delineate metals contamination identified during the Phase II ESA. Surface soil sample F-5-SS was collected in this area during the Phase II ESA and exhibited elevated concentrations of arsenic. Pink sandblast grit, known to contain elevated levels of arsenic and lead, was observed on the ground surface in this area adjacent to and extending out from the loading dock. All of these samples were analyzed for As, Cd, Cu, Pb, Hg, and Zn.
- **Area f, Multiple Tennant Leaseholds:** 34 shallow soil samples (primarily surface soil samples) were collected throughout Area f to delineate the lateral extent of contamination encountered at previous soil sample locations throughout Area f. The additional samples numbers contain the designation of the original sample with which they are associated; for example soil sample F-GC-13b.5S was collected to delineate the arsenic contamination at F-GC-13b. Thirty-two samples were analyzed for arsenic only, 2 samples (F-GC-10.1W and F-GC-10.1E) were analyzed for cPAHs, and one sample (F-GC-13b.6S.2W) was analyzed for NWTPHDx.

The results of this investigation have not previously been reported, but are reported in Section 2.4 in conjunction with other investigation results.

### 2.1.5 PUGET SOUND TRUCK LINES INVESTIGATION

An additional soil and groundwater investigation was conducted in May of 2006 at the former PSTL leasehold to better delineate diesel-range petroleum hydrocarbon contamination in soil and groundwater associated with the former diesel USTs. Investigation activities consisted of exploring subsurface soil conditions at 13 boring locations (E-3-1 through E-3-8, and E-3-10 through E-3-13), and collecting soil and groundwater samples for laboratory analysis using direct-push drilling technology. Seven of the direct-push borings were located inside the estimated area of contamination, and six of the borings were installed outside the estimated area of contamination. Continuous soil samples were collected for field soil type classification and field screening for evidence of potential contamination. Individual soil samples were collected from each boring from the depth interval where evidence of contamination was observed during field-screening. Groundwater samples were collected from the following four boring locations: E-3-2, E-3-3, E-3-6, and E-3-10. All soil and groundwater samples



submitted for laboratory analysis were analyzed for diesel- and motor oil-range total petroleum hydrocarbons (i.e., NWTPH-Dx analysis).

The results of these are reported in Section 2.4 in conjunction with other investigations results.

#### **2.1.6 AREA F SUPPLEMENTAL SOIL INVESTIGATION**

This investigation was conducted in September 2006 to delineate and evaluate an area of affected soil encountered during cleanup of Cleanup Action Areas F-1 and F-4 (see Sections 2.4.1.9 and 2.4.1.11). The affected soil directly underlies the shallow soil contamination of these cleanup action areas, is dark in appearance, and in some places exhibits a petroleum-like odor.

A total of 61 direct-push borings were completed throughout the western portion of Area f to delineate the vertical and lateral extent of discolored soil within Area f and to determine the areas within the discolored soil that exceed the soil preliminary cleanup levels. Soil borings were generally completed on an approximate 50-ft grid throughout the potentially affected area.

Direct-push borings were advanced to depths of 4 to 8 ft BGS to extend through the entire thickness of the discolored soil, where present. The affected soil layer was encountered at 45 of the 61 boring locations. The affected soil was composed of silt, sand, and wood debris; and exhibited a dark color and a light to strong petroleum-like odor. The top of the affected soil layer was encountered between 0 to 2.9 ft BGS, and the base of the layer between 1 to 5.2 ft BGS. Thickness of the layer varied from 0.5 to 3.8 ft, with an average thickness of about 1.5 ft.

A total of 45 soil samples were tested during this investigation. One sample from each boring location was a composite sample collected across the full depth of the discolored soil layer, where present. Samples were not collected from boring locations where the discolored soil layer was not present. All 45 soil samples were tested for cPAHs. Additionally, the 5 samples that exhibited the greatest visual or olfactory indication of contamination (AFD-3.4, AFD-3.5, AFD-4.3, AFD-4.4, and AFD-7.3) were also tested for TPH in diesel and oil ranges (i.e., NWTPH-Dx).

The results of this investigation are reported in Section 2.4 in conjunction with other investigations results.

#### **2.1.7 2007 ADDITIONAL DELINEATION**

Additional characterization was required during design of the cleanup action to better delineate the vertical and aerial extent of contamination in Investigation Areas e, d and h. A majority of the investigation was focused in Area d (the ACC north and south yards). Additional delineation was conducted by advancing direct-push borings to target depths identified based on currently available data

and testing samples using a similar method to that employed for previous site investigation activities. Soil samples were collected from ground surface to 0.5 ft BGS, and in subsequent 1-ft intervals, until the target depth was reached. Samples were then tested incrementally downward until the analytical result was below the preliminary cleanup level to determine the vertical extent of contamination. Groundwater samples were also collected from borings in areas affected by petroleum hydrocarbons, where additional data was needed to complete groundwater characterization.

A total of 93 direct-push explorations were completed, and a total of 216 soil samples and 11 groundwater samples were collected and analyzed during this investigation. At the time of the investigation, preliminary cleanup action areas were defined based on previously collected data that were presented in the West End CAP (Landau Associates 2007a). Many sample names used for the investigation incorporate the name of the planned cleanup action area with which the new sample is associated (primarily used in the ACC north yard); for example, sample D5-2 was collected from planned cleanup action area D-5 located in the ACC north yard. Other sample names used for this investigation incorporate the names of previous sample locations with which the additional delineation samples are associated; for example, D-GC-9b was collected to better delineate the contamination associated with previous sample location D-GC-9.

As presented in the West End CAP (Landau Associates 2007a), the additional delineation samples were only tested for the indicator hazardous substances that were driving the cleanup action for a given area or for the constituents that exceeded preliminary cleanup levels at the previous sample location with which the additional sampling was associated. Groundwater samples were analyzed for arsenic, NWTPH-Dx, NWTPH-Gx, and/or BTEX. Soil samples were analyzed for metals (mostly arsenic); cPAHs; NWTPH-Dx; NWTPH-Gx; naphthalenes (i.e., naphthalene, 1- and 2-methylnaphthalene); and/or BTEX. These investigation activities, completed for the various portions of the Site, are described in the following subsections.

The results of this investigation have not previously been reported, and are reported in Section 2.4 in conjunction with other investigations results.

#### **2.1.7.1 Investigation Area h**

Soil samples were collected from 19 direct-push borings locations in Area h to fill data gaps in the characterization of this portion of the Site. The data gaps consisted of the vertical and aerial extent of soil contamination associated with three preliminary cleanup action areas, H-1 through H-3. The following conditions were investigated in each area:

- Area H-1 is located in an entrance road for the public parking area west of Jordan Park and encompasses an area of shallow soil arsenic contamination. Samples were collected from one

- Area H-2 is located in the parking lot north of the Port of Everett convention center and encompasses an area of shallow soil cPAH soil contamination. Samples were collected from six direct-push boring locations (H-GC-7b, H-GC-7c, H-GC-7d, H-GC-7e, H-CSO-1, and H-CSO-2), and were tested for cPAHs to better delineate the soil contamination associated with sample locations H-GC-6 and H-GC-7. Locations containing “CSO” in their name were sampled adjacent to the planned combined sewer outfall line to determine the health and safety requirements during construction of the CSO line.
- Area H-3 is located immediately south of the ACC south yard and encompasses an area of shallow soil arsenic and mercury contamination. Samples were collected from nine direct-push boring locations (H-GC-5b through H-GC-5f and H-GC-5h through H-GC-5k), and were tested for total metals (As, Cd, Cr, Cu, Pb, and Hg) to better delineate the soil contamination associated with H-GC-5.

### **2.1.7.2 ACC North Yard**

A total of 166 samples were collected throughout the ACC north yard to fill data gaps in the characterization of this portion of the Site. The data gaps consisted of the vertical and aerial extent of one or more of the following soil contaminants: arsenic, cPAHs, and petroleum hydrocarbon. Additional characterization was also conducted to better delineate petroleum hydrocarbons in groundwater. Based on previous Site investigations, shallow soil contamination is widespread in the ACC north yard and primarily consists of arsenic and cPAH contamination. Therefore, a majority of the investigation was focused on these constituents. Localized areas of diesel-range petroleum hydrocarbon contamination were present in the soil and groundwater in the vicinity of the former fuel ASTs and were addressed by this investigation as well.

In the northern portion of the ACC north yard, a total of 23 additional locations were sampled in association with planned Cleanup Action Areas D-2, D-3, D-4, and D-5. These areas exhibited elevated soil concentrations of arsenic and/or cPAHs. Soil contamination in these areas extended from the ground surface to up to 3 ft BGS. The limits of the preliminary cleanup action areas were defined based on locations of Site features such as the former graving dock and an insufficient number of sample locations. Samples from these areas were tested for arsenic and cPAHs.

In the southern portion of the north yard, a total of 9 additional locations were sampled in association with planned soil cleanup action areas D-8 and D-9. Area D-8 exhibited elevated concentrations of cPAHs and arsenic in the shallow soil, extending to 1 ft BGS. Area D-9 exhibited soil elevated concentrations of cPAHs in the shallow surface soil, extending to 1 ft BGS. Because of the widespread presence of arsenic throughout the north yard, the additional samples in both areas were tested for both arsenic and cPAHs.

In the vicinity of the former fuel ASTs, and north of the ACC main office building and maintenance shop, a total of 14 additional locations were sampled in association with preliminary cleanup action areas D-7 and D-7A. Area D-7 encompasses an area where arsenic, cPAHs, and diesel-range and/or motor-oil petroleum hydrocarbons were detected at concentrations exceeding the preliminary cleanup levels in the approximate upper 1 ft of soil. Area D-7A is a sub-area of Area D-7 where diesel-range petroleum hydrocarbon contamination extended from 2 ft BGS down to 8 ft BGS in the soil and also affected the groundwater. Shallow soil samples collected to better delineate the contamination in Area D-7 were tested for arsenic, cPAHs, and diesel- and oil-range petroleum hydrocarbons. Groundwater and deeper soil samples collected to better delineate the contamination of Area D-7A were tested for diesel- and oil-range petroleum hydrocarbons. Based on field observations made during the investigation and results of HCID testing, which indicated that gasoline-range petroleum hydrocarbons were present in the soil and groundwater, several soil and groundwater samples were also tested for gasoline-range petroleum hydrocarbons and BTEX. Soil sampling results revealed that deeper soils had diesel- and gasoline-range petroleum hydrocarbons including benzene at concentrations exceeding preliminary cleanup levels. Groundwater sampling results revealed exceedances of both diesel- and gasoline-range petroleum hydrocarbon, but not BTEX.

### **2.1.7.3 ACC South Yard**

A total of 26 samples were collected from direct-push borings throughout the ACC south yard to fill data gaps in the characterization of this portion of the Site. The data gaps consisted of the vertical and aerial extent of arsenic and/or cPAH contamination in soil. Samples were collected from 17 direct-push boring locations. The surface sample at each location was tested for cPAHs and arsenic; if the shallow soil sample exceeded the preliminary cleanup level, deeper samples were tested for the constituent(s) (i.e., cPAHs and/or arsenic) that exceeded the preliminary cleanup level criteria.

During investigation of the south yard, an area of concrete-like material was encountered in the eastern portion of the south yard at four boring locations (D-GC-12b through D-GC-12e). The material ranged from 1 to 1.5 ft thick, and was dense and grayish white. Samples were collected and tested from each boring location where the material was encountered. Samples were collected across the entire thickness of the material to determine whether the material was contaminated, and from below the material to determine if the surrounding material was also affected. The samples were tested for arsenic because other areas of concrete waste found in the North Marina Area had exhibited only elevated arsenic concentrations.

#### **2.1.7.4 Puget Sound Truck Lines**

One groundwater sample was collected from planned cleanup area E-4, which was located in the southern portion of the former PSTL leasehold. This sample was analyzed for NWTPH-Dx and -Gx, and BTEX. Area E-4 was a localized area where no exceedance of the soil preliminary cleanup levels was encountered, but a single exceedance of the groundwater preliminary cleanup level for diesel-range petroleum hydrocarbons occurred at sample location E-FA-2 during the DGI. An additional groundwater sample, E-4, was collected from a direct-push boring that was co-located to E-FA-2 and tested for diesel-range petroleum hydrocarbons to determine whether the previous sample results were representative of groundwater conditions. The results of this groundwater sample revealed a diesel-range petroleum hydrocarbon concentration in excess of the preliminary cleanup level.

#### **2.1.8 SUB-SLAB SOIL SAMPLING**

Soil characterization samples were collected in late 2007/early 2008 throughout the Site beneath the floor slabs of large buildings, or buildings that hosted activities that could have resulted in releases of contamination to the subsurface. These samples were collected once the buildings were demolished as part of Site redevelopment activities. The samples were collected from the former footprints of three buildings within the Site boundary: 1) the ACC office/shop building, 2) the ACC storage building, and 3) the Everett Engineering Shop Building (i.e., Building 10). No other buildings located within the Site have been demolished in advance of redevelopment activities.

Based on the building size, between four and six equally spaced samples were collected from each building footprint. The samples were collected from the upper 6 inches of soil located directly beneath the sub-slab gravel layer and were analyzed for cPAHs, NWTPH-Dx, and metals (consistent with the general characterization analytical list from the DGI). The associated sampling results have not previously been reported, and are presented in Section 2.4 in conjunction with other investigations results.

### **2.2 PHYSICAL AND HYDROGEOLOGIC SETTING**

The ground surface of the Site is generally flat ranging from about 13 ft to 18 ft above mean lower low water (MLLW). Site geologic conditions encountered within the depth range of environmental explorations consisted primarily of a pavement section or a granular fill trafficking layer overlying hydraulic fill. Hydraulic fill is typically a loose to medium dense, poorly graded fine to medium sand with silt or silty fine to medium sand. Native marine sediment consisting of soft to loose silt to silty sand directly underlies the hydraulic fill. The hydraulic fill thickens from east to west, and is about 15 ft thick at the east end of the Site and about 70 ft thick at the west end of the Site. Glacial soil, consisting of

dense soil of variable composition, underlies the marine sediment and slopes steeply downward from east to west, resulting in a thickening layer of marine sediment to the west. An east-west geologic cross section (A-A') through the Site is presented on Figure 7 and the alignment of line A-A' is shown on Figure 8.

The uppermost hydrostratigraphic unit at the Site consists of the fill unit that overlies the finer grained marine sediment unit. The marine sediment unit forms the uppermost aquitard throughout the Site. The depth to groundwater ranges from about 3.0 to 7.5 ft below ground surface (BGS), depending on the season and proximity to the shoreline. The depth to water is generally shallower toward the center of the Site and deeper in the vicinity of the shoreline, which is consistent with groundwater flow toward marine surface water. Figure 8 presents a groundwater elevation contour map for the North Marina Area. Although groundwater data are not contoured across the entire Site, Figure 8 illustrates the hydrologic conceptual model of groundwater flow from the interior of the Site to its point of discharge at the shoreline.

## **2.3 PRELIMINARY CLEANUP STANDARDS**

Preliminary cleanup standards were developed for comparison to soil and groundwater analytical data to support evaluation of the nature and extent of contamination and to develop the Site cleanup action. Preliminary cleanup standards for the chemicals detected in Site soil and groundwater were developed in accordance with the MTCA regulations. Preliminary cleanup standards consist of: 1) preliminary cleanup levels that are adequately protective of human health and the environment, and 2) the point of compliance at which the preliminary cleanup levels must be met. Final cleanup standards will be developed by Ecology and presented in the final Site CAP.

As allowed under WAC 173-340-703, proposed indicator hazardous substances (IHS) were also developed to separate those constituents at the Site that contribute the greatest threat to human health and the environment from those that contribute little or no threat. The IHS are described in Section 2.3.7.

### **2.3.1 PRELIMINARY CLEANUP LEVELS**

Preliminary cleanup levels for Site soil protective of human health and the environment were developed in accordance with MTCA requirements, and are presented in Table 2. Preliminary cleanup levels for Site groundwater protective of marine surface water were developed in accordance with MTCA requirements and are presented in Table 3. Exposure pathways and receptors based on current and likely future Site uses were identified as part of preliminary cleanup level development. Final Site cleanup levels will be developed by Ecology and will be included as part of the CAP.

### **2.3.2 CURRENT AND LIKELY FUTURE LAND USE**

The Site is currently zoned as waterfront commercial, which allows for commercial, residential, and limited industrial use. The only industrial use allowed is associated with research/testing labs (does not include mass production or manufacturing of goods). Multi-family residential units in the form of condominiums will be constructed within the Site, so preliminary cleanup standards were developed based on unrestricted use.

### **2.3.3 EXPOSURE PATHWAYS**

Potential exposure pathways were identified for human and environmental impacts based on the planned land use. The potential exposure pathways are presented by medium below.

#### **2.3.3.1 Soil**

The potential exposure pathways for Site soil are:

- Human contact (dermal, incidental ingestion, or inhalation) with constituents in Site soil
- Leaching to groundwater and subsequent exposure of humans or aquatic organisms to affected groundwater at the point of discharge to marine surface water
- Uptake of constituents in Site soil by terrestrial plants
- Contact by terrestrial wildlife (dermal, incidental ingestion, or inhalation) with constituents in the soil.

Sites that contain less than 1.5 acres of contiguous undeveloped area are excluded from having to conduct a terrestrial ecological evaluation in accordance with WAC 173-340-7491(1)(c)(i). Following redevelopment, the Site will be almost entirely covered with buildings and pavement, and with landscaping confined to small areas around buildings, along roadways, and within parking areas. Most Site landscaping will be contained in planters or otherwise isolated from the underlying existing soil surface. As a result, the Site meets the exclusion for a terrestrial ecological evaluation. Ecology's Terrestrial Ecological Exclusion form is included as Appendix C.

#### **2.3.3.2 Groundwater**

Groundwater at, or potentially affected by, the Site is not currently used for drinking water and has an extremely low probability that it will be used as a future source of drinking water due to its proximity to marine surface water and the availability of a municipal water supply. As observed during investigation and cleanup activities, groundwater levels at the Site fluctuate with changing tides,

indicating that the groundwater and surface water are connected hydraulically. If groundwater were pumped for drinking water use, saltwater intrusion would likely occur due to the proximity of the Site to marine surface water. It should also be noted that the City of Everett requires that all residences and businesses within the city limits connect to city water, so the potential for shallow Site groundwater to be used as a potable supply is extremely low.

Based on these considerations, groundwater is considered nonpotable under the provisions of WAC 173-340-720(2)(d), and the potential exposure pathways for Site groundwater are assumed to include:

- Human ingestion of marine organisms affected by releases of Site groundwater to adjacent marine surface water
- Acute or chronic effects to aquatic organisms resulting from exposure to constituents in groundwater discharging to adjacent marine surface water.

Groundwater cleanup criteria developed based on the exposure pathways identified in this subsection must be adequately protective of aquatic organisms and of humans that ingest these marine organisms.

#### **2.3.4 SOIL PRELIMINARY CLEANUP LEVELS**

Soil preliminary cleanup levels for unrestricted land use were developed for constituents detected in soil within the Site boundary in accordance with WAC-173-340-740 using the exposure pathways identified above based on the mixed residential and commercial uses that will be present on the Site following redevelopment. Under MTCA Method B soil preliminary cleanup levels must be as stringent as:

- Concentrations established under applicable state and federal laws
- Concentrations protective of direct human contact with soil
- Concentrations protective of groundwater.

These criteria were considered during development of soil preliminary cleanup levels.

No soil cleanup levels established under applicable state or federal laws have been identified for the constituents detected in the Site, other than MTCA cleanup levels. Because PCBs were not detected within the Site boundary, cleanup levels established in the Toxic Substances Control Act were not used in this evaluation. Standard MTCA Method B soil cleanup levels protective of direct human contact were determined in accordance with WAC 173-340-740(3) using Ecology's on-line Cleanup Levels and Risk Calculations (CLARC) database (<https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>). These cleanup



levels are shown in Table 2. The Method B cleanup level for benzo(a)pyrene was used for the sum of cPAHs, using toxicity equivalency factors (TEFs) to calculate a toxicity equivalency quotient (TEQ) for total cPAHs in accordance with WAC 173-340-708(8)(e).

Soil preliminary cleanup levels protective of groundwater were determined using the fixed parameter three-phase partitioning model in accordance with WAC 173-340-747(4). The three-phase model provides a conservative estimate of the concentration of a contaminant in soil that is protective of groundwater. Because groundwater is not a current or likely future source of drinking water, and because it discharges to marine surface water, groundwater preliminary cleanup levels were developed based on marine surface water preliminary cleanup levels protective of human health and aquatic organisms in accordance with WAC 173-340-730. However, in accordance with WAC 173-340-720(6)(b)(i) and for the purposes of screening the data, if an applicable marine surface water cleanup level was not identified to calculate a soil cleanup level protective of groundwater, the groundwater preliminary cleanup level used in the three-phase model was then based on the standard Method B potable water cleanup level [in accordance with WAC 173-340-720(4)(b)]. Soil preliminary cleanup levels protective of groundwater are shown in Table 2.

For constituents present in soil at concentrations greater than the calculated soil preliminary cleanup levels protective of groundwater as marine surface water, an empirical demonstration that concentrations present in soil are not causing groundwater preliminary cleanup levels (based on marine surface water criteria) to be exceeded may be made. The Site may meet the requirements for an empirical demonstration listed in WAC 173-340-747(9)(b) for all hazardous substances tested in soil. Evaluation of whether the Site meets the requirements for an empirical demonstration will be performed as part of the RI/FS. The empirical demonstration requires that:

- Measured groundwater concentrations in proposed point of compliance wells are less than the groundwater preliminary cleanup levels
- Any hazardous substances in soil have been present for many years, allowing sufficient time for migration to the shallow groundwater
- Future site use following redevelopment will reduce the potential for leaching from soil to groundwater due to an increase of low-permeability cover resulting from additional buildings and paved areas.

### **2.3.5 GROUNDWATER PRELIMINARY CLEANUP LEVELS**

Human ingestion of constituents in groundwater is not a potential exposure pathway (see Section 2.3.3.2). Instead, preliminary cleanup levels protective of marine surface water were developed because Site groundwater discharges directly to the North Marina, which, in turn, discharges to the lower reaches of the Snohomish River that are subject to salt water intrusion. However, in accordance with

WAC 173-340-720(6)(b)(i) and for the purposes of screening the data, if an applicable marine surface water cleanup level was not identified, the groundwater preliminary cleanup level was based on the standard Method B potable water cleanup level [in accordance with WAC 173-340-720(4)(b)]. MTCA Method B groundwater preliminary cleanup levels protective of marine surface water were developed in accordance with WAC 173-340-730(3) for the detected constituents in groundwater. Preliminary cleanup levels were adjusted to be no less than the practical quantitation limit (PQL) in accordance with WAC 173-340-730(5)(c). Groundwater preliminary cleanup levels for those constituents detected in groundwater are shown in Table 3.

### **2.3.6 POINT OF COMPLIANCE**

Under MTCA, the point of compliance is the point or location on a site where the preliminary cleanup levels must be attained. The point of compliance where soil preliminary cleanup levels will be attained is throughout the Site in accordance with WAC 173-340-740(6)(b). Because groundwater cleanup screening levels are based on protection of marine surface water and not protection of groundwater as drinking water, a conditional point of compliance was established at the point of discharge to marine surface water, which is consistent with WAC 173-340-720(8)(d)(i).

### **2.3.7 INDICATOR HAZARDOUS SUBSTANCES**

As allowed under WAC 173-340-703, IHS were identified to separate those constituents at the Site that contribute the greatest threat to human health from those that contribute little or no threat. IHS were selected by applying the factors identified in WAC 173-340-703(2) and by comparing detected constituent concentrations in soil and groundwater to applicable soil and groundwater quality criteria developed in Tables 2 and 3. Results from the previous site investigations described in Section 2.0 were used to identify Site soil and groundwater IHS.

Tables 4 and 5 summarize the analytical testing and preliminary cleanup level exceedances for Site soil and groundwater, respectively. The tables include the analytical parameters that were tested, the number of detections, and the number of samples that exceeded the preliminary cleanup levels. The tables also summarize the constituent frequency of detection, minimum and maximum reporting limits and detected concentrations, and rationale for either including or excluding the constituents as IHS. The bases for identifying IHS are described in the following sections, and the identified IHS and their associated preliminary cleanup levels are presented in Table 6.

### 2.3.7.1 Soil

As shown in Table 4, all but 15 of the constituents analyzed for in soil were either not detected or the detected concentrations were below the identified preliminary cleanup levels. The constituents that did not exceed the preliminary cleanup levels do not pose an unacceptable threat to human health or the environment and, as a result, were not identified as IHS. The remaining 15 constituents were detected at least once at a concentration exceeding the preliminary cleanup level. These constituents are arsenic, copper, lead, mercury, cPAHs, 1-methylnaphthalene, gasoline-range petroleum hydrocarbons, diesel-range petroleum hydrocarbons, and oil-range petroleum hydrocarbons.

Four of these constituents, arsenic, lead, cPAHs, and diesel-range petroleum hydrocarbons were detected at concentrations exceeding the preliminary cleanup level in more than one area of the Site, and are further explained below:

- **Arsenic** was tested for in 429 samples collected across the Site. Of these 429 samples, 86 percent exhibited concentrations of arsenic above the laboratory reporting limit, and 163 of the samples exceeded the soil preliminary cleanup level for arsenic. The 163 samples that exceeded the preliminary cleanup level were located in several separate areas of the Site including Areas d (ACC north and south yards), e, f, and h.
- **Lead** was tested for in 148 samples collected across the Site. Of these 148 samples, 99 percent exhibited concentrations of lead above the laboratory reporting limit, and three of the samples exceeded the soil preliminary cleanup level for lead. The three samples that exceeded the preliminary cleanup level were located in Area f.
- **cPAHs** were tested for in 247 samples collected across the Site. Of these 247 samples, 59 percent exhibited concentrations of cPAHs above the laboratory reporting limit, and 72 of the samples exceeded the soil preliminary cleanup level for cPAHs. The 72 samples that exceeded the preliminary cleanup level were located in several separate areas of the Site (Area f and Area d ACC north and south yards).
- **Diesel-range petroleum hydrocarbons** were tested for in 126 samples collected across the Site. Of these 126 samples, 76 percent exhibited concentrations of diesel-range petroleum hydrocarbons above the laboratory reporting limit, and 16 of the samples exceeded the soil preliminary cleanup level for TPH-D. The 16 samples that exceeded the preliminary cleanup level were located in three separate areas of the Site (Area e and Area d ACC north and south yards).

Because of the broader geographic distribution, these constituents are considered to contribute the greatest threat to human health or the environment and, therefore, have been identified as soil IHS throughout the Site.

The remaining four constituents that exceeded soil preliminary cleanup levels were gasoline-range petroleum hydrocarbons, oil-range petroleum hydrocarbons, copper, 1-methylnaphthalene, and mercury. The distribution of these constituents was limited to certain areas of the Site and, therefore, they were designated as IHS for those specific areas, and not throughout the Site, as described below.

Gasoline-range petroleum hydrocarbons were analyzed for in a total of 10 soil samples. Of these 10 samples, 4 samples (40 percent) exhibited concentrations of gasoline-range petroleum hydrocarbons above the laboratory reporting limit; these four samples also exceeded the soil preliminary cleanup level. The exceedances were limited to the ACC north yard and were related to surface spillage of petroleum products associated with the two fuel ASTs. As a result, gasoline-range petroleum hydrocarbons were identified as an IHS for this portion of the Site only.

Oil-range petroleum hydrocarbons were analyzed for in a total of 126 soil samples. Of these 126 samples, 90 samples (71 percent) exhibited concentrations of gasoline-range petroleum hydrocarbons above the laboratory reporting limit, and six samples exceeded the soil preliminary cleanup level. The exceedances were limited to ACC north yard, and were related to surface spillage of petroleum products associated with site industrial activities and poor housekeeping practices (e.g., waste oil AST). As a result, oil-range petroleum hydrocarbons were identified as an IHS for this portion of the Site only.

Copper was analyzed in a total of 144 soil samples. Of these 144 samples, 100 percent exhibited concentrations of copper above the laboratory reporting limit, and 39 samples exceeded the soil preliminary cleanup level. The exceedances were limited to ACC north yard, which has a lower preliminary cleanup level for copper than other portions of the Site because groundwater in that area is affected by copper. The specific cause of the copper groundwater contamination in this area is not known. However, crushed rock used for structural support along the crane-rail alignment appears to contain naturally elevated levels of copper. It is possible that the form of copper in the ballast rock is more water soluble than the copper species associated with boat maintenance and other marine industrial uses elsewhere at the Site. Copper was identified as an IHS for the ACC north yard only.

1-Methylnaphthalene was tested for in total of 59 soil samples from areas where diesel-range petroleum hydrocarbon contamination was suspected in the ACC north yard. All but one of these samples was also tested for diesel-range petroleum hydrocarbons. Of these 59 samples, 31 percent exhibited concentrations of 1-methylnaphthalene above the laboratory reporting limit, and 3 samples [(D-2-4 (3-4), D-7A-6 (3-4), and D-7A-7 (5-6))] exceeded the soil preliminary cleanup level. Each of the three samples also exceeded the cleanup level for diesel-range petroleum hydrocarbons. Four of the samples tested for 1-methylnaphthalene exceeded the cleanup level for diesel-range petroleum hydrocarbons, but not the cleanup level for 1-methylnaphthalene. The soil intervals represented by the samples that exhibited cleanup level exceedances of 1-methynaphthalene corresponded to soil cleanup action areas for which diesel-range petroleum hydrocarbons were an identified IHS. Thus, the removal of diesel-range petroleum hydrocarbon-contaminated soil would address any other areas of 1-methylnaphthalene contaminated soil. Therefore, 1-methylnaphthalene was eliminated from the proposed list of IHS for soil.

Mercury was analyzed in a total of 147 soil samples. Of these 147 samples, 40 percent exhibited concentrations of mercury above the laboratory reporting limit, and 1 sample exceeded the soil preliminary cleanup level. The exceedance was limited to sample location H-GC-5, which is located immediately south of the ACC south yard in a general paved parking area. As a result, mercury was identified as an IHS for this portion of the Site only.

### **2.3.7.2 Groundwater**

As shown in Table 5, all but six of the constituents analyzed for in soil were either not detected or the detected concentrations were below the identified preliminary cleanup levels. The constituents that did not exceed the preliminary cleanup levels do not pose an unacceptable threat to human health or the environment and, as a result, were not identified as IHS. The remaining six constituents were detected at least once at a concentration exceeding the preliminary cleanup level. These constituents are vinyl chloride, arsenic, copper, gasoline-range petroleum hydrocarbons, diesel-range petroleum hydrocarbons, and oil-range petroleum hydrocarbons. Because these constituents were not widely distributed across the Site, and were primarily related to area specific conditions, separate from other portions of the Site, the groundwater IHS are explained individually below.

Dissolved arsenic was analyzed for in a total of 38 samples. Of these 38 samples, 36 samples (95 percent) exhibited concentrations of dissolved arsenic above the laboratory reporting limit, and 19 samples exceeded the preliminary cleanup level. The exceedances were limited to the ACC north yard in Area d, former PSTL leasehold (Area e), and the central portion of Area f. The samples collected from the ACC north yard are related to the petroleum hydrocarbon contamination of planned cleanup area D-7D, and the arsenic soil contamination that extends well below the water table in planned cleanup area D-1. The samples collected from the former PSTL leasehold that exceeded the arsenic groundwater preliminary cleanup level were also within an area of known petroleum hydrocarbon contamination. The elevated arsenic concentrations in samples collected from the central portion of Investigation Area f are related to the presence of widespread deposits of wood debris in this area. The petroleum hydrocarbon contamination and wood debris likely caused reducing conditions in the groundwater that resulted in mobilization of naturally occurring arsenic from soil into the groundwater. Because these conditions are limited to discrete areas, dissolved arsenic was identified as a groundwater IHS for these portions of the Site only.

Dissolved copper was analyzed for in a total of 22 groundwater samples. Of these 22 samples, 10 samples (46 percent) exhibited concentrations of dissolved copper above the laboratory reporting limit, and 5 samples exceeded the groundwater preliminary cleanup level. The exceedances were limited to the ACC north yard. As discussed in Section 2.3.7.1, the specific cause of the copper groundwater

exceedances in the north yard are not known, but appear to be related to naturally occurring elevated copper concentrations in crushed rock used for structural support along the crane-rail alignment. Because the exceedances of dissolved copper were limited to the ACC north yard, dissolved copper was identified as a groundwater IHS for this portion of this Site only.

It should be noted that one groundwater sample, D-FA-14, that was obtained within the ACC north yard exhibited preliminary cleanup level exceedances of arsenic, copper, lead and zinc. It was determined that these concentrations were inaccurate due to the failure of the in-line field filter used during sampling. This location was re-sampled and the new sample (D-FA-14b) did not contain detectable levels of dissolved copper, lead and zinc. Arsenic at this location was detected at a concentration that was below the preliminary cleanup level.

Diesel-range petroleum hydrocarbons were analyzed for in a total of 44 groundwater samples. Of these 44 samples, 11 samples (25 percent) exhibited concentrations of gasoline-range petroleum hydrocarbons above the laboratory reporting limit, and 7 samples exceeded the preliminary cleanup level. The exceedances were limited to the ACC north yard in planned Cleanup Action Area D-7D and to the former PSTL leasehold in planned cleanup Area E-4. The diesel-range petroleum hydrocarbon contamination in Area D-7D appears to be related to surface spillage of petroleum products associated with the two fuel ASTs, and in Area E-4 appears to be related to documented releases from former USTs. As a result, diesel-range petroleum hydrocarbons are identified as an IHS for these two areas only.

Oil-range petroleum hydrocarbons were analyzed for in a total of 44 groundwater samples. Of these 44 samples, 3 samples (7 percent) exhibited concentrations of oil-range petroleum hydrocarbons above the laboratory reporting limit, and only 2 samples (D-FA-11 and D-FA-14) exceeded the preliminary cleanup level. The exceedances were limited to the ACC north yard. Sample D-FA-14 was collected immediately downgradient of planned cleanup area D-6. The oil-range petroleum hydrocarbon contamination at this location appears to be related to surface spillage of petroleum products associated with the waste oil AST that was located in the center of Area D-6. Sample D-FA-11 was collected within the planned cleanup area D-7. The oil-range petroleum hydrocarbon contamination at this location appears to be related to surface spillage of petroleum products associated with equipment operation. As a result, oil-range petroleum hydrocarbons were identified as an IHS for these two areas only.

Gasoline-range petroleum hydrocarbons were analyzed for in a total of 30 groundwater samples. Of these 30 samples, 8 samples (27 percent) exhibited concentrations of gasoline-range petroleum hydrocarbons above the laboratory reporting limit, and 3 samples exceeded the preliminary cleanup level. The exceedances were limited to the ACC north yard in Area D-7D, and appeared to be related to surface spillage of petroleum products associated with the two fuel ASTs. As a result, gasoline-range petroleum hydrocarbons were identified as an IHS for this area only.

Vinyl chloride was analyzed for in a total of 15 groundwater samples. Of these 15 samples, 2 samples (13 percent) exhibited concentrations of vinyl chloride above the laboratory reporting limit, and 1 sample exceeded the preliminary cleanup level. The exceedances were limited to one groundwater sample location in Area f (F-2). The source of the vinyl chloride is not known. Because the exceedance is limited to cleanup Area F-2, vinyl chloride was identified as an IHS for this area only.

It should be noted that evaluation of heavy metals concentrations in Site groundwater was conducted using dissolved metals analytical results. Based on the 13 groundwater samples (including two duplicate samples) tested for both total and dissolved metals from groundwater monitoring wells located within the North Marina Area, total metals concentrations were consistently higher than dissolved metals concentrations, with the exception of three instances where dissolved arsenic concentrations and two instances where dissolved copper concentrations were higher than their respective total concentrations (Table 7). Based on these results, it was concluded that groundwater samples tested for total metals were affected by the presence of particulates, even though the monitoring wells were extensively developed and low flow sampling techniques were used to minimize the entrainment of particulates in groundwater samples. As a result, analytical results for total metals were not considered representative of Site groundwater conditions, consistent with WAC 173-340-720(9)(b).

A total of 17 groundwater samples were analyzed for cPAHs within the West End Cleanup Action Area. CPAHs were detected in six of these samples and two of the detected concentrations exceeded the proposed groundwater cleanup level. Six of the groundwater samples with detectable cPAH concentrations (D-1, D-2, D-3, D-4, F-1, and F-2), including the two cPAH exceedances, are associated with groundwater samples from the Phase II ESA (Landau Associates 2004) believed to have soil particulates entrained in the samples during collection. Groundwater samples collected at the six locations at a later date were centrifuged by the lab to remove particulates prior to cPAH analysis. Only one of the centrifuged groundwater samples contained detectable concentrations of cPAHs and the detected concentration was below the proposed cPAH groundwater cleanup level, indicating the detected concentrations in the earlier non-centrifuged groundwater samples are likely due to constituents adsorbed to soil particulates entrained in the groundwater sample. Because of the number of samples analyzed for cPAHs and the lack of cleanup level exceedances (excluding false positives), cPAHs are not considered a constituent of concern for groundwater.

Appendix A presents sampling methods, including field filtering procedures and Table 14 provides groundwater monitoring results for dissolved metals analyses.

## **2.4 ENVIRONMENTAL CONDITIONS**

Environmental conditions were evaluated, and cleanup areas were designated, based on comparison of the analytical results for Site soil and groundwater to the preliminary cleanup levels developed in Section 2.3. The following sections present a discussion of the environmental conditions with respect to soil and groundwater quality at the Site. Additionally, soil and groundwater quality for areas outside of the Site boundary, that do not fall within another site, are also discussed.

### **2.4.1 SOIL QUALITY**

Soil sample locations and preliminary cleanup level exceedances are presented on Figure 5; Tables 8 through 13 present the laboratory analytical data for the detected constituents in the soil characterization samples. Appendix B-1 presents all laboratory analytical results for soil characterization samples. Figure 5 identifies the locations where soil concentrations for one or more of the IHS exceed the preliminary cleanup levels, illustrating the aerial distribution of Site soil contamination.

As shown on Figure 5, 50 cleanup action areas, including sub-areas, were identified based on the distribution of soil contamination. The boundary of the cleanup action areas corresponded to the planned limits of excavation for the interim cleanup action. In some cases, primary cleanup action areas encompass an area of contamination with varying depths and, as a result, the primary cleanup action areas were subdivided into sub-areas to address the varying depths of contamination. For example, Cleanup Action Area D-2 is subdivided into five sub-areas (i.e., D-2a through D-2e). Cleanup action areas were defined based on the distribution of preliminary cleanup level exceedances, with consideration given to the nature of contamination, its potential distribution based on known or suspected sources, and Site features that provide boundaries to the extent of contamination.

Characterization sample locations, characterization data, and associated soil cleanup action areas (i.e., planned interim cleanup action excavations) are further detailed on Figures 9 through 16. Soil analytical data are presented in Tables 8 through 13.

The following sections describe the nature and distribution of contamination found within each designated cleanup action area. The identified IHS for each cleanup action area are described below.

#### **2.4.1.1 Cleanup Action Area D-1**

Cleanup Action Area D-1 was the approximate footprint of the former graving dock in the northern portion of the ACC north yard. Soil contamination in Area D-1 consisted of arsenic and copper and, to a lesser extent, cPAHs. Contamination extended to about 14 ft BGS based on the sample results from one direct-push boring (D-FA-5); however, at some locations, refusal was encountered at about 12 ft



BGS and deeper soil samples could not be obtained. A concrete slab was present at the base of the former graving dock and was likely the cause of refusal encountered during drilling. Sample locations and depth of contamination encountered at these sample locations within Area D-1 are shown on Figure 9. The source of the release is not known, but appears to result from the placement of affected soil used for backfilling the former graving dock. Groundwater contamination associated with Area D-1 is discussed in Section 2.4.2.

#### **2.4.1.2 Cleanup Action Areas D-2, D-3, D-4 and D-5**

Areas D-2, D-3, D-4, and D-5 were located in the ACC north yard. Soil contamination in these areas consisted of arsenic, copper, cPAHs, and, in some limited locations, motor oil- and diesel-range petroleum hydrocarbons. The source of contamination was related to former ACC operations, which consisted of various maritime construction activities, including sandblasting, painting, and storage of creosote-treated timbers

Area D-2 corresponded to an area of primarily arsenic, copper and cPAH soil contamination located immediately south and east of Area D-1 (the former graving dock). Based on the sample analytical results from 15 exploration locations completed during previous investigations, Area D-2 was subdivided into six sub-areas (D-2a through D-2f) to address the different depths of soil contamination in these areas. Contamination extended to the following depths in each of the sub-areas: D-2a: (1 ft BGS), D-2b: (3 ft BGS), D-2c: (4 ft BGS), D-2d: (1 ft BGS), D-2e: (3 ft BGS), and D-2f: (2 ft BGS). Contamination throughout each area was vertically consistent, except for cleanup area D-2c, which contains arsenic, copper, cPAHs contamination from 1 to 3 ft BGS and diesel-range petroleum hydrocarbons and 1-methynaphthalene contamination from 3 to 4 ft BGS. It should be noted that arsenic contamination extends to 10 ft BGS at location D-FA-6 in Area D-2e. The greater depth of contamination at D-FA-6 appeared to result from its proximity to the former graving dock, with the boring likely intersecting the side slope of the former graving dock sidewall at a depth of 10 ft BGS. The deeper contamination at this location will be addressed during cleanup of D-1 based on the sidewall slope extending out from the D-1 area boundary shown on Figure 9.

Area D-3 corresponded to an area of arsenic, copper and cPAH contamination located between the northern bulkhead and Area D-1. Based on sample results from three locations completed during previous investigations, this area was subdivided into three sub-areas (D-3a through D-3c) to address the different depths of contamination in these areas. Contamination extended to the following depths in each of the sub-areas: D-3a (4 ft BGS), D-3b (5 ft BGS), and D-3c (8 ft BGS). According to ACC representatives, this area corresponded to the location of the flood gates of the former dry dock, which explains the presence of deeper soil contamination.

Area D-4 corresponded to an area of arsenic, copper and cPAH contamination located immediately south of Area D-2e. Based on sample results from 13 exploration locations completed during previous investigations, Area D-4 was subdivided into three sub-areas (D-4a through D-4c) to address the different depths of contamination in these areas. Contamination extended to the following depths in each of the sub-areas: D-4a (2 ft BGS), D-4b (1 ft BGS), and D-4c (3 ft BGS). It should be noted that a layer of diesel- and motor oil-range petroleum hydrocarbon soil contamination was encountered at sample location D-GC-2 in a thin layer from 0.8 to 1.0 ft BGS. This layer was addressed, in part, in Area D-4a. The remainder of the petroleum hydrocarbon-affected layer was addressed in Area D-7 (see below). The specific source of the petroleum hydrocarbons is unknown, but was likely associated with minor surface spillage.

Area D-5 corresponded to an area of shallow soil cPAH contamination located in the north portion of the crane-rail alignment and immediately west of D-1. Analytical results of four samples collected from Area D-5 during previous investigations identified cPAH surface soil contamination. cPAH soil contamination extends to 1 ft BGS in this area. The specific source of the cPAHs is unknown, but likely resulted from storage of creosote-treated timbers.

The sample locations and depth of contamination encountered at these sample locations within Area D-2, D-3, D-4 and D-5 are shown on Figure 9. Analytical results for metals, cPAHs, and petroleum hydrocarbons soil samples are presented in Tables 8, 9, and 10, respectively.

#### **2.4.1.3 Cleanup Action Area D-6**

Area D-6 was located on the south side of the storage shed on the ACC north yard. This area was used to store empty 55-gallon and 5-gallon drums. An AST used to store waste oils was also located in this area. Soil contamination in this area consisted of diesel- and motor oil-range petroleum hydrocarbons and arsenic. Soil samples were collected at one location (D-FA-15) from only the upper 2 ft of soil in this area because of access limitations posed by the AST. As a result, the actual depth of the contamination in this area was not determined prior to implementing the interim cleanup action. Visual observations of the soil during drilling at D-FA-15 indicated the presence of residual product at the 1.0 to 2.0 ft depth interval. The soil sample collected from D-FA-15 was tested for, but did not contain reportable concentrations of, PCBs.

The sample location and depth of contamination encountered within this area are shown on Figure 9. Soil sample analytical results for metals, cPAHs, and petroleum hydrocarbons, are presented on Tables 9, 10, and 11, respectively.

#### **2.4.1.4 Cleanup Action Areas D-7 and D-7D**

Areas D-7 and D-7D were located north of the ACC main office building and maintenance shop. Two ASTs (diesel and gasoline) were located in this area. Soil contamination in these areas consisted of arsenic, cPAHs, petroleum hydrocarbons in the diesel and oil ranges, and 1-methylnaphthalene. Petroleum hydrocarbons in the gasoline range were not detected above the preliminary cleanup level. Area D-7 addressed the shallow soil contamination, and Area D-7D addressed deeper soil contamination in this portion of the north yard. Note that Area D-7D was formerly labeled D-7A in the West End CAP (Landau Associates 2007a) and was relabeled to more clearly reflect that this area represents deeper soil contamination (i.e., “D”).

Area D-7 encompassed 15 sampling locations where arsenic, diesel-range petroleum hydrocarbons and/or motor oil-range petroleum hydrocarbons, and naphthalenes were detected at concentrations exceeding the preliminary cleanup levels. Area D-7 also extended westward to the crane rail alignment that ran parallel to the western shoreline and southward to the vicinity of the main office building. The depth of contamination in Area D-7 included the upper 1 ft of soil; however, based on the sample results from three of the fifteen locations (D-FA-10, D-FA-11, and D7A-10), three sub-areas of D-7 (D-7a through D-7c) were created to address soil contamination identified at these sample locations that extended to 2 ft BGS.

Cleanup Action Area D-7D encompassed the area where petroleum hydrocarbons had contaminated the subsurface soil in the vicinity of the two ASTs. Vertical and horizontal delineation of the petroleum hydrocarbon contamination in Area D-7D was based on visual observations, field screening of the subsurface soil, and analytical results from subsurface soil samples. Deeper samples (3 to 6 ft BGS) collected from six direct-push boring locations exhibited concentrations of diesel-range petroleum hydrocarbons and/or gasoline-range petroleum hydrocarbons above their respective preliminary cleanup levels. Two samples, D-7A6 (3-4) and D-7A-7 (5-7), exceeded the 1-methylnaphthalene preliminary cleanup level. Two samples, including one sample that did not exceed the TPH-D criteria, contained petroleum hydrocarbons concentrations exceeding the risk threshold for noncarcinogenic effects [i.e., hazard index (HI) greater than 1] for petroleum hydrocarbons based on analysis for EPH. Additionally, the two samples that exhibited a HI greater than 1 also exceeded the naphthalene preliminary cleanup level.

Based on the distribution of contamination, Area D-7D was subdivided into two sub-areas, D-7D.3 and D-7D.4. Soil contamination in D-7D.3 extended from below 3 ft BGS to the groundwater table (between about 6 and 8 ft BGS), and soil contamination in D-7D.4 extended from below 5 ft BGS to

the groundwater table (between about 6 and 8 ft BGS). The sample location and depth of contamination encountered within this area are shown on Figure 10. Soil sample analytical results for metals, cPAHs, and petroleum hydrocarbons are presented in Tables 9, 10, and 11, respectively.

Clean soil located below the surface soil contamination of Area D-7 (about 1.25 ft BGS) and the deeper soil contamination of Areas D-7D.3 and D-7D.4 (about 3 and 5 ft BGS) was segregated from the contaminated soil and was used as clean backfill. Soil samples were collected from this material during cleanup activities to verify that the material was clean prior to using it as backfill, consistent with Ecology guidance (Ecology 1994).

As shown on Figure 10, an additional sub-area, D-7D.5, was identified outside of the footprint of the D-7D.3 and D-7D.4 sub-areas, to address deeper soil contamination encountered at Phase II ESA sample location D-3. A layer of stained soil was encountered at this location from 3.3 ft to 3.6 ft BGS, and exceeded the cPAH and oil-range petroleum hydrocarbon preliminary cleanup levels as presented in Tables 10 and 11, respectively.

Constituent concentrations in five groundwater samples collected downgradient from the former ASTs exceeded the groundwater preliminary cleanup level for diesel- and/or gasoline-range petroleum hydrocarbons, providing empirical evidence that petroleum hydrocarbon concentrations in soil exceeded those acceptable for protection of groundwater, and potentially air due to the relatively low air preliminary cleanup levels for benzene and naphthalene. The groundwater analytical data associated with Areas D-7 and D-7D are shown on Figure 17. Groundwater contamination associated with Area D-7D is discussed in Section 2.4.2.

#### **2.4.1.5 Cleanup Action Areas D-8 and D-9**

Area D-8 was located in the southwest corner of the ACC north yard, west of the main office and maintenance shop. Area D-9 was located in the southeast corner of the ACC north yard, east of the main office and maintenance shop. Analytical results from one sample location exhibiting cPAH and arsenic contamination provided the basis for identifying Cleanup Action Area D-8. Soil contamination in this area extended to 1 ft BGS. Analytical results from five sample locations that exhibited cPAH and/or arsenic contamination provided the basis for identifying Cleanup Action Area D-9. Based on these sample locations and results, Area D-9 was subdivided into three cleanup action areas (D-9a, D-9b and D-9c). Soil contamination extended to 1 ft BGS in Area D-9a, and 2 ft BGS in Area D-9b. Area D-9c was based on the results of one sample (EBS-1) collected beneath the floor slab and gravel base course of the ACC storage building that exhibited an arsenic concentration above the preliminary cleanup level; soil contamination in D-9c extended from 1 ft to 2 ft below the surface of the floor slab.

Specific activities that caused releases in these areas were not identified, although the areas were at the entrances to the north yard and soil may have been impacted by vehicles tracking contaminated soil while exiting the property or by wind blown deposition.

The sample location and depth of contamination encountered within these areas are shown on Figure 9. Soil sample analytical results for metals and cPAHs are presented in Tables 9, 10, and 11, respectively.

#### **2.4.1.6 Cleanup Action Areas D-10 and D-11**

Areas D-10 and D-11 are located south of 13<sup>th</sup> Street in the ACC south yard, as shown on Figure 5. The ACC south yard was used by ACC for support of its maritime construction activities, including storage of materials and equipment from 1989 until 2004. Prior to ACC, the American Tugboat Company leased the ACC south yard as part of a larger leasehold that included Areas H-1 and H-2 from 1963 to 1965 and Manson Osberg Construction leased the same leasehold from 1975 to 1985. Specific activities that occurred in this area prior to ACC's tenancy are not known, but likely included activities similar to ACC since the previous tenants also used the leasehold for support of marine construction activities.

Area D-11 encompassed 11 soil samples that exhibited cPAH soil contamination extending to 1 ft BGS. During a geotechnical test pit study conducted in November 2004, a wood debris layer was encountered at test pit location TP-7; a sample (TP-7) collected from this test pit location from 2 to 4 ft BGS exhibited a cPAH concentration of 140 µg/kg, which is slightly above the preliminary cleanup level of 137 µg/kg. For the purposes of the cleanup action, this test pit location was addressed specifically during the cleanup action of Area D-10, but no separate cleanup action area was defined for this condition.

Area D-10 encompassed seven soil samples that exhibited cPAH and/or arsenic soil contamination extending to 3 ft BGS. It should be noted that during the 2007 Additional Delineation Investigation a layer of concrete waste-like material was encountered in three boring locations (D-GC-12b, D-GC-12d, and D-GC-12e) in Area D-10. The layer of material exhibited a concrete-like odor, was white to light gray, and extended from about 1 to 2.5 ft BGS. Sample analytical results of this material exhibited concentrations of arsenic above the preliminary cleanup level. For tracking purposes during the cleanup action, this concrete like material was defined as a sub-area of D-10, named D-10a.

The analytical data associated with Areas D-10 and D-11 are shown on Figure 11.

#### **2.4.1.7 Cleanup Action Areas E-1 and E-2**

Areas E-1 and E-2 are located in the northwest (Area E-1) and southwest (Area E-2) corners of Investigation Area E. The areas were used for the staging, maintenance, and operation of the PSTL fleet of trucks and trailers. Soil contamination in these areas was limited to arsenic. No cPAH or TPH exceedances occurred in conjunction with shallow soil. No activities likely to cause arsenic contamination are known to have occurred in either area, but it is possible that sandblasting or the use of arsenic-based pesticides or herbicides occurred.

Area E-1 encompasses three samples that exhibited arsenic contamination extending to 1 to 2 ft BGS. Based on the results of these samples, E-1 was subdivided into two sub-areas (E-1a and E-1b) to address the different depths of soil contamination. Soil contamination extends to 2 ft BGS in Area E-1a and 1 ft BGS in Area E-1b. Area E-2 encompasses one sample location that exhibited arsenic soil contamination from 1.5 to 2.5 ft. The analytical data associated with Areas E-1a, E-1b, and E-2 are shown on Figure 12. The laboratory analytical for detected metals data are presented in Table 8.

#### **2.4.1.8 Cleanup Action Areas E-3 and E-4**

Cleanup Action Areas E-3 and E-4 are located in the central portion of the former PSTL leasehold as shown on Figure 13, and are identified to address areas of petroleum contamination related to releases from the two diesel USTs that were previously removed from the leasehold (identified on Figure 3). An independent cleanup action was previously conducted for releases associated with the UST in 1990/1991. Although a cleanup report was submitted to Ecology following cleanup, Ecology determined that the information provided was inadequate to issue a NFA determination. As a result, additional characterization in the vicinity of the USTs was conducted during the DGI, the supplemental DGI, and 2007 Additional Delineation Investigation, which identified residual diesel-range TPH contamination in soil and groundwater.

Area E-3 encompassed two soil samples exhibiting diesel-range petroleum hydrocarbon contamination that were collected within the capillary fringe of the groundwater table. One of the two samples, E-GC-4d, contained petroleum hydrocarbons concentrations exceeding the risk threshold for noncarcinogenic effects (i.e., HI greater than 1) for petroleum hydrocarbons based on analysis for EPH. Soil contamination in Area E-3 consisted of diesel-range petroleum hydrocarbons within a limited area downgradient of the former USTs, as shown on Figure 13. The contamination was limited to about the 3- to 7-ft depth range.

Area E-4 encompassed two groundwater sample locations that exhibited diesel-range petroleum hydrocarbons contamination (see Figure 6). This area was located in the immediate vicinity of the former

USTs. Although no soil samples collected from this area exhibited concentrations of diesel-range petroleum hydrocarbons above the preliminary cleanup level, this area was established to address the groundwater contamination, which is explained below in Section 2.4.2.

#### **2.4.1.9 Cleanup Action Area F-1**

Cleanup Action Area F-1 was located to the north of the former Everett Engineering building, and included the former Everett Engineering work yard, a small portion of the Port of Everett Overflow Parking Lot, the Co-op Boatyard, and an area just north of the Co-op Boatyard.

Area F-1 corresponded to an area of arsenic and, to a lesser degree, cPAHs surface soil contamination that extended to 1 ft BGS. Area F-1 encompasses 27 samples that exhibited arsenic concentrations above the soil preliminary cleanup level, one of which also exhibited cPAH concentrations above the soil preliminary cleanup level. The soil samples collected from the central portion of Area F-1 (corresponding to the Everett Engineering work yard) exhibited concentrations of arsenic that were consistently higher than in other portions of Area F-1; all samples collected in this areas exhibited concentrations of arsenic above 110 mg/kg, with a maximum of 330 mg/kg. Samples collected from other portions of Area F-1 exhibited arsenic concentrations that were typically below 100 mg/kg. Based on the distribution of arsenic concentrations, and locations of leasehold boundaries, four sub-areas of F-1 were defined (F-1a through F-1d). No TPH exceedances were encountered in these areas.

The soil contamination in the Everett Engineering work yard was likely the result of sandblasting activities and the many years that heavy equipment and machinery were stored and maintained in this area; it should be noted that sandblast grit was observed on the ground surface during the Phase I ESA (Landau Associates 2001). The portion of the overflow parking area included within Area F-1 may have been used for similar purposes as the Everett Engineering work yard; however, over a shorter time period, leading to the contamination of the surface soil in this area. Surface soil contamination within the Co-op Boatyard appeared to be related to general boat maintenance activities, such as sandblasting and paint scraping; however, prior to the existence of the Co-op Boatyard, Everett Engineering operated this area and at least a portion of the surface soil contamination within the Co-op Boatyard may be associated with historical Everett Engineering activities.

#### **2.4.1.10 Cleanup Action Area F-2**

Cleanup Action Area F-2 was located on the west side of the former ABW Plant II building. The F-2 area was used for parking and storage of vehicles and equipment, and included a loading dock at the

southwest corner of the building; this area may have been subject to spills or the discharge of sweepings from the building.

Area F-2 corresponds to an area of arsenic surface soil contamination that extended to 1 and 2 ft BGS. Area F-2 encompasses 7 locations where samples exhibited arsenic concentrations above the soil preliminary cleanup level. The contaminated soil in Area F-2 appeared to be associated, at least in part, with a pink granular material with the appearance of pink sand that was observed in the center portion of the loading dock as shown on Figure 15. The pink material in this area was not present in a measurable thickness. This material was also found to be present along the southern portion of the building adjacent to other building loading docks. A sample of this material ("F-Pink"), collected from the Phase I VCP Site Cleanup Action Area F-6b for characterization purposes, exhibited elevated concentrations of arsenic and lead.

The elevated levels of copper and zinc, in addition to arsenic and lead, in characterization samples collected from this area suggest that sandblasting of boats or painted marine equipment could be a source of contamination. The grain size of the pink material suggested it could be sandblast grit.

Arsenic is the only constituent that exceeded the preliminary cleanup levels in Area F-2. However, copper, lead, and zinc were also elevated above Washington state background concentrations (Table 2), but not greater than their respective preliminary cleanup level. Analytical data and the limits of Area F-2 are shown on Figure 15.

#### **2.4.1.11 Cleanup Action Areas F-3, F-4a, and F-4b**

Cleanup Action Areas F-3, F-4a, and F-4b were located in the Port of Everett Overflow Parking Lot. Areas F-3 and F-4b were located in the portion of the lot that was accessible to the public. Area F-4a was used by the Port for storage of marine related equipment, and was fenced off from public access.

Area F-3 was delineated based on the results from three sample locations. Shallow soil arsenic contamination was identified in the sample collected from location F-GC-13.b.6S.2W as shown on Figure 14. The samples collected from locations F-GC-13b.5S.1W and F-GC-13b-5s exhibited concentrations of arsenic below the preliminary cleanup levels.

Area F-4a encompassed two sample locations, F-GC-13 and F-GC-13c, which exhibited arsenic and/or cPAH soil contamination extending to 3 ft and 2 ft BGS, respectively. Area F-4b encompassed six sample locations that exhibited arsenic contamination extending to 1 ft BGS.

No specific activities likely to cause observed contamination were identified for Areas F-3, F-4a, and F-4b, but available aerial photographs indicated that Areas F-3 and F-4a were previously low areas that were filled within the last few years. It appeared that the contamination present in Areas F-3 and F-4a resulted from filling, possibly associated with grading or excavation of nearby affected soil in Area



F-1. No specific activities likely to cause observed contamination were identified for Area F-4b; however, this area was likely used by Everett Engineering, or its predecessors, as part of the leasehold, which may have included sand blasting activities.

The analytical data associated with Areas F-3, F-4a, and F-4b are shown on Figure 14.

#### **2.4.1.12 Cleanup Action Area F-5**

Cleanup Action Area F-5 was located to the south of the Everett Engineering building and adjacent to 13<sup>th</sup> Street within a landscaped area that is topographically higher than the surrounding grade. This area was affected by low level cPAH contamination and was delineated based on the sample results from three locations. Only one of the three samples exhibited cPAH soil contamination (F-GC-10), and was collected at the depth of the original ground surface (2.5 to 3.0 ft BGS), beneath the landscaping fill. The sample exhibited a low concentration of cPAHs (146 µg/kg), which only slightly exceeded the preliminary cleanup level for cPAHs (137 µg/kg). The other two samples (F-GC-10.1w and F-GC-10.1e) were also collected beneath the landscaping fill, but did not exhibit cPAH contamination. Analytical data for Area F-5 are shown on Figure 14.

The area does not have any usage history to indicate a potential source of contamination. However, sample F-GC-10 was collected in proximity to 13<sup>th</sup> Street and cPAHs are common contaminants associated with urban runoff and emissions from heavy equipment.

#### **2.4.1.13 Cleanup Action Area F-8a through F-8g**

Soil analytical results from 44 investigation locations provided the basis for delineating Cleanup Action Areas F-8a through F-8g. These samples were collected during an investigation that was conducted to determine the aerial extent and chemical characteristics of a larger fill unit that contained wood debris and exhibited a creosote odor within Investigation Area F (Landau Associates 2006d). Based on the results of the investigation, it was determined that this fill unit is present throughout a large portion of Investigation Area F and contained limited areas of cPAH soil contamination.

Of the 44 tested boring locations, only 10 of the locations exceeded the cPAH TEQ preliminary cleanup level, which provided the basis for identifying Areas F8a through F-8f. At these 10 locations, the contaminated interval was encountered below about the upper 1 ft of soil and had an average thickness of about 2 ft. Because the contamination in these areas only extended to a maximum of about 3 ft BGS, and cPAHs are not very soluble in water, groundwater was not suspected to be impacted by cPAHs and was not investigated in response to this release. CPAHs in groundwater are further discussed in Section 2.4.2.

The cPAH contamination in this area was likely related to residual creosote-treated wood debris found in the identified cleanup action areas. Soil sample locations, sample analytical results, and the resulting cleanup area boundaries of Areas F-8a through F-8g are presented on Figure 16. Table 9 presents a summary of soil sample analytical results for this area.

#### **2.4.1.14 Cleanup Action Area H-1, H-2, and H-3**

Area H-1 was located east of the ACC south yard and Areas H-2 and H-3 were located south of the ACC south yard and north of the Port of Everett Convention Center. The cleanup action area boundaries and characterization sample results for the associated samples are presented on Figure 11.

In Area H-1, analytical results from two samples (H-GC-1 and H-GC-1b) identified arsenic contamination limited to the shallow soil samples collected beneath the asphalt pavement and the associated gravel base course.

In Area H-2, analytical results from two samples (H-GC-6 and H-GC-7) identified cPAH contamination limited to the shallow soil samples collected beneath the asphalt pavement and the associated gravel base course.

In Area H-3, analytical results from six samples (H-GC-5, H-GC-5h, H-GC-5i, H-GC-5f, H-GC-5j, and H-GC-5k) identified arsenic contamination extending from beneath the pavement and the associated gravel base course to a maximum depth of 3.6 ft BGS. One sample collected from location H-GC-5 exhibited mercury contamination in the 1.8 ft to 2.8 ft BGS sampling interval. No other samples in this area exceeded the mercury preliminary cleanup level.

These areas were part of a former leasehold that was occupied by the American Tugboat Company from 1963 to 1965 and Manson Osberg Construction from 1975 to 1985. Specific activities that occurred in this area are not known, but it is likely that the leasehold was used for support of marine construction activities similar to the ACC leasehold, which may be the source of contamination for these areas.

#### **2.4.1.15 Areas Beyond the Site Boundary**

As previously discussed, soil quality data for two areas beyond the Site boundary are addressed in this report to document that soil quality in these areas are below the preliminary levels and, as such, these areas are not part of the Site, or part of other sites in the North Marina Area. These non-Site areas are located to the northeast and southeast of the Site, as shown on Figure 4. The northeast area includes Lot 5, and the southeast area includes Lot 12 and a portion of the esplanade/parking area to the east of Lot 12. Soil samples were collected from these locations during the Phase II ESA and as part of general

characterization conducted for the DGI, including five soil samples in the northeast area and soil samples in the southeast area.

The soil sampling locations for these areas are shown on Figure 5 and the soil analytical data are presented in Tables 8 through 10. No constituents exceeded the preliminary soil cleanup levels in the samples collected from these areas.

## **2.4.2 GROUNDWATER**

Figure 6 presents the groundwater sampling locations and Tables 14 through 17 present the laboratory analytical data for all the detected constituents for the Site groundwater characterization samples. Appendix B-2 presents all of the laboratory analytical data for the Site groundwater characterization samples. As shown on the figure, exceedances of the groundwater preliminary cleanup levels were observed in a limited number of Site areas. Groundwater contaminants included heavy metals (arsenic and copper), vinyl chloride, and gasoline-, diesel- and motor-oil range petroleum hydrocarbons. These areas, in most cases, were associated with soil contamination presented in Section 2.4.1.

Groundwater preliminary cleanup level exceedances located in Investigation Area f (identified in the central and eastern portions of Area f) are limited to arsenic and a single exceedance associated with vinyl chloride. Groundwater contamination associated with Area f has not been specifically addressed as part of the interim cleanup action, but will be addressed in the RI/FS work plan that is being developed for the Site. The remainder of this section describes the groundwater cleanup action areas that were addressed as part of the interim cleanup action.

Groundwater contamination at the Site was identified in the following soil cleanup action areas: Area D-1 (arsenic, copper); Area D-6 (petroleum hydrocarbons in the diesel range); Area D-5 (copper); Area D-7D (petroleum hydrocarbons in the diesel, oil and gasoline ranges); Area E-3 (arsenic and petroleum hydrocarbons in the diesel range); Area D-8 (arsenic and copper); and Area E-4 (petroleum hydrocarbons in the diesel range). Groundwater contamination conditions are discussed further by area in the following sections. Figure 17 shows the locations where groundwater concentrations for arsenic, copper, and petroleum hydrocarbons exceeded the preliminary cleanup levels and the estimated extent of petroleum hydrocarbon releases based on field observations.

As described in Section 2.3.7.2, cPAHs were detected at concentrations greater than the cleanup level at two sample locations (D-1 and D-4) during the Phase II ESA. These samples were believed to have soil particulates entrained in the samples during collection. Groundwater samples collected at the two locations at a later date were centrifuged by the lab to remove particulates prior to cPAH analysis. Only one of the centrifuged groundwater samples contained detectable concentrations of cPAHs and the detected concentration was below the cPAHs proposed groundwater cleanup level, indicating the detected

concentrations in the earlier non-centrifuged groundwater samples are likely due to constituents adsorbed to soil particulates entrained in the groundwater sample. Because of the number of samples analyzed for cPAHs and the lack of cleanup level exceedances (excluding false positives), cPAHs are not considered a groundwater contaminant.

#### **2.4.2.1 Cleanup Action Area D-1**

The arsenic and copper groundwater preliminary cleanup levels were exceeded in groundwater samples collected from within, or downgradient of, Area D-1. Arsenic exceeded its proposed groundwater preliminary cleanup level in samples collected from monitoring wells P-9 and P-17, and copper slightly exceeded its groundwater preliminary cleanup level in samples collected from monitoring well P-17. Monitoring well P-9 was located within the footprint of the former graving dock, as shown on Figure 17. Monitoring well P-17 was located in the northwest corner of the ACC north yard, north of the graving dock and near the shoreline. The arsenic groundwater contamination in this area was likely caused by arsenic and copper soil contamination in Cleanup Action Area D-1 that was in direct contact with the groundwater.

#### **2.4.2.2 Cleanup Action Area D-5**

The copper groundwater preliminary cleanup level was exceeded in one groundwater sample collected from monitoring well P-18 within Area D-5. Monitoring well P-18 was located in the northwest corner of the ACC north yard, near the western shoreline, as shown on Figure 6. Dissolved copper was detected at a concentration below the preliminary cleanup level in samples collected from monitoring well P-19, which was also located on the western shoreline. Groundwater analytical results for Area D-5 are shown on Figure 17.

#### **2.4.2.3 Cleanup Action Area D-6**

A groundwater sample collected from boring D-FA-14, immediately downgradient from the former used oil AST, slightly exceeded the preliminary cleanup levels for petroleum hydrocarbons in the diesel and oil ranges. A groundwater sample collected from D-FA-11e, a short distance downgradient from D-FA-14, did not exceed the TPH groundwater preliminary cleanup levels, although the reporting limit for TPH in the oil range was elevated above the preliminary cleanup level. These results indicate that groundwater contamination associated with releases from the used oil AST was limited to the immediate vicinity of the AST. Groundwater analytical results for Area D-6 are shown on Figure 17.

#### **2.4.2.4 Cleanup Action Area D-7D**

Groundwater in Area D-7D was contaminated with petroleum hydrocarbons in the gasoline, diesel and oil ranges; arsenic; and copper. Groundwater collected from borings in the area observed to be affected by the ASTs exhibited concentrations of TPH in the gasoline range from 0.3 mg/L to 1.3 mg/L, TPH in the diesel range from 0.33 mg/L to 6.1 mg/L, and TPH in the oil range between 0.3 mg/L and 0.85 mg/L. The detection of TPH in the oil range was likely the result of longer chain hydrocarbons in diesel that extend into the quantitation range for oil. Groundwater contamination in the vicinity of the gasoline and diesel ASTs extended approximately 80 ft downgradient of the ASTs, but did not impact groundwater at the preliminary point of compliance at the shoreline. It appeared that the groundwater contamination had reached equilibrium through natural attenuation, and had not migrated to the preliminary point of compliance. Free product did not appear to be associated with the groundwater contamination associated with the diesel AST based on gauging conducted in monitoring well P-25.

Groundwater downgradient of Area D-7D was contaminated with arsenic and copper, as shown on Figure 17. The arsenic contamination at this location was likely a result of reducing conditions (i.e., increased solubility of naturally-occurring arsenic due to reducing conditions) caused by bacterial metabolism of diesel- and gasoline-range petroleum hydrocarbons present in soil and groundwater upgradient of this location in Area D-7D.

As discussed in Section 2.3.7.1, the specific cause of the copper groundwater exceedances in the north yard are not known, but appear to be related to naturally occurring elevated copper concentrations in crushed rock used for structural support along the crane-rail alignment. Although the specific cause of the copper groundwater contamination is not known, the removal of soil contaminated with diesel-range petroleum hydrocarbons, arsenic upgradient of well P-21, and removal of soil containing copper in excess of the cleanup level of 36 mg/kg across Area d is expected to have removed at least a portion of the direct or indirect source of copper contamination observed in Area D-8.

Groundwater analytical results for Area D-7 are shown on Figure 17.

#### **2.4.2.5 Cleanup Action Areas E-3 and E-4**

Groundwater was contaminated with arsenic in Area E-3 and diesel-range petroleum hydrocarbons in Area E-4. Petroleum hydrocarbons in the diesel and oil ranges were tested for in groundwater samples collected from 10 locations in the vicinity of the affected area, including three locations within the area observed to be affected during the field investigations and three locations immediately downgradient of the observed affected area, as shown on Figure 17.

Only samples from two locations, E-FA-2 and E-4, exceeded the preliminary cleanup level for diesel-range petroleum hydrocarbons, and no samples exceeded the preliminary cleanup level for oil-range petroleum hydrocarbons; sample location E-4 was sampled during the 2007 additional delineation investigation and was co-located with DGI sample location E-FA-2 to verify the elevated diesel-range petroleum hydrocarbon contamination detected at that location. The groundwater sample collected from boring E-3-10, located about 20 ft upgradient from E-FA-2, did not exhibit diesel-range petroleum hydrocarbon concentrations above the laboratory reporting limits, indicating that diesel-range petroleum hydrocarbon contamination in groundwater was limited to the immediate vicinity of sample locations E-FA-2 and E-4. As a result, Cleanup Action Area E-4 was defined as the immediate vicinity of exploration E-FA-2 based on this groundwater quality exceedance, although no soil samples exceeded the proposed diesel-range petroleum hydrocarbon preliminary cleanup level in this area. Area E-4 is shown on Figure 17 the area was based on the groundwater quality data shown on Figure 17.

The arsenic groundwater preliminary cleanup level was exceeded at one location within Investigation Area e, monitoring well P-23, as shown on Figure 17. This well is located downgradient of diesel-range petroleum-impacted soil and groundwater addressed by Areas E-3 and E-4, which were believed to have caused reducing conditions that likely led to the elevated arsenic concentrations at well P-23. As shown on Figure 13 the area containing soil concentrations exceeding the proposed soil preliminary cleanup level for diesel-range petroleum hydrocarbons was of limited aerial extent and located directly upgradient of monitoring well P-23.

#### **2.4.2.6 Areas Beyond the Site Boundary**

Groundwater quality data for the two areas beyond the Site boundary are more limited than soil quality data because past practices in these areas did not identify specific areas of concern and soil quality data collected during Site characterization activities did not indicate a potential impact to groundwater quality. One groundwater quality sample was collected from the Lot 5 (northeast) area (location F-3). No groundwater quality samples were collected from the Lot 12 (southeast) area, although groundwater samples collected to the north and west of Lot 12 did not exceed any of the preliminary groundwater cleanup levels.

The groundwater sampling location in Lot 5 and the groundwater quality samples collected in the vicinity of Lot 12 are shown on Figure 6. The groundwater analytical data are presented in Tables 15 through 17. No constituents exceeded the preliminary groundwater cleanup levels in the sample collected from the Lot 5 area or in the samples collected from the Lot 12 vicinity.

### **3.0 DEVELOPMENT OF THE INTERIM CLEANUP ACTION**

MTCA distinguishes an interim cleanup action from a cleanup action in that an interim cleanup action only partially addresses the cleanup of a Site and achieves one of the following purposes [WAC 173-340-430(1)]:

- Reduces the threat to human health and the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance [WAC 173-340-430(1)(a)].
- Corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed [WAC 173-340-430(1)(b)].
- Completes a site hazard assessment, remedial investigation/feasibility study, or designs a cleanup action [WAC 173-340-430(1)(c)].

An interim cleanup action must also meet one of the following general requirements [WAC 173-340-430(2)]:

- Achieve cleanup standards for a portion of the site
- Provide a partial cleanup (clean up hazardous substances from all or part of the site, but not achieve cleanup standards)
- Provide a partial cleanup and not achieve cleanup standards, but provide information on how to achieve cleanup standards.

The purpose of the Site interim cleanup action was to reduce the threat to human health and the environment by eliminating one or more pathways for exposure to a hazardous substance. The intent of the interim cleanup action was to achieve cleanup standards for large portions of the Site.

The interim cleanup action selected for the Site was based on achieving the preliminary cleanup standards in a manner that was compatible with redevelopment plans, which limited interim cleanup action alternatives to those compatible with future Site uses that included residential use. Although a focused approach was used to select the interim cleanup action, the interim cleanup action selection process was similar to that applied during the FS for a final cleanup action, and included the following steps:

1. Establish cleanup action objectives (CAOs) for the site.
2. Evaluate cleanup action technologies to determine those technologies that are capable of achieving the various CAOs.
3. Assemble the cleanup technologies into interim cleanup action alternatives that achieve all CAOs.
4. Compare the interim cleanup action alternatives against criteria established under MTCA to select the most practicable interim cleanup action for the Site.

The following sections establish the CAOs (Section 3.1); identify applicable or relevant and appropriate requirements (ARARs; Section 3.2); present the response actions, cleanup technologies, and alternatives considered for Site cleanup (Section 3.3); and identify the selected alternative in comparison to MTCA requirements (Section 3.4).

### **3.1 CLEANUP ACTION OBJECTIVES**

Based on the IHS established for Site soil and groundwater quality (Section 2.3.7), the preliminary cleanup standards, and the additional regulatory requirements, the CAOs for the Site interim cleanup action are established as follows:

- Prevent human contact (dermal, incidental ingestion, or inhalation) with Site soil containing IHS above the soil preliminary cleanup levels developed in Section 2.3.4.
- Prevent the release from soil to groundwater of soil IHS at levels not adequately protective of groundwater quality.
- Prevent human ingestion of groundwater containing IHS above the groundwater preliminary cleanup levels.
- Prevent exposure of marine organisms to groundwater containing IHS above the groundwater preliminary cleanup levels.

The CAOs are of primary importance to the evaluation of cleanup action technologies, as discussed in the following section.

### **3.2 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

In accordance with MTCA, all interim cleanup actions shall comply with applicable state and federal laws [WAC 173-340-710(1)] that bear directly on remedial actions being performed. MTCA defines applicable state and federal laws to include legally applicable requirements and those requirements that are relevant and appropriate. Collectively, these requirements are referred to as ARARs. In most remedial actions, ARARs are confined to requirements relevant to construction activities, such as the control and treatment of stormwater. This section provides a brief overview of ARARs identified for the interim cleanup action. The primary ARARs that were applicable to the interim cleanup action included the following:

- Model Toxics Control Act (Chapter 173.105D RCW), and Model Toxics Control Act Regulation (Chapter 173-340 WAC).
- EPA National Recommended Water Quality Criteria (Section 304 Clean Water Act): These standards were used to develop soil and groundwater preliminary cleanup levels for the Site, as discussed in Section 2.3.



- EPA Water Quality Standards (National Toxics Rule; 40 CFR 131).
- Federal and State MCLs and Federal Maximum Contaminant Level Goals (MCLGs): these standards were used to establish groundwater preliminary cleanup levels in the absence of marine surface water cleanup levels.
- Minimum Functional Standards for Construction and Maintenance of Wells (Chapter 173-160 RCW): These regulations establish standards for the construction and maintenance of wells. Groundwater monitoring wells were constructed in accordance to the standards of these regulations.
- Washington Clean Area Act (Chapter 70.94 WAC).
- Occupational Industrial Safety and Health Act (WISHA).
- Washington Water Pollution Control Act and the following implementing regulation: Water Quality Standards for Surface Waters (WAC 173-201A). These regulations establish water quality standards for surface waters of the State of Washington consistent with public health and the propagation and protection of fish, shellfish, and wildlife. These standards were used to develop groundwater preliminary cleanup levels for the Site, as discussed in Section 2.3.
- Washington Hazardous Waste Management Act (Chapter 70.105 RCW) and the following implementing regulation: Dangerous Waste Regulations (WAC 173-303). These regulations establish a comprehensive statewide framework for the planning, regulation, control, and management of dangerous waste. The regulation designates those solid wastes that are dangerous or extremely hazardous to the public health and environment. The management of excavated contaminated soil from the Site was conducted in accordance with these regulations to the extent that any dangerous wastes were discovered or generated during the cleanup action.
- Washington Solid Waste Management Act (Chapter 70.95 RCW) and the following implementing regulations: Solid Waste Handling Standards (WAC 173-350) and Criteria for Municipal Solid Waste Landfills (WAC173-351). These regulations establish a comprehensive statewide program for solid waste management, including proper handling and disposal. The management of excavated contaminated soil from the Site was conducted in accordance with these regulations to the extent that the soil could be managed as inert or solid waste instead of dangerous waste.
- Shoreline Management Act (SMA; Chapter 90.58 RCW). Establishes permitting and other requirements for substantial development occurring within waters of the U.S. or within 200 ft of a shoreline, and requires that the activities in coastal zones be consistent with local regulations. MTCA exempts cleanup projects being conducted under an enforceable order or consent decree from the requirement of obtaining the shoreline permit; however, the cleanup must be conducted in accordance with the substantive requirements of the regulation. Site interim cleanup was addressed in the shoreline permit for Site redevelopment, so additional action relative to the SMA was not required.
- Hazardous Waste Operations (WAC 296-843). Establishes safety requirements for workers providing investigation and cleanup operations at sites containing hazardous materials. These requirements are applicable to onsite cleanup activities and were addressed in Site health and safety plans prepared specifically for these activities.

### **3.3 EVALUATION OF INTERIM CLEANUP ACTIONS AND REMEDIATION TECHNOLOGIES**

Soil and groundwater response actions and cleanup technologies were screened for possible use in developing alternatives for interim cleanup action cleanup of the West End Cleanup Action Area. Each alternative must be compatible with redevelopment plans and address the CAOs presented in Section 3.1. Applicable interim cleanup actions and remediation technologies evaluated for potential use as part of the interim cleanup action are described below.

#### **3.3.1 SOIL**

Two interim cleanup actions were considered for cleanup of contaminated soil within the interim cleanup action area: 1) removal and 2) containment. The remediation technology considered for removal of contaminated soil for most locations was excavation with offsite disposal. In most instances, removal would entail excavation and offsite disposal of contaminated soil. However, in locations D-7D and E-3, where petroleum hydrocarbon contamination may have extended below the groundwater table and could not be excavated in a practicable manner, *in-situ* soil agitation and free product recovery would be used as the removal technology, if needed to achieve the soil preliminary cleanup levels. This recovery method is described further in Section 3.5.1.6.

Soil excavated for offsite disposal would either be disposed of at a solid waste landfill or at an inert waste landfill, depending on the nature of contamination and the chemical concentrations. The Snohomish Health District, in consultation with Ecology, established Site-specific criteria for disposal of affected Site soil at the Rinker Materials (Rinker) inert waste landfill in Everett, Washington. Site soil could not be disposed of at the Rinker inert waste landfill if it exhibited any of the following characteristics on a bulk testing basis:

- Both arsenic and lead exceed their respective preliminary cleanup levels.
- Arsenic exceeds 65 mg/kg, or 100 mg/kg with acceptable leachability test results.
- TPH exceeds 200 mg/kg.

The remediation technology considered for containment was consolidation of contaminated soil and onsite containment in one or more areas that integrate satisfactorily with redevelopment (i.e., large parking lots or beneath Port-owned buildings). The contaminated soil would be placed a minimum of 2 ft above maximum groundwater elevations to avoid contact with groundwater and would be capped with low-permeability surfaces to minimize surface water infiltration through affected soil. Capping would consist of asphalt or concrete pavement and/or buildings. Containment through capping would also

include institutional controls, such as restrictive covenants (e.g., deed restrictions), cap maintenance, and long-term groundwater monitoring.

Containment in place (without consolidation) was not considered practicable because it would be difficult to ensure the long-term integrity of numerous contaminated soil containment areas that were not aligned with the post-redevelopment site configuration. Additionally, a significant percentage of the contaminated soil could require excavation to accommodate stone column construction, so containment in place would result in incurred costs for excavation, stockpiling, replacement, and compaction.

### **3.3.2 GROUNDWATER**

The only interim cleanup actions considered for cleanup of arsenic-, copper- and petroleum hydrocarbon-contaminated groundwater were source removal and natural attenuation in conjunction with source removal. Natural attenuation was the only interim action considered for vinyl chloride because of the apparent limited extent of groundwater contamination, relatively low concentrations of the exceedance, and the lack of an identified source area; vinyl chloride will be addressed further in the RI/FS work plan. Natural attenuation alone would not adequately address the air exposure pathway for diesel or gasoline petroleum hydrocarbon contamination. Other potential interim cleanup actions, such as containment, were not considered practicable because of planned Site development activities.

Two causes of Site arsenic groundwater contamination were identified: 1) leaching from arsenic-contaminated soil to groundwater and 2) leaching of background concentrations of arsenic in soil to groundwater due to increased arsenic mobility under reducing conditions caused by the presence of petroleum hydrocarbons. Arsenic-contaminated groundwater resulting from arsenic-contaminated soil leaching to groundwater was limited to Area D-1, where arsenic-contaminated soil extended deep enough to come into direct contact with groundwater. The remaining arsenic groundwater contamination at the Site occurred in two areas (Areas D-7D and E-3) that contained diesel-range petroleum hydrocarbon-contaminated soil and groundwater. The petroleum hydrocarbon contamination caused reduced oxygen conditions in groundwater (through bacterial consumption of oxygen while metabolizing the hydrocarbons), and naturally occurring arsenic present in soil as arsenic oxides and sulfides were reduced to a more soluble form and leached to groundwater.

A specific source of the copper contamination present in groundwater has not been identified, but the observed copper exceedances were co-located with arsenic groundwater contamination and it is anticipated that the copper exceedances would be adequately addressed by cleanup of arsenic groundwater contamination.

### **3.4 SELECTED INTERIM CLEANUP ACTION**

Based on the above considerations, the following subsections describe the selected interim cleanup action for both soil and groundwater at the Site.

#### **3.4.1 SOIL**

Based on the considerations presented in Section 3.3.1, consolidation and onsite containment were not considered viable alternatives. As a result, excavation/offsite disposal was the selected interim cleanup action for Site soil containing IHS [i.e., metals (i.e., As, Cu, Pb, Hg), petroleum hydrocarbons, 1-methylnaphthalene, and/ or cPAHs] above the preliminary cleanup levels. Petroleum hydrocarbons in soil and groundwater in Areas D-7d, E-3, and E-4 were also removed by implementing an *in-situ* soil agitation process to increase source removal for contaminated soil located below the groundwater table. The soil agitation process is described in Section 4.2.7.

#### **3.4.2 GROUNDWATER**

As described in Section 2.4.2, arsenic- and petroleum hydrocarbon-affected groundwater was present in Investigation Areas d and e. Elevated arsenic concentrations in groundwater in the northwest corner of the Site resulted from arsenic-affected fill soil in the former graving dock in contact with groundwater. Arsenic concentrations in groundwater in the remaining portion of the Site addressed as part of the interim cleanup action were interpreted to be the result of background concentrations of arsenic in soil in contact with reduced groundwater caused by the presence of petroleum hydrocarbons. As indicated in Section 3.3.2, the preliminary cleanup action for addressing arsenic- and petroleum hydrocarbon-affected groundwater consisted of source removal and natural attenuation. In addition to source removal, petroleum hydrocarbons in soil and groundwater in Areas D-7d, E-3, and E-4 were removed by implementing an *in-situ* soil agitation process. This process is explained in Section 4.2.7.

As described in Section 3.4.1, soil removal and offsite disposal was the selected technology for cleanup of soil containing concentrations of metals, petroleum hydrocarbons, and/or cPAHs above the preliminary cleanup levels at the Site. The removal of the arsenic-affected soil filling the former graving dock was expected to remove the source of elevated arsenic groundwater concentrations at wells P-9 and P-17 located in the northwest corner of the Site. The removal of petroleum hydrocarbon-affected soil in Investigation Areas d and e was expected to remove the source of elevated groundwater petroleum hydrocarbon concentrations at groundwater sampling locations D-FA-10, D-FA-11, D-FA-11c, D-FA-11e, D7A-7, D7A-9, P-25, E-FA-2, and E-4. Removal of petroleum-affected soil also removed the cause of elevated arsenic concentrations at monitoring wells P-21 and P-23 in Investigation Areas d and e,

respectively, by altering the groundwater oxidation state to halt the reduction of naturally occurring arsenic to a more soluble (and readily leachable) form.

Natural attenuation will occur through natural biodegradation, a change in redox conditions along the flow path that results in lower arsenic solubility, and hydrodynamic dispersion. Site redevelopment plans are also expected to increase the rate of hydrodynamic dispersion if stone columns are installed along the shoreline to provide stabilization against seismically-induced lateral spreading of shallow soil, as currently planned (i.e., greater velocity differences due to increased heterogeneity of the media and increased mixing in the large pore spaces within the stone columns).

Because all arsenic- and petroleum hydrocarbon-contaminated soil will be removed from the groundwater-affected areas as part of the cleanup action, groundwater preliminary cleanup levels should be attained rapidly following implementation of the cleanup action.

## **4.0 INTERIM CLEANUP ACTION IMPLEMENTATION**

The interim cleanup action was conducted to address Site contaminated soil and groundwater between June 2006 and March 2008. Interim cleanup action was conducted consistent with methods, procedures, and standards identified in the two CAPs previously developed for the North Marina Area (Landau Associates 2006a and 2007a) and reviewed by Ecology (Ecology 2006 and 2007). Contaminated soil was disposed of offsite at either an inert waste or solid waste landfill, depending on waste characteristics, as described in Section 3.3.1. Petroleum hydrocarbon-affected groundwater extracted from excavations as part of groundwater remediation was temporarily contained onsite in rented storage tanks, followed by analytical testing and removal for offsite treatment. Groundwater extracted from cleanup action areas requiring dewatering was discharged under permit to the sanitary sewer, or was disposed of at a permitted waste treatment facility, depending on waste characteristics and timing of cleanup. Prior to obtaining a sewer discharge permit, all extracted groundwater was removed from the site by vacuum truck and disposed of at a permitted waste treatment facility. Once the sewer discharge permit was obtained, all extracted groundwater, except for that containing free-phase petroleum product, was discharged to the sanitary sewer. Discharge to the sanitary sewer was subjected to periodic analytical testing, consistent with the sewer discharge permit. Any water containing free-phase petroleum product was disposed at a permitted waste treatment facility.

A total of 50 cleanup action areas were identified based on Site characterization activities, and were addressed as part of the planned interim cleanup action for the Site. A brief description of compliance monitoring procedures, the cleanup actions conducted in these areas, and compliance monitoring results are presented in this section.

### **4.1 COMPLIANCE MONITORING PROCEDURES**

This section describes the soil and groundwater compliance monitoring procedures implemented for the Site interim cleanup action.

Confirmation soil samples were collected at the base and along the excavation sidewalls within each cleanup action area following excavation and prior to backfilling. Compliance monitoring was conducted in conformance with the two compliance monitoring plans (CMPs) developed for the Site, which were submitted for Ecology review in 2006 (Landau Associates 2006a Appendix B, and 2007a Appendix B). Confirmation soil samples were analyzed for the IHS that exceeded the preliminary cleanup levels in each cleanup action area. Soil removal and compliance monitoring was conducted iteratively until residual soil concentrations in all cleanup action areas achieved the soil preliminary cleanup levels for all IHS.

Groundwater compliance monitoring samples were collected from the excavations for petroleum hydrocarbons in Cleanup Action Areas D-7D, E-3, and E-4. Water samples were collected from the excavation following removal of the contaminated soil and following *in-situ* soil agitation events. Confirmation water samples were analyzed for the IHS that exceeded the preliminary cleanup levels in each groundwater cleanup action area. *In-situ* soil agitation events and compliance monitoring were conducted iteratively until residual groundwater concentrations in the cleanup action area achieved the groundwater preliminary cleanup levels for all IHS.

The following sections describe how compliance monitoring samples were located and collected, and present the compliance monitoring results.

#### **4.1.1 SAMPLE LOCATIONS**

To collect data representative of the soil remaining at the base of the excavation in each cleanup action area, the base of each excavation was divided into approximately equal-sized grids and one sample was collected from the center of each grid and submitted for laboratory analysis. In general, the base of the excavation in larger cleanup action areas (e.g., Area D-11) was divided into 11 or more grids. By dividing the base of the excavations into 11 or more grids, a sufficient number of samples were collected to support the calculation of an upper confidence interval for the mean contaminant concentrations remaining at the base of the excavation. In smaller cleanup action areas (e.g., Cleanup Action Area E-2), the base of the excavation was divided into fewer than 11 grids, with a maximum grid size of about 500 ft<sup>2</sup>, consistent with the CMP.

Confirmation soil samples from the base of each excavation were collected from the upper 6 inches of soil. If field observations of the soil at the base of an excavation indicated evidence of potential contamination either through visual observation (e.g., soil discoloration, presence of debris, or sheen) or through the use of field instrumentation (e.g., photoionization detector), the confirmation sample within a particular grid was moved from the center of the grid to the area of potential contamination.

At each excavation, one sidewall sample was collected for every 50 linear ft of sidewall with a minimum of one sample per sidewall. However, if the 50-ft spacing would result in more than 10 sidewall samples for a given cleanup action area, the linear spacing was increased to 75 ft. In all cases (except for Area D-1), sidewall samples were collected from the depth interval identified as contaminated for that excavation. Because Area D-1 extended to 12 ft BGS, multiple sidewall samples were collected from the following sequential intervals from the top of the sidewall to the bottom of the excavation: 0 to 4 ft, 4 to 8 ft, and 8 to 12 ft BGS. If field observations of the soil along an excavation sidewall indicated evidence of contamination either through visual observation or through the use of field instrumentation,

additional excavation of the sidewall was performed in this area to remove the potentially contaminated soil, or an additional confirmation sidewall sample was collected within the area of potential contamination to confirm that additional excavation was not required.

A consistent sample labeling protocol was used for most compliance monitoring samples. Samples were labeled with the cleanup area, followed by a “B” or an “S” to identify bottom and sidewall samples, followed by a sequential number. For example Sample D11-B8 was the eighth bottom sample collected within Cleanup Action Area D-11. If a compliance monitoring sample exceeded the preliminary cleanup levels and the area was re-excavated, the subsequent compliance monitoring sample was given the same label with a lower case letter appended to the end of the label (e.g., D11-B8a); sequential appended letters, starting with “a”, were used for locations where multiple iterations of excavation and compliance monitoring were conducted. This labeling convention was used for all cleanup action areas other than Areas D-7D and D-1. In Area D-1, the three sidewall intervals were given a unique suffix to indicate from which interval they were collected; for example, sidewall samples D1-S3a, D1-S3b, and D1-S3c were collected from 0 to 4 ft BGS, 4 to 8 ft BGS, and 8 to 12 ft BGS, respectively. In Area D-7D, multiple rounds of sampling occurred to address observed petroleum contamination, and resulted in a unique labeling convention for compliance monitoring samples in this area.

Compliance monitoring soil sample locations and the final excavation lateral limits for the northern and southern portions of the ACC north yard soil cleanup action areas are shown on Figure 18 and 19, respectively. Compliance monitoring soil sample locations and the final lateral limits of excavation for Cleanup Action Areas D-10, D10a, D-11, and H-1 through H-3 are shown on Figure 20. Compliance monitoring sample locations and the final lateral limits of excavation for Cleanup Action Areas E-1a, E-1b, E-2, E-3, and E-4 are shown on Figure 21. Compliance monitoring soil sample locations and the final lateral excavation limits for Cleanup Action Areas F-1a through F-1d, F-2, F-3, F-4a and F-4b, F-5, and F-8a through F-8g are presented on Figure 22. Compliance monitoring soil sample locations and the final lateral limits of excavation for Cleanup Action Area F-2 are shown on Figure 23.

#### **4.1.2 SOIL SAMPLE COLLECTION**

Compliance monitoring samples representative of the soil remaining at the base of the excavation were collected from the base and sidewalls of the excavation. A shallow hole was hand dug at each base sample location using decontaminated or disposable hand implements, including stainless-steel spoons and steel shovels, picks, and similar equipment. The sidewall surface of the hand-dug hole was scraped to expose a fresh surface for sample collection. In general, the upper 6 inches of the sample location



sidewall was sampled using a decontaminated stainless-steel spoon, placed in a decontaminated stainless-steel bowl, homogenized, and transferred to the appropriate sample container, or were homogenized directly in the appropriate sample container. Material greater than about ¼ inch was removed from the sample volume. Equipment decontamination procedures are discussed in Appendix A.

For excavations not directly accessible by sampling personnel, an excavator or backhoe was used to collect soil from the base and sidewalls of the excavation. A soil sample was collected from the soil in the center of the excavator or backhoe bucket that had not come in contact with the bucket.

In Cleanup Action Area D-7D, where testing for VOCs or gasoline-range petroleum hydrocarbons was conducted, compliance monitoring samples for VOC and TPH-G analyses were collected directly from the sample location sidewall using U.S. Environmental Protection Agency (EPA) Method 5035.

Confirmation samples collected from the excavation sidewalls were collected from a depth interval extending the full thickness of the contaminated soil zone, or multiple samples were collected from intervals that comprise the full thickness of the contaminated soil zone. For excavations in unpaved areas, the sample was collected from the ground surface to the base of the excavation. For excavations in paved areas, the sample was collected from the base of the pavement/subgrade section to the base of the excavation. The surface of the sidewall was scraped using a decontaminated hand implement to expose a fresh surface for sample collection. Equal amounts of soil from the full thickness of the sidewall, or sampling interval, were collected using a decontaminated stainless-steel spoon, placed in a decontaminated stainless-steel bowl, homogenized, and transferred to the appropriate sample container, or were homogenized directly in the appropriate sample container. As described above, EPA Method 5035 was used for collection of soil compliance monitoring samples analyzed for VOCs or gasoline-range petroleum hydrocarbons.

#### **4.1.3 GROUNDWATER SAMPLE COLLECTION**

Groundwater compliance monitoring samples were collected from groundwater cleanup action areas affected by petroleum hydrocarbons (i.e., D-7D, E-3 and E-4) during, and at the completion of, cleanup activities. The groundwater samples were collected directly from water that entered the excavation following removal of the contaminated soil and *in-situ* soil agitation events. Water samples were collected directly into sampling containers using a decontaminated telescoping sampling pole or using a peristaltic pump with new tubing.

## **4.2 INTERIM CLEANUP ACTION IMPLEMENTATION**

Interim cleanup action implementation included the excavation and offsite disposal of affected soil identified during previous Site investigation activities, and the collection and analysis of compliance monitoring samples to verify that preliminary cleanup levels were achieved. Cleanup activities were conducted in conformance with the applicable plans and specifications for the cleanup action areas (Reid Middleton 2005, Landau Associates 2007b, Landau Associates 2006e).

Multiple excavation events were conducted in cleanup action areas where soil or groundwater compliance monitoring samples exceeded the preliminary cleanup levels. The analytical results for compliance monitoring soil samples with constituent concentrations exceeding preliminary cleanup levels, representing soil that was removed during additional excavation, are summarized in Table 18. The analytical results for all compliance monitoring groundwater samples are presented in Table 20. Figures 18 through 23 present the compliance monitoring sample locations and limits of excavation of the Site cleanup action areas. A map showing the excavation limits of all of the cleanup action areas located throughout the Site is presented on Figure 24.

The following sections describe cleanup activities, including the nature of contamination, the extent of excavation, the disposal location and volume of contaminated soil, and the results of compliance monitoring.

### **4.2.1 CLEANUP ACTION AREAS D-1 AND D-3**

Cleanup Action Areas D-1 and D-3, which addressed the former graving dock, were excavated to remove contaminated soil containing cPAHs, copper, and arsenic above their respective soil preliminary cleanup levels. The excavated soil was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. The limits of excavation are shown on Figure 18. The excavation extended from the ground surface to the concrete pad located at the base of the former graving dock, which was encountered at approximately 12 ft BGS. The concrete pad was removed as part of the excavation activities to allow for compliance monitoring of the underlying soil. Depending on tide cycle, the static groundwater level in this area ranged from about 6 to 8 ft BGS. As a result, the excavation area required dewatering to accomplish excavation below the groundwater table. Dewatering was accomplished by extracting the water using a large centrifugal pump, discharging the extracted water in two 40,000-gallon settling tanks to allow particulates to settle, and discharging the water to the sanitary sewer following settlement under a discharge permit issued by the City of Everett. Characterization samples were collected periodically from the discharge line to confirm that water quality met the discharge limits specified in the temporary sewer discharge permit.

A sheetpile wall was installed along the northern edge of Area D-3, along the top of the riprap slope and was removed following backfilling of the Area D-1/D-3 excavation. The sheetpile wall minimized marine water intrusion into the excavation and shored the northern sidewall, where soil was excavated as close as practicable to the shoreline.

The lateral limits of the affected soil in Areas D-1 and D-3 extended 10 to 30 ft beyond the edge of the concrete pad (Figure 18). The lateral limits of the excavation were determined based on the results of the confirmation sidewall samples. A total of 48 sidewall samples were collected from Area D-1. The first round of sidewall testing included eight sampling stations from which the lower-most sample (8 ft to 12 ft BGS) was initially tested for cPAHs, arsenic, and copper. If the lower-most sample exceeded the preliminary cleanup levels for one or more IHS, the entire sidewall (0 to 12 ft BGS) represented by that sampling station was extended outward a short distance. If the lower-most interval did not exceed the preliminary cleanup levels of any IHS, the next sampling interval (4 ft to 8 ft BGS) was tested for the IHS, and if that interval exceeded the preliminary cleanup levels of one or more of the IHS, the entire sidewall, excluding the lower-most interval (0 ft to 8 ft BGS), was extended outward a short distance. This method of testing was continued to the upper-most interval once the middle interval did not exceed the criteria. This testing protocol minimized both analytical costs and the volume of soil excavated from Area D-1.

A number of excavation iterations were required to achieve the preliminary cleanup levels for all IHS for portions of Area D-1. However, all final compliance monitoring samples for Area D-1 excavation sidewalls exhibited concentrations below the preliminary cleanup levels for all IHS. A total of 24 final sidewall confirmation samples with IHS below the associated preliminary cleanup levels or meeting the requirements under MTCA for frequency of exceedances (explained below) defined the limits of the D-1 excavation.

Excavation bottom samples were collected directly beneath the concrete slab and gravel base course material to document the soil quality conditions beneath the concrete slab in Area D-1. A small portion of the excavation was extended 1 ft below the gravel base course to address a preliminary cleanup level exceedance at bottom sample location D1-B9 (dashed rectangular area within Area D-1 shown on Figure 18). A total of 12 bottom samples with all IHS below the preliminary cleanup levels defined the vertical limits of the excavation.

A total of four sidewall samples and three bottom samples were collected from Area D-3 to document soil quality at the final limits of excavation in this area. The bottom samples were collected at the northern extent of the excavation adjacent to the sheetpile wall, just prior to backfilling the area. Due to slope stability concerns, the excavation adjacent to the sheetpile wall had to be backfilled immediately following excavation and collection of compliance monitoring samples. Two of the bottom samples,

D3-B1 and D3-B2, exhibited arsenic soil concentrations of 24 mg/kg and 29 mg/kg, which is slightly higher than the arsenic soil preliminary cleanup level of 20 mg/kg.

It should be noted that the copper preliminary cleanup level was slightly exceeded in three of the final sidewall confirmation samples (D1-S7-A3, D1-S7-B2, and D1-B9a). This represents less than 10 percent of the 36 final compliance monitoring samples. Copper was detected in samples D1-S7-A3, D1-S7-B2, and D1-B9a at concentrations of 38.6 mg/kg, 39.6 mg/kg, and 37.9 mg/kg, which are only slightly greater than the copper preliminary cleanup level of 36 mg/kg. As a result, direct comparison of the compliance monitoring data to the preliminary cleanup levels was applied, as provided for in WAC 173-340-740(7)(d)(iii), based on the Area D-1 compliance monitoring data meeting the requirements of WAC 173-340-740(7)(e), which specifies that:

- No single sample concentration shall be greater than two times the preliminary cleanup level.
- Less than ten percent of the concentrations shall exceed the soil preliminary cleanup level.

Based on these criteria, the compliance monitoring sample results of 38.6 mg/kg, 39.6 mg/kg, and 37.9 mg/kg, compared to a copper preliminary cleanup level of 36 mg/kg, in 3 of 36 compliance monitoring samples is well within the MTCA requirements for demonstrating compliance.

Similar to the copper exceedances, only two of the 43 soil compliance monitoring samples for Areas D-1 and D-3 exceeded the arsenic preliminary cleanup level, and both of the two exceedances were less than two times the preliminary cleanup level. As a result, the Areas D-1 and D-3 compliance monitoring data meet the requirements of WAC 173-340-740(7)(e), and demonstrate compliance with the soil preliminary cleanup levels.

The locations of Area D-1 and D-3 soil compliance monitoring samples are shown on Figure 18 and final compliance monitoring data are presented in Table 19. Groundwater compliance monitoring data were not collected for Areas D-1 and D-3 as part of the interim cleanup action. Resulting groundwater conditions in these areas will be addressed in the RI/FS Work Plan.

A combined total of 10,675 tons of contaminated soil was excavated and disposed of from Areas D-1 and D-3.

#### **4.2.2 CLEANUP ACTION AREAS D-2A THROUGH D-2F**

Areas D-2a through D-2f were excavated to remove contaminated soil containing cPAH, arsenic, and copper above the preliminary cleanup levels, and the excavated soil was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. Excavation in these areas ranged from 1 to 4 ft BGS and generally conformed to the planned excavation limits. The limits of excavation are shown on Figure 18.

Three areas of unanticipated diesel-range petroleum hydrocarbon contamination were encountered during excavation of Areas D-2c and D-2d, and the affected soil was excavated and disposed of at the Waste Management solid waste landfill located in Arlington, Oregon. The areas were located in the northern and southern portions of Area D-2c and one area was located in the northwest corner of Area D-2d, as shown on Figure 18.

The southern area of petroleum hydrocarbon contamination in Area D-2c was identified based on the results of four samples: D2C-AC-3, D2C-AC-4, D2C-AC-6, and D2C-AC-8. Diesel-range petroleum hydrocarbons were detected in all four samples at concentrations greater than the preliminary cleanup level of 2,000 mg/kg, and ranged from 3,800 mg/kg in D2C-AC-8 to 19,000 mg/kg in D2C-AC-3. Gasoline-range petroleum hydrocarbons were detected in one of the four samples (D2C-AC-8) at a concentration of 1,500 mg/kg, which is greater than the preliminary cleanup level of 100 mg/kg. The affected soil was removed from the area, and final compliance monitoring samples were collected from each of the four sidewalls and from the bottom of the excavation and were tested for diesel-, oil-, and gasoline-range petroleum hydrocarbons, and BTEX. Compliance monitoring samples for this sub-area were designated “d2c-ac-5”, with appropriate label extensions based on the location of the compliance monitoring sample. All final compliance monitoring sample results were below the respective preliminary cleanup levels.

The northern area of petroleum hydrocarbon contamination was identified based on the results of two samples: D2C-AC-1 and D2C-AC-2. Diesel-range petroleum hydrocarbons were detected in the samples at concentrations of 5,000 mg/kg and 5,300 mg/kg, respectively, which were greater than the preliminary cleanup level of 2,000 mg/kg. Sample D2C-AC-2 also exhibited a cPAH TEQ concentration of 650 µg/kg, which was greater than the preliminary cleanup level of 137 µg/kg. The affected soil was removed from the area; final compliance monitoring samples were collected from each of the four sidewalls and from the bottom of the excavation and were tested for diesel-, oil-, and gasoline-range petroleum hydrocarbons, BTEX, and cPAHs. Compliance monitoring samples for this sub-area were designated “d2c-ac-7”, with appropriate label extensions based on the location of the compliance monitoring sample. All final compliance monitoring sample results were below the respective preliminary cleanup levels.

A limited area of petroleum hydrocarbon contamination was encountered in the northwest corner of Area D-2d. One sample, D2d-petrol, collected from the affected soil was tested for TPH-HCID. Based on the results of the testing, which indicated that diesel- and oil-range petroleum hydrocarbons were present in the soil, the sample was tested for diesel- and oil-range petroleum hydrocarbons. The sample contained concentrations of oil- and diesel-range petroleum hydrocarbons at 9,000 mg/kg and 3,200 mg/kg, respectively, which were higher than the preliminary cleanup level of 2,000 mg/kg. The

affected soil was removed from the area; final compliance monitoring samples were collected from the bottom and from the only sidewall of the excavation and were tested for diesel- and oil-range petroleum hydrocarbons. Compliance monitoring samples for this sub-area were designated “d2d-petrol”, with appropriate label extensions based on the location of the compliance monitoring sample. All final compliance monitoring samples results were below the respective preliminary cleanup levels.

A total of 25 bottom and 9 sidewall final compliance monitoring soil samples were collected from Areas D-2a through D-2f, not including the petroleum hydrocarbon-affected areas discussed above. All soil compliance monitoring samples were tested for arsenic, copper, and cPAHs, which were the IHS identified for the area.

Eight bottom samples (D2a-B1, D2-B1a, D2a-B2, D2a-B3, D2f-B3, D2e-B13, D2e-B15, and D2e-B15a) and six sidewall samples (D2e-S2, D2e-S2a, D2e-S3, D2e-S4b, D2e-S4d, and D2e-S4c) exceeded the preliminary cleanup level for one or more of the IHS, as indicated in Table 18. The grids containing the bottom samples exceedances were excavated 1 additional foot and the sidewalls were extended outward a short distance. All compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for all IHS, with the exception of copper (discussed below).

Four final compliance monitoring samples (D2e-B5, D2e-B14, D2e-B15a, and D2e-S4d) exhibited copper concentrations of 41.3 mg/kg, 44.0 mg/kg, 53.4 mg/kg, and 87.7 mg/kg, respectively, which were greater than the copper soil preliminary cleanup level of 37 mg/kg. All of the samples, except for D2e-B5, were located at the western end of Area D-2e and are associated with an approximate 4 ft-thick layer of crushed bedding rock associated with the crane rail. The layer of crushed rock was tested at two additional test pit locations located north of Area D-2e along the eastern crane rail. Both test pit samples (D2e-TP1 and D2e-TP2) also exhibited copper concentrations above the preliminary cleanup level. Based on these results, it appears that the entire thickness of crushed rock contains elevated concentrations of copper.

During the DGI, a groundwater sample was collected from monitoring well P-18, which was located in the immediate vicinity of the deposit of crushed rock and exhibited a dissolved copper concentration of 4 µg/L, which is slightly greater than the preliminary cleanup level of 2.4 µg/L. Therefore, it does not appear that the elevated levels of copper in the crushed rock correlate to highly elevated concentrations of copper in the groundwater. The cost of removing the remaining large volume of crushed rock was not warranted without further evaluation of groundwater conditions in the area. Copper analyses have not been performed on groundwater samples collected from this location since 2005, and the soil removal action may have substantively removed the source of copper groundwater

contamination at this location. This issue will be evaluated in the RI/FS Work Plan being developed for the Site.

The locations of Areas D-2a through D-2f compliance monitoring samples are shown on Figure 18 and final compliance monitoring results are presented in Table 19.

A total of 3,551 tons of soil was removed from Areas D-2e through D-2f, and a total of about 221 tons of soil was removed from the petroleum hydrocarbon-affected areas.

#### **4.2.3 CLEANUP ACTION AREAS D-4A, D-4B AND D-4C**

Cleanup Action Areas D-4a through D-4c were excavated to remove contaminated soil containing cPAHs, copper, and arsenic above the soil preliminary cleanup levels; the excavated soil was disposed of at the Waste Management solid waste landfill in Arlington, Oregon. The limits of excavation are shown on Figure 19. Excavation in these areas ranged from 1 to 3 ft BGS and generally conformed to the planned excavation limits. No groundwater was encountered in these excavations.

A total of 13 bottom and 3 sidewall final compliance monitoring soil samples were collected from Areas D-4a through D-4c and were tested for tested for arsenic, copper, and cPAHs, which were the IHS identified for the area.

Six initial bottom samples (D4a-B3, D4a-B5, D4a-B6, D4b-B1, D4b-B4, and D4b-B5) exceeded the preliminary cleanup level for one or more of the IHS, as indicated in Table 18. The grids containing the bottom samples exceedances were excavated one additional foot. All compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for all IHS. The locations of Areas D-4a through D-4c compliance monitoring samples are shown on Figure 19 and final compliance monitoring results are presented in Table 19.

A total of 1,864 tons of soil were removed from Areas D-4a through D-4c.

#### **4.2.4 CLEANUP ACTION AREA D-5**

Cleanup Action Area D-5 was excavated to remove contaminated soil containing cPAHs above the soil preliminary cleanup level, and the excavated soil was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. The limits of excavation are shown on Figure 18. Excavation in this area extended to 1 ft BGS and generally conformed to the planned excavation limits. No groundwater was encountered in the excavation.

A total of four bottom and one sidewall final compliance monitoring soil samples were collected from this area, and were tested for tested for arsenic, copper and cPAHs, which were the IHS identified for this portion of the ACC north yard. All compliance monitoring samples collected in this area were

below the preliminary cleanup level for each tested constituent; however, Test Pits d2e-tp1 and d2e-tp2, which were excavated in this area to evaluate the extent of copper exceedances associated with the crane rail ballast (see Section 4.2.2), exhibited exceedances of the copper preliminary cleanup level. The locations of Area D-5 compliance monitoring samples are shown on Figure 18 and final compliance monitoring results are presented in Table 19.

A total of 229 tons of soil were removed from Area D-5.

#### **4.2.5 CLEANUP ACTION AREA D-6**

Cleanup Action Area D-6 was excavated to remove contaminated soil containing diesel- and motor oil-range petroleum hydrocarbons and arsenic above the soil preliminary cleanup level, and the excavated soil was disposed of at the Waste Management solid waste landfill located in Arlington, Oregon. The limits of excavation are shown on Figure 19. Excavation in this area extended to a depth of 2 ft BGS across the majority of the excavation, and to about 4 ft BGS in the area directly below the former used oil AST to address the presence of observable indications of petroleum hydrocarbons. The area generally conformed to the planned excavation limits. Groundwater in this area was not tested following cleanup action, but will be addressed by the Site RI/FS Work Plan.

A characterization sample was collected from 1 to 1.5 ft BGS during cleanup activities and was tested for gasoline-, diesel- and oil-range petroleum hydrocarbons to evaluate whether this interval was contaminated. Both gasoline- and oil-range petroleum hydrocarbons were detected at concentrations of 3,700 mg/kg and 2,200 mg/kg, which are above the preliminary cleanup levels of 100 mg/kg and 2,000 mg/kg, respectively.

A total of one bottom and six sidewall final compliance monitoring soil samples were collected from this area, and were tested for gasoline-, diesel- and oil-range petroleum hydrocarbons. All sidewall samples were tested for arsenic, except where the excavation abutted other cleanup action areas, including Areas D-9c, and D-7, for which arsenic was an IHS and the sidewalls were subsequently removed during cleanup of these areas. All compliance monitoring samples collected in this area were below the preliminary cleanup level for all tested constituents. The locations of Area D-6 compliance monitoring samples are shown on Figure 19 and final compliance monitoring results are presented in Table 19.

A total of 76 tons of soil were removed from Area D-6.



#### **4.2.6 CLEANUP ACTION AREA D-7**

Cleanup Action Area D-7, including the associated sub-areas, was excavated to remove contaminated soil containing diesel- and motor oil-range petroleum hydrocarbons, 1-methylnaphthalene, arsenic, and cPAHs above the soil preliminary cleanup level the excavated soil was disposed of at the Waste Management solid waste landfill located in Arlington, Oregon. The limits of excavation are shown on Figure 19. Excavation in this area extended from 1.25 to 2 ft BGS. The area generally conformed to the planned excavation limits.

A total of five bottom and one sidewall final compliance monitoring soil sample were collected from this area, and were tested for diesel- and motor oil-range petroleum hydrocarbons, arsenic, and cPAHs, which were the IHS identified for the area.

Two bottom samples (D7-B2 and D7-B3) exceeded the preliminary cleanup level for one or more of the IHS, as indicated in Table 18. The grid containing the bottom sample exceedance was excavated one additional foot. Three sidewall samples (D7-S1, D7-S2, and D7-S5) located in the northern portion of Area D-7 exceeded the preliminary cleanup level for one or more of the IHS, as indicated in Table 18. Sidewall samples D7-S1 and D7-S2 were collected from the sidewall that abutted the former AST containment area and, as a result, of the exceedances the soil beneath the former AST was removed during excavation of Area D-4a. Sidewall sample D7-S5 was collected from the sidewall that abutted Cleanup Action Area D-4a and, as a result of the exceedance, the excavation contaminated soil associated with this sample location was removed during excavation of Area D-4a.

All final compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for all IHS. The locations of Area D-7 compliance monitoring samples are shown on Figure 19 and final compliance monitoring results are presented in Table 19.

A total of 1,540 tons of soil were removed from area D-7.

#### **4.2.7 CLEANUP ACTION AREA D-7D**

Cleanup Action Area D-7D, including the associated sub-areas, was excavated to remove contaminated soil containing diesel- and motor oil-range petroleum hydrocarbons, arsenic, and cPAHs above the soil preliminary cleanup level; the excavated soil was disposed of at the Waste Management solid waste landfill located in Arlington, Oregon. The limits of excavation are shown on Figure 19. Additionally, groundwater in this area exhibited concentrations of gasoline-, diesel -, and oil-range petroleum hydrocarbons above the groundwater preliminary cleanup levels; and was addressed by the removal of contaminated soil, and by conducting *in-situ* soil agitation and free product and contaminated

water recovery. Free product was recovered using oilophilic absorbent pads and booms that were disposed of as solid waste, and contaminated water was extracted using an excavation dewatering system that was also used to dewater Area D-1. Extracted water was discharged under permit to the sanitary sewer.

Based on the soil characterization conducted in this area, the clean soil overburden in Areas D-7D.3 and D-7D.4 was excavated prior to excavating the contaminated soil. The soil was stockpiled onsite and three samples (D7D3/D7D4-OVB-1, D7D3/D7D4-OVB-2, and D7D3/D7D4-OVB-3) were collected from the stockpiled soil to verify the absence of any soil IHS at concentrations above preliminary cleanup levels; the samples were tested for gasoline-, diesel-, and oil-range petroleum hydrocarbons; BTEX; arsenic; copper; and cPAHs. All analytical results were below the respective preliminary cleanup levels, as presented in Table 19.

A number of soil samples were collected during excavation of this area to help determine the limits of the soil contamination. A total of 12 samples collected throughout the excavation area exceeded the gasoline-, diesel-, and/or oil-range petroleum hydrocarbon preliminary cleanup levels. In response to the preliminary cleanup level exceedances, the applicable area of the excavation sidewall or bottom was re-excavated and the new excavation surface was tested for the constituent(s) that exceeded the preliminary cleanup level in the previously collected compliance monitoring sample.

An area of free-phase petroleum product was observed and sampled during excavation in the western portion of Area D-7D. Two samples were collected of the free product (i.e., Free Product 1 and Free Product 2) and were tested for gasoline-, diesel-, and oil-range petroleum hydrocarbons. All three petroleum hydrocarbon ranges were detected at concentrations above their respective preliminary cleanup levels.

A total of 13 bottom and 15 sidewall final compliance monitoring soil samples were collected from this area, and were tested for diesel- and motor oil-range petroleum hydrocarbons, and cPAHs, which were the IHS identified for the area. The sidewall samples were also tested for arsenic to verify that overlying arsenic soil contamination in this area had been removed during the cleanup of Area D-7. The locations of Area D-7D soil compliance monitoring samples are shown on Figure 19 and final compliance monitoring results are presented in Table 19.

*In-situ* soil agitation was conducted once a majority of the contaminated soil had been removed from Area D-7D. This process was accomplished evenly throughout the excavation area by aggressively agitating the soil and water at the bottom of the excavation. The soil was agitated using the bucket of an extended reach track-hoe. Once the soil and water were thoroughly agitated and an observable petroleum hydrocarbon sheen or free product had accumulated on the surface of the water, oilophilic absorbent pads and booms were used to collect the free product and the water was extracted from the excavation and

discharged under permit to the sanitary sewer. A number of *in-situ* soil agitation events were conducted over the duration of the Area D-7D excavation until free product and sheen were absent and groundwater preliminary cleanup levels were achieved in compliance monitoring samples.

Four rounds of compliance monitoring water samples were collected from the excavation on separate dates, separated by *in-situ* soil agitation events and, in some instances, additional contaminated soil removed. The following compliance monitoring groundwater samples were collected on the following dates: D-7 on September 6, 2007; D-7-Ex on September 11, 2007; D-7 on September 12, 2007; and D-7 on October 12, 2007. The samples were tested for gasoline-, diesel-, and oil-range petroleum hydrocarbons and BTEX. The first three samples exhibited gasoline-, diesel-, and/or oil-range petroleum hydrocarbon concentrations above their respective preliminary cleanup levels. The final groundwater compliance monitoring sample collected on October 12, 2007 exhibited no exceedance of the gasoline-, diesel-, or oil-range petroleum hydrocarbons preliminary cleanup levels. Following receipt of these results, the excavation was backfilled using, in part, the clean overburden soil removed from Area D-7. Table 20 presents the laboratory analytical results for the groundwater compliance samples.

A total of 1,834 tons of soil were removed from Areas D-7D.

#### **4.2.8 CLEANUP ACTION AREA D-8**

Cleanup Action Area D-8 was excavated to remove contaminated soil containing cPAHs and arsenic above the soil preliminary cleanup level; the excavated soil was disposed of at the Waste Management landfill in Arlington, Oregon. The limits of excavation are shown on Figure 19. Excavation in this area extended to 1 ft BGS and generally conformed to the planned excavation limits.

Two bottom and four sidewall final compliance monitoring soil samples were collected from this area, and were tested for tested for arsenic, copper, and cPAHs, which were the IHS identified for this portion of the ACC north yard.

Two sidewall compliance monitoring samples (D8-SN and D8-SS) exceeded the preliminary cleanup levels for cPAHs and arsenic, respectively, as indicated in Table 19. The associated sidewalls were extended outward a short distance in response to the preliminary cleanup level exceedances. All compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for all IHS. The locations of Area D-8 compliance monitoring samples are shown on Figure 18 and final compliance monitoring results are presented in Table 19.

A total of 22 tons of soil were removed from Area D-8.

#### **4.2.9 CLEANUP ACTION AREAS D-9A, D-9B, AND D-9C**

Cleanup Action Areas D-9a through D-9c were excavated to remove contaminated soil containing cPAHs and arsenic above the soil preliminary cleanup level; the excavated soil was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. The limits of excavation are shown on Figure 19. Excavation in this area extended to 1 ft BGS in Area D-9a, 2 ft BGS in Area D-9b, and 1 ft below the floor slab and gravel base course of the shop building in Area D-9c. The lateral limits of the excavation generally conformed to the planned limits identified on Figure 9.

Four bottom and six sidewall final compliance monitoring soil samples were collected from this area, and were tested for tested for arsenic and cPAHs, which were the IHS identified for this portion of the ACC north yard.

One sidewall compliance monitoring samples (D9b-S1) exceeded the preliminary cleanup level for arsenic, as indicated in Table 19. In response to the preliminary cleanup level exceedance, the associated sidewall was extended outward a short distance to the limits of an adjacent cleanup area (E-2), which had recently been backfilled with clean fill. As a result, no compliance monitoring sample was required at this location.

The locations of Area D-9a through D-9c compliance monitoring samples are shown on Figure 19 and final compliance monitoring results are presented in Table 19.

A total of 355 tons of soil were removed from Areas D-9a, D-9b, and D-9c.

#### **4.2.10 CLEANUP ACTION AREAS D-10 AND D-10A**

Cleanup Action Areas D-10 and D-10a were excavated to remove contaminated soil containing cPAHs and/or arsenic above the soil preliminary cleanup levels. Area D-10 corresponded to shallow soil contamination located in the southeast corner of the ACC south yard that extended to approximately 2 ft BGS. Area D-10a corresponded to a layer of concrete-like waste material immediately underlying Area D-10 contaminated soil, and extended to approximately 3 ft BGS. The limits of excavation are shown on Figure 20. Soil excavated from Area D-10 was disposed of at the Rinker Materials inert waste landfill in Everett, Washington, and soil excavated from Area D-10a was disposed of at the Waste Management solid waste landfill in Arlington, Oregon.

Cleanup Action Area D-10 generally conformed to the planned excavation limits. Four bottom and two sidewall final compliance monitoring soil samples were collected from this area, and were tested for tested for arsenic and cPAHs, which were the IHS identified for this area. One sidewall sample (D10-S9) exceeded the preliminary cleanup level for arsenic. In response to the preliminary cleanup level exceedance, the associated sidewall was extended outward a short distance. The compliance monitoring

sample collected following the additional excavation exhibited concentrations of arsenic below the preliminary cleanup level.

The layer of white concrete-like material that makes up Area D-10a extended a significant distance beyond the planned excavation limits, as can be seen through comparison of Figures 11 and 20. The cleanup of the white concrete-like material continued until its complete removal had been achieved and final compliance monitoring samples with preliminary cleanup levels below the IHS were obtained. A total of nine bottom and nine sidewall samples (not including the Area D-10 final compliance monitoring samples) were collected from this area. One sidewall sample (D10-S7) exceeded the preliminary cleanup level for arsenic, as indicated in Table 18. The associated sidewall was extended outward a short distance in response to the preliminary cleanup level exceedance. The compliance monitoring sample collected following the additional excavation exhibited concentrations of arsenic below the preliminary cleanup level.

The locations of Area D-10 and D-10a compliance monitoring samples are shown on Figure 20 and final compliance monitoring results are presented in Table 19.

A total of 192 tons of soil were removed from Area D-10 and a total of 2,519 tons of soil were removed from area D-10a.

#### **4.2.11 CLEANUP ACTION AREA D-11**

Cleanup Action Area D-11 was excavated to remove contaminated soil containing cPAHs above the soil preliminary cleanup level, and the excavated soil was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. Excavation in this area extended to 1 ft BGS. The lateral limits of the excavation generally conformed to the planned limits identified on Figure 11; the final limits of excavation are shown on Figure 20.

Eleven bottom and seven sidewall final compliance monitoring soil samples were collected from this area, and were tested for cPAHs, which were the only IHS identified for this area.

It should be noted that the wood waste contamination associated with test pit location TP-7, shown on Figure 11, could not be located after digging numerous test pits and trenches in the vicinity of the TP-7 test pit location. It is assumed that the material was localized and was removed during geotechnical test pit explorations. The compliance monitoring samples in the vicinity of the test pit did not exceed the cPAHs preliminary cleanup level. The lack of cPAHs preliminary cleanup level exceedances combined with the inability to relocate the material previously encountered at test pit location TP-7 indicated that the extent of contamination encountered in test pit TP-7 was a de minimus volume that was too small to relocate, delineate, or remediate.

Two sidewall compliance monitoring samples (D11-S2 and D11-S8) and four bottom compliance monitoring samples (D11-B3, D11-B7, D11-B8, and D11-B10) exceeded the preliminary cleanup level for cPAHs, as indicated on Table 18. The grids containing bottom sample exceedances were excavated one additional foot and the sidewalls were extended outward a short distance in response to the preliminary cleanup level exceedances. All compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for all IHS. The locations of Area D-11 compliance monitoring samples are shown on Figure 20 and final compliance monitoring results are presented in Table 19.

A total of 2,421 tons of soil were removed from Area D-11.

#### **4.2.12 CLEANUP ACTION AREAS E-1A AND E-1B**

Cleanup Action Areas E-1a and E-1b were excavated to remove contaminated soil containing arsenic above the soil preliminary cleanup level, and the excavated soil was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. Excavation extended to 2 ft BGS in Area E-1a and 1 ft BGS in Area E-1b. The lateral limits of the excavation generally conformed to the planned limits identified on Figure 12; the final limits of excavation are shown on Figure 21.

Twelve bottom and four sidewall final compliance monitoring soil samples were collected from the areas, and were tested for heavy metals (As, Cd, Cr, Cu, Pb, Hg, and Zn). All compliance monitoring samples were below the preliminary cleanup levels for all heavy metals, including arsenic, which is the IHS for this area. The locations of Area E-1a and E-1b compliance monitoring samples are shown on Figure 21 and final compliance monitoring results are presented in Table 19.

A total of 1,657 tons of soil were removed from Areas E-1a and E-1b.

#### **4.2.13 CLEANUP ACTION AREA E-2**

Cleanup Action Area E-2 was excavated to remove contaminated soil containing arsenic above the soil preliminary cleanup level. A majority of the excavated soil was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. Based on the presence of significant wood waste in a small portion of the excavation, a limited volume of soil was disposed of at the Waste Management solid waste landfill in Arlington, Oregon. The vertical limits of the excavation in this area extended from 1.5 to 2.5 ft BGS; the pavement section (0.0 to 1.5 ft BGS) was removed prior to excavating the contaminated soil. The lateral limits of the excavation generally conformed to the planned limits identified on Figure 12; the final limits of excavation are shown on Figure 21.

Two bottom and four sidewall final compliance monitoring soil samples were collected from the area, and were tested for tested for heavy metals (As, Cd, Cr, Cu, Pb, Hg, and Zn). All compliance monitoring samples were below the preliminary cleanup levels for all heavy metals, including arsenic, which is the IHS for this area. The locations of Area E-2 compliance monitoring samples are shown on Figure 21 and final compliance monitoring results are presented in Table 19.

A total of 125 tons of soil were removed from Area E-2.

#### **4.2.14 CLEANUP ACTION AREAS E-3 AND E-4**

Cleanup Action Areas E-3 and E-4 were excavated to remove contaminated soil containing diesel- range petroleum hydrocarbons above the soil preliminary cleanup level and the excavated soil was disposed of at the Waste Management solid waste landfill located in Arlington, Oregon. Diesel-range petroleum hydrocarbon groundwater contamination in Areas E-3 and E-4 was addressed by the removal of contaminated soil, and by conducting *in-situ* soil agitation and free product and contaminated water recovery in each area. Recovered free product and contaminated water was disposed of at the Marine Vacuum Services treatment facility located in Seattle, Washington. The cleanup activities conducted in Areas E-3 and E-4 are presented in the following sections. The excavation limits for these areas are shown on Figure 21.

##### **4.2.14.1 Area E-3**

The vertical limits of excavation in Area E-3 extended from 3 to 7 ft BGS; the pavement section and underlying clean soil (0.0 to 3 ft BGS) was removed prior to excavating the contaminated soil. Once the initial 3 ft of clean overburden soil was excavated from Area E-3, 11 test pits were excavated throughout the area to observe the lateral and vertical distribution of contamination and to collect soil samples for characterization purposes. Samples collected from three of the test pits (E3-TP1-4, E3-SW-5.5, and E3-TP3-5.5) exhibited concentrations of diesel- and/or oil-range petroleum hydrocarbons above the preliminary cleanup level as shown on Figure 21 and presented in Table 18.

Soil was removed to about 1 ft below the groundwater table, which was located at about 6 ft BGS, because groundwater quality data indicated that groundwater quality in this area exceeded the preliminary groundwater preliminary cleanup level for diesel-range petroleum hydrocarbons. The soil represented by the test pit samples with analytical results above the preliminary cleanup level (referenced above), or soil that exhibited observable signs of petroleum hydrocarbon contamination through field screening techniques was excavated and disposed of at the Waste Management solid waste facility in Arlington, Oregon. Soil represented by test pit samples with analytical results below the preliminary

cleanup levels, and that exhibited no signs of petroleum hydrocarbon contamination through field screening techniques, was removed and stockpiled for use as backfill at locations where it could be placed well above the water table.

A total of 9 bottom and 10 sidewall final compliance monitoring soil sample were collected from this area, and were tested for diesel- and motor oil-range petroleum hydrocarbons, which were the IHS identified for the area.

Two of the initial sidewall samples (E3-S5 and E3-S10) exhibited concentrations of diesel-range petroleum hydrocarbons at 3,800 mg/kg and 6,800 mg/kg, which is greater than the preliminary cleanup level of 2,000 mg/kg. The sidewalls were extended outward a short distance in response to the preliminary cleanup level exceedances. All compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for all IHS.

*In situ* soil agitation was conducted once a majority of the contaminated soil had been removed from Area E-3. The agitation process was accomplished evenly throughout the excavation area by aggressively agitating the soil and water in the bottom of the excavation. The soil and water were agitated using the bucket of an extended reach track-hoe. Once the soil and water were thoroughly agitated and an observable petroleum hydrocarbon sheen or free product had accumulated on the surface of the water, the water was extracted from the excavation and contained in a settling tank. The settled water was then disposed of by Marine Vacuum Services. A number of *in situ* soil agitation events were conducted for the Area E-3 excavation.

Four rounds of groundwater compliance monitoring samples were collected from the excavation on separate dates and were separated by *in-situ* soil agitation events, which included additional contaminated soil removal at locations where free product or sheen were emanating from the excavation sidewall. The following compliance monitoring groundwater samples were collected on the following dates: E-3-H2O on June 7, 2007; E-3-1 and E-3-2 on June 8, 2007; E-3-070207-A, and E-3-070207-B on July 2, 2008; and E-3 on July 12, 2007. The first sample (E-3-H2O) was tested for gasoline-, diesel-, and oil-range petroleum hydrocarbons and dissolved arsenic. Because gasoline was not detected in the sample, all subsequent samples were not test for gasoline, but were tested for the other listed parameters. Samples collected during the first two sampling dates exhibited diesel-range petroleum hydrocarbons concentrations from 0.94 mg/L to 3.0 mg/L, which are above the preliminary cleanup level of 0.5 mg/L. Water samples collected on the third and fourth sampling dates did not exhibit diesel-range petroleum hydrocarbons above the laboratory reporting limits. Additionally, arsenic water concentrations had significantly decreased from the initial sampling date, ranging from 37.4 µg/L on June 7, 2007 to 7.4 µg/L on July 12, 2007, which is only slightly greater than the arsenic groundwater preliminary cleanup level of 5 µg/L. Table 21 presents the laboratory analytical results of the groundwater compliance samples.



The locations of Area E-3 compliance monitoring soil samples are shown on Figure 21 and final compliance monitoring results are presented in Table 19.

A total of 657 tons of soil were removed from Area E-3.

#### **4.2.14.2 Area E-4**

The vertical limits of excavation in Area E-4 were limited to the capillary fringe, which was defined for operational purposes as approximately 1 ft above and 1 ft below the groundwater table (approximately 4 to 6 ft); the pavement section and clean soil (0.0 to 4 ft BGS) were removed prior to excavating the contaminated soil. The clean overburden soil exhibited no signs of petroleum hydrocarbon contamination through field screening techniques and was removed and stockpiled for use as backfill.

*In situ* soil agitation was conducted once a majority of the observably affected soil had been removed from Area E-4. The agitation process was accomplished evenly throughout the excavation area by aggressively agitating the soil and water in the bottom of the excavation. The soil and water were agitated using the bucket of an extended reach track-hoe. Once the soil and water were thoroughly agitated and an observable petroleum hydrocarbon sheen or free product had accumulated on the surface of the water, the water was extracted from the excavation and contained in a settling tank. The settled water was then disposed of by Marine Vacuum Services. A number of *in-situ* soil agitation events were conducted over the duration of the Area E-4 excavation.

Six rounds of compliance monitoring water samples were collected from the excavation on separate dates and were separated by *in-situ* soil agitation events. The following compliance monitoring water samples were collected on the following dates: E-4-H2O on June 7, 2007; E-4-1 and E-4-2 on June 8, 2007; E-4-3 on June 9, 2007; E-4-070207 on July 2, 2008; and E-4 on July 12, 2007. The first sample (E-4-H2O) was tested for gasoline-, diesel-, and oil-range petroleum hydrocarbons and dissolved arsenic. Because gasoline was not detected in the sample, all subsequent samples were not tested for gasoline, but were tested for the other listed parameters. Samples collected during the first three sampling dates exhibited diesel-range petroleum hydrocarbons concentrations from 0.82 mg/L to 11.0 mg/L, which are above the preliminary cleanup level of 0.5 mg/L. Water samples collected over the fourth and fifth sampling date did not exhibit diesel-range petroleum hydrocarbons above the laboratory reporting limits. Table 21 presents the laboratory analytical results of the groundwater compliance samples.

A total of two bottom and nine sidewall final compliance monitoring soil samples were collected from this area, and were tested for diesel- and oil-range petroleum hydrocarbons, which were the IHS identified for the area. The locations of Area E-4 compliance monitoring soil samples are shown on Figure 21 and final soil compliance monitoring results are presented in Table 19.

A total of 99 tons of soil were removed from Areas E-4.

#### **4.2.15 CLEANUP ACTION AREAS F-1A, F-1B, F-1C AND F-1D**

Cleanup Action Areas F-1a, F-1b, F-1c, and F-1d were excavated to remove soil containing arsenic and cPAHs above the preliminary cleanup level. The limits of excavation are shown on Figure 22. Excavated soil from F-1a, F-1c, and F-1d was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. Excavated soil from F-1b was disposed of at the Waste Management solid waste landfill in Arlington, Oregon. Contaminated soil was excavated from the upper 1 to 2 ft of surface soil from these areas.

A total of 28 bottom and 11 sidewall final soil compliance monitoring samples were collected from these areas and were tested for heavy metals (As, Cd, Cr, Cu, Pb, Pb, Hg, and Zn) and for cPAHs (in Area F-1a).

Three sidewall compliance monitoring samples (F1b-S1, F1b-S1b, and F1b-S1c) and two bottom compliance monitoring samples (F1b-ADD-B2 and F1b-B2) exceeded the preliminary cleanup level for arsenic, as indicated in Table 18. The grids containing bottom sample exceedances were excavated one additional foot and the sidewalls were extended outward a short distance in the area where sidewall sample results indicated exceedances. All bottom compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for the IHS. As a result of the three sidewall samples exceedances in Area F-1b (listed above), the excavation was extended to the south to the concrete stem wall of the former Everett Engineering building; no soil side wall existed at this location and sidewall sampling was not required. The locations of Areas F-1a through F-1d compliance monitoring samples are shown on Figure 22 and final compliance monitoring results are presented in Table 19.

A total of 4,592 tons of soil were removed from Areas F-1a, F-1b, F-1c, and F-1d.

#### **4.2.16 CLEANUP ACTION AREA F-2**

Cleanup Action Area F-2 was excavated to remove soil containing arsenic and lead above the preliminary cleanup level. A small area of pink sand blast grit and the underlying 6 inches of soil were excavated from the building loading dock area and were disposed of at the Waste Management solid waste landfill in Arlington, Oregon. The remaining soil removed from Area F-2 (not containing pink sand blast grit) was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. Contaminated soil was excavated from the upper 1 to 2 ft of soil from Area F-2. The limits of excavation are shown on Figure 23.

A total of 14 bottom and 16 sidewall final compliance monitoring soil samples were collected from this area and were tested for heavy metals (As, Cd, Cr, Cu, Pb, Hg, and Zn).

Four sidewall compliance monitoring samples (F2-1-S3, F2-1-S4, F2-2-S4, and F2-2-S4a) and five bottom compliance monitoring samples [F2-1B, F2-1-B9, F2-2B(0-0.5), F2-5B(0-0.5), and F2-9B(0-0.5)] exceeded the preliminary cleanup level for arsenic and, in some cases, exceeded the preliminary cleanup level for lead as well. Soil compliance monitoring samples exhibiting preliminary cleanup level exceedances are presented in Table 18. The grids containing bottom sample exceedances were excavated 1 additional foot and the sidewalls were extended outward at locations where sidewall samples indicated exceedances. All compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for the IHS. The locations of Area F-2 compliance monitoring samples are shown on Figure 23 and final compliance monitoring results are presented in Table 19.

A total of 1,154 tons of soil were removed from Area F-2.

#### **4.2.17 CLEANUP ACTION AREA F-3**

Cleanup Action Area F-3 was excavated to remove soil containing arsenic above the preliminary cleanup level. Excavated soil from Area F-3 was disposed of at Rinker Materials inert waste landfill in Everett, Washington. Contaminated soil was excavated from the upper 1 ft of surface soil from this area.

A total of two bottom and four sidewall final soil compliance monitoring samples were collected from this area and were tested for metals (As, Cd, Cr, Cu, Pb, Pb, Hg, and Zn). All compliance monitoring samples were below the preliminary cleanup level for each tested metal. The locations of Area F-3 compliance monitoring samples are shown on Figure 22 and final compliance monitoring results are presented in Table 19.

A total of 200 tons of soil were removed from Area F-3.

#### **4.2.18 CLEANUP ACTION AREAS F-4A AND F-4B**

Cleanup Action Areas F-4a and F-4b were excavated to remove soil containing cPAHs and/or arsenic above their respective preliminary cleanup level. The limits of excavation are shown on Figure 22. Excavated soil from F-4a and F-4b was disposed of at the Waste Management solid waste landfill in Arlington, Oregon.

A total of six bottom and four sidewall final compliance monitoring soil samples were collected from these areas and were tested for heavy metals (As, Cd, Cr, Cu, Pb, Hg, and Zn) and for cPAHs (in Area F-4a).

One bottom compliance monitoring sample (F4a-B4) exceeded the preliminary cleanup level for cPAHs, as indicated in Table 18. The grid containing bottom sample exceedances was excavated one additional foot in response to the preliminary cleanup level exceedance. The compliance monitoring sample collected following additional excavation exhibited a concentration below the cPAHs preliminary cleanup level. The locations of Areas F-4a and F-4b soil compliance monitoring samples are shown on Figure 22 and final compliance monitoring results are presented in Table 19.

A total of 3,602 tons of soil were removed from Area F-4a and F-4b.

#### **4.2.19 CLEANUP ACTION AREA F-5**

Cleanup Action Area F-5 was excavated to remove soil containing cPAHs above the preliminary cleanup level. Excavated soil from Area F-5 was disposed of at Rinker Materials inert waste landfill in Everett, Washington. The vertical limits of excavation in Area F-5 extended from about 2 ft to 3 ft BGS; the clean soil overburden (0 to 2 ft BGS) was removed prior to excavating the contaminated soil. The limits of excavation are shown on Figure 22.

A total of two bottom and three sidewall final soil compliance monitoring samples were collected from this area and were tested for cPAHs. All compliance monitoring samples were below the preliminary cleanup level for cPAHs. The northern sidewall of Area F-5 did not require a compliance monitoring sample since the sidewall corresponded to the concrete footing of the former Everett Engineering building. The locations of Area F-5 compliance monitoring samples are shown on Figure 22 and final compliance monitoring results are presented in Table 19.

A total of 69 tons of soil were removed from Area F-5.

#### **4.2.20 CLEANUP ACTION AREAS F-8A THROUGH F-8G**

Cleanup Action Areas F-8a through F-8g were excavated to remove a darkened soil layer containing cPAHs above the preliminary cleanup level. Excavated soil from F-8a through F-8g was disposed of at the Waste Management solid waste landfill in Arlington, Oregon. The contaminated soil was encountered at about 1 ft BGS and extended up to about 4 ft BGS. The entire vertical extent of this material was excavated based on visual observation within each cleanup action area. The limits of excavation are shown on Figure 22.

A total of 22 bottom and 26 sidewall final compliance monitoring soil samples were collected from these areas and were tested for cPAHs, which is the IHS of the F-8 areas.

One bottom compliance monitoring sample (F8a-B1) and five sidewall compliance monitoring samples (F8b-S1, F8b-S3, F8c-S2, F8c-S2a, and F8f-S1) exceeded the preliminary cleanup level for

cPAHs, as indicated in Table 18. The grid containing bottom sample exceedances was excavated one additional foot and the sidewalls were extended outward in the areas of sidewall sample preliminary cleanup level exceedances. All compliance monitoring samples collected following additional excavation exhibited concentrations below the preliminary cleanup levels for all IHS. The locations of Areas F-8a through F-8g compliance monitoring samples are shown on Figure 22 and final compliance monitoring results are presented in Table 19.

A total of 4,586 tons of soil were removed from Areas F-8a through F-8g.

#### **4.2.21 CLEANUP ACTION AREA H-1**

Cleanup Action Area H-1 (Figure 20) was excavated to remove soil containing arsenic above the preliminary cleanup level. Excavated soil from Area H-1 was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. The vertical limits of excavation in Area H-1 extended from 0.5 to 1.5 ft BGS; the pavement section and clean soil (0 to 0.5 ft BGS) was removed prior to excavating the contaminated soil.

A total of two bottom and five sidewall final compliance monitoring soil samples were collected from Area H-1 and were tested for heavy metals (As, Cd, Cr, Cu, Pb, Hg, and Zn). All compliance monitoring samples were below the preliminary cleanup levels for all heavy metals. The locations of Area H-1 compliance monitoring samples are shown on Figure 20 and final compliance monitoring results are presented in Table 19.

A total of 118 tons of soil were removed from Area H-1.

#### **4.2.22 CLEANUP ACTION AREA H-2**

Cleanup Action Area H-2 (Figure 20) was excavated to remove soil containing cPAHs above the preliminary cleanup level. Excavated soil from H-2 was disposed of at the Rinker Materials inert waste landfill in Everett, Washington. The vertical limits of excavation in Area H-2 extended from 1 to 2 ft BGS; the pavement section and clean soil (0 to 1 ft BGS) was removed prior to excavating the contaminated soil.

A total of four bottom and seven sidewall final compliance monitoring soil samples were collected from this area and were tested for cPAHs. One bottom compliance monitoring sample (H2-B1) and two sidewall compliance monitoring samples (H2-S1 and H2-S6) exceeded the preliminary cleanup level for cPAHs, as indicated in Table 18. The grid containing the bottom sample exceedance was excavated 1 additional foot and the sidewalls were extended outward a short distance at the locations of the preliminary cleanup level exceedances. All compliance monitoring samples collected following

additional excavation exhibited concentrations below the preliminary cleanup levels for all IHS. The locations of Area H-2 soil compliance monitoring samples are shown on Figure 20 and final compliance monitoring results are presented in Table 19.

A total of 645 tons of soil were removed from Area H-2.

#### **4.2.23 CLEANUP ACTION AREA H-3**

Cleanup Action Area H-3 (Figure 20) was excavated to remove soil containing arsenic and mercury above the preliminary cleanup levels. Excavated soil from H-3 was disposed of at the Waste Management solid waste landfill in Arlington, Oregon. The vertical limits of excavation in Area H-3 extended from 0.5 to 4 ft BGS; the pavement section and clean soil (0 to 0.5 ft BGS) was removed prior to excavating the contaminated soil.

The concrete-like waste material, removed as part of the D-10a excavation, was encountered throughout the limits of excavation in Area H-3, and was excavated to its full limits.

A total of three bottom and four sidewall final compliance monitoring soil samples were collected from these areas and were tested for heavy metals (As, Cd, Cr, Cu, Pb, Hg, and Zn). All compliance monitoring samples were below the preliminary cleanup levels for all heavy metals, including arsenic and mercury, which are the IHS for this area. The locations of Area H-3 compliance monitoring samples are shown on Figure 20 and final compliance monitoring results are presented in Table 19.

A total of 361 tons of soil were removed from Area H-3.

## **5.0 CONCLUSIONS**

The interim cleanup action conducted for the Site achieved unrestricted soil preliminary cleanup levels throughout most of the areas addressed as part of the cleanup action. Additionally, groundwater preliminary cleanup levels were achieved for those areas where groundwater cleanup was initiated and groundwater compliance monitoring was conducted. However, a limited amount of soil contamination remains and additional groundwater compliance monitoring is needed to evaluate the effectiveness of the interim cleanup activities on groundwater quality; specifically, the following issues associated with the interim cleanup action will need to be addressed during the upcoming RI/FS:

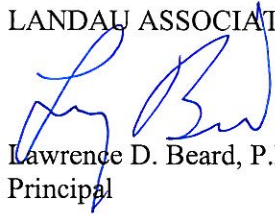
- Groundwater quality in Areas D-2e and D-5 needs to be assessed to determine whether copper soil concentrations associated with the crane rail ballast are causing exceedance of the copper preliminary groundwater cleanup level.
- Groundwater quality in Area D-1 and the immediate vicinity has not been evaluated to determine if the soil cleanup actions in this area have remediated arsenic and copper groundwater contamination.
- Groundwater quality in Area D-6 has not been evaluated following the cleanup action.
- Groundwater quality downgradient from Areas D-7 and E-3 has not been evaluated to determine if remediation of these areas has addressed arsenic groundwater contamination that likely resulted from reducing conditions associated with petroleum hydrocarbon contamination in these areas.
- Additional groundwater quality monitoring within Areas D-7 and E-3 is also needed to confirm that the preliminary groundwater cleanup levels for petroleum hydrocarbons were achieved during cleanup.

These issues will be addressed within the RI/FS work plan currently being prepared for the Site.

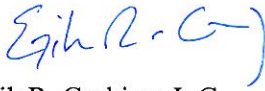
## 6.0 LIMITATIONS

This document has been prepared for the exclusive use of the Port of Everett for the North Marina West End Site. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of the Port of Everett and Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

LANDAU ASSOCIATES, INC.



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ERG/LDB

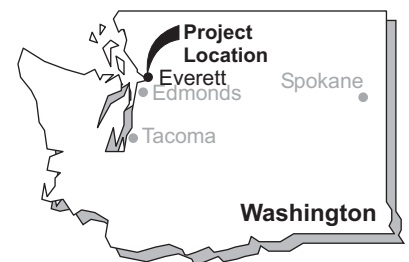
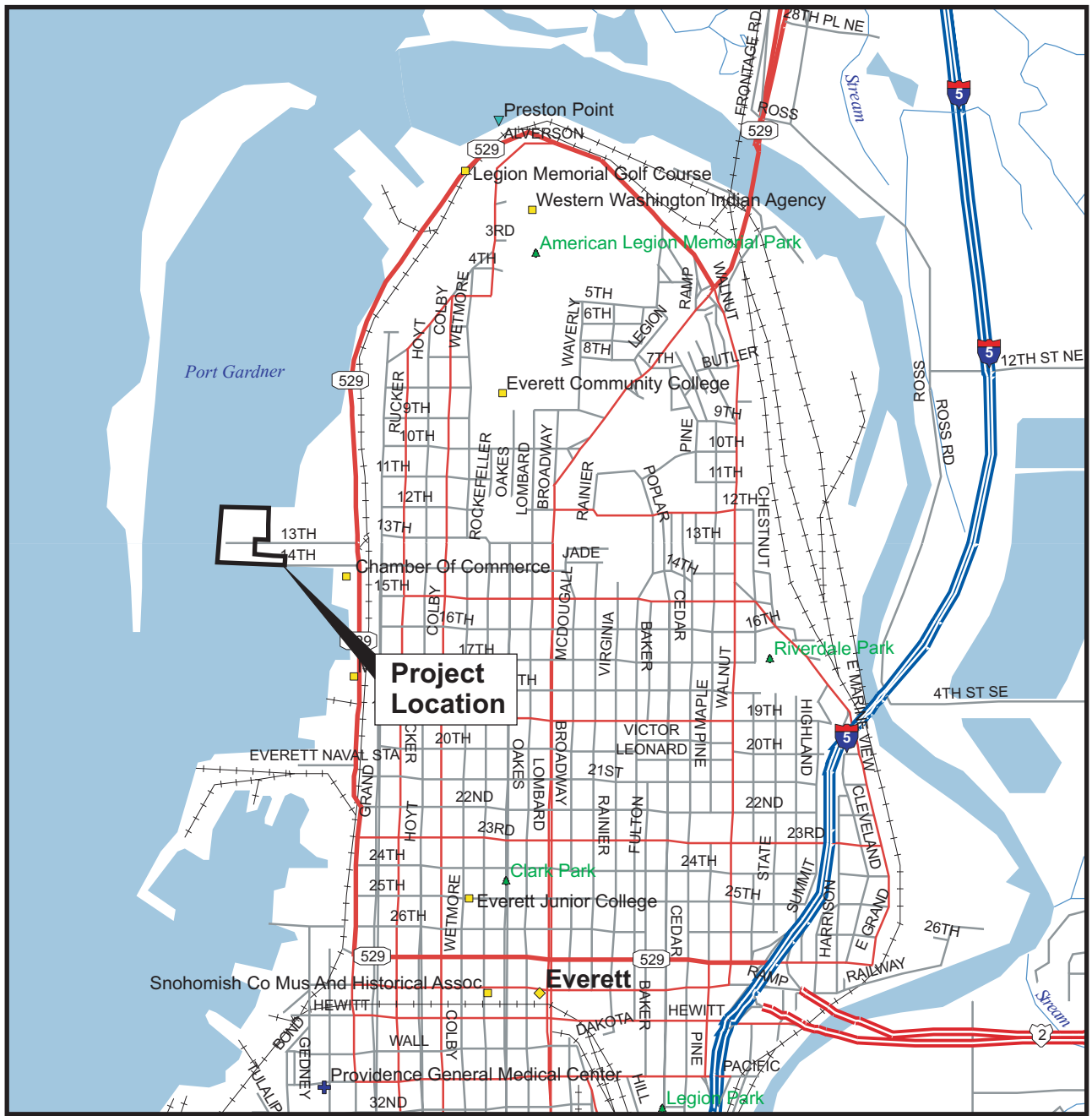


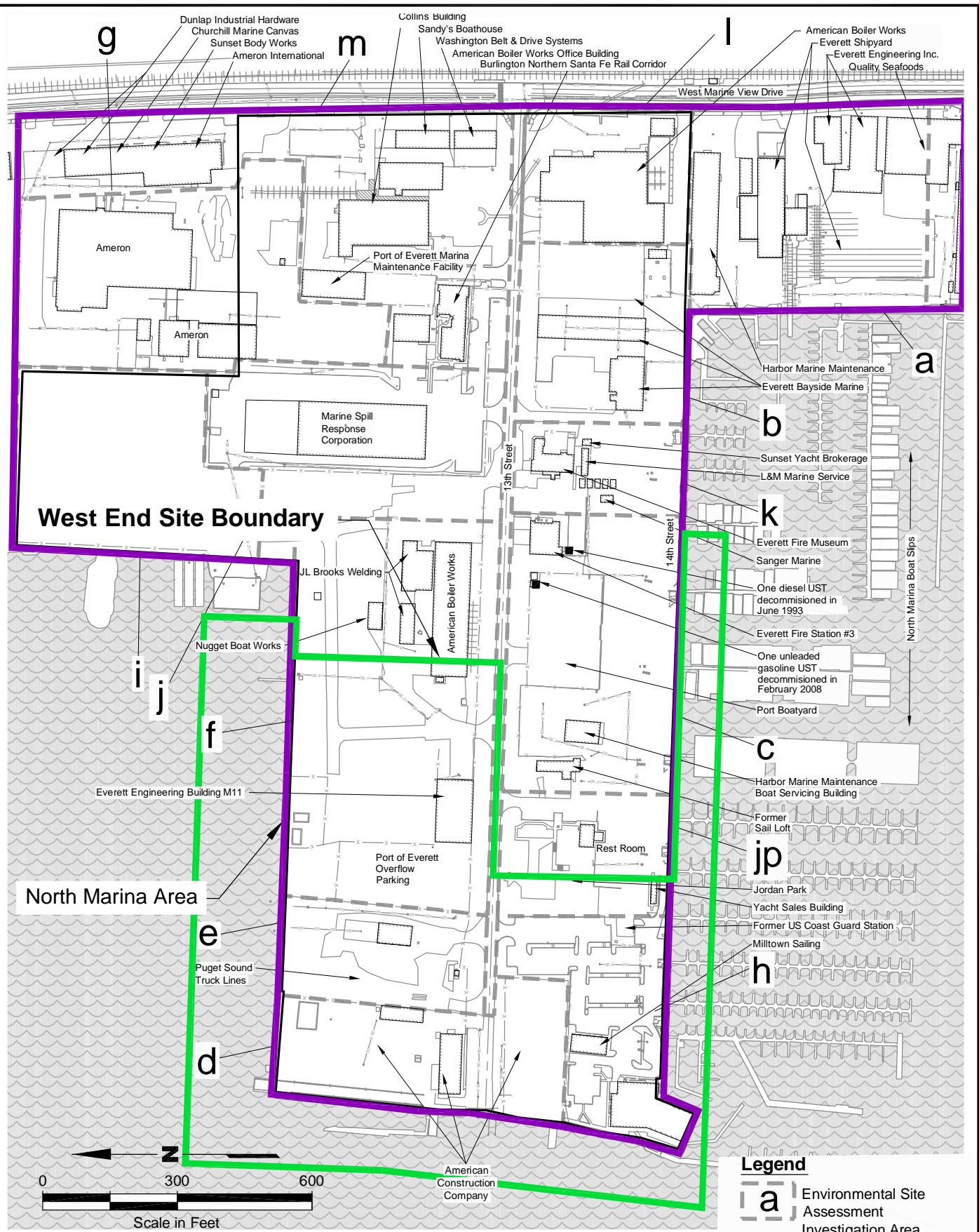
## 7.0 REFERENCES

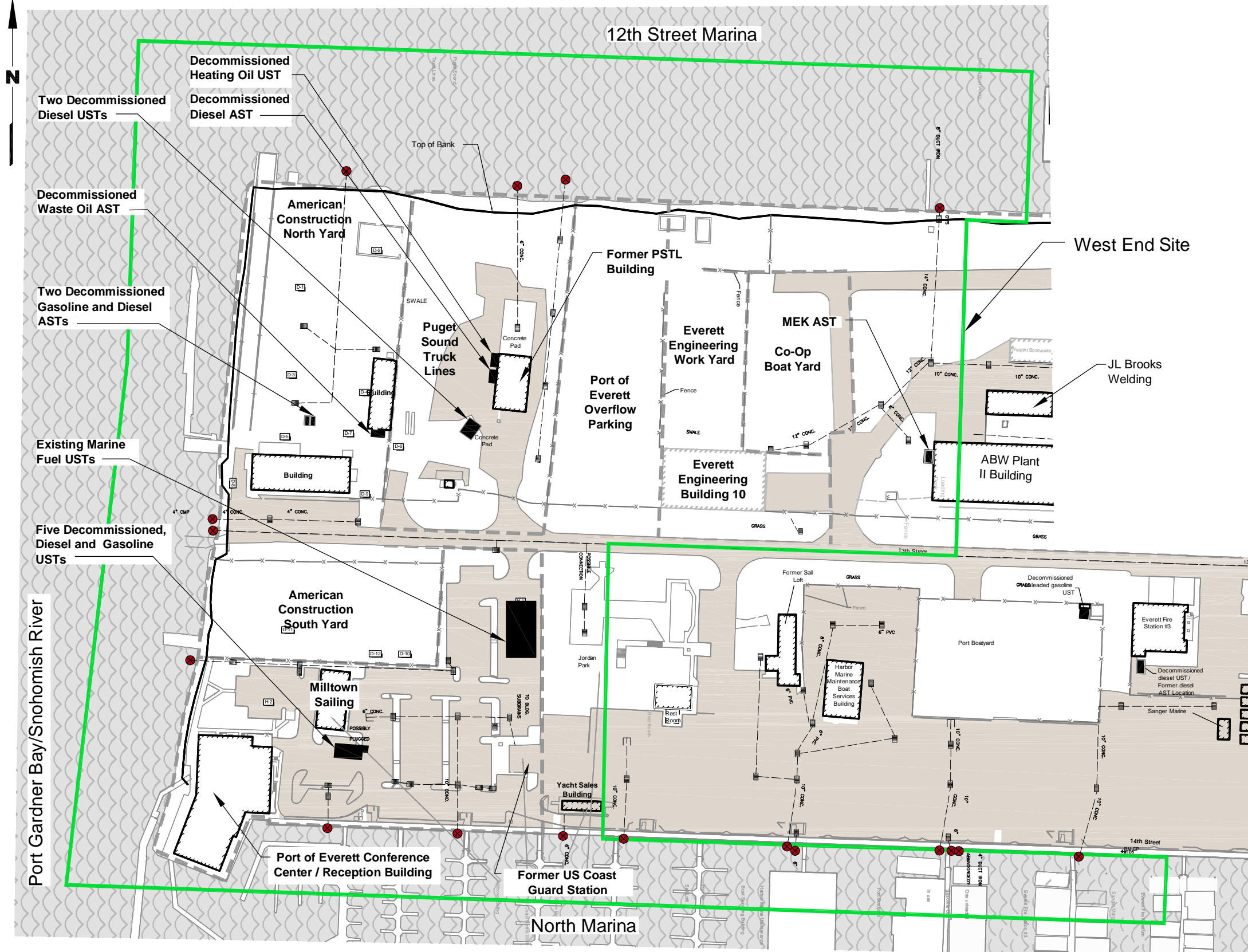
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Landau Associates. 2001. *Phase I Environmental Site Assessment Report, North Marina Redevelopment Project, Port of Everett, Everett, Washington*. November 28.

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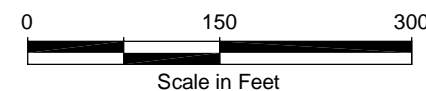


### Legend

- Storm Drain Line
- OWS Oil/Water Separator
- \* Downspout
- ▣ Catch Basin
- Approximate Former or Existing Outfall Location
- Approximate Boundary of Former Leasehold
- Existing Asphalt

### Notes:

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



North Marina  
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**Current and/or  
Historical Site Features**

Figure  
**3**



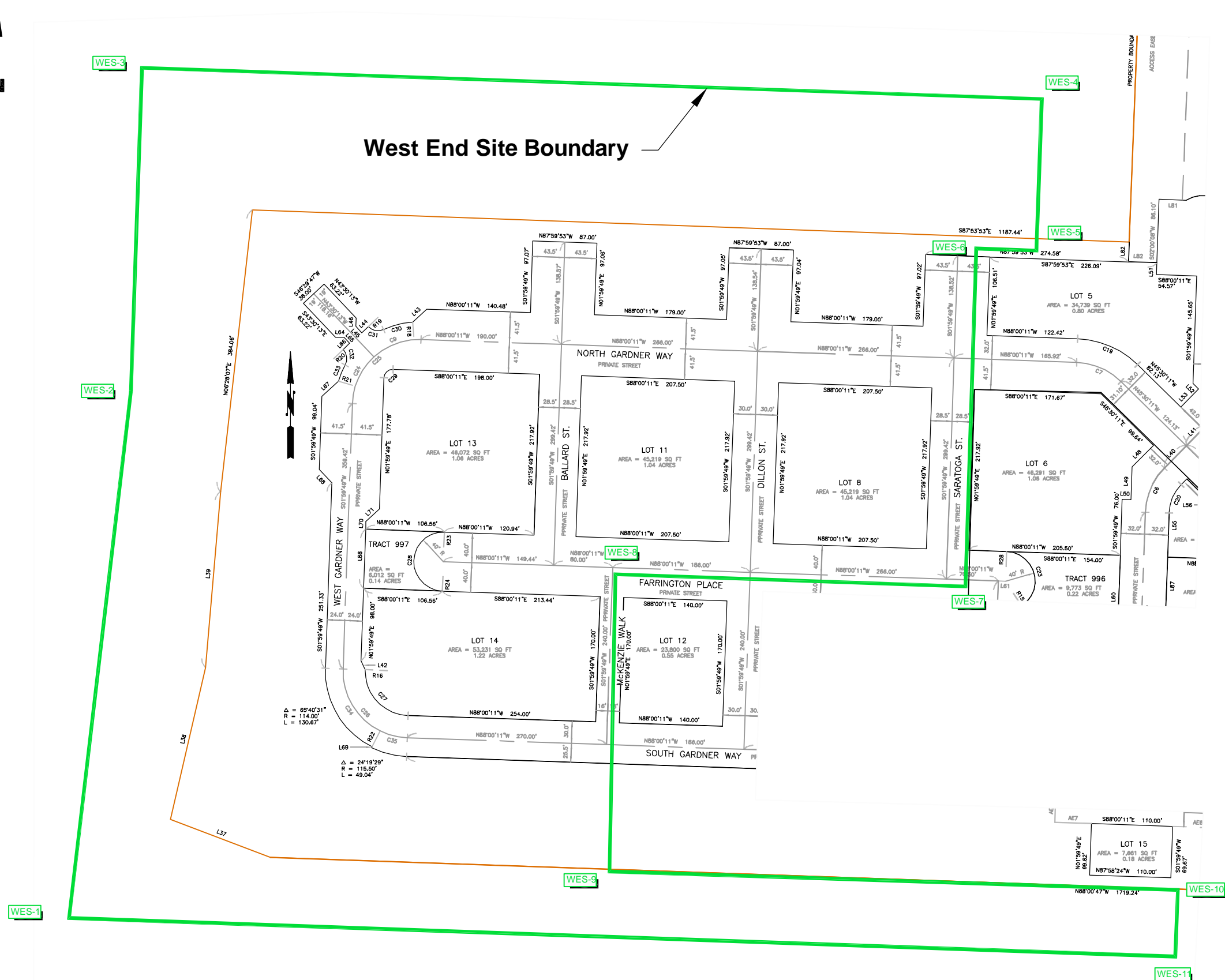


Source: Binding Site Plan, Division 2  
of Port of Everett North Marina,  
Reid Middleton July 12, 2007

North Marina  
West End Site  
Interim Action Cleanup Report  
Port of Everett, Washington

Boundary and Road Plan  
West End Site

Figure  
4



## Legend

**WES-1** Reference Point Designation

## Notes:

- Northings and Eastings are in US State Plane 1983, Washington North 4601, NAD 83 (CONUS)
- Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Reference Point Designation	Reference Point Northings	Reference Point Eastings
WES-1	367490.86	1299961.32
WES-2	368204.39	1300044.82
WES-3	368641.82	1300060.11
WES-4	368599.82	1301278.05
WES-5	368394.44	1301270.87
WES-6	368397.29	1301189.42
WES-7	367939.51	1301174.92
WES-8	367956.08	1300700.99
WES-9	367553.60	1300692.95
WES-10	367528.73	1301462.25
WES-11	367438.52	1301458.59

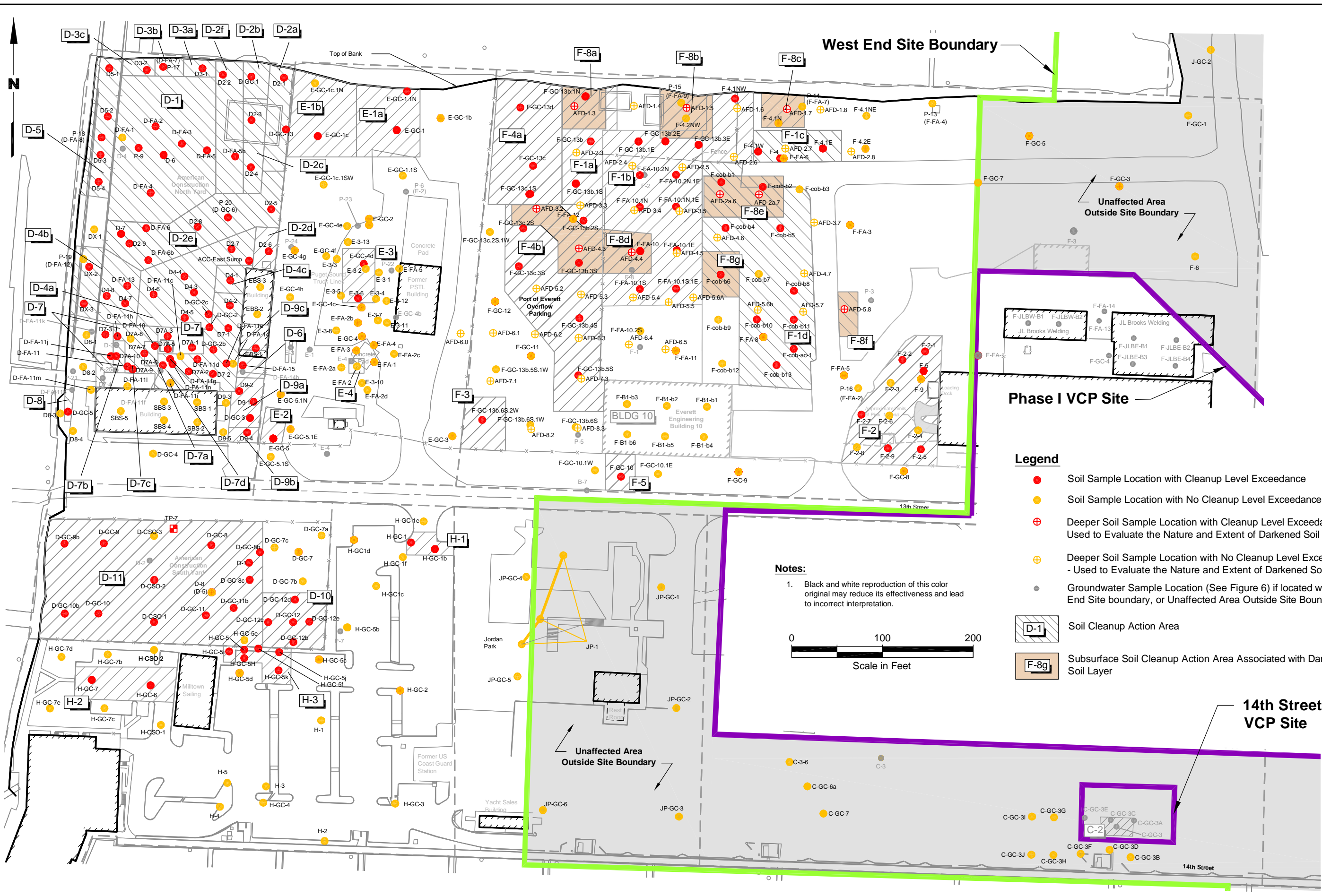
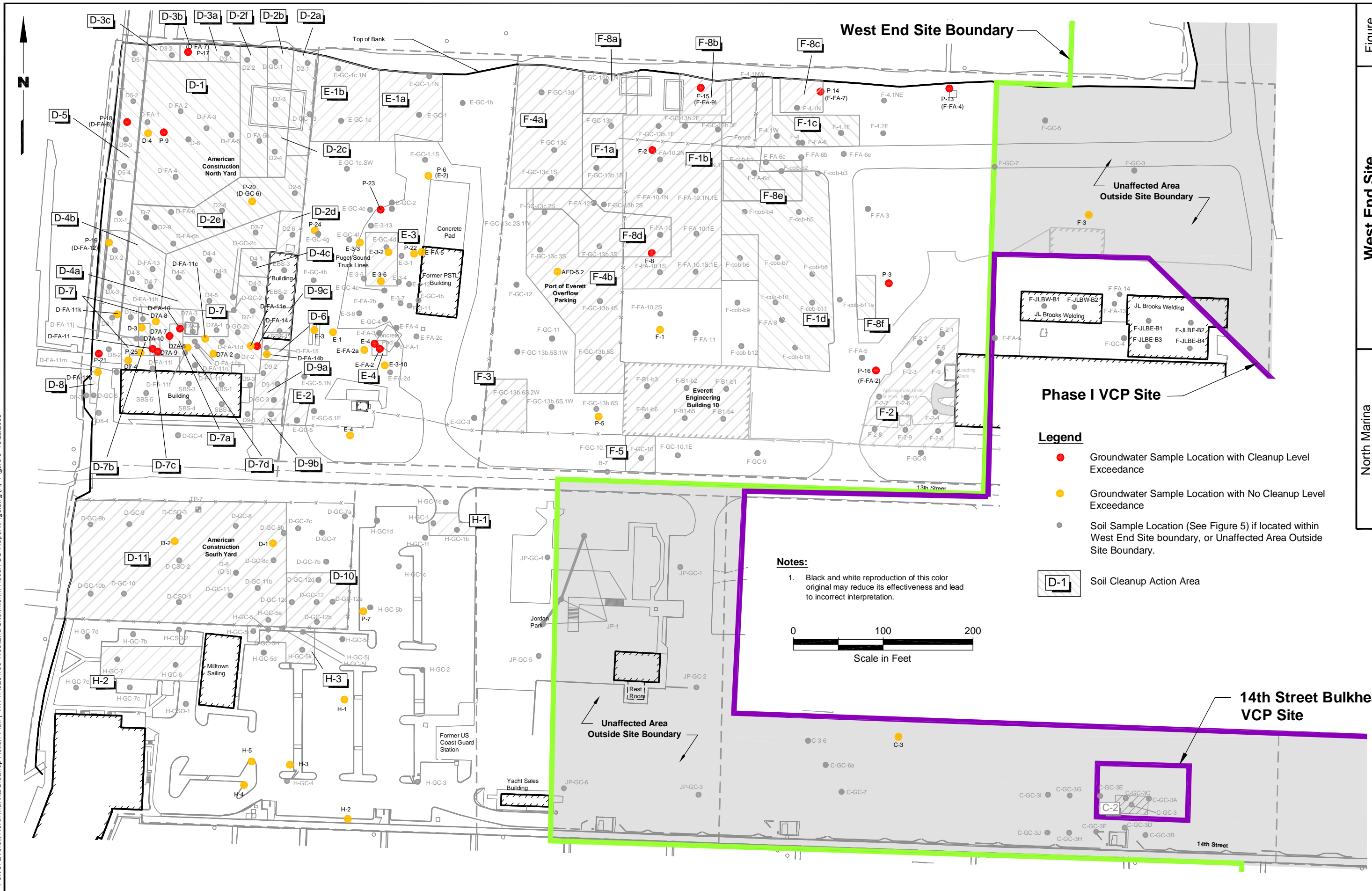


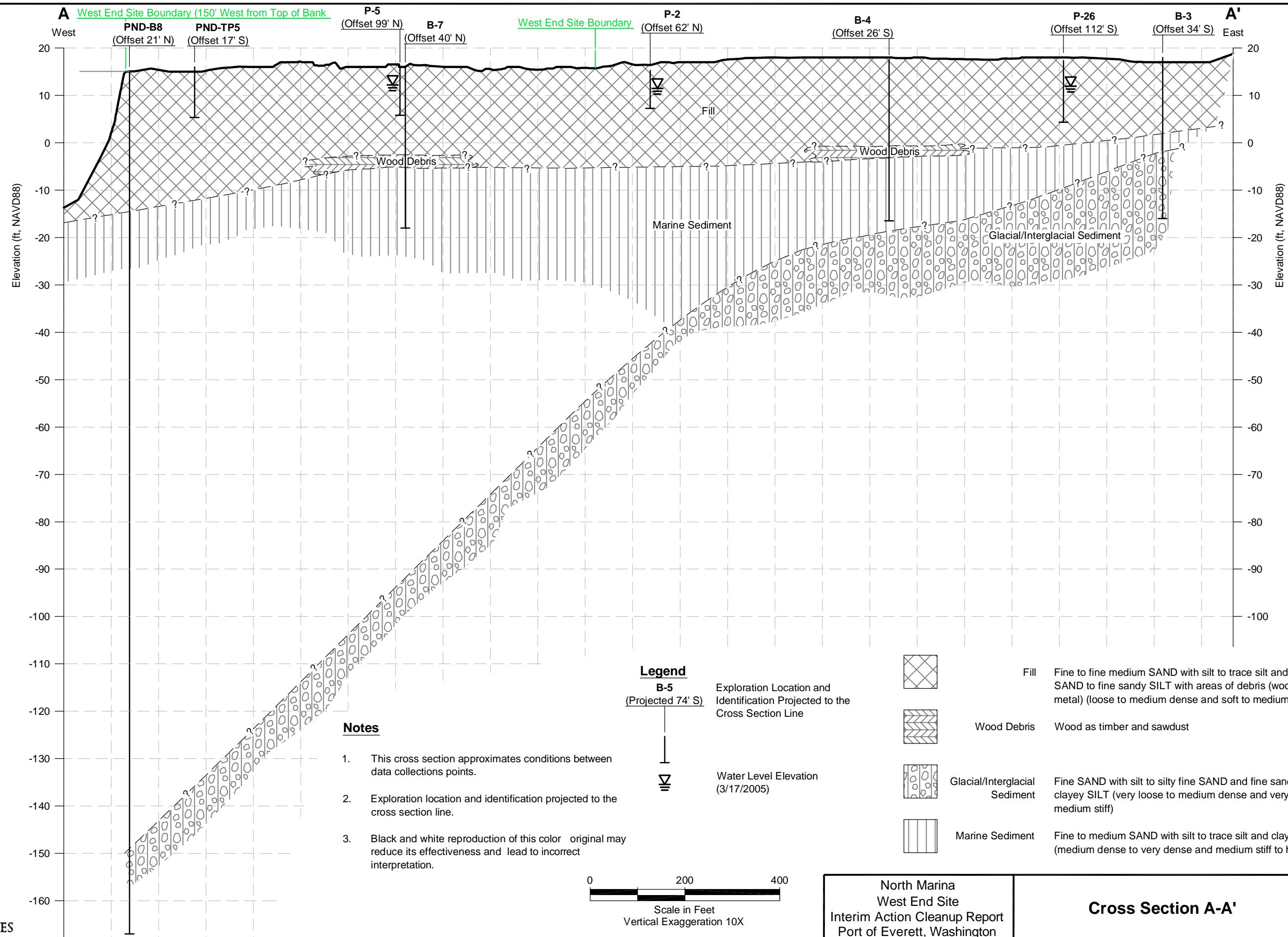
Figure 5

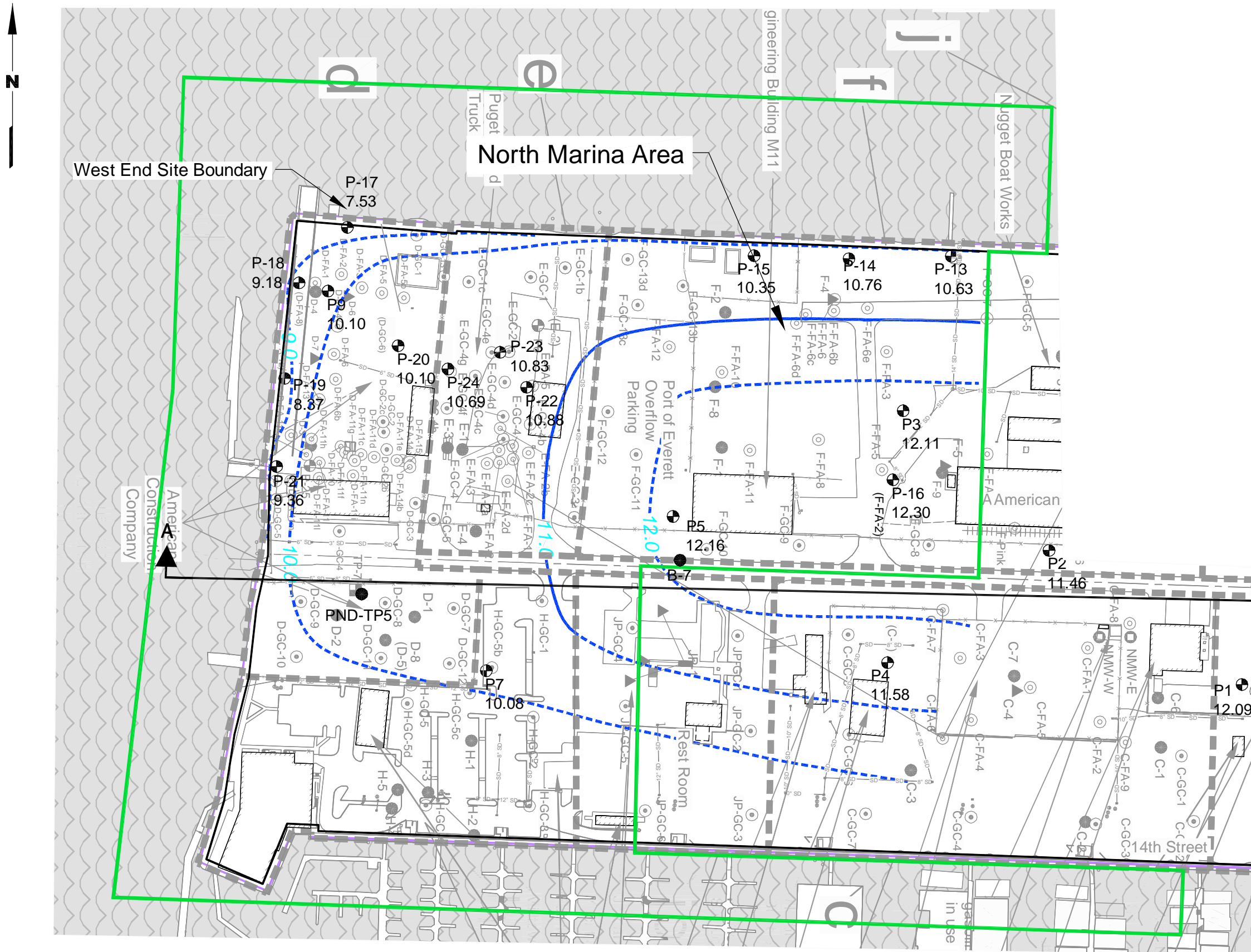
West End Site  
Soil Exploration and  
Sample Locations

North Marina  
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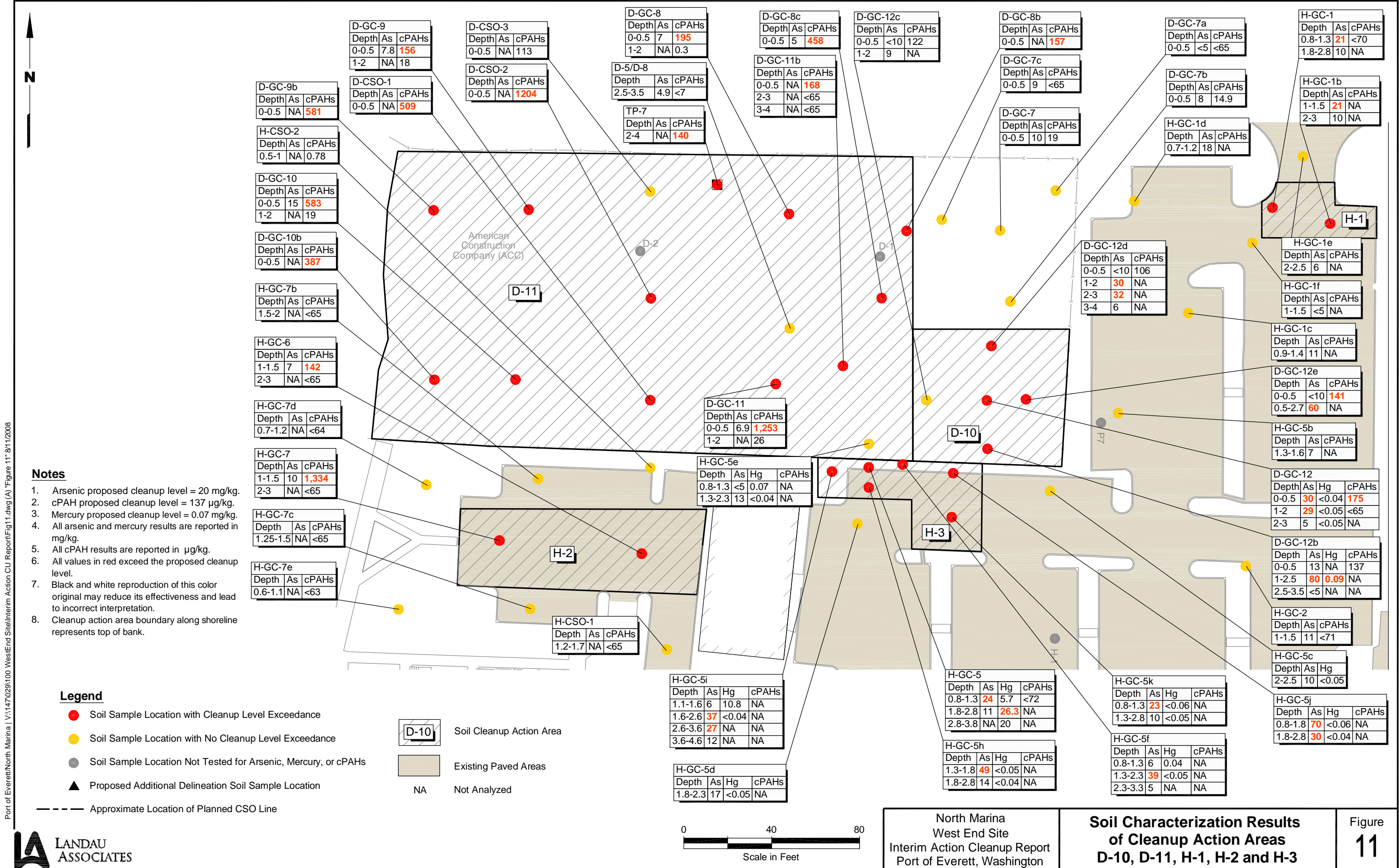
**Groundwater Elevation Contour Map**

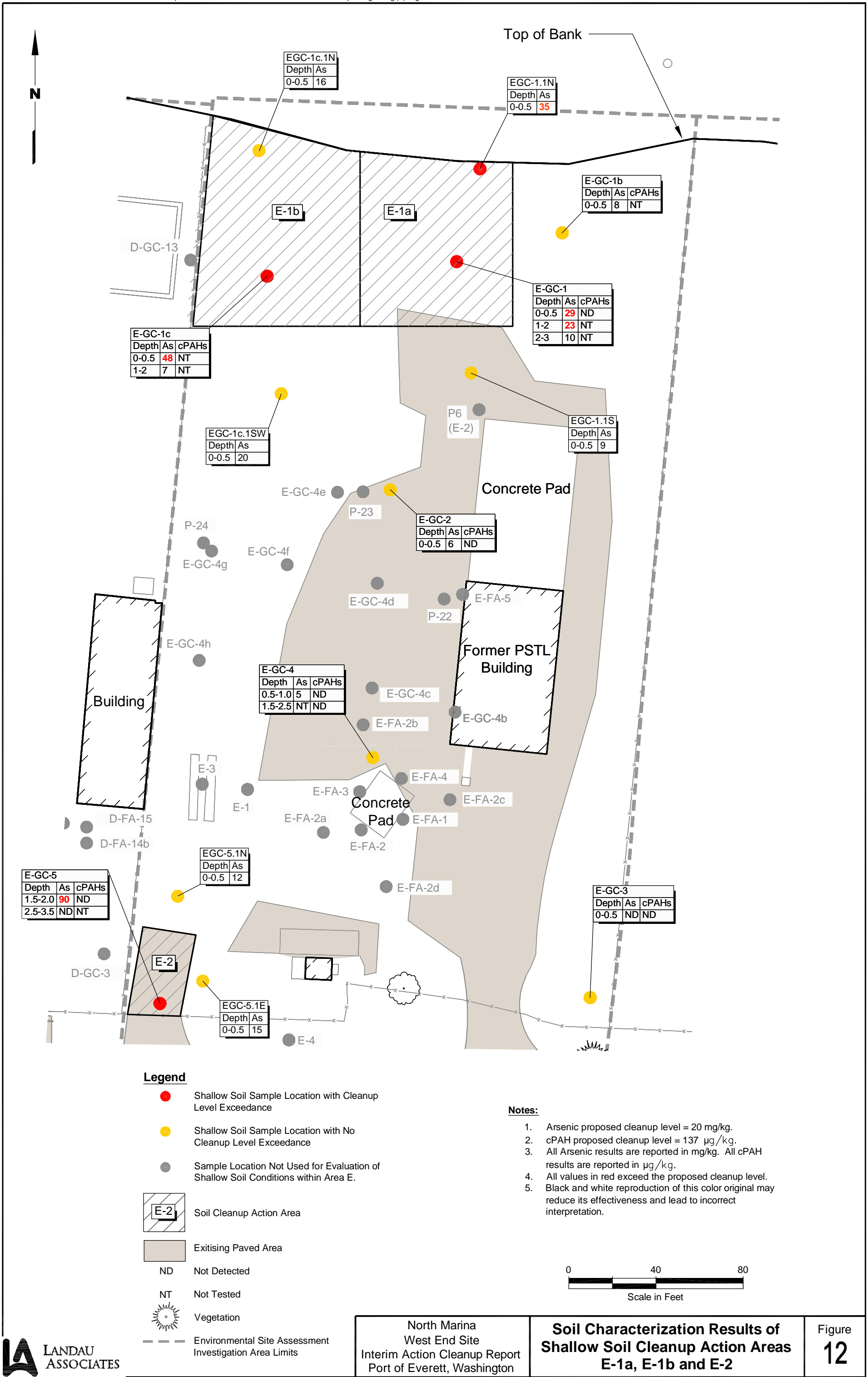
Figure  
**8**





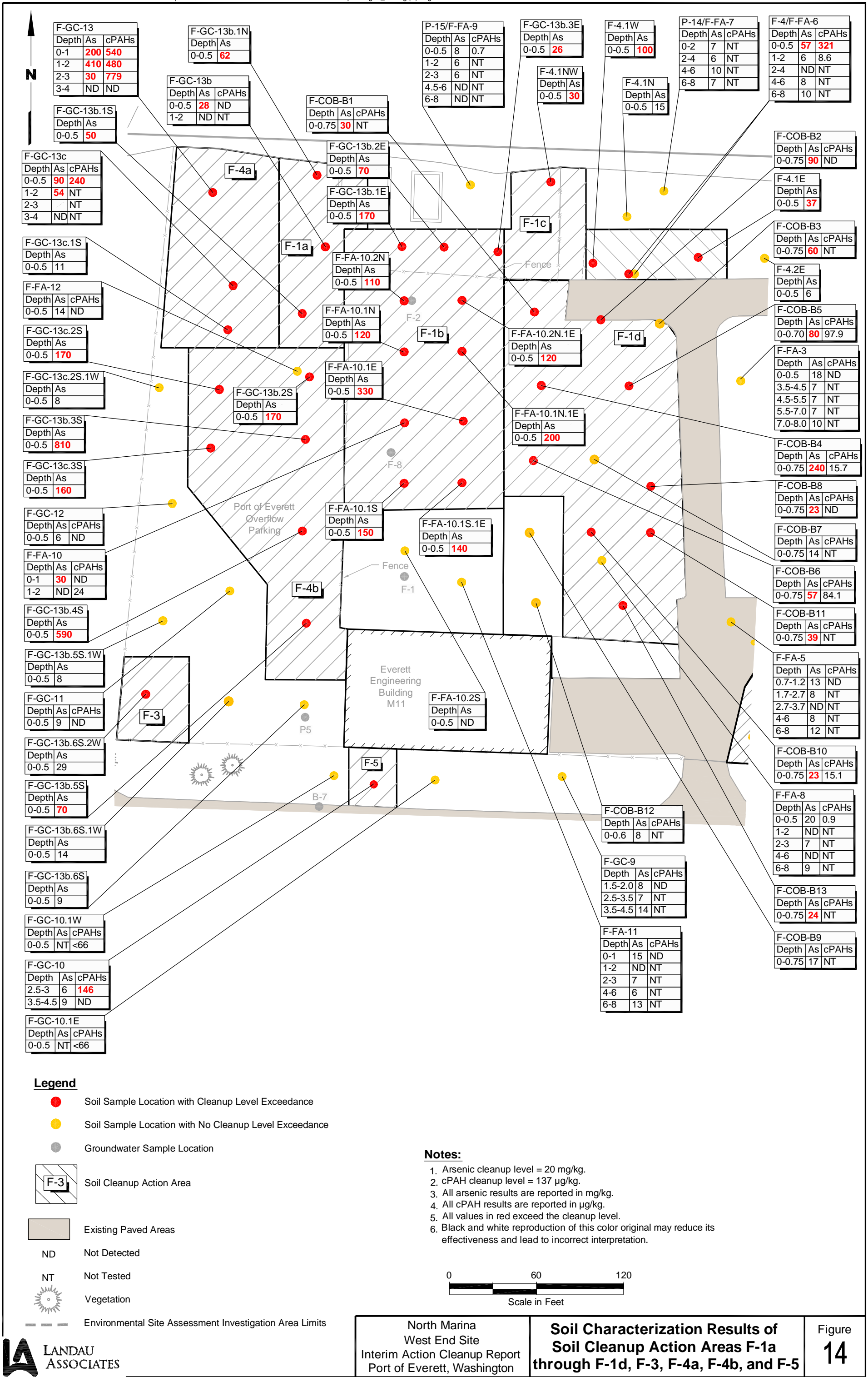




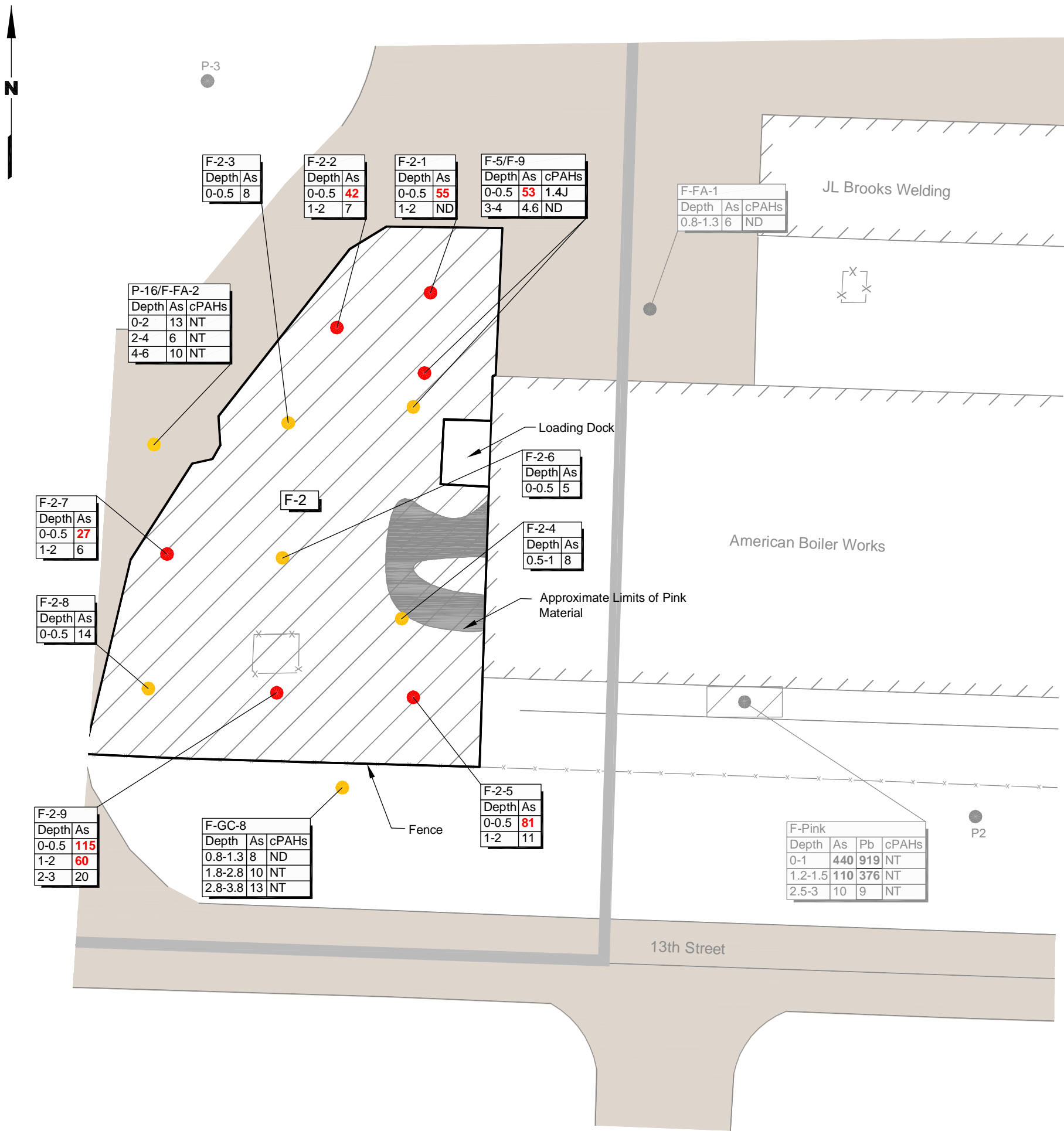


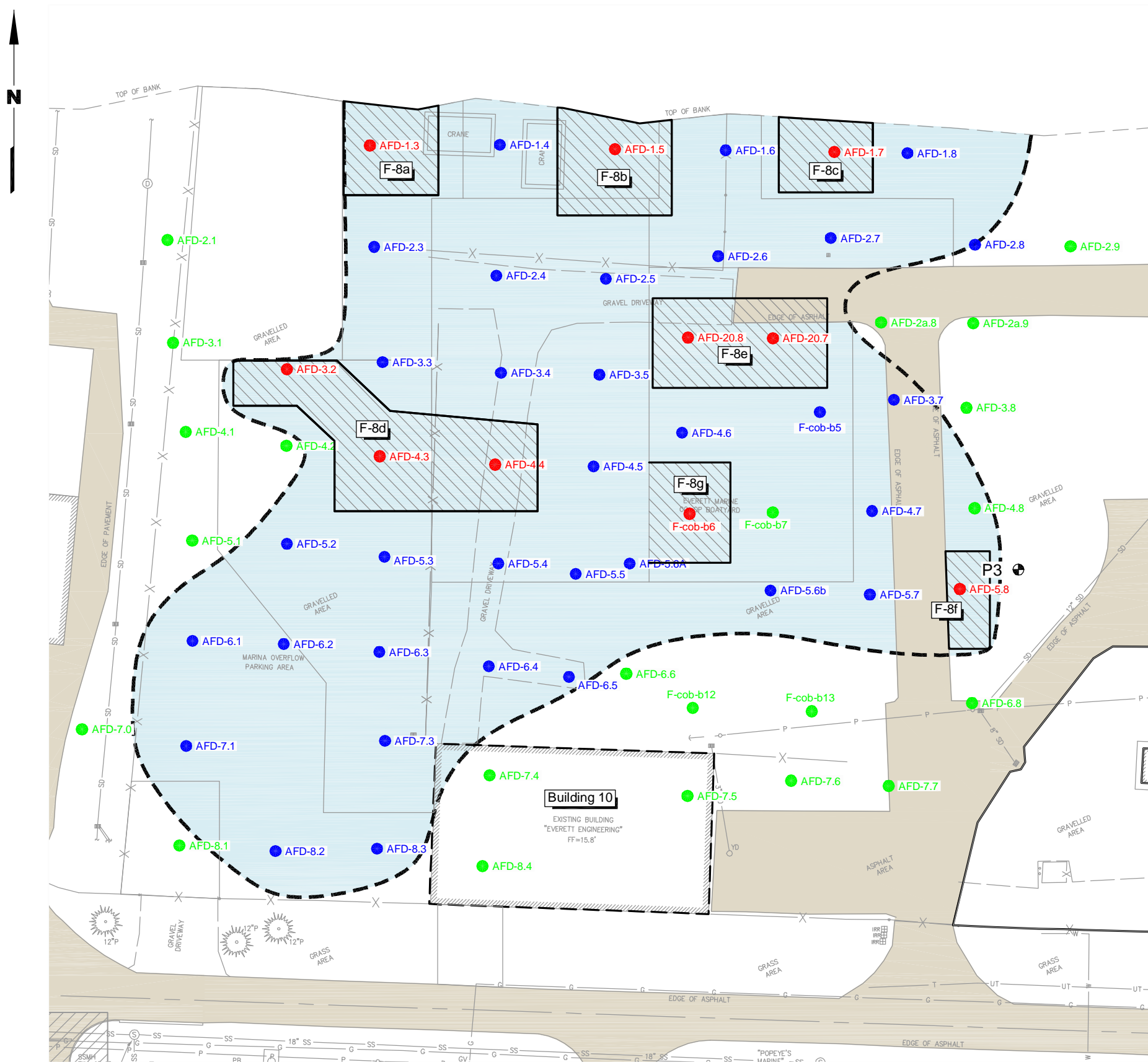












**Legend**

- AFD-1.1 ● Boring Location with Analytical Results Below Cleanup Levels or Below the Laboratory Reporting Limit
- AFD-3.2 ● Boring Location with Analytical Results Exceeding Cleanup Levels
- AFD-2.1 ● Boring Locations where Discolored material was Not Encountered
- [F-8a] Soil Contamination Area and Designation
- Asphalt
- [Dashed Line] Approximate Extent of Discolored Material

**Note:**

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



### Legend

- Groundwater Sample Location with Cleanup Level Exceedance
- Groundwater Sample Location with No Cleanup Level Exceedance
- Soil Sample Location
- NA Not Analyzed
- Approximate Extent of Affected Groundwater

### Notes

1. Arsenic groundwater cleanup level = 5 µg/L.
2. TPH-D and TPH-O cleanup level = 0.5 mg/L.
3. Copper groundwater cleanup level = 2.4 µg/L.
4. All arsenic and copper results are reported in µg/L. All TPH-D and TPH-O results are reported in mg/L.
5. All other gray symbols inside Cleanup Action Area indicate groundwater sample locations not tested for indicator hazardous substances.
6. All gray symbols outside Cleanup Action Area indicate a groundwater or soil sample location not included in this CAP.
7. All values in red exceed the proposed cleanup level.
8. Results presented are the most recent for each sample location.
9. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.
10. Cleanup area boundary along shoreline represents top of bank.

P-17					
Date	As	Cu	TPH-D	TPH-O	
01/05	23.2	2.8	NA	NA	

P-9					
Date	As	TPH-D	TPH-O		
02/04	146	NA	NA		

P-18					
Date	As	Cu	TPH-D	TPH-O	
01/05	4	4	NA	NA	

D-4					
Date	As	TPH-D	TPH-O		
12/03	NA	.026	<0.5		

D-FA-11c					
Date	As	TPH-D	TPH-O		
12/04	NA	0.33	0.85		

P-19					
Date	As	TPH-D	TPH-O		
01/05	<0.5	NA	NA		

D-FA-10					
Date	As	TPH-D	TPH-O		
11/04	1.4	0.96	0.30		

D-7A-8					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	0.7	<0.25	<0.5	<0.25	

D-7-3					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	0.8	<0.25	<0.5	<0.25	

D-FA-11k					
Date	As	TPH-D	TPH-O		
12/04	NA	0.22	<0.8		

D-3					
Date	As	TPH-D	TPH-O		
12/03	NA	<0.25	<0.5		

D-7A-10					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	0.3	<0.25	<0.5	0.3	

P-21					
Date	As	Cu	TPH-D	TPH-O	
12/04	10.3	46.8	0.22	<0.8	
8/06	5.6	9.4	NA	NA	

D-FA-11b					
Date	As	TPH-D	TPH-O	TPH-G	
11/04	<0.25	NT	NT		

D-7-4					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	0.7	<0.25	<0.5	0.79	

P-25					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	0.7	0.37	<0.5	NA	
4/07	0.3	0.43	<0.5	0.91	

D-FA-11					
Date	As	TPH-D	TPH-O		
11/04	NA	6.10	0.61		

D-7A-9					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	NA	NA	NA	1.3	

D-7A-2					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	<0.25	NT	NT		

D-7A-6					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	0.8	<0.25	<0.5	<0.25	

D-7A-7					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	0.4	2.4	<0.5	0.082	

D-FA-14					
Date	As	TPH-D	TPH-O		
11/04	3.0	0.73	1.74		

D-FA-11e					
Date	As	TPH-D	TPH-O		
12/04	NA	<0.23	<0.93		

P-20					
Date	As	TPH-D	TPH-O		
01/05	3.2	NA	NA		

P-24					
Date	As	TPH-D	TPH-O		
07/05	0.02	NA	NA		
01/05	NA	<0.25	<0.5		

P-23					
Date	As	TPH-D	TPH-O		
07/05	14.2	NA	NA		
01/05	NA	<0.25	<0.5		

P-6					
Date	As	TPH-D	TPH-O		
02/04	4	NA	NA		

E-3-3					
Date	TPH-D	TPH-O			
05/06	<0.25	<0.5			

E-3-2					
Date	TPH-D	TPH-O			
05/06	<0.25	<0.5			

P-22					
Date	As	TPH-D	TPH-O		
01/05	NA	<0.25	<0.5		

E-FA-5					
Date	As	TPH-D	TPH-O		
01/05	NA	<0.25	<0.5		

E-3-6					
Date	TPH-D	TPH-O			
05/06	<0.25	<0.5			

E-3					
Date	As	TPH-D	TPH-O		
12/03	NA	<0.25	<0.5		

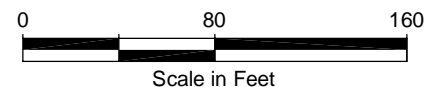
E-1					
Date	As	TPH-D	TPH-O		
12/03	NA	<0.25	<0.5		

E-4					
Date	As	TPH-D	TPH-O	TPH-G	
4/07	0.5	2.0	<0.5	<0.25	

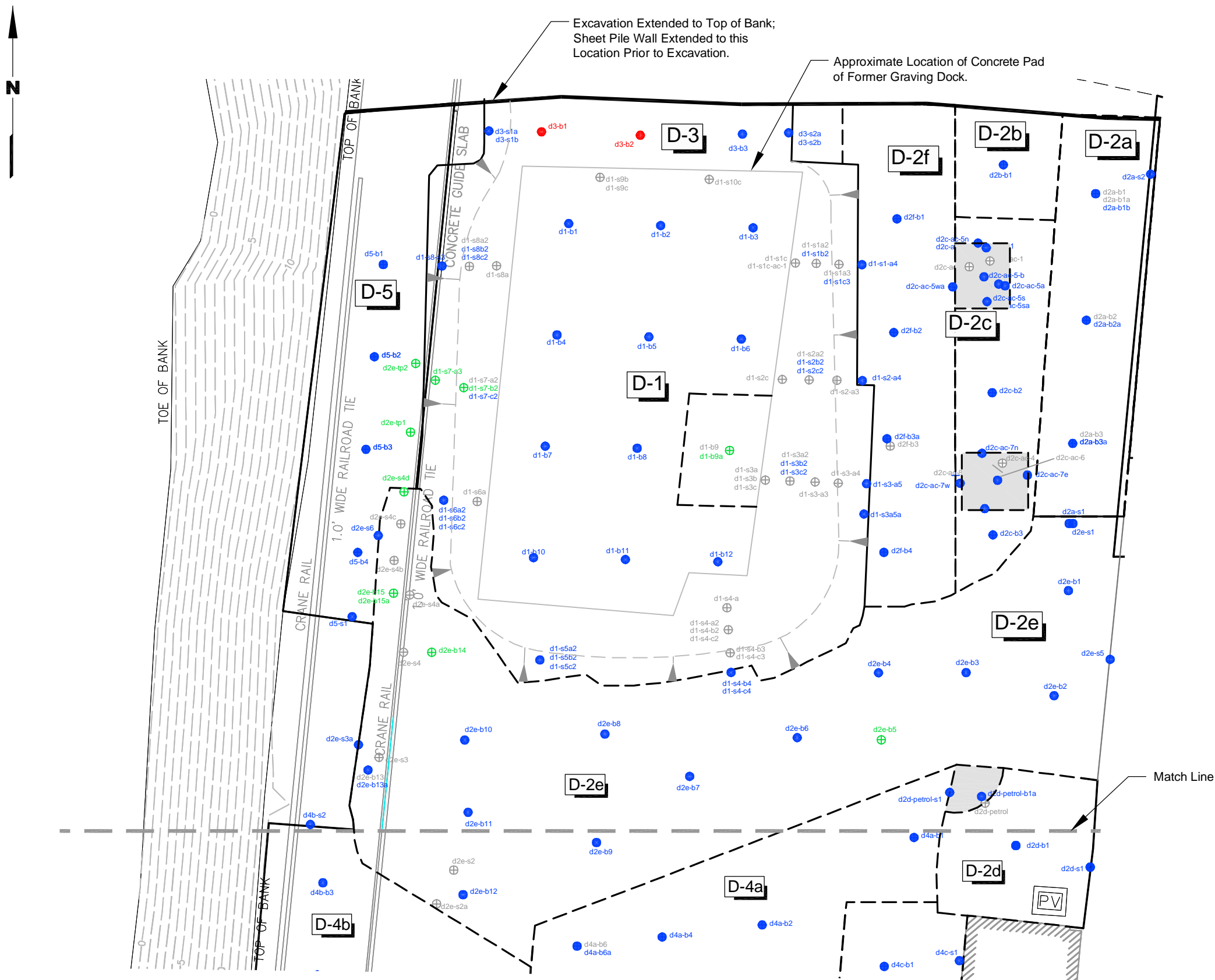
E-FA-2					
Date	As	TPH-D	TPH-O		
01/05	NA	4.6	<0.5		

E-FA-2a					
Date	As	TPH-D	TPH-O		
01/05	NA	<0.25	<0.5		

E-3-10					
Date	TPH-D	TPH-O			
05/06	<0.25	<0.5			





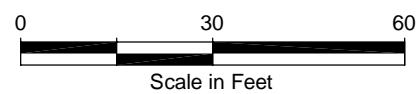


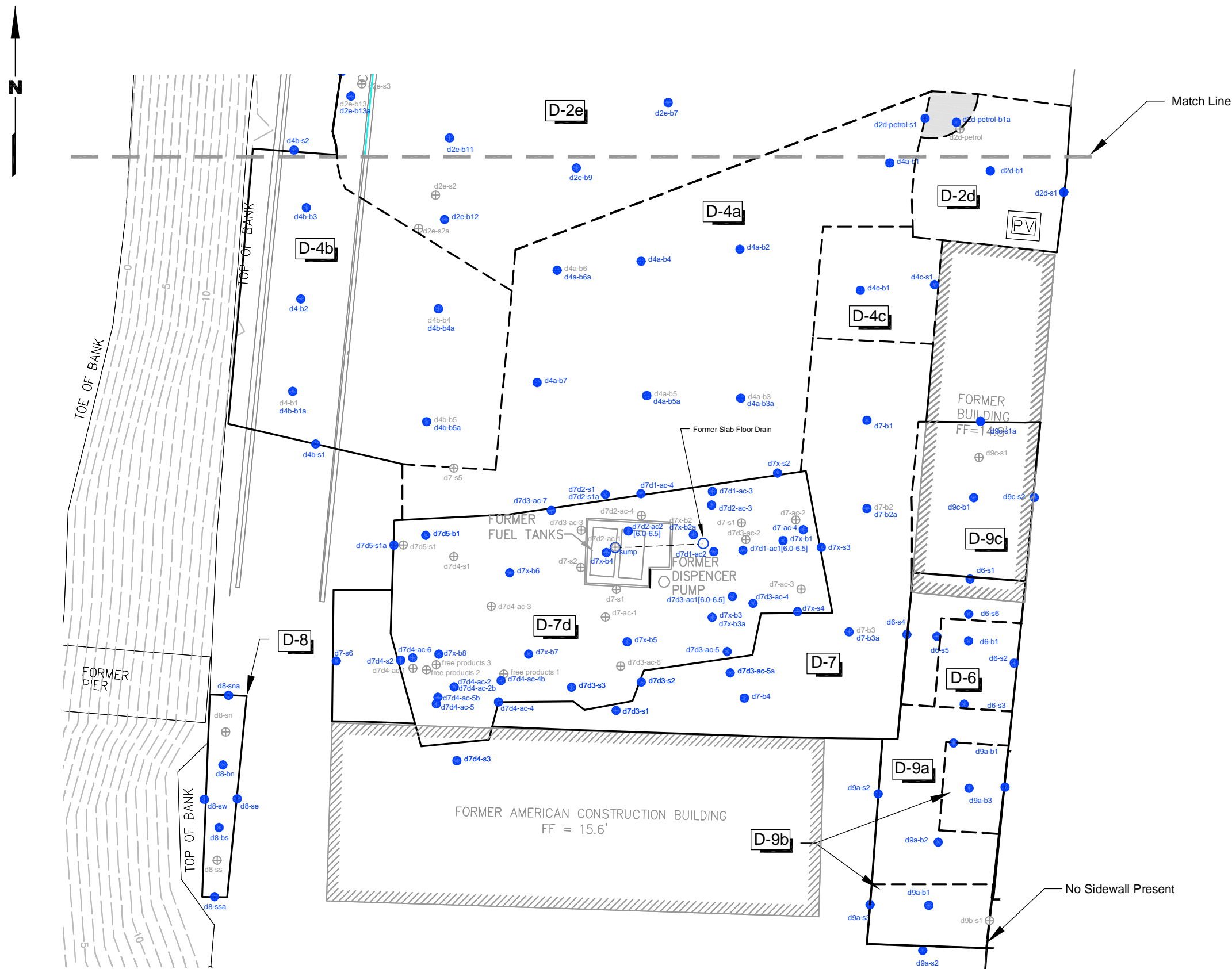
**Legend**

- d2b-b1 ● Confirmation Soil Sample Location with Analytical Results Below Cleanup Levels or Below the Laboratory Reporting Limit
- d3-b1 ● Confirmation Soil Sample Location with Analytical Results Above Cleanup Levels
- d2f-b3 ⊕ Confirmation Soil Sample Location with Analytical Results Above Cleanup Levels (Soil Removed)
- d2e-b5 ⊕ Soil Sample Location with Copper Analytical Results Above Cleanup Level
- Excavation Sidewalls  
[Dashed where cleanup action areas abut and no side wall exists or where deeper excavation occurred within a single excavation (i.e., D-6)]
- ▭ Areas of unanticipated Diesel-Range Petroleum Hydrocarbon Contamination

**Notes:**

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



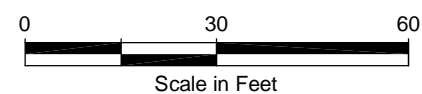


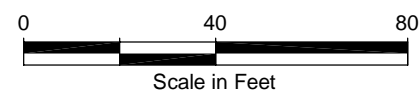
**Legend**

- d2d-s1 ● Confirmation Soil Sample Location with Analytical Results Below Cleanup Levels or Below the Laboratory Reporting Limit
- d9c-s1 ⊕ Confirmation Soil Sample Location with Analytical Results Above Cleanup Levels (Soil Removed)
- Excavation Sidewalls  
[Dashed where cleanup action areas abut and no side wall exists or where deeper excavation occurred within a single excavation (i.e., D-6)]

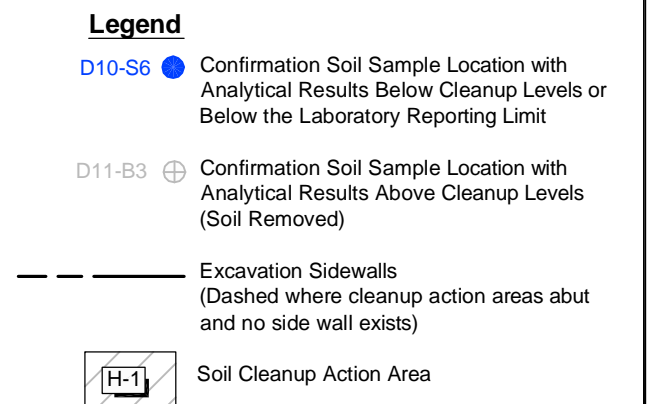
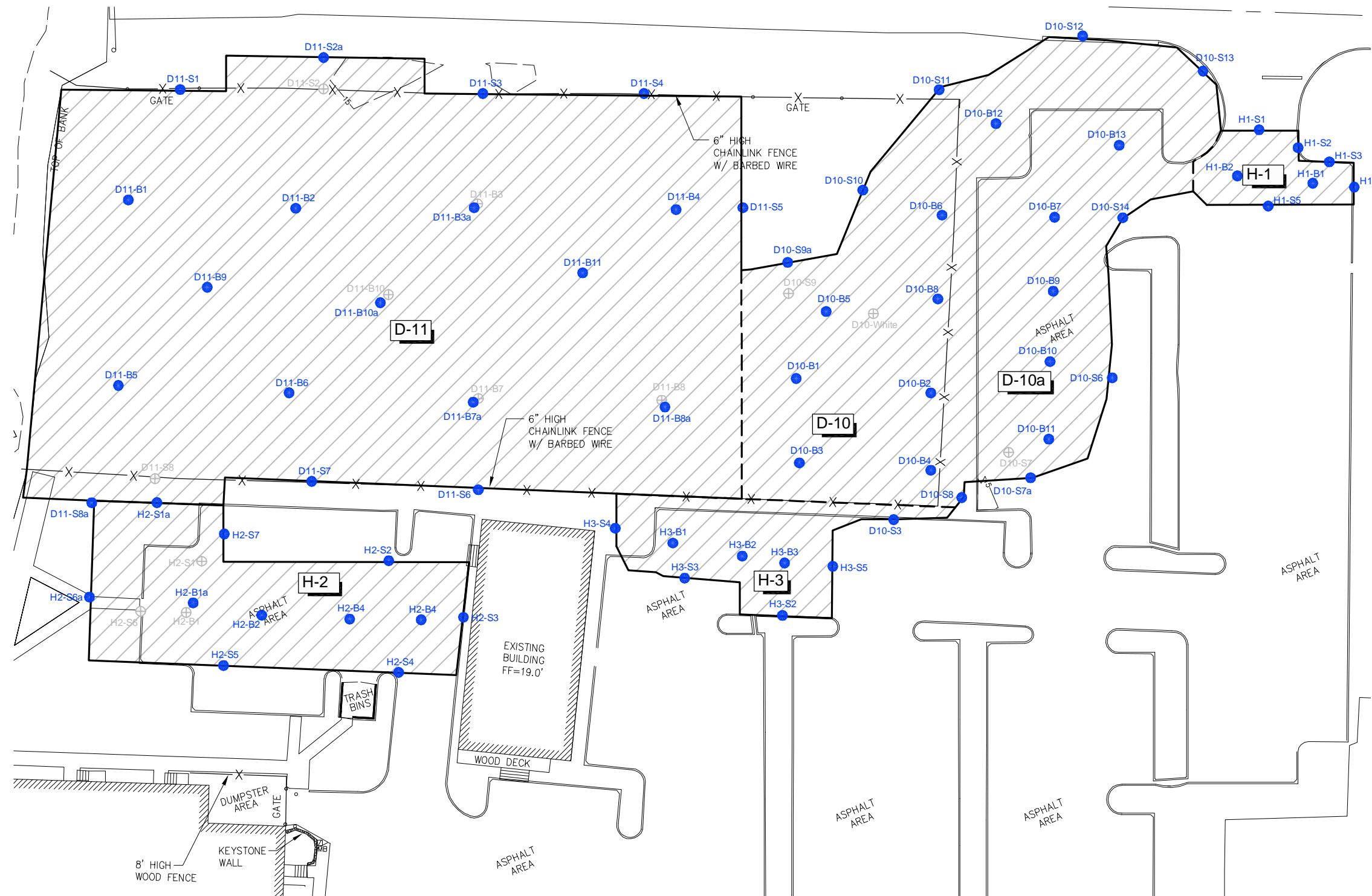
**Notes:**

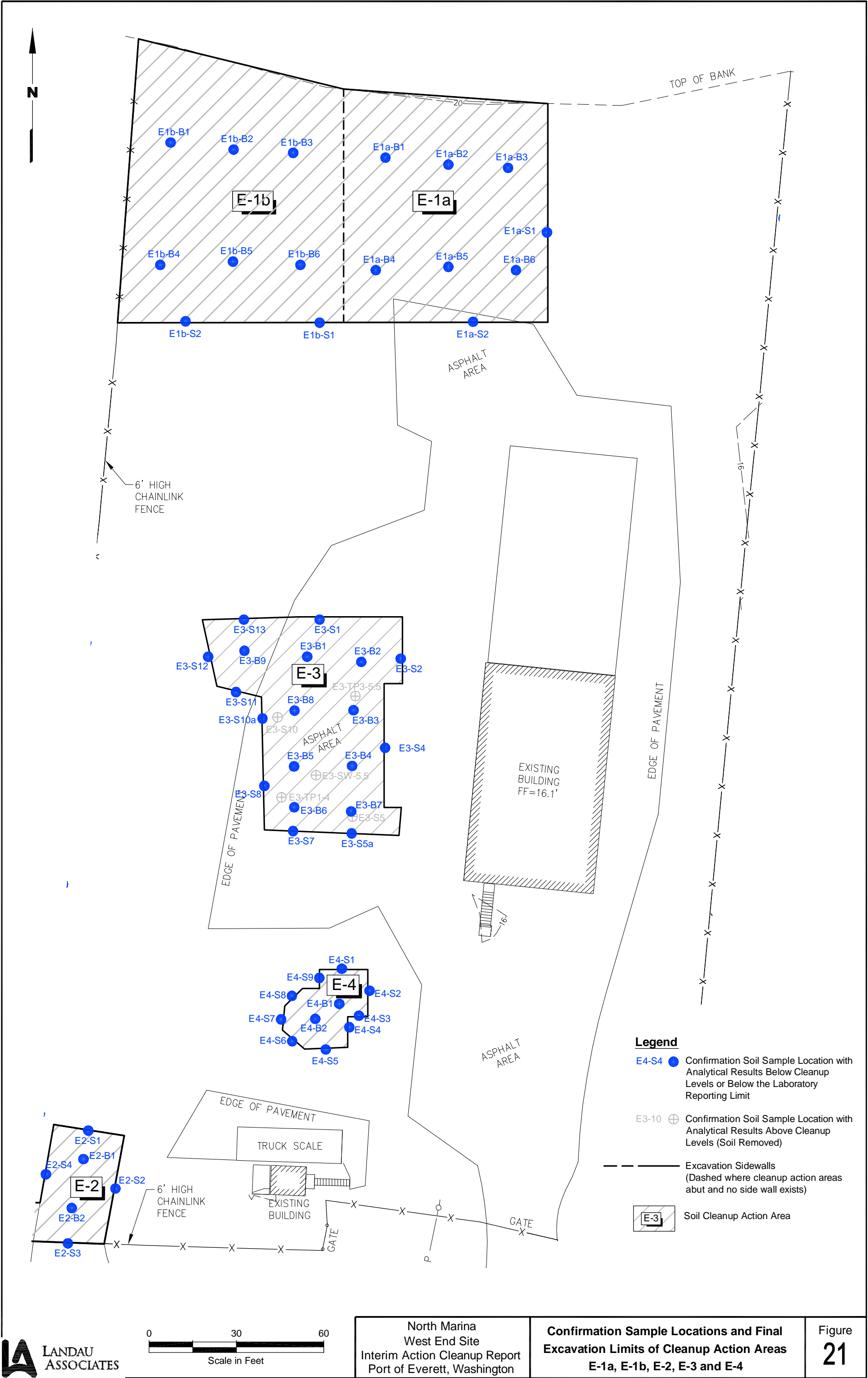
1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



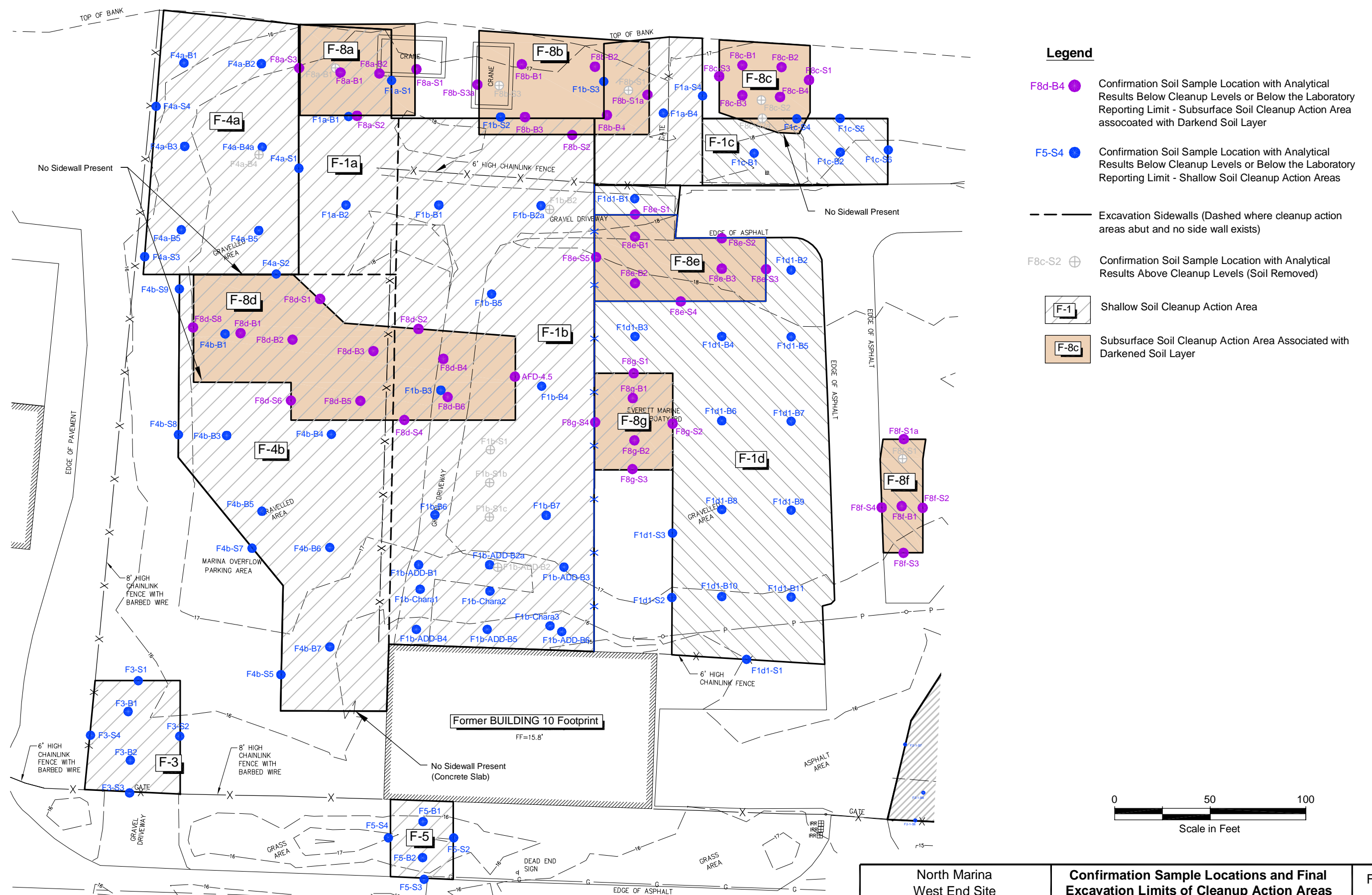


<p>North Marina West End Site Interim Action Cleanup Report Port of Everett, Washington</p>	<p><b>Confirmation Sample Locations and Final Excavation Limits of Cleanup Action Areas D-10, D-10a, D-11, H-1, H-2, and H-3</b></p>	<p>Figure <b>20</b></p>
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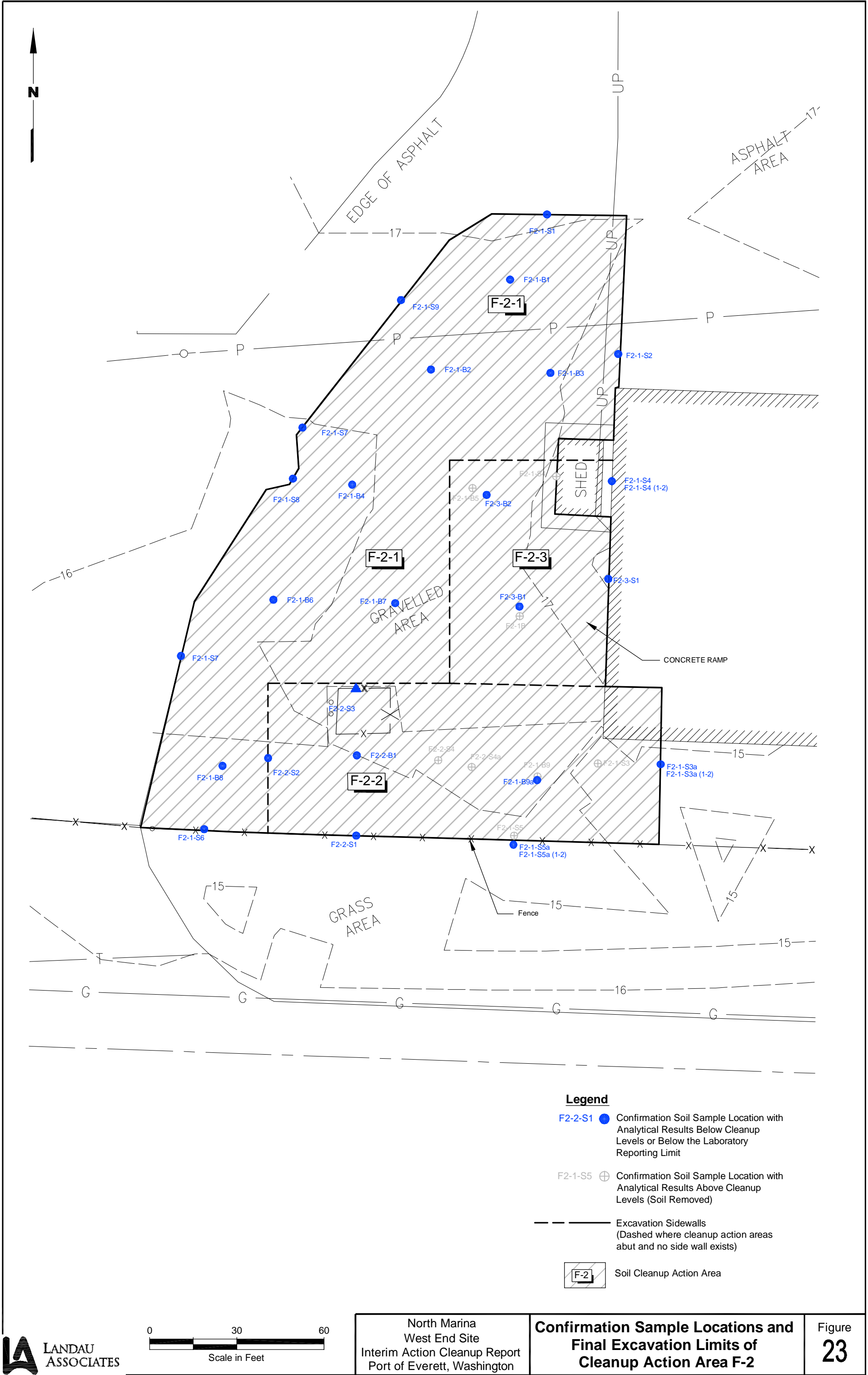


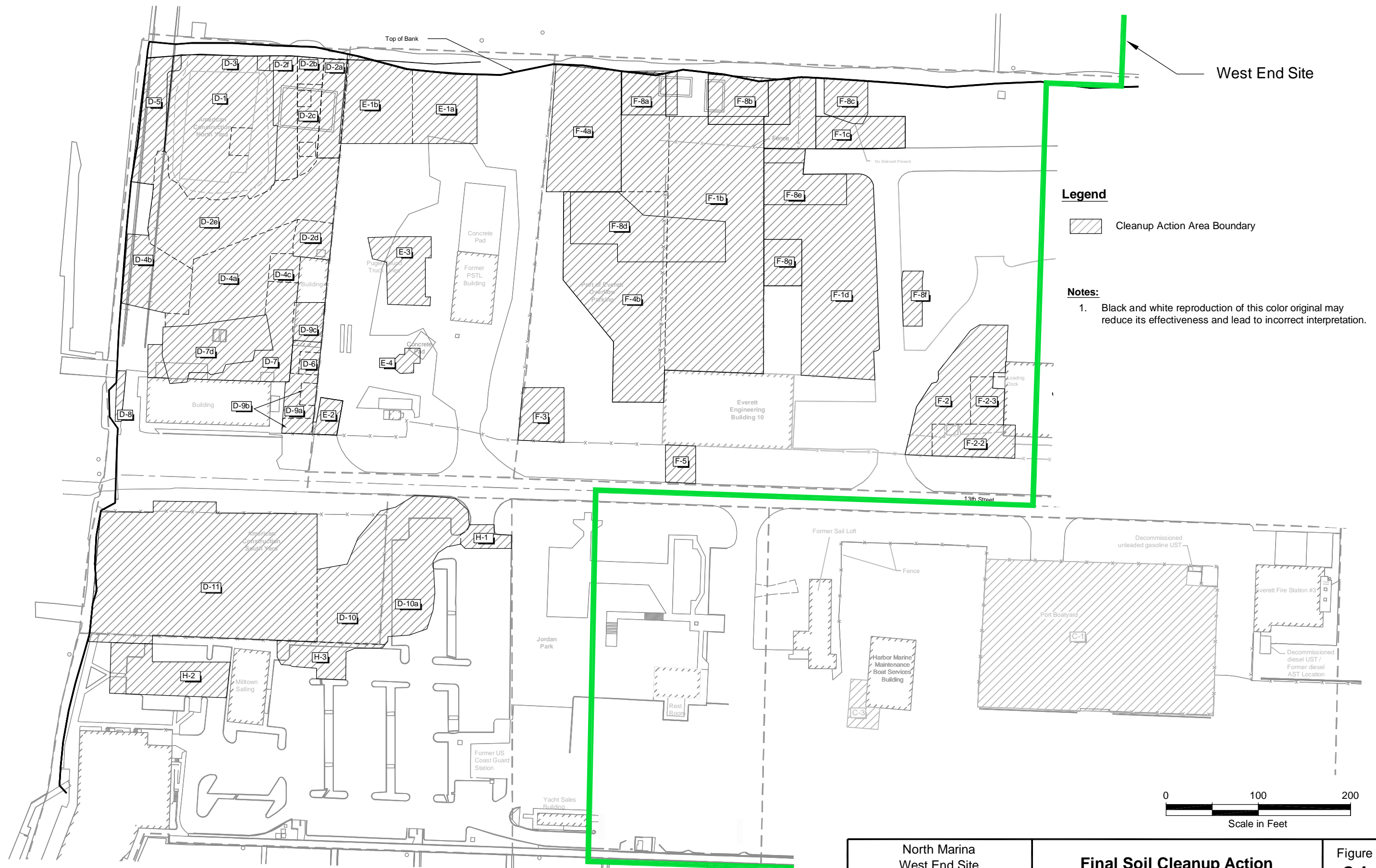












**TABLE 1**  
**SUMMARY OF PHASE II ESA SOIL AND GROUNDWATER SAMPLE LOCATIONS**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location ID	Location	Rationale for Sample Collection	Surface Conditions	Sample Types	Surface Soil Analyses	Subsurface Soil Analyses	Groundwater Analyses
NMP2-P3	Center of Area f	Potential sitewide contamination	--	Groundwater	--	--	Metals (a), cPAHs, TPH-G
NMP2-P5	Area f	Near railroad spur; Potential sitewide contamination	--	Groundwater	--	--	cPAHs, TPH-Dx, TPH-G, Metals (a), VOCs
NMP2-P6	Area e	Potential sitewide contamination	--	Groundwater	--	--	Metals (a), cPAHs, TPH-G
NMP2-P7	Area h	Near railroad spur; Potential sitewide contamination	--	Groundwater	--	--	cPAHs, TPH-Dx, TPH-G, Metals (a), VOCs
NMP2-P9	American Construction Property; South storage yard; near previous sample location NMP2-D-6	Potential general industrial sources of spills/releases of hazardous chemicals	Gravel	Subsurface Soil (3 ft, 6 ft archive), Groundwater	--	Metals (a), cPAHs	Metals (a), cPAHs
NMP2-D-1	American Construction Company, east end of south storage yard	Potential sources of spills/releases of hazardous chemicals	Gravel	Groundwater	--	--	TPH-Dx, TPH-G, VOCs, cPAHs
NMP2-D-2	American Construction Company, west end of south storage yard	Potential sources of spills/releases of hazardous chemicals	Gravel	Groundwater	--	--	TPH-Dx, TPH-G, VOCs, cPAHs
NMP2-D-3	American Construction Company; north storage yard, west of ASTs	Downgradient of two current ASTs with staining	Gravel	Subsurface soil, Groundwater	--	cPAH, TPH-Dx	TPH-Dx, TPH-G, VOCs, cPAHs
NMP2-D-4	American Construction Company north storage yard; north of creosote timbers	Potential sources of spills/releases of hazardous chemicals	Gravel	Subsurface soil, Groundwater	--	cPAH	TPH-Dx, TPH-G, VOCs, cPAHs
NMP2-D-5	American Construction Company; south storage yard	Potential sources of spills/releases of hazardous chemicals	Gravel	Surface Soil	TPH-HCID, cPAHs, Metals (a), PCBs	--	--
NMP2-D-6	American Construction Company north storage yard; sand blasting area	Potential sources of spills/releases of hazardous chemicals	Gravel	Surface Soil	TPH-HCID, cPAHs, Metals (a), PCBs	--	--

**TABLE 1**  
**SUMMARY OF PHASE II ESA SOIL AND GROUNDWATER SAMPLE LOCATIONS**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location ID	Location	Rationale for Sample Collection	Surface Conditions	Sample Types	Surface Soil Analyses	Subsurface Soil Analyses	Groundwater Analyses
NMP2-D-7	American Construction Company north storage yard; east of creosote timbers	Potential sources of spills/releases of hazardous chemicals	Gravel	Surface Soil	TPH-HCID, cPAHs, Metals (a), PCBs	--	--
NMP2-D-8	American Construction Property; south storage yard; previous MP2-D-6 location	Potential sources of spills/releases of hazardous chemicals	Gravel	Core samples at 3 ft and 6 ft (hold the 6 ft)	--	cPAHs	--
NMP2-E-1	Puget Sound Truck Lines; southwest end of parking lot	Former USTs were removed (poor documentation)	Asphalt	Groundwater	--	--	TPH-Dx, TPH-G
NMP2-E-2	Puget Sound Truck Lines; northwest corner of building	Staining on ground near former AST location	Asphalt	Groundwater (from finished piezometer NMP2-P6)	--	--	TPH-Dx, TPH-G
NMP2-E-3	Puget Sound Truck Lines; southwest end of parking lot	Former USTs were more accurately located	Gravel	Groundwater	--	--	TPH-Dx, TPH-G, BTEX, Metals (b)
NMP2-E-4	Puget Sound Truck Lines (former Ethyl Corp.); south end of parking lot	Potential sources of spills/releases of hazardous chemicals from former tenant	Gravel	Groundwater	--	--	VOCs
NMP2F-1	Everett Engineering Building M11; north of building	Northwest of unidentified subsurface structure in Building M11	Gravel	Groundwater	--	--	TPH-G, TPH-Dx, VOCs, cPAHs
NMP2-F-2	Everett Engineering Building M11; north storage yard	AST soil staining, suspected USTs, and poor housekeeping	Gravel	Groundwater	--	--	TPH-G, TPH-Dx, VOCs, cPAHs
NMP2-F-4	Northeast of Everett Engineering Building M11; near water	General marine industrial property use	Gravel	Surface Soil	TPH-HCID, cPAHs, Metals (a)	--	--
NMP2-F-5	American Boiler Works Building; northwest corner of building	Soil staining	Gravel	Surface Soil	TPH-HCID, cPAHs, Metals (a), BTEX	--	--

**TABLE 1**  
**SUMMARY OF PHASE II ESA SOIL AND GROUNDWATER SAMPLE LOCATIONS**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location ID	Location	Rationale for Sample Collection	Surface Conditions	Sample Types	Surface Soil Analyses	Subsurface Soil Analyses	Groundwater Analyses
NMP2-F-7	Everett Engineering Building M11; subsurface structure	Unidentified structure considered to be a potential UST	Surface cover welded shut; concrete floor	Water	--	--	TPH-G; TPH-Dx; VOCs; cPAHs
NMP2-F-8	Everett Engineering Building M11; north storage yard	Observed sandblast grit	Gravel	Groundwater	--	--	Metals (a)
NMP2-F-9	American Boiler Works Building; northwest corner of building	Previous sample NMP2-F-5-ss showed high metals and cPAHs	Gravel	Groundwater	--	Metals (a), cPAHs	--
NMP2-H-1	Milltown Sailing; parking area	Petroleum hydrocarbon observed during replacement of marina fuel lines	Asphalt	Subsurface Soil, Groundwater	--	TPH-Dx, TPH-G	TPH-Dx, TPH-G
NMP2-H-2	Milltown Sailing; parking area	Petroleum hydrocarbon observed during replacement of marina fuel lines	Asphalt	Subsurface Soil; Groundwater	--	TPH-Dx, TPH-G	TPH-Dx, TPH-G
NMP2-H-3	Milltown Sailing; parking area	Petroleum hydrocarbon observed during replacement of marina fuel lines	Asphalt	Subsurface Soil, Groundwater	--	TPH-Dx, TPH-G	TPH-Dx, TPH-G
NMP2-H-4	Milltown Sailing; parking area	Petroleum hydrocarbon observed during removal of marina fuel UST and replacement of marina fuel lines	Asphalt	Subsurface Soil, Groundwater	--	TPH-Dx, TPH-G, Metals (b), BTEX	TPH-Dx, TPH-G, Metals (b), BTEX
NMP2-H-5	Milltown Sailing; parking area	Petroleum hydrocarbon observed during removal of marina fuel UST and replacement of marina fuel lines	Asphalt	Subsurface Soil, Groundwater	--	TPH-Dx, TPH-G, BTEX, Metals (b)	TPH-Dx, TPH-G, BTEX, Metals (b)
NMP2-JP-1	Jordan Park	Unidentified source of fill material for berm construction	Grass	Composite Surface Soil	TPH-HCID, cPAHs, Metals (a)	--	--

(a) Metals = arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc.

(b) Dissolved lead analysis only.

**TABLE 2**  
**SOIL CLEANUP LEVELS FOR DETECTED CONSTITUENTS**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Analyte	Selected Surface Water ARAR (ug/l) (n)	MTCA Protection of Groundwater as Surface Water (b)	MTCA Method B Direct Contact (a)	Background (c)	Practical Quantitation Limit (d)	Proposed Cleanup Level (e)
<b>TOTAL PETROLEUM HYDROCARBONS (mg/kg)</b>						
Gasoline range	--	--	30/100 (f,g)	--	5.00	30/100 (g)
Diesel range	--	--	2,000 (f)	--	10.00	2,000
Oil range	--	--	2,000 (f)	--	10.00	2,000
Mineral oil	--	--	4,000 (f)	--	10.00	4,000
<b>BTEX (mg/kg)</b>						
Benzene	51 (o)	0.29	18.0 (h)	--	0.05	0.29
Toluene	15,000 (q)	110	6,400 (i)	--	0.03	110
Ethyl Benzene	2,100 (q)	18.0	8,000 (i)	--	0.05	18.0
m,p-Xylene	1,600	15	16,000 (i)	--	0.06	15
o-Xylene	16,000	150	160,000 (i)	--	0.04	150
<b>METALS (mg/kg)</b>						
Arsenic	0.14 (q,r)	0.06	20 (j)	7	5.00	20 (j)
Barium	2,000	1,650	16,000 (i)	--	0.30	1,650
Cadmium	8.8 (q)	1.2	80 (i)	1	0.20	80 (k)
Chromium	240,000 (s)	1x10 <sup>5</sup> (t)	120,000	48	0.60	120,000
Copper	2.4 (r)	1.1	3,000 (i)	36	1.00	3000/ 36 (k,v)
Lead	8.1 (q,r)	1,620	250 (i)	17	2.00	250 (l)
Mercury	0.03 (q,r)	0.03	24 (i)	0.07	0.05	24 (k)
Zinc	81 (q,r)	101	24,000 (i)	85	0.60	24,000 (k)
<b>SVOCs (mg/kg)</b>						
Dibenzo furan	32	--	160 (i)	--	0.20	160
Fluorene	3,500 (q)	553	3,200 (i)	--	0.20	553
Phenanthrene	--	--	--	--	0.20	--
Carbazole	4.40	0.32	50 (h)	--	0.08	50 (k)
Anthracene	26,000 (s)	12,000	24,000 (i)	--	0.14	12,000
Fluoranthene	90 (s)	89	3,200 (i)	--	0.06	89
Pyrene	2,600 (s)	3,600	2,400 (i)	--	0.15	2,400
bis(2-Ethylhexyl)phthalate	2.20 (q)	4.9	71 (h)	--	0.27	4.9
<b>PAHs</b>						
Naphthalene	4,900 (s)	140	1,600 (i)	--	0.02	140
2-Methylnaphthalene	32	--	320	--	0.02	320
1-Methylnaphthalene	2	--	24	--	0.02	24
Total Naphthalene	--	--	--	--	--	--
Benzo(a)anthracene	0.018 (q)	0.13	TEQ (m)	--	0.02	TEQ (m)
Chrysene	0.018 (q)	0.14	TEQ (m)	--	0.02	TEQ (m)
Benzo(b)fluoranthene	0.018 (q)	0.43	TEQ (m)	--	0.02	TEQ (m)
Benzo(k)fluoranthene	0.018 (q)	0.43	TEQ (m)	--	0.02	TEQ (m)
Benzo(a)pyrene	0.018 (q)	0.35	0.14 (h)	--	0.02	0.14
Indeno(1,2,3-cd)pyrene	0.018 (q)	1.3	TEQ (m)	--	0.02	TEQ (m)
Dibenz(a,h)anthracene	0.018 (q)	0.65	TEQ (m)	--	0.02	TEQ (m)
cPAH TEQ	--	--	0.14	--	--	0.14
<b>TBT (ug/kg)</b>						
TBT as TBT Ion	0.01	7,400	23,400	--	4	7,400
<b>VOCs (mg/kg)</b>						
Acetone	800	3.2	8,000 (i)	--	0.005	3.2
1,1-Dichloroethane	800	4.3	8,000 (i)	--	0.001	4.3
Methyl Ethyl Ketone	4,800	--	48,000 (i)	--	0.003	48,000
1,1,1-Trichloroethane	420,000 (s)	3,400	72,000 (i)	--	0.005	3,400
Trichloroethene	30 (u)	0.20	11 (h)	--	0.003	0.20
Tetrachloroethene	3.30 (q,o)	0.04	1.9 (h)	--	0.004	0.04
1,2,4-Trimethylbenzene	400	--	4,000	--	0.002	4,000
1,3,5-Trimethylbenzene	400	--	4,000 (i)	--	0.004	4,000
Isopropylbenzene	800	--	8,000 (i)	--	0.002	8,000
n-Propylbenzene	--	--	--	--	0.002	--
sec-Butylbenzene	--	--	--	--	0.003	--
4-Isopropyltoluene	--	--	--	--	0.002	--
n-Butylbenzene	--	--	--	--	0.002	--

-- = Soil criteria not established.

Shaded value = selected as proposed cleanup level.

TEQ = Toxicity Equivalency Quotient. TEQ is based on individual Toxicity Equivalency Factors (TEFs) of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene.

- (a) MTCA Method B standard formula values based on direct contact (Ecology's CLARC, accessed ) unless otherwise noted.
- (b) MTCA Method B values based on protection of marine surface water using MTCA equation 747-1 (February 2001), unless otherwise noted.
- (c) From Ecology's Natural Background Soil Metals Concentrations in Puget Sound (1994). Used 90th percentile for Puget Sound unless noted otherwise.
- (d) Practical quantitation limits (PQLs) based on 10 times the analytical method detection limits.
- (e) Proposed cleanup level based on lowest soil criteria corrected for PQL and background, as indicated by shading.
- (f) MTCA Method A soil cleanup levels for unrestricted land uses (February 2007). MTCA Method B criteria do not exist for this constituent.
- (g) MTCA Method A cleanup level is 30 mg/kg when benzene is present and 100 mg/kg when benzene is not present.
- (h) MTCA Method B soil standard formula value based on criteria as a carcinogen.
- (i) MTCA Method B soil standard formula value based on criteria as a non-carcinogen.
- (j) The MTCA Method A soil cleanup level for unrestricted land use was used for arsenic because it was established based on adjustments for background. From Responsiveness Summary for the Amendments to the Model Toxics Control Act Cleanup Regulation Chapter 173-340 WAC. 1991.
- (k) Proposed cleanup level is the Method B direct human contact cleanup level. Empirical evidence, based on groundwater analytical results, indicate that current concentrations of constituent in soil are protective of groundwater and, therefore, need only be compared to cleanup levels protective of direct human contact.
- (l) MTCA Method A soil cleanup level based on preventing unacceptable blood lead levels.
- (m) As requested by Ecology a TEQ will be computed for each sample containing carcinogenic PAHs above reporting limits and compared to the benzo(a)pyrene cleanup level in accordance with WAC 173-340-708(8)(e).
- (n) Selected surfacewater ARARs as noted; the minimum ARAR was selected for use in 3-phase model calculation, unless otherwise noted.
- (o) Selected surface water ARAR used for calculation of soil cleanup level protective of groundwater is based on the federal criteria because it is considered sufficiently protective of human health for carcinogens as described in WAC 173-340-740(3).
- (p) Water Quality Standards For Surface Waters of the State of Washington - Chapter 173-201A WAC
- (q) EPA National Recommended Water Quality Criteria - Section 304 Clean Water Act
- (r) EPA Water Quality Standards (National Toxics Rule) - 40 CFR 131
- (s) MTCA Method B Surface Water Equation (Standard Formula Values)
- (t) Calculated cleanup level is greater than 100% of constituent.
- (u) MTCA Method B surface water criteria (1.5 ug/l adjusted upward to 1.0E-5 (15 ug/L)
- (v) Copper proposed cleanup level is 36 mg/kg for the ACC North Yard based on its presence in groundwater in that portion of the site.

**TABLE 3**  
**GROUNDWATER CLEANUP LEVELS FOR DETECTED CONSTITUENTS (1)**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Analyte	Potable Groundwater Levels (2, 3)	State and Federal ARARs (3)					MTCA B Equation (3)		Practical Quantitation Limit (4)	Proposed Cleanup Level (5)
		Federal Marine Chronic Aquatic Life Clean Water Act Section 304	Federal Marine Chronic Aquatic Life NTR 40 CFR 131	State Marine Chronic Aquatic Life Washington WQS Ch. 173-201A	Federal Human Health Consumption of Organisms Clean Water Act Section 304	Federal Human Health Consumption of Organisms NTR 40 CFR 131	Human Health MTCA Method B Surface Water Equation 173-340-730			
<b>VOLATILES (µg/L)</b>										
1,1,1-Trichloroethane	---	NA	NA	NA	NA	NA	420,000	nc	1	420,000
Benzene	---	NA	NA	NA	51	71	23	c	1	51 (b)
Ethylbenzene	---	NA	NA	NA	2,100	29000	6,900	nc	1	2,100
m,p-Xylene	1600	NA	NA	NA	NA	NA	NA		1	1600
o-Xylene	16000	NA	NA	NA	NA	NA	NA		1	16000
Toluene	---	NA	NA	NA	15,000	200000	19,000	nc	1	15,000
Total Xylenes	1600	NA	NA	NA	NA	NA	NA		1	1600
Trichloroethene	---	NA	NA	NA	30	81	6.7	c, (e)	1	30 (b)
Vinyl Chloride	---	NA	NA	NA	2.4	530	3.7	c	1	2.4
1,1-Dichloroethane	800	NA	NA	NA	NA	NA	NA		1	800
1,2,4-Trimethylbenzene	400	NA	NA	NA	NA	NA	NA		1	400
1,3,5-Trimethylbenzene	400	NA	NA	NA	NA	NA	NA		1	400
Acetone	800	NA	NA	NA	NA	NA	NA		1	800
Carbon Disulfide	800	NA	NA	NA	NA	NA	NA		1	800
cis-1,2-Dichloroethene	70	NA	NA	NA	NA	NA	NA		1	70
trans-1,2-Dichloroethene	---	NA	NA	NA	10,000	NA	33,000	nc		10,000
Chloroethane	15	NA	NA	NA	NA	NA	NA			15
<b>TOTAL PETROLEUM HYDROCARBONS (mg/L)</b>										
Gasoline range	0.8 (a)	NA	NA	NA	NA	NA	NA		0.1	0.8
Diesel range	0.5 (a)	NA	NA	NA	NA	NA	NA		0.1	0.5
Oil range	0.5 (a)	NA	NA	NA	NA	NA	NA		0.25	0.5
<b>METALS (µg/L)</b>										
Arsenic	5 (c)	36 f	36 f	36 f	0.14	0.14	0.098	c	0.2	5 (c)
Cadmium	---	8.8 f	9.3 f	9.3 f	NA	NA	20	nc	0.2	8.8
Total Chromium (g)	---	NA	NA	NA	NA	NA	240,000	nc	1	240,000
Copper	---	3.1 f	2.4 f	3.1 f	NA	NA	2,700	nc	1	2.4
Lead	---	8.1 f	8.1 f	8.1 f	NA	NA	NA		1	8.1
Mercury	---	0.94 f	0.025 f	0.025 f	0.3	0.15	NA		0.1	0.1 (d)
Zinc	---	81 f	81 f	81 f	26,000	NA	17,000	nc	1	81
<b>PAHs (µg/L)</b>										
Benzo(a)anthracene	---	NA	NA	NA	0.018	0.031	NA		0.1	0.1 (d)
Benzo(a)pyrene	---	NA	NA	NA	0.018	0.031	0.03	c	0.1	0.1 (d)
Benzo(b)fluoranthene	---	NA	NA	NA	0.018	0.031	NA		0.1	0.1 (d)
Benzo(k)fluoranthene	---	NA	NA	NA	0.018	0.031	NA		0.1	0.1 (d)
Chrysene	---	NA	NA	NA	0.018	0.031	NA		0.1	0.1 (d)
Dibenz(a,h)anthracene	---	NA	NA	NA	0.018	0.031	NA		0.1	0.1 (d)
Indeno(1,2,3-cd)pyrene	---	NA	NA	NA	0.018	0.031	NA		0.1	0.1 (d)
Naphthalene	---	NA	NA	NA	NA	NA	4,900	nc	0.1	4,900
cPAH TEQ	---	NA	NA	NA	NA	NA	NA		--	0.1 (d)

Shaded value = Basis for proposed cleanup level.

"---" = A potable groundwater cleanup level was not provided because an applicable surface water cleanup level was identified.

(1) Where available, groundwater cleanup levels are based on protection of marine surface water. Groundwater at the site discharges into Port Gardner and is non-potable.

(2) Potable groundwater levels were used for screening purposes in absence of applicable surface water levels. Unless otherwise noted, the minimum level between state and federal ARARs and MTCA Method B was selected.

(3) Unless otherwise noted, all federal and state ARARs and MTCA B cleanup levels for surface water were identified from Ecology's online CLARC database (<https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>).

(4) Practical quantitation limits (PQLs) based on analytical method reporting limits

(5) Cleanup level based on lowest water quality standard or PQL or background, indicated by shading, except as noted otherwise

(a) Due to the absence of published ARARs or a MTCA B cleanup level, the MTCA A potable groundwater cleanup level was selected

(b) Cleanup level deferred to federal ARAR because it is considered sufficiently protective of human health for carcinogens as described in WAC 173-340-730(3) and in Figure 3 of Ecology's Focus on Developing Surface Water Cleanup Standards Under MTCA (rev. April 2005).

(c) Ecology's potable groundwater Method A cleanup level for arsenic is based on background concentrations of this metal in groundwater (WAC 173-340-900; Table 720-1)

As such, the proposed cleanup level for arsenic of 5 ug/L is based on the MTCA Method A level for potable groundwater.

(d) The proposed cleanup levels is based on the PQL.

(e) The Method B Surface Water cleanup level for trichloroethene is based on Ecology's new recommended slope factor of 0.089 mg/kg-day<sup>-1</sup>

(f) The surface water cleanup level is based on the dissolved fraction.

(g) Cleanup level for total chromium is deferred to chromium (III) cleanup levels because no metal plating or other activities associated with chromium (VI) occurred at the Site.

"c" = Cleanup level based on a 1E-06 cancer risk level.

"nc" = Cleanup level based on a hazard quotient of 1.

ARAR = Applicable or Relevant and Appropriate Requirements

CLARC = Cleanup Levels and Risk Calculation

MTCA = Model Toxics Control Act

NA = Cleanup level not available.

NTR = National Toxics Rule

WQS = Water Quality Standard

TABLE 4  
SOIL INDICATOR HAZARDOUS SUBSTANCE EVALUATION  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Analyte (a)	Number of Soil Samples Analyzed	Number of Samples with Detected Concentrations	Frequency of Detection (%)	Number of Soil Samples with Concentrations Exceeding Cleanup Levels	Units	Cleanup Level	Min Reporting Limit (b)	Max Reporting Limit (b)	Min Detection	Max Detection	Chemical Selected As an IHS?	Rationale Inclusion or Exclusion as IHS
<b>cPAHs</b>												
<b>Method 8270-SIM</b>												
Benzo[a]anthracene	274	132	48.2	--	µg/kg	TEQ	7.0	84.0	7.2	8,100	Yes	Analyte is used in the cPAH TEQ, which exceeds the cleanup level
Chrysene	274	156	56.9	--	µg/kg	TEQ	7.0	80.0	9.9	25,000	Yes	Analyte is used in the cPAH TEQ, which exceeds the cleanup level
Benzo[b]fluoranthene	274	129	47.1	--	µg/kg	TEQ	7.0	84.0	9.8	14,000	Yes	Analyte is used in the cPAH TEQ, which exceeds the cleanup level
Benzo[k]fluoranthene	274	129	47.1	--	µg/kg	TEQ	7.0	86.0	9.8	11,000	Yes	Analyte is used in the cPAH TEQ, which exceeds the cleanup level
Benzo[a]pyrene	274	113	41.2	49	µg/kg	140	7.0	86.0	9.1	6,600.0	Yes	Analyte exceeded the cleanup level
Indeno[1,2,3-cd]pyrene	274	70	25.5	--	µg/kg	TEQ	7.0	190.0	8.0	6,400.0	Yes	Analyte is used in the cPAH TEQ, which exceeds the cleanup level
Dibenz[a,h]anthracene	274	29	10.6	--	µg/kg	TEQ	7.0	190.0	8.0	1,600.0	Yes	Analyte is used in the cPAH TEQ, which exceeds the cleanup level
cPAH TEQ	274	156	56.9	74	µg/kg	140	---	---	0.2	11,340	Yes	Analyte exceeded the cleanup level
<b>Metals</b>												
<b>Method 6000-7000 Series</b>												
Arsenic	429	370	86.2	163	mg/kg	20	3	120	3.3	810	Yes	Analyte exceeded the cleanup level
Barium	1	1	100.0	0	mg/kg	1,650	---	---	196	196	No	Analyte did not exceed the cleanup level
Cadmium	131	66	50.4	0	mg/kg	80	0.2	5	0.2	3.9	No	Analyte did not exceed the cleanup level
Chromium	34	34	100.0	0	mg/kg	120,000	---	---	20.4	2,030	No	Analyte did not exceed the cleanup level
Copper	144	144	100.0	0 / 39 (c)	mg/kg	3,000 / 36 (c)	---	---	9	1,190	Yes	Analyte exceeded the cleanup level
Lead	148	146	98.6	3	mg/kg	250	2	50	2.6	351	Yes	Analyte exceeded the cleanup level
Mercury	141	57	40.4	1	mg/kg	24	0.04	0.06	0.04	26.3	Yes	Analyte exceeded the cleanup level
Zinc	142	142	100.0	0	mg/kg	24,000	---	---	0.06	7,770	No	Analyte did not exceed the cleanup level
<b>Tributyl Tin (TBT)</b>												
<b>TBT Ion by SIM</b>												
TBT Tin Ion	4	4	100.0	0	ug/kg	7,400	--	--	4.3	1,000	No	Analyte exceeded the cleanup level
<b>Petroleum Hydrocarbons</b>												
<b>Method NWTPH-Dx, NWTPH-Gx, and/or NWTPH-HCID</b>												
Gasoline range	10	4	40.0	4	mg/kg	100/30 (d)	5.9	7.2	89	7,000	Yes	Analyte exceeded the cleanup level
Diesel range	126	96	76.2	16	mg/kg	2000	5	30	6	20,000	Yes	Analyte exceeded the cleanup level
Motor oil range	126	90	71.4	6	mg/kg	2000	10	1,200	10	27,000	Yes	Analyte exceeded the cleanup level
<b>Volatile Organic Compounds (VOCs)</b>												
<b>VOCs by 8021 or 8260B</b>												
Benzene	15	3	20.0	0	µg/kg	290	1.6	360	38	160	No	Analyte did not exceed the cleanup level
Ethylbenzene	15	6	40.0	0	µg/kg	18,000	67	1.6	34	6,300	No	Analyte did not exceed the cleanup level
Acetone	2	1	50.0	0	µg/kg	3,200	13	13	280	280	No	Analyte did not exceed the cleanup level
1,1-Dichloroethane	2	1	50.0	0	µg/kg	4,300	4	4	150	150	No	Analyte did not exceed the cleanup level
Methyl ethyl ketone	2	1	50.0	0	µg/kg	48,000,000	13	13	78	78	No	Analyte did not exceed the cleanup level
1,1,1-Trichloroethane	2	1	50.0	0	µg/kg	3,400,000	4	4	460	460	No	Analyte did not exceed the cleanup level
Trichloroethene	2	1	50.0	0	µg/kg	200	4	4	6.1	6	No	Analyte did not exceed the cleanup level



TABLE 4  
SOIL INDICATOR HAZARDOUS SUBSTANCE EVALUATION  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Analyte (a)	Number of Soil Samples Analyzed	Number of Samples with Detected Concentrations	Frequency of Detection (%)	Number of Soil Samples with Concentrations Exceeding Cleanup Levels	Units	Cleanup Level	Min Reporting Limit (b)	Max Reporting Limit (b)	Min Detection	Max Detection	Chemical Selected As an IHS?	Rationale Inclusion or Exclusion as IHS
Tetrachloroethene	2	1	50.0	0	µg/kg	40	4	4	13	13	No	Analyte did not exceed the cleanup level
Toluene	2	1	50.0	0	µg/kg	110,000	4	4	2400	2,400	No	Analyte did not exceed the cleanup level
Ethylbenzene	2	1	50.0	0	µg/kg	18,000	4	4	830	6,300	No	Analyte did not exceed the cleanup level
m,p-Xylene	15	1	6.7	0	µg/kg	15,000	4	4	3200	3,200	No	Analyte did not exceed the cleanup level
o-Xylene	15	1	6.7	0	µg/kg	147,000	4	4	1400	3,100	No	Analyte did not exceed the cleanup level
1,2,4-Trimethylbenzene	1	1	100.0	0	µg/kg	4,000,000	--	--	2400	2,400	No	Analyte did not exceed the cleanup level
1,3,5-Trimethylbenzene	1	1	100.0	0	µg/kg	4,000,000	--	--	870	870	No	Analyte has no cleanup level
Isopropylbenzene	1	1	100.0	0	µg/kg	8,000,000	--	--	200	200	No	Analyte did not exceed the cleanup level
n-Propylbenzene	1	1	100.0	0	µg/kg	--	--	--	400	400	No	Analyte has no cleanup level
sec-Butylbenzene	1	1	100.0	0	µg/kg	--	--	--	95	95	No	Analyte has no cleanup level
4-Isopropyltoluene	1	1	100.0	0	µg/kg	--	--	--	72	72	No	Analyte has no cleanup level
n-Butylbenzene	1	1	100.0	0	µg/kg	--	--	--	240	240	No	Analyte has no cleanup level
Naphthalene	1	1	100.0	0	µg/kg	140,000	--	--	280	280	No	Analyte did not exceed the cleanup level
<b>Semivolatile Organic Compounds (SVOCs)</b>												
<b>SVOCs by 8270</b>												
Naphthalene	59	15	25.4	0	µg/kg	140,000	13	1,800	81	9,600	No	Analyte did not exceed the cleanup level
1-Methylnaphthalene	59	18	30.5	3	µg/kg	24,000	62	66	66	32,000	Yes	Analyte exceeded the cleanup level
2-Methylnaphthalene	59	17	28.8	0	µg/kg	320,000	62	1,800	68	61,000	No	Analyte did not exceed the cleanup level
Dibenzo / furan	3	1	33.3	0	µg/kg	160,000	430	1,800	420	420	No	Analyte did not exceed the cleanup level
Fluorene	3	1	33.3	0	µg/kg	553,000	430	1,800	1,600	1,600	No	Analyte did not exceed the cleanup level
Phenanthrene	3	1	33.3	0	µg/kg	--	430	1,800	5,100	5,100	No	Analyte has no cleanup level
Carbazole	3	1	33.3	0	µg/kg	50,000	430	1,800	1,800	1,800	No	Analyte has no cleanup level
Anthracene	3	1	33.3	0	µg/kg	12,000,000	430	1,800	4,800	4,800	No	Analyte did not exceed the cleanup level
Fluoranthene	3	2	66.7	0	µg/kg	89,000	1,800	1,800	210	2,500	No	Analyte did not exceed the cleanup level
Pyrene	3	1	33.3	0	µg/kg	2,400,000	1,800	1,600	1,600	1,600	No	Analyte did not exceed the cleanup level
Bis(2-Ethylhexyl)phthalate	3	2	66.7	0	µg/kg	4,900	430	430	700	2,400	No	Analyte did not exceed the cleanup level

TEQ = Toxicity Equivalency Quotient. TEQ is based on individual Toxicity Equivalency Factors (TEFs) of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene.

- (a) Only detected compounds are presented in this table.
- (b) Copper soil cleanup level is 36 for the ACC North Yard based on its presence in groundwater in that portion of the site.
- (c) Minimum and maximum reporting limits include only samples with results that are below laboratory reporting limits.
- (d) TPH-G cleanup level is 100 mg/kg in areas where benzene is not present and 30 mg/kg where benzene is present.

TABLE 5  
SUMMARY OF GROUNDWATER INDICATOR HAZARDOUS SUBSTANCE EVALUATION  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Analyte (a)	Number of Water Samples Analyzed	Number of Samples with Detected Concentrations	Frequency of Detection (%)	Number of Water Samples with Concentrations Exceeding Cleanup Levels	Units	Cleanup Level	Min Reporting Limit	Max Reporting Limit	Min Detection	Max Detection	Chemical Selected As an IHS?	Rationale Inclusion or Exclusion as IHS
<b>Volatile Organic Compounds</b>												
<b>Method 8260</b>												
Vinyl chloride	15	2	13.3	1	µg/L	2.4	0.2	1.0	0.5	17	Yes	Analyte exceeds cleanup level
Chloroethane	15	1	6.7	0	µg/L	15	1.0	1.0	4.1	4.1	No	Analyte did not exceed cleanup level
Acetone	15	5	33.3	0	µg/L	800	1.0	5.0	1.6	5.7	No	Analyte did not exceed cleanup level
Carbon disulfide	15	2	13.3	0	µg/L	800	0.2	1.0	0.2	0.2	No	Analyte did not exceed cleanup level
1,1-Dichloroethane	15	1	6.7	0	µg/L	800	0.2	1.0	7.3	7.3	No	Analyte did not exceed cleanup level
trans-1,2-Dichloroethene	15	1	6.7	0	µg/L	10,000	0.2	1.0	0.2	0.2	No	Analyte did not exceed cleanup level
cis-1,2-Dichloroethene	15	2	13.3	0	µg/L	70	0.2	1.0	0.4	0.8	No	Analyte did not exceed cleanup level
1,1,1-Trichloroethane	15	1	6.7	0	µg/L	420,000	0.2	1.0	34	34	No	Analyte did not exceed cleanup level
Trichloroethene	15	1	6.7	0	µg/L	30	0.2	1.0	1.4	1.4	No	Analyte did not exceed cleanup level
1,3,5-Trimethylbenzene	10	1	10.0	0	µg/L	400	0.2	0.2	0.4	0.4	No	Analyte did not exceed cleanup level
1,2,4-Trimethylbenzene	10	1	10.0	0	µg/L	400	0.2	0.2	0.9	0.9	No	Analyte did not exceed cleanup level
<b>Petroleum Hydrocarbons</b>												
<b>Method TPH-Dx and TPH-Gx</b>												
Gasoline	30	8	26.7	3	mg/L	0.8	0.25	0.25	0.25	1.3	Yes	Analyte exceeded cleanup level
Diesel	44	11	25.0	7	mg/L	0.5	0.20	0.22	0.22	6.1	Yes	Analyte exceeded cleanup level
Motor Oil	44	3	6.8	2	mg/L	0.5	0.20	0.30	0.61	0.73	Yes	Analyte exceeded cleanup level
<b>PAHs</b>												
<b>Method 8270-SIM</b>												
Benzo(a)anthracene	17	6	35.3	2	µg/L	0.1	0.01	0.26	0.015	0.26	No	Analyte exceedances were caused by particulate interferences
Chrysene	17	6	35.3	2	µg/L	0.1	0.01	0.1	0.012	0.24	No	Analyte exceedances were caused by particulate interferences
Benzo(b)fluoranthene	17	5	29.4	1	µg/L	0.1	0.01	0.1	0.013	0.12	No	Analyte exceedances were caused by particulate interferences
Benzo(k)fluoranthene	17	6	35.3	2	µg/L	0.1	0.01	0.1	0.012	0.21	No	Analyte exceedances were caused by particulate interferences
Benzo(a)pyrene	17	6	35.3	1	µg/L	0.1	0.01	0.1	0.012	0.19	No	Analyte exceedances were caused by particulate interferences
Indeno(1,2,3-cd)pyrene	17	4	23.5	0	µg/L	0.1	0.01	0.1	0.014	0.10	No	Analyte did not exceed cleanup level
Dibenz(a,h)anthracene	17	1	5.9	0	µg/L	0.1	0.01	0.1	0.042	0.042	No	Analyte did not exceed cleanup level
Napthalene	14	2	14.3	0	µg/L	4,900	0.5	5.0	10	660	No	Analyte did not exceed cleanup level
cPAH TEQ	17	7	41.2	2	µg/L	0.1	--	--	0.00012	0.26	No	Analyte exceedances were caused by particulate interferences
<b>Metals</b>												
<b>Method 6000-7000 Series</b>												
Arsenic (Dissolved)	38	36	94.7	19	µg/L	5	1	1	1	146	Yes	Analyte exceeded cleanup level
Chromium (Dissolved)	10	1	10.0	0	µg/L	240,000	1.0	5.0	77.5	77.5	No	Analyte did not exceed cleanup level
Copper (Dissolved)	22	10	45.5	5	µg/L	2.4	0.5	4	4	81.3	Yes	Analyte exceeded cleanup level; however, because copper only exceeded its cleanup level in the ACC North Yard, copper is identified as a groundwater IHS in the ACC North Yard only.
Lead (Dissolved)	25	2	8.0	1	µg/L	8.1	0.02	5	1	90.6	No	Although analyte exceeded at one location, the sample does not represent actual groundwater concentrations. Results were skewed high due to failure of the field filter during sampling.
Zinc (Dissolved)	22	1	4.5	1	µg/L	81	4	20	5	271	No	Although analyte exceeded at one location, the sample does not represent actual groundwater concentrations. Results were skewed high due to failure of the field filter during sampling.
<b>BETX</b>												
<b>Method 8021/8260B</b>												
Toluene	31	2	6.5	0	µg/L	15,000	0.2	1	1.4	3.8	No	Analyte did not exceed cleanup level
Ethylbenzene	16	2	12.5	0	µg/L	2,100	0.2	1	1.8	1.9	No	Analyte did not exceed cleanup level
m,p-Xylene	16	3	18.8	0	µg/L	1,600	0.4	1	1.5	4.6	No	Analyte did not exceed cleanup level
o-Xylene	16	2	12.5	0	µg/L	16,000	0.4	1	1.1	1.1	No	Analyte did not exceed cleanup level

(a) Only detected chemicals are presented in this table

**TABLE 6**  
**SOIL AND GROUNDWATER INDICATOR HAZARDOUS**  
**SUBSTANCES AND CLEANUP LEVELS**  
**WEST END SITE**  
**PORT OF EVERETT, WASHINGTON**

Analyte	Soil Cleanup Level (mg/kg)	Groundwater Cleanup Level (µg/L)
<b>PETROLEUM</b>		
<b>HYDROCARBONS</b>		
Gasoline range	100	100
Diesel range	2,000	2,000
Oil range	2,000	NA
<b>METALS</b>		
Arsenic	20	5
Copper	2,960	2.4
Lead	250	NA
<b>cPAHs</b>		
cPAH TEQ	0.137	NA
<b>VOCs</b>		
Vinyl Chloride	NA	2.4

TEQ = Toxicity Equivalency Quotient. TEQ is based on individual Toxicity Equivalency Factors (TEFs) of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, ideno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene.

**TABLE 7**  
**DISSOLVED AND TOTAL METALS GROUNDWATER CONCENTRATIONS**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Analyte	P-3 HQ52E/HS20D,H 1/24/2005	P-13 HQ52B/HS20B,F 1/24/2005	P-14 HQ52A/HS20A,E 1/24/2005	P-15 HR01A 1/24/2005	Dup of P-15 P-25 HR01B 1/24/2005	P-16 HQ52C/HS20C,G 1/24/2005	P-17 HQ86D 1/28/2005	P-18 HQ86B 1/28/2005	Dup of P-18 P-28 HQ86C 1/28/2005	P-19 HQ86A 1/28/2005	P-20 HQ86E 1/28/2005	P-21 0412400-01 12/29/2004	P-26 HV19A/B 3/4/2005
<b>DISSOLVED METALS (µg/L)</b>													
<b>SW6000-7000 Series</b>													
Arsenic	66.7	12.3	68.4	30.0	29.1	39.4	23.2	4	6	0.5 U	3.2	10.3	0.5
Cadmium	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U	0.2 U	0.2 U	1.0 U	0.2 U
Chromium												2.0 U	
Copper	0.9	0.6	0.6	0.8	0.8	0.5 U	2.8	4	5	1.8	0.5	46.8	0.5 U
Lead	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	1 U	1.0 U	1 U
Mercury	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.20 U	0.1 U
Silver													
Zinc	4 U	4 U	4 U	4 U	4 U	5	10	20 U	20 U	4 U	7	10.0 U	13
<b>TOTAL METALS (µg/L)</b>													
<b>SW6000-7000 Series</b>													
Arsenic	62.3	19.0	79.7	39.6	38.1	41.5	13.9 J	4	4	7.0	9.7	13.0	0.6
Cadmium	0.2 U	0.4	0.2	0.6	0.6	0.2	0.2 U	1 U	1 U	0.2	0.2 U	1.0 U	0.2 U
Chromium												9.4 J	
Copper	2.4	31.6	30.8	62.0	57.6	17.4	3.3	3	4	27.3	15.1	57.3	1.6
Lead	1	7	11	24	19	5	1 U	2 U	2 U	8	11	3.0	1 U
Mercury	0.1 U	0.1 U	0.1 U	0.1	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.20 U	0.1 U
Zinc	5	53	51	120	110	38	11	20 U	20 U	10	42	13.9	15
<b>Difference (Total/Dissoved) (a)</b>													
Arsenic	4.4	-6.7	-11.3	-9.6	-9	-2.1	9.3	0	2	-6.5	-6.5	-2.7	-0.1
Cadmium	0	-0.2	0	-0.4	-0.4	0	0	0	0	0	0	0	0
Chromium	0	0	0	0	0	0	0	0	0	0	0	-7.4	0
Copper	-1.5	-31	-30.2	-61.2	-56.8	-16.9	-0.5	1	1	-25.5	-14.6	-10.5	-1.1
Lead	0	-6	-10	-23	-18	-4	0	0	0	-7	-10	-2	0
Mercury	0	0	0	0	0	0	0	0	0	0	0	0	0
Zinc	-1	-49	-47	-116	-106	-33	-1	0	0	-6	-35	-3.9	-2

U = Analyte not detected above laboratory reporting limit.

Bold = detection of analyte above laboratory reporting limit.

Box = dissolved metal concentration was greater than the total metal concentration.

(a) The value represents the total metal concentration minus the dissolved metal concentration.

**TABLE 8  
DETECTED METALS IN SOIL  
WEST END SITE, PORT OF EVERETT, WASHINGTON**

			TOTAL METALS (mg/kg) SW6000-7000 Series							
			Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium
Cleanup Level (a)			20	1,648	80	120,000	3000 / 36	250	24	
Location	Lab Id	Date Collected								Zinc
C-GC-4(0-0.5)	0409181-05	9/10/2004	5.0				21.9	19.3	0.035	
C-GC-7(0-0.5)	0409181-06	9/10/2004	4.7				23.9	5.8	0.034	
D-FA-1 (1-2)	HQ85C	1/27/2005	5 U		0.2 U		19.4	3	0.05 U	57.2
D-FA-1 (4-6)	HQ85D	1/27/2005	9		0.2 U		37.5	21	0.05 U	55.8
D-FA-1 (8-10)	HQ85E	1/27/2005	14		0.3 U		40.7	6	0.07 U	56.1
D-FA-2 (1-2)	HQ43J	1/24/2005	40		0.5 U		78.6	47	0.05 U	174
D-FA-2 (4-6)	HQ43K	1/24/2005	63		0.3		98.1	57	0.06	299
D-FA-2 (8-10)	HQ43M	1/24/2005	55		0.5		97.7	51	0.06	266
D-FA-3 (1-2)	HQ43E	1/24/2005	80		0.5 U		57.1	21	0.05 U	155
D-FA-3 (4-6)	HQ43F	1/24/2005	51		0.2 U		77.7	61	0.05	157
D-FA-3 (8-10)	HQ43H	1/24/2005	50		0.2 U		78.3	42	0.06	202 J
D-FA-3 (10-12)	HS27A	1/24/2005	80		0.4		105	56	0.05 U	202 J
D-FA-4 (1-2)	HQ43O	1/24/2005	12		0.2 U		39.5	10	0.05 U	54.0
D-FA-4 (4-6)	HQ43P	1/24/2005	57		0.3		78.7	44	0.08	185
D-FA-4 (8-10)	HQ43R	1/24/2005	57		0.2 U		76.9	58	0.06 U	155
D-FA-4 (10-12)	HS27B	1/24/2005	24		0.5		38.6	11	0.06	68.5
D-FA-5 (0-0.5)	HQ85A	1/27/2005	100		0.8		57.1	23	0.05 U	158
D-FA-5 (1-2)	HR04A/HS27N	1/27/2005	60		0.6 U		79.5	21	0.05	154
D-FA-5 (3-5)	HS27I	1/27/2005	58		0.3		88.2	45	0.06	175
D-FA-5 (7-9)	HS27J	1/27/2005	34		0.3		56.6	27	0.06	111
D-FA-5 (9-11)	HS27K	1/27/2005	37		0.4		60.5	78	0.06 U	196
D-FA-5 (11-14)	HT64B	1/27/2005	58		0.4		79.5	56	0.06 UJ	0.06
D-FA-5b (0-0.5)	HU35C	3/2/2005	50							
D-FA-5b (1-2)	HW57C	3/2/2005	41							
D-FA-5b (2-3)	HW57D	3/2/2005	7							
D-FA-5b (3-5)	HU88B	3/2/2005	7							
D-FA-5b (7-9)	HU88C	3/2/2005	6							
D-FA-5b (13-15)	HU88D	3/2/2005	6 U							
D-FA-6 (0-0.5)	HQ85H	1/27/2005	50		0.5 U		69.1	21	0.04 U	234
D-FA-6 (1-2)	HR04R/HS27O	1/27/2005	36		0.3		60.2	27	0.06	113
D-FA-6 (4-6)	HS68B/HS27L	1/27/2005	13		0.4		29.3	4	0.07	93.3
D-FA-6 (8-10)	HS27M	1/27/2005	22		0.4		45.4	15	0.08	82.7
D-FA-6 (10-12)	HT64C	1/27/2005	8		0.3		31.2	5	0.05 J	51.2
D-FA-6 (12-14)	HT64D	1/27/2005	17		0.3		31.3	10	0.08 J	93.8
D-FA-6b (0-0.5)	HU35B	3/2/2005	240							
D-FA-6b (1-2)	HW57A	3/2/2005	460							
D-FA-6b (2-3)	HW57B	3/2/2005	100							
D-FA-6b (3-5)	HU88E	3/2/2005	6							
D-FA-6b (7-9)	HU88F	3/2/2005	7 U							
D-FA-7 (0-0.5)	HQ43C	1/24/2005	17		0.2 U		35.3	10	0.05 U	58.0
D-FA-7 (1-2)	HQ92B/HS27C	1/24/2005	30		0.5 U		41.3	12	0.05 U	80
D-FA-7 (3-5)	HS14A/HW14B/HS27E	1/24/2005	250		0.8		494	172	0.07	535
D-FA-7 (7-9)	HS14B/HS27F	1/24/2005	22		0.3		40.5	44	0.06	99.0
D-FA-7 (9-11)	HS27G	1/24/2005	19		0.3		43.3	74	0.06 U	114
D-FA-7 (11-13)	HS27H	1/24/2005	19		0.3		38.9	46	0.06	90.6
D-FA-8 (0-0.5)	HQ43A	1/24/2005	6		0.2 U		26.8	12	0.05 U	51.0
D-FA-10 (0-0.5)	0411208-05	11/9/2004	38.8				138	153		404
D-FA-10 (1-2)	0411201-12	11/9/2004	47.6				13.1	4.3		40.4
D-FA-10 (2-3)	0411201-13	11/9/2004	6.3				15.1	2.6		44.2
D-FA-12 (0-0.5)	HQ43B	1/24/2005	8		0.2		29.9	94	0.04 U	73.3
D-FA-13 (0-0.5)	HT66A	1/27/2005	70							
D-FA-13 (1-2)	HU54A	1/27/2005	6							
D-FA-15 (0-1)	HQ85L	1/27/2005	40		0.8		72.1	65	0.05 U	340
D-GC-1 (0-0.5)	HQ85B	1/27/2005	18		0.3		37.1	23	0.05 U	97.2
D-GC-1 (2-3)	HT66B	1/27/2005	35							
D-GC-2 (0-0.5)	HQ85G	1/27/2005	30		0.7		78.1	61	0.04 U	164
D-GC-2 (1-2)	HS14D/HT12A	1/27/2005	10		0.2 U		18.3	6	0.05 U	38.8
D-GC-3 (0-0.5)	0411208-03	11/9/2004	20.1				114	79.7		164 J
D-GC-3 (1-2)	0411201-08	11/9/2004	7.8				52.10	87.7		127
D-GC-4 (1-1.5)	0411208-01	11/9/2004	4.7				14.0	3.2		33.7 J
D-GC-5 (0-0.5)	0411208-02	11/9/2004	157				36.6	41.2		76.9 J
D-GC-5 (1-2)	0411201-05	11/9/2004	5.9				17.5	9.9		54.7
D-GC-6 (0-0.5)	HQ43D	1/24/2005	22		0.2 U		36.9	13	0.04 U	132
D-GC-6 (1-2)	HQ92C/HS27D	1/24/2005	88		0.9		92.8	64	0.05 U	442
D-GC-6 (2-3)	HQ92R/HT64A	1/24/2005	90		1.0		125	88	0.04 UJ	656
D-GC-7 (0-0.5)	HQ85K	1/27/2005	10		0.3		38.4	15	0.05 U	101
D-GC-7A	KW70A	4/27/2007	5 U							
D-GC-7B	KW70B	4/27/2007	8							
D-GC-7C	KW70C	4/27/2007	5							
D-GC-8 (0-0.5)	0411208-12	11/9/2004	7.2				45.9	17.4		78.4 J
D-GC-8C	KW70D	4/27/2007	9							
D-GC-9 (0-0.5)	0411208-13	11/9/2004	7.8				31.0	102		131 J
D-GC-10 (0-0.5)	0411208-14	11/9/2004	15.0				59.4	99.8		127 J
D-GC-11 (0-0.5)	0411208-11	11/9/2004	6.9				43.3	15.8		103 J
D-GC-12 (0-0.5)	HQ85J	1/27/2005	30		0.5 U		59.7	53	0.04 U	137
D-GC-12 (1-2)	HR04Z/HT12B	1/27/2005	29		0.2 U		32.7	5	0.05 U	73.6
D-GC-12 (2-3)	HT83A	1/27/2005	5		0.2 U		14.2	3	0.05 UJ	35.5

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Location	Lab Id	Date Collected	TOTAL METALS (mg/kg)							
			SW6000-7000 Series							
			Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium
Cleanup Level (a)			20	1,648	80	120,000	3000 / 36	250	24	
										Zinc
										24000
D-GC-12b (0-0.5)	KM95C	1/30/2007	13							
D-GC-12b (1-2.5)	KM95D/KO03G	1/30/2007	80	196	0.9 U	35		13	0.09 U	20 U
D-GC-12b (2.5-3.5)	KO03C	1/30/2007	5 U							1 U
D-GC-12c (0-0.5)	KM95I	1/30/2007	10 U							
D-GC-12c (1-2)	KM95J	1/30/2007	9							
D-GC-12d (0-0.5)	KM95G	1/30/2007	10 U							
D-GC-12d (1-2)	KM95H	1/30/2007	30							
D-GC-12d (2-3)	KO03D	1/30/2007	32							
D-GC-12d (3-4)	KN96A	1/30/2007	6							
D-GC-12e (0-0.5)	KM95E	1/30/2007	10 U							
D-GC-12e (0.5-2.7)	KM95F	1/30/2007	60							
D-GC-13 (0-0.5)	HU35A	3/2/2005	57							
D-2-1 (0-0.5)	KW48K	4/26/2007	27							
D-2-1 (1-2)	KW48L/KX96B	4/26/2007	12							
D-2-1 (2-3)	KW48M/KX96C	4/26/2007	8							
D-2-2 (0-0.5)	KW48N	4/26/2007	60							
D-2-2 (1-2)	KW48O	4/26/2007	30							
D-2-2 (2-3)	KW48P/KX96D	4/26/2007	5 U							
D-2-3 (0-0.5)	KW48Q/KY14B	4/26/2007	180							
D-2-3 (1-2)	KW48R	4/26/2007	46							
D-2-3 (2-3)	KW48S/KX96E	4/26/2007	10 U							
D-2-4 (0-0.5)	KW48U	4/26/2007	40							
D-2-4 (1-2)	KW48V	4/26/2007	54							
D-2-4 (2-3)	KW48W/KX96F	4/26/2007	5							
D-2-5 (0-0.5)	KW48AA	4/26/2007	50							
D-2-5 (1-2)	KW48AB	4/26/2007	173							
D-2-5 (2-3)	KW48AC	4/26/2007	30							
D-2-5 (3-4)	KX96G/LA46A	4/26/2007	6 U							
D-2-6 (0-0.5)	KW48AD/KX96H	4/26/2007	20							
D-2-6 (1-2)	KW48AE/KX96I	4/26/2007	14							
D-2-6 (2-3)	KW48AF/KX96J	4/26/2007	7							
D-2-7 (0-0.5)	KW35N	4/25/2007	60							
D-2-7 (1-2)	KW35O	4/25/2007	130							
D-2-7 (2-3)	KW35P/KX38T	4/25/2007	5 U							
D-2-8 (0-0.5)	KW35K	4/25/2007	60							
D-2-8 (1-2)	KW35L	4/25/2007	58							
D-2-8 (2-3)	KW35M/KY42I	4/25/2007	41							
D-2-8 (3-4)	KX38O	4/25/2007	6 U							
D-2-9 (0-0.5)	KW35H	4/25/2007	100							
D-2-9 (1-2)	KW35I	4/25/2007	71							
D-2-9 (2-3)	KW35J/KX38S	4/25/2007	8							
D-3-1 (0-0.5)	KW48F/KX96A	4/26/2007	20							
D-3-1 (1-2)	KW48G	4/26/2007	34							
D-3-1 (2-3)	KW48H	4/26/2007	45							
D-3-1 (3-4)	KW48I	4/26/2007	7							
D-3-1 (4-5)	KW48J/KY16C	4/26/2007	8							
D-3-2 (0-0.5)	KW48A/KY16B	4/26/2007	20							
D-3-2 (1-2)	KW48B	4/26/2007	30							
D-3-2 (2-3)	KW48C	4/26/2007	32							
D-3-2 (3-4)	KW48D	4/26/2007	81							
D-3-2 (4-5)	KW48E/KY14A	4/26/2007	115							
D-3-2 (6-7)	KY16A	4/26/2007	42							
Dup of D-3-2 (6-7)	KY85A	4/26/2007	38							
D-3-2 (7-8)	KZ06B	4/26/2007	46							
D-4-1 (0-0.5)	KW30E/KX38D	4/25/2007	17							
D-4-1 (1-2)	KW30F	4/25/2007	28							
D-4-1 (2-3)	KX38K/KY42E	4/25/2007	9							
D-4-2 (0-0.5)	KW30C	4/25/2007	30							
D-4-2 (1-2)	KW30D/KX38C	4/25/2007	9							
D-4-3 (0-0.5)	KW30G	4/25/2007	22							
D-4-3 (1-2)	KW30H	4/25/2007	21							
D-4-3 (2-3)	KX38L/KY42F	4/25/2007	6 U							
D-4-4 (0-0.5)	KW30I	4/25/2007	70							
D-4-4 (1-2)	KW30C/J	4/25/2007	38							
D-4-4 (2-3)	KX38N/KY42H	4/25/2007	8							
D-4-5 (0-0.5)	KW30M/KX38E	4/25/2007	10 U							
D-4-5 (1-2)	KW30N	4/25/2007	80							
D-4-5 (2-3)	KX38M/KY42G	4/25/2007	7							
D-4-6 (0-0.5)	KW30K	4/25/2007	50							
D-4-6 (1-2)	KW30L/KX38F	4/25/2007	10							
D-4-7 (0-0.5)	KW30O	4/25/2007	49							
D-4-7 (1-2)	KW30P/KX38G	4/25/2007	5 U							
D-4-8 (0-0.5)	KW30Q/KX38H	4/25/2007	12							
D-4-8 (1-2)	KW30D,R/KX38I	4/25/2007	5 U							
D-5-1 (0-0.5)	KW35Q/KX38U	4/25/2007	19							
D-5-2 (0-0.5)	KW35T/KX38X	4/25/2007	16							

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			SW6000-7000 Series							
			Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium
Cleanup Level (a)			20	1,648	80	120,000	3000 / 36	250	24	
										Zinc
										24000
D-5-3 (0-0.5)	KW35S/KX38W	4/25/2007	5 U							
D-5-4 (0-0.5)	KW35R/KX38V	4/25/2007	5 U							
D-5-SS (0-0.5)	GE76G	12/30/2003	4.9		0.5 U	51	43.7	14	0.08	0.8 U
D-6-SS (0-0.5)	GE76H	12/30/2003	20		0.5 U	61	42.2	8	0.05 U	0.8 U
D-7-SS (0-0.5)	GE76I	12/30/2003	42		0.5 U	26	45.5	13	0.04 U	0.7 U
D-7-1 (0-0.5)	KW30A/KX38A	4/25/2007	70							89
D-7-1 (1-2)	KW30B/KX38B/KY42D	4/25/2007	5 U							
D-7A-1 (0-0.5)	KX01D/KY20B/KX02J/LA46L	4/30/2007	5 U							
D-7A-1 (2-3)	KY20D/KX02L/LA46M	4/30/2007	6 U							
7-2 (4-5)	JC85A	2/27/2006	8							
7-2 (5-6)	JC85B	2/27/2006	6 U							
7-2 (6-7)	JC85C	2/27/2006	6 U							
7-4 (4-5)	JC85D	2/27/2006	9							
7-4 (5-6)	JC85E	2/27/2006	14							
7-4 (6-7)	JC85F	2/27/2006	6 U							
D-7-2 (0-0.5)	KW17A/KX04A	4/24/2007	90							
D-7-2 (1-2)	KW17B/KY09A	4/24/2007	6							
D-7A-2 (0-0.5)	KW17D/KX04B	4/24/2007	80							
D-7A-2 (1-2)	KW17E/KY09B/LA46F	4/24/2007	6							
D-7-3 (0-0.5)	KW18O/KX04YH/KY09I	4/24/2007	5 U							
D-7A-3 (0-0.5)	KW48AP/KX96P/LA46C	4/26/2007	5 U							
D-7A-3 (1-2)	KW48AQ/KX96Q/LA46D	4/26/2007	6							
D-7A-3 (2-3)	KW48AR/KX96R/LA46E	4/26/2007	6 U							
D-7-4 (0-0.5)	KW18Q/KX04I	4/24/2007	30							
D-7-4 (1-2)	KW18R/KY09H/LA46K	4/24/2007	6							
D-7-4 (6-7)	KW18S	4/24/2007								
D-7A-5 (0-0.5)	KY20C/KX02C	4/30/2007	9							
D-7A-6 (0-0.5)	KW17H/KX04C	4/24/2007	50							
D-7A-6 (1-2)	KW17I/KY09C/LA46G	4/24/2007	6							
D-7A-7 (0-0.5)	KW18A/KX04E	4/24/2007	30							
D-7A-7 (1-2)	KW18B/KY09E/LA46H	4/24/2007	5							
D-7A-8 (0-0.5)	KW18L/KX04G	4/24/2007	60							
D-7A-8 (1-2)	KW18M/KY09G/LA46J	4/24/2007	6							
D-7A-9 (0-0.5)	KW17P/KX04D/LA45A	4/24/2007	100							
D-7A-9 (1-2)	KW17Q/KY09D/LB43B	4/24/2007	6							
D-7A-10 (0-0.5)	KW18I/KX04F	4/24/2007	40							
D-7A-10 (1-2)	KW18J/KY09F/LA46I	4/24/2007	11							
D-8-1 (0-0.5)	KW35E/KX38R	4/25/2007	5							
D-8-1 (1-2)	KW35F	4/25/2007	5 U							
D-8-2 (0-0.5)	KW35C/KX38Q	4/25/2007	8							
D-8-2 (1-2)	KW35D	4/25/2007	5 U							
D-8-3 (0-0.5)	KW35A/KX38P	4/25/2007	6							
D-8-3 (1-2)	KW35B	4/25/2007	6							
D-8-4 (0-0.5)	KW30S/KX38J	4/25/2007	6							
D-8-4 (1-2)	KW30T	4/25/2007	5							
D-9-1 (0-0.5)	KW48AG/KX96K	4/26/2007	20							
D-9-2 (0-0.5)	KW48AH	4/26/2007	30							
D-9-2 (1-2)	KX96L/LA46B	4/26/2007	10							
D-9-3 (0-0.5)	KW48AI/KX96M	4/26/2007	7							
D-9-4 (0-0.5)	KW48AJ	4/26/2007	50							
D-9-4 (1-2)	KX96N	4/26/2007	32							
D-9-4 (2-3)	KY85C	4/26/2007	6 U							
D-9-5 (0-0.5)	KW48AK/KX96O	4/26/2007	12							
DX-1 (0-0.5)	KX54A/KY42J	4/25/2007	6							
DX-2 (0-0.5)	KX54B/KY42K	4/25/2007	10							
DX-3 (0-0.5)	KX54C/KY42L	4/25/2007	9							
ACC-EAST SUMP	HQ85M	1/28/2005	36		0.6		59.6	45	0.06 U	193
EBS-1 (1-1.5)	KX36B	5/1/2007	45							
EBS-1 (1.5-2.5)	KZ32A	5/1/2007	19							
EBS-2 (1-1.5)	KX36F	5/1/2007	8							
EBS-3 (0.9-1.4)	KX36J	5/1/2007	5 U							
EBS-1 (1-1.5)	KX36B	5/1/2007	45							
EBS-1 (1.5-2.5)	KZ32A	5/1/2007	19							
EBS-2 (1-1.5)	KX36F	5/1/2007	8							
EBS-3 (0.9-1.4)	KX36J	5/1/2007	5 U							
E-GC-1 (0-0.5)	HP08L	1/12/2005	29		0.6		35.7	15	0.05 U	65.9
E-GC-1 (1-2)	HP10E	1/12/2005	23		0.2 U		18.4	7	0.05 U	41.2
E-GC-1 (2-3)	HS28A	1/12/2005	10		0.2 U		16.2	4	0.04 U	41.1
E-GC-1b (0-0.5)	HU67F	3/3/2005	8		0.7		16.8	26	0.05 U	74.2
E-GC-1c (0-0.5)	HU67E	3/3/2005	48		0.7		23.4	7	0.4 U	47.5
E-GC-1c (1-2)	HW21B	3/3/2005	7		0.5		20.9	54	0.13	70.7
E-GC-1.1N (0-0.5)	JD04S	3/1/2006	35							
E-GC-1.1S (0.5-1.0)	JD05T	3/2/2006	9							
E-GC-1c.1N (0-0.5)	JD04T	3/1/2006	16							
E-GC-1c.1SW (0-0.5)	JD05U	3/2/2006	20							
E-GC-2 (0-0.5)	HP08M	1/12/2005	6		0.2 U		15.7	43	0.05 U	46.9

**TABLE 8  
DETECTED METALS IN SOIL  
WEST END SITE, PORT OF EVERETT, WASHINGTON**

			TOTAL METALS (mg/kg) SW6000-7000 Series								
			Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Silver	Zinc
Cleanup Level (a)			20	1,648	80	120,000	3000 / 36	250	24		24000
Location	Lab Id	Date Collected									
E-GC-3 (0-0.5)	HP08R	1/12/2005	5 U		0.2 U		9.0	5	0.04 U		30.2
E-GC-4 (0.5-1.0)	HP08O	1/12/2005	5		0.2 U		20.5	4	0.05 U		35.6
E-GC-5 (1.5-2.0)	HP08N	1/12/2005	90		0.2 U		20.1	6	0.07		52.5
E-GC-5 (2.5-3.5)	HP10I	1/12/2005	6 U		0.2 U		16.6	4	0.05 U		65.7
E-GC-5.1S (1.5-2.0)	JJ13L	5/9/2006	8								
E-GC-5.1E (1.0-1.5)	JD05AA	3/2/2006	15								
E-GC-5.1N (1.0-1.5)	JD05Z	3/2/2006	12								
F-COB-AC-1	MF32A	1/15/2008	120 U		5 U	2,030	771	50 U	0.10		30
F-COB-AC-1	MG62A	1/15/2008	30								
F-COB-B1 (0-0.75)	MF21C	1/14/2008	30		0.5	58	76.3	45	0.05 U		263
F-COB-B2 (0-0.75)	MF21B	1/14/2008	90		1.0	86	127	74	0.04 U		576
F-COB-B3 (0-0.75)	MF21A	1/14/2008	60		0.8	181 J	130 J	67 J	0.04		447
F-COB-B4 (0-0.75)	MF21D	1/14/2008	240		2.2	94	381	276	0.10		1,230
F-COB-B5 (0-0.7)	MF21E	1/14/2008	80		0.6	80	75.8	50	0.06		269
F-COB-B6 (0-0.75)	MF21G	1/14/2008	57		0.7	65.1	370	80	0.16		320
F-COB-B7 (0-0.75)	MF21I	1/14/2008	14		0.3	33.6	61.3	18	0.06		93
F-COB-B8 (0-0.75)	MF21O	1/14/2008	23		0.4	59.1	197	30	0.09		222
F-COB-B9 (0-0.75)	MF21L	1/14/2008	17		0.5	37.4	664	30	0.07		188
F-COB-B10 (0-0.75)	MF21K	1/14/2008	23		0.8	48.2	141	38	0.12		273
F-COB-B11 (0-0.75)	MF21J	1/14/2008	39		1.0	47.0	142	91	0.07		283
F-COB-B12 (0-0.6)	MF21M	1/14/2008	8		0.7	28.6	360	34	0.29		158
F-COB-B13 (0-0.75)	MF21N	1/14/2008	24		0.9	45.7	155	84	0.10		292
F-COB-IW-1	MG82A	1/14/2008	12					34			
F-FA-2 (0-2)	HR96S	1/18/2005	13								
F-FA-2 (2-4)	HR96T	1/18/2005	6								
F-FA-2 (4-6)	HR97A	1/18/2005	10								
F-FA-2 (6-8)	HR97B	1/18/2005	10								
F-FA-3 (0-0.5)	HP32K	1/13/2005	18		0.2 U		25.7	11	0.05 U		73.1
F-FA-3 (3.5-4.5)	HR95P	1/13/2005	7								
F-FA-3 (4.5-5.5)	HR95Q	1/13/2005	7								
F-FA-3 (5.5-7.0)	HR95R	1/13/2005	7								
F-FA-3 (7.0-8.0)	HR95S	1/13/2005	10								
F-FA-4 (0-0.5)	HP78B	1/18/2005	8		0.2		40.6	12	0.05 U		76.9
F-FA-4 (1-2)	HR96O	1/18/2005	6 U								
F-FA-4 (2-3)	HR96P	1/18/2005	6 U								
F-FA-4 (4-6)	HR96Q	1/18/2005	9								
F-FA-4 (6-8)	HR96R	1/18/2005	10								
F-FA-5 (0.7-1.2)	HP32H	1/13/2005	13		0.2 U		32.8	16	0.05 U		94.4
F-FA-5 (1.7-2.7)	HR95F	1/13/2005	8								
F-FA-5 (2.7-3.7)	HR95G	1/13/2005	6 U								
F-FA-5 (4-6)	HR95H	1/13/2005	8								
F-FA-5 (6-8)	HR95I	1/13/2005	12								
F-FA-6 (1-2)	HP32J	1/13/2005	6		0.2		28.9	19	0.17		48.1
F-FA-6 (2-4)	HR95M	1/13/2005	9 U								
F-FA-6 (4-6)	HR95N	1/13/2005	8								
F-FA-6 (6-8)	HR95O	1/13/2005	10								
F-FA-7 (0-2)	HR96K	1/18/2005	7								
F-FA-7 (2-4)	HR96L	1/18/2005	6								
F-FA-7 (4-6)	HR96M	1/18/2005	10								
F-FA-7 (6-8)	HR96N	1/18/2005	7								
F-FA-8 (0-0.5)	HP32I	1/13/2005	20		0.4		118	54	0.11		252
F-FA-8 (1-2)	HP33S	1/13/2005	5 U		0.2 U		25.3	4	0.04 U		43.8
F-FA-8 (2-3)	HR95J	1/13/2005	7								
F-FA-8 (4-6)	HR95K	1/13/2005	6 U								
F-FA-8 (6-8)	HR95L	1/13/2005	9								
F-FA-9 (0-0.5)	HP78A	1/18/2005	8		0.2 U		26.0	11	0.05 U		225
F-FA-9 (1-2)	HR96G	1/18/2005	6								
F-FA-9 (2-3)	HR96H	1/18/2005	6								
F-FA-9 (4.5-6)	HR96I	1/18/2005	6 U								
F-FA-9 (6-8)	HR96J	1/18/2005	6 U								
F-FA-10 (0-1)	HP57E	1/17/2005	30		0.5 U		91.3 J	27	0.05 U		180 J
F-FA-10 (1-2)	HP61U	1/17/2005	6 U		2 U		29.3	18	0.06		51.3
F-FA-10 (2-3)	HP57F/HR95T	1/17/2005	7								
F-FA-10 (4-6)	HR96B	1/17/2005	12								
F-FA-10 (6-8)	HR96C	1/17/2005	6 U								
F-FA-10.2S	JR06A	7/28/2006	5 U								
F-FA-10.1S	JR06B	7/28/2006	150								
F-FA-10.1S.1E	JR06C	7/28/2006	140								
F-FA-10.1E	JR06D	7/28/2006	330								
F-FA-10.1N	JR06E	7/28/2006	120								
F-FA-10.2N	JR06F	7/28/2006	110								
F-FA-10.1N.1E	JR06G	7/28/2006	200								
F-FA-10.2N.1E	JR06H	7/28/2006	120								
F-FA-11 (0-1)	HP57G	1/17/2005	15		0.2 U		52.5	26	0.04 U		149
F-FA-11 (1-2)	HR96D	1/17/2005	6 U								
F-FA-11 (2-3)	HR96E	1/17/2005	7								



**TABLE 8**  
**DETECTED METALS IN SOIL**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location	Lab Id	Date Collected	TOTAL METALS (mg/kg)							
			SW6000-7000 Series							
			Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium
Cleanup Level (a)			20	1,648	80	120,000	3000 / 36	250	24	
										Zinc
										24000
F-FA-11 (4-6)	HR96F	1/17/2005	6							
F-FA-11 (6-8)	HR96A	1/17/2005	13							
F-FA-12 (0-0.5)	HP57I	1/17/2005	14		0.2 U		23.3	10	0.05 U	66.8
F-GC-1(0-0.5)	HP39A	1/14/2005	12		0.2 U		83.3 J	14	0.04 U	105 J
F-GC-3(0-0.5)	HP32N	1/13/2005	6		0.2 U		31.4	4	0.05 U	39.6
F-GC-5(0-0.5)	HP32M	1/13/2005	17		0.4		101	152	0.09	293
F-GC-5(1-2)	HP33AG	1/13/2005	6		0.2 U		19.8	7	0.05 U	44.5
F-GC-7(0-0.5)	HP32L	1/13/2005	9		0.2 U		33.5	6	0.04 U	45.6
F-GC-8 (0.8-1.3)	HP32G	1/13/2005	8		0.2 U		23.1	5	0.06	37.6
F-GC-8 (1.8-2.8)	HR95D	1/13/2005	10							
F-GC-8 (2.8-3.8)	HR95E	1/13/2005	13							
F-GC-9 (1.5-2.0)	HP32F	1/13/2005	8		0.2 U		21.9	5	0.05 U	35.2
F-GC-9 (2.5-3.5)	HR95B	1/13/2005	7							
F-GC-9 (3.5-4.5)	HR95C	1/13/2005	14							
F-GC-10 (2.5-3.0)	HP32C	1/13/2005	6		0.2 U		21.5	11	0.05 U	50.1
F-GC-10 (4.5-5.5)	HR95A	1/13/2005	9							
F-GC-11 (0-0.5)	HP32D	1/13/2005	9		0.2 U		34.6	11	0.04 U	77.6
F-GC-12 (0-0.5)	HP32E	1/13/2005	6		0.2 U		38.3	8	0.06 U	43.1
F-GC-13 (0-1)	HP57H	1/17/2005	200		0.8		420	246	0.10	1570
F-GC-13 (1-2)	HP61AB	1/17/2005	410		1.2		775	351	0.04 UJ	2970
F-GC-13 (2-3)	HT12C	1/17/2005	50		0.6		297	78	0.04 UJ	1840
F-GC-13b (0-0.5)	HU67G	3/3/2005	28		0.3		97.8	36	0.05 U	370
F-GC-13b (1-2)	HW21C	3/3/2005	5 U		0.4		35.2	28	0.16	56.5
F-GC-13c (0-0.5)	HU67H	3/3/2005	90		1.0		607	194	0.06	1990
F-GC-13c (1-2)	HW21D	3/3/2005	54		3.9		62.7	223	0.04 U	7770
F-GC-13c (2-3)	HW66A	3/3/2005	48		2.7		62.5	286	0.05 U	6500
F-GC-13c (3-5)	HX19A	3/3/2005	7		0.2 U		17.6	4	0.05 UJ	43.7
F-GC-13c (5-7)	HX19B	3/3/2005	6 U		0.2 U		16.7	4	0.05 UJ	36.9
F-GC-13d (3-4)	HU88A	3/3/2005	5 U		0.2 U		16.1	4	0.05 U	34.6
F-GC-13b.1E (0-0.5)	JD05J	3/2/2006	170							
F-GC-13b.1N (0-0.5)	JD05F	3/2/2006	62							
F-GC-13b.1S (0-0.5)	JD05I	3/2/2006	50							
F-GC-13b.2E (0-0.5)	JD55C	3/2/2006	70							
F-GC-13b.2S (0-0.5)	JD55D	3/2/2006	170							
F-GC-13b.3E (0-0.5)	JD55B	3/2/2006	26							
F-GC-13b.3S (0-0.5)	JE07B	3/1/2006	810							
F-GC-13b.4S (0-0.5)	JE81A	3/27/2006	590 J							
F-GC-13b.5S (0-0.5)	JF49B	3/27/2006	70							
F-GC-13b.5S.1W (0-0.5)	JF49D	3/27/2006	8							
F-GC-13b.6S (0-0.5)	JE81C	3/27/2006	9							
F-GC-13b.6S.2W (0-0.5)	JE81E/JH27C	3/27/2006	29							
F-GC-13b.6S.1W (0-0.5)	JF49C	3/27/2006	14							
F-GC-13c.1S (0-0.5)	JD05M	3/2/2006	11							
F-GC-13c.2S (0-0.5)	JE39B	3/2/2006	170							
F-GC-13c.2S.1W (0-0.5)	JF49E	3/27/2006	8							
F-GC-13c.3S (0-0.5)	JE39C	3/2/2006	160							
F1b-Chara1	KZ26A	5/15/2007	30							
F1b-Chara2	KZ26B	5/15/2007	70							
F1b-Chara3	KZ26C	5/15/2007	5							
F-2-1 (0-0.5)	JA50A	2/6/2006	55		0.7		188	77	0.12	787
F-2-1 (1-2)	JC07A	2/6/2006	5 U							
F-2-2 (0-0.5)	JA50B	2/6/2006	42		0.4		117	55	0.06	481
F-2-2 (1-2)	JC07B	2/6/2006	7							
F-2-3 (0-0.5)	JA50C	2/6/2006	8		0.2 U		22.2	5	0.04 U	79.4
F-2-4 (0.5-1)	JA50D	2/6/2006	8		0.2 U		21.4	16	0.05 U	110
F-2-5 (0-0.5)	JA50E	2/6/2006	81		1.6		211	175	0.26	1850
F-2-5 (1-2)	JC07C	2/6/2006	11							
F-2-6 (0-0.5)	JA50F	2/6/2006	5		0.2 U		34.0	17	0.05	71.2
F-2-7 (0-0.5)	JA50G	2/6/2006	27		0.2		59.6	37	0.05 U	217
F-2-7 (1-2)	JC07D	2/6/2006	6							
F-2-8 (0-0.5)	JA50H	2/6/2006	14		0.7		1050	155	0.80	364
F-2-9 (0-0.5)	JA50I	2/6/2006	115		0.6		210	225	0.11	425
F-2-9 (1-2)	JC07E	2/6/2006	60							
F-2-9 (2-3)	JC72A	2/6/2006	20							
F-4-SS (0-0.5)	GE76E	12/30/2003	57		0.9	54.6	190	115	0.11	810
F-4.1E (0-0.5)	JD05A	3/2/2006	37							
F-4.1N (0-0.5)	JD05B	3/2/2006	15							
F-4.1NE (0-0.5)	JE81H	3/27/2006	6							
F-4.1NW (0-0.5)	JE81I	3/27/2006	30							
F-4.1W (0-0.5)	JD05C	3/2/2006	100							
F-4.2E (0-0.5)	JD55A	3/2/2006	6 U							
F-4.2NW (0-0.5)	JE81J	3/27/2006	8							
F-5-SS (0-0.5)	GE76D	12/30/2003	53		2.1	71	1190 J	241	1.03	1790
F-6-SS	GE76F	12/30/2003	14.5		0.7	29.5	1120	43	0.73	376
F-9-CS-3 (2.5-3.5)	GI08K	2/12/2004	4.6		0.2 U	24.0	13.6	3	0.05 U	38.0
H-GC-1b	(1-1.5)	7/15/2005	21		0.2 U		24	6	0.04 U	50

**TABLE 8  
DETECTED METALS IN SOIL  
WEST END SITE, PORT OF EVERETT, WASHINGTON**

			TOTAL METALS (mg/kg) SW6000-7000 Series									
			Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Selenium	Silver	Zinc
Cleanup Level (a)			20	1,648	80	120,000	3000 / 36	250	24			24000
Location	Lab Id	Date Collected										
H-GC-1b	(2-3)	7/15/2005	10		0.2 U		24	5	0.05 U			39
H-GC-1c	(0.9-1.4)	7/15/2005	11		0.2 U		28	9	0.04 U			60
H-GC-1d	(0.7-1.2)	7/15/2005	18		0.2 U		33	24	0.05 U			71
H-GC-1e (2-2.5)	KM95A	1/30/2007	6									
H-GC-1f (1-1.5)	KM95B	1/30/2007	5 U									
H-GC-3 (0-0.5)	0409181-09	9/10/2004	5.8				35.0	6.8	0.03			
H-GC-4 (0-0.5)	0409181-10	9/10/2004	5.0				14.2	10.6	0.02 J			
H-GC-5 (0.8-1.3)	HP32B	1/13/2005	24		0.2		23.1	7	5.7			49.1
H-GC-5 (1.8-2.8)	HP33C/HT42A	1/13/2005	11 U		0.2		27.0 J	11	26.3			67.3
H-GC-5 (2.8-3.8)	HT81A	1/13/2005							20 J			
H-GC-5b (1.3-1.6)	HU34C	3/2/2005	7		0.2 U		13.3	3	0.04 U			33.4
H-GC-5c (2-2.5)	HU35B	3/2/2005	10		0.2 U		18.9	6	0.05 U			44.5
H-GC-5c (3-4)	HU88G	3/2/2005	5						0.05 U			
H-GC-5d (1.8-2.3)	HU34A	3/2/2005	17		0.2 U		24.7	15	0.05 U			62.3
H-GC-5d (2.8-3.8)	HU88H	3/2/2005	13						0.05 U			
H-GC-5e (0-0.5)	KM95L	1/30/2007	5 U						0.07			
H-GC-5e (1-2)	KM95M	1/30/2007	13						0.04 U			
H-GC-5f (0.8-1.3)	KM95AD	1/30/2007	6						0.04			
H-GC-5f (1.3-2.3)	KM95AE	1/30/2007	39						0.05 U			
H-GC-5f (2.3-3.3)	KO03E	1/30/2007	5									
H-GC-5h (1.3-1.8)	KM95Z	1/30/2007	49						0.05 U			
H-GC-5h (1.8-2.8)	KM95AA	1/30/2007	14						0.04 U			
H-GC-5i (1.1-1.6)	KM95AB	1/30/2007	6						10.8			
H-GC-5i (1.6-2.6)	KM95AC	1/30/2007	37						0.04 U			
H-GC-5i (2.6-3.6)	KO03F	1/30/2007	27									
H-GC-5i (3.6-4.6)	KO96B	1/30/2007	12									
H-GC-5J (0.8-1.8)	KX05A	4/30/2007	70		0.8 U	37	76.1	8 U	0.06 U			211
H-GC-5J (1.8-2.8)	KY13A	4/30/2007	24		0.2 U	20.4	23.0	3	0.04 U			61
Dup of H-GC-5J (1.8-2.8)	KZ06A	4/30/2007	30		0.2 U	25.1	26.3	4	0.04 U			63
H-GC-5J (2.8-3.8)	LA15A	4/30/2007	6		0.2 U	26.3	15.2	3	0.05 U			38
H-GC-5K (0.8-1.3)	KX05D	4/30/2007	23		0.2 U	27.3	23.2	8	0.04 U			60
H-GC-5K (1.3-2.8)	KY13B	4/30/2007	10		0.2 U	26.9	18.3	3	0.05 U			46
H-GC-6(1-1.5)	IH23T	7/14/2005	7		0.2 U		24.4	14	0.07			60.1
H-GC-7(1-1.5)		7/14/2005	10		0.5 U		65.2	19	0.09			92
H-4-CS (5-6)	GI08Q	2/11/2004						6				
H-5-CS (5-5.5)	GI08R	2/11/2004						5				
JP-1-SS (0-0.5)	GE49E	12/23/2003	3.3		0.2 U	43.8	19.9	8	0.05 U		0.3 U	44.7
JP-GC-1(1-1.5)	HP08I	1/12/2005	8		0.2 U		19.5	3	0.04 U			27.8
JP-GC-2(1.5-2)	HP08H	1/12/2005	6		0.2 U		25.3	15	0.05 U			44.2
JP-GC-3(0-0.5)	0409181-07	9/10/2004	4.4				17.6	11.5	0.029			
JP-GC-4(0.5-1)	HP08K	1/12/2005	5 U		0.2 U		19.9	3	0.04 U			27.2
JP-GC-5(0.5-1)	HP08J	1/12/2005	5 U		0.2 U		23.8	9	0.05 U			27.7
JP-GC-6(0-0.5)	0409181-08	9/10/2004	3.8				20.5	13.2	0.019 J			
PZ-8-CS-3		2/11/2004	4		0.2 U	23.0	11.7	4	0.05 U		0.3 U	29.8
PZ-8-SS	GI08A	2/11/2004	6.5		0.2 U	30.0	53.4	26	0.07		0.3 U	79.6 J
PZ-9-CS-3 (2.5-3.5)	GI08I	2/11/2004	60		0.3	39.4	87.9	54	0.09		0.3 U	188
PZ-9-CS-6 (5.5-6)	GK06A	2/11/2004	57		0.3	38.9	91.3	56	0.06		0.4 U	201
PZ-10-CS-3	GI08O	2/11/2004	6.3		0.2 U	31.3	22.1	8	0.07		0.3 U	52.1
SBS-1 (1.3-2.0)	KW48AL	4/26/2007	6									
SBS-2 (0.8-1.3)	KW48AM	4/26/2007	6									
SBS-3 (0.8-1.3)	KW48AO	4/26/2007	7									
SBS-4 (0.8-1.3)	KW48AN	4/26/2007	7									
SBS-5 (1-1.6)	KX36N	5/1/2007	5									

U = the analyte was not detected in the sample at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UU = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

Boxed cells indicate an exceedance of the site cleanup levels.

(a) Development of the cleanup levels is presented in Table 3.

**TABLE 9**  
**DETECTED cPAHs IN SOIL**  
**INTERIM ACTION CLEANUP REPORT**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			cPAHs (µg/kg)							
			SW8270C-SIM							
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ
Cleanup Levels (a)			140							140
Location	Lab Id	Date Collected								
F-6-SS	GE76F	12/30/2003	12	25	24	17	9.1	7.0 U	7.0 U	14.7
PZ-10-CS-3	GI08O	2/11/2004	11	19	9.8	9.8	9.3	7.2 U	7.2 U	12.6
PZ-8-CS-3		2/11/2004	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	ND
PZ-8-SS	GI08A	2/11/2004	7.2 J	9.9	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	0.8
AFD-1.3 (1.0-2.3)	JY47H	9/26/2006	300	380	190	160	160	65 U	65 U	229
AFD-1.4 (0.7-2.0)	JY47I	9/26/2006	180	230	97	130	93	63 U	63 U	136
AFD-1.5 (0.9-2.0)	JY47J	9/26/2006	310	290	130	190	98	65 U	65 U	164
AFD-1.6 (0-0.9)	JY47O	9/26/2006	120	160	68	67	64 U	64 U	64 U	27.1
AFD-1.7 (0.7-4.0)	JY47P	9/26/2006	1,200	1,300	750	630	720	140	64 U	1,000
AFD-1.8 (0.6-1.1)	JY47Q	9/26/2006	130	170	83	81	66 U	66 U	66 U	31.1
AFD-2.3 (1.6-2.6)	JY47G	9/26/2006	140	190	77	67	66	65 U	65 U	96.3
AFD-2.4 (0.4-1.4)	JY47F	9/26/2006	130	170	64 U	81	64 U	64 U	64 U	22.8
AFD-2.5 (1.3-2.8)	JY47E	9/26/2006	150	220	95	89	64	64 U	64 U	100
AFD-2.6 (0-1.6)	JY47K	9/26/2006	180	140	71	110	76	65 U	65 U	114
AFD-2.7 (2.4-3.2)	JY47L	9/26/2006	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
AFD-2.8 (2.9-3.4)	JY47M	9/26/2006	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
AFD-2.9 (2-2.8)	JY47N	9/26/2006	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
AFD-2a.6 (1.1-3.2)	JY48A	9/27/2006	510	1,200	240	350	210	63 U	63 U	332
AFD-2a.7 (1.0-3.2)	JY48B	9/27/2006	230	300	150	150	130	66 U	66 U	186
AFD-3.2 (0.8-1.7)	JY48H	9/27/2006	240	320	160	160	140	65 U	65 U	199
AFD-3.3 (2.4-5.2)	JY47B	9/26/2006	130	130	69	69	66 U	66 U	66 U	28.1
AFD-3.4 (1.2-5.0)	JY47C	9/26/2006	150	210	93	100	71	66 U	66 U	107
AFD-3.5 (2.0-5.2)	JY47D	9/26/2006	140	160	78	67	64 U	64 U	64 U	30.3
AFD-3.7 (1.1-1.9)	JY48C	9/27/2006	110	160	68	69	65 U	65 U	65 U	26.3
AFD-4.3 (0-1.9)	JY46G	9/26/2006	180	260	140	92	96	65 U	65 U	140
AFD-4.4 (2.1-5.2)	JY46R	9/26/2006	200	260	130	160	130	64 U	64 U	182
AFD-4.5 (2.1-3.1)	JY46Q	9/26/2006	63 U	65	63 U	63 U	63 U	63 U	63 U	0.65
AFD-4.6 (2.0-4.6)	JY47A	9/26/2006	100	130	65 U	69	65 U	65 U	65 U	18.2
AFD-4.7 (0.7-1.3)	JY48D	9/27/2006	120	180	63 U	98	63 U	63 U	63 U	23.6
AFD-5.2 (0-1.4)	JY46F	9/26/2006	110	180	75	74	64 U	64 U	64 U	27.7
AFD-5.3 (0-1.5)	JY46E	9/26/2006	66 U	98	66 U	66 U	66 U	66 U	66 U	0.98
AFD-5.4 (0-1.0)	JY46N	9/26/2006	120	180	66	70	64 U	64 U	64 U	27.4
AFD-5.5 (0.9-2.2)	JY46O	9/26/2006	160	170	86	74	72	63 U	63 U	106
AFD-5.6a (1.0-2.8)	JY46P	9/26/2006	120	200	70	110	86	66 U	66 U	118
AFD-5.6b (0.8-1.9)	JY48E	9/27/2006	190	250	87	86	69	66 U	66 U	108
AFD-5.7 (0.9-1.8)	JY48F	9/27/2006	200	250	110	110	88	64 U	64 U	132
AFD-5.8 (1.0-2.2)	JY48G	9/27/2006	7,500	7,500	1,800	1,700	1,300	220	120	2,545

**TABLE 9**  
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			cPAHs (µg/kg) SW8270C-SIM							
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ
Cleanup Levels (a)			140							
Location	Lab Id	Date Collected								
AFD-6.0 (1.5-2.0)	JY46D	9/26/2006	63 U	63 U	63 U	63 U	63 U	63 U	63 U	ND
AFD-6.1 (1.3-2.0)	JY46C	9/26/2006	66 U	66 U	66 U	66 U	66 U	66 U	66 U	ND
AFD-6.2 (0.9-1.9)	JY46B	9/26/2006	65 U	270	65 U	65 U	65 U	65 U	65 U	2.7
AFD-6.3 (0.5-2.5)	JY46A	9/26/2006	120	160	72	100	77	66 U	66 U	108
AFD-6.4 (0.8-4)	JY46L	9/26/2006	63 U	89	63 U	63 U	63 U	63 U	63 U	0.89
AFD-6.5 (1.8-3)	JY46M	9/26/2006	250	240	100	87	76	66 U	66 U	122
AFD-7.1 (0.5-1.5)	JY46I	9/26/2006	66 U	66 U	66 U	66 U	66 U	66 U	66 U	ND
AFD-7.3 (0.4-4)	JY46H	9/26/2006	66	84	64 U	64 U	64 U	64 U	64 U	7.4
AFD-8.2 (0.6-2.4)	JY46J	9/26/2006	120 M	560 M	65 U	65 U	65 U	65 U	65 U	17.6
AFD-8.3 (1.1-1.8)	JY46K	9/26/2006	100	150	70	79	65 U	65 U	65 U	26.4
C-3-6 (1.0-1.5)	JJ13C/JK08A	5/9/2006	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
C-GC-3b (1.5-2)	IQ64J	10/18/2005	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
C-GC-3d (1.0-1.5)	IQ64I	10/18/2005	65 U	73	65 U	65 U	65 U	65 U	65 U	0.73
C-GC-3f (1.5-2)	IQ64H	10/18/2005	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
C-GC-3g (1.5-2)	IQ64D	10/18/2005	63 U	63 U	63 U	63 U	63 U	63 U	63 U	ND
C-GC-3h (1.5-2)	IQ64G	10/18/2005	66 U	66 U	66 U	66 U	66 U	66 U	66 U	ND
C-GC-3i (1.5-2)	IQ64E	10/18/2005	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
C-GC-3j (1.5-2)	IQ64F	10/18/2005	66 U	87	66 U	66 U	66 U	66 U	66 U	0.87
C-GC-6c (1-1.5)		07/15/05	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
C-GC-7(0-0.5)	0409181-06	9/10/2004	39	61	37 U	37 U	37 U	37 U	37 U	4.3
C-GC-4(0-0.5)	0409181-05	9/10/2004	43	110	36 U	36 U	36 U	36 U	36 U	5.4
D-2-1 (1-2)	KW48L/KX96B	4/26/2007	92	150	110	85	77	65 U	65 U	107
D-2-1 (2-3)	KW48M/KX96C	4/26/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
D-2-2 (2-3)	KW48P/KX96D	4/26/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
D-2-3 (2-3)	KW48S/KX96E	4/26/2007	64 U	160	100	190	64	84	64 U	103
D-2-4 (2-3)	KW48W/KX96F	4/26/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
D-2-5 (3-4)	KX96G/LA46A	4/26/2007	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	ND
D-2-6 (0-0.5)	KW48AD/KX96H	4/26/2007	660	840	620	580	440	290	120	711
D-2-6 (1-2)	KW48AE/KX96I	4/26/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
D-2-6 (2-3)	KW48AF/KX96J	4/26/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
D-2-7 (2-3)	KW35P/KX38T	4/25/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
D-2-8 (2-3)	KW35M/KY42I	4/25/2007	62 UJ	120 J	62 UJ	73 J	62 UJ	62 UJ	62 UJ	8.5 J
D-2-9 (2-3)	KW35J/KX38S	4/25/2007	99	170	140	150	110	63 U	63 U	151
D-2-9 (3-4)	KY97B	4/25/2007	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	ND
D-3-1 (0-0.5)	KW48F/KX96A	4/26/2007	420	690	340	470	340	170	64 U	487
D-3-1 (4-5)	KW48J/KY16C	4/26/2007	120	130	76	65 U	65 U	65 U	65 U	21
D-3-2 (0-0.5)	KW48A/KY16B	4/26/2007	220	520	450	380	200	160	64 U	326

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			cPAHs (µg/kg) SW8270C-SIM								
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ	
Cleanup Levels (a)			140								140
Location	Lab Id	Date Collected									
D-3-CS (3.4-3.6)	GM39A	12/29/2003	200 J	370 J	340 J	340 J	220 J	120 J	87 UJ	324 J	
D-4-1 (0-0.5)	KW30E/KX38D	4/25/2007	80	300	180	140	110	73	65 U	160	
D-4-1 (2-3)	KX38K/KY42E	4/25/2007	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	ND	
D-4-2 (1-2)	KW30D/KX38C	4/25/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND	
D-4-3 (2-3)	KX38L/KY42F	4/25/2007	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	ND	
D-4-4 (2-3)	KX38N/KY42H	4/25/2007	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	ND	
D-4-5 (0-0.5)	KW30M/KX38E	4/25/2007	140	660	290	320	280	63 U	63 U	362	
D-4-5 (2-3)	KX38M/KY42G	4/25/2007	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	ND	
D-4-6 (1-2)	KW30L/KX38F	4/25/2007	80	140	170	91	100	78	63 U	143	
D-4-6 (2-3)	KY42A	4/25/2007	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	ND	
D-4-7 (1-2)	KW30P/KX38G	4/25/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND	
D-4-8 (0-0.5)	KW30Q/KX38H	4/25/2007	310	500	430	430	300	170	65 U	439	
D-4-8 (1-2)	KW30D,R/KX38I	4/25/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-4-CS (4-5)	GM39B	12/29/2003	3900 J	3200 J	1700 J	1200 J	1300 J	260 J	210 J	2122 J	
D-5-1 (0-0.5)	KW35Q/KX38U	4/25/2007	1,700	2,400	1,200	1,500	980	340	140	1530	
D-5-2 (0-0.5)	KW35T/KX38X	4/25/2007	180	310	260	410	240	130	64 U	341	
D-5-2 (1-2)	KY42C	4/25/2007	59 UJ	59 UJ	59 UJ	59 UJ	59 UJ	59 UJ	59 UJ	ND	
D-5-3 (0-0.5)	KW35S/KX38W	4/25/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-5-4 (0-0.5)	KW35R/KX38V	4/25/2007	98	190	220	160	110	69	64 U	167	
D-5-4 (1-2)	KY42B	4/25/2007	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	ND	
D-5-SS (0-0.5)	GE76G	12/30/2003	680	1300	1100	750	590	230	84	913	
D-6-SS (0-0.5)	GE76H	12/30/2003	810	1100	980	770	760	300	120	1105	
D-7-1 (1-2)	KW30B/KX38B/KY42D	4/25/2007	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	ND	
D-7-3 (0-0.5)	KW18O/KX04YH/KY09I	4/24/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-7-4 (1-2)	KW18R/KY09H/LA46K	4/24/2007	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	ND	
D-7-4 (6-7)	KW18S	4/24/2007	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	ND	
D-7A-1 (0-0.5)	KX01D/KY20B/KX02J/LA46L	4/30/2007	62 UJ	62 J	62 UJ	62 UJ	62 UJ	62 UJ	62 UJ	6.2	
D-7A-1 (2-3)	KY20D/KX02L/LA46M	4/30/2007	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	ND	
D-7A-10 (1-2)	KW18J/KY09F/LA46I	4/24/2007	520 J	770 J	710 J	600 J	530 J	240 J	65 UJ	745 J	
D-7A-10 (2-3)	KW18K/LC11A	4/24/2007	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	64 UJ	ND	
D-7A-2 (1-2)	KW17E/KY09B/LA46F	4/24/2007	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	ND	
D-7A-3 (0-0.5)	KW48AP/KX96P/LA46C	4/26/2007	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	ND	
D-7A-3 (1-2)	KW48AQ/KX96Q/LA46D	4/26/2007	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	ND	
D-7A-3 (2-3)	KW48AR/KX96R/LA46E	4/26/2007	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	ND	
D-7A-6 (1-2)	KW17I/KY09C/LA46G	4/24/2007	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	63 UJ	ND	
D-7A-7 (1-2)	KW18B/KY09E/LA46H	4/24/2007	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	ND	
D-7A-8 (1-2)	KW18M/KY09G/LA46J	4/24/2007	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	60 UJ	ND	

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			cPAHs (µg/kg) SW8270C-SIM								
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ	
Cleanup Levels (a)			140								140
Location	Lab Id	Date Collected									
D-7A-9 (1-2)	KW17Q/KY09D/LB43B	4/24/2007	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	ND	
D-7-SS (0-0.5)	GE76I	12/30/2003	1600	3400	1900	1200	950	370	130	1543	
D-8-1 (0-0.5)	KW35E/KX38R	4/25/2007	65 U	76	99	65 U	65 U	65 U	65 U	11	
D-8-2 (0-0.5)	KW35C/KX38Q	4/25/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND	
D-8-3 (0-0.5)	KW35A/KX38P	4/25/2007	66 U	88	96	82	66 U	66 U	66 U	19	
D-8-4 (0-0.5)	KW30S/KX38J	4/25/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND	
D-8-CS-3 (2.5-3.5)	GI08G	2/11/2004	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	ND	
D-9-1 (0-0.5)	KW48AG/KX96K	4/26/2007	300	550	390	510	340	190	64 U	485	
D-9-1 (1-2)	KY85B	4/26/2007	84 J	260 J	170 J	180 J	110 J	92 J	65 UJ	165 J	
D-9-1 (2-3)	KZ97A	4/26/2007	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	ND	
D-9-2 (1-2)	KX96L/LA46B	4/26/2007	64 UJ	87 J	79 J	66 J	64 UJ	64 UJ	64 UJ	15.4 J	
D-9-3 (0-0.5)	KW48AI/KX96M	4/26/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND	
D-9-5 (0-0.5)	KW48AK/KX96O	4/26/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-CS0-1 (0-0.5)	KM95O	1/30/2007	320	420	460	350	370	220	67 U	509	
D-CS0-2 (0-0.5)	KM95P	1/30/2007	980	970	820	900	840	400	110	1204	
D-CS0-3 (0-0.5)	KM95Q	1/30/2007	96	140	110	160	75	66 U	66 U	113	
D-FA-10 (0-0.5)	0411208-05	11/9/2004	8,100 J	25,000 J	14,000 J	11,000 J	6,500 J	6,400 J	1,600	11,340	
D-FA-10 (1-2)	0411201-12	11/9/2004	7.0 UJ	7.0 UJ	7.0 UJ	7.0 UJ	7.0 UJ	7.0 UJ	7.0 UJ	ND	
D-FA-11 (1-2)	0411201-19	11/9/2004	100 J	140 J	130 J	73 J	100 J	110 J	7.0 UJ	143 J	
D-FA-12 (0-0.5)	HQ43B	1/24/2005	67	180	140	140	78	70	65 U	122	
D-FA-13 (0-0.5)	HT66A	1/27/2005	1800 J	2900 J	2000 J	2000 J	2000 J	820 J	350 J	2831 J	
D-FA-13 (1-2)	HU54A	1/27/2005	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	ND	
D-FA-14 (4-5)	0411208-10	11/9/2004	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	ND	
D-FA-5 (0-0.5)	HQ85A	1/27/2005	1500	2300	1100	1100	770	210	76	1214	
D-FA-5 (1-2)	HR04A/HS27N	1/27/2005	6700	15000	5000	5000	6600	2800	1200	9180	
D-FA-5 (2-3)	HS14C	1/27/2005	140	210	120	120	140	65	64 U	187	
D-FA-5 (3-5)	HS27I	1/27/2005	66 J	99 J	94 J	74 J	63 J	66 UJ	66 UJ	87	
D-FA-6 (0-0.5)	HQ85H	1/27/2005	550	1100	600	600	390	110	64 U	587	
D-FA-6 (1-2)	HR04R/HS27O	1/27/2005	1600	1900	1100	940	740	170	80	1172	
D-FA-6 (2-3)	HS14E	1/27/2005	1900	2800	1300	1300	1400	360	180	1986	
D-FA-6 (4-6)	HS68B/HS27L	1/27/2005	350 J	430 J	340 J	190 J	340 J	81 J	63 UJ	440	
D-FA-7 (0-0.5)	HQ43C	1/24/2005	210	330	240	240	260	97	65 U	342	
D-FA-7 (1-2)	HQ92B/HS27C	1/24/2005	300	600	400	400	290	67	64 U	413	
D-FA-7 (2-3)	HQ92L	1/24/2005	320	420	280	320	320	190	65	461	
D-FA-7 (3-5)	HS14A/HW14B/HS27E	1/24/2005	95 J	200 J	97 J	97 J	93 J	65 UJ	65 UJ	124	
D-FA-7 (7-9)	HS14B/HS27F	1/24/2005	93 J	140 J	81 J	81 J	95 J	66 UJ	66 UJ	122	
D-FA-8 (0-0.5)	HQ43A	1/24/2005	100	190	170	170	130	150	65 U	191	

**TABLE 9**  
**DETECTED cPAHs IN SOIL**  
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			cPAHs (µg/kg)								
			SW8270C-SIM								
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ	
Cleanup Levels (a)			140							140	
Location	Lab Id	Date Collected									
D-FA-8 (1-2)	HQ92A	1/24/2005	66 U	66 U	66 U	66 U	66 U	66 U	66 U	ND	
D-GC-1 (0-0.5)	HQ85B	1/27/2005	840	950	790	790	850	210	93	1160	
D-GC-1 (1-2)	HR04A	1/27/2005	100	170	100	120	100	65 U	65 U	134	
D-GC-10 (0-0.5)	0411208-14	11/9/2004	380	490	400	300	390	360	110	583	
D-GC-10 (1-2)	0411201-41	11/9/2004	23	39	20	11	12	8.0	7.0 U	19	
D-GC-10b (0-0.5)	KM95S	1/30/2007	270	630	320	270	280	150	63 U	387	
D-GC-11 (0-0.5)	0411208-11	11/9/2004	1,500	2,100	1,400	700	790	340	120	1253	
D-GC-11 (1-2)	0411201-32	12/17/04	90 J	100 J	91 J	62 J	84 J	67 J	26 J	126 J	
D-GC-11b (0-0.5)	KM95N	1/30/2007	110	150	140	140	120	79	65 U	168	
D-GC-11b (2-3)	KO03A	1/30/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-GC-11b (3-4)	KO03B	1/30/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-GC-12 (0-0.5)	HQ85J	1/27/2005	130	190	150	150	130	64 U	64 U	175	
D-GC-12 (1-2)	HR04Z/HT12B	1/27/2005	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-GC-12b (0-0.5)	KM95C	1/30/2007	130	150	110	110	100	63 U	63 U	137	
D-GC-12c (0-0.5)	KM95I	1/30/2007	88	310	170	160	77	66 U	66 U	122	
D-GC-12d (0-0.5)	KM95G	1/30/2007	63 U	130	130	120	73	68	63 U	106	
D-GC-12e (0-0.5)	KM95E	1/30/2007	97	130	140	110	98	66	65 U	141	
D-GC-2 (0.8-1.0)	HQ85N/HT60A	1/27/2005	3600 J	3700 J	2500 J	2500 J	2100 J	820 J	160 UJ	3079 J	
D-GC-2 (0-0.5)	HQ85G	1/27/2005	170	390	310	310	290	150	65 U	388	
D-GC-2 (1-2)	HS14D/HT12A	1/27/2005	96	170	160 M	160 M	130 M	85 U	85 U	173	
D-GC-2 (2-3)	HS68A	1/27/2005	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	ND	
D-GC-3 (0-0.5)	0411208-03	11/9/2004	100	200	190	120	120	170	7.0 U	180	
D-GC-3 (1-2)	0411201-08	11/9/2004	17 J	47 J	57 J	28 J	15 J	41.0 J	7.0 UJ	30 J	
D-GC-4 (1-1.5)	0411208-01	11/9/2004	7.0 U	17	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	0.2	
D-GC-5 (0-0.5)	0411208-02	11/9/2004	81	260	230	78	97	130	29 U	152	
D-GC-5 (1-2)	0411201-05	11/9/2004	8.0 UJ	8.0 UJ	8.0 UJ	8.0 UJ	8.0 UJ	8.0 UJ	8.0 UJ	ND	
D-GC-6 (0-0.5)	HQ43D	1/24/2005	180	380	260	260	200	100	65 U	284	
D-GC-6 (1-2)	HQ92C/HS27D	1/24/2005	450	1100	580	580	440	140	66	652	
D-GC-6 (2-3)	HQ92R/HT64A	1/24/2005	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND	
D-GC-7 (0-0.5)	HQ85K	1/27/2005	62 U	110	87	93	62 U	62 U	62 U	19	
D-GC-7A	KW70A	4/27/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-GC-7B	KW70B	4/27/2007	64 U	86	74	66	64 U	64 U	64 U	14.9	
D-GC-7C	KW70C	4/27/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND	
D-GC-8 (0-0.5)	0411208-12	11/9/2004	150	210	170	110	130	86	27	195	
D-GC-8 (1-2)	0411201-35	11/9/2004	14 UJ	34 J	14 UJ	14 UJ	14 UJ	14 UJ	14 UJ	0.34	
D-GC-8b (0-0.5)	KM95K	1/30/2007	100	270	200	170	99	79	66 U	157	
D-GC-8C	KW70D	4/27/2007	280	690	580	450	270	220	69	457.5	

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			cPAHs (µg/kg)								
			SW8270C-SIM								
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ	
Cleanup Levels (a)			140							140	
Location	Lab Id	Date Collected									
D-GC-9 (0-0.5)	0411208-13	11/9/2004	100	160	120	93	100	97	33.0		156
D-GC-9 (1-2)	0411201-38	11/9/2004	16	18	14	10	14	8.0 U	8.0 U		18.18
D-GC-9b (0-0.5)	KM95R	1/30/2007	590	750	560	410	400	170	64 U		581
Dup of D-7A-10 (1-2)	LB43A	4/24/2007	410 J	1200 J	1200 J	1000 J	550 J	380 J	88 J		896 J
DX-1 (0-0.5)	KX54A/KY42J	4/25/2007	65 UJ	76 J	65 UJ	91 J	65 UJ	65 UJ	65 UJ		9.9 J
DX-2 (0-0.5)	KX54B/KY42K	4/25/2007	460 J	560 J	470 J	360 J	290 J	140 J	66 UJ		439 J
DX-2 (1-2)	KZ32C	4/25/2007	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ	65 UJ		ND
DX-3 (0-0.5)	KX54C/KY42L	4/25/2007	180 J	300 J	280 J	180 J	140 J	69 J	61 UJ		214 J
DX-3 (1-2)	KZ32B	4/25/2007	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ	66 UJ		ND
EBS-1 (1-1.5)	KX36B	5/1/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U		ND
EBS-1 (1-1.5)	KX36B	5/1/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U		ND
EBS-2 (1-1.5)	KX36F	5/1/2007	66 U	66 U	66 U	66 U	66 U	66 U	66 U		ND
EBS-2 (1-1.5)	KX36F	5/1/2007	66 U	66 U	66 U	66 U	66 U	66 U	66 U		ND
EBS-3 (0.9-1.4)	KX36J	5/1/2007	63 U	63 U	63 U	63 U	63 U	63 U	63 U		ND
EBS-3 (0.9-1.4)	KX36J	5/1/2007	63 U	63 U	63 U	63 U	63 U	63 U	63 U		ND
E-GC-1 (0-0.5)	HP08L	1/12/2005	64 U	64 U	64 U	64 U	64 U	64 U	64 U		ND
E-GC-2 (0-0.5)	HP08M	1/12/2005	63 U	63 U	63 U	63 U	63 U	63 U	63 U		ND
E-GC-3 (0-0.5)	HP08R	1/12/2005	64 U	64 U	64 U	64 U	64 U	64 U	64 U		ND
E-GC-4 (0.5-1.0)	HP08O	1/12/2005	66 U	66 U	66 U	66 U	66 U	66 U	66 U		ND
E-GC-4 (1.5-2.5)	HP08P	1/12/2005	65 U	65 U	65 U	65 U	65 U	65 U	65 U		ND
E-GC-5 (1.5-2.0)	HP08N	1/12/2005	66 U	66 U	66 U	66 U	66 U	66 U	66 U		ND
F-4-SS (0-0.5)	GE76E	12/30/2003	210	260	270	210	220	110	45		321
F-5-SS (0-0.5)	GE76D	12/30/2003	82 J	140 J	120 J	77 J	87 J	51 UJ	51 UJ		1.4 J
F-9-CS-3 (2.5-3.5)	GI08K	2/12/2004	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U		ND
F-COB-B10 (0-0.75)	MF21K	1/14/2008	69	98	72	64 U	64 U	64 U	64 U		15.1
F-COB-B2 (0-0.75)	MF21B	1/14/2008	65 U	65 U	65 U	65 U	65 U	65 U	65 U		ND
F-COB-B4 (0-0.75)	MF21D	1/14/2008	62 U	87	74	74	62 U	62 U	62 U		15.7
F-COB-B5 (0-0.7)	MF21E	1/14/2008	130	89	100	66 U	74	66 U	66 U		97.9
F-COB-B5 (1.0-1.8)	MF21F	1/14/2008	70	92	66 U	66 U	66 U	66 U	66 U		7.9
F-COB-B6 (0-0.75)	MF21G	1/14/2008	64 U	70	79	65	69	64 U	64 U		84.1
F-COB-B6 (1.0-1.8)	MF21H	1/14/2008	200	240	130	86	97	65 U	65 U		141
F-COB-B8 (0-0.75)	MF21O	1/14/2008	63 U	63 U	63 U	63 U	63 U	63 U	63 U		ND
F-FA-10 (0-1)	HP57E	1/17/2005	71 U	71 U	71 U	71 U	71 U	71 U	71 U		ND
F-FA-10 (2-3)	HP57F/HR95T	1/17/2005	130	180	87	86 U	86 U	86 U	86 U		24
F-FA-11 (0-1)	HP57G	1/17/2005	72 U	72 U	72 U	72 U	72 U	72 U	72 U		ND
F-FA-12 (0-0.5)	HP57I	1/17/2005	70 U	70 U	70 U	70 U	70 U	70 U	70 U		ND
F-FA-3 (0-0.5)	HP32K	1/13/2005	69 U	69 U	69 U	69 U	69 U	69 U	69 U		ND



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			cPAHs (µg/kg) SW8270C-SIM							
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ
Cleanup Levels (a)			140							
Location	Lab Id	Date Collected								
F-FA-4 (0-0.5)	HP78B	1/18/2005	63 U	63 U	63 U	63 U	63 U	63 U	63 U	ND
F-FA-5 (0.7-1.2)	HP32H	1/13/2005	69 U	69 U	69 U	69 U	69 U	69 U	69 U	ND
F-FA-6 (1-2)	HP32J	1/13/2005	76	100	74 U	74 U	74 U	74 U	74 U	8.6
F-FA-8 (0-0.5)	HP32I	1/13/2005	74 U	90	74 U	74 U	74 U	74 U	74 U	0.90
F-FA-9 (0-0.5)	HP78A	1/18/2005	64 U	68	64 U	64 U	64 U	64 U	64 U	0.68
F-GC-1(0-0.5)	HP39A	1/14/2005	70 U	70 U	70 U	70 U	70 U	70 U	70 U	ND
F-GC-3(0-0.5)	HP32N	1/13/2005	70 U	70 U	70 U	70 U	70 U	70 U	70 U	ND
F-GC-5(0-0.5)	HP32M	1/13/2005	75	110	83	71 J	97	72 U	72 U	121
F-GC-7(0-0.5)	HP32L	1/13/2005	69 U	84	69 U	69 U	69 U	69 U	69 U	0.84
NMP2-F-6-SS	GE76F	12/30/2003	12	25	24	17	9.1	7.0 U	7.0 U	14.7
F-GC-10 (2.5-3.0)	HP32C	1/13/2005	100	160	140	110	100	96	80 U	146
F-GC-10 (3.5-4.5)	HP33E	1/13/2005	66 U	66 U	66 U	66 U	66 U	66 U	66 U	ND
F-GC-10.1E (0.5-1.0)	JD05R	3/2/2006	66 U	66 U	66 U	66 U	66 U	66 U	66 U	ND
F-GC-10.1W (1.0-1.5)	JD05Q	3/2/2006	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
F-GC-11 (0-0.5)	HP32D	1/13/2005	70 U	70 U	70 U	70 U	70 U	70 U	70 U	ND
F-GC-12 (0-0.5)	HP32E	1/13/2005	80 U	80 U	80 U	80 U	80 U	80 U	80 U	ND
F-GC-13 (0-1)	HP57H	1/17/2005	330	340	440	460	400	140	72 U	540
F-GC-13 (1-2)	HP61AB	1/17/2005	280	340	300	300	390	190 U	190 U	480
F-GC-13 (2-3)	HT12C	1/17/2005	560 J	1900 J	670 J	670 J	500 J	260 J	110 J	779 J
F-GC-13b (0-0.5)	HU67G	3/3/2005	66 U	66 U	66 U	66 U	66 U	66 U	66 U	ND
F-GC-13c (0-0.5)	HU67H	3/3/2005	130	390	320	170	160	140	63 U	240
F-GC-13d (3-4)	HU88A	3/3/2005	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
F-GC-8 (0.8-1.3)	HP32G	1/13/2005	84 U	84 U	84 U	84 U	84 U	84 U	84 U	ND
F-GC-9 (1.5-2.0)	HP32F	1/13/2005	79 U	79 U	79 U	79 U	79 U	79 U	79 U	ND
H-CSO-1 (1.2-1.7)	KM95Y	1/30/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
H-CSO-2 (0.5-1)	KM95T	1/30/2007	65 U	78	65 U	65 U	65 U	65 U	65 U	0.78
H-GC-3 (0-0.5)	0409181-09	9/10/2004	35 U	74	35 U	35 U	35 U	35 U	35 U	0.74
H-GC-4 (0-0.5)	0409181-10	9/10/2004	34	39	28	29	38	15 U	15 U	47
H-GC-6(1-1.5)	IH23T	7/14/2005	77	120	150	80	110	63	63	142
H-GC-6(2-3)	IH74B	7/14/2005	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
H-GC-7(1-1.5)		7/14/2005	710	840	1,200	1,000	950	330	130	1334
H-GC-7(2-3)	IA74C	7/14/2005	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
H-GC-7b (1.5-2)	KM95U	1/30/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
H-GC-7c (1.25-1.5)	KM95V	1/30/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
H-GC-7d (0.7-1.2)	KM95W	1/30/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
H-GC-7e (0.6-1.1)	KM95X	1/30/2007	63 U	63 U	63 U	63 U	63 U	63 U	63 U	ND
JP-1-SS (0-0.5)	GE49E	12/23/2003	7.1 U	7.1 U	7.1 U	7.1 U	7.1 U	7.1 U	7.1 U	ND

**TABLE 9**  
**DETECTED cPAHs IN SOIL**  
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			cPAHs (µg/kg) SW8270C-SIM							
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ
Cleanup Levels (a)			140							
Location	Lab Id	Date Collected								
JP-GC-1(1-1.5)	HP08I	1/12/2005	62 U	62 U	62 U	62 U	62 U	62 U	62 U	ND
JP-GC-2(1.5-2)	HP08H	1/12/2005	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
JP-GC-3(0-0.5)	0409181-07	9/10/2004	38	47	42	24	36	14 U	14 U	46.87
JP-GC-4(0.5-1)	HP08K	1/12/2005	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
JP-GC-5(0.5-1)	HP08J	1/12/2005	63 U	63 U	63 U	63 U	63 U	63 U	63 U	ND
JP-GC-6(0-0.5)	0409181-08	9/10/2004	21	26	15 U	15 U	22	15 U	15 U	24.36
M-2.1S (1-1.5)	JD04AE	3/1/2006	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
M-2.1W (1-1.5)	JD04AD	3/1/2006	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
PZ-9-CS-3 (2.5-3.5)	GI08I	2/11/2004	81	120	100	72	53	33	8.0 U	82.8
SBS-1 (1.3-2.0)	KW48AL	4/26/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
SBS-2 (0.8-1.3)	KW48AM	4/26/2007	62 U	62 U	62 U	62 U	62 U	62 U	62 U	ND
SBS-3 (0.8-1.3)	KW48AO	4/26/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
SBS-4 (0.8-1.3)	KW48AN	4/26/2007	64 U	64 U	64 U	64 U	64 U	64 U	64 U	ND
SBS-5 (1-1.6)	KX36N	5/1/2007	65 U	65 U	65 U	65 U	65 U	65 U	65 U	ND
TP-7	0411230-01	11/11/2004	180	220	130	70	94	57	8.0	140

ND = Not Detected.

U = the analyte was not detected in the sample at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

M = Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match.

Boxed cells indicate an exceedance of the site cleanup levels.

(a) Development of the cleanup levels is presented in Table 2.

**TABLE 10**  
**DETECTED PETROLEUM HYDROCARBONS AND BTEX IN SOIL**  
**INTERIM ACTION CLEANUP REPORT**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location	Lab Id	Date Collected	NWTPH-Dx (mg/kg)		NWTPH-G (mg/kg)	BTEX (µg/kg) Method 8021				
			Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene
			Cleanup Levels (a) 2000	2000	100/ 30	290	138,000	59,000	15,000	147,000
C-3-6(1.0-1.5)	JJ13C/JK08A	5/9/2006		5.4 U	23					
D-CSO-1,2,3 (0-0.5)	KN98A	1/30/2007		22	180					
D-FA-5 (0-0.5)	HQ85A	1/27/2005		100 J	220 J					
D-FA-6 (0-0.5)	HQ85H	1/27/2005		24 J	94 J					
D-FA-8 (0-0.5)	HQ43A	1/24/2005		11	65					
D-FA-10 (3-3.8)	0411201-14	11/9/2004		35 J	120 UJ					
D-FA-11 (4.5-5)	0411208-07	11/9/2004		760	110 U					
D-FA-11c (4.6-5.0)	0412318-02	12/21/2004		430	150					
D-FA-11e (2-3)	0412318-04	12/21/2004		7,300 J	100 UJ					
D-FA-11i (4.3-5.0)	0412318-05	12/21/2004		57	570					
D-FA-11i (4.5-4.9)	0412318-07	12/21/2004		30 U	120 U					
D-FA-11m (4.5-5.5)	0412318-08	12/21/2004		27 U	110 U					
D-FA-12 (0-0.5)	HQ43B	1/24/2005		9	93					
D-FA-15 (0-1)	HQ85L	1/27/2005		2,500 J	15,000 J					
D-GC-1 (0-0.5)	HQ85B	1/27/2005		16 J	94 J					
D-GC-2 (0-0.5)	HQ85G	1/27/2005		220 J	560 J					
D-GC-2 (0.8-1.0)	HQ85N/HT60A	1/27/2005		15,000 J	23,000 J					
D-GC-2b (0.5-1.0)	HQ85P	1/27/2005		6,100 J	27,000 J					
D-GC-12 (0-0.5)	HQ85J	1/27/2005		15 J	210 J					
D-2-3 (2-3)	KW48S/KX96E	4/26/2007		770	130					
D-2-3 (3-4)	KW48T	4/26/2007		20,000	480					
D-2-4 (3-4)	KW48X	4/26/2007		6,600	110					
D-3-CS (3.4-3.6)	GM39A	12/29/2003		990 J	9,500 J					
D-3.4 (1.2-5.0)	JY47C	9/26/2006		170	360					
D-3.5 (2.0-5.2)	JY47D	9/26/2006		89	180					
D-4-CS (4-5)	GM39B	12/29/2003		69 J	48 J					
D-4.3 (0-1.9)	JY46G	9/26/2006		300 J	510 J					
D-4.4 (2.1-5.2)	JY46R	9/26/2006		58	160					
D-4.4 (1-2)	KW30C/J	4/25/2007		94	590					
D-4.8 (1-2)	KW30D,R/KX38I	4/25/2007		5 U	17					
D-7.3 (0.4-4)	JY46H	9/26/2006		170	300					
D-7-1 (0-0.5)	KW30A/KX38A	4/25/2007		36	170					
D-7-1 (1-2)	KW30B/KX38B/KY42D	4/25/2007		110	770					
D-7A-1 (0-0.5)	KX01D/KY20B/KX02J/LA46L	4/30/2007		110	80					
D-7A-1 (1-2)	KX01E/KX02K	4/30/2007		950	340					
D-7A-1 (2-3)	KY20D/KX02L/LA46M	4/30/2007		11	13 U					
D-7-2 (0-0.5)	KW17A/KX04A	4/24/2007		170	790					
D-7-2 (1-2)	KW17B/KY09A	4/24/2007		1,200	160					
D-7-2 (2-3)	KW17C	4/24/2007		9,800	100					
D-7-2 (3-4)	KX21A	4/24/2007		6,600	1,100 U					
D-7-2 (4-5)	KY97A	4/24/2007		7 UJ	13 UJ					

**TABLE 10**  
**DETECTED PETROLEUM HYDROCARBONS AND BTEX IN SOIL**  
**INTERIM ACTION CLEANUP REPORT**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location	Lab Id	Date Collected	NWTPH-Dx (mg/kg)		NWTPH-G (mg/kg)	BTEX (µg/kg) Method 8021				
			Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene
			2000	2000	100/ 30	290	138,000	59,000	15,000	147,000
D-7A-2 (0-0.5)	KW17D/KX04B	4/24/2007	180	670						
D-7A-2 (1-2)	KW17E/KY09B/LA46F	4/24/2007	82	340						
D-7A-2 (2-3)	KW17F	4/24/2007	900	48						
D-7A-2 (3-4)	KW17G	4/24/2007	3,500	39						
D-7-3 (0-0.5)	KW18O/KX04YH/KY09I	4/24/2007	5 U	10 U						
D-7-3 (1-2)	KW18P	4/24/2007	26	210						
D-7A-3 (0-0.5)	KW48AP/KX96P/LA46C	4/26/2007	7	13						
D-7A-3 (1-2)	KW48AQ/KX96Q/LA46D	4/26/2007	6 U	12 U						
D-7A-3 (2-3)	KW48AR/KX96R/LA46E	4/26/2007	35	12 U						
D-7-4 (0-0.5)	KW18Q/KX04I	4/24/2007	64	280						
D-7-4 (1-2)	KW18R/KY09H/LA46K	4/24/2007	9	110						
D-7-4 (6-7)	KW18S	4/24/2007	7 U	15						
D-7A-5 (0-0.5)	KY20C/KX02C	4/30/2007	18	100						
D-7A-5 (1-2)	KX02D	4/30/2007	7,300	1,100 U						
D-7A-5 (2-3)	KX01B/KX02E	4/30/2007	5,400	1,200 U						
D-7A-5 (3-4)	KX01C/KY20A	4/30/2007	780	22						
D-7A-6 (0-0.5)	KW17H/KX04C	4/24/2007	59	270						
D-7A-6 (1-2)	KW17I/KY09C/LA46G	4/24/2007	25	260						
D-7A-6 (2-3)	KW17J	4/24/2007	5 U	10 U						
D-7A-6 (3-4)	KW17K	4/24/2007	13,000	220						
D-7A-6 (4-5)	KW16A/KW17L	4/24/2007	9,300	910						
D-7A-6 (5-6)	KW16B/KW17M/KW40A	4/24/2007	830	270	2,700	150 J	400 U	2,300	790 U	1,300
D-7A-6 (6-7)	KW16C/KW17N	4/24/2007	7 U	13 U						
D-7A-6 (7-8)	KW17O	4/24/2007	10	12						
D-7A-7 (0-0.5)	KW18A/KX04E	4/24/2007	290	1,500						
D-7A-7 (1-2)	KW18B/KY09E/LA46H	4/24/2007	5 U	15						
D-7A-7 (2-3)	KW18C	4/24/2007	5 U	10 U						
D-7A-7 (3-4)	KW18D	4/24/2007	5 U	10 U						
D-7A-7 (4-5)	KW16H/KW18E	4/24/2007	6 U	13 U						
D-7A-7 (5-6)	KW16I/KW18F/KW40D	4/24/2007	7,500	1,100	210	39 U	39 U	92	77 U	56
D-7A-7 (6-7)	KW18G	4/24/2007	31	13 U						
D-7A-7 (7-8)	KW18H	4/24/2007	360	19						
D-7A-8 (0-0.5)	KW18L/KX04G	4/24/2007	76	920						
D-7A-8 (1-2)	KW18M/KY09G/LA46J	4/24/2007	5 U	13						
D-7A-8 (2-3)	KW18N	4/24/2007	5 U	11 U						
D-7A-9 (0-0.5)	KW17P/KX04D/LA45A	4/24/2007	6	10 U						
D-7A-9 (1-2)	KW17Q/KY09D/LB43B	4/24/2007	18	110						
D-7A-9 (2-3)	KW17R	4/24/2007	7 U	14 U						
D-7A-9 (5-6)	KW16D/KW40B	4/24/2007			7,000	360 U	360 U	6,300	710 U	3,100
D-7A-9 (7-8)	KW16F/KW40C	4/24/2007			89	38	27 U	38	54 U	27 U
D-7A-10 (0-0.5)	KW18I/KX04F	4/24/2007	210	1,000						

**TABLE 10**  
**DETECTED PETROLEUM HYDROCARBONS AND BTEX IN SOIL**  
**INTERIM ACTION CLEANUP REPORT**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location	Lab Id	Date Collected	NWTPH-Dx (mg/kg)		NWTPH-G (mg/kg)	BTEX (µg/kg) Method 8021				
			Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene
			Cleanup Levels (a) 2000	2000	100/ 30	290	138,000	59,000	15,000	147,000
D-7A-10 (1-2)	KW18J/KY09F/LA46I	4/24/2007	290	2,500						
D-7A-10 (2-3)	KW18K/LC11A	4/24/2007	5 U	20						
E-FA-1 (5-5.5)	HQ96C	1/27/2005	5 U	10 U						
E-FA-2 (5.5-6.0)	HQ96A	1/27/2005	94	10 U		14 U	28 U	34	56 U	28 U
E-FA-2a (4.8-5.3)	HQ96E	1/27/2005	5 U	10 U						
E-FA-2b (3.8-4.2)	HQ96F	1/27/2005	610	180						
E-FA-3 (9.5-10)	HQ96D	1/27/2005	600	50 U		25 U	50 U	140	99 U	84
E-FA-4 (7-7.5)	HQ96B	1/27/2005	330 J	18 J						
E-FA-5 (4.5-4.9)	HP78C	1/18/2005	210	630						
E-GC-1 (0-0.5)	HP08L	1/12/2005	53	240						
E-GC-2 (0-0.5)	HP08M	1/12/2005	110	1,300						
E-GC-4 (0.5-1.0)	HP08O	1/12/2005	35	360						
E-GC-4c (3.5-4.0)	HP10N	1/12/2005	31	41 U		29 U	59 U	59 U	140	300
E-GC-4d (3.5-4.0)	HP08Q	1/12/2005	8,800	69		33 U	67 U	67 U	130 U	480
E-GC-4g (3.5-4.0)	HP10P	1/12/2005	5 U	10 U		11 U	22 U	22 U	44 U	22 U
E-3-1 (4.5-5.5)	JJ12N	5/10/2006	11	28						
E-3-2 (4.5-5.5)	JJ12O	5/10/2006	320	90						
E-3-3 (3.5-4.5)	JJ12P	5/10/2006	400	120						
E-3-4 (5-7)	JJ12J	5/10/2006	1,000	71 U						
E-3-5 (5-6)	JJ12M	5/10/2006	7 U	14 U						
E-3-6 (5-6)	JJ12L	5/10/2006	2,500	150 U						
E-3-7 (5-7)	JJ12I	5/10/2006	1,000	73 U						
E-3-8 (3.5-4.5)	JJ12G	5/10/2006	36	260						
E-3-10 (4-5)	JJ12E	5/10/2006	21	210						
E-3-11 (4-5)	JJ12H	5/10/2006	6 U	12						
E-3-12 (5-6)	JJ12K	5/10/2006	11	26						
E-3-13 (5-6)	JJ12Q	5/10/2006	6 U	12						
F-COB-B2 (0-0.75)	MF21B	1/14/2008	15	130						
F-COB-B4 (0-0.75)	MF21D	1/14/2008	14	82						
F-COB-B5 (0-0.7)	MF21E	1/14/2008	25	74						
F-COB-B6 (0-0.75)	MF21G	1/14/2008	18	88						
F-COB-B8 (0-0.75)	MF21O	1/14/2008	11	43						
F-COB-B10 (0-0.75)	MF21K	1/14/2008	52	220						
F-COB-IW-1	MG82A	1/14/2008	14	56						
F-FA-6 (1-2)	HP32J	1/13/2005	150	210						
F-FA-10 (2-3)	HP57F/HR95T	1/17/2005	210	270						
F-GC-1(0-0.5)	HP39A	1/14/2005	53 U	100 U		21 U				
F-GC-3(0-0.5)	HP32N	1/13/2005	53 U	110 U		21 U				
F-GC-5(0-0.5)	HP32M	1/13/2005	55 U	110 U		22 U				
F-GC-5(1-2)	HP33AG	1/13/2005								
F-GC-7(0-0.5)	HP32L	1/13/2005	33	710		210 U				

**TABLE 10**  
**DETECTED PETROLEUM HYDROCARBONS AND BTEX IN SOIL**  
**INTERIM ACTION CLEANUP REPORT**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location	Lab Id	Date Collected	NWTPH-Dx (mg/kg)		NWTPH-G (mg/kg)	BTEX (µg/kg) Method 8021				
			Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene
			Cleanup Levels (a) 2000	2000	100/ 30	290	138,000	59,000	15,000	147,000
NMP2-F-6-SS	GE76F	12/30/2003	50 U	100 U		26 U				
F-GC-13b.6S.2W (0-0.5)	JE81E/JH27C	3/27/2006	5 U	10						
F-5-SS (0-0.5)	GE76D	12/30/2003				1.6 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.6 UJ
H-1-CS (4-4.5)	GE49B	12/23/2003	5 U	10 U		7.2 UJ				
H-2-CS (4-5)	GE49C	12/23/2003	5 U	12		5.9 U				
H-3-CS (4.5-5)	GE49A	12/22/2003	5 U	10 U		6.6 UJ				
H-4-CS (5-6)	GI08Q	2/11/2004	17	140		5.9 UJ	30 UJ	30 UJ	30 UJ	59 UJ
H-5-CS (5-5.5)	GI08R	2/11/2004	5 U	10 U		6.6 UJ	33 UJ	33 UJ	33 UJ	66 UJ
H-GC-6(1-1.5)	IH23T	7/14/2005	33	81						
H-GC-7(1-1.5)		7/14/2005	310	400						
JP-GC-1(1-1.5)	HP08I	1/12/2005	53 U	110 U		21 U				
JP-GC-2(1.5-2)	HP08H	1/12/2005	55 U	110 U		22 U				
JP-GC-4(0.5-1)	HP08K	1/12/2005	54 U	110 U		22 U				
JP-GC-5(0.5-1)	HP08J	1/12/2005	54 U	110 U		22 U				
PZ-10-CS-3	GI08O	2/11/2004	5 U	10 U		6.6 UJ	33 UJ	33 UJ	33 UJ	66 UJ
TP-7	0411230-01	11/11/2004	180	550						

U = the analyte was not detected in the sample at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

Boxed cells indicate an exceedance of the site cleanup levels.

(a) Development of the cleanup levels is presented in Table 2.

**TABLE 11**  
**DETECTED VOCs IN SOIL**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			VOLATILE ORGANIC COMPOUNDS (µg/kg)								
			Method 8260B								
			Acetone	1,1-Dichloro ethane	Methyl ethyl ketone	1,1,1-Trichloro ethane	Trichloro ethene	Benzene	Tetrachloro ethene	Toluene	Ethylbenzene
Cleanup Level (a)			3,200	4,300	48,000,000	3,400,000	200	290	40	138,000	59,000
Location	Lab Id	Date Collected									
D-FA-14 (4-5)	0411208-10	11/9/2004	13.00 U	4.00 U	13.0 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U	4.00 U
D-FA-15 (0-1)	HQ85L	1/27/2005	280	150	78	460	6.1 M	160	13	2400	830

**TABLE 11**  
**DETECTED VOCs IN SOIL**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			VOLATILE ORGANIC COMPOUNDS (µg/kg)									
			Method 8260B									
			m,p-Xylene	o-Xylene	1,3,5-Trimethyl benzene	1,2,4-Trimethyl benzene	Isopropyl benzene	n-Propyl benzene	sec-Butyl benzene	4-Isopropyl toluene	n-Butyl benzene	Naphthalene
Cleanup Level (a)			160,000	160,000	4,000,000	4,000,000	--	--	--	--	--	138,000
Location	Lab Id	Date Collected										
D-FA-14 (4-5)	0411208-10	11/9/2004	4.00 U	4.00 U								
D-FA-15 (0-1)	HQ85L	1/27/2005	3200	1400	870	2400	200	400	95	72	240 M	280

U = the analyte was not detected in the sample at the given reporting limit.

M = Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match.

(a) Development of the cleanup levels is presented in Table 2.



**TABLE 12**  
**EPH AND HI IN SOIL**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			EPH (µg/kg)										
			EPH 8015B										
			C8-C10 Aliphatics	C10-C12 Aliphatics	C12-C16 Aliphatics	C16-C21 Aliphatics	C21-C34 Aliphatics	C8-C10 Aromatics	C10-C12 Aromatics	C12-C16 Aromatics	C16-C21 Aromatics	C21-C34 Aromatics	Hazard Index
Cleanup Levels (a)			1										
Location	Lab Id	Date Collected											
D-FA-11c (3.5-4.0)	HQ85I	1/27/2005	47,000	230,000	880,000	560,000	52,000	6,200	56,000	410,000	520,000	42,000	1.17
D-FA-11n (3-4)	HQ85F	1/27/2005	47,000	210,000	740,000	530,000	49,000	21,000	81,000	470,000	640,000	58,000	1.20
D-GC-2 (0.8-1.0)	HQ85N/HT60A	1/27/2005	82000 J	340000 J	2100000 J	2800000 J	10000000 J	21000 UJ	110000 J	960000 J	2100000 J	2000000 J	4.42 J
E-GC-4c (3.5-4.0)	HP10N	1/12/2005	3,300 U	12,000	85,000	33,000	13,000	3,300 U	3,300 U	33,000	42,000	8,900	0.11
E-GC-4d (3.5-4.0)	HP08Q	1/12/2005	130,000	680,000	3,700,000	1,400,000	94,000	16,000 U	94,000	1,300,000	1,600,000	84,000	4.11
E-GC-4g (3.5-4.0)	HP10P	1/12/2005	2,600 U	2,600 U	2,600 U	2,600 U	3,400	2,600 U	2,600 U	2,600 U	2,600 U	10,000	0.006
F-FA-6 (1-2)	HP32J	1/13/2005	2,200 U	9,500	23,000	21,000	110,000	2,200 U	2,200 U	2,400	22,000	58,000	0.06
F-FA-10 (2-3)	HP57F/HR95T	1/17/2005	10,000	38,000	64,000	48,000	310,000	2400 U	2400 U	5700	51,000	82,000	0.15

U = the analyte was not detected in the sample at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Boxed cells indicate an exceedance of the site cleanup levels.

(a) Development of the cleanup levels is presented in Table 2.

**TABLE 13**  
**DETECTED SVOCS IN SOIL**  
**INTERIM ACTION CLEANUP REPORT**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

SEMIVOLATILE ORGANIC COMPOUNDS (µg/kg)														
Method 8270C														
			Naphthalene	2-Methyl naphthalene	1-Methyl naphthalene	Total naphthalenes	Dibenzo furan	Fluorene	Phenan threne	Carbazole	Anthracene	Fluoran thene	bis(2- Ethylhexyl) phthalate	
Cleanup Levels (a)			140,000	320,000	24,000	--	160,000	553,000	--	50,000	12,000,000	89,000	2,400,000	4,900
Location	Lab Id	Date Collected												
D-FA-14 (4-5)	0411208-10	11/9/2004	430 U	430 U			430 U	430 U	430 U	430 U	430 U	210 J	430 U	430 U
D-FA-15 (0-1)	HQ85L	1/27/2005	1800 U	1800 U			1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	2400
D-2-3 (2-3)	KW48S/KX96E	4/26/2007	66 U	66 U	66 U	ND								
D-2-3 (3-4)	KW48T	4/26/2007	4,000	18,000	19,000	41,000								
D-2-4 (3-4)	KW48X	4/26/2007	4,600	330 U	27,000	31,600								
D-2-4 (4-5)	KW48Y	4/26/2007	3,800	4,600	23,000	31,400								
D-4-4 (1-2)	KW30C/J	4/25/2007	66 U	66 U	66 U	ND								
D-4-8 (1-2)	KW30D,R/KX38I	4/25/2007	66 U	66 U	66 U	ND								
D-7-1 (0-0.5)	KW30A/KX38A	4/25/2007	66 U	66 U	66 U	ND								
D-7-1 (1-2)	KW30B/KX38B/KY42D	4/25/2007	66 U	66 U	66 U	ND								
D-7A-1 (0-0.5)	KX01D/KY20B/KX02J/LA46L	4/30/2007	64 U	64 U	64 U	ND								
D-7A-1 (1-2)	KX01E/KX02K	4/30/2007	940	3,200	2,500	6,640								
D-7A-1 (2-3)	KY20D/KX02L/LA46M	4/30/2007	64 U	64 U	64 U	ND								
D-7-2 (0-0.5)	KW17A/KX04A	4/24/2007	64 UJ	64 UJ	64 UJ	ND								
D-7-2 (1-2)	KW17B/KY09A	4/24/2007	65 U	68	180	248								
D-7-2 (2-3)	KW17C	4/24/2007	270 U	810 U	1,600 J	1,600 J								
D-7A-2 (0-0.5)	KW17D/KX04B	4/24/2007	65 U	65 U	65 U	ND								
D-7A-2 (1-2)	KW17E/KY09B/LA46F	4/24/2007	64 UJ	64 UJ	64 UJ	ND								
D-7A-2 (2-3)	KW17F	4/24/2007	66 U	66 U	66 U	ND								
D-7A-2 (3-4)	KW17G	4/24/2007	81 U	2,800	5,200	8,000								
D-7-3 (0-0.5)	KW18O/KX04YH/KY09I	4/24/2007	64 U	64 U	64 U	ND								
D-7-3 (1-2)	KW18P	4/24/2007	66 U	66 U	66 U	ND								
D-7A-3 (0-0.5)	KW48AP/KX96P/LA46C	4/26/2007	63 U	63 U	63 U	ND								
D-7A-3 (1-2)	KW48AQ/KX96Q/LA46D	4/26/2007	66 U	66 U	66 U	ND								
D-7A-3 (2-3)	KW48AR/KX96R/LA46E	4/26/2007	64 U	64 U	64 U	ND								
D-7-4 (0-0.5)	KW18Q/KX04I	4/24/2007	64 UJ	64 UJ	64 UJ	ND								
D-7-4 (1-2)	KW18R/KY09H/LA46K	4/24/2007	65 U	65 U	65 U	ND								
D-7-4 (6-7)	KW18S	4/24/2007	64 UJ	64 UJ	64 UJ	ND								
D-7A-5 (0-0.5)	KY20C/KX02C	4/30/2007	110	65 U	65 U	110								
D-7A-5 (1-2)	KX02D	4/30/2007	2,600	20,000	16,000	38,600								
D-7A-5 (2-3)	KX01B/KX02E	4/30/2007	2,900	19,000	14,000	35,900								
D-7A-5 (3-4)	KX01C/KY20A	4/30/2007	210	96	680	986								
D-7A-6 (0-0.5)	KW17H/KX04C	4/24/2007	64 U	64 U	64 U	ND								
D-7A-6 (1-2)	KW17I/KY09C/LA46G	4/24/2007	62 U	62 U	62 U	ND								
D-7A-6 (2-3)	KW17J	4/24/2007	65 U	65 U	65 U	ND								
D-7A-6 (3-4)	KW17K	4/24/2007	7,000 J	61,000	32,000	100,000 J								
D-7A-6 (4-5)	KW16A/KW17L	4/24/2007	9,600	41,000 J	23,000 J	73,600 J								
D-7A-6 (5-6)	KW16B/KW17M/KW40A	4/24/2007	2,600	5,600	3,900	12,100								
D-7A-6 (6-7)	KW16C/KW17N	4/24/2007	64 U	64 U	64 U	ND								
D-7A-6 (7-8)	KW17O	4/24/2007	65 U	65 U	65 U	ND								
D-7A-7 (0-0.5)	KW18A/KX04E	4/24/2007	65 UJ	65 UJ	65 UJ	ND								
D-7A-7 (1-2)	KW18B/KY09E/LA46H	4/24/2007	65 U	65 U	65 U	ND								
D-7A-7 (2-3)	KW18C	4/24/2007	66 U	66 U	66 U	ND								
D-7A-7 (3-4)	KW18D	4/24/2007	65 U	65 U	65 U	ND								
D-7A-7 (4-5)	KW16H/KW18E	4/24/2007	64 U	70	66	136								
D-7A-7 (5-6)	KW16I/KW18F/KW40D	4/24/2007	9,100	49,000	25,000	83,100								
D-7A-7 (6-7)	KW18G	4/24/2007	210	380	230	820								
D-7A-7 (7-8)	KW18H	4/24/2007	64 U	360	250	610								
D-7A-8 (0-0.5)	KW18L/KX04G	4/24/2007	110 J	63 UJ	63 UJ	110 J								

**TABLE 13**  
**DETECTED SVOCS IN SOIL**  
**INTERIM ACTION CLEANUP REPORT**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			SEMIVOLATILE ORGANIC COMPOUNDS (µg/kg)											
			Method 8270C											
		Cleanup Levels (a)	Naphthalene	2-Methyl naphthalene	1-Methyl naphthalene	Total naphthalenes	Dibenzo furan	Fluorene	Phenan threne	Carbazole	Anthracene	Fluoran thene	Pyrene	bis(2-Ethylhexyl) phthalate
			140,000	320,000	24,000	--	160,000	553,000	--	50,000	12,000,000	89,000	2,400,000	4,900
Location	Lab Id	Date Collected												
D-7A-8 (1-2)	KW18M/KY09G/LA46J	4/24/2007	63 U	63 U	63 U	ND								
D-7A-8 (2-3)	KW18N	4/24/2007	64 U	64 U	64 U	ND								
D-7A-9 (0-0.5)	KW17P/KX04D/LA45A	4/24/2007	65 U	65 U	65 U	ND								
D-7A-9 (1-2)	KW17Q/KY09D/LB43B	4/24/2007	65 U	65 U	65 U	ND								
D-7A-9 (2-3)	KW17R	4/24/2007	65 U	65 U	65 U	ND								
D-7A-10 (0-0.5)	KW18I/KX04F	4/24/2007	64 UJ	64 UJ	64 UJ	ND								
D-7A-10 (1-2)	KW18J/KY09F/LA46I	4/24/2007	81 J	99 J	110 J	290 J								
D-7A-10 (2-3)	KW18K/LC11A	4/24/2007	64 U	64 U	64 U	ND								
DX-3 (2-3)	KW35G	4/25/2007	63 UJ	63 UJ	63 UJ	ND								
ACC-EAST SUMP	HQ85M	1/28/2005	350 U	270 J			420	1600	5100	1800	4800	2500	1600	700

U = the analyte was not detected in the sample at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

(a) Development of the cleanup levels is presented in Table 2.

**TABLE 14**  
**DETECTED METALS IN GROUNDWATER**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			DISSOLVED METALS (µg/L)							
			SW6000-7000 Series							
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Silver	Zinc
Cleanup Levels (a)			5	8.8	50	2.4	8.1	0.1		81
Location	Lab Id	Date Collected								
D-FA-10	0411208-06	11/9/2004	1.4		1.0 U	2.0 U	0.02 U			16.1
D-FA-14	0411208-09	11/9/2004	67.2 (b)		77.5 (b)	81.3 (b)	90.6 (b)			279 (b)
D-FA-14b	HU69A	3/3/2005	3.0	0.2 U		0.5 U	1 U	0.1 U		4 U
D-7-3	KW21C	4/24/2007	0.8							
D-7-4	KW21D	4/24/2007	0.7							
D-7A-6	KX03D/KX06D	4/30/2007	0.8							
D-7A-7	KX03B/KX06B	4/30/2007	0.4							
DupD-7A-7	KX03C/KX06C	4/30/2007	0.3							
D-7A-8	KW21A	4/24/2007	0.7							
D-7A-10	KW12A/KW21B	4/24/2007	0.3							
NMP2-E-3-GW	GI07C	2/12/2004					1 U			
E-4	KX03A/KX06A	4/30/2007	0.5							
NMP2-F-8-GW	GI07F	2/12/2004	14	2 U	5 U	2 U	1 U	0.1 U	3 U	6 U
NMP2-H-4-GW	GI07H	2/11/2004					1 U			
NMP2-H-5-GW	GI07I	2/11/2004					1 U			
NMP2-P-3	GI71C	2/19/2004	90	2 U	5 U	2 U	1 U	0.1 U	3 U	6 U
NMP2-P-5	GI71E	2/19/2004	1	2 U	5 U	2 U	1 U	0.1 U	3 U	6 U
Dup of NMP2-P-5	GI71F	2/19/2004	2	2 U	5 U	2 U	1 U	0.1 U	3 U	6 U
NMP2-P-6	GI71G	2/19/2004	4	2 U	5 U	2 U	1 U	0.1 U	3 U	6 U
NMP2-P-7	GI71H	2/18/2004	1 U	2 U	5 U	2 U	1 U	0.1 U	3 U	6 U
NMP2-P-9	GI85A	2/23/2004	146	4 U	10 U	4 U	1	0.1 U	6 U	10 U
P-3	HQ52E/HS20D,H	1/24/2005	66.7	0.2 U		0.9	1 U	0.1 U		4 U
P-3	HU64F	3/4/2005	45.7							
P-5	HU64B	3/4/2005	0.3							
P-13	HQ52B/HS20B,F	1/24/2005	12.3	0.2 U		0.6	1 U	0.1 U		4 U
P-13	HU64E	3/4/2005	9.3							
Dup of P-13	HU64H	3/4/2005	9.6							
P-14	HQ52A/HS20A,E	1/24/2005	68.4	0.2 U		0.6	1 U	0.1 U		4 U
P-14	HU64D	3/4/2005	71.3							
P-15	HR01A	1/24/2005	30.0	0.2 U		0.8	1 U	0.1 U		4 U
Dup of P-15	HR01B	1/24/2005	29.1	0.2 U		0.8	1 U	0.1 U		4 U
P-15	HU64C	3/4/2005	22.2							

**TABLE 14**  
**DETECTED METALS IN GROUNDWATER**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			DISSOLVED METALS (µg/L)							
			SW6000-7000 Series							
		Cleanup Levels (a)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Silver	Zinc
Location	Lab Id	Date Collected	5	8.8	50	2.4	8.1	0.1		81
P-16	HQ52C/HS20C,G	1/24/2005	39.4	0.2 U		0.5 U	1 U	0.1 U		5
P-16	HU64G	3/4/2005	32.3							
P-17	HQ86D	1/28/2005	23.2	0.2 U		2.8	1 U	0.1 U		10
P-18	HQ86B	1/28/2005	4	1 U		4	5 U	0.1 U		20 U
Dup of P-18	HQ86C	1/28/2005	6	1 U		5	5 U	0.1 U		20 U
P-19	HQ86A	1/28/2005	0.5 U	0.2 U		1.8	1 U	0.1 U		4 U
P-20	HQ86E	1/28/2005	3.2	0.2 U		0.5	1 U	0.1 U		7
P-21	0412400-01	12/29/2004	10.3	1.0 U	2.0 U	46.8	1.0 U	0.20 U		10.0 U
P-23		7/15/2005	14.2	0.2 U		0.5 U	1 U	0.1 U		4 U
P-24		7/15/2005	0.2	0.2 U		0.5 U	1 U	0.1 U		4 U
P-25	KX03E/KX06E	4/30/2007	0.3							

U = the analyte was not detected in the sample at the given reporting limit.

Boxed cells indicate an exceedance of the site cleanup levels.

- (a) Development of the cleanup levels is presented in Table 3.
- (b) Inaccurate metals concentrations in sample D-FA-14 resulted from a failure of the field filter. The location was resampled to obtain accurate groundwater sample results, and the new sample was named D-FA-14b, as presented on this table.

**TABLE 15**  
**DETECTED cPAHs IN GROUNDWATER**  
**INTERIM ACTION CLEANUP REPORT**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			cPAHs (µg/L)							
			SW8270C-SIM							
			Benzo[a] anthracene	Chrysene	Benzo[b] fluoranthene	Benzo[k] fluoranthene	Benzo[a] pyrene	Indeno [1,2,3-cd] pyrene	Dibenz[a,h] anthracene	cPAH TEQ
Cleanup Levels (a)			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Location	Lab Id	Date Collected								
NMP2-D-1-GW	GE75A	12/29/2003	0.15 J	0.20 J	0.13 J	0.13 J	0.19 J	0.10 J	0.042 J	0.26 J
NMP2-D-2-GW	GE75B	12/29/2003	0.017 J	0.021 J	0.022 J	0.21 J	0.021 J	0.014 J	0.011 UJ	0.048 J
NMP2-D-3-GW	GE75C	12/29/2003	0.011 UJ	0.012 J	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.00012 J
NMP2-D-4-GW	GE75D	12/29/2003	0.26 J	0.24 J	0.062 J	0.062 J	0.070 J	0.022 J	0.020 UJ	0.113 J
NMP2-F-1-GW	GE48D	12/22/2003	0.080 J	0.081 J	0.029 J	0.029 J	0.067 J	0.021 J	0.010 UJ	0.084 J
NMP2-F-2-GW	GE48E	12/22/2003	0.027 J	0.028 J	0.012 J	0.012 J	0.025 J	0.010 UJ	0.010 UJ	0.030 J
NMP2-F-3-GW	GE48F	12/22/2003	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	ND
NMP2-P-3	GI71C	2/19/2004	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	ND
NMP2-P-5	GI71E	2/19/2004	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	0.010 UJ	ND
Dup of NMP2-P-5	GI71F	2/19/2004	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	ND
NMP2-P-6	GI71G	2/19/2004	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	ND
NMP2-P-7	GI71H	2/18/2004	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	0.011 UJ	ND
NMP2-P-9	GI85A	2/23/2004	0.015 J	0.030 UJ	0.022 UJ	0.018 J	0.012 J	0.011 UJ	0.011 UJ	0.015 J
P-17	HQ86D	1/28/2005	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	ND
P-18	HQ86B	1/28/2005	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	ND
Dup of P-18	HQ86C	1/28/2005	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	ND
P-19	HQ86A	1/28/2005	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	ND
P-20	HQ86E	1/28/2005	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	ND

U = the analyte was not detected in the sample at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

Boxed cells indicate an exceedance of the site cleanup levels.

(a) Development of the cleanup levels is presented in Table 2.

**TABLE 16**  
**DETECTED PETROLEUM HYDROCARBONS AND BTEX IN GROUNDWATER**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location	Lab Id	Date Collected	NWTPH-Dx (mg/L)		NWTPH-Gx (mg/L)	BTEX (µg/L)				
			Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene
Cleanup Levels (a)			0.5	0.5	0.8	51	15,000	2,100	1,600	16,000
NMP2-C-3-GW	GE48P	12/23/2003	0.25 U	0.50 U	0.25 U					
D-FA-10	0411208-06	11/9/2004	0.960	0.300						
D-FA-11	0411208-08	11/9/2004	6.10	0.610						
D-FA-11b	0411208-15	11/9/2004			0.340					
D-FA-11c	0412318-01	12/21/2004	0.330	0.850 U	0.25	0.20 U	0.30 U	0.20 U	0.40 U	0.20 U
D-FA-11e	0412318-03	12/21/2004	0.230 U	0.930 U						
D-FA-11k	0412318-06	12/21/2004	0.220	0.800 U						
D-FA-14	0411208-09	11/9/2004	0.730	0.740						
NMP2-D-1-GW	GE75A	12/29/2003	0.25 U	0.50 U	0.25 U					
NMP2-D-2-GW	GE75B	12/29/2003	0.25 U	0.50 U	0.25 U					
NMP2-D-3-GW	GE75C	12/29/2003	0.25 U	0.50 U	0.25 U					
NMP2-D-4-GW	GE75D	12/29/2003	0.26	0.50 U	0.25 U					
D-7-3	KW21C	4/24/2007	0.25 U	0.50 U	0.25 U					
D-7-4	KW21D	4/24/2007	0.25 U	0.50 U	0.79					
D-7A-6	KX03D/KX06D	4/30/2007	0.25 U	0.50 U	0.25 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
D-7A-7	KX03B/KX06B	4/30/2007	2.4 J	0.50 U	0.79	1.0 U	1.0 U	1.8	4.4	1.1
DupD-7A-7	KX03C/KX06C	4/30/2007	1.8 J	0.50 U	0.82	1.0 U	1.0 U	1.9	4.6	1.1
D-7A-8	KW21A	4/24/2007	0.25 U	0.50 U	0.25 U					
D-7A-9	KW40E	4/24/2007			1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
D-7A-10	KW12A/KW21B	4/24/2007	0.25 U	0.50 U	0.3					
E-3-2	JJ12C	5/10/2006	0.25 U	0.50 U						
E-3-3	JJ12D	5/10/2006	0.25 U	0.50 U						
E-3-6	JJ12B	5/10/2006	0.25 U	0.50 U						
E-3-10	JJ12A	5/10/2006	0.25 U	0.50 U						
E-FA-2	HQ97A	1/27/2005	4.6	0.50 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
E-FA-2a	HQ97B	1/27/2005	0.25 U	0.50 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
E-FA-5	HP77E	1/18/2005	0.25 U	0.50 U						
NMP2-E-1-GW	GE48C	12/22/2003	0.25 U	0.50 U	0.25 U					
NMP2-E-2-GW	GE75E	12/29/2003	0.25 U	0.50 U	0.25 U					
NMP2-E-3-GW	GI07C	2/12/2004	0.25 U	0.50 U	0.25 U	1.0 U	1.8 U	1.0 U	1.0 U	1.0 U
E-4	KX03A/KX06A	4/30/2007	2.0	0.50 U	0.25 U	1.0 U	1.0 U	1.0 U	1.5	1.0 U
NMP2-F-1-GW	GE48D	12/22/2003	0.25 U	0.50 U	0.25 U					
NMP2-F-2-GW	GE48E	12/22/2003	0.25 U	0.50 U	0.25 U					
NMP2-F-3-GW	GE48F	12/22/2003	0.25 U	0.50 U	0.25 U					
NMP2-H-1-GW	GE48I	12/23/2003	0.25 U	0.50 U	0.25 U					
NMP2-H-2-GW	GE48J	12/23/2003	0.25 U	0.50 U	0.25 U					
NMP2-H-3-GW	GE48B	12/22/2003	0.25 U	0.50 U	0.25 U					
NMP2-H-4-GW	GI07H	2/11/2004	0.25 U	0.50 U	0.25 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
NMP2-H-5-GW	GI07I	2/11/2004	0.25 U	0.50 U	0.25 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
NMP2-J-1-GW	GI07J	2/12/2004	0.25 U	0.50 U	0.25 U					
NMP2-J-2-GW	GI07K	2/12/2004	0.25 U	0.50 U	0.25 U					
NMP2-P-3	GI71C	2/19/2004			0.25 U					
NMP2-P-5	GI71E	2/19/2004	0.25 U	0.50 U	0.25 U					
Dup of NMP2-P-5	GI71F	2/19/2004	0.25 U	0.50 U	0.25 U					

**TABLE 16**  
**DETECTED PETROLEUM HYDROCARBONS AND BTEX IN GROUNDWATER**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Location	Lab Id	Date Collected	NWTPH-Dx (mg/L)		NWTPH-Gx (mg/L)	BTEX (µg/L)				
			Diesel	Motor Oil	Gasoline	Benzene	Toluene	Ethyl Benzene	m,p-Xylene	o-Xylene
			Cleanup Levels (a)	0.5	0.5	0.8	51	15,000	2,100	1,600
NMP2-P-7	GI71H	2/18/2004	0.25 U	0.50 U	0.25 U					
P-21	0412400-01	12/29/2004	0.220 U	0.870 U						
P-22	HQ97D	1/27/2005	0.25 U	0.50 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dup of P-22	HQ97E	1/27/2005	0.25 U	0.50 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
P-23	HQ97G	1/28/2005	0.25 U	0.50 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
P-24	HQ97F	1/28/2005	0.25 U	0.50 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
P-25	KX03E/KX06E	4/30/2007	0.43	0.50 U	0.91	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

U = the analyte was not detected in the sample at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Boxed cells indicate an exceedance of the site cleanup levels.

(a) Development of the cleanup levels is presented in Table 3.



**TABLE 17**  
**DETECTED VOCs AND SVOCs IN GROUNDWATER**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

			VOLATILE ORGANIC COMPOUNDS (ug/L)												
			Method 8260B												
Cleanup levels (a)			Vinyl chloride	Chloro- thane	Acetone	Carbon disulfide	1,1- Dichloro- ethane	trans-1,2- Dichloro- ethene	cis-1,2- Dichloro- ethene	1,1,1- Trichloro- ethane	Tri- chloro- ethene	Toluene	1,3,5- Trimethyl- benzene	1,2,4- Trimethyl- benzene	Naphthalene
			2.4	15	800	800	800	10000	70	420000	30	15000	400	400	4900
Location	Lab Id	Date Collected													
NMP2-C-3-GW	GE48P	12/23/2003	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U
D-FA-10	0411208-06	11/9/2004	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
D-FA-11	0411208-08	11/9/2004	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
D-FA-11c	0412318-01	12/21/2004	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
D-FA-14	0411208-09	11/9/2004	1.0 U	4.1	5.0 U	1.0 U	7.3	1.0 U	1.0 U	34	1.0 U	1.4			
NMP2-D-1-GW	GE75A	12/29/2003	0.2 U	0.2 U	5.7	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U
NMP2-D-2-GW	GE75B	12/29/2003	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U
NMP2-D-3-GW	GE75C	12/29/2003	0.2 U	0.2 U	2.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U
NMP2-D-4-GW	GE75D	12/29/2003	0.2 U	0.2 U	1.9	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.9	660
NMP2-E-4-GW	GI07E	2/12/2004	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3.8	0.2 U	0.2 U	0.5 U
NMP2-F-1-GW	GE48D	12/22/2003	0.5	0.2 U	1.6 M	0.2	0.2 U	0.2	0.8	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.5 U
NMP2-F-2-GW	GE48E	12/22/2003	17	0.2 U	2.4	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U
NMP2-P-5	GI71E	2/19/2004	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U
Dup of NMP2-P-5	GI71F	2/19/2004	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U
NMP2-P-7	GI71H	2/18/2004	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U
P-21	0412400-01	12/29/2004	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U			

**SEMIVOLATILE ORGANIC COMPOUNDS (ug/L)**

**Method 8270C**

Location	Lab Id	Date Collected	Naphthalene
D-FA-10	0411208-06	11/9/2004	5.0 U
D-FA-11c	0412318-01	12/21/2004	10.0
D-FA-14	0411208-09	11/9/2004	5.0 U
P-21	0412400-01	12/29/2004	5.0 U

U = the analyte was not detected in the sample at the given reporting limit.

M = Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match.

Boxed cells indicate an exceedance of the site cleanup levels.

(a) Development of the cleanup levels is presented in Table 3.

TABLE 18  
ANALYTICAL REUSULTS FOR FAILED COMPLIANCE MONITORING SOIL SAMPLES  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1
	Site Cleanup Levels (a)	D1-B9 LT09I 10/8/2007	D1-B9a LU36A 10/18/2007	D1-S1a2 LT59A 10/12/2007	D1-S1-A3 LU36B 10/18/2007	D1-S1c LS45E 10/3/2007	D1-S1c-AC-1 LT38B 10/10/2007	D1-S2a2 LT59C 10/12/2007	D1-S2-A3 LU36D 10/18/2007	D1-S2c LS45F 10/3/2007	D1-S3a LS45D 10/3/2007	D1-S3a2 LT59F 10/12/2007	D1-S3-A3 LU36E 10/18/2007	D1-S3-A4 LV31C 10/25/2007	D1-S3b LS45c 10/3/2007	D1-S3c LS45B 10/3/2007	D1-S4a LS71C 10/4/2007	D1-S4a2 LT59I 10/12/2007	D1-S4b2 LT59J 10/12/2007	D1-S4-B3 LU36F 10/18/2007	D1-S4c2 LT59K 10/12/2007	D1-S4-C3 LU36G 10/18/2007
<b>HYDROCARBON IDENTIFICATION</b>																						
<b>NWTPH-HCID (mg/kg)</b>																						
Gasoline Range																						
Diesel Range																						
Oil Range																						
<b>NWTPH-DxSG (mg/kg)</b>																						
Diesel Range Hydrocarbons	2,000																					
Motor Oil	2,000																					
Mineral Spirits	4,000																					
Creosote																						
<b>NWTPH-G (mg/kg)</b>																						
Gasoline	100																					
<b>BTEX (µg/kg)</b>																						
<b>EPA Method 8021</b>																						
Benzene	290																					
Toluene	110,000																					
Ethylbenzene	18,000																					
m,p-Xylene	15,000																					
o-Xylene	147,000																					
Xylenes (total)																						
<b>TOTAL METALS (mg/kg)</b>																						
<b>SW 6000/7000 series</b>																						
Arsenic	20	47	11	13	37	69	13	17		77	20	38	37	23	58	30	87	94	144	34	109	51
Cadmium	80																					
Chromium	--																					
Copper	2,960	63.2	37.9	30.9	47.8	105	40.9	30.7		102	31.0	56.5	47.8	45.0	30.8	34.2	84.8	109	186	42.3	202	78.7
Lead	250																					
Mercury	24																					
Zinc	24,000																					
Barium	1,648																					
Selenium																						
Silver																						
<b>TCLP (mg/L)</b>																						
<b>EPA Method 1311-6010</b>																						
Arsenic																						
Lead																						
<b>cPAHs (µg/kg)</b>																						
<b>SW8270D</b>																						
Benzo(a)anthracene	--	83		260	180	150	110	220	620	160	590	150			82	130	290	75	350	110	310	120
Chrysene	--	95		710	310	200	140	210	1,400	230	600	290			150	290	1,000	130	410	160	420	180
Benzo(b)fluoranthene	--	80		690	310	160	66	250	1,500	190	370	310			170	140	360	120	410	140	440	150
Benzo(k)fluoranthene	--	66		420	230	120	66 U	120	790	120	260	200			99	120	260	87	330	90	260	110
Benzo(a)pyrene	--	73		500	210	120	110	150	780	120	240	180			93	100	220	69	340	81	290	99
Indeno(1,2,3-cd)pyrene	--	65 U		300	120	64 U	66 U	64 U	440	65 U	88	80			64 U	64 U	130	63 U	140	66 U	130	66 U
Dibenz(a,h)anthracene	--	65 U		76	65 U	64 U	66 U	64 U	96	65 U	65 U	64 U			64 U	64 U	66 U	63 U	63 U	66 U	66 U	66 U
TEQ	137	96.8		704	297	165	129	211	1170	169	377	257			130	142	334	98.5	467	117	408	139

TABLE 18  
ANALYTICAL REUSULTS FOR FAILED COMPLIANCE MONITORING SOIL SAMPLES  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-2a	D-2a	D-2a	D-2a	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2d	D-2e	D-2e
	Site Cleanup Levels (a)	D1-S6a LS71D 10/4/2007	D1-S7-a2 LT59R 10/12/2007	D1-S7-A3 LU36H 10/18/2007	D1-S7b2 LT60A 10/12/2007	D1-S8a LS71E 10/4/2007	D1-S8a2 LT60C 10/12/2007	D1-S9b LS71A 10/4/2007	D1-S9c LS71B 10/4/2007	D1-S10c LS84A 10/5/2007	D2a-B1 LN83A 8/31/2007	D2a-B1a LR83B 10/1/2007	D2a-B2 LN83B 8/31/2007	D2a-B3 LN83C 8/31/2007	D2c-AC-4 L070904-01 9/4/2007	D2c-AC-6 L070904-12 9/4/2007	D2c-AC-2 LN49A 8/29/2007	D2c-AC-1 LN49B 8/29/2007	D2c-AC-3 LN49C 8/29/2007	D2c-AC-8 LO63B 9/7/2007	D2d-Petrol LD75A/LD88A 6/15/2007	D2E-B5 MB03G 12/6/2007	D2E-B13 MD34D 12/20/2007
<b>HYDROCARBON IDENTIFICATION</b>																							
<b>NWTPH-HCID (mg/kg)</b>																							
Gasoline Range																							
Diesel Range																					120 U		
Oil Range																					>310		
																					>620		
<b>NWTPH-DxSG (mg/kg)</b>																							
Diesel Range Hydrocarbons	2,000														5,500	4,800	5,000	5,300	19,000	3800	3200		
Motor Oil	2,000														100 U	100 U	1,000	470 U	6,300	250 U	9000		
Mineral Spirits	4,000														20 U	20 U							
Creosote																							
<b>NWTPH-G (mg/kg)</b>																							
Gasoline	100														20 U	20 U				1500			
<b>BTEX (µg/kg)</b>																							
<b>EPA Method 8021</b>																							
Benzene	290																				23 U		
Toluene	110,000																				23 U		
Ethylbenzene	18,000																				240		
m,p-Xylene	15,000																				45 U		
o-Xylene	147,000																				280		
Xylenes (total)																							
<b>TOTAL METALS (mg/kg)</b>																							
<b>SW 6000/7000 series</b>																							
Arsenic	20	20	10 U		14	7	10 U	56	55	73	52	66	94	49							7	12	10 U
Cadmium	80																						
Chromium	--																						
Copper	2,960	53.6	106	38.6	39.6	21.9	119	96.4 U	93.5	122	83.5	13.9	132	75.1							41.3	113	
Lead	250																						
Mercury	24																						
Zinc	24,000																						
Barium	1,648																						
Selenium																							
Silver																							
<b>TCLP (mg/L)</b>																							
<b>EPA Method 1311-6010</b>																							
Arsenic																							
Lead																							
<b>cPAHs (µg/kg)</b>																							
<b>SW8270D</b>																							
Benzo(a)anthracene	--	65 U	63 U		73	130	63 U	210	170	160	660	64 U	470	250			530	150 U	600 U		64 U	65 U	
Chrysene	--	120	63 U		94	270	63 U	270	360	280	1,300	64 U	1,100	620			1,100	150 U	600 U		64 U	65 U	
Benzo(b)fluoranthene	--	110	63 U		65 U	180	85	200	180	210	940	64 U	800	610			1,000	150 U	600 U		64 U	65 U	
Benzo(k)fluoranthene	--	68	63 U		65 U	120	63 U	210	100	150	510	64 U	480	360			760	150 U	600 U		64 U	65 U	
Benzo(a)pyrene	--	65	63 U		91	160	63 U	170	100	130	540	64 U	580	270			380	150 U	600 U		64 U	65 U	
Indeno(1,2,3-cd)pyrene	--	65 U	63 U		65 U	170	63 U	110	64	88	260	64 U	280	180			300	150 U	600 U		64 U	65 U	
Dibenz(a,h)anthracene	--	65 U	63 U		65 U	65 U	63 U	63 U	63 U	65 U	98	64 U	63 U	65 U			130 U	150 U	600 U		64 U	65 U	
TEQ	137	84.0	ND		99.2	223	8.5	246	155	194	829	ND	794	416			650	ND	ND		ND	ND	

TABLE 18  
ANALYTICAL REUSULTS FOR FAILED COMPLIANCE MONITORING SOIL SAMPLES  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-2e	D-2e	D-2e	D-2e	D-2e	D-2e	D-2e	D-2e	D-2e	D-2e	D-2f	D-2f	D-3	D-3	D-4	D-4a	D-4a	D-4a	D-4b	D-4b	D-6
	Site Cleanup Levels (a)	D2E-S2 MB38F 12/7/2007	D2e-S2A MD34A 12/20/2007	D2E-S3 MB38G 12/7/2007	D2e-S4 ME14B 1/2/2008	D2e-S4a ME92A 1/10/2008	D2e-S4b MF65C 1/17/2008	D2e-S4b MK63B 2/27/2008	D2e-S4d MM01B 3/7/2008	D2e-TP-1 MN60A 3/7/2008	D2e-TP-2 MO32A 3/7/2008	D2f-AC-1 LN08A 8/28/2007	D2f-B3 LQ13B 9/18/2007	D3-B1 LZ67A 11/26/2007	D3-B2 LZ67G 11/27/2007	D4-B1 LN07A 8/27/2007	D4a-B3 LQ13F 9/18/2007	D4a-B5 LQ13I 9/18/2007	D4a-B6 LQ13J 9/18/2007	D4b-b4 MD32A 12/20/2007	D4b-b5 MD32B 12/20/2007	D6-1-1.5 L070606-21 6/7/2007
HYDROCARBON IDENTIFICATION																						
NWTPH-HCID (mg/kg)																						
Gasoline																						
Diesel																						
Oil																						
NWTPH-DxSG (mg/kg)																						
Diesel Range Hydrocarbons	2,000																				2000	
Motor Oil	2,000																				2200	
Mineral Spirits	4,000																					
Creosote																						
NWTPH-G (mg/kg)																						
Gasoline	100																				3700	
BTEX (µg/kg)																						
EPA Method 8021																						
Benzene	290																					
Toluene	110,000																					
Ethylbenzene	18,000																					
m,p-Xylene	15,000																					
o-Xylene	147,000																					
Xylenes (total)																						
TOTAL METALS (mg/kg)																						
SW 6000/7000 series																						
Arsenic	20	13	17	10 U	10 U				10 U			50	6	24	29	21	190	32	60	30	50	
Cadmium	80																					
Chromium	--																					
Copper	2,960	56.6	40.1	63.2	76.2	87.5	109	40.7	87.7	179	100						88.7	54.7	85.0	69.2	41.3	
Lead	250											23	18.2	34.5	45.7	35.5						
Mercury	24																					
Zinc	24,000																					
Barium	1,648																					
Selenium																						
Silver																						
TCLP (mg/L)																						
EPA Method 1311-6010																						
Arsenic																						
Lead																						
cPAHs (µg/kg)																						
SW8270D																						
Benzo(a)anthracene	--	280	220	410	500	64 U			64 U			190 J	65 U	87 U	130 U	69	380	140	64 U	630		
Chrysene	--	460	470	790	850	64 U			64 U			400 J	190	190 U	300 U	150	510	260	64 U	810		
Benzo(b)fluoranthene	--	510	480	910	790	90			64 U			300 J	130	170 U	270 U	130	350	240	69	710		
Benzo(k)fluoranthene	--	250	790	500	550	72			64 U			520	84	84 U	180 U	160	530	200	64 U	690		
Benzo(a)pyrene	--	290	450	500	520	64 U			64 U			230 J	65 U	75 U	180 U	77	400	170	64 U	800		
Indeno(1,2,3-cd)pyrene	--	150	200	270	340	64			64 U			130	65 U	66 U	110 U	89	180	79	64 U	490		
Dibenz(a,h)anthracene	--	74	65 U	67	70	64 U			64 U			66 U	65 U	66 U	63 U U	65 U	65 U	64 U	64 U	110		
TEQ	137	443	624	744	774	22.6			ND			348	23.3	111	252	123	549	238	6.9	1100		



TABLE 18  
ANALYTICAL REUSULTS FOR FAILED COMPLIANCE MONITORING SOIL SAMPLES  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-8	D-8	D-9b	D-9c	D-10	D-10a	D-10a	D-11	D-11	D-11	D-11	D-11	D-11
	Site Cleanup Levels (a)	D8-SS MD33E 12/20/2007	D8-SN MD33F 12/20/2007	D9b-S1 LD76A 6/15/2007	D9c-S1 LD76I 6/15/2007	D10-S9 LD62G 6/14/2007	D10-S7 LD62D 6/14/2007	D10-White LD57A 6/12/2007	D11-B3 LH86I 7/16/2007	D11-B7 LH86L 7/16/2007	D11-B8 LD66C 6/14/2007	D11-B10 LH86N 7/16/2007	D11-S2 LH86B 7/16/2007	D11-S8 LH86F 7/16/2007
HYDROCARBON IDENTIFICATION														
NWTPH-HCID (mg/kg)														
Gasoline														
Diesel														
Oil														
NWTPH-DxSG (mg/kg)														
Diesel Range Hydrocarbons	2,000													
Motor Oil	2,000													
Mineral Spirits	4,000													
Creosote														
NWTPH-G (mg/kg)														
Gasoline	100													
BTEX (µg/kg)														
EPA Method 8021														
Benzene	290													
Toluene	110,000													
Ethylbenzene	18,000													
m,p-Xylene	15,000													
o-Xylene	147,000													
Xylenes (total)														
TOTAL METALS (mg/kg)														
SW 6000/7000 series														
Arsenic	20	55	7	28	98	22	50	38						
Cadmium	80							0.2 U						
Chromium	--							26.6						
Copper	2,960							30.9						
Lead	250							4						
Mercury	24							0.06 U						
Zinc	24,000							109						
Barium	1,648													
Selenium														
Silver														
TCLP (mg/L)														
EPA Method 1311-6010														
Arsenic														
Lead														
cPAHs (µg/kg)														
SW8270D														
Benzo(a)anthracene	--	64 U	110	61 U		67			220	190	230 J	170	130	660
Chrysene	--	64 U	180	87		100			290	220	280 J	260	200	840
Benzo(b)fluoranthene	--	64 U	220	61 U		100			280	290	270 J	330	240	860
Benzo(k)fluoranthene	--	64 U	130	62		78			210	210	240 J	320	220	770
Benzo(a)pyrene	--	64 U	130	61 U		70			240	230	290 J	310	160	840
Indeno(1,2,3-cd)pyrene	--	64 U	88	61 U		78			86	92	220 J	140	110	380
Dibenz(a,h)anthracene	--	64 U	64 U	61 U		65 U			64 U	60 U	320 U	62 U	64 U	140
TEQ	137	ND	187	7.1		103			322	310	389	409	232	1170

TABLE 18  
ANALYTICAL REUSULTS FOR FAILED COMPLIANCE MONITORING SOIL SAMPLES  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

Cleanup Action Area		E-3	E-3	E-3	E-3	E-3
	Site Cleanup Levels (a)	E3-S5 L070606-48 6/8/2007	E3-S10 L070606-59 6/8/2007	E3-TP1-4 L070606-9 6/6/2007	E3-TP5-5.5 L070606-16 6/6/2007	E3-SW-5.5 L070606-19 6/6/2007
HYDROCARBON IDENTIFICATION						
NWTPH-HCID (mg/kg)						
Gasoline		20 U	20 U	20 U	20 U	20 U
Diesel		3800	6800	4300	9300	14000
Oil		100 U	100 U	100 U	100 U	100 U
NWTPH-DxSG (mg/kg)						
Diesel Range Hydrocarbons	2,000					
Motor Oil	2,000					
Mineral Spirits	4,000					
Creosote						
NWTPH-G (mg/kg)						
Gasoline	100					
BTEX (µg/kg)						
EPA Method 8021						
Benzene	290					
Toluene	110,000					
Ethylbenzene	18,000					
m,p-Xylene	15,000					
o-Xylene	147,000					
Xylenes (total)						
TOTAL METALS (mg/kg)						
SW 6000/7000 series						
Arsenic	20					
Cadmium	80					
Chromium	--					
Copper	2,960					
Lead	250					
Mercury	24					
Zinc	24,000					
Barium	1,648					
Selenium						
Silver						
TCLP (mg/L)						
EPA Method 1311-6010						
Arsenic						
Lead						
cPAHs (µg/kg)						
SW8270D						
Benzo(a)anthracene	--					
Chrysene	--					
Benzo(b)fluoranthene	--					
Benzo(k)fluoranthene	--					
Benzo(a)pyrene	--					
Indeno(1,2,3-cd)pyrene	--					
Dibenz(a,h)anthracene	--					
TEQ	137					

TABLE 18  
ANALYTICAL REUSULTS FOR FAILED COMPLIANCE MONITORING SOIL SAMPLES  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

Cleanup Action Area		F-1b	F-1b	F-1b	F-1b	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-4a
	Site Cleanup Levels (a)	F1b-ADD-B2 LB64B 5/31/2007	F1b-B2 KB28B (b) 10/16/2006	F1b-S1 KB28E (b) 10/16/2006	F1b-S1c KU16E 4/4/2007	F2-1B (0-0.5) JL78G 6/12/2006	F2-1-B9 JN24X 6/21/2006	F2-1-S3 JN24M 6/22/2006	F2-1-S4 JN24D 6/22/2006	F2-2B1 (0-0.5) JL78H 6/12/2006	F2-2-S4 JN24L 6/22/2006	F2-2-S4a JO55A 6/30/2006	F2-1-B5 (0-0.5) JL78I 6/12/2006	F2-1-B9(0-0.5) JL78J 6/12/2006	F4a-B4 JQ13D 7/20/2006
<b>HYDROCARBON IDENTIFICATION</b>															
<b>NWTPH-HCID (mg/kg)</b>															
Gasoline															
Diesel															
Oil															
<b>NWTPH-DxSG (mg/kg)</b>															
Diesel Range Hydrocarbons	2,000														
Motor Oil	2,000														
Mineral Spirits	4,000														
Creosote															
<b>NWTPH-G (mg/kg)</b>															
Gasoline	100														
<b>BTEX (µg/kg)</b>															
<b>EPA Method 8021</b>															
Benzene	290														
Toluene	110,000														
Ethylbenzene	18,000														
m,p-Xylene	15,000														
o-Xylene	147,000														
Xylenes (total)															
<b>TOTAL METALS (mg/kg)</b>															
<b>SW 6000/7000 series</b>															
Arsenic	20	64	23.7	29.6	270	180	210	470	151	90	110	80	140	220	5 U
Cadmium	80	0.3	0.4	0.4	1.3	2.4	0.6 U	2.6	0.3	1.6	1.0	1.1	0.6 U	0.6 U	0.2 U
Chromium	--	28.2	34.4	26.9	37	108	32	58	36.0	69	52	42	47	51	34.1
Copper	2,960	81.5	48.9	55.7	479	896	292	709	268	591	318	314	336	287	22.6
Lead	250	55	32	27	288	309	150	395	120	259	147	128	142	209	23
Mercury	24	0.09	0.09	0.04 U	0.04 U	0.32	0.05 U	0.09	0.05	0.22	0.05	0.05	0.10	0.12	0.12
Zinc	24,000	147	160	290	1270	2100	460	2540	335	1010	1640	1590	526	531	48.8
Barium	1,648														
Selenium															
Silver															
<b>TCLP (mg/L)</b>															
<b>EPA Method 1311-6010</b>															
Arsenic															
Lead															
<b>cPAHs (µg/kg)</b>															
<b>SW8270D</b>															
Benzo(a)anthracene	--														170
Chrysene	--														190
Benzo(b)fluoranthene	--														120
Benzo(k)fluoranthene	--														180
Benzo(a)pyrene	--														130
Indeno(1,2,3-cd)pyrene	--														60 U
Dibenz(a,h)anthracene	--														60 U
TEQ	137														179



TABLE 18  
ANALYTICAL REUSULTS FOR FAILED COMPLIANCE MONITORING SOIL SAMPLES  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

Cleanup Action Area		F-8b	F-8b	F-8c	F-8c	F-8c	F-8d	F-8d
	Site Cleanup Levels (a)	F8b-S1 LE14E 6/19/2007	F8b-S3 LE14G 6/19/2007	F8c-S1 LE14J 6/19/2007	F8c-S2 LE14K 6/19/2007	F8c-S2a LG47D 7/6/2007	F8d-S3 KF43I 11/14/2006	F8d-S7 KF42C 11/14/2006
<b>HYDROCARBON IDENTIFICATION</b>								
<b>NWTPH-HCID (mg/kg)</b>								
Gasoline								
Diesel								
Oil								
<b>NWTPH-DxSG (mg/kg)</b>								
Diesel Range Hydrocarbons	2,000							
Motor Oil	2,000							
Mineral Spirits	4,000							
Creosote								
<b>NWTPH-G (mg/kg)</b>								
Gasoline	100							
<b>BTEX (µg/kg)</b>								
<b>EPA Method 8021</b>								
Benzene	290							
Toluene	110,000							
Ethylbenzene	18,000							
m,p-Xylene	15,000							
o-Xylene	147,000							
Xylenes (total)								
<b>TOTAL METALS (mg/kg)</b>								
<b>SW 6000/7000 series</b>								
Arsenic	20							
Cadmium	80							
Chromium	--							
Copper	2,960							
Lead	250							
Mercury	24							
Zinc	24,000							
Barium	1,648							
Selenium							30 U	
Silver							2	
<b>TCLP (mg/L)</b>								
<b>EPA Method 1311-6010</b>								
Arsenic								
Lead								
<b>cPAHs (µg/kg)</b>								
<b>SW8270D</b>								
Benzo(a)anthracene	--	200	5200	4200	350	200	170	130
Chrysene	--	350	4900	3800	350	250	200	180
Benzo(b)fluoranthene	--	230	2000	1100	140	140	150	100
Benzo(k)fluoranthene	--	210	1400	1000	100	94	98	140
Benzo(a)pyrene	--	140	1200	720	92	93	130	110
Indeno(1,2,3-cd)pyrene	--	69	290	140	64 U	63 U	63 U	65 U
Dibenz(a,h)anthracene	--	64 U	84	63 U	64 U	63 U	63 U	65 U
TEQ	137	214	2170	1400	154	139	174	149

TABLE 18  
ANALYTICAL REUSULTS FOR FAILED COMPLIANCE MONITORING SOIL SAMPLES  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

Cleanup Action Area	H-2			
	Site Cleanup Levels (a)	H2-B1 LH08G 7/12/2007	H2-S1 LH08A 7/12/2007	H2-S6 LH08F 7/12/2007
HYDROCARBON IDENTIFICATION				
NWTPH-HCID (mg/kg)				
Gasoline				
Diesel				
Oil				
NWTPH-DxSG (mg/kg)				
Diesel Range Hydrocarbons	2,000			
Motor Oil	2,000			
Mineral Spirits	4,000			
Creosote				
NWTPH-G (mg/kg)				
Gasoline	100			
BTEX (µg/kg)				
EPA Method 8021				
Benzene	290			
Toluene	110,000			
Ethylbenzene	18,000			
m,p-Xylene	15,000			
o-Xylene	147,000			
Xylenes (total)				
TOTAL METALS (mg/kg)				
SW 6000/7000 series				
Arsenic	20			
Cadmium	80			
Chromium	--			
Copper	2,960			
Lead	250			
Mercury	24			
Zinc	24,000			
Barium	1,648			
Selenium				
Silver				
TCLP (mg/L)				
EPA Method 1311/6010				
Arsenic				
Lead				
cPAHs (µg/kg)				
SW8270D				
Benzo(a)anthracene	--	110	250	750
Chrysene	--	140	260	1100
Benzo(b)fluoranthene	--	200	380	920
Benzo(k)fluoranthene	--	140	300	950
Benzo(a)pyrene	--	160	370	870
Indeno(1,2,3-cd)pyrene	--	66	150	260
Dibenz(a,h)anthracene	--	65 U	66 U	190 U
TEQ	137	213	481	1170

U = The analyte was not detected in the sample at the given reporting limit.  
UJ = The analyte was not detected in the sample; the given reporting limit is an estimate  
J = The analyte was detected in the sample; the given concentration is an estimate  
Boxed cells indicate an exceedance of site cleanup levels  
  
(a) Development of the cleanup levels is presented in Table 2.

**TABLE 19**  
**FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Cleanup Action Area		D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1
	Site Cleanup Levels (a)	D1-B1 LT09A 10/8/2007	D1-B2 LT09B 10/8/2007	D1-B3 LT09C 10/8/2007	D1-B4 LT09D 10/8/2007	D1-B5 LT09E 10/8/2007	D1-B6 LT09F 10/8/2007	D1-B7 LT09G 10/8/2007	D1-B8 LT09H 10/8/2007	D1-B9a LU36A 10/18/2007	D1-B10 LT09J 10/8/2007	D1-B11 LT09K 10/8/2007	D1-B12 LT09L 10/8/2007	D1-S1-A4 LV31A 10/25/2007	D1-S1b2 LT59B 10/12/2007	D1-S1-C3 LU36C 10/18/2007	D1-S1c-AC-1 LT38B 10/10/2007	D1-S2-A4 LV31B 10/25/2007	D1-S2b2 LT59D 10/12/2007	D1-S2c2 LT59E 10/12/2007	D1-S3-A5 LW39A 11/1/2007	D1-S3a5a MF31A 1/15/2008
HYDROCARBON IDENTIFICATION																						
NWTPH-HCID (mg/kg)																						
Gasoline Range																						
Diesel Range																						
Oil Range																						
NWTPH-DxSG (mg/kg)																						
Diesel Range Hydrocarbons		2,000																				
Motor Oil		2,000																				
Mineral Spirits		4,000																				
Creosote																						
NWTPH-G (mg/kg)																						
Gasoline Range		100																				
BTEX (µg/kg)																						
EPA Method 8021																						
Benzene		290																				
Toluene		110,000																				
Ethylbenzene		18,000																				
m,p-Xylene		15,000																				
o-Xylene		147,000																				
Xylenes (total)																						
TOTAL METALS (mg/kg)																						
SW 6000/7000 series																						
Arsenic		20	10	8	11	7	8	9	10	8	11	16	11	14		7	7	13		6	11	5
Cadmium		80																				
Chromium		--																				
Copper		2,960	20.5	15.0	31.8	18.3	25.7	31.5	21.9	27.7	37.9	31.4	12	14.9		13.4	20.0	40.9		15.2	36.0	15.1
Lead		250																				
Mercury		24																				
Zinc		24,000																				
Barium		1,648																				
Selenium																						
Silver																						
TCPLP (mg/L)																						
EPA Method 1311-6010																						
Arsenic																						
Lead																						
cPAHs (µg/kg)																						
SW8270D																						
Benzo(a)anthracene		--	65 U	64 U	66 U	64 U	65 U	66 U	66 U	66 U		64 U	66 U	66 U	64 U	66 U	66 U	110	63 U	64 U	66 U	64 U
Chrysene		--	65 U	64 U	66 U	64 U	65 U	66 U	66 U	66 U		79	66 U	66 U	64 U	66 U	66 U	140	63 U	64 U	66 U	64 U
Benzo(b)fluoranthene		--	65 U	64 U	66 U	64 U	65 U	66 U	66 U	66 U		72	66 U	66 U	64 U	66 U	66 U	66	65	64 U	66 U	64 U
Benzo(k)fluoranthene		--	65 U	64 U	66 U	64 U	65 U	66 U	66 U	66 U		64 U	66 U	66 U	64 U	66 U	66 U	66 U	65	64 U	66 U	64 U
Benzo(a)pyrene		--	65 U	64 U	66 U	64 U	65 U	66 U	66 U	66 U		64 U	66 U	66 U	64 U	66 U	66 U	110	63 U	64 U	66 U	64 U
Indeno(1,2,3-cd)pyrene		--	65 U	64 U	66 U	64 U	65 U	66 U	66 U	66 U		64 U	66 U	66 U	64 U	66 U	66 U	66 U	63 U	64 U	66 U	64 U
Dibenz(a,h)anthracene		--	65 U	64 U	66 U	64 U	65 U	66 U	66 U	66 U		64 U	66 U	66 U	64 U	66 U	66 U	66 U	63 U	64 U	66 U	64 U
TEQ		137	ND	ND	ND	ND	ND	ND	ND	ND		8.0	ND	ND	ND	ND	ND	129	13.0	ND	ND	ND

**TABLE 19**  
**FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Cleanup Action Area		D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-1	D-2a	D-2a	D-2a	D-2a	
	Site Cleanup Levels (a)	D1-S3b2 LT59G 10/12/2007	D1-S3c2 LT59H 10/12/2007	D1-S4-B4 LV31D 10/25/2007	D1-S4-C4 LV31E 10/25/2007	D1-S5a2 LT59L 10/12/2007	D1-S5b2 LT59M 10/12/2007	D1-S5c2 LT59N 10/12/2007	D1-S6a2 LT59O 10/12/2007	D1-S6-b2 LT59P 10/12/2007	D1-S6c2 LT59Q 10/12/2007	D1-S7-A3 LU36H 10/18/2007	D1-S7b2 LT60A 10/12/2007	D1-S7c2 LT60B 10/12/2007	D1-S8a LS71E 10/4/2007	D1-S8-A3 LU36I 10/18/2007	D1-S8b2 LT60D 10/12/2007	D1-S8c2 LT60E 10/12/2007	D2a-B1b LT13A 10/8/2007	D2a-B2a LR83C 10/1/2007	D2a-B3a LR83D 10/1/2007	D2a-S1 LN83D 8/31/2007	
HYDROCARBON IDENTIFICATION																							
NWTPH-HCID (mg/kg)																							
Gasoline Range																							
Diesel Range																							
Oil Range																							
NWTPH-DxSG (mg/kg)																							
Diesel Range Hydrocarbons		2,000																					
Motor Oil		2,000																					
Mineral Spirits		4,000																					
Creosote																							
NWTPH-G (mg/kg)																							
Gasoline Range		100																					
BTEx (µg/kg)																							
EPA Method 8021																							
Benzene		290																					
Toluene		110,000																					
Ethylbenzene		18,000																					
m,p-Xylene		15,000																					
o-Xylene		147,000																					
Xylenes (total)																							
TOTAL METALS (mg/kg)																							
SW 6000/7000 series																							
Arsenic		20	7	9	7	10	20	9	11	5 U	13	14		14	10	7		7	12	7	8	7	13
Cadmium		80																					
Chromium		--																					
Copper		2,960	16.7	20.8	19.3	20.4	34.4	21.8	33.2	18.2	36	22.6	38.6	39.6	25.2	21.9	24.4	16.0	29.6	15.8	13.6	12.1	29.8
Lead		250																					
Mercury		24																					
Zinc		24,000																					
Barium		1,648																					
Selenium							30 U																
Silver						2																	
TCLP (mg/L)																							
EPA Method 1311-6010																							
Arsenic																							
Lead																							
cPAHs (µg/kg)																							
SW8270D																							
Benzo(a)anthracene		--	64 U	64 U		67	65 U	65 U	64 U	66 U	65 U		73	66 U	130		64 U	64 U	64 U	64 U	63 U	64 U	
Chrysene		--	64 U	64 U		160	65 U	65 U	64 U	66 U	65 U		94	66 U	270		64 U	64 U	64 U	64 U	63 U	65	
Benzo(b)fluoranthene		--	64 U	64 U		210	65 U	65 U	64 U	66 U	65 U		65 U	66 U	180		64 U	64 U	64 U	64 U	63 U	64 U	
Benzo(k)fluoranthene		--	64 U	64 U		78	65 U	65 U	64 U	66 U	65 U		65 U	66 U	120		64 U	64 U	64 U	64 U	63 U	76	
Benzo(a)pyrene		--	64 U	64 U		85	65 U	65 U	64 U	66 U	65 U		91	66 U	160		64 U	64 U	64 U	64 U	63 U	64 U	
Indeno(1,2,3-cd)pyrene		--	64 U	64 U		67	65 U	65 U	64 U	66 U	65 U		65 U	66 U	170		64 U	64 U	64 U	64 U	63 U	64 U	
Dibenz(a,h)anthracene		--	64 U	64 U		66 U	65 U	65 U	64 U	66 U	65 U		65 U	66 U	65 U		64 U	64 U	64 U	64 U	63 U	64 U	
TEQ		137	ND	ND		129	ND	ND	ND	ND	ND		99.2	ND	223		ND	ND	ND	ND	ND	8.2	

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-2a	D-2b	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c	D-2c
	Site Cleanup Levels (a)	D2a-S2 LT13B 10/8/2007	D2b-B1 LN83E 8/31/2007	D2c-AC-5 L070904-11 9/4/2007	D2C-AC-5a LQ44E 9/20/2007	D2C-AC-5b LQ44A 9/20/2007	D2c-AC-5W L070904-13 9/4/2007	D2C-AC-5Wa LQ44D 9/20/2007	D2c-AC-5N L070904-14 9/4/2007	D2C-AC-5Na LQ44C 9/20/2007	D2c-AC-5S L070904-15 9/4/2007	D2C-AC-5Sa LQ44B 9/20/2007	D2c-AC-7 LO63A 9/7/2007	D2c-AC-7N LO63C 9/7/2007	D2c-AC-7W LO63D 9/7/2007	D2c-AC-7S LO63E 9/7/2007	D2c-AC-7E LO63F 9/7/2007	D2c-B1 LR78J 9/28/2007	D2c-B2 LQ44F 9/20/2007
HYDROCARBON IDENTIFICATION																			
NWTPH-HCID (mg/kg)																			
Gasoline Range																			
Diesel Range																			
Oil Range																			
NWTPH-DxSG (mg/kg)																			
Diesel Range Hydrocarbons	2,000			50 U		6.1 U	50 U		50 U		50 U		6.2 U	15	14	6.4 U	6.3 U		
Motor Oil	2,000			100 U		12 U	100 U		100 U		100 U		12 U	13 U	14 U	13 U	12 U		
Mineral Spirits	4,000			20 U			20 U		20 U		20 U								
Creosote																			
NWTPH-G (mg/kg)																			
Gasoline Range	100			20 U			20 U		20 U		20 U		8.8 U	9.3 U	9.0 U	8.6 U	8.5 U		
BTEx (µg/kg)																			
EPA Method 8021																			
Benzene	290			30 U			30 U		30 U		30 U		22 U	23 U	23 U	22 U	21 U		
Toluene	110,000			100 U			100 U		100 U		100 U		22 U	23 U	23 U	22 U	21 U		
Ethylbenzene	18,000			50 U			50 U		50 U		50 U		22 U	23 U	23 U	22 U	21 U		
m,p-Xylene	15,000												24 U	47 U	45 U	43 U	42 U		
o-Xylene	147,000												22 U	23 U	23 U	22 U	21 U		
Xylenes (total)				150 U			150 U		150 U		150 U								
TOTAL METALS (mg/kg)																			
SW 6000/7000 series																			
Arsenic	20	7	6										7	6	20	6	6 U	6	7
Cadmium	80																		
Chromium	--																		
Copper	2,960	19.3	19.1															19.1	22.7
Lead	250																		
Mercury	24																		
Zinc	24,000																		
Barium	1,648																		
Selenium																			
Silver																			
TCLP (mg/L)																			
EPA Method 1311-6010																			
Arsenic																			
Lead																			
cPAHs (µg/kg)																			
SW8270D																			
Benzo(a)anthracene	--	64 U	66 U		63 U	65 U		64 U		66 U		66 U						65 U	64 U
Chrysene	--	64 U	66 U		63 U	65 U		64 U		66 U		66 U						65 U	64 U
Benzo(b)fluoranthene	--	64 U	66 U		63 U	65 U		64 U		66 U		66 U						65 U	64 U
Benzo(k)fluoranthene	--	64 U	66 U		63 U	65 U		64 U		66 U		66 U						65 U	64 U
Benzo(a)pyrene	--	64 U	66 U		63 U	65 U		64 U		66 U		66 U						65 U	64 U
Indeno(1,2,3-cd)pyrene	--	64 U	66 U		63 U	65 U		64 U		66 U		66 U						65 U	64 U
Dibenz(a,h)anthracene	--	64 U	66 U		63 U	65 U		64 U		66 U		66 U						65 U	64 U
TEQ	137	ND	ND		ND	ND		ND		ND		ND						ND	ND

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TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-2e	D-2e	D-2e	D-2e	D-2e	D-2e	D-2e	D-2f	D-2f	D-2f	D-2f	D-3	D-3	D-3	D-3	D-3	D-4a
	Site Cleanup Levels (a)	D2E-S1 MB03C 12/6/2007	D2e-S3A MD34B 12/20/2007	D2e-S4d MM01B 3/7/2008	D2e-S5 MF65A 1/17/2008	D2e-S5 MK63C 2/27/2008	D2e-TP-1 MN60A 3/7/2008	D2e-TP-2 MO32A 3/7/2008	D2f-B1 LQ13D 9/18/2007	D2f-B2 LQ13C 9/18/2007	D2f-B3a LR78I 9/28/2007	D2f-B4 LQ13A 9/18/2007	D3-B3 LZ67D 11/26/2007	D3-S1A LZ67B 11/26/2007	D3-S1B LZ67C 11/26/2007	D3-S2a LZ67E 11/26/2007	D3-S2B LZ67F 11/26/2007	D4a-B1 LR83A 10/1/2007
<b>HYDROCARBON IDENTIFICATION</b>																		
<b>NWTPH-HCID (mg/kg)</b>																		
Gasoline Range																		
Diesel Range																		
Oil Range																		
<b>NWTPH-DxSG (mg/kg)</b>																		
Diesel Range Hydrocarbons	2,000																	
Motor Oil	2,000																	
Mineral Spirits	4,000																	
Creosote																		
<b>NWTPH-G (mg/kg)</b>																		
Gasoline Range	100																	
<b>BTEX (µg/kg)</b>																		
<b>EPA Method 8021</b>																		
Benzene	290																	
Toluene	110,000																	
Ethylbenzene	18,000																	
m,p-Xylene	15,000																	
o-Xylene	147,000																	
Xylenes (total)																		
<b>TOTAL METALS (mg/kg)</b>																		
<b>SW 6000/7000 series</b>																		
Arsenic	20	6	5 U	10 U	5 U				7	6		7	12	7	7	7	11	7
Cadmium	80																	
Chromium	--																	
Copper	2,960	15.9	18.1	87.7	19.8	16.2	179	100	15.0	11.4		13.4	36.3	13.8	15.1	14.7	32.5	23.9
Lead	250																	
Mercury	24																	
Zinc	24,000																	
Barium	1,648																	
Selenium																		
Silver																		
<b>TCLP (mg/L)</b>																		
<b>EPA Method 1311-6010</b>																		
Arsenic																		
Lead																		
<b>cPAHs (µg/kg)</b>																		
<b>SW8270D</b>																		
Benzo(a)anthracene	--	63 U	66 U	64 U	79				65 U	64 U	66 U	63 U	65 U	65 U	65 U	65 U	64 U	63 U
Chrysene	--	63 U	66 U	64 U	140				65 U	64 U	66 U	63 U	65 U	65 U	65 U	65 U	64 U	63 U
Benzo(b)fluoranthene	--	63 U	66 U	64 U	110				65 U	64 U	66 U	63 U	65 U	65 U	65 U	65 U	64 U	63 U
Benzo(k)fluoranthene	--	63 U	66 U	64 U	67				65 U	64 U	66 U	63 U	65 U	65 U	65 U	65 U	64 U	63 U
Benzo(a)pyrene	--	63 U	66 U	64 U	70				65 U	64 U	66 U	63 U	65 U	65 U	65 U	65 U	64 U	63 U
Indeno(1,2,3-cd)pyrene	--	63 U	66 U	64 U	65 U				65 U	64 U	66 U	63 U	65 U	65 U	65 U	65 U	64 U	63 U
Dibenz(a,h)anthracene	--	63 U	66 U	64 U	65 U				65 U	64 U	66 U	63 U	65 U	65 U	65 U	65 U	64 U	63 U
TEQ	137	ND	ND	ND	97.0				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-5	D-5	D-6	D-6	D-6	D-6	D-6	D-6	D-6	D-6	D-6	D-7d	D-7	D-7	D-7	D-7
	Site Cleanup Levels (a)	D5-B4 LN83J 8/31/2007	D5-S1 MB03A 12/6/2007	D6-B1 LC72A/L070606-23 6/7/2007	D6-S1 L070606-26 6/7/2007	D6-S2 LC72C/L070606-25 6/7/2007	D6-S3 L070606-24 6/7/2007	D6-S5 L070606-28 6/7/2007	D6-S4 L070606-29 6/7/2007	D6-S5 LC72F/L070606-28 6/7/2007	D6-S6 LC72E/L070606-27 6/7/2007	D6-2-2.5 L070606-22 6/7/2007	D7-AC-4 L070904-28 9/6/2007	D7-B1 LM19A 8/17/2007	D7-B2a LR78A 9/28/2007	D7-B3a LR78B 9/28/2007	D7-B4 LM19D 8/17/2007
<b>HYDROCARBON IDENTIFICATION</b>																	
<b>NWTPH-HCID (mg/kg)</b>																	
Gasoline Range				20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	180					
Diesel Range				50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	220					
Oil Range				100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	140					
<b>NWTPH-DxSG (mg/kg)</b>																	
Diesel Range Hydrocarbons	2,000												50 U	35	76	57	8.9
Motor Oil	2,000												100 U	300	390	350	14 U
Mineral Spirits	4,000												20 U				
Creosote																	
<b>NWTPH-G (mg/kg)</b>																	
Gasoline Range	100												20 U				
<b>BTEX (µg/kg)</b>																	
<b>EPA Method 8021</b>																	
Benzene	290												30 U				
Toluene	110,000												100 U				
Ethylbenzene	18,000												50 U				
m,p-Xylene	15,000																
o-Xylene	147,000																
Xylenes (total)													150 U				
<b>TOTAL METALS (mg/kg)</b>																	
<b>SW 6000/7000 series</b>																	
Arsenic	20	5 U	5 U	7		7				8	8			5	13	14	8
Cadmium	80																
Chromium	--																
Copper	2,960	14.2	18.9														
Lead	250																
Mercury	24																
Zinc	24,000																
Barium	1,648																
Selenium																	
Silver																	
<b>TCLP (mg/L)</b>																	
<b>EPA Method 1311-6010</b>																	
Arsenic																	
Lead																	
<b>cPAHs (µg/kg)</b>																	
<b>SW8270D</b>																	
Benzo(a)anthracene	--	63 U	65 U											64 U	65 U	94	64 U
Chrysene	--	63 U	65 U											64 U	65 U	140	64 U
Benzo(b)fluoranthene	--	63 U	65 U											64 U	65 U	110	64 U
Benzo(k)fluoranthene	--	63 U	65 U											64 U	65 U	110	64 U
Benzo(a)pyrene	--	63 U	65 U											64 U	65 U	86	64 U
Indeno(1,2,3-cd)pyrene	--	63 U	65 U											64 U	65 U	64 U	64 U
Dibenz(a,h)anthracene	--	63 U	65 U											64 U	65 U	64 U	64 U
TEQ	137	ND	ND											ND	ND	119	ND

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-7	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d
	Site Cleanup Levels (a)	D7-S6 LM19N 8/17/2007	D7d1-AC-1 (6.0-6.5) L070904-02/LO36A 9/4/2007	D7d1-AC-2 L070904-17/LO63H 9/5/2007	D7d1-AC-3 L070904-23 9/6/2007	D7d1-AC-4 L070904-24 9/6/2007	D7d2-AC-2 (6.0-6.5) L070904-04/LO36C 9/4/2007	D7d2-AC-3 L070904-08/LO36D 9/4/2007	D7d2-S1 L070904-25 9/6/2007	D7d2-S1a LR78H 9/28/2007	D7d3-AC-1 (6.0-6.5) L070904-03/LO36B 9/4/2007	D7d3-AC-4 L070904-18/LO63G 9/5/2007	D7d3-AC-5 L070904-19 9/5/2007	D7d3-AC-5a LR78G 9/28/2007	D7d3-AC-7 L070904-21 9/5/2007	D7d3/D7d4- OVB1 L070904-05/LO11A 9/4/2007
<b>HYDROCARBON IDENTIFICATION</b>																
<b>NWTPH-HCID (mg/kg)</b>																
Gasoline Range																
Diesel Range																
Oil Range																
<b>NWTPH-DxSG (mg/kg)</b>																
Diesel Range Hydrocarbons	2,000	31	130	50 U	180	50 U	50 U	50 U	50 U		50 U	50 U	50 U		200	50 U
Motor Oil	2,000	450	100 U	100 U	100 U	100 U	100 U	100 U	100 U		100 U	100 U	100 U		100 U	100 U
Mineral Spirits	4,000		20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U	20 U	20 U		20 U	20 U
Creosote																
<b>NWTPH-G (mg/kg)</b>																
Gasoline Range	100		20 U	20 U	20 U	20 U	20 U	20 U	20 U		20 U	20 U	20 U		20 U	20 U
<b>BTEX (µg/kg)</b>																
<b>EPA Method 8021</b>																
Benzene	290		30 U	30 U	30 U	30 U	30 U	30 U	30 U		30 U	30 U	30 U		30 U	30 U
Toluene	110,000		100 U	100 U	100 U	100 U	100 U	100 U	100 U		100 U	100 U	100 U		100 U	100 U
Ethylbenzene	18,000		50 U	50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	50 U		50 U	50 U
m,p-Xylene	15,000															
o-Xylene	147,000															
Xylenes (total)			150 U	150 U	150 U	150 U	150 U	150 U	150 U		150 U	150 U	150 U		150 U	150 U
<b>TOTAL METALS (mg/kg)</b>																
<b>SW 6000/7000 series</b>																
Arsenic	20	7								6 U				7		7
Cadmium	80															
Chromium	--															
Copper	2,960															16.8
Lead	250															
Mercury	24															
Zinc	24,000															
Barium	1,648															
Selenium																
Silver																
<b>TCLP (mg/L)</b>																
<b>EPA Method 1311-6010</b>																
Arsenic																
Lead																
<b>cPAHs (µg/kg)</b>																
<b>SW8270D</b>																
Benzo(a)anthracene	--	65 U	65 U	560 U			66 U	62 U		64 U	64 U	64 U		66 U		66 U
Chrysene	--	65 U	65 U	560 U			66 U	62 U		64 U	64 U	64 U		66 U		66 U
Benzo(b)fluoranthene	--	65 U	65 U	560 U			66 U	62 U		64 U	64 U	64 U		66 U		66 U
Benzo(k)fluoranthene	--	65 U	65 U	560 U			66 U	62 U		64 U	64 U	64 U		66 U		66 U
Benzo(a)pyrene	--	65 U	65 U	560 U			66 U	62 U		64 U	64 U	64 U		66 U		66 U
Indeno(1,2,3-cd)pyrene	--	65 U	65 U	560 U			66 U	62 U		64 U	64 U	64 U		66 U		66 U
Dibenz(a,h)anthracene	--	65 U	65 U	560 U			66 U	62 U		64 U	64 U	64 U		66 U		66 U
TEQ	137	ND	ND	ND			ND	ND		ND	ND	ND		ND		ND

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area	<div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div><div>D-7d</div></div>																
	Site Cleanup Levels (a)	D7d3/D7d4- OVb2 L070904-06/LO11B 9/4/2007	D7d3/D7d4- OVb3 L070904-07/LO11C 9/4/2007	D7d3-S1 LP24D 9/12/2007	D7d3-S1 LR78D 9/28/2007	D7d3-S2 LR78C 9/28/2007	D7d3-S3 LR78E 9/28/2007	D7d4-AC-2 LO63L 9/6/2007	D7d4-AC-4 L070904-29 9/7/2007	D7d4-AC-4b L070904-30 9/7/2007	D7d4-AC-5 L070904-31 9/7/2007	D7d4-AC-5b L070904-32 9/7/2007	D7d4-AC-6 L070904-34 9/7/2007	D7d4-S2 LP24C 9/12/2007	D7d4-S3 LR78F 9/28/2007	D7d5-B1 LS45A 10/2/2007	D7d5-s1a LU83D 10/23/2007
<b>HYDROCARBON IDENTIFICATION</b>																	
<b>NWTPH-HCID (mg/kg)</b>																	
Gasoline Range																	
Diesel Range																	
Oil Range																	
<b>NWTPH-DxSG (mg/kg)</b>																	
Diesel Range Hydrocarbons	2,000	50 U	980	6.6 U	37	6.3 U	6.8 U	53	50 U	750	50 U	50 U	50 U	17	5.8 U	6.5 U	
Motor Oil	2,000	100 U	100 U	13 U	14	13 U	14 U	22	100 U	100 U	100 U	100 U	100 U	12 U	12 U	13 U	
Mineral Spirits	4,000	20 U	20 U						20 U	20 U	20 U	20 U	20 U				
Creosote																	
<b>NWTPH-G (mg/kg)</b>																	
Gasoline Range	100	20 U	20 U	5.8 U				21	20 U	20 U	20 U	20 U	20 U	16			
<b>BTEX (µg/kg)</b>																	
<b>EPA Method 8021</b>																	
Benzene	290	30 U	30 U	29 U				30 U	30 U	30 U	30 U	30 U	30 U	22 U			
Toluene	110,000	100 U	100 U	29 U				30 U	100 U	100 U	100 U	100 U	100 U	22 U			
Ethylbenzene	18,000	50 U	50 U	29 U				30 U	50 U	50 U	50 U	50 U	50 U	22 U			
m,p-Xylene	15,000			58 U				60 U						44 U			
o-Xylene	147,000			29 U				30 U						22 U			
Xylenes (total)		150 U	150 U						150 U	150 U	150 U	150 U	150 U				
<b>TOTAL METALS (mg/kg)</b>																	
<b>SW 6000/7000 series</b>																	
Arsenic	20	7	7	7	6	6 U	6 U							6 U	7	6	
Cadmium	80																
Chromium	--																
Copper	2,960	18.7	14.3														
Lead	250																
Mercury	24																
Zinc	24,000																
Barium	1,648																
Selenium																	
Silver																	
<b>TCLP (mg/L)</b>																	
<b>EPA Method 1311-6010</b>																	
Arsenic																	
Lead																	
<b>cPAHs (µg/kg)</b>																	
<b>SW8270D</b>																	
Benzo(a)anthracene	--	63 U	64 U	66 U	66 U	67 U	64 U							63	65 U	65 U	62 U
Chrysene	--	63 U	64 U	66 U	66 U	67 U	64 U							63 U	65 U	65 U	62 U
Benzo(b)fluoranthene	--	63 U	64 U	66 U	66 U	67 U	64 U							63 U	65 U	65 U	62 U
Benzo(k)fluoranthene	--	63 U	64 U	66 U	66 U	67 U	64 U							63 U	65 U	65 U	62 U
Benzo(a)pyrene	--	63 U	64 U	66 U	66 U	67 U	64 U							63 U	65 U	65 U	62 U
Indeno(1,2,3-cd)pyrene	--	63 U	64 U	66 U	66 U	67 U	64 U							63 U	65 U	65 U	62 U
Dibenz(a,h)anthracene	--	63 U	64 U	66 U	66 U	67 U	64 U							63 U	65 U	65 U	62 U
TEQ	137	ND	ND	ND	ND	ND	ND							ND	ND	ND	ND

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	D-8	D-8	D-8	D-8	D-8	D-8	D-8	D-9a
	Site Cleanup Levels (a)	D7x-B1 LS46A 10/3/2007	D7x-B2 LS46B 10/3/2007	D7x-B3 LS46C 10/3/2007	D7x-B4 LS46D 10/3/2007	D7x-B5 LS46E 10/3/2007	D7x-B6 LS46F 10/3/2007	D7x-B7 LS46G 10/3/2007	D7x-B8 LS46H 10/3/2007	D7x-S1 LT38C 10/10/2007	D7x-s2 LR79B 10/1/2007	D7x-s3 LR79C 10/1/2007	D7x-s4 LR79D 10/1/2007	D8-BN MD33A 12/20/2007	D8-BS MD33B 12/20/2007	D8-SW MD33C 12/20/2007	D8-SE MD33D 12/20/2007	D8-SS MD33E 12/20/2007	D8-SNa ME14E 1/2/2008	D8-SSa ME14F 1/2/2008	D9a-B1 LD76G 6/15/2007
<b>HYDROCARBON IDENTIFICATION</b>																					
<b>NWTPH-HCID (mg/kg)</b>																					
Gasoline Range																					
Diesel Range																					
Oil Range																					
<b>NWTPH-DxSG (mg/kg)</b>																					
Diesel Range Hydrocarbons	2,000	140	110	22	35	47	60	110	170	640	9.3	6.1 U	6.6 U								
Motor Oil	2,000	370	35	23	15 U	15 U	13 U	29	13	440	18	12 U	13 U								
Mineral Spirits	4,000																				
Creosote																					
<b>NWTPH-G (mg/kg)</b>																					
Gasoline Range	100	14	27	13 U	18	20	18	20	42												
<b>BTEX (µg/kg)</b>																					
<b>EPA Method 8021</b>																					
Benzene	290	23 U	25 U	32 U	30 U	30 U	23 U	41 U	22 U												
Toluene	110,000	23 U	25 U	32 U	30 U	30 U	23 U	41 U	22 U												
Ethylbenzene	18,000	23 U	25 U	32 U	30 U	30 U	23 U	41 U	22 U												
m,p-Xylene	15,000	46 U	51 U	64 U	60 U	60 U	45 U	82 U	44 U												
o-Xylene	147,000	23 U	25 U	32 U	30 U	30 U	23 U	41 U	22 U												
Xylenes (total)																					
<b>TOTAL METALS (mg/kg)</b>																					
<b>SW 6000/7000 series</b>																					
Arsenic	20									7	6	6	6 U	6 U	6	6 U	6	55		5 U	5 U
Cadmium	80																				
Chromium	--																				
Copper	2,960																				
Lead	250																				
Mercury	24																				
Zinc	24,000																				
Barium	1,648																				
Selenium																					
Silver																					
<b>TCLP (mg/L)</b>																					
<b>EPA Method 1311-6010</b>																					
Arsenic																					
Lead																					
<b>cPAHs (µg/kg)</b>																					
<b>SW8270D</b>																					
Benzo(a)anthracene	--									65 U	66 U	65 U	66 U	66 U	66 U	64 U	66 U	64 U	63 U		61 U
Chrysene	--									65 U	66 U	65 U	66 U	66 U	66 U	64 U	66 U	64 U	63 U		61 U
Benzo(b)fluoranthene	--									65 U	66 U	65 U	66 U	66 U	66 U	64 U	66 U	64 U	63 U		61 U
Benzo(k)fluoranthene	--									65 U	66 U	65 U	66 U	66 U	66 U	64 U	66 U	64 U	63 U		61 U
Benzo(a)pyrene	--									65 U	66 U	65 U	66 U	66 U	66 U	64 U	66 U	64 U	63 U		61 U
Indeno(1,2,3-cd)pyrene	--									65 U	66 U	65 U	66 U	66 U	66 U	64 U	66 U	64 U	63 U		61 U
Dibenz(a,h)anthracene	--									65 U	66 U	65 U	66 U	66 U	66 U	64 U	66 U	64 U	63 U		61 U
TEQ	137									ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-9a	D-9a	D-9a	D-9a	D-9b	D-9b	D-9b	D-9c	D-9c	D-9c	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10
	Site Cleanup Levels (a)	D9a-B2 LD76H 6/15/2007	D9a-B3 LK17A 8/6/2007	D9a-S1 LD76E 6/15/2007	D9a-S2 LD76F 6/15/2007	D9b-B1 LD76D 6/15/2007	D9b-S2 LD76B 6/15/2007	D9b-S3 LD76C 6/15/2007	D9c-B1 LD76K 6/15/2007	D9c-S1a LG47A 7/3/2007	D9c-S2 LD76J 6/15/2007	D10-B1 (3-3.5) LC16A 6/5/2007	D10-B2 (3-3.5) LC16B 6/5/2007	D10-B3 LD62A 6/14/2007	D10-B4 LD62B 6/14/2007	D10-B5 LD62M 6/14/2007	D10-B6 LD62L 6/14/2007	D10-B7 LD62K 6/14/2007	D10-B8 LD62N 6/14/2007	D10-B9 LD62J 6/14/2007	D10-B10 LD62I 6/14/2007
HYDROCARBON IDENTIFICATION																					
NWTPH-HCID (mg/kg)																					
Gasoline Range																					
Diesel Range																					
Oil Range																					
NWTPH-DxSG (mg/kg)																					
Diesel Range Hydrocarbons 2,000																					
Motor Oil 2,000																					
Mineral Spirits 4,000																					
Creosote																					
NWTPH-G (mg/kg)																					
Gasoline Range 100																					
BTEX (µg/kg)																					
EPA Method 8021																					
Benzene 290																					
Toluene 110,000																					
Ethylbenzene 18,000																					
m,p-Xylene 15,000																					
o-Xylene 147,000																					
Xylenes (total)																					
TOTAL METALS (mg/kg)																					
SW 6000/7000 series																					
Arsenic 20 11 5 U 20 8 8 14 6 13 6 U 11 13 6 9 5 U 5 6 6 5 U 7 5 U																					
Cadmium 80 0.2 U 0.2 U																					
Chromium -- 25.5 22.7																					
Copper 2,960 19.6 12.9																					
Lead 250 3 2 U																					
Mercury 24 0.05 U 0.04 U																					
Zinc 24,000 47 34																					
Barium 1,648																					
Selenium																					
Silver																					
TCLP (mg/L)																					
EPA Method 1311-6010																					
Arsenic																					
Lead																					
cPAHs (µg/kg)																					
SW8270D																					
Benzo(a)anthracene -- 62 U 63 U 62 U 60 U 64 U 66 U 62 U 66 U 65 U 65 U 63 U																					
Chrysene -- 62 U 63 U 130 60 U 64 U 66 U 62 U 66 U 65 U 65 U 63 U																					
Benzo(b)fluoranthene -- 62 U 63 U 140 60 U 64 U 66 U 62 U 66 U 65 U 65 U 63 U																					
Benzo(k)fluoranthene -- 62 U 63 U 130 60 U 64 U 66 U 62 U 66 U 65 U 65 U 63 U																					
Benzo(a)pyrene -- 62 U 63 U 62 U 60 U 64 U 66 U 62 U 66 U 65 U 65 U 63 U																					
Indeno(1,2,3-cd)pyrene -- 62 U 63 U 62 U 60 U 64 U 66 U 62 U 66 U 65 U 65 U 63 U																					
Dibenz(a,h)anthracene -- 62 U 63 U 62 U 60 U 64 U 66 U 62 U 66 U 65 U 65 U 63 U																					
TEQ 137 ND ND 28.3 ND ND ND ND ND ND ND																					

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-10	D-11	D-11	D-11	D-11
	Site Cleanup Levels (a)	D10-B11 LD62E 6/14/2007	D10-B12 LE77A 6/22/2007	D10-B13 LE77B 6/22/2007	D10-S1 D10-S1 (0.5-3) LC16C 6/5/2007	D10-S3 D10-S3 (0.5-3) LC16E 6/5/2007	D10-S4 LD76N 6/15/2007	D10-S5 LD76O 6/14/2007	D10-S6 LD62F 6/14/2007	D10-S7A LF29A 6/28/2007	D10-S8 LD62C 6/14/2007	D10-S9A LF29B 6/28/2007	D10-S10 LD62H 6/14/2007	D10-S11 LE77C 6/22/2007	D10-S12 LE77D 6/22/2007	D10-S13 LE77E 6/22/2007	D10-S14 LE77F 6/22/2007	D11-B1 LH86G 7/17/2007	D11-B2 LH86H 7/16/2007	D11-B3a LJ71C 8/1/2007	D11-B4 LD66B 6/14/2007
<b>HYDROCARBON IDENTIFICATION</b>																					
<b>NWTPH-HCID (mg/kg)</b>																					
Gasoline Range																					
Diesel Range																					
Oil Range																					
<b>NWTPH-DxSG (mg/kg)</b>																					
Diesel Range Hydrocarbons	2,000																				
Motor Oil	2,000																				
Mineral Spirits	4,000																				
Creosote																					
<b>NWTPH-G (mg/kg)</b>																					
Gasoline Range	100																				
<b>BTEX (µg/kg)</b>																					
<b>EPA Method 8021</b>																					
Benzene	290																				
Toluene	110,000																				
Ethylbenzene	18,000																				
m,p-Xylene	15,000																				
o-Xylene	147,000																				
Xylenes (total)																					
<b>TOTAL METALS (mg/kg)</b>																					
<b>SW 6000/7000 series</b>																					
Arsenic	20	7	6 U	6 U	18	20	19	15	12	6	11	6	7	10 U	9	6	7				
Cadmium	80				0.2 U	0.5 U															
Chromium	--				25.9	23															
Copper	2,960				31.9	23.6															
Lead	250				11	5															
Mercury	24				0.05 U	0.05 U															
Zinc	24,000				76	63															
Barium	1,648																				
Selenium																					
Silver																					
<b>TCLP (mg/L)</b>																					
<b>EPA Method 1311-6010</b>																					
Arsenic																					
Lead																					
<b>cPAHs (µg/kg)</b>																					
<b>SW8270D</b>																					
Benzo(a)anthracene	--				66 U	65 U												65 U	62 U	65 U	66 U
Chrysene	--				66 U	65 U												65 U	62 U	65 U	66 U
Benzo(b)fluoranthene	--				66 U	65 U												65 U	62 U	65 U	66 U
Benzo(k)fluoranthene	--				77	65 U												65 U	62 U	65 U	66 U
Benzo(a)pyrene	--				66 U	65 U												65 U	62 U	65 U	66 U
Indeno(1,2,3-cd)pyrene	--				66 U	65 U												65 U	62 U	65 U	66 U
Dibenz(a,h)anthracene	--				66 U	65 U												65 U	62 U	65 U	66 U
TEQ	137				7.7	ND												ND	ND	ND	ND

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11	D-11
	Site Cleanup Levels (a)	D11-B5 LH86J 7/16/2007	D11-B6 LH86K 7/16/2007	D11-B7a LJ71E 8/1/2007	D11-B8a LF28A 6/28/2007	D11-B9 LH86M 7/16/2007	D11-B10a LJ71D 8/1/2007	D11-B11 LD66D 6/14/2007	D11-CB1 LH84E 7/17/2007	D11-S1 LH86A 7/17/2007	D11-S2a LJ71A 8/1/2007	D11-S3 LH86C 7/16/2007	D11-S4 LD66A 6/14/2007	D11-S5 LD66E 6/14/2007	D11-S6 LH86D 7/16/2007	D11-S7 LH86E 7/16/2007	D11-S8a LJ71B 8/1/2007
<b>HYDROCARBON IDENTIFICATION</b>																	
<b>NWTPH-HCID (mg/kg)</b>																	
Gasoline Range																	
Diesel Range																	
Oil Range																	
<b>NWTPH-DxSG (mg/kg)</b>																	
Diesel Range Hydrocarbons	2,000																
Motor Oil	2,000																
Mineral Spirits	4,000																
Creosote																	
<b>NWTPH-G (mg/kg)</b>																	
Gasoline Range	100																
<b>BTEX (µg/kg)</b>																	
<b>EPA Method 8021</b>																	
Benzene	290																
Toluene	110,000																
Ethylbenzene	18,000																
m,p-Xylene	15,000																
o-Xylene	147,000																
Xylenes (total)																	
<b>TOTAL METALS (mg/kg)</b>																	
<b>SW 6000/7000 series</b>																	
Arsenic	20								6 U								
Cadmium	80																
Chromium	--																
Copper	2,960																
Lead	250																
Mercury	24																
Zinc	24,000																
Barium	1,648																
Selenium																	
Silver																	
<b>TCLP (mg/L)</b>																	
<b>EPA Method 1311-6010</b>																	
Arsenic																	
Lead																	
<b>cPAHs (µg/kg)</b>																	
<b>SW8270D</b>																	
Benzo(a)anthracene	--	60 U	64 U	65 U	65 U	63 U	63 U	64 U		63 U	65 U	63 U	65 U	64 U	61 U	86	64 U
Chrysene	--	60 U	64 U	65 U	65 U	63 U	63 U	64 U		63 U	65 U	63 U	65 U	72	61 U	100	64 U
Benzo(b)fluoranthene	--	60 U	64 U	65 U	65 U	63 U	63 U	64 U		63 U	65 U	63 U	65 U	64 U	61 U	130	64 U
Benzo(k)fluoranthene	--	60 U	64 U	65 U	65 U	63 U	63 U	64 U		63 U	65 U	63 U	65 U	68	61 U	92	64 U
Benzo(a)pyrene	--	60 U	64 U	65 U	65 U	63 U	63 U	64 U		63 U	65 U	63 U	65 U	64 U	61 U	100	64 U
Indeno(1,2,3-cd)pyrene	--	60 U	64 U	65 U	65 U	63 U	63 U	64 U		63 U	65 U	63 U	65 U	64 U	61 U	60 U	64 U
Dibenz(a,h)anthracene	--	60 U	64 U	65 U	65 U	63 U	63 U	64 U		63 U	65 U	63 U	65 U	64 U	61 U	60 U	64 U
TEQ	137	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	7.5	ND	132	ND

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		E-1a	E-1a	E-1a	E-1a	E-1a	E-1a	E-1a	E-1a	E-1b	E-1b	E-1b	E-1b	E-1b	E-1b	E-1b	E-1b	E-2	E-2	E-2	E-2	E-2	E-2	
	Site Cleanup Levels (a)	E1a-B1 JQ34A 7/21/2006	E1a-B2 JQ34B 7/21/2006	E1a-B3 JQ34C 7/21/2006	E1a-B4 JQ34D 7/21/2006	E1a-B5 JQ34E 7/21/2006	E1a-B6 JQ34F 7/21/2006	E1a-S1 JQ34M 7/21/2006	E1a-S2 JQ34N 7/21/2006	E1b-B1 JQ34G 7/21/2006	E1b-B2 JQ34H 7/21/2006	E1b-B3 JQ34I 7/21/2006	E1b-B4 JQ34J 7/21/2006	E1b-B5 JQ34K 7/21/2006	E1b-B6 JQ34L 7/21/2006	E1b-S1 JQ34O 7/21/2006	E1b-S2 JQ34P 7/21/2006	E2-B1 JS41L 8/9/2006	E2-B2 JS41M 8/9/2006	E2-S1 JS41H 8/9/2006	E2-S2 JS41I 8/9/2006	E2-S3 JS41J 8/9/2006	E2-S4 JS41K 8/9/2006	
HYDROCARBON IDENTIFICATION																								
NWTPH-HCID (mg/kg)																								
Gasoline Range																								
Diesel Range																								
Oil Range																								
NWTPH-DxSG (mg/kg)																								
Diesel Range Hydrocarbons	2,000																							
Motor Oil	2,000																							
Mineral Spirits	4,000																							
Creosote																								
NWTPH-G (mg/kg)																								
Gasoline Range	100																							
BTEX (µg/kg)																								
EPA Method 8021																								
Benzene	290																							
Toluene	110,000																							
Ethylbenzene	18,000																							
m,p-Xylene	15,000																							
o-Xylene	147,000																							
Xylenes (total)																								
TOTAL METALS (mg/kg)																								
SW 6000/7000 series																								
Arsenic	20	7	13	11	9	9	6	9	6	15	5 U	5 U	13	8	7	9	11	9	8	10	5 U	13	17	
Cadmium	80	0.2 U	0.3	0.3	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	0.7	0.2 U	0.3	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	
Chromium	--	21.9	27.5	31.6	27.0	26.9	22.5	31.4	24.3	26.3	3.7	5.5	26.9	30.7	27.7	28.7	25.7	37.2	31.8	34.3	39.5	38.6	33.7	
Copper	2,960	16.5	23.9	24.2	22.4	18.7	13.9	29.1	15.9	33.1	2.2	2.6	26.2	22.7	19.8	15.7	27.8	41.3	22.9	23.2	24.3	23	30.2	
Lead	250	6	21	24	11	10	3	8	6	18	2 U	2 U	20	10	31	5	13	3	3	7	5	4	10	
Mercury	24	0.04 U	0.04	0.04	0.05 U	0.04 U	0.04 U	0.04 U	0.04 U	0.05 U	0.04 U	0.04 U	0.05 U	0.04 U	0.04 U	0.04 U	0.04	0.05 U	0.05 U	0.05 U	0.04 U	0.05 U	0.04 U	
Zinc	24,000	46.7	105	82.7	56.8	48.8	40.5	45.5	38.4	102	14.7 U	9.9 U	91.0	59.4	52.5	38.0	72.3	43	40.7	45.5	44.3	60.6	83.8	
Barium	1,648																							
Selenium																								
Silver																								
TCLP (mg/L)																								
EPA Method 1311-6010																								
Arsenic																								
Lead																								
cPAHs (µg/kg)																								
SW8270D																								
Benzo(a)anthracene	--																							
Chrysene	--																							
Benzo(b)fluoranthene	--																							
Benzo(k)fluoranthene	--																							
Benzo(a)pyrene	--																							
Indeno(1,2,3-cd)pyrene	--																							
Dibenz(a,h)anthracene	--																							
TEQ	137																							



TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3
	Site Cleanup Levels (a)	E3-B1 L070606-51 6/8/2007	E3-B2 L070606-52 6/8/2007	E3-B3 L070606-53 6/8/2007	E3-B4 L070606-54 6/8/2007	E3-B5 L070606-55 6/8/2007	E3-B6 L070606-56 6/8/2007	E3-B7 LH82A 7/6/2007	E3-B8 LH82B 7/6/2007	E3-B9 LE77G 6/25/2007	E3-S1 L070606-44 6/8/2007	E3-S2 L070606-45 6/8/2007	E3-S3 L070606-46 6/8/2007	E3-S4 L070606-47 6/8/2007	E3-S5 L070606-48 6/8/2007	E3-S5A L070606-60 6/8/2007	E3-S6 L070606-49 6/8/2007	E3-S7 L070606-50 6/8/2007	E3-S8 L070606-57 6/8/2007	E3-S9 L070606-58 6/8/2007
<b>HYDROCARBON IDENTIFICATION</b>																				
<b>NWTPH-HCID (mg/kg)</b>																				
Gasoline Range		20 U	20 U	20 U	20 U	20 U	20 U				20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel Range		50 U	50 U	50 U	50 U	50 U	50 U				50 U	50 U	50 U	50 U	3800	50 U	50 U	50 U	50 U	50 U
Oil Range		100 U	100 U	100 U	100 U	100 U	100 U				100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>NWTPH-DxSG (mg/kg)</b>																				
Diesel Range Hydrocarbons	2,000							27	6.5 U	6.7										
Motor Oil	2,000							76	14	13 U										
Mineral Spirits	4,000																			
Creosote																				
<b>NWTPH-G (mg/kg)</b>																				
Gasoline Range	100																			
<b>BTEX (µg/kg)</b>																				
<b>EPA Method 8021</b>																				
Benzene	290																			
Toluene	110,000																			
Ethylbenzene	18,000																			
m,p-Xylene	15,000																			
o-Xylene	147,000																			
Xylenes (total)																				
<b>TOTAL METALS (mg/kg)</b>																				
<b>SW 6000/7000 series</b>																				
Arsenic	20																			
Cadmium	80																			
Chromium	--																			
Copper	2,960																			
Lead	250																			
Mercury	24																			
Zinc	24,000																			
Barium	1,648																			
Selenium																				
Silver																				
<b>TCLP (mg/L)</b>																				
<b>EPA Method 1311-6010</b>																				
Arsenic																				
Lead																				
<b>cPAHs (µg/kg)</b>																				
<b>SW8270D</b>																				
Benzo(a)anthracene	--																			
Chrysene	--																			
Benzo(b)fluoranthene	--																			
Benzo(k)fluoranthene	--																			
Benzo(a)pyrene	--																			
Indeno(1,2,3-cd)pyrene	--																			
Dibenz(a,h)anthracene	--																			
TEQ	137																			

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-3	E-4	E-4	E-4	E-4
	Site Cleanup Levels (a)	E3-S10 L070606-59 6/8/2007	E3-S10A LC96A 6/12/2007	E3-S11 LE77I 6/25/2007	E3-S12 LE77J 6/25/2007	E3-S13 LE77H 6/25/2007	E3-NW Corner LE77K 6/25/2007	E3-TP1-4 L070606-9 6/6/2007	E3-TP1-7 L070606-8 6/6/2007	E3-TP2-4 L070606-13 6/6/2007	E3-TP3-4.5 L070606-12 6/6/2007	E3-TP4-3.5 L070606-11 6/6/2007	E3-TP4-5 L070606-10 6/6/2007	E3-TP5-5.5 L070606-16 6/6/2007	E3-TP6-4.5 L070606-20 6/6/2007	E3-EW-6 L070606-17 6/6/2007	E3-SW-5.5 L070606-19 6/6/2007	E3-WW-5 L070606-18 6/6/2007	E4-B1 L070606-42 6/8/2007	E4-B2 L070606-43 6/8/2007	E4-B8 L070606-3 6/6/2007	E4-S1 L070606-33 6/8/2007
HYDROCARBON IDENTIFICATION																						
NWTPH-HCID (mg/kg)																						
Gasoline Range		20 U						20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	
Diesel Range		6800						4300	50 U	50 U	50 U	50 U	50 U	9300	180	50 U	14000	50 U	50 U	50 U	50 U	
Oil Range		100 U						100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	
NWTPH-DxSG (mg/kg)																						
Diesel Range Hydrocarbons	2,000		29	5.8 U	6.1 U	5.6 U	900															
Motor Oil	2,000		14 U	12 U	12 U	11 U	18															
Mineral Spirits	4,000																					
Creosote																						
NWTPH-G (mg/kg)																						
Gasoline Range	100																					
BTEX (µg/kg)																						
EPA Method 8021																						
Benzene	290																					
Toluene	110,000																					
Ethylbenzene	18,000																					
m,p-Xylene	15,000																					
o-Xylene	147,000																					
Xylenes (total)																						
TOTAL METALS (mg/kg)																						
SW 6000/7000 series																						
Arsenic	20																					
Cadmium	80																					
Chromium	--																					
Copper	2,960																					
Lead	250																					
Mercury	24																					
Zinc	24,000																					
Barium	1,648																					
Selenium																						
Silver																						
TCLP (mg/L)																						
EPA Method 1311-6010																						
Arsenic																						
Lead																						
cPAHs (µg/kg)																						
SW8270D																						
Benzo(a)anthracene	--																					
Chrysene	--																					
Benzo(b)fluoranthene	--																					
Benzo(k)fluoranthene	--																					
Benzo(a)pyrene	--																					
Indeno(1,2,3-cd)pyrene	--																					
Dibenz(a,h)anthracene	--																					
TEQ	137																					

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4	E-4
	Site Cleanup Levels (a)	E4-S2 L070606-34 6/8/2007	E4-S3 L070606-35 6/8/2007	E4-S4 L070606-36 6/8/2007	E4-S5 L070606-37 6/8/2007	E4-S6 L070606-38 6/8/2007	E4-S7 L070606-39 6/8/2007	E4-S8 L070606-40 6/8/2007	E4-S9 L070606-41 6/8/2007	E4-EW-6 L070606-4 6/6/2007	E4-NW-5 L070606-2 6/6/2007	E4-SB-7 L070606-32 6/7/2007	E4-SP-1 L070606-7 6/6/2007	E4-SP-2 L070606-6 6/6/2007	E4-SW-4.5 L070606-15 6/6/2007	E4-SW-5.5 L070606-14 6/6/2007	E4-SW-5.5 L070606-31 6/7/2007	E4-SW-6 L070606-5 6/6/2007	E4-SW-7 L070606-1 6/6/2007	E4-WW-5.5 L070606-30 6/7/2007
<b>HYDROCARBON IDENTIFICATION</b>																				
<b>NWTPH-HCID (mg/kg)</b>																				
Gasoline Range		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Diesel Range		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	410	50 U	850	50 U	50 U	50 U	80	50 U
Oil Range		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>NWTPH-DxSG (mg/kg)</b>																				
Diesel Range Hydrocarbons	2,000																			
Motor Oil	2,000																			
Mineral Spirits	4,000																			
Creosote																				
<b>NWTPH-G (mg/kg)</b>																				
Gasoline Range	100																			
<b>BTEX (µg/kg)</b>																				
<b>EPA Method 8021</b>																				
Benzene	290																			
Toluene	110,000																			
Ethylbenzene	18,000																			
m,p-Xylene	15,000																			
o-Xylene	147,000																			
Xylenes (total)																				
<b>TOTAL METALS (mg/kg)</b>																				
<b>SW 6000/7000 series</b>																				
Arsenic	20																			
Cadmium	80																			
Chromium	--																			
Copper	2,960																			
Lead	250																			
Mercury	24																			
Zinc	24,000																			
Barium	1,648																			
Selenium																		30 U		
Silver																		2		
<b>TCLP (mg/L)</b>																				
<b>EPA Method 1311-6010</b>																				
Arsenic																				
Lead																				
<b>cPAHs (µg/kg)</b>																				
<b>SW8270D</b>																				
Benzo(a)anthracene	--																			
Chrysene	--																			
Benzo(b)fluoranthene	--																			
Benzo(k)fluoranthene	--																			
Benzo(a)pyrene	--																			
Indeno(1,2,3-cd)pyrene	--																			
Dibenz(a,h)anthracene	--																			
TEQ	137																			

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		F-1a	F-1a	F-1a	F-1a	F-1a	F-1a	F-1a	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b	F-1b
	Site Cleanup Levels (a)	F1a-B1 JR91A 8/4/2006	F1a-B2 KC63A 10/26/2006	F1a-B4 JR91C 8/4/2006	F1a-S1 JR91B 8/4/2006	F1a-S3 JR91D 8/4/2006	F1a-S4 JR91E 8/4/2006	F8F-S1a MO65A 3/24/2008	F1b-ADD-B1 LB64A 5/31/2007	F1b-ADD-B2a LC97A 6/11/2007	F1b-ADD-B3 LB64C 5/31/2007	F1b-ADD-B4 LB64D 5/31/2007	F1b-ADD-B5 LB64E 5/31/2007	F1b-ADD-B6 LB64F 5/31/2007	F1b-B1 KB28A (b) 10/16/2006	F1b-B2a LE43H 6/21/2007	F1b-B3 KB28C (b) 10/16/2006	F1b-B4 KB28D (b) 10/16/2006	F1b-B5 KU16A 4/4/2007	F1b-B6 KU16B 4/4/2007	F1b-B7 KU16C 4/4/2007	F1b-S1b KU16D 4/4/2007	F1b-S2 KB28F (b) 10/16/2006
<b>HYDROCARBON IDENTIFICATION</b>																							
<b>NWTPH-HCID (mg/kg)</b>																							
Gasoline Range																							
Diesel Range																							
Oil Range																							
<b>NWTPH-DxSG (mg/kg)</b>																							
Diesel Range Hydrocarbons	2,000																						
Motor Oil	2,000																						
Mineral Spirits	4,000																						
Creosote																							
<b>NWTPH-G (mg/kg)</b>																							
Gasoline Range	100																						
<b>BTEX (µg/kg)</b>																							
<b>EPA Method 8021</b>																							
Benzene	290																						
Toluene	110,000																						
Ethylbenzene	18,000																						
m,p-Xylene	15,000																						
o-Xylene	147,000																						
Xylenes (total)																							
<b>TOTAL METALS (mg/kg)</b>																							
<b>SW 6000/7000 series</b>																							
Arsenic	20	6	4.0	5 U	10	5 U	5 U		5 U	7	5 U	5 U	5 U	7	3.7	6	5.1	4.7	5 U	10	6 U	7	2.8
Cadmium	80	0.3	0.2	0.2	0.3	0.2 U	0.2 U		0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3		0.3	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	--	29.9	33.8	26.7	48.5	32.3	38.7		37.1	28.1	27.5	31.9	29.1	24.9	22.7		34.1	26.5	20.8	18.7	28.7	37.4	20.5
Copper	2,960	49.1	31.6	31.4	61.7	33.3	32.1		35.7	14.0	18.0	25.6	12.8	13.6	21.3		39.3	33.9	16.4	17.8	23.7	31.5	18.2
Lead	250	36	31	27	73	26	21		30	2 U	8	7	2 U	2 U	4		38	31	2	6	7	7	4
Mercury	24	0.18	0.18	0.19	0.12	0.20	0.14		0.17	0.05 U	0.08	0.05	0.05 U	0.04 U	0.04 U		0.15	0.14	0.04 U	0.05	0.05 U	0.05 U	0.04 U
Zinc	24,000	81.1	56	52.8	150	59.5	51.9		61	38	73	46	38	35	59		69	67	33	58	51	69	47
Barium	1,648																						
Selenium																							
Silver																							
<b>TCLP (mg/L)</b>																							
<b>EPA Method 1311-6010</b>																							
Arsenic																							
Lead																							
<b>cPAHs (µg/kg)</b>																							
<b>SW8270D</b>																							
Benzo(a)anthracene	--	110		110	64 U	100	84	77															
Chrysene	--	130		120	64	140	99	100															
Benzo(b)fluoranthene	--	64 U		66 U	64 U	66 U	64 U	66 U															
Benzo(k)fluoranthene	--	93		66 U	64 U	66 U	64 U	66 U															
Benzo(a)pyrene	--	64 U		66 U	64 U	66 U	64 U	66 U															
Indeno(1,2,3-cd)pyrene	--	64 U		66 U	64 U	66 U	64 U	66 U															
Dibenz(a,h)anthracene	--	64 U		66 U	64 U	66 U	64 U	66 U															
TEQ	137	21.6		12.2	0.6	11.4	9.4	8.7															

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		F-1c	F-1c	F-1c	F-1c	F-1c	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d	F-1d
	Site Cleanup Levels (a)	F1C-B1 MK65D 2/27/2008	F1C-B2 MK65E 2/27/2008	F1C-S4 MK65A 2/27/2008	F1C-S5 MK65B 2/27/2008	F1C-S6 MK65C 2/27/2008	F1d.1-B1 MM95A 3/12/2008	F1d.1-B2 MM95B 3/12/2008	F1d.1-B3 MM95C 3/12/2008	F1d.1-B4 MM95D 3/12/2008	F1d.1-B5 MM95E 3/12/2008	F1d.1-B6 MM95F 3/12/2008	F1d.1-B7 MM95G 3/12/2008	F1d.1-B8 MM95H 3/12/2008	F1d.1-B9 MM95I 3/12/2008	F1d.1-B10 MM95J 3/12/2008	F1d.1-B11 MM95K 3/12/2008	F1d.1-S1 MK65Y 2/27/2008	F1d.1-S2 MK65Z 2/27/2008	F1d.1-S3 MK65AA 2/27/2008
<b>HYDROCARBON IDENTIFICATION</b>																				
<b>NWTPH-HCID (mg/kg)</b>																				
Gasoline Range																				
Diesel Range																				
Oil Range																				
<b>NWTPH-DxSG (mg/kg)</b>																				
Diesel Range Hydrocarbons	2,000																			
Motor Oil	2,000																			
Mineral Spirits	4,000																			
Creosote																				
<b>NWTPH-G (mg/kg)</b>																				
Gasoline Range	100																			
<b>BTEX (µg/kg)</b>																				
<b>EPA Method 8021</b>																				
Benzene	290																			
Toluene	110,000																			
Ethylbenzene	18,000																			
m,p-Xylene	15,000																			
o-Xylene	147,000																			
Xylenes (total)																				
<b>TOTAL METALS (mg/kg)</b>																				
<b>SW 6000/7000 series</b>																				
Arsenic	20	6	5 U	5 U	5 U	7	5 U	8	6 U	6 U	8	6 U	10	6 U	6 U	6 U	6 U	11	19	20
Cadmium	80	0.2 U	0.2 U	0.2 U	0.3	0.2	0.5	0.4	0.2	0.3	0.3	0.4	0.5	0.5	0.7	0.4	0.4	0.6	0.6	0.8
Chromium	--	26.7	26	23.5	30	31.8	32.8	34.6	26.0	30.1	32.8	45.1	52.8	31.8	29.4	32.4	26.6	35.1	40.6	48
Copper	2,960	33.2	28.1	21.5	33.9	38.8	33.0	42.2	21.1	28.3	70.3	30.2	92.9	33.8	30.0	34.3	29.2	388	266	388
Lead	250	11	12	3	30	26	28	19	15	11	13	45	36	28	25	27	25	144	65	84
Mercury	24	0.05 U	0.11	0.05 U	0.17	0.07	0.20	0.09	0.09	0.06 U	0.06	0.20	0.12	0.17	0.16	0.12	0.14	0.06	0.32	0.31
Zinc	24,000	98	47	53	83	98	57	100	37	66	78	54	116	64	58	63	52	248	297	334
Barium	1,648																			
Selenium																				
Silver																				
<b>TCLP (mg/L)</b>																				
<b>EPA Method 1311-6010</b>																				
Arsenic																				
Lead																				
<b>cPAHs (µg/kg)</b>																				
<b>SW8270D</b>																				
Benzo(a)anthracene	--																			
Chrysene	--																			
Benzo(b)fluoranthene	--																			
Benzo(k)fluoranthene	--																			
Benzo(a)pyrene	--																			
Indeno(1,2,3-cd)pyrene	--																			
Dibenz(a,h)anthracene	--																			
TEQ	137																			

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2	F-2
	Site Cleanup Levels (a)	F2-1-B1 JN24N 6/21/2006	F2-1-B2 JN24O 6/21/2006	F2-1-B3 JN24P 6/21/2006	F2-1-B4 JN24Q 6/21/2006	F2-1-B6 JN24S 6/21/2006	F2-1-B7 JN24T 6/21/2006	F2-1-B8 JN24V 6/21/2006	F2-1-B9a JO55B 6/30/2006	F2-1-S1 JN24B 6/22/2006	F2-1-S2 JN24A 6/22/2006	F2-1-S3a JO55C 6/30/2006	F2-1-S3a(1.0-2.0) JO55D 6/30/2006	F2-1-S4a JO55F 6/30/2006	F2-1-S4a(1.0-2.0) JO55G 6/30/2006	F2-1-S5 JN24F 6/22/2006	F2-1-S6 JN24G 6/22/2006	F2-1-S7 JN24H 6/22/2006	F2-1-S8 JN24I 6/22/2006	F2-2-B1 JN24W 6/21/2006	F2-2-B2 JR93A 8/4/2006	F2-2-B3 JR93B 8/4/2006	F2-2-S1 JN24E 6/22/2006	
HYDROCARBON IDENTIFICATION																								
NWTPH-HCID (mg/kg)																								
Gasoline Range																								
Diesel Range																								
Oil Range																								
NWTPH-DxSG (mg/kg)																								
Diesel Range Hydrocarbons		2,000																						
Motor Oil		2,000																						
NWTPH-G (mg/kg)																								
Gasoline Range		100																						
BTEX (µg/kg)																								
EPA Method 8021																								
Benzene		290																						
Toluene		110,000																						
Ethylbenzene		18,000																						
m,p-Xylene		15,000																						
o-Xylene		147,000																						
Xylenes (total)																								
TOTAL METALS (mg/kg)																								
SW 6000/7000 series																								
Arsenic		20	7	5 U	5 U	5	5 U	8	6	5	16	5 U	9	7	8	5	8	14	6	10	5 U	6 U	6 U	6
Cadmium		80	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium		--	27.3	22.8	27.2	23.6	26.5	27.8	23.5	26.8	34.4	24.4	25.6	24.4	32.9	23.7	27.5	25.8	24.0	34.7	47.2	26.7	24.3	22.5
Copper		2,960	29.7	12.1	16.9	15.1	18.0	20.0	22.3	21.6	85.3	16.2	27.0	18.0	28.1	14.4	28.6	49.6	19.6	40.7	23.9	17.2	16.5	17.9
Lead		250	21	3	4	3	3	4	3	3	35	3	14	2 U	4	2 U	7	71	5	17	4	5	4	14
Mercury		24	0.08	0.05 U	0.05 U	0.04 U	0.04 U	0.05 U	0.04 U	0.05 U	0.10	0.04 U	0.05 U	0.04 U	0.04 U	0.04 U	0.05 U	0.05 U	0.04 U	0.04	0.04 U	0.04 U	0.04 U	0.04 U
Zinc		24,000	96.2	32.5	39.6	33.9	38.8	48.9	48.2	104	231	51.9	189	40.2	57.4	38.6	69.8	203	49.5	105	42.0	47.2	50.0	70.5
Barium		1,648																						
Selenium																								
Silver																								
TCLP (mg/L)																								
EPA Method 1311-6010																								
Arsenic																								
Lead																								
cPAHs (µg/kg)																								
SW8270D																								
Benzo(a)anthracene		--																						
Chrysene		--																						
Benzo(b)fluoranthene		--																						
Benzo(k)fluoranthene		--																						
Benzo(a)pyrene		--																						
Indeno(1,2,3-cd)pyrene		--																						
Dibenz(a,h)anthracene		--																						
TEQ		137																						



TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		F-4b	F-4b	F-4b	F-4b	F-4b	F-4b	F-4b	F-4b	F-4b	F-5	F-5	F-5	F-5	F-5
	Site Cleanup Levels (a)	F4b-B3 KC63C 10/26/2006	F4b-B4 KC63D 10/26/2006	F4b-B5 KC63E 10/26/2006	F4b-B6 KC63F 10/26/2006	F4b-B7 KC63G 10/26/2006	F4b-S5 KC63H 10/26/2006	F4b-S7 KC63I 10/26/2006	F4b-S8 JT96J 8/16/2006	F4b-S9 JT96I 8/16/2006	F5-B1 JR75Q 8/2/2006	F5-B2 JR75P 8/2/2006	F5-S2 JR75R 8/2/2006	F5-S3 JR75O 8/2/2006	F5-S4 JR75S 8/2/2006
<b>HYDROCARBON IDENTIFICATION</b>															
<b>NWTPH-HCID (mg/kg)</b>															
Gasoline Range															
Diesel Range															
Oil Range															
<b>NWTPH-DxSG (mg/kg)</b>															
Diesel Range Hydrocarbons	2,000														
Motor Oil	2,000														
<b>NWTPH-G (mg/kg)</b>															
Gasoline Range	100														
<b>BTEX (µg/kg)</b>															
<b>EPA Method 8021</b>															
Benzene	290														
Toluene	110,000														
Ethylbenzene	18,000														
m,p-Xylene	15,000														
o-Xylene	147,000														
Xylenes (total)															
<b>TOTAL METALS (mg/kg)</b>															
<b>SW 6000/7000 series</b>															
Arsenic	20	5.2	3.6	4.2	4.7	1.6	3.8	4.2	5 U	7					
Cadmium	80	0.3	0.2 U	0.3	0.3	0.2 U	0.2 U	0.3	0.2 U	0.2 U					
Chromium	--	43.1	27.2	32.7	29.2	27.1	25.2	32.3	30.1	36.5					
Copper	2,960	35.6	32.0	34.1	32.2	13.1	16.2	29.6	24.1	22.5					
Lead	250	35	52	28	29	2	7	28	12	7					
Mercury	24	0.20	0.17	0.13	0.14	0.04 U	0.05 U	0.15	0.11	0.05 U					
Zinc	24,000	63	63	79	80	34	51	77	57.5	51.5					
Barium	1,648														
Selenium															
Silver															
<b>TCLP (mg/L)</b>															
<b>EPA Method 1311-6010</b>															
Arsenic															
Lead															
<b>cPAHs (µg/kg)</b>															
<b>SW8270D</b>															
Benzo(a)anthracene	--								110	63 U	65 U	65 U	64 U	64 U	63 U
Chrysene	--								130	63 U	65 U	65 U	64 U	64 U	88
Benzo(b)fluoranthene	--								81	63 U	65 U	65 U	64 U	64 U	63 U
Benzo(k)fluoranthene	--								64 U	63 U	65 U	65 U	64 U	64 U	79
Benzo(a)pyrene	--								64 U	63 U	65 U	65 U	64 U	64 U	63 U
Indeno(1,2,3-cd)pyrene	--								64 U	63 U	65 U	65 U	64 U	64 U	63 U
Dibenzo(a,h)anthracene	--								64 U	63 U	65 U	65 U	64 U	64 U	63 U
TEQ	137								20.4	ND	ND	ND	ND	ND	8.8



**TABLE 19**  
**FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Cleanup Action Area		F-8a	F-8a	F-8a	F-8a	F-8b	F-8b	F-8b	F-8b	F-8b	F-8b	F-8b	F-8b	F-8c	F-8c	F-8c	F-8c	F-8c	F-8d	F-8d	F-8d	F-8d	F-8d	F-8d	F-8d
	Site Cleanup Levels (a)	F8a-B1 LE43A 6/20/2007	F8a-B2 LE43B 6/20/2007	F8a-S1 LE43C 6/20/2007	F8a-S2 LE43D 6/20/2007	F8a-S3 LE43E 6/20/2007	F8b-B1 LE14A 6/19/2007	F8b-B2 LE14B 6/19/2007	F8b-B3 LE14C 6/19/2007	F8b-B4 LE14D 6/19/2007	F8b-S1a LG47C 7/6/2007	F8b-S2 LE14F 6/19/2007	F8b-S3a LG47B 7/6/2007	F8c-B1 LE14H 6/19/2007	F8c-B2 LE14I 6/19/2007	F8c-B3 LJ57A 7/31/2007	F8c-B4 LJ57B 7/31/2007	F8c-S3 LE14L 6/19/2007	F8d-B1 KF43A 11/14/2006	F8d-B2 KF43B 11/14/2006	F8d-B3 KF43C 11/14/2006	F8d-B4 KF43D 11/14/2006	F8d-B5 KF43E 11/14/2006	F8d-B6 KF43F 11/14/2006	F8d-S1 KF43G 11/14/2006
HYDROCARBON IDENTIFICATION																									
NWTPH-HCID (mg/kg)																									
Gasoline Range																									
Diesel Range																									
Oil Range																									
NWTPH-DxSG (mg/kg)																									
Diesel Range Hydrocarbons 2,000																									
Motor Oil 2,000																									
Mineral Spirits 4,000																									
Creosote																									
NWTPH-G (mg/kg)																									
Gasoline Range 100																									
BTEX (µg/kg)																									
EPA Method 8021																									
Benzene 290																									
Toluene 110,000																									
Ethylbenzene 18,000																									
m,p-Xylene 15,000																									
o-Xylene 147,000																									
Xylenes (total)																									
TOTAL METALS (mg/kg)																									
SW 6000/7000 series																									
Arsenic 20																									
Cadmium 80																									
Chromium --																									
Copper 2,960																									
Lead 250																									
Mercury 24																									
Zinc 24,000																									
Barium 1,648																									
Selenium																									
Silver																									
TCLP (mg/L)																									
EPA Method 1311-6010																									
Arsenic																									
Lead																									
cPAHs (µg/kg)																									
SW8270D																									
Benzo(a)anthracene -- 66 U 64 U 82 95 110 120 64 U 67 U 160 120 110 150 96 64 U 77 64 U 68 64 U 65 U 64 U 66 U 64 U 65 99																									
Chrysene -- 66 U 64 U 130 130 160 220 64 U 69 220 160 130 200 140 64 U 140 64 U 97 64 U 65 U 64 U 66 U 64 U 65 U 130																									
Benzo(b)fluoranthene -- 66 U 64 U 74 75 64 U 91 64 U 67 U 110 80 65 120 64 U 81 64 U 63 U 64 U 65 U 64 U 66 U 64 U 65 U 65 U																									
Benzo(k)fluoranthene -- 66 U 64 U 64 U 63 U 64 U 120 64 U 67 U 110 93 64 U 75 64 U 86 64 U 63 U 64 U 65 U 64 U 66 U 64 U 65 U 65 U																									
Benzo(a)pyrene -- 66 U 64 U 64 U 63 U 64 U 77 64 U 67 U 84 68 64 U 74 64 U 66 U 64 U 63 U 64 U 65 U 64 U 66 U 64 U 65 U 65 U																									
Indeno(1,2,3-cd)pyrene -- 66 U 64 U 64 U 63 U 64 U 65 U 64 U 67 U 66 U 66 U 64 U 61 U 64 U 66 U 64 U 63 U 64 U 65 U 64 U 66 U 64 U 65 U 65 U																									
Dibenz(a,h)anthracene -- 66 U 64 U 64 U 63 U 64 U 65 U 64 U 67 U 66 U 66 U 64 U 61 U 64 U 66 U 64 U 63 U 64 U 65 U 64 U 66 U 64 U 65 U 65 U																									
TEQ 137 ND ND 16.9 18.3 12.6 112 ND 0.7 124 98.9 18.8 110 11 ND 25.8 ND 7.8 ND ND ND ND ND ND																									

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		F-8d	F-8d	F-8d	F-8d	F-8d	F-8e	F-8e	F-8e	F-8e	F-8e	F-8e	F-8e	F-8e	F-8f	F-8f	F-8f	F-8f	F-8f	F-8g	F-8g	F-8g	
	Site Cleanup Levels (a)	F8d-S2 KF43H 11/14/2006	F8d-S4 KF43J 11/14/2006	F8d-S5 KF42A 11/14/2006	F8d-S6 KF42B 11/14/2006	F8d-S8 KF42D 11/14/2006	F8E-B1 MK65K 2/27/2008	F8E-B2 MK65L 2/27/2008	F8E-B3 MK65M 2/27/2008	F8E-S1 MK65F 2/27/2008	F8E-S2 MK65G 2/27/2008	F8E-S3 MK65H 2/27/2008	F8E-S4 MK65I 2/27/2008	F8E-S5 MK65J 2/27/2008	F8F-B1 MK65X 2/27/2008	F8F-S1 MK65T 2/27/2008	F8F-S2 MK65U 2/27/2008	F8F-S3 MK65V 2/27/2008	F8F-S4 MK65W 2/27/2008	F8G-B1 MK65R 2/27/2008	F8G-B2 MK65S 2/27/2008	F8G-S1 MK65N 2/27/2008	
HYDROCARBON IDENTIFICATION																							
NWTPH-HCID (mg/kg)																							
Gasoline Range																							
Diesel Range																							
Oil Range																							
NWTPH-DxSG (mg/kg)																							
Diesel Range Hydrocarbons		2,000																					
Motor Oil		2,000																					
Mineral Spirits		4,000																					
Creosote																							
NWTPH-G (mg/kg)																							
Gasoline Range		100																					
BTEX (µg/kg)																							
EPA Method 8021																							
Benzene		290																					
Toluene		110,000																					
Ethylbenzene		18,000																					
m,p-Xylene		15,000																					
o-Xylene		147,000																					
Xylenes (total)																							
TOTAL METALS (mg/kg)																							
SW 6000/7000 series																							
Arsenic		20																					
Cadmium		80																					
Chromium		--																					
Copper		2,960																					
Lead		250																					
Mercury		24																					
Zinc		24,000																					
Barium		1,648																					
Selenium																							
Silver																							
TCLP (mg/L)																							
EPA Method 1311-6010																							
Arsenic																							
Lead																							
cPAHs (µg/kg)																							
SW8270D																							
Benzo(a)anthracene		--	69	68	63 U	66 U	65	66 U	63 U	63 U	85	83	82	64 U	100	64 U	890	150	65 U	130	63 U	65 U	63 U
Chrysene		--	100	82	72	66 U	73	66 U	63 U	63 U	120	100	110	64 U	130	64 U	880	140	65 U	160	63 U	65 U	80
Benzo(b)fluoranthene		--	64 U	66 U	63 U	66 U	63 U	66 U	63 U	63 U	63 U	63 U	62 U	64 U	64 U	64 U	260	66	65 U	93	63 U	65 U	63 U
Benzo(k)fluoranthene		--	64 U	66 U	63 U	66 U	63 U	66 U	63 U	63 U	63 U	63 U	62 U	64 U	92	64 U	320	66 U	65 U	65 U	63 U	65 U	63 U
Benzo(a)pyrene		--	64 U	66 U	63 U	66 U	63 U	66 U	63 U	63 U	63 U	63 U	62 U	64 U	64 U	64 U	250	66 U	65 U	65 U	63 U	65 U	63 U
Indeno(1,2,3-cd)pyrene		--	64 U	66 U	63 U	66 U	63 U	66 U	63 U	63 U	63 U	63 U	62 U	64 U	64 U	64 U	66 U	66 U	65 U	65 U	63 U	65 U	63 U
Dibenz(a,h)anthracene		--	64 U	66 U	63 U	66 U	63 U	66 U	63 U	63 U	63 U	63 U	62 U	64 U	64 U	64 U	66 U	66 U	65 U	65 U	63 U	65 U	63 U
TEQ		137	7.9	7.6	0.7	ND	7.2	ND	ND	ND	9.7	9.3	9.3	ND	20.5	ND	406	23.0	ND	23.9	ND	ND	0.8

TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		F-8g	F-8g	F-8g
	Site Cleanup Levels (a)	F8G-S2 MK65O 2/27/2008	F8G-S3 MK65P 2/27/2008	F8G-S4 MK65Q 2/27/2008
HYDROCARBON IDENTIFICATION				
NWTPH-HCID (mg/kg)				
Gasoline Range				
Diesel Range				
Oil Range				
NWTPH-DxSG (mg/kg)				
Diesel Range Hydrocarbons	2,000			
Motor Oil	2,000			
Mineral Spirits	4,000			
Creosote				
NWTPH-G (mg/kg)				
Gasoline Range	100			
BTEX (µg/kg)				
EPA Method 8021				
Benzene	290			
Toluene	110,000			
Ethylbenzene	18,000			
m,p-Xylene	15,000			
o-Xylene	147,000			
Xylenes (total)				
TOTAL METALS (mg/kg)				
SW 6000/7000 series				
Arsenic	20			
Cadmium	80			
Chromium	--			
Copper	2,960			
Lead	250			
Mercury	24			
Zinc	24,000			
Barium	1,648			
Selenium				
Silver				
TCLP (mg/L)				
EPA Method 1311-6010				
Arsenic				
Lead				
cPAHs (µg/kg)				
SW8270D				
Benzo(a)anthracene	--	63 U	63 U	70
Chrysene	--	63 U	63 U	97
Benzo(b)fluoranthene	--	63 U	63 U	64 U
Benzo(k)fluoranthene	--	63 U	63 U	64 U
Benzo(a)pyrene	--	63 U	63 U	64 U
Indeno(1,2,3-cd)pyrene	--	63 U	63 U	64 U
Dibenz(a,h)anthracene	--	63 U	63 U	64 U
TEQ	137	ND	ND	8.0



TABLE 19  
FINAL COMPLIANCE MONITORING SOIL SAMPLE ANALYTICAL RESULTS  
WEST END SITE, PORT OF EVERETT, WASHINGTON

Cleanup Action Area		H-3	H-3	H-3	H-3	H-3
	Site Cleanup Levels (a)	H3-B3 LB76C 6/1/2007	H3-S2 LB78A 6/1/2007	H3-S3 LB78B 6/1/2007	H3-S4 LB76E 6/1/2007	H3-S5 H3-S5 (0.5-3) LC20A 6/5/2007
<b>HYDROCARBON IDENTIFICATION</b>						
<b>NWTPH-HCID (mg/kg)</b>						
Gasoline Range						
Diesel Range						
Oil Range						
<b>NWTPH-DxSG (mg/kg)</b>						
Diesel Range Hydrocarbons	2,000					
Motor Oil	2,000					
Mineral Spirits	4,000					
Creosote						
<b>NWTPH-G (mg/kg)</b>						
Gasoline Range	100					
<b>BTEX (µg/kg)</b>						
<b>EPA Method 8021</b>						
Benzene	290					
Toluene	110,000					
Ethylbenzene	18,000					
m,p-Xylene	15,000					
o-Xylene	147,000					
Xylenes (total)						
<b>TOTAL METALS (mg/kg)</b>						
<b>SW 6000/7000 series</b>						
Arsenic	20	7	11.1	13.0	8	19
Cadmium	80	0.2 U	0.5 U	0.6 U	0.2 U	0.2 U
Chromium	--	26.8	35	29	29.0	22.9
Copper	2,960	16.5	22	24	19.7	24.3
Lead	250	3	7	14	9	5
Mercury	24	0.04 U	0.05 U	0.04 U	11.9	0.05
Zinc	24,000	39	50	60	69	47
Barium	1,648					
Selenium						
Silver						
<b>TCLP (mg/L)</b>						
<b>EPA Method 1311/6010</b>						
Arsenic						
Lead						
<b>cPAHs (µg/kg)</b>						
<b>SW8270D</b>						
Benzo(a)anthracene	--					64 U
Chrysene	--					64 U
Benzo(b)fluoranthene	--					64 U
Benzo(k)fluoranthene	--					64 U
Benzo(a)pyrene	--					64 U
Indeno(1,2,3-cd)pyrene	--					64 U
Dibenz(a,h)anthracene	--					64 U
TEQ	137					ND

ND = Not Detected:  
U = The analyte was not detected in the sample at the given reporting limit.  
UJ = The analyte was not detected in the sample; the given reporting limit is an estimate.  
J = The analyte was detected in the sample; the given concentration is an estimate.  
Boxed cells indicate an exceedance of site cleanup levels.

(a) Development of the cleanup levels is prepsented in Table 2

**TABLE 20**  
**GROUNDWATER COMPLIANCE MONITORING ANALYTICAL DATA**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Cleanup Action Area	D-7d	D-7d	D-7d	D-7d	D-7d	D-7d	E-3	E-3	E-3	E-3
	D-7	D-7-Ex	D-7	D-7	Free Product 1	Free Product 2	E3 H2O	E3-1	E3-2	E-3-070207-A
	LP20A	LP11A	LP24A	LR79A	LO57B	LO57C	L070606-01	LC75A	LC75B	LF77A
Site Cleanup Levels (a)	9/6/2007	9/11/2007	9/12/2007	10/1/2007	9/6/2007	9/6/2007	6/7/2007	6/8/2007	6/8/2007	7/2/2007
<b>HYDROCARBON IDENTIFICATION</b>										
<b>NWTPH-HCID (mg/L)</b>										
Gasoline Range	--									
Diesel Range	--									
Oil Range	--									
<b>DIESEL-RANGE HYDROCARBONS</b>										
<b>NWTPH-Dx (mg/L)</b>										
Diesel	0.5	6.2	4.1	14	0.30	870,000	410	1.8	0.94	3.0
Motor Oil	0.5	2.5 U	0.74	0.73	0.50 U	100,000 U	44 U	0.5 U	0.50 U	0.50 U
<b>GASOLINE-RANGE HYDROCARBONS</b>										
<b>NWTPH-G (mg/L)</b>										
Gasoline Range	0.8	1.0	0.35	0.25 U		15	0.2 U			
<b>BTEX</b>										
<b>EPA Method 8021B Mod (µg/L)</b>										
Benzene	51	1.0 U	1.0 U	1.0 U						
Toluene	15,000	1.0 U	1.0 U	1.0 U						
Ethylbenzene	2,100	1.2	1.0 U	1.0 U						
m,p-Xylene	--	1.0 U	1.0 U	1.0 U						
o-Xylene	--	1.0 U	1.0 U	1.0 U						
<b>TOTAL METALS (µg/L)</b>										
<b>EPA Method 6010B/7470A</b>										
Arsenic	5									
Cadmium	8.8									
Chromium	240,000									
Copper	2.4									
Lead	8.1									
Mercury	0.1									
Nickel	--									
Silver	--									
Zinc	81									
<b>DISSOLVED METALS (µg/L)</b>										
<b>EPA Method 6010B/7470A</b>										
Arsenic	5							37.4	31.4	5.3

**TABLE 20**  
**GROUNDWATER COMPLIANCE MONITORING ANALYTICAL DATA**  
**WEST END SITE, PORT OF EVERETT, WASHINGTON**

Cleanup Action Area		E-3	E-3	E-3	E-4	E-4	E-4	E-4	E-4	E-4
	Site	E-3-070207-B	E-3	Dup of E-3	E-4	E-4	E-4	E-4	E-4	E-4
	Cleanup	LF77B	LH06A	E-30	E4 H2O	E4-1	E4-2	E-4-3	E-4-070207	E-4
	Levels (a)	7/2/2007	7/12/2007	LH06B LH07A LH07B	L070606-02	LC75C	LC75D	LE13A	LF77C	LH06C
		7/2/2007	7/12/2007	7/12/2007	6/7/2007	6/8/2007	6/8/2007	6/19/2007	7/2/2007	7/12/2007
<b>HYDROCARBON IDENTIFICATION</b>										
<b>NWTPH-HCID (mg/L)</b>										
Gasoline Range	--									
Diesel Range	--									
Oil Range	--									
<b>DIESEL-RANGE HYDROCARBONS</b>										
<b>NWTPH-Dx (mg/L)</b>										
Diesel	0.5	0.25 U	0.25 U	0.25 U	0.82	11	8.5	0.36	0.25 U	0.25 U
Motor Oil	0.5	0.50 U	0.50 U	0.50 U	0.5 U	0.69	0.90	0.50	0.50 U	0.50 U
<b>GASOLINE-RANGE HYDROCARBONS</b>										
<b>NWTPH-G (mg/L)</b>										
Gasoline Range	0.8				0.2 U					
<b>BTEX</b>										
<b>EPA Method 8021B Mod (µg/L)</b>										
Benzene	51									
Toluene	15,000									
Ethylbenzene	2,100									
m,p-Xylene	--									
o-Xylene	--									
<b>TOTAL METALS (µg/L)</b>										
<b>EPA Method 6010B/7470A</b>										
Arsenic	5									
Cadmium	8.8									
Chromium	240,000									
Copper	2.4									
Lead	8.1									
Mercury	0.1									
Nickel	--									
Silver	--									
Zinc	81									
<b>DISSOLVED METALS (µg/L)</b>										
<b>EPA Method 6010B/7470A</b>										
Arsenic	5	5.2	7.4	7.4						

U = the analyte was not detected in the sample at the given reporting limit  
 Boxed cells indicate an exceedance of the site cleanup levels

(a) Development of the cleanup levels is presented in Table 3

# Investigation Sampling Methods



## **APPENDIX A INVESTIGATION SAMPLING METHODS**

This document describes the soil and groundwater sampling methods used for obtaining environmental characterization data for the West End Site (Site). The sampling methods were used during the following investigations:

- A Phase II Environmental Site Assessment (ESA) conducted in late 2003 and early 2004 (Landau Associates 2004)
- The Data Gaps Investigation (DGI) conducted in late 2004 and early 2005 (Landau Associates 2005)
- The Supplemental DGI conducted in late 2005 (Landau Associates 2006a)
- An additional soil investigation conducted between February and July 2006 (not previously reported)
- The PSTL Investigation conducted in May 2006 (Landau Associates 2006b)
- A supplemental soil investigation conducted in Investigation Area F in July 2006 (Landau Associates 2006c).
- An additional investigation conducted in January and April of 2007 (not previously reported).
- Sub-slab soil sampling conducted in late 2007 and early 2008 (Not previously reported).

These investigations were conducted under, or consistent with, sampling and analysis plans reviewed by the Washington State Department of Ecology (Ecology) under its VCP, except for the Phase II ESA work plan (Landau Associates 2003), which was conducted prior to the Port's entry into the VCP. The remainder of this document summarizes soil sampling methods, groundwater sampling methods, and equipment decontamination methods employed during these investigations. The work plans for the various investigations should be reviewed for a more detailed description of investigation sampling methods.

### **SOIL SAMPLING METHODS**

Soil samples were obtained from borings installed using a truck-mounted direct-push drilling rig. Soil recovered from the borings was described using the Unified Soil Classification System (USCS) and was field screened for potential contamination. Field screening was accomplished by examining the soil for discoloration, anthropogenic materials (e.g., sand blast grit), and sheen or non-aqueous phase liquid (NAPL). A photo-ionization detector (PID) reading was obtained if field observations indicated the presence of petroleum hydrocarbons and was recorded for each 1-ft interval. If obvious signs of

contamination were observed, a discrete sample was collected from the area with the greatest level of observed contamination. For the purposes of these investigations, “significant contamination” was defined as the presence of:

- Free-phase petroleum product
- Soil or groundwater with moderate to heavy visible product film
- Soil with moderate to heavy sheen produced during sheen test. The sheen test will consist of the addition of deionized water to a portion of the soil sample that will not be submitted for chemical analysis, and agitation of the soil/water mixture. If a moderate to heavy sheen is visible on the surface of the water, then the soil will be considered to have significant levels of petroleum-related contamination.
- Soil with visible staining
- Soil with a strong petroleum odor
- Soil with PID readings of volatile organic compounds (VOCs) at or above 20 parts per million.

Field observations, including soil type classification and field screening results, were recorded on a log of exploration field form. Following the completion of soil classification and field screening, samples were collected for analytical testing or for laboratory archive. The soil core was divided into the planned sample intervals [(e.g., 0 to 0.5 ft, 1 to 2 ft, and 2 to 3 ft below ground surface (BGS))] and the sample intervals were individually homogenized using decontaminated stainless-steel bowls and spoons. The homogenized sample volumes were placed into the appropriate laboratory-supplied sample containers. Between samples, all down-hole drilling and sampling equipment was decontaminated, as specified below in the Equipment Decontamination Methods section.

The U.S. Environmental Protection Agency (EPA) 5035A soil sampling procedures were used to collect soil samples planned for VOCs; gasoline-range petroleum hydrocarbons (TPH-G); and benzene, toluene, ethylbenzene, and xylene (BTEX) analyses. The EPA 5035A soil sampling method is intended to reduce volatilization and biodegradation of samples. The EPA 5035A procedure for soil sample collection is as follows:

- Collect soil “cores” using coring devices (i.e., EnCore® sampler, EasyDraw Syringe®, or a Terra Core™ sampling device). Each “core” will consist of approximately 5 grams of soil. Collect three discrete “cores” from each sampling location. One EasyDraw Syringe® or Terra Core™ device will be used to collect the three discrete “cores”; however, if the EnCore® samplers are used, three sampling devices are required.
- Remove excess soil from coring device. If EasyDraw Syringe® or Terra Core™ sampling device are used for sample collection, place the “cored” soil directly into unpreserved 40 ml vials with a stirbar. If the EnCore® sampler is used, close the sampler for transport to the laboratory.
- Collect one 2-oz soil jar of representative soil for moisture content and laboratory screening purposes. Fill the jar to minimize headspace.

- Samples will be placed in shipping cooler at 4<sup>0</sup>C. Samples will be transported to laboratory within 24 hours of sample collection, and will be stored at the laboratory at -7<sup>0</sup>C.

## **GROUNDWATER SAMPLING METHODS**

Groundwater samples were collected from direct-push soil borings and monitoring wells during the above-referenced environmental investigations. Groundwater samples from direct-push borings were collected using a temporary well screen advanced through the drill rods and were located within the upper two ft of the water table. Water was purged and sampled through the temporary well screen or monitoring well screen using new polyethylene tubing and a peristaltic pump. Low-flow sampling techniques were employed to minimize turbidity and the potential disturbance of VOCs in groundwater. The following field parameters were measured during purging and sample collection:

- pH
- Conductivity
- Temperature.

The purging was continued until the parameters stabilized and turbidity dissipated. Immediately following purging, the groundwater samples were collected into the appropriate laboratory-supplied sample containers. Samples collected for dissolved metals were field filtered using an inline 0.45 µm disposable field filter. Between samples, all down-hole drilling and sampling equipment was decontaminated, as specified below in the Equipment Decontamination Methods section.

## **EQUIPMENT DECONTAMINATION METHODS**

The decontamination procedures described below were used by field personnel to decontaminate sampling, drilling, and related field equipment.

### **Sampling Equipment**

All sampling equipment used (e.g., stainless-steel bowls, stainless-steel spoons, hand augers, direct-push core samplers, etc.) was cleaned using a three-step process, as follows:

1. Scrub surfaces of equipment that contact the sample using brushes using an Alconox solution.
2. Rinse and scrub equipment with clean tap water.
3. Rinse equipment a final time with deionized water to remove tap water impurities.

Decontamination of the reusable sampling devices was completed between collection of each sample. Sampling equipment that exhibited a visible sheen will be decontaminated using a hexane rinse (or other appropriate solvent) prior to the tap water rinse.

## Heavy Equipment

Heavy equipment (e.g., the drilling rigs and drilling equipment that is used downhole, or that contacts material and equipment going downhole) was cleansed by a hot water, high pressure wash before each use and at completion of the project. Potable tap water was used as the cleansing agent.

## REFERENCES

Landau Associates. 2006a. *Ecology Review Draft Report, Supplemental Data Gaps Investigation, North Marina Redevelopment Site, Everett, Washington*. February 28.

Landau Associates. 2006b. Technical Memorandum to Poli Luis, Port of Everett, re: *Former Puget Sound Truck Lines Leasehold, Additional Soil and Groundwater Investigation, Port of Everett, Washington*. November 17.

Landau Associates. 2006c. Technical Memorandum to Poli Luis, Port of Everett, re: *Area F Supplemental Soil Investigation, North Marina Redevelopment Site, Port of Everett, Washington*. October 30.

Landau Associates. 2005. Ecology Review Draft, Data Gaps Investigation, North Marina Redevelopment Site, Everett, Washington. Prepared for the Port of Everett. May 13.

Landau Associates. 2004. *Phase II Environmental Site Assessment Report, North Marina Area, Port of Everett, Everett, Washington*. April 13.

Landau Associates. 2003. *Work Plan, Phase II Environmental Site Assessment, North Marina Redevelopment Site, Port of Everett, Everett, Washington*. December 29.

## Characterization Analytical Data

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

		D-CS0-1 (0-0.5) KM95O	D-CS0-2 (0-0.5) KM95P	D-CS0-3 (0-0.5) KM95Q	D-CSO-1,2,3 (0-0.5) KN98A	D-FA-1 (1-2) HQ85C	D-FA-1 (4-6) HQ85D	D-FA-1 (8-10) HQ85E	D-FA-2 (1-2) HQ43J	D-FA-2 (4-6) HQ43K	D-FA-2 (8-10) HQ43M	D-FA-3 (1-2) HQ43E	D-FA-3 (4-6) HQ43F	D-FA-3 (8-10) HQ43H	D-FA-3 (10-12) HS27A	D-FA-4 (1-2) HQ43O	D-FA-4 (4-6) HQ43P
	Cleanup Level (a)	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/27/2005	1/27/2005	1/27/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005
<b>CONVENTIONAL PARAMETERS</b>																	
Hexavalent Chrome (mg/kg)																	
Total Solids (%)																	
pH (Std Units)																	
<b>PETROLEUM HYDROCARBONS</b>																	
<b>NWTPH-HCID (mg/kg)</b>																	
Gasoline	--																
Diesel	--																
Motor Oil	--																
<b>NWTPH-Dx (mg/kg)</b>																	
Diesel	2000 (b)					22											
Motor Oil	2000 (b)					180											
<b>Gasoline (mg/kg)</b>																	
<b>Method 8021/NWTPH-G</b>																	
Gasoline	100																
<b>BTEX (ug/kg)</b>																	
<b>Method 8021</b>																	
Benzene	--																
Toluene	--																
Ethylbenzene	--																
m,p-Xylene	--																
o-Xylene	--																
<b>cPAHs/Naphthalenes (ug/kg)</b>																	
<b>SW8270C-SIM</b>																	
Naphthalene	138,000																
2-Methylnaphthalene	--																
1-Methylnaphthalene	--																
Benzo[a]anthracene	--	320	980	96													
Chrysene	--	420	970	140													
Benzo[b]fluoranthene	--	460	820	110													
Benzo[k]fluoranthene	--	350	900	160													
Benzo[a]pyrene	--	370	840	75													
Indeno[1,2,3-cd]pyrene	--	220	400	66 U													
Dibenz[a,h]anthracene	--	67 U	110	66 U													
Acenaphthene																	
Acenaphthylene																	
Anthracene																	
Benzo[g,h,i]perylene																	
Fluoranthene																	
Fluorene																	
Phenanthrene																	
Pyrene																	
cPAH TEQ	137	509	1204	113													
<b>PCBs (ug/kg)</b>																	
<b>Method SW8082</b>																	
Aroclor-1016																	
Aroclor-1242																	
Aroclor-1248																	
Aroclor-1254																	
Aroclor-1260																	
Aroclor-1221																	
Aroclor-1232																	
Total PCBs																	
<b>TOTAL METALS (mg/kg)</b>																	
<b>SW6000-7000 Series</b>																	
Arsenic	20 (b)					5 U	9	14	40	63	55	80	51	50	80	12	57
Barium	--																
Cadmium	80					0.2 U	0.2 U	0.3 U	0.5 U	0.3	0.5	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.3
Chromium	--																

**TABLE B-1**  
**SOIL CHARACTERIZATION ANALYTICAL DATA**  
**WEST END SITE**  
**EVERETT, WASHINGTON**

[illegible]

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

		D-CS0-1 (0-0.5) KM95O	D-CS0-2 (0-0.5) KM95P	D-CS0-3 (0-0.5) KM95Q	D-CS0-1,2,3 (0-0.5) KN98A	D-FA-1 (1-2) HQ85C	D-FA-1 (4-6) HQ85D	D-FA-1 (8-10) HQ85E	D-FA-2 (1-2) HQ43J	D-FA-2 (4-6) HQ43K	D-FA-2 (8-10) HQ43M	D-FA-3 (1-2) HQ43E	D-FA-3 (4-6) HQ43F	D-FA-3 (8-10) HQ43H	D-FA-3 (10-12) HS27A	D-FA-4 (1-2) HQ43O	D-FA-4 (4-6) HQ43P
	Cleanup Level (a)	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/27/2005	1/27/2005	1/27/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005
trans-1,3-Dichloropropene																	
2-Chloroethylvinylether																	
Bromoform																	
4-Methyl-2-Pentanone (MIBK)																	
2-Hexanone																	
Tetrachloroethene																	
1,1,2,2-Tetrachloroethane																	
Toluene																	
Chlorobenzene																	
Ethylbenzene																	
Styrene																	
Trichlorofluoromethane																	
1,1,2-Trichloro-1,2,2-trifluoroethane																	
m,p-Xylene																	
o-Xylene																	
1,2-Dichlorobenzene																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Acrolein																	
Methyl Iodide																	
Bromoethane																	
Acrylonitrile																	
1,1-Dichloropropene																	
Dibromomethane																	
1,1,1,2-Tetrachloroethane																	
1,2-Dibromo-3-chloropropane																	
1,2,3-Trichloropropane																	
trans-1,4-Dichloro-2-butene																	
1,3,5-Trimethylbenzene																	
1,2,4-Trimethylbenzene																	
Hexachlorobutadiene																	
Ethylene Dibromide																	
Bromochloromethane																	
2,2-Dichloropropane																	
1,3-Dichloropropane																	
Isopropylbenzene																	
n-Propylbenzene																	
Bromobenzene																	
2-Chlorotoluene																	
4-Chlorotoluene																	
tert-Butylbenzene																	
sec-Butylbenzene																	
4-Isopropyltoluene																	
n-Butylbenzene																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
1,2,3-Trichlorobenzene																	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																	
Method 8270C																	
Phenol																	
Bis-(2-Chloroethyl) Ether																	
2-Chlorophenol																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Benzyl Alcohol																	
1,2-Dichlorobenzene																	
2-Methylphenol																	
2,2'-Oxybis(1-Chloropropane)																	
4-Methylphenol																	
N-Nitroso-Di-N-Propylamine																	
Hexachloroethane																	
Nitrobenzene																	
Isophorone																	
2-Nitrophenol																	
2,4-Dimethylphenol																	



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

		D-CS0-1 (0-0.5) KM95O	D-CS0-2 (0-0.5) KM95P	D-CS0-3 (0-0.5) KM95Q	D-CS0-1,2,3 (0-0.5) KN98A	D-FA-1 (1-2) HQ85C	D-FA-1 (4-6) HQ85D	D-FA-1 (8-10) HQ85E	D-FA-2 (1-2) HQ43J	D-FA-2 (4-6) HQ43K	D-FA-2 (8-10) HQ43M	D-FA-3 (1-2) HQ43E	D-FA-3 (4-6) HQ43F	D-FA-3 (8-10) HQ43H	D-FA-3 (10-12) HS27A	D-FA-4 (1-2) HQ43O	D-FA-4 (4-6) HQ43P
	Cleanup Level (a)	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/27/2005	1/27/2005	1/27/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005	1/24/2005
Benzoic Acid																	
bis(2-Chloroethoxy) Methane																	
2,4-Dinitrophenol																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
4-Chloroaniline																	
Hexachlorobutadiene																	
4-Chloro-3-methylphenol																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Total naphthalenes																	
Hexachlorocyclopentadiene																	
2,4,6-Trichlorophenol																	
2,4,5-Trichlorophenol																	
2-Chloronaphthalene																	
2-Nitroaniline																	
Dimethylphthalate																	
Acenaphthylene																	
3-Nitroaniline																	
Acenaphthene																	
2,4-Dichlorophenol																	
4-Nitrophenol																	
Dibenzofuran																	
2,6-Dinitrotoluene																	
2,4-Dinitrotoluene																	
Diethylphthalate																	
4-Chlorophenyl-phenylether																	
Fluorene																	
4-Nitroaniline																	
4,6-Dinitro-2-Methylphenol																	
N-Nitrosodiphenylamine																	
4-Bromophenyl-phenylether																	
Hexachlorobenzene																	
Pentachlorophenol																	
Phenanthrene																	
Carbazole																	
Anthracene																	
Di-n-Butylphthalate																	
Fluoranthene																	
Pyrene																	
Butylbenzylphthalate																	
3,3'-Dichlorobenzidine																	
Benzo(a)anthracene																	
bis(2-Ethylhexyl)phthalate																	
Chrysene																	
Di-n-Octyl phthalate																	
Benzo(b)fluoranthene																	
Benzo(k)fluoranthene																	
Benzo(a)pyrene																	
Indeno(1,2,3-cd)pyrene																	
Dibenz(a,h)anthracene																	
Benzo(g,h,i)perylene																	
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-4 (8-10) HQ43R 1/24/2005	D-FA-4 (10-12) HS27B 1/24/2005	D-FA-5 (0-0.5) HQ85A 1/27/2005	D-FA-5 (1-2) HR04A/HS27N 1/27/2005	D-FA-5 (2-3) HS14C 1/27/2005	D-FA-5 (3-5) HS27I 1/27/2005	D-FA-5 (7-9) HS27J 1/27/2005	D-FA-5 (9-11) HS27K 1/27/2005	D-FA-5 (11-14) HT64B 1/27/2005	D-FA-5b (0-0.5) HU35C 3/2/2005	D-FA-5b (1-2) HW57C 3/2/2005	D-FA-5b (2-3) HW57D 3/2/2005	D-FA-5b (3-5) HU88B 3/2/2005	D-FA-5b (7-9) HU88C 3/2/2005	D-FA-5b (13-15) HU88D 3/2/2005	D-FA-6 (0-0.5) HQ85H 1/27/2005	D-FA-6 (1-2) HR04R/HS27O 1/27/2005
<b>CONVENTIONAL PARAMETERS</b>																	
Hexavalent Chrome (mg/kg)																	
Total Solids (%)																	
pH (Std Units)																	
<b>PETROLEUM HYDROCARBONS</b>																	
<b>NWTPH-HCID (mg/kg)</b>																	
Gasoline			22 U													22 U	
Diesel			>55													54 U	
Motor Oil			>110													>110	
<b>NWTPH-Dx (mg/kg)</b>																	
Diesel			100 J													24 J	
Motor Oil			220 J													94 J	
<b>Gasoline (mg/kg)</b>																	
<b>Method 8021/NWTPH-G</b>																	
Gasoline																	
<b>BTEX (ug/kg)</b>																	
<b>Method 8021</b>																	
Benzene																	
Toluene																	
Ethylbenzene																	
m,p-Xylene																	
o-Xylene																	
<b>cPAHs/Naphthalenes (ug/kg)</b>																	
<b>SW8270C-SIM</b>																	
Naphthalene																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Benzo[a]anthracene			1500	6700	140	66 J										550	1600
Chrysene			2300	15000	210	99 J										1100	1900
Benzo[b]fluoranthene			1100	5000	120	94 J										600	1100
Benzo[k]fluoranthene			1100	5000	120	74 J										600	940
Benzo[a]pyrene			770	6600	140	63 J										390	740
Indeno[1,2,3-cd]pyrene			210	2800	65	66 UJ										110	170
Dibenz[a,h]anthracene			76	1200	64 U	66 UJ										64 U	80
Acenaphthene																	
Acenaphthylene																	
Anthracene																	
Benzo[g,h,i]perylene																	
Fluoranthene																	
Fluorene																	
Phenanthrene																	
Pyrene																	
cPAH TEQ			1214	9180	187	87										587	1172
<b>PCBs (ug/kg)</b>																	
<b>Method SW8082</b>																	
Aroclor-1016																	
Aroclor-1242																	
Aroclor-1248																	
Aroclor-1254																	
Aroclor-1260																	
Aroclor-1221																	
Aroclor-1232																	
Total PCBs																	
<b>TOTAL METALS (mg/kg)</b>																	
<b>SW6000-7000 Series</b>																	
Arsenic	57	24	100	60		58	34	37	58	50	41	7	7	6	6 U	50	36
Barium																	
Cadmium	0.2 U	0.5	0.8	0.6 U		0.3	0.3	0.4	0.4							0.5 U	0.3
Chromium																	



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-4 (8-10) HQ43R 1/24/2005	D-FA-4 (10-12) HS27B 1/24/2005	D-FA-5 (0-0.5) HQ85A 1/27/2005	D-FA-5 (1-2) HR04A/HS27N 1/27/2005	D-FA-5 (2-3) HS14C 1/27/2005	D-FA-5 (3-5) HS27I 1/27/2005	D-FA-5 (7-9) HS27J 1/27/2005	D-FA-5 (9-11) HS27K 1/27/2005	D-FA-5 (11-14) HT64B 1/27/2005	D-FA-5b (0-0.5) HU35C 3/2/2005	D-FA-5b (1-2) HW57C 3/2/2005	D-FA-5b (2-3) HW57D 3/2/2005	D-FA-5b (3-5) HU88B 3/2/2005	D-FA-5b (7-9) HU88C 3/2/2005	D-FA-5b (13-15) HU88D 3/2/2005	D-FA-6 (0-0.5) HQ85H 1/27/2005	D-FA-6 (1-2) HR04R/HS27O 1/27/2005
trans-1,3-Dichloropropene																	
2-Chloroethylvinylether																	
Bromoform																	
4-Methyl-2-Pentanone (MIBK)																	
2-Hexanone																	
Tetrachloroethene																	
1,1,2,2-Tetrachloroethane																	
Toluene																	
Chlorobenzene																	
Ethylbenzene																	
Styrene																	
Trichlorofluoromethane																	
1,1,2-Trichloro-1,2,2-trifluoroethane																	
m,p-Xylene																	
o-Xylene																	
1,2-Dichlorobenzene																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Acrolein																	
Methyl Iodide																	
Bromoethane																	
Acrylonitrile																	
1,1-Dichloropropene																	
Dibromomethane																	
1,1,1,2-Tetrachloroethane																	
1,2-Dibromo-3-chloropropane																	
1,2,3-Trichloropropane																	
trans-1,4-Dichloro-2-butene																	
1,3,5-Trimethylbenzene																	
1,2,4-Trimethylbenzene																	
Hexachlorobutadiene																	
Ethylene Dibromide																	
Bromochloromethane																	
2,2-Dichloropropane																	
1,3-Dichloropropane																	
Isopropylbenzene																	
n-Propylbenzene																	
Bromobenzene																	
2-Chlorotoluene																	
4-Chlorotoluene																	
tert-Butylbenzene																	
sec-Butylbenzene																	
4-Isopropyltoluene																	
n-Butylbenzene																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
1,2,3-Trichlorobenzene																	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																	
Method 8270C																	
Phenol																	
Bis-(2-Chloroethyl) Ether																	
2-Chlorophenol																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Benzyl Alcohol																	
1,2-Dichlorobenzene																	
2-Methylphenol																	
2,2'-Oxybis(1-Chloropropane)																	
4-Methylphenol																	
N-Nitroso-Di-N-Propylamine																	
Hexachloroethane																	
Nitrobenzene																	
Isophorone																	
2-Nitrophenol																	
2,4-Dimethylphenol																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-4 (8-10) HQ43R 1/24/2005	D-FA-4 (10-12) HS27B 1/24/2005	D-FA-5 (0-0.5) HQ85A 1/27/2005	D-FA-5 (1-2) HR04A/HS27N 1/27/2005	D-FA-5 (2-3) HS14C 1/27/2005	D-FA-5 (3-5) HS27I 1/27/2005	D-FA-5 (7-9) HS27J 1/27/2005	D-FA-5 (9-11) HS27K 1/27/2005	D-FA-5 (11-14) HT64B 1/27/2005	D-FA-5b (0-0.5) HU35C 3/2/2005	D-FA-5b (1-2) HW57C 3/2/2005	D-FA-5b (2-3) HW57D 3/2/2005	D-FA-5b (3-5) HU88B 3/2/2005	D-FA-5b (7-9) HU88C 3/2/2005	D-FA-5b (13-15) HU88D 3/2/2005	D-FA-6 (0-0.5) HQ85H 1/27/2005	D-FA-6 (1-2) HR04R/HS27O 1/27/2005
Benzoic Acid																	
bis(2-Chloroethoxy) Methane																	
2,4-Dinitrophenol																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
4-Chloroaniline																	
Hexachlorobutadiene																	
4-Chloro-3-methylphenol																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Total naphthalenes																	
Hexachlorocyclopentadiene																	
2,4,6-Trichlorophenol																	
2,4,5-Trichlorophenol																	
2-Chloronaphthalene																	
2-Nitroaniline																	
Dimethylphthalate																	
Acenaphthylene																	
3-Nitroaniline																	
Acenaphthene																	
2,4-Dichlorophenol																	
4-Nitrophenol																	
Dibenzofuran																	
2,6-Dinitrotoluene																	
2,4-Dinitrotoluene																	
Diethylphthalate																	
4-Chlorophenyl-phenylether																	
Fluorene																	
4-Nitroaniline																	
4,6-Dinitro-2-Methylphenol																	
N-Nitrosodiphenylamine																	
4-Bromophenyl-phenylether																	
Hexachlorobenzene																	
Pentachlorophenol																	
Phenanthrene																	
Carbazole																	
Anthracene																	
Di-n-Butylphthalate																	
Fluoranthene																	
Pyrene																	
Butylbenzylphthalate																	
3,3'-Dichlorobenzidine																	
Benzo(a)anthracene																	
bis(2-Ethylhexyl)phthalate																	
Chrysene																	
Di-n-Octyl phthalate																	
Benzo(b)fluoranthene																	
Benzo(k)fluoranthene																	
Benzo(a)pyrene																	
Indeno(1,2,3-cd)pyrene																	
Dibenz(a,h)anthracene																	
Benzo(g,h,i)perylene																	
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-6 (2-3) HS14E 1/27/2005	D-FA-6 (4-6) HS68B/HS27L 1/27/2005	D-FA-6 (8-10) HS27M 1/27/2005	D-FA-6 (10-12) HT64C 1/27/2005	D-FA-6 (12-14) HT64D 1/27/2005	D-FA-6b (0-0.5) HU35B 3/2/2005	D-FA-6b (1-2) HW57A 3/2/2005	D-FA-6b (2-3) HW57B 3/2/2005	D-FA-6b (3-5) HU88E 3/2/2005	D-FA-6b (7-9) HU88F 3/2/2005	D-FA-7 (0-0.5) HQ43C 1/24/2005	D-FA-7 (1-2) HQ92B/HS27C 1/24/2005	D-FA-7 (2-3) HQ92L 1/24/2005
CONVENTIONAL PARAMETERS													
Hexavalent Chrome (mg/kg)													
Total Solids (%)													
pH (Std Units)													
PETROLEUM HYDROCARBONS													
NWTPH-HCID (mg/kg)													
Gasoline											22	U	
Diesel											55	U	
Motor Oil											110	U	
NWTPH-Dx (mg/kg)													
Diesel													
Motor Oil													
Gasoline (mg/kg)													
Method 8021/NWTPH-G													
Gasoline													
BTEX (ug/kg)													
Method 8021													
Benzene													
Toluene													
Ethylbenzene													
m,p-Xylene													
o-Xylene													
cPAHs/Naphthalenes (ug/kg)													
SW8270C-SIM													
Naphthalene													
2-Methylnaphthalene													
1-Methylnaphthalene													
Benzo[a]anthracene	1900	350	J								210	300	320
Chrysene	2800	430	J								330	600	420
Benzo[b]fluoranthene	1300	340	J								240	400	280
Benzo[k]fluoranthene	1300	190	J								240	400	320
Benzo[a]pyrene	1400	340	J								260	290	320
Indeno[1,2,3-cd]pyrene	360	81	J								97	67	190
Dibenz[a,h]anthracene	180	63	UJ								65	U	65
Acenaphthene													
Acenaphthylene													
Anthracene													
Benzo[g,h,i]perylene													
Fluoranthene													
Fluorene													
Phenanthrene													
Pyrene													
cPAH TEQ	1986	440									342	413	461
PCBs (ug/kg)													
Method SW8082													
Aroclor-1016													
Aroclor-1242													
Aroclor-1248													
Aroclor-1254													
Aroclor-1260													
Aroclor-1221													
Aroclor-1232													
Total PCBs													
TOTAL METALS (mg/kg)													
SW6000-7000 Series													
Arsenic		13	22	8	17	240	460	100	6	7	U	17	30
Barium													
Cadmium		0.4	0.4	0.3	0.3						0.2	U	0.5
Chromium													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-6 (2-3) HS14E 1/27/2005	D-FA-6 (4-6) HS68B/HS27L 1/27/2005	D-FA-6 (8-10) HS27M 1/27/2005	D-FA-6 (10-12) HT64C 1/27/2005	D-FA-6 (12-14) HT64D 1/27/2005	D-FA-6b (0-0.5) HU35B 3/2/2005	D-FA-6b (1-2) HW57A 3/2/2005	D-FA-6b (2-3) HW57B 3/2/2005	D-FA-6b (3-5) HU88E 3/2/2005	D-FA-6b (7-9) HU88F 3/2/2005	D-FA-7 (0-0.5) HQ43C 1/24/2005	D-FA-7 (1-2) HQ92B/HS27C 1/24/2005	D-FA-7 (2-3) HQ92L 1/24/2005
Copper		29.3	45.4	31.2	31.3						35.3	41.3	
Lead		4	15	5	10						10	12	
Mercury		0.07	0.08	0.05 J	0.08 J						0.05 U	0.05 U	
Selenium													
Silver													
Zinc		93.3	82.7	51.2	93.8						58.0	80	
TCLP METALS (mg/L)													
Method 6010B													
Arsenic													
Barium													
Cadmium													
Chromium													
Lead													
Mercury													
Selenium													
Silver													
TRIBUTYL TIN (ug/kg)													
TBT Ion by SIM													
Tributyl Tin Chloride													
Dibutyl Tin Dichloride													
Butyl Tin Trichloride													
TBT as Tin ion													
EPH (ug/kg)													
EPH 8015B													
C8-C10 Aliphatics													
C10-C12 Aliphatics													
C12-C16 Aliphatics													
C16-C21 Aliphatics													
C21-C34 Aliphatics													
C8-C10 Aromatics													
C10-C12 Aromatics													
C12-C16 Aromatics													
C16-C21 Aromatics													
C21-C34 Aromatics													
Hazard Index													
VOLATILE ORGANIC COMPOUNDS (ug/kg)													
Method 8260B													
Chloromethane													
Bromomethane													
Vinyl chloride													
Chloroethane													
Methylene chloride													
Acetone													
Carbon disulfide													
1,1-Dichloroethene													
1,1-Dichloroethane													
trans-1,2-Dichloroethene													
cis-1,2-Dichloroethene													
Chloroform													
1,2-Dichloroethane													
Methyl ethyl ketone													
1,1,1-Trichloroethane													
Carbon tetrachloride													
Vinyl acetate													
Bromodichloromethane													
1,2-Dichloropropane													
cis-1,3-Dichloropropene													
Trichloroethene													
Dibromochloromethane													
1,1,2-Trichloroethane													
Benzene													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-6 (2-3) HS14E 1/27/2005	D-FA-6 (4-6) HS68B/HS27L 1/27/2005	D-FA-6 (8-10) HS27M 1/27/2005	D-FA-6 (10-12) HT64C 1/27/2005	D-FA-6 (12-14) HT64D 1/27/2005	D-FA-6b (0-0.5) HU35B 3/2/2005	D-FA-6b (1-2) HW57A 3/2/2005	D-FA-6b (2-3) HW57B 3/2/2005	D-FA-6b (3-5) HU88E 3/2/2005	D-FA-6b (7-9) HU88F 3/2/2005	D-FA-7 (0-0.5) HQ43C 1/24/2005	D-FA-7 (1-2) HQ92B/HS27C 1/24/2005	D-FA-7 (2-3) HQ92L 1/24/2005
trans-1,3-Dichloropropene													
2-Chloroethylvinylether													
Bromoform													
4-Methyl-2-Pentanone (MIBK)													
2-Hexanone													
Tetrachloroethene													
1,1,2,2-Tetrachloroethane													
Toluene													
Chlorobenzene													
Ethylbenzene													
Styrene													
Trichlorofluoromethane													
1,1,2-Trichloro-1,2,2-trifluoroethane													
m,p-Xylene													
o-Xylene													
1,2-Dichlorobenzene													
1,3-Dichlorobenzene													
1,4-Dichlorobenzene													
Acrolein													
Methyl Iodide													
Bromoethane													
Acrylonitrile													
1,1-Dichloropropene													
Dibromomethane													
1,1,1,2-Tetrachloroethane													
1,2-Dibromo-3-chloropropane													
1,2,3-Trichloropropane													
trans-1,4-Dichloro-2-butene													
1,3,5-Trimethylbenzene													
1,2,4-Trimethylbenzene													
Hexachlorobutadiene													
Ethylene Dibromide													
Bromochloromethane													
2,2-Dichloropropane													
1,3-Dichloropropane													
Isopropylbenzene													
n-Propylbenzene													
Bromobenzene													
2-Chlorotoluene													
4-Chlorotoluene													
tert-Butylbenzene													
sec-Butylbenzene													
4-Isopropyltoluene													
n-Butylbenzene													
1,2,4-Trichlorobenzene													
Naphthalene													
1,2,3-Trichlorobenzene													
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)													
Method 8270C													
Phenol													
Bis-(2-Chloroethyl) Ether													
2-Chlorophenol													
1,3-Dichlorobenzene													
1,4-Dichlorobenzene													
Benzyl Alcohol													
1,2-Dichlorobenzene													
2-Methylphenol													
2,2'-Oxybis(1-Chloropropane)													
4-Methylphenol													
N-Nitroso-Di-N-Propylamine													
Hexachloroethane													
Nitrobenzene													
Isophorone													
2-Nitrophenol													
2,4-Dimethylphenol													



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-6 (2-3) HS14E 1/27/2005	D-FA-6 (4-6) HS68B/HS27L 1/27/2005	D-FA-6 (8-10) HS27M 1/27/2005	D-FA-6 (10-12) HT64C 1/27/2005	D-FA-6 (12-14) HT64D 1/27/2005	D-FA-6b (0-0.5) HU35B 3/2/2005	D-FA-6b (1-2) HW57A 3/2/2005	D-FA-6b (2-3) HW57B 3/2/2005	D-FA-6b (3-5) HU88E 3/2/2005	D-FA-6b (7-9) HU88F 3/2/2005	D-FA-7 (0-0.5) HQ43C 1/24/2005	D-FA-7 (1-2) HQ92B/HS27C 1/24/2005	D-FA-7 (2-3) HQ92L 1/24/2005
Benzoic Acid													
bis(2-Chloroethoxy) Methane													
2,4-Dinitrophenol													
1,2,4-Trichlorobenzene													
Naphthalene													
4-Chloroaniline													
Hexachlorobutadiene													
4-Chloro-3-methylphenol													
2-Methylnaphthalene													
1-Methylnaphthalene													
Total naphthalenes													
Hexachlorocyclopentadiene													
2,4,6-Trichlorophenol													
2,4,5-Trichlorophenol													
2-Chloronaphthalene													
2-Nitroaniline													
Dimethylphthalate													
Acenaphthylene													
3-Nitroaniline													
Acenaphthene													
2,4-Dichlorophenol													
4-Nitrophenol													
Dibenzofuran													
2,6-Dinitrotoluene													
2,4-Dinitrotoluene													
Diethylphthalate													
4-Chlorophenyl-phenylether													
Fluorene													
4-Nitroaniline													
4,6-Dinitro-2-Methylphenol													
N-Nitrosodiphenylamine													
4-Bromophenyl-phenylether													
Hexachlorobenzene													
Pentachlorophenol													
Phenanthrene													
Carbazole													
Anthracene													
Di-n-Butylphthalate													
Fluoranthene													
Pyrene													
Butylbenzylphthalate													
3,3'-Dichlorobenzidine													
Benzo(a)anthracene													
bis(2-Ethylhexyl)phthalate													
Chrysene													
Di-n-Octyl phthalate													
Benzo(b)fluoranthene													
Benzo(k)fluoranthene													
Benzo(a)pyrene													
Indeno(1,2,3-cd)pyrene													
Dibenz(a,h)anthracene													
Benzo(g,h,i)perylene													
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-7 (3-5) HS14A/HW14B/HS27E 1/24/2005	D-FA-7 (7-9) HS14B/HS27F 1/24/2005	D-FA-7 (9-11) HS27G 1/24/2005	D-FA-7 (11-13) HS27H 1/24/2005	D-FA-8 (0-0.5) HQ43A 1/24/2005	D-FA-8 (1-2) HQ92A 1/24/2005	D-FA-10 (0-0.5) 0411208-05 11/9/2004	D-FA-10 (1-2) 0411201-12 11/9/2004	D-FA-10 (2-3) 0411201-13 11/9/2004	D-FA-10 (3-3.8) 0411201-14 11/9/2004	D-FA-11 (1-2) 0411201-19 11/9/2004	D-FA-11 (4.5-5) 0411208-07 11/9/2004	D-FA-11c (3.5-4.0) HQ851 1/27/2005	D-FA-11c (4.6-5.0) 0412318-02 12/21/2004	D-FA-11e (2-3) 0412318-04 12/21/2004
<b>CONVENTIONAL PARAMETERS</b>															
Hexavalent Chrome (mg/kg)															
Total Solids (%)															
pH (Std Units)															
<b>PETROLEUM HYDROCARBONS</b>															
<b>NWTPH-HCID (mg/kg)</b>															
Gasoline					21 U							22.0 U			
Diesel					52 U							>55.0			
Motor Oil					>100							110 U			
<b>NWTPH-Dx (mg/kg)</b>															
Diesel					11					35.0 J		760		430	7300 J
Motor Oil					65					120 UJ		110 U		150	100 UJ
<b>Gasoline (mg/kg)</b>															
<b>Method 8021/NWTPH-G</b>															
Gasoline															
<b>BTEX (ug/kg)</b>															
<b>Method 8021</b>															
Benzene															
Toluene															
Ethylbenzene															
m,p-Xylene															
o-Xylene															
<b>cPAHs/Naphthalenes (ug/kg)</b>															
<b>SW8270C-SIM</b>															
Naphthalene							120	7.0 UJ			19 J		730		
2-Methylnaphthalene							100	7.0 UJ			14 J		6500		
1-Methylnaphthalene													6700		
Benzo[a]anthracene	95 J	93 J			100	66 U	8,100 J	7.0 UJ			100 J				
Chrysene	200 J	140 J			190	66 U	25,000 J	7.0 UJ			140 J				
Benzo[b]fluoranthene	97 J	81 J			170	66 U	14,000 J	7.0 UJ			130 J				
Benzo[k]fluoranthene	97 J	81 J			170	66 U	11,000 J	7.0 UJ			73 J				
Benzo[a]pyrene	93 J	95 J			130	66 U	6,500 J	7.0 UJ			100 J				
Indeno[1,2,3-cd]pyrene	65 UJ	66 UJ			150	66 U	6,400 J	7.0 UJ			110 J				
Dibenz[a,h]anthracene	65 UJ	66 UJ			65 U	66 U	1,600	7.0 UJ			7.0 UJ				
Acenaphthene							590	7.0 UJ			12 J				
Acenaphthylene							280	7.0 UJ			7.0 UJ				
Anthracene							1,500	7.0 UJ			31 J				
Benzo[g,h,i]perylene							7,100 J	7.0 UJ			140 J				
Fluoranthene							60,000 J	7.0 UJ			140 J				
Fluorene							790	7.0 UJ			11.0 J				
Phenanthrene							25,000 J	7.0 UJ			120 J				
Pyrene							72,000 J	7.0 UJ			300 J				
cPAH TEQ	124	122			191	ND	11,340	ND			143 J				
<b>PCBs (ug/kg)</b>															
<b>Method SW8082</b>															
Aroclor-1016															
Aroclor-1242															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
Aroclor-1221															
Aroclor-1232															
Total PCBs															
<b>TOTAL METALS (mg/kg)</b>															
<b>SW6000-7000 Series</b>															
Arsenic	250	22	19	19	6		38.8	47.6	6.3						
Barium															
Cadmium	0.8	0.3	0.3	0.3	0.2 U										
Chromium															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-7 (3-5) HS14A/HW14B/HS27E 1/24/2005	D-FA-7 (7-9) HS14B/HS27F 1/24/2005	D-FA-7 (9-11) HS27G 1/24/2005	D-FA-7 (11-13) HS27H 1/24/2005	D-FA-8 (0-0.5) HQ43A 1/24/2005	D-FA-8 (1-2) HQ92A 1/24/2005	D-FA-10 (0-0.5) 0411208-05 11/9/2004	D-FA-10 (1-2) 0411201-12 11/9/2004	D-FA-10 (2-3) 0411201-13 11/9/2004	D-FA-10 (3-3.8) 0411201-14 11/9/2004	D-FA-11 (1-2) 0411201-19 11/9/2004	D-FA-11 (4.5-5) 0411208-07 11/9/2004	D-FA-11c (3.5-4.0) HQ851 1/27/2005	D-FA-11c (4.6-5.0) 0412318-02 12/21/2004	D-FA-11e (2-3) 0412318-04 12/21/2004
Copper	494	40.5	43.3	38.9	26.8		138	13.1	15.1						
Lead	172	44	74	46	12		153	4.3	2.6						
Mercury	0.07	0.06	0.06 U	0.06	0.05 U										
Selenium															
Silver															
Zinc	535	99.0	114	90.6	51.0		404	40.4	44.2						
<b>TCLP METALS (mg/L)</b>															
<b>Method 6010B</b>															
Arsenic	0.2 U														
Barium															
Cadmium															
Chromium															
Lead															
Mercury															
Selenium															
Silver															
<b>TRIBUTYL TIN (ug/kg)</b>															
<b>TBT Ion by SIM</b>															
Tributyl Tin Chloride															
Dibutyl Tin Dichloride															
Butyl Tin Trichloride															
TBT as Tin ion															
<b>EPH (ug/kg)</b>															
<b>EPH 8015B</b>															
C8-C10 Aliphatics													47,000		
C10-C12 Aliphatics													230,000		
C12-C16 Aliphatics													880,000		
C16-C21 Aliphatics													560,000		
C21-C34 Aliphatics													52,000		
C8-C10 Aromatics													6,200		
C10-C12 Aromatics													56,000		
C12-C16 Aromatics													410,000		
C16-C21 Aromatics													520,000		
C21-C34 Aromatics													42,000		
Hazard Index													1.17		
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>															
<b>Method 8260B</b>															
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
trans-1,2-Dichloroethene															
cis-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
Methyl ethyl ketone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Vinyl acetate															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-7 (3-5) HS14A/HW14B/HS27E 1/24/2005	D-FA-7 (7-9) HS14B/HS27F 1/24/2005	D-FA-7 (9-11) HS27G 1/24/2005	D-FA-7 (11-13) HS27H 1/24/2005	D-FA-8 (0-0.5) HQ43A 1/24/2005	D-FA-8 (1-2) HQ92A 1/24/2005	D-FA-10 (0-0.5) 0411208-05 11/9/2004	D-FA-10 (1-2) 0411201-12 11/9/2004	D-FA-10 (2-3) 0411201-13 11/9/2004	D-FA-10 (3-3.8) 0411201-14 11/9/2004	D-FA-11 (1-2) 0411201-19 11/9/2004	D-FA-11 (4.5-5) 0411208-07 11/9/2004	D-FA-11c (3.5-4.0) HQ85I 1/27/2005	D-FA-11c (4.6-5.0) 0412318-02 12/21/2004	D-FA-11e (2-3) 0412318-04 12/21/2004
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-7 (3-5) HS14A/HW14B/HS27E 1/24/2005	D-FA-7 (7-9) HS14B/HS27F 1/24/2005	D-FA-7 (9-11) HS27G 1/24/2005	D-FA-7 (11-13) HS27H 1/24/2005	D-FA-8 (0-0.5) HQ43A 1/24/2005	D-FA-8 (1-2) HQ92A 1/24/2005	D-FA-10 (0-0.5) 0411208-05 11/9/2004	D-FA-10 (1-2) 0411201-12 11/9/2004	D-FA-10 (2-3) 0411201-13 11/9/2004	D-FA-10 (3-3.8) 0411201-14 11/9/2004	D-FA-11 (1-2) 0411201-19 11/9/2004	D-FA-11 (4.5-5) 0411208-07 11/9/2004	D-FA-11c (3.5-4.0) HQ85I 1/27/2005	D-FA-11c (4.6-5.0) 0412318-02 12/21/2004	D-FA-11e (2-3) 0412318-04 12/21/2004
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-11i (4.3-5.0) 0412318-05 12/21/2004	D-FA-11l (4.5-4.9) 0412318-07 12/21/2004	D-FA-11m (4.5-5.5) 0412318-08 12/21/2004	D-FA-11n (3-4) HQ85F 1/27/2005	D-FA-12 (0-0.5) HQ43B 1/24/2005	D-FA-13 (0-0.5) HT66A 1/27/2005	D-FA-13 (1-2) HU54A 1/27/2005	D-FA-14 (4-5) 0411208-10 11/9/2004	D-FA-15 (0-1) HQ85L 1/27/2005	D-GC-1 (0-0.5) HQ85B 1/27/2005	D-GC-1 (1-2) HR04A 1/27/2005	D-GC-1 (2-3) HT66B 1/27/2005	D-GC-2 (0-0.5) HQ85G 1/27/2005	D-GC-2 (0.8-1.0) HQ85N/HT60A 1/27/2005	D-GC-2 (1-2) HS14D/HT12A 1/27/2005	D-GC-2 (2-3) HS68A 1/27/2005
<b>CONVENTIONAL PARAMETERS</b>																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
<b>PETROLEUM HYDROCARBONS</b>																
<b>NWTPH-HCID (mg/kg)</b>																
Gasoline					21 U			26.0 U	>22	23 U			22 U	>21		25 U
Diesel					52 U			64.0 U	>55	58 U			>55	>53		64 U
Motor Oil					>100			130 U	>110	>120			>110	>110		130 U
<b>NWTPH-Dx (mg/kg)</b>																
Diesel	57	30 U	27 U		9.2				2500 J	16 J			220 J	15000 J		
Motor Oil	570	120 U	110 U		93				15000 J	94 J			560 J	23000 J		
<b>Gasoline (mg/kg)</b>																
<b>Method 8021/NWTPH-G</b>																
Gasoline																
<b>BTEX (ug/kg)</b>																
<b>Method 8021</b>																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
<b>cPAHs/Naphthalenes (ug/kg)</b>																
<b>SW8270C-SIM</b>																
Naphthalene				3000				20						1400 J		
2-Methylnaphthalene				14000				8.0 U						23000 J		
1-Methylnaphthalene				11000										22000 J		
Benzo[a]anthracene					67	1800 J	65 UJ	8.0 U		840	100		170	3600 J	96	65 UJ
Chrysene					180	2900 J	65 UJ	8.0 U		950	170		390	3700 J	170	65 UJ
Benzo[b]fluoranthene					140	2000 J	65 UJ	8.0 U		790	100		310	2500 J	160 M	65 UJ
Benzo[k]fluoranthene					140	2000 J	65 UJ	8.0 U		790	120		310	2500 J	160 M	65 UJ
Benzo[a]pyrene					78	2000 J	65 UJ	8.0 U		850	100		290	2100 J	130 M	65 UJ
Indeno[1,2,3-cd]pyrene					70	820 J	65 UJ	8.0 U		210	65 U		150	820 J	85 U	65 UJ
Dibenz[a,h]anthracene					65 U	350 J	65 UJ	8.0 U		93	65 U		65 U	160 UJ	85 U	65 UJ
Acenaphthene								8.0 U								
Acenaphthylene								8.0 U								
Anthracene								8.0 U								
Benzo[g,h,i]perylene								8.0 U								
Fluoranthene								8.0 U								
Fluorene								8.0 U								
Phenanthrene								8.0 U								
Pyrene								8.0 U								
cPAH TEQ					122	2831 J	ND	ND		1160	134		388	3079 J	173	ND
<b>PCBs (ug/kg)</b>																
<b>Method SW8082</b>																
Aroclor-1016								21.0 U	49 U							
Aroclor-1242								21.0 U	49 U							
Aroclor-1248								21.0 U	49 U							
Aroclor-1254								21.0 U	81 U							
Aroclor-1260								21.0 U	81 U							
Aroclor-1221								21.0 U	49 U							
Aroclor-1232								21.0 U	49 U							
Total PCBs								ND	ND							
<b>TOTAL METALS (mg/kg)</b>																
<b>SW6000-7000 Series</b>																
Arsenic					8	70	6	40	18		35	30			10	
Barium																
Cadmium					0.2				0.8	0.3			0.7		0.2 U	
Chromium																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-11i (4.3-5.0) 0412318-05 12/21/2004	D-FA-11l (4.5-4.9) 0412318-07 12/21/2004	D-FA-11m (4.5-5.5) 0412318-08 12/21/2004	D-FA-11n (3-4) HQ85F 1/27/2005	D-FA-12 (0-0.5) HQ43B 1/24/2005	D-FA-13 (0-0.5) HT66A 1/27/2005	D-FA-13 (1-2) HU54A 1/27/2005	D-FA-14 (4-5) 0411208-10 11/9/2004	D-FA-15 (0-1) HQ85L 1/27/2005	D-GC-1 (0-0.5) HQ85B 1/27/2005	D-GC-1 (1-2) HR04A 1/27/2005	D-GC-1 (2-3) HT66B 1/27/2005	D-GC-2 (0-0.5) HQ85G 1/27/2005	D-GC-2 (0.8-1.0) HQ85N/HT60A 1/27/2005	D-GC-2 (1-2) HS14D/HT12A 1/27/2005	D-GC-2 (2-3) HS68A 1/27/2005
Copper					29.9				72.1	37.1			78.1		18.3	
Lead					94				65	23			61		6	
Mercury					0.04 U				0.05 U	0.05 U			0.04 U		0.05 U	
Selenium																
Silver																
Zinc					73.3				340	97.2			164		38.8	
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics				47,000										82000 J		
C10-C12 Aliphatics				210,000										340000 J		
C12-C16 Aliphatics				740,000										2100000 J		
C16-C21 Aliphatics				530,000										2800000 J		
C21-C34 Aliphatics				49,000										10000000 J		
C8-C10 Aromatics				21,000										21000 UJ		
C10-C12 Aromatics				81,000										110000 J		
C12-C16 Aromatics				470,000										960000 J		
C16-C21 Aromatics				640,000										2100000 J		
C21-C34 Aromatics				58,000										2000000 J		
Hazard Index				1.20										4.42 J		
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane								4.00 U	2.5 U							
Bromomethane								4.00 U	2.5 U							
Vinyl chloride								4.00 U	2.5 U							
Chloroethane								4.00 U	2.5 U							
Methylene chloride								4.00 U	4.9 U							
Acetone								13.00 U	280							
Carbon disulfide								4.00 U	2.5 U							
1,1-Dichloroethene								4.00 U	2.5 U							
1,1-Dichloroethane								4.00 U	150							
trans-1,2-Dichloroethene								4.00 U	2.5 U							
cis-1,2-Dichloroethene								4.00 U	2.5 U							
Chloroform								4.00 U	2.5 U							
1,2-Dichloroethane								4.00 U	2.5 U							
Methyl ethyl ketone								13.0 U	78							
1,1,1-Trichloroethane								4.00 U	460							
Carbon tetrachloride								4.00 U	2.5 U							
Vinyl acetate									12 U							
Bromodichloromethane								4.00 U	2.5 U							
1,2-Dichloropropane								4.00 U	2.5 U							
cis-1,3-Dichloropropene								4.00 U	2.5 U							
Trichloroethene								4.00 U	6.1 M							
Dibromochloromethane								4.00 U	2.5 U							
1,1,2-Trichloroethane								4.00 U	2.5 U							
Benzene								4.00 U	160							

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-11i (4.3-5.0) 0412318-05 12/21/2004	D-FA-11l (4.5-4.9) 0412318-07 12/21/2004	D-FA-11m (4.5-5.5) 0412318-08 12/21/2004	D-FA-11n (3-4) HQ85F 1/27/2005	D-FA-12 (0-0.5) HQ43B 1/24/2005	D-FA-13 (0-0.5) HT66A 1/27/2005	D-FA-13 (1-2) HU54A 1/27/2005	D-FA-14 (4-5) 0411208-10 11/9/2004	D-FA-15 (0-1) HQ85L 1/27/2005	D-GC-1 (0-0.5) HQ85B 1/27/2005	D-GC-1 (1-2) HR04A 1/27/2005	D-GC-1 (2-3) HT66B 1/27/2005	D-GC-2 (0-0.5) HQ85G 1/27/2005	D-GC-2 (0.8-1.0) HQ85N/HT60A 1/27/2005	D-GC-2 (1-2) HS14D/HT12A 1/27/2005	D-GC-2 (2-3) HS68A 1/27/2005
trans-1,3-Dichloropropene								4.00 U	2.5 U							
2-Chloroethylvinylether									12 U							
Bromoform								4.00 U	2.5 U							
4-Methyl-2-Pentanone (MIBK)								13.0 U	12 U							
2-Hexanone								13.0 U	12 U							
Tetrachloroethene								4.00 U	13							
1,1,2,2-Tetrachloroethane								4.00 U	2.5 U							
Toluene								4.00 U	2400							
Chlorobenzene								4.00 U	2.5 U							
Ethylbenzene								4.00 U	830							
Styrene								4.00 U	2.5 U							
Trichlorofluoromethane								4.00 U	2.5 U							
1,1,2-Trichloro-1,2,2-trifluoroethane									4.9 U							
m,p-Xylene								4.00 U	3200							
o-Xylene								4.00 U	1400							
1,2-Dichlorobenzene									2.5 U							
1,3-Dichlorobenzene									2.5 U							
1,4-Dichlorobenzene									2.5 U							
Acrolein									120 U							
Methyl Iodide									2.5 U							
Bromoethane									4.9 U							
Acrylonitrile									12 U							
1,1-Dichloropropene									2.5 U							
Dibromomethane									2.5 U							
1,1,1,2-Tetrachloroethane									2.5 U							
1,2-Dibromo-3-chloropropane									12 U							
1,2,3-Trichloropropane									4.9 U							
trans-1,4-Dichloro-2-butene									12 U							
1,3,5-Trimethylbenzene									870							
1,2,4-Trimethylbenzene									2400							
Hexachlorobutadiene									12 U							
Ethylene Dibromide									2.5 U							
Bromochloromethane									2.5 U							
2,2-Dichloropropane									2.5 U							
1,3-Dichloropropane									2.5 U							
Isopropylbenzene									200							
n-Propylbenzene									400							
Bromobenzene									2.5 U							
2-Chlorotoluene									2.5 U							
4-Chlorotoluene									2.5 U							
tert-Butylbenzene									2.5 U							
sec-Butylbenzene									95							
4-Isopropyltoluene									72							
n-Butylbenzene									240 M							
1,2,4-Trichlorobenzene									12 U							
Naphthalene									280							
1,2,3-Trichlorobenzene									12 U							
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol								430 U	1800 U							
Bis-(2-Chloroethyl) Ether								430 U	1800 U							
2-Chlorophenol								430 U	1800 U							
1,3-Dichlorobenzene								430 U	1800 U							
1,4-Dichlorobenzene								430 U	1800 U							
Benzyl Alcohol								430 U	8900 U							
1,2-Dichlorobenzene								430 U	1800 U							
2-Methylphenol								430 U	1800 U							
2,2'-Oxybis(1-Chloropropane)								430 U	1800 U							
4-Methylphenol								430 U	1800 U							
N-Nitroso-Di-N-Propylamine								430 U	8900 U							
Hexachloroethane								430 U	1800 U							
Nitrobenzene								430 U	1800 U							
Isophorone								430 U	1800 U							
2-Nitrophenol								430 U	8900 U							
2,4-Dimethylphenol								430 U	1800 U							



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-FA-11i (4.3-5.0) 0412318-05 12/21/2004	D-FA-11l (4.5-4.9) 0412318-07 12/21/2004	D-FA-11m (4.5-5.5) 0412318-08 12/21/2004	D-FA-11n (3-4) HQ85F 1/27/2005	D-FA-12 (0-0.5) HQ43B 1/24/2005	D-FA-13 (0-0.5) HT66A 1/27/2005	D-FA-13 (1-2) HU54A 1/27/2005	D-FA-14 (4-5) 0411208-10 11/9/2004	D-FA-15 (0-1) HQ85L 1/27/2005	D-GC-1 (0-0.5) HQ85B 1/27/2005	D-GC-1 (1-2) HR04A 1/27/2005	D-GC-1 (2-3) HT66B 1/27/2005	D-GC-2 (0-0.5) HQ85G 1/27/2005	D-GC-2 (0.8-1.0) HQ85N/HT60A 1/27/2005	D-GC-2 (1-2) HS14D/HT12A 1/27/2005	D-GC-2 (2-3) HS68A 1/27/2005
Benzoic Acid								850 U	18000 U							
bis(2-Chloroethoxy) Methane								430 U	1800 U							
2,4-Dinitrophenol								850 U	8900 U							
1,2,4-Trichlorobenzene								430 U	1800 U							
Naphthalene								430 U	1800 U							
4-Chloroaniline								430 U	8900 U							
Hexachlorobutadiene								430 U	1800 U							
4-Chloro-3-methylphenol								430 U	8900 U							
2-Methylnaphthalene								430 U	1800 U							
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene								430 U	8900 U							
2,4,6-Trichlorophenol								430 U	8900 U							
2,4,5-Trichlorophenol								430 U	8900 U							
2-Chloronaphthalene								430 U	1800 U							
2-Nitroaniline								430 U	8900 U							
Dimethylphthalate								430 U	1800 U							
Acenaphthylene								430 U	1800 U							
3-Nitroaniline								430 U	8900 U							
Acenaphthene								430 U	1800 U							
2,4-Dichlorophenol								430 U	18000 U							
4-Nitrophenol								430 U	8900 U							
Dibenzofuran								430 U	1800 U							
2,6-Dinitrotoluene								430 U	8900 U							
2,4-Dinitrotoluene								430 U	8900 U							
Diethylphthalate								430 U	1800 U							
4-Chlorophenyl-phenylether								430 U	1800 U							
Fluorene								430 U	1800 U							
4-Nitroaniline								430 U	8900 U							
4,6-Dinitro-2-Methylphenol								430 U	18000 U							
N-Nitrosodiphenylamine								430 U	1800 U							
4-Bromophenyl-phenylether								430 U	1800 U							
Hexachlorobenzene								430 U	1800 U							
Pentachlorophenol								430 U	8900 U							
Phenanthrene								430 U	1800 U							
Carbazole								430 U	1800 U							
Anthracene								430 U	1800 U							
Di-n-Butylphthalate								430 U	1800 U							
Fluoranthene								210 J	1800 U							
Pyrene								430 U	1800 U							
Butylbenzylphthalate								430 U	1800 U							
3,3'-Dichlorobenzidine								430 U	8900 U							
Benzo(a)anthracene								430 U	1800 U							
bis(2-Ethylhexyl)phthalate								430 U	2400							
Chrysene								430 U	1800 U							
Di-n-Octyl phthalate								430 U	1800 U							
Benzo(b)fluoranthene								430 U	1800 U							
Benzo(k)fluoranthene								430 U	1800 U							
Benzo(a)pyrene								430 U	1800 U							
Indeno(1,2,3-cd)pyrene								430 U	1800 U							
Dibenz(a,h)anthracene								430 U	1800 U							
Benzo(g,h,i)perylene								430 U	1800 U							
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-2 (1.9-2.2) HQ85O 1/27/2005	D-GC-2b (0.5-1.0) HQ85P 1/27/2005	D-GC-3 (1.9-2.4) 0411208-04 11/9/2004	D-GC-3 (0-0.5) 0411208-03 11/9/2004	D-GC-3 (1-2) 0411201-08 11/9/2004	D-GC-4 (1-1.5) 0411208-01 11/9/2004	D-GC-5 (0-0.5) 0411208-02 11/9/2004	D-GC-5 (1-2) 0411201-05 11/9/2004	D-GC-6 (0-0.5) HQ43D 1/24/2005	D-GC-6 (1-2) HQ92C/HS27D 1/24/2005	D-GC-6 (2-3) HQ92R/HT64A 1/24/2005	D-GC-7 (0-0.5) HQ85K 1/27/2005	D-GC-7A KW70A 4/27/2007	D-GC-7B KW70B 4/27/2007	D-GC-7C KW70C 4/27/2007	D-GC-8 (0-0.5) 0411208-12 11/9/2004
CONVENTIONAL PARAMETERS																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
PETROLEUM HYDROCARBONS																
NWTPH-HCID (mg/kg)																
Gasoline	25 U	>21	25.0 U						22 U			21 U				
Diesel	64 U	>52	62.0 U						55 U			53 U				
Motor Oil	130 U	>100	120 U						110 U			110 U				
NWTPH-Dx (mg/kg)																
Diesel		6100 J														
Motor Oil		27000 J														
Gasoline (mg/kg)																
Method 8021/NWTPH-G																
Gasoline																
BTEX (ug/kg)																
Method 8021																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
cPAHs/Naphthalenes (ug/kg)																
SW8270C-SIM																
Naphthalene				24	54 J	7.0 U	29 U	8.0 UJ								16
2-Methylnaphthalene				17	33 J	7.0 U	29 U	8.0 UJ								8.0
1-Methylnaphthalene																
Benzo[a]anthracene				100	17 J	7.0 U	81	8.0 UJ	180	450	64 U	62 U	65 U	64 U	65 U	150
Chrysene				200	47 J	17	260	8.0 UJ	380	1100	64 U	110	65 U	86	65 U	210
Benzo[b]fluoranthene				190	57 J	7.0 U	230	8.0 UJ	260	580	64 U	87	65 U	74	65 U	170
Benzo[k]fluoranthene				120	28 J	7.0 U	78	8.0 UJ	260	580	64 U	93	65 U	66	65 U	110
Benzo[a]pyrene				120	15 J	7.0 U	97	8.0 UJ	200	440	64 U	62 U	65 U	64 U	65 U	130
Indeno[1,2,3-cd]pyrene				170	41.0 J	7.0 U	130	8.0 UJ	100	140	64 U	62 U	65 U	64 U	65 U	86
Dibenz[a,h]anthracene				7.0 U	7.0 UJ	7.0 U	29 U	8.0 UJ	65 U	66	64 U	62 U	65 U	64 U	65 U	27
Acenaphthene				8.0	7.0 UJ	7.0 U	29 U	8.0 UJ								12
Acenaphthylene				7.0 U	7.0 UJ	7.0 U	29 U	8.0 UJ								7.0 U
Anthracene				24	14 J	7.0 U	53	8.0 UJ								40
Benzo[g,h,i]perylene				230	59 J	7.0 U	220	8.0 UJ								100
Fluoranthene				200	38 J	7.0 U	170	8.0 UJ								350
Fluorene				7.0	7.0 UJ	7.0 U	29 U	8.0 UJ								12
Phenanthrene				150	48 J	12	130	8.0 UJ								190
Pyrene				320	150 J	17	280	8.0 UJ								400
cPAH TEQ				180	30 J	0.2	152	ND	284	652	ND	19	ND	14.9	ND	195
PCBs (ug/kg)																
Method SW8082																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																
TOTAL METALS (mg/kg)																
SW6000-7000 Series																
Arsenic				20.1	7.8	4.7	157	5.9	22	88	90	10	5 U	8	5	7.2
Barium																
Cadmium									0.2 U	0.9	1.0	0.3				
Chromium																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-2 (1.9-2.2) HQ85O 1/27/2005	D-GC-2b (0.5-1.0) HQ85P 1/27/2005	D-GC-3 (1.9-2.4) 0411208-04 11/9/2004	D-GC-3 (0-0.5) 0411208-03 11/9/2004	D-GC-3 (1-2) 0411201-08 11/9/2004	D-GC-4 (1-1.5) 0411208-01 11/9/2004	D-GC-5 (0-0.5) 0411208-02 11/9/2004	D-GC-5 (1-2) 0411201-05 11/9/2004	D-GC-6 (0-0.5) HQ43D 1/24/2005	D-GC-6 (1-2) HQ92C/HS27D 1/24/2005	D-GC-6 (2-3) HQ92R/HT64A 1/24/2005	D-GC-7 (0-0.5) HQ85K 1/27/2005	D-GC-7A KW70A 4/27/2007	D-GC-7B KW70B 4/27/2007	D-GC-7C KW70C 4/27/2007	D-GC-8 (0-0.5) 0411208-12 11/9/2004
Copper				114	52.10	14.0	36.6	17.5	36.9	92.8	125	38.4				45.9
Lead				79.7	87.7	3.2	41.2	9.9	13	64	88	15				17.4
Mercury									0.04 U	0.05 U	0.04 UJ	0.05 U				
Selenium																
Silver																
Zinc				164 J	127	33.7 J	76.9 J	54.7	132	442	656	101				78.4 J
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-2 (1.9-2.2) HQ85O 1/27/2005	D-GC-2b (0.5-1.0) HQ85P 1/27/2005	D-GC-3 (1.9-2.4) 0411208-04 11/9/2004	D-GC-3 (0-0.5) 0411208-03 11/9/2004	D-GC-3 (1-2) 0411201-08 11/9/2004	D-GC-4 (1-1.5) 0411208-01 11/9/2004	D-GC-5 (0-0.5) 0411208-02 11/9/2004	D-GC-5 (1-2) 0411201-05 11/9/2004	D-GC-6 (0-0.5) HQ43D 1/24/2005	D-GC-6 (1-2) HQ92C/HS27D 1/24/2005	D-GC-6 (2-3) HQ92R/HT64A 1/24/2005	D-GC-7 (0-0.5) HQ85K 1/27/2005	D-GC-7A KW70A 4/27/2007	D-GC-7B KW70B 4/27/2007	D-GC-7C KW70C 4/27/2007	D-GC-8 (0-0.5) 0411208-12 11/9/2004
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-2 (1.9-2.2) HQ85O 1/27/2005	D-GC-2b (0.5-1.0) HQ85P 1/27/2005	D-GC-3 (1.9-2.4) 0411208-04 11/9/2004	D-GC-3 (0-0.5) 0411208-03 11/9/2004	D-GC-3 (1-2) 0411201-08 11/9/2004	D-GC-4 (1-1.5) 0411208-01 11/9/2004	D-GC-5 (0-0.5) 0411208-02 11/9/2004	D-GC-5 (1-2) 0411201-05 11/9/2004	D-GC-6 (0-0.5) HQ43D 1/24/2005	D-GC-6 (1-2) HQ92C/HS27D 1/24/2005	D-GC-6 (2-3) HQ92R/HT64A 1/24/2005	D-GC-7 (0-0.5) HQ85K 1/27/2005	D-GC-7A KW70A 4/27/2007	D-GC-7B KW70B 4/27/2007	D-GC-7C KW70C 4/27/2007	D-GC-8 (0-0.5) 0411208-12 11/9/2004
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-8 (1-2) 0411201-35 11/9/2004	D-GC-8b (0-0.5) KM95K 1/30/2007	D-GC-8C KW70D 4/27/2007	D-GC-9 (0-0.5) 0411208-13 11/9/2004	D-GC-9 (1-2) 0411201-38 11/9/2004	D-GC-9b (0-0.5) KM95R 1/30/2007	D-GC-10 (0-0.5) 0411208-14 11/9/2004	D-GC-10 (1-2) 0411201-41 11/9/2004	D-GC-10b (0-0.5) KM95S 1/30/2007	D-GC-11 (0-0.5) 0411208-11 11/9/2004	D-GC-11 (1-2) 0411201-32 12/17/04	D-GC-11b (0-0.5) KM95N 1/30/2007	D-GC-11b (2-3) KO03A 1/30/2007	D-GC-11b (3-4) KO03B 1/30/2007	D-GC-12 (0-0.5) HQ85J 1/27/2005	D-GC-12 (1-2) HR04Z/HT12B 1/27/2005	D-GC-12 (2-3) HT83A 1/27/2005
CONVENTIONAL PARAMETERS																	
Hexavalent Chrome (mg/kg)																	
Total Solids (%)																	
pH (Std Units)																	
PETROLEUM HYDROCARBONS																	
NWTPH-HCID (mg/kg)																	
Gasoline																22 U	
Diesel																54 U	
Motor Oil																>110	
NWTPH-Dx (mg/kg)																	
Diesel																15 J	
Motor Oil																210 J	
Gasoline (mg/kg)																	
Method 8021/NWTPH-G																	
Gasoline																	
BTEX (ug/kg)																	
Method 8021																	
Benzene																	
Toluene																	
Ethylbenzene																	
m,p-Xylene																	
o-Xylene																	
cPAHs/Naphthalenes (ug/kg)																	
SW8270C-SIM																	
Naphthalene	14 UJ			120	8.0 U		47	310		28	8 UJ						
2-Methylnaphthalene	14 UJ			66	8.0 U		25	51		37							
1-Methylnaphthalene																	
Benzo[a]anthracene	14 UJ	100	280	100	16	590	380	23	270	1,500	90 J	110	65 U	65 U	130	65 U	
Chrysene	34 J	270	690	160	18	750	490	39	630	2,100	100 J	150	65 U	65 U	190	65 U	
Benzo[b]fluoranthene	14 UJ	200	580	120	14	560	400	20	320	1,400	91 J	140	65 U	65 U	150	65 U	
Benzo[k]fluoranthene	14 UJ	170	450	93	10	410	300	11	270	700	62 J	140	65 U	65 U	150	65 U	
Benzo[a]pyrene	14 UJ	99	270	100	14	400	390	12	280	790	84 J	120	65 U	65 U	130	65 U	
Indeno[1,2,3-cd]pyrene	14 UJ	79	220	97	8.0 U	170	360	8.0	150	340	67 J	79	65 U	65 U	64 U	65 U	
Dibenz[a,h]anthracene	14 UJ	66 U	69	33.0	8.0 U	64 U	110	7.0 U	63 U	120	26 J	65 U	65 U	65 U	64 U	65 U	
Acenaphthene	14 UJ			25	8.0 U		17	7.0 U		31	8 UJ						
Acenaphthylene	14 UJ			8.0	8.0 U		22	7.0 U		29	8 UJ						
Anthracene	14 UJ			48	8.0 U		62	29		1,200	9 J						
Benzo[g,h,i]perylene	14 UJ			150	10		450	10		340	78 J						
Fluoranthene	19 J			230	25		530	130		4,900	140 J						
Fluorene	14 UJ			13	8.0 U		23	7.0 U		200	8 UJ						
Phenanthrene	24 J			320	8.0		390	250		1,000	51 J						
Pyrene	54 J			260	27		1,000	77		6,900	160 J						
cPAH TEQ	0.34	157	457.5	156	18.18	581	583	19	387	1253	126 J	168	ND	ND	175	ND	
PCBs (ug/kg)																	
Method SW8082																	
Aroclor-1016																	
Aroclor-1242																	
Aroclor-1248																	
Aroclor-1254																	
Aroclor-1260																	
Aroclor-1221																	
Aroclor-1232																	
Total PCBs																	
TOTAL METALS (mg/kg)																	
SW6000-7000 Series																	
Arsenic			9	7.8			15.0			6.9					30	29	5
Barium																	
Cadmium															0.5 U	0.2 U	0.2 U
Chromium																	

**TABLE B-1**  
**SOIL CHARACTERIZATION ANALYTICAL DATA**  
**WEST END SITE**  
**EVERETT, WASHINGTON**

	D-GC-8 (1-2)	D-GC-8b (0-0.5)	D-GC-8C KW70D	D-GC-9 (0-0.5)	D-GC-9 (1-2)	D-GC-9b (0-0.5)	D-GC-10 (0-0.5)	D-GC-10 (1-2)	D-GC-10b (0-0.5)	D-GC-11 (0-0.5)	D-GC-11 (1-2)	D-GC-11b (0-0.5)	D-GC-11b (2-3)	D-GC-11b (3-4)	D-GC-12 (0-0.5)	D-GC-12 (1-2)	D-GC-12 (2-3)
	0411201-35	KM95K		0411208-13	0411201-38	KM95R	0411208-14	0411201-41	KM95S	0411208-11	0411201-32	KM95N	KO03A	KO03B	HQ85J	HR04Z/HT12B	HT83A
	11/9/2004	1/30/2007	4/27/2007	11/9/2004	11/9/2004	1/30/2007	11/9/2004	11/9/2004	1/30/2007	11/9/2004	12/17/04	1/30/2007	1/30/2007	1/30/2007	1/27/2005	1/27/2005	1/27/2005
Copper				31.0			59.4			43.3					59.7	32.7	14.2
Lead				102			99.8			15.8					53	5	3
Mercury															0.04 U	0.05 U	0.05 UJ
Selenium																	
Silver																	
Zinc				131 J			127 J			103 J					137	73.6	35.5
TCLP METALS (mg/L)																	
Method 6010B																	
Arsenic																	
Barium																	
Cadmium																	
Chromium																	
Lead																	
Mercury																	
Selenium																	
Silver																	
TRIBUTYL TIN (ug/kg)																	
TBT Ion by SIM																	
Tributyl Tin Chloride																	
Dibutyl Tin Dichloride																	
Butyl Tin Trichloride																	
TBT as Tin ion																	
EPH (ug/kg)																	
EPH 8015B																	
C8-C10 Aliphatics																	
C10-C12 Aliphatics																	
C12-C16 Aliphatics																	
C16-C21 Aliphatics																	
C21-C34 Aliphatics																	
C8-C10 Aromatics																	
C10-C12 Aromatics																	
C12-C16 Aromatics																	
C16-C21 Aromatics																	
C21-C34 Aromatics																	
Hazard Index																	
VOLATILE ORGANIC COMPOUNDS (ug/kg)																	
Method 8260B																	
Chloromethane																	
Bromomethane																	
Vinyl chloride																	
Chloroethane																	
Methylene chloride																	
Acetone																	
Carbon disulfide																	
1,1-Dichloroethene																	
1,1-Dichloroethane																	
trans-1,2-Dichloroethene																	
cis-1,2-Dichloroethene																	
Chloroform																	
1,2-Dichloroethane																	
Methyl ethyl ketone																	
1,1,1-Trichloroethane																	
Carbon tetrachloride																	
Vinyl acetate																	
Bromodichloromethane																	
1,2-Dichloropropane																	
cis-1,3-Dichloropropene																	
Trichloroethene																	
Dibromochloromethane																	
1,1,2-Trichloroethane																	
Benzene																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-8 (1-2) 0411201-35 11/9/2004	D-GC-8b (0-0.5) KM95K 1/30/2007	D-GC-8C KW70D 4/27/2007	D-GC-9 (0-0.5) 0411208-13 11/9/2004	D-GC-9 (1-2) 0411201-38 11/9/2004	D-GC-9b (0-0.5) KM95R 1/30/2007	D-GC-10 (0-0.5) 0411208-14 11/9/2004	D-GC-10 (1-2) 0411201-41 11/9/2004	D-GC-10b (0-0.5) KM95S 1/30/2007	D-GC-11 (0-0.5) 0411208-11 11/9/2004	D-GC-11 (1-2) 0411201-32 12/17/04	D-GC-11b (0-0.5) KM95N 1/30/2007	D-GC-11b (2-3) KO03A 1/30/2007	D-GC-11b (3-4) KO03B 1/30/2007	D-GC-12 (0-0.5) HQ85J 1/27/2005	D-GC-12 (1-2) HR04Z/HT12B 1/27/2005	D-GC-12 (2-3) HT83A 1/27/2005
trans-1,3-Dichloropropene																	
2-Chloroethylvinylether																	
Bromoform																	
4-Methyl-2-Pentanone (MIBK)																	
2-Hexanone																	
Tetrachloroethene																	
1,1,2,2-Tetrachloroethane																	
Toluene																	
Chlorobenzene																	
Ethylbenzene																	
Styrene																	
Trichlorofluoromethane																	
1,1,2-Trichloro-1,2,2-trifluoroethane																	
m,p-Xylene																	
o-Xylene																	
1,2-Dichlorobenzene																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Acrolein																	
Methyl Iodide																	
Bromoethane																	
Acrylonitrile																	
1,1-Dichloropropene																	
Dibromomethane																	
1,1,1,2-Tetrachloroethane																	
1,2-Dibromo-3-chloropropane																	
1,2,3-Trichloropropane																	
trans-1,4-Dichloro-2-butene																	
1,3,5-Trimethylbenzene																	
1,2,4-Trimethylbenzene																	
Hexachlorobutadiene																	
Ethylene Dibromide																	
Bromochloromethane																	
2,2-Dichloropropane																	
1,3-Dichloropropane																	
Isopropylbenzene																	
n-Propylbenzene																	
Bromobenzene																	
2-Chlorotoluene																	
4-Chlorotoluene																	
tert-Butylbenzene																	
sec-Butylbenzene																	
4-Isopropyltoluene																	
n-Butylbenzene																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
1,2,3-Trichlorobenzene																	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																	
Method 8270C																	
Phenol																	
Bis-(2-Chloroethyl) Ether																	
2-Chlorophenol																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Benzyl Alcohol																	
1,2-Dichlorobenzene																	
2-Methylphenol																	
2,2'-Oxybis(1-Chloropropane)																	
4-Methylphenol																	
N-Nitroso-Di-N-Propylamine																	
Hexachloroethane																	
Nitrobenzene																	
Isophorone																	
2-Nitrophenol																	
2,4-Dimethylphenol																	



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-8 (1-2) 0411201-35 11/9/2004	D-GC-8b (0-0.5) KM95K 1/30/2007	D-GC-8C KW70D 4/27/2007	D-GC-9 (0-0.5) 0411208-13 11/9/2004	D-GC-9 (1-2) 0411201-38 11/9/2004	D-GC-9b (0-0.5) KM95R 1/30/2007	D-GC-10 (0-0.5) 0411208-14 11/9/2004	D-GC-10 (1-2) 0411201-41 11/9/2004	D-GC-10b (0-0.5) KM95S 1/30/2007	D-GC-11 (0-0.5) 0411208-11 11/9/2004	D-GC-11 (1-2) 0411201-32 12/17/04	D-GC-11b (0-0.5) KM95N 1/30/2007	D-GC-11b (2-3) KO03A 1/30/2007	D-GC-11b (3-4) KO03B 1/30/2007	D-GC-12 (0-0.5) HQ85J 1/27/2005	D-GC-12 (1-2) HR04Z/HT12B 1/27/2005	D-GC-12 (2-3) HT83A 1/27/2005
Benzoic Acid																	
bis(2-Chloroethoxy) Methane																	
2,4-Dinitrophenol																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
4-Chloroaniline																	
Hexachlorobutadiene																	
4-Chloro-3-methylphenol																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Total naphthalenes																	
Hexachlorocyclopentadiene																	
2,4,6-Trichlorophenol																	
2,4,5-Trichlorophenol																	
2-Chloronaphthalene																	
2-Nitroaniline																	
Dimethylphthalate																	
Acenaphthylene																	
3-Nitroaniline																	
Acenaphthene																	
2,4-Dichlorophenol																	
4-Nitrophenol																	
Dibenzofuran																	
2,6-Dinitrotoluene																	
2,4-Dinitrotoluene																	
Diethylphthalate																	
4-Chlorophenyl-phenylether																	
Fluorene																	
4-Nitroaniline																	
4,6-Dinitro-2-Methylphenol																	
N-Nitrosodiphenylamine																	
4-Bromophenyl-phenylether																	
Hexachlorobenzene																	
Pentachlorophenol																	
Phenanthrene																	
Carbazole																	
Anthracene																	
Di-n-Butylphthalate																	
Fluoranthene																	
Pyrene																	
Butylbenzylphthalate																	
3,3'-Dichlorobenzidine																	
Benzo(a)anthracene																	
bis(2-Ethylhexyl)phthalate																	
Chrysene																	
Di-n-Octyl phthalate																	
Benzo(b)fluoranthene																	
Benzo(k)fluoranthene																	
Benzo(a)pyrene																	
Indeno(1,2,3-cd)pyrene																	
Dibenz(a,h)anthracene																	
Benzo(g,h,i)perylene																	
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-12b (0-0.5) KM95C 1/30/2007	D-GC-12b (1-2.5) KM95D/KO03G 1/30/2007
CONVENTIONAL PARAMETERS		
Hexavalent Chrome (mg/kg)		
Total Solids (%)		
pH (Std Units)		12.21
PETROLEUM HYDROCARBONS		
NWTPH-HCID (mg/kg)		
Gasoline		
Diesel		
Motor Oil		
NWTPH-Dx (mg/kg)		
Diesel		
Motor Oil		
Gasoline (mg/kg)		
Method 8021/NWTPH-G		
Gasoline		
BTEX (ug/kg)		
Method 8021		
Benzene		
Toluene		
Ethylbenzene		
m,p-Xylene		
o-Xylene		
cPAHs/Naphthalenes (ug/kg)		
SW8270C-SIM		
Naphthalene		
2-Methylnaphthalene		
1-Methylnaphthalene		
Benzo[a]anthracene	130	
Chrysene	150	
Benzo[b]fluoranthene	110	
Benzo[k]fluoranthene	110	
Benzo[a]pyrene	100	
Indeno[1,2,3-cd]pyrene	63 U	
Dibenz[a,h]anthracene	63 U	
Acenaphthene		
Acenaphthylene		
Anthracene		
Benzo[g,h,i]perylene		
Fluoranthene		
Fluorene		
Phenanthrene		
Pyrene		
cPAH TEQ	137	
PCBs (ug/kg)		
Method SW8082		
Aroclor-1016		
Aroclor-1242		
Aroclor-1248		
Aroclor-1254		
Aroclor-1260		
Aroclor-1221		
Aroclor-1232		
Total PCBs		
TOTAL METALS (mg/kg)		
SW6000-7000 Series		
Arsenic	13	80
Barium		196
Cadmium		0.9 U
Chromium		35

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-12b (0-0.5) KM95C 1/30/2007	D-GC-12b (1-2.5) KM95D/KO03G 1/30/2007
Copper		
Lead		13
Mercury		0.09 U
Selenium		20 U
Silver		1 U
Zinc		
<b>TCLP METALS (mg/L)</b>		
<b>Method 6010B</b>		
Arsenic		
Barium		
Cadmium		
Chromium		
Lead		
Mercury		
Selenium		
Silver		
<b>TRIBUTYL TIN (ug/kg)</b>		
<b>TBT Ion by SIM</b>		
Tributyl Tin Chloride		
Dibutyl Tin Dichloride		
Butyl Tin Trichloride		
TBT as Tin ion		
<b>EPH (ug/kg)</b>		
<b>EPH 8015B</b>		
C8-C10 Aliphatics		
C10-C12 Aliphatics		
C12-C16 Aliphatics		
C16-C21 Aliphatics		
C21-C34 Aliphatics		
C8-C10 Aromatics		
C10-C12 Aromatics		
C12-C16 Aromatics		
C16-C21 Aromatics		
C21-C34 Aromatics		
Hazard Index		
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>		
<b>Method 8260B</b>		
Chloromethane		
Bromomethane		
Vinyl chloride		
Chloroethane		
Methylene chloride		
Acetone		
Carbon disulfide		
1,1-Dichloroethene		
1,1-Dichloroethane		
trans-1,2-Dichloroethene		
cis-1,2-Dichloroethene		
Chloroform		
1,2-Dichloroethane		
Methyl ethyl ketone		
1,1,1-Trichloroethane		
Carbon tetrachloride		
Vinyl acetate		
Bromodichloromethane		
1,2-Dichloropropane		
cis-1,3-Dichloropropene		
Trichloroethene		
Dibromochloromethane		
1,1,2-Trichloroethane		
Benzene		

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-12b (0-0.5) KM95C 1/30/2007	D-GC-12b (1-2.5) KM95D/KO03G 1/30/2007
trans-1,3-Dichloropropene		
2-Chloroethylvinylether		
Bromoform		
4-Methyl-2-Pentanone (MIBK)		
2-Hexanone		
Tetrachloroethene		
1,1,2,2-Tetrachloroethane		
Toluene		
Chlorobenzene		
Ethylbenzene		
Styrene		
Trichlorofluoromethane		
1,1,2-Trichloro-1,2,2-trifluoroethane		
m,p-Xylene		
o-Xylene		
1,2-Dichlorobenzene		
1,3-Dichlorobenzene		
1,4-Dichlorobenzene		
Acrolein		
Methyl Iodide		
Bromoethane		
Acrylonitrile		
1,1-Dichloropropene		
Dibromomethane		
1,1,1,2-Tetrachloroethane		
1,2-Dibromo-3-chloropropane		
1,2,3-Trichloropropane		
trans-1,4-Dichloro-2-butene		
1,3,5-Trimethylbenzene		
1,2,4-Trimethylbenzene		
Hexachlorobutadiene		
Ethylene Dibromide		
Bromochloromethane		
2,2-Dichloropropane		
1,3-Dichloropropane		
Isopropylbenzene		
n-Propylbenzene		
Bromobenzene		
2-Chlorotoluene		
4-Chlorotoluene		
tert-Butylbenzene		
sec-Butylbenzene		
4-Isopropyltoluene		
n-Butylbenzene		
1,2,4-Trichlorobenzene		
Naphthalene		
1,2,3-Trichlorobenzene		
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)		
Method 8270C		
Phenol		
Bis-(2-Chloroethyl) Ether		
2-Chlorophenol		
1,3-Dichlorobenzene		
1,4-Dichlorobenzene		
Benzyl Alcohol		
1,2-Dichlorobenzene		
2-Methylphenol		
2,2'-Oxybis(1-Chloropropane)		
4-Methylphenol		
N-Nitroso-Di-N-Propylamine		
Hexachloroethane		
Nitrobenzene		
Isophorone		
2-Nitrophenol		
2,4-Dimethylphenol		

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-12b (0-0.5) KM95C 1/30/2007	D-GC-12b (1-2.5) KM95D/KO03G 1/30/2007
Benzoic Acid		
bis(2-Chloroethoxy) Methane		
2,4-Dinitrophenol		
1,2,4-Trichlorobenzene		
Naphthalene		
4-Chloroaniline		
Hexachlorobutadiene		
4-Chloro-3-methylphenol		
2-Methylnaphthalene		
1-Methylnaphthalene		
Total naphthalenes		
Hexachlorocyclopentadiene		
2,4,6-Trichlorophenol		
2,4,5-Trichlorophenol		
2-Chloronaphthalene		
2-Nitroaniline		
Dimethylphthalate		
Acenaphthylene		
3-Nitroaniline		
Acenaphthene		
2,4-Dichlorophenol		
4-Nitrophenol		
Dibenzofuran		
2,6-Dinitrotoluene		
2,4-Dinitrotoluene		
Diethylphthalate		
4-Chlorophenyl-phenylether		
Fluorene		
4-Nitroaniline		
4,6-Dinitro-2-Methylphenol		
N-Nitrosodiphenylamine		
4-Bromophenyl-phenylether		
Hexachlorobenzene		
Pentachlorophenol		
Phenanthrene		
Carbazole		
Anthracene		
Di-n-Butylphthalate		
Fluoranthene		
Pyrene		
Butylbenzylphthalate		
3,3'-Dichlorobenzidine		
Benzo(a)anthracene		
bis(2-Ethylhexyl)phthalate		
Chrysene		
Di-n-Octyl phthalate		
Benzo(b)fluoranthene		
Benzo(k)fluoranthene		
Benzo(a)pyrene		
Indeno(1,2,3-cd)pyrene		
Dibenz(a,h)anthracene		
Benzo(g,h,i)perylene		
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)		

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-12b (2.5-3.5) KO03C 1/30/2007	D-GC-12c (0-0.5) KM95I 1/30/2007	D-GC-12c (1-2) KM95J 1/30/2007	D-GC-12d (0-0.5) KM95G 1/30/2007	D-GC-12d (1-2) KM95H 1/30/2007	D-GC-12d (2-3) KO03D 1/30/2007	D-GC-12d (3-4) KN96A 1/30/2007	D-GC-12e (0-0.5) KM95E 1/30/2007	D-GC-12e (0.5-2.7) KM95F 1/30/2007	D-GC-13 (0-0.5) HU35A 3/2/2005	D-2-1 (0-0.5) KW48K 4/26/2007	D-2-1 (1-2) KW48L/KX96B 4/26/2007	D-2-1 (2-3) KW48M/KX96C 4/26/2007	D-2-2 (0-0.5) KW48N 4/26/2007	D-2-2 (1-2) KW48O 4/26/2007	D-2-2 (2-3) KW48P/KX96D 4/26/2007						
CONVENTIONAL PARAMETERS																						
Hexavalent Chrome (mg/kg)																						
Total Solids (%)																						
pH (Std Units)																						
PETROLEUM HYDROCARBONS																						
NWTPH-HCID (mg/kg)																						
Gasoline																						
Diesel																						
Motor Oil																						
NWTPH-Dx (mg/kg)																						
Diesel																						
Motor Oil																						
Gasoline (mg/kg)																						
Method 8021/NWTPH-G																						
Gasoline																						
BTEX (ug/kg)																						
Method 8021																						
Benzene																						
Toluene																						
Ethylbenzene																						
m,p-Xylene																						
o-Xylene																						
cPAHs/Naphthalenes (ug/kg)																						
SW8270C-SIM																						
Naphthalene																						
2-Methylnaphthalene																						
1-Methylnaphthalene																						
Benzo[a]anthracene		88			63	U			97			92		65	U	64	U					
Chrysene		310			130				130			150		65	U	64	U					
Benzo[b]fluoranthene		170			130				140			110		65	U	64	U					
Benzo[k]fluoranthene		160			120				110			85		65	U	64	U					
Benzo[a]pyrene		77			73				98			77		65	U	64	U					
Indeno[1,2,3-cd]pyrene		66	U		68				66			65	U	65	U	64	U					
Dibenz[a,h]anthracene		66	U		63	U			65	U		65	U	65	U	64	U					
Acenaphthene																						
Acenaphthylene																						
Anthracene																						
Benzo[g,h,i]perylene																						
Fluoranthene																						
Fluorene																						
Phenanthrene																						
Pyrene																						
cPAH TEQ		122			106				141			107		0.0			ND					
PCBs (ug/kg)																						
Method SW8082																						
Aroclor-1016																						
Aroclor-1242																						
Aroclor-1248																						
Aroclor-1254																						
Aroclor-1260																						
Aroclor-1221																						
Aroclor-1232																						
Total PCBs																						
TOTAL METALS (mg/kg)																						
SW6000-7000 Series																						
Arsenic	5	U	10	U	9		10	U	30	32	6	10	U	60	57	27	12	8	60	30	5	U
Barium																						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-12b (2.5-3.5) KO03C 1/30/2007	D-GC-12c (0-0.5) KM95I 1/30/2007	D-GC-12c (1-2) KM95J 1/30/2007	D-GC-12d (0-0.5) KM95G 1/30/2007	D-GC-12d (1-2) KM95H 1/30/2007	D-GC-12d (2-3) KO03D 1/30/2007	D-GC-12d (3-4) KN96A 1/30/2007	D-GC-12e (0-0.5) KM95E 1/30/2007	D-GC-12e (0.5-2.7) KM95F 1/30/2007	D-GC-13 (0-0.5) HU35A 3/2/2005	D-2-1 (0-0.5) KW48K 4/26/2007	D-2-1 (1-2) KW48L/KX96B 4/26/2007	D-2-1 (2-3) KW48M/KX96C 4/26/2007	D-2-2 (0-0.5) KW48N 4/26/2007	D-2-2 (1-2) KW48O 4/26/2007	D-2-2 (2-3) KW48P/KX96D 4/26/2007
Cadmium																
Chromium																
Copper																
Lead																
Mercury																
Selenium																
Silver																
Zinc																
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-12b (2.5-3.5) KO03C 1/30/2007	D-GC-12c (0-0.5) KM95I 1/30/2007	D-GC-12c (1-2) KM95J 1/30/2007	D-GC-12d (0-0.5) KM95G 1/30/2007	D-GC-12d (1-2) KM95H 1/30/2007	D-GC-12d (2-3) KO03D 1/30/2007	D-GC-12d (3-4) KN96A 1/30/2007	D-GC-12e (0-0.5) KM95E 1/30/2007	D-GC-12e (0.5-2.7) KM95F 1/30/2007	D-GC-13 (0-0.5) HU35A 3/2/2005	D-2-1 (0-0.5) KW48K 4/26/2007	D-2-1 (1-2) KW48L/KX96B 4/26/2007	D-2-1 (2-3) KW48M/KX96C 4/26/2007	D-2-2 (0-0.5) KW48N 4/26/2007	D-2-2 (1-2) KW48O 4/26/2007	D-2-2 (2-3) KW48P/KX96D 4/26/2007
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-GC-12b (2.5-3.5) KO03C 1/30/2007	D-GC-12c (0-0.5) KM95I 1/30/2007	D-GC-12c (1-2) KM95J 1/30/2007	D-GC-12d (0-0.5) KM95G 1/30/2007	D-GC-12d (1-2) KM95H 1/30/2007	D-GC-12d (2-3) KO03D 1/30/2007	D-GC-12d (3-4) KN96A 1/30/2007	D-GC-12e (0-0.5) KM95E 1/30/2007	D-GC-12e (0.5-2.7) KM95F 1/30/2007	D-GC-13 (0-0.5) HU35A 3/2/2005	D-2-1 (0-0.5) KW48K 4/26/2007	D-2-1 (1-2) KW48L/KX96B 4/26/2007	D-2-1 (2-3) KW48M/KX96C 4/26/2007	D-2-2 (0-0.5) KW48N 4/26/2007	D-2-2 (1-2) KW48O 4/26/2007	D-2-2 (2-3) KW48P/KX96D 4/26/2007
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-2-3 (0-0.5) KW48Q/KY14B 4/26/2007	D-2-3 (1-2) KW48R 4/26/2007	D-2-3 (2-3) KW48S/KX96E 4/26/2007	D-2-3 (3-4) KW48T 4/26/2007	D-2-4 (0-0.5) KW48U 4/26/2007	D-2-4 (1-2) KW48V 4/26/2007	D-2-4 (2-3) KW48W/KX96F 4/26/2007	D-2-4 (3-4) KW48X 4/26/2007	D-2-4 (4-5) KW48Y 4/26/2007	D-2-5 (0-0.5) KW48AA 4/26/2007	D-2-5 (1-2) KW48AB 4/26/2007	D-2-5 (2-3) KW48AC 4/26/2007	D-2-5 (3-4) KX96G/LA46A 4/26/2007	D-2-6 (0-0.5) KW48AD/KX96H 4/26/2007	D-2-6 (1-2) KW48AE/KX96I 4/26/2007	D-2-6 (2-3) KW48AF/KX96J 4/26/2007
<b>CONVENTIONAL PARAMETERS</b>																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
<b>PETROLEUM HYDROCARBONS</b>																
<b>NWTPH-HCID (mg/kg)</b>																
Gasoline																
Diesel																
Motor Oil																
<b>NWTPH-Dx (mg/kg)</b>																
Diesel				770	20,000			6,600								
Motor Oil				130	480			110								
<b>Gasoline (mg/kg)</b>																
<b>Method 8021/NWTPH-G</b>																
Gasoline																
<b>BTEX (ug/kg)</b>																
<b>Method 8021</b>																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
<b>cPAHs/Naphthalenes (ug/kg)</b>																
<b>SW8270C-SIM</b>																
Naphthalene																
2-Methylnaphthalene																
1-Methylnaphthalene																
Benzo[a]anthracene				64 U			65 U						62 UJ	660	65 U	64 U
Chrysene				160			65 U						62 UJ	840	65 U	64 U
Benzo[b]fluoranthene				100			65 U						62 UJ	620	65 U	64 U
Benzo[k]fluoranthene				190			65 U						62 UJ	580	65 U	64 U
Benzo[a]pyrene				64			65 U						62 UJ	440	65 U	64 U
Indeno[1,2,3-cd]pyrene				84			65 U						62 UJ	290	65 U	64 U
Dibenz[a,h]anthracene				64 U			65 U						62 UJ	120	65 U	64 U
Acenaphthene																
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ				103			ND						ND	711	ND	ND
<b>PCBs (ug/kg)</b>																
<b>Method SW8082</b>																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																
<b>TOTAL METALS (mg/kg)</b>																
<b>SW6000-7000 Series</b>																
Arsenic	180	46	10 U		40	54	5			50	173	30	6 U	20	14	7
Barium																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-2-3 (0-0.5) KW48Q/KY14B 4/26/2007	D-2-3 (1-2) KW48R 4/26/2007	D-2-3 (2-3) KW48S/KX96E 4/26/2007	D-2-3 (3-4) KW48T 4/26/2007	D-2-4 (0-0.5) KW48U 4/26/2007	D-2-4 (1-2) KW48V 4/26/2007	D-2-4 (2-3) KW48W/KX96F 4/26/2007	D-2-4 (3-4) KW48X 4/26/2007	D-2-4 (4-5) KW48Y 4/26/2007	D-2-5 (0-0.5) KW48AA 4/26/2007	D-2-5 (1-2) KW48AB 4/26/2007	D-2-5 (2-3) KW48AC 4/26/2007	D-2-5 (3-4) KX96G/LA46A 4/26/2007	D-2-6 (0-0.5) KW48AD/KX96H 4/26/2007	D-2-6 (1-2) KW48AE/KX96I 4/26/2007	D-2-6 (2-3) KW48AF/KX96J 4/26/2007
Cadmium																
Chromium																
Copper																
Lead																
Mercury																
Selenium																
Silver																
Zinc																
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-2-3 (0-0.5) KW48Q/KY14B 4/26/2007	D-2-3 (1-2) KW48R 4/26/2007	D-2-3 (2-3) KW48S/KX96E 4/26/2007	D-2-3 (3-4) KW48T 4/26/2007	D-2-4 (0-0.5) KW48U 4/26/2007	D-2-4 (1-2) KW48V 4/26/2007	D-2-4 (2-3) KW48W/KX96F 4/26/2007	D-2-4 (3-4) KW48X 4/26/2007	D-2-4 (4-5) KW48Y 4/26/2007	D-2-5 (0-0.5) KW48AA 4/26/2007	D-2-5 (1-2) KW48AB 4/26/2007	D-2-5 (2-3) KW48AC 4/26/2007	D-2-5 (3-4) KX96G/LA46A 4/26/2007	D-2-6 (0-0.5) KW48AD/KX96H 4/26/2007	D-2-6 (1-2) KW48AE/KX96I 4/26/2007	D-2-6 (2-3) KW48AF/KX96J 4/26/2007
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-2-3 (0-0.5) KW48Q/KY14B 4/26/2007	D-2-3 (1-2) KW48R 4/26/2007	D-2-3 (2-3) KW48S/KX96E 4/26/2007	D-2-3 (3-4) KW48T 4/26/2007	D-2-4 (0-0.5) KW48U 4/26/2007	D-2-4 (1-2) KW48V 4/26/2007	D-2-4 (2-3) KW48W/KX96F 4/26/2007	D-2-4 (3-4) KW48X 4/26/2007	D-2-4 (4-5) KW48Y 4/26/2007	D-2-5 (0-0.5) KW48AA 4/26/2007	D-2-5 (1-2) KW48AB 4/26/2007	D-2-5 (2-3) KW48AC 4/26/2007	D-2-5 (3-4) KX96G/LA46A 4/26/2007	D-2-6 (0-0.5) KW48AD/KX96H 4/26/2007	D-2-6 (1-2) KW48AE/KX96I 4/26/2007	D-2-6 (2-3) KW48AF/KX96J 4/26/2007
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene			66 U	4,000				4,600	3,800							
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene			66 U	18,000				330 U	4,600							
1-Methylnaphthalene			66 U	19,000				27,000	23,000							
Total naphthalenes			ND	41,000				31,600	31,400							
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-2-7 (0-0.5) KW35N 4/25/2007	D-2-7 (1-2) KW35O 4/25/2007	D-2-7 (2-3) KW35P/KX38T 4/25/2007	D-2-8 (0-0.5) KW35K 4/25/2007	D-2-8 (1-2) KW35L 4/25/2007	D-2-8 (2-3) KW35M/KY42I 4/25/2007	D-2-8 (3-4) KX38O 4/25/2007	D-2-9 (0-0.5) KW35H 4/25/2007	D-2-9 (1-2) KW35I 4/25/2007	D-2-9 (2-3) KW35J/KX38S 4/25/2007	D-2-9 (3-4) KY97B 4/25/2007	D-3-CS (3.4-3.6) GM39A 12/29/2003	D-3.2 (0.8-1.7) JY48H 9/27/2006	D-3.3 (2.4-5.2) JY47B 9/26/2006	D-3.4 (1.2-5.0) JY47C 9/26/2006	D-3.5 (2.0-5.2) JY47D 9/26/2006	D-3.7 (1.1-1.9) JY48C 9/27/2006
<b>CONVENTIONAL PARAMETERS</b>																	
Hexavalent Chrome (mg/kg)																	
Total Solids (%)																	
pH (Std Units)																	
<b>PETROLEUM HYDROCARBONS</b>																	
<b>NWTPH-HCID (mg/kg)</b>																	
Gasoline																	
Diesel																	
Motor Oil																	
<b>NWTPH-Dx (mg/kg)</b>																	
Diesel												990 J			170	89	
Motor Oil												9500 J			360	180	
<b>Gasoline (mg/kg)</b>																	
<b>Method 8021/NWTPH-G</b>																	
Gasoline																	
<b>BTEX (ug/kg)</b>																	
<b>Method 8021</b>																	
Benzene																	
Toluene																	
Ethylbenzene																	
m,p-Xylene																	
o-Xylene																	
<b>cPAHs/Naphthalenes (ug/kg)</b>																	
<b>SW8270C-SIM</b>																	
Naphthalene																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Benzo[a]anthracene			65 U			62 UJ				99	64 UJ	200 J	240	130	150	140	110
Chrysene			65 U			120 J				170	64 UJ	370 J	320	130	210	160	160
Benzo[b]fluoranthene			65 U			62 UJ				140	64 UJ	340 J	160	69	93	78	68
Benzo[k]fluoranthene			65 U			73 J				150	64 UJ	340 J	160	69	100	67	69
Benzo[a]pyrene			65 U			62 UJ				110	64 UJ	220 J	140	66 U	71	64 U	65 U
Indeno[1,2,3-cd]pyrene			65 U			62 UJ				63 U	64 UJ	120 J	65 U	66 U	66 U	64 U	65 U
Dibenz[a,h]anthracene			65 U			62 UJ				63 U	64 UJ	87 UJ	65 U	66 U	66 U	64 U	65 U
Acenaphthene																	
Acenaphthylene																	
Anthracene																	
Benzo[g,h,i]perylene																	
Fluoranthene																	
Fluorene																	
Phenanthrene																	
Pyrene																	
cPAH TEQ			ND			8.5 J				151	ND	324 J	199	28.1	107	30.3	26.3
<b>PCBs (ug/kg)</b>																	
<b>Method SW8082</b>																	
Aroclor-1016																	
Aroclor-1242																	
Aroclor-1248																	
Aroclor-1254																	
Aroclor-1260																	
Aroclor-1221																	
Aroclor-1232																	
Total PCBs																	
<b>TOTAL METALS (mg/kg)</b>																	
<b>SW6000-7000 Series</b>																	
Arsenic	60	130	5 U	60	58	41	6 U	100	71	8							
Barium																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-2-7 (0-0.5) KW35N 4/25/2007	D-2-7 (1-2) KW35O 4/25/2007	D-2-7 (2-3) KW35P/KX38T 4/25/2007	D-2-8 (0-0.5) KW35K 4/25/2007	D-2-8 (1-2) KW35L 4/25/2007	D-2-8 (2-3) KW35M/KY42I 4/25/2007	D-2-8 (3-4) KX38O 4/25/2007	D-2-9 (0-0.5) KW35H 4/25/2007	D-2-9 (1-2) KW35I 4/25/2007	D-2-9 (2-3) KW35J/KX38S 4/25/2007	D-2-9 (3-4) KY97B 4/25/2007	D-3-CS (3.4-3.6) GM39A 12/29/2003	D-3.2 (0.8-1.7) JY48H 9/27/2006	D-3.3 (2.4-5.2) JY47B 9/26/2006	D-3.4 (1.2-5.0) JY47C 9/26/2006	D-3.5 (2.0-5.2) JY47D 9/26/2006	D-3.7 (1.1-1.9) JY48C 9/27/2006
Cadmium																	
Chromium																	
Copper																	
Lead																	
Mercury																	
Selenium																	
Silver																	
Zinc																	
<b>TCLP METALS (mg/L)</b>																	
<b>Method 6010B</b>																	
Arsenic																	
Barium																	
Cadmium																	
Chromium																	
Lead																	
Mercury																	
Selenium																	
Silver																	
<b>TRIBUTYL TIN (ug/kg)</b>																	
<b>TBT Ion by SIM</b>																	
Tributyl Tin Chloride																	
Dibutyl Tin Dichloride																	
Butyl Tin Trichloride																	
TBT as Tin ion																	
<b>EPH (ug/kg)</b>																	
<b>EPH 8015B</b>																	
C8-C10 Aliphatics																	
C10-C12 Aliphatics																	
C12-C16 Aliphatics																	
C16-C21 Aliphatics																	
C21-C34 Aliphatics																	
C8-C10 Aromatics																	
C10-C12 Aromatics																	
C12-C16 Aromatics																	
C16-C21 Aromatics																	
C21-C34 Aromatics																	
Hazard Index																	
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																	
<b>Method 8260B</b>																	
Chloromethane																	
Bromomethane																	
Vinyl chloride																	
Chloroethane																	
Methylene chloride																	
Acetone																	
Carbon disulfide																	
1,1-Dichloroethene																	
1,1-Dichloroethane																	
trans-1,2-Dichloroethene																	
cis-1,2-Dichloroethene																	
Chloroform																	
1,2-Dichloroethane																	
Methyl ethyl ketone																	
1,1,1-Trichloroethane																	
Carbon tetrachloride																	
Vinyl acetate																	
Bromodichloromethane																	
1,2-Dichloropropane																	
cis-1,3-Dichloropropene																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-2-7 (0-0.5) KW35N 4/25/2007	D-2-7 (1-2) KW35O 4/25/2007	D-2-7 (2-3) KW35P/KX38T 4/25/2007	D-2-8 (0-0.5) KW35K 4/25/2007	D-2-8 (1-2) KW35L 4/25/2007	D-2-8 (2-3) KW35M/KY42I 4/25/2007	D-2-8 (3-4) KX38O 4/25/2007	D-2-9 (0-0.5) KW35H 4/25/2007	D-2-9 (1-2) KW35I 4/25/2007	D-2-9 (2-3) KW35J/KX38S 4/25/2007	D-2-9 (3-4) KY97B 4/25/2007	D-3-CS (3.4-3.6) GM39A 12/29/2003	D-3.2 (0.8-1.7) JY48H 9/27/2006	D-3.3 (2.4-5.2) JY47B 9/26/2006	D-3.4 (1.2-5.0) JY47C 9/26/2006	D-3.5 (2.0-5.2) JY47D 9/26/2006	D-3.7 (1.1-1.9) JY48C 9/27/2006
Trichloroethene																	
Dibromochloromethane																	
1,1,2-Trichloroethane																	
Benzene																	
trans-1,3-Dichloropropene																	
2-Chloroethylvinylether																	
Bromoform																	
4-Methyl-2-Pentanone (MIBK)																	
2-Hexanone																	
Tetrachloroethene																	
1,1,2,2-Tetrachloroethane																	
Toluene																	
Chlorobenzene																	
Ethylbenzene																	
Styrene																	
Trichlorofluoromethane																	
1,1,2-Trichloro-1,2,2-trifluoroethane																	
m,p-Xylene																	
o-Xylene																	
1,2-Dichlorobenzene																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Acrolein																	
Methyl Iodide																	
Bromoethane																	
Acrylonitrile																	
1,1-Dichloropropene																	
Dibromomethane																	
1,1,1,2-Tetrachloroethane																	
1,2-Dibromo-3-chloropropane																	
1,2,3-Trichloropropane																	
trans-1,4-Dichloro-2-butene																	
1,3,5-Trimethylbenzene																	
1,2,4-Trimethylbenzene																	
Hexachlorobutadiene																	
Ethylene Dibromide																	
Bromochloromethane																	
2,2-Dichloropropane																	
1,3-Dichloropropane																	
Isopropylbenzene																	
n-Propylbenzene																	
Bromobenzene																	
2-Chlorotoluene																	
4-Chlorotoluene																	
tert-Butylbenzene																	
sec-Butylbenzene																	
4-Isopropyltoluene																	
n-Butylbenzene																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
1,2,3-Trichlorobenzene																	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																	
Method 8270C																	
Phenol																	
Bis-(2-Chloroethyl) Ether																	
2-Chlorophenol																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Benzyl Alcohol																	
1,2-Dichlorobenzene																	
2-Methylphenol																	
2,2'-Oxybis(1-Chloropropane)																	
4-Methylphenol																	



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-2-7 (0-0.5) KW35N 4/25/2007	D-2-7 (1-2) KW35O 4/25/2007	D-2-7 (2-3) KW35P/KX38T 4/25/2007	D-2-8 (0-0.5) KW35K 4/25/2007	D-2-8 (1-2) KW35L 4/25/2007	D-2-8 (2-3) KW35M/KY42I 4/25/2007	D-2-8 (3-4) KX38O 4/25/2007	D-2-9 (0-0.5) KW35H 4/25/2007	D-2-9 (1-2) KW35I 4/25/2007	D-2-9 (2-3) KW35J/KX38S 4/25/2007	D-2-9 (3-4) KY97B 4/25/2007	D-3-CS (3.4-3.6) GM39A 12/29/2003	D-3.2 (0.8-1.7) JY48H 9/27/2006	D-3.3 (2.4-5.2) JY47B 9/26/2006	D-3.4 (1.2-5.0) JY47C 9/26/2006	D-3.5 (2.0-5.2) JY47D 9/26/2006	D-3.7 (1.1-1.9) JY48C 9/27/2006
N-Nitroso-Di-N-Propylamine																	
Hexachloroethane																	
Nitrobenzene																	
Isophorone																	
2-Nitrophenol																	
2,4-Dimethylphenol																	
Benzoic Acid																	
bis(2-Chloroethoxy) Methane																	
2,4-Dinitrophenol																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
4-Chloroaniline																	
Hexachlorobutadiene																	
4-Chloro-3-methylphenol																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Total naphthalenes																	
Hexachlorocyclopentadiene																	
2,4,6-Trichlorophenol																	
2,4,5-Trichlorophenol																	
2-Chloronaphthalene																	
2-Nitroaniline																	
Dimethylphthalate																	
Acenaphthylene																	
3-Nitroaniline																	
Acenaphthene																	
2,4-Dichlorophenol																	
4-Nitrophenol																	
Dibenzofuran																	
2,6-Dinitrotoluene																	
2,4-Dinitrotoluene																	
Diethylphthalate																	
4-Chlorophenyl-phenylether																	
Fluorene																	
4-Nitroaniline																	
4,6-Dinitro-2-Methylphenol																	
N-Nitrosodiphenylamine																	
4-Bromophenyl-phenylether																	
Hexachlorobenzene																	
Pentachlorophenol																	
Phenanthrene																	
Carbazole																	
Anthracene																	
Di-n-Butylphthalate																	
Fluoranthene																	
Pyrene																	
Butylbenzylphthalate																	
3,3'-Dichlorobenzidine																	
Benzo(a)anthracene																	
bis(2-Ethylhexyl)phthalate																	
Chrysene																	
Di-n-Octyl phthalate																	
Benzo(b)fluoranthene																	
Benzo(k)fluoranthene																	
Benzo(a)pyrene																	
Indeno(1,2,3-cd)pyrene																	
Dibenz(a,h)anthracene																	
Benzo(g,h,i)perylene																	
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-3-1 (0-0.5) KW48F/KX96A 4/26/2007	D-3-1 (1-2) KW48G 4/26/2007	D-3-1 (2-3) KW48H 4/26/2007	D-3-1 (3-4) KW48I 4/26/2007	D-3-1 (4-5) KW48J/KY16C 4/26/2007	D-3-2 (0-0.5) KW48A/KY16B 4/26/2007	D-3-2 (1-2) KW48B 4/26/2007	D-3-2 (2-3) KW48C 4/26/2007	D-3-2 (3-4) KW48D 4/26/2007	D-3-2 (4-5) KW48E/KY14A 4/26/2007	D-3-2 (6-7) KY16A 4/26/2007	Duplicate D-3-2 (6-7) KY85A 4/26/2007	D-3-2 (7-8) KZ06B 4/26/2007	D-4-CS (4-5) GM39B 12/29/2003	D-4.3 (0-1.9) JY46G 9/26/2006	D-4.4 (2.1-5.2) JY46R 9/26/2006
<b>CONVENTIONAL PARAMETERS</b>																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
<b>PETROLEUM HYDROCARBONS</b>																
<b>NWTPH-HCID (mg/kg)</b>																
Gasoline																
Diesel																
Motor Oil																
<b>NWTPH-Dx (mg/kg)</b>																
Diesel														69 J	300 J	58
Motor Oil														48 J	510 J	160
<b>Gasoline (mg/kg)</b>																
<b>Method 8021/NWTPH-G</b>																
Gasoline																
<b>BTEX (ug/kg)</b>																
<b>Method 8021</b>																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
<b>cPAHs/Naphthalenes (ug/kg)</b>																
<b>SW8270C-SIM</b>																
Naphthalene																
2-Methylnaphthalene																
1-Methylnaphthalene																
Benzo[a]anthracene	420				120	220								3900 J	180	200
Chrysene	690				130	520								3200 J	260	260
Benzo[b]fluoranthene	340				76	450								1700 J	140	130
Benzo[k]fluoranthene	470				65 U	380								1200 J	92	160
Benzo[a]pyrene	340				65 U	200								1300 J	96	130
Indeno[1,2,3-cd]pyrene	170				65 U	160								260 J	65 U	64 U
Dibenz[a,h]anthracene	64 U				65 U	64 U								210 J	65 U	64 U
Acenaphthene																
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ	487				21	326								2122 J	140	182
<b>PCBs (ug/kg)</b>																
<b>Method SW8082</b>																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																
<b>TOTAL METALS (mg/kg)</b>																
<b>SW6000-7000 Series</b>																
Arsenic	20	34	45	7	8	20	30	32	81	115	42	38	46			
Barium																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-3-1 (0-0.5) KW48F/KX96A 4/26/2007	D-3-1 (1-2) KW48G 4/26/2007	D-3-1 (2-3) KW48H 4/26/2007	D-3-1 (3-4) KW48I 4/26/2007	D-3-1 (4-5) KW48J/KY16C 4/26/2007	D-3-2 (0-0.5) KW48A/KY16B 4/26/2007	D-3-2 (1-2) KW48B 4/26/2007	D-3-2 (2-3) KW48C 4/26/2007	D-3-2 (3-4) KW48D 4/26/2007	D-3-2 (4-5) KW48E/KY14A 4/26/2007	D-3-2 (6-7) KY16A 4/26/2007	Duplicate D-3-2 (6-7) KY85A 4/26/2007	D-3-2 (7-8) KZ06B 4/26/2007	D-4-CS (4-5) GM39B 12/29/2003	D-4.3 (0-1.9) JY46G 9/26/2006	D-4.4 (2.1-5.2) JY46R 9/26/2006
Cadmium																
Chromium																
Copper																
Lead																
Mercury																
Selenium																
Silver																
Zinc																
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-3-1 (0-0.5) KW48F/KX96A 4/26/2007	D-3-1 (1-2) KW48G 4/26/2007	D-3-1 (2-3) KW48H 4/26/2007	D-3-1 (3-4) KW48I 4/26/2007	D-3-1 (4-5) KW48J/KY16C 4/26/2007	D-3-2 (0-0.5) KW48A/KY16B 4/26/2007	D-3-2 (1-2) KW48B 4/26/2007	D-3-2 (2-3) KW48C 4/26/2007	D-3-2 (3-4) KW48D 4/26/2007	D-3-2 (4-5) KW48E/KY14A 4/26/2007	D-3-2 (6-7) KY16A 4/26/2007	Duplicate D-3-2 (6-7) KY85A 4/26/2007	D-3-2 (7-8) KZ06B 4/26/2007	D-4-CS (4-5) GM39B 12/29/2003	D-4.3 (0-1.9) JY46G 9/26/2006	D-4.4 (2.1-5.2) JY46R 9/26/2006
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-3-1 (0-0.5) KW48F/KX96A 4/26/2007	D-3-1 (1-2) KW48G 4/26/2007	D-3-1 (2-3) KW48H 4/26/2007	D-3-1 (3-4) KW48I 4/26/2007	D-3-1 (4-5) KW48J/KY16C 4/26/2007	D-3-2 (0-0.5) KW48A/KY16B 4/26/2007	D-3-2 (1-2) KW48B 4/26/2007	D-3-2 (2-3) KW48C 4/26/2007	D-3-2 (3-4) KW48D 4/26/2007	D-3-2 (4-5) KW48E/KY14A 4/26/2007	D-3-2 (6-7) KY16A 4/26/2007	Duplicate D-3-2 (6-7) KY85A 4/26/2007	D-3-2 (7-8) KZ06B 4/26/2007	D-4-CS (4-5) GM39B 12/29/2003	D-4.3 (0-1.9) JY46G 9/26/2006	D-4.4 (2.1-5.2) JY46R 9/26/2006
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-4.5 (2.1-3.1) JY46Q 9/26/2006	D-4.6 (2.0-4.6) JY47A 9/26/2006	D-4.7 (0.7-1.3) JY48D 9/27/2006	D-4-1 (0-0.5) KW30E/KX38D 4/25/2007	D-4-1 (1-2) KW30F 4/25/2007	D-4-1 (2-3) KX38K/KY42E 4/25/2007	D-4-2 (0-0.5) KW30C 4/25/2007	D-4-2 (1-2) KW30D/KX38C 4/25/2007	D-4-3 (0-0.5) KW30G 4/25/2007	D-4-3 (1-2) KW30H 4/25/2007	D-4-3 (2-3) KX38L/KY42F 4/25/2007	D-4-4 (0-0.5) KW30I 4/25/2007	D-4-4 (1-2) KW30C/J 4/25/2007	D-4-4 (2-3) KX38N/KY42H 4/25/2007	D-4-5 (0-0.5) KW30M/KX38E 4/25/2007	D-4-5 (1-2) KW30N 4/25/2007
<b>CONVENTIONAL PARAMETERS</b>																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
<b>PETROLEUM HYDROCARBONS</b>																
<b>NWTPH-HCID (mg/kg)</b>																
Gasoline																
Diesel																
Motor Oil																
<b>NWTPH-Dx (mg/kg)</b>																
Diesel													94			
Motor Oil													590			
<b>Gasoline (mg/kg)</b>																
<b>Method 8021/NWTPH-G</b>																
Gasoline																
<b>BTEX (ug/kg)</b>																
<b>Method 8021</b>																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
<b>cPAHs/Naphthalenes (ug/kg)</b>																
<b>SW8270C-SIM</b>																
Naphthalene																
2-Methylnaphthalene																
1-Methylnaphthalene																
Benzo[a]anthracene	63 U	100	120	80			62 UJ	64 U			64 UJ			60 UJ	140	
Chrysene	65	130	180	300			62 UJ	64 U			64 UJ			60 UJ	660	
Benzo[b]fluoranthene	63 U	65 U	63 U	180			62 UJ	64 U			64 UJ			60 UJ	290	
Benzo[k]fluoranthene	63 U	69	98	140			62 UJ	64 U			64 UJ			60 UJ	320	
Benzo[a]pyrene	63 U	65 U	63 U	110			62 UJ	64 U			64 UJ			60 UJ	280	
Indeno[1,2,3-cd]pyrene	63 U	65 U	63 U	73			62 UJ	64 U			64 UJ			60 UJ	63 U	
Dibenz[a,h]anthracene	63 U	65 U	63 U	65 U			62 UJ	64 U			64 UJ			60 UJ	63 U	
Acenaphthene																
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ	0.65	18.2	23.6	160		ND		ND			ND			ND	362	
<b>PCBs (ug/kg)</b>																
<b>Method SW8082</b>																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																
<b>TOTAL METALS (mg/kg)</b>																
<b>SW6000-7000 Series</b>																
Arsenic				17	28	9	30	9	22	21	6 U	70	38	8	10 U	80
Barium																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-4.5 (2.1-3.1) JY46Q 9/26/2006	D-4.6 (2.0-4.6) JY47A 9/26/2006	D-4.7 (0.7-1.3) JY48D 9/27/2006	D-4-1 (0-0.5) KW30E/KX38D 4/25/2007	D-4-1 (1-2) KW30F 4/25/2007	D-4-1 (2-3) KX38K/KY42E 4/25/2007	D-4-2 (0-0.5) KW30C 4/25/2007	D-4-2 (1-2) KW30D/KX38C 4/25/2007	D-4-3 (0-0.5) KW30G 4/25/2007	D-4-3 (1-2) KW30H 4/25/2007	D-4-3 (2-3) KX38L/KY42F 4/25/2007	D-4-4 (0-0.5) KW30I 4/25/2007	D-4-4 (1-2) KW30C/J 4/25/2007	D-4-4 (2-3) KX38N/KY42H 4/25/2007	D-4-5 (0-0.5) KW30M/KX38E 4/25/2007	D-4-5 (1-2) KW30N 4/25/2007
Cadmium																
Chromium																
Copper																
Lead																
Mercury																
Selenium																
Silver																
Zinc																
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-4.5 (2.1-3.1) JY46Q 9/26/2006	D-4.6 (2.0-4.6) JY47A 9/26/2006	D-4.7 (0.7-1.3) JY48D 9/27/2006	D-4-1 (0-0.5) KW30E/KX38D 4/25/2007	D-4-1 (1-2) KW30F 4/25/2007	D-4-1 (2-3) KX38K/KY42E 4/25/2007	D-4-2 (0-0.5) KW30C 4/25/2007	D-4-2 (1-2) KW30D/KX38C 4/25/2007	D-4-3 (0-0.5) KW30G 4/25/2007	D-4-3 (1-2) KW30H 4/25/2007	D-4-3 (2-3) KX38L/KY42F 4/25/2007	D-4-4 (0-0.5) KW30I 4/25/2007	D-4-4 (1-2) KW30C/J 4/25/2007	D-4-4 (2-3) KX38N/KY42H 4/25/2007	D-4-5 (0-0.5) KW30M/KX38E 4/25/2007	D-4-5 (1-2) KW30N 4/25/2007
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-4.5 (2.1-3.1) JY46Q 9/26/2006	D-4.6 (2.0-4.6) JY47A 9/26/2006	D-4.7 (0.7-1.3) JY48D 9/27/2006	D-4-1 (0-0.5) KW30E/KX38D 4/25/2007	D-4-1 (1-2) KW30F 4/25/2007	D-4-1 (2-3) KX38K/KY42E 4/25/2007	D-4-2 (0-0.5) KW30C 4/25/2007	D-4-2 (1-2) KW30D/KX38C 4/25/2007	D-4-3 (0-0.5) KW30G 4/25/2007	D-4-3 (1-2) KW30H 4/25/2007	D-4-3 (2-3) KX38L/KY42F 4/25/2007	D-4-4 (0-0.5) KW30I 4/25/2007	D-4-4 (1-2) KW30C/J 4/25/2007	D-4-4 (2-3) KX38N/KY42H 4/25/2007	D-4-5 (0-0.5) KW30M/KX38E 4/25/2007	D-4-5 (1-2) KW30N 4/25/2007
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene														66 U		
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene														66 U		
1-Methylnaphthalene														66 U		
Total naphthalenes														ND		
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-4-5 (2-3) KX38M/KY42G 4/25/2007	D-4-6 (0-0.5) KW30K 4/25/2007	D-4-6 (1-2) KW30L/KX38F 4/25/2007	D-4-6 (2-3) KY42A 4/25/2007	D-4-7 (0-0.5) KW30O 4/25/2007	D-4-7 (1-2) KW30P/KX38G 4/25/2007	D-4-8 (0-0.5) KW30Q/KX38H 4/25/2007	D-4-8 (1-2) KW30D,R/KX38I 4/25/2007	D-5-1 (0-0.5) KW35Q/KX38U 4/25/2007	D-5-2 (0-0.5) KW35T/KX38X 4/25/2007	D-5-2 (1-2) KY42C 4/25/2007	D-5-3 (0-0.5) KW35S/KX38W 4/25/2007	D-5-4 (0-0.5) KW35R/KX38V 4/25/2007	D-5-4 (1-2) KY42B 4/25/2007
CONVENTIONAL PARAMETERS														
Hexavalent Chrome (mg/kg)														
Total Solids (%)														
pH (Std Units)														
PETROLEUM HYDROCARBONS														
NWTPH-HCID (mg/kg)														
Gasoline														
Diesel														
Motor Oil														
NWTPH-Dx (mg/kg)														
Diesel								5.3 U						
Motor Oil								17						
Gasoline (mg/kg)														
Method 8021/NWTPH-G														
Gasoline														
BTEX (ug/kg)														
Method 8021														
Benzene														
Toluene														
Ethylbenzene														
m,p-Xylene														
o-Xylene														
cPAHs/Naphthalenes (ug/kg)														
SW8270C-SIM														
Naphthalene														
2-Methylnaphthalene														
1-Methylnaphthalene														
Benzo[a]anthracene	62 UJ		80	66 UJ		64 U	310	65 U	1,700	180	59 UJ	65 U	98	66 UJ
Chrysene	62 UJ		140	66 UJ		64 U	500	65 U	2,400	310	59 UJ	65 U	190	66 UJ
Benzo[b]fluoranthene	62 UJ		170	66 UJ		64 U	430	65 U	1,200	260	59 UJ	65 U	220	66 UJ
Benzo[k]fluoranthene	62 UJ		91	66 UJ		64 U	430	65 U	1,500	410	59 UJ	65 U	160	66 UJ
Benzo[a]pyrene	62 UJ		100	66 UJ		64 U	300	65 U	980	240	59 UJ	65 U	110	66 UJ
Indeno[1,2,3-cd]pyrene	62 UJ		78	66 UJ		64 U	170	65 U	340	130	59 UJ	65 U	69	66 UJ
Dibenz[a,h]anthracene	62 UJ		63 U	66 UJ		64 U	65 U	65 U	140	64 U	59 UJ	65 U	64 U	66 UJ
Acenaphthene														
Acenaphthylene														
Anthracene														
Benzo[g,h,i]perylene														
Fluoranthene														
Fluorene														
Phenanthrene														
Pyrene														
cPAH TEQ	ND		143	ND		ND	439	ND	1530	341	ND	ND	167	ND
PCBs (ug/kg)														
Method SW8082														
Aroclor-1016														
Aroclor-1242														
Aroclor-1248														
Aroclor-1254														
Aroclor-1260														
Aroclor-1221														
Aroclor-1232														
Total PCBs														
TOTAL METALS (mg/kg)														
SW6000-7000 Series														
Arsenic	7	50	10		49	5 U	12	5 U	19	16		5 U		5 U
Barium														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-4-5 (2-3) KX38M/KY42G 4/25/2007	D-4-6 (0-0.5) KW30K 4/25/2007	D-4-6 (1-2) KW30L/KX38F 4/25/2007	D-4-6 (2-3) KY42A 4/25/2007	D-4-7 (0-0.5) KW30O 4/25/2007	D-4-7 (1-2) KW30P/KX38G 4/25/2007	D-4-8 (0-0.5) KW30Q/KX38H 4/25/2007	D-4-8 (1-2) KW30D,R/KX38I 4/25/2007	D-5-1 (0-0.5) KW35Q/KX38U 4/25/2007	D-5-2 (0-0.5) KW35T/KX38X 4/25/2007	D-5-2 (1-2) KY42C 4/25/2007	D-5-3 (0-0.5) KW35S/KX38W 4/25/2007	D-5-4 (0-0.5) KW35R/KX38V 4/25/2007	D-5-4 (1-2) KY42B 4/25/2007
Cadmium														
Chromium														
Copper														
Lead														
Mercury														
Selenium														
Silver														
Zinc														
<b>TCLP METALS (mg/L)</b>														
<b>Method 6010B</b>														
Arsenic														
Barium														
Cadmium														
Chromium														
Lead														
Mercury														
Selenium														
Silver														
<b>TRIBUTYL TIN (ug/kg)</b>														
<b>TBT Ion by SIM</b>														
Tributyl Tin Chloride														
Dibutyl Tin Dichloride														
Butyl Tin Trichloride														
TBT as Tin ion														
<b>EPH (ug/kg)</b>														
<b>EPH 8015B</b>														
C8-C10 Aliphatics														
C10-C12 Aliphatics														
C12-C16 Aliphatics														
C16-C21 Aliphatics														
C21-C34 Aliphatics														
C8-C10 Aromatics														
C10-C12 Aromatics														
C12-C16 Aromatics														
C16-C21 Aromatics														
C21-C34 Aromatics														
Hazard Index														
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>														
<b>Method 8260B</b>														
Chloromethane														
Bromomethane														
Vinyl chloride														
Chloroethane														
Methylene chloride														
Acetone														
Carbon disulfide														
1,1-Dichloroethene														
1,1-Dichloroethane														
trans-1,2-Dichloroethene														
cis-1,2-Dichloroethene														
Chloroform														
1,2-Dichloroethane														
Methyl ethyl ketone														
1,1,1-Trichloroethane														
Carbon tetrachloride														
Vinyl acetate														
Bromodichloromethane														
1,2-Dichloropropane														
cis-1,3-Dichloropropene														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-4-5 (2-3) KX38M/KY42G 4/25/2007	D-4-6 (0-0.5) KW30K 4/25/2007	D-4-6 (1-2) KW30L/KX38F 4/25/2007	D-4-6 (2-3) KY42A 4/25/2007	D-4-7 (0-0.5) KW30O 4/25/2007	D-4-7 (1-2) KW30P/KX38G 4/25/2007	D-4-8 (0-0.5) KW30Q/KX38H 4/25/2007	D-4-8 (1-2) KW30D,R/KX38I 4/25/2007	D-5-1 (0-0.5) KW35Q/KX38U 4/25/2007	D-5-2 (0-0.5) KW35T/KX38X 4/25/2007	D-5-2 (1-2) KY42C 4/25/2007	D-5-3 (0-0.5) KW35S/KX38W 4/25/2007	D-5-4 (0-0.5) KW35R/KX38V 4/25/2007	D-5-4 (1-2) KY42B 4/25/2007
Trichloroethene														
Dibromochloromethane														
1,1,2-Trichloroethane														
Benzene														
trans-1,3-Dichloropropene														
2-Chloroethylvinylether														
Bromoform														
4-Methyl-2-Pentanone (MIBK)														
2-Hexanone														
Tetrachloroethene														
1,1,2,2-Tetrachloroethane														
Toluene														
Chlorobenzene														
Ethylbenzene														
Styrene														
Trichlorofluoromethane														
1,1,2-Trichloro-1,2,2-trifluoroethane														
m,p-Xylene														
o-Xylene														
1,2-Dichlorobenzene														
1,3-Dichlorobenzene														
1,4-Dichlorobenzene														
Acrolein														
Methyl Iodide														
Bromoethane														
Acrylonitrile														
1,1-Dichloropropene														
Dibromomethane														
1,1,1,2-Tetrachloroethane														
1,2-Dibromo-3-chloropropane														
1,2,3-Trichloropropane														
trans-1,4-Dichloro-2-butene														
1,3,5-Trimethylbenzene														
1,2,4-Trimethylbenzene														
Hexachlorobutadiene														
Ethylene Dibromide														
Bromochloromethane														
2,2-Dichloropropane														
1,3-Dichloropropane														
Isopropylbenzene														
n-Propylbenzene														
Bromobenzene														
2-Chlorotoluene														
4-Chlorotoluene														
tert-Butylbenzene														
sec-Butylbenzene														
4-Isopropyltoluene														
n-Butylbenzene														
1,2,4-Trichlorobenzene														
Naphthalene														
1,2,3-Trichlorobenzene														
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)														
Method 8270C														
Phenol														
Bis-(2-Chloroethyl) Ether														
2-Chlorophenol														
1,3-Dichlorobenzene														
1,4-Dichlorobenzene														
Benzyl Alcohol														
1,2-Dichlorobenzene														
2-Methylphenol														
2,2'-Oxybis(1-Chloropropane)														
4-Methylphenol														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-4-5 (2-3) KX38M/KY42G 4/25/2007	D-4-6 (0-0.5) KW30K 4/25/2007	D-4-6 (1-2) KW30L/KX38F 4/25/2007	D-4-6 (2-3) KY42A 4/25/2007	D-4-7 (0-0.5) KW30O 4/25/2007	D-4-7 (1-2) KW30P/KX38G 4/25/2007	D-4-8 (0-0.5) KW30Q/KX38H 4/25/2007	D-4-8 (1-2) KW30D,R/KX38I 4/25/2007	D-5-1 (0-0.5) KW35Q/KX38U 4/25/2007	D-5-2 (0-0.5) KW35T/KX38X 4/25/2007	D-5-2 (1-2) KY42C 4/25/2007	D-5-3 (0-0.5) KW35S/KX38W 4/25/2007	D-5-4 (0-0.5) KW35R/KX38V 4/25/2007	D-5-4 (1-2) KY42B 4/25/2007
N-Nitroso-Di-N-Propylamine														
Hexachloroethane														
Nitrobenzene														
Isophorone														
2-Nitrophenol														
2,4-Dimethylphenol														
Benzoic Acid														
bis(2-Chloroethoxy) Methane														
2,4-Dinitrophenol														
1,2,4-Trichlorobenzene														
Naphthalene								66 U						
4-Chloroaniline														
Hexachlorobutadiene														
4-Chloro-3-methylphenol														
2-Methylnaphthalene								66 U						
1-Methylnaphthalene								66 U						
Total naphthalenes								ND						
Hexachlorocyclopentadiene														
2,4,6-Trichlorophenol														
2,4,5-Trichlorophenol														
2-Chloronaphthalene														
2-Nitroaniline														
Dimethylphthalate														
Acenaphthylene														
3-Nitroaniline														
Acenaphthene														
2,4-Dichlorophenol														
4-Nitrophenol														
Dibenzofuran														
2,6-Dinitrotoluene														
2,4-Dinitrotoluene														
Diethylphthalate														
4-Chlorophenyl-phenylether														
Fluorene														
4-Nitroaniline														
4,6-Dinitro-2-Methylphenol														
N-Nitrosodiphenylamine														
4-Bromophenyl-phenylether														
Hexachlorobenzene														
Pentachlorophenol														
Phenanthrene														
Carbazole														
Anthracene														
Di-n-Butylphthalate														
Fluoranthene														
Pyrene														
Butylbenzylphthalate														
3,3'-Dichlorobenzidine														
Benzo(a)anthracene														
bis(2-Ethylhexyl)phthalate														
Chrysene														
Di-n-Octyl phthalate														
Benzo(b)fluoranthene														
Benzo(k)fluoranthene														
Benzo(a)pyrene														
Indeno(1,2,3-cd)pyrene														
Dibenz(a,h)anthracene														
Benzo(g,h,i)perylene														
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-5-SS (0-0.5) GE76G 12/30/2003	D-6-SS (0-0.5) GE76H 12/30/2003	D-7-SS (0-0.5) GE76I 12/30/2003
CONVENTIONAL PARAMETERS			
Hexavalent Chrome (mg/kg)	0.10 U	0.11 U	0.11 U
Total Solids (%)			
pH (Std Units)			
PETROLEUM HYDROCARBONS			
NWTPH-HCID (mg/kg)			
Gasoline	27 U	26 U	27 U
Diesel	50 U	76	78
Motor Oil	100 U	110	100 U
NWTPH-Dx (mg/kg)			
Diesel			
Motor Oil			
Gasoline (mg/kg)			
Method 8021/NWTPH-G			
Gasoline			
BTEX (ug/kg)			
Method 8021			
Benzene			
Toluene			
Ethylbenzene			
m,p-Xylene			
o-Xylene			
cPAHs/Naphthalenes (ug/kg)			
SW8270C-SIM			
Naphthalene			
2-Methylnaphthalene			
1-Methylnaphthalene			
Benzo[a]anthracene	680	810	1600
Chrysene	1300	1100	3400
Benzo[b]fluoranthene	1100	980	1900
Benzo[k]fluoranthene	750	770	1200
Benzo[a]pyrene	590	760	950
Indeno[1,2,3-cd]pyrene	230	300	370
Dibenz[a,h]anthracene	84	120	130
Acenaphthene			
Acenaphthylene			
Anthracene			
Benzo[g,h,i]perylene			
Fluoranthene			
Fluorene			
Phenanthrene			
Pyrene			
cPAH TEQ	913	1105	1543
PCBs (ug/kg)			
Method SW8082			
Aroclor-1016	36 U	35 U	36 U
Aroclor-1242	36 U	35 U	36 U
Aroclor-1248	36 U	35 U	36 U
Aroclor-1254	36 U	35 U	36 U
Aroclor-1260	36 U	35 U	36 U
Aroclor-1221	73 U	70 U	71 U
Aroclor-1232	36 U	35 U	36 U
Total PCBs	ND	ND	ND
TOTAL METALS (mg/kg)			
SW6000-7000 Series			
Arsenic	4.9	20	42
Barium			

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-5-SS (0-0.5) GE76G 12/30/2003	D-6-SS (0-0.5) GE76H 12/30/2003	D-7-SS (0-0.5) GE76I 12/30/2003
Cadmium	0.5 U	0.5 U	0.5 U
Chromium	51	61	26
Copper	43.7	42.2	45.5
Lead	14	8	13
Mercury	0.08	0.05 U	0.04 U
Selenium			
Silver	0.8 U	0.8 U	0.7 U
Zinc	74	81	89
<b>TCLP METALS (mg/L)</b>			
<b>Method 6010B</b>			
Arsenic			
Barium			
Cadmium			
Chromium			
Lead			
Mercury			
Selenium			
Silver			
<b>TRIBUTYL TIN (ug/kg)</b>			
<b>TBT Ion by SIM</b>			
Tributyl Tin Chloride			
Dibutyl Tin Dichloride			
Butyl Tin Trichloride			
TBT as Tin ion			
<b>EPH (ug/kg)</b>			
<b>EPH 8015B</b>			
C8-C10 Aliphatics			
C10-C12 Aliphatics			
C12-C16 Aliphatics			
C16-C21 Aliphatics			
C21-C34 Aliphatics			
C8-C10 Aromatics			
C10-C12 Aromatics			
C12-C16 Aromatics			
C16-C21 Aromatics			
C21-C34 Aromatics			
Hazard Index			
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>			
<b>Method 8260B</b>			
Chloromethane			
Bromomethane			
Vinyl chloride			
Chloroethane			
Methylene chloride			
Acetone			
Carbon disulfide			
1,1-Dichloroethene			
1,1-Dichloroethane			
trans-1,2-Dichloroethene			
cis-1,2-Dichloroethene			
Chloroform			
1,2-Dichloroethane			
Methyl ethyl ketone			
1,1,1-Trichloroethane			
Carbon tetrachloride			
Vinyl acetate			
Bromodichloromethane			
1,2-Dichloropropane			
cis-1,3-Dichloropropene			

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-5-SS (0-0.5) GE76G 12/30/2003	D-6-SS (0-0.5) GE76H 12/30/2003	D-7-SS (0-0.5) GE76I 12/30/2003
Trichloroethene			
Dibromochloromethane			
1,1,2-Trichloroethane			
Benzene			
trans-1,3-Dichloropropene			
2-Chloroethylvinylether			
Bromoform			
4-Methyl-2-Pentanone (MIBK)			
2-Hexanone			
Tetrachloroethene			
1,1,2,2-Tetrachloroethane			
Toluene			
Chlorobenzene			
Ethylbenzene			
Styrene			
Trichlorofluoromethane			
1,1,2-Trichloro-1,2,2-trifluoroethane			
m,p-Xylene			
o-Xylene			
1,2-Dichlorobenzene			
1,3-Dichlorobenzene			
1,4-Dichlorobenzene			
Acrolein			
Methyl Iodide			
Bromoethane			
Acrylonitrile			
1,1-Dichloropropene			
Dibromomethane			
1,1,1,2-Tetrachloroethane			
1,2-Dibromo-3-chloropropane			
1,2,3-Trichloropropane			
trans-1,4-Dichloro-2-butene			
1,3,5-Trimethylbenzene			
1,2,4-Trimethylbenzene			
Hexachlorobutadiene			
Ethylene Dibromide			
Bromochloromethane			
2,2-Dichloropropane			
1,3-Dichloropropane			
Isopropylbenzene			
n-Propylbenzene			
Bromobenzene			
2-Chlorotoluene			
4-Chlorotoluene			
tert-Butylbenzene			
sec-Butylbenzene			
4-Isopropyltoluene			
n-Butylbenzene			
1,2,4-Trichlorobenzene			
Naphthalene			
1,2,3-Trichlorobenzene			
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)			
Method 8270C			
Phenol			
Bis-(2-Chloroethyl) Ether			
2-Chlorophenol			
1,3-Dichlorobenzene			
1,4-Dichlorobenzene			
Benzyl Alcohol			
1,2-Dichlorobenzene			
2-Methylphenol			
2,2'-Oxybis(1-Chloropropane)			
4-Methylphenol			



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-5-SS (0-0.5) GE76G 12/30/2003	D-6-SS (0-0.5) GE76H 12/30/2003	D-7-SS (0-0.5) GE76I 12/30/2003
N-Nitroso-Di-N-Propylamine			
Hexachloroethane			
Nitrobenzene			
Isophorone			
2-Nitrophenol			
2,4-Dimethylphenol			
Benzoic Acid			
bis(2-Chloroethoxy) Methane			
2,4-Dinitrophenol			
1,2,4-Trichlorobenzene			
Naphthalene			
4-Chloroaniline			
Hexachlorobutadiene			
4-Chloro-3-methylphenol			
2-Methylnaphthalene			
1-Methylnaphthalene			
Total naphthalenes			
Hexachlorocyclopentadiene			
2,4,6-Trichlorophenol			
2,4,5-Trichlorophenol			
2-Chloronaphthalene			
2-Nitroaniline			
Dimethylphthalate			
Acenaphthylene			
3-Nitroaniline			
Acenaphthene			
2,4-Dichlorophenol			
4-Nitrophenol			
Dibenzofuran			
2,6-Dinitrotoluene			
2,4-Dinitrotoluene			
Diethylphthalate			
4-Chlorophenyl-phenylether			
Fluorene			
4-Nitroaniline			
4,6-Dinitro-2-Methylphenol			
N-Nitrosodiphenylamine			
4-Bromophenyl-phenylether			
Hexachlorobenzene			
Pentachlorophenol			
Phenanthrene			
Carbazole			
Anthracene			
Di-n-Butylphthalate			
Fluoranthene			
Pyrene			
Butylbenzylphthalate			
3,3'-Dichlorobenzidine			
Benzo(a)anthracene			
bis(2-Ethylhexyl)phthalate			
Chrysene			
Di-n-Octyl phthalate			
Benzo(b)fluoranthene			
Benzo(k)fluoranthene			
Benzo(a)pyrene			
Indeno(1,2,3-cd)pyrene			
Dibenz(a,h)anthracene			
Benzo(g,h,i)perylene			
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)			

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7.1 (0.5-1.5) JY46I 9/26/2006	D-7.3 (0.4-4) JY46H 9/26/2006	D-7-1 (0-0.5) KW30A/KX38A 4/25/2007	D-7-1 (1-2) KW30B/KX38B/KY42D 4/25/2007	D-7A-1 (0-0.5) KX01D/KY20B/KX02J/LA46L 4/30/2007	D-7A-1 (1-2) KX01E/KX02K 4/30/2007	D-7A-1 (2-3) KY20D/KX02L/LA46M 4/30/2007	D-7-2 (0-0.5) KW17A/KX04A 4/24/2007	D-7-2 (1-2) KW17B/KY09A 4/24/2007	D-7-2 (2-3) KW17C 4/24/2007	D-7-2 (3-4) KX21A 4/24/2007	D-7-2 (4-5) KY97A 4/24/2007	D-7A-2 (0-0.5) KW17D/KX04B 4/24/2007
CONVENTIONAL PARAMETERS													
Hexavalent Chrome (mg/kg)													
Total Solids (%)													
pH (Std Units)													
PETROLEUM HYDROCARBONS													
NWTPH-HCID (mg/kg)													
Gasoline						20 U	>130						
Diesel						>50	>310						
Motor Oil						>100	>630						
NWTPH-Dx (mg/kg)													
Diesel		170	36	110	110	950	11	170	1,200	9,800	6,600	6.6 UJ	180
Motor Oil		300	170	770	80	340	13 U	790	160	100	1,100 U	13 UJ	670
Gasoline (mg/kg)													
Method 8021/NWTPH-G													
Gasoline													
BTEX (ug/kg)													
Method 8021													
Benzene													
Toluene													
Ethylbenzene													
m,p-Xylene													
o-Xylene													
cPAHs/Naphthalenes (ug/kg)													
SW8270C-SIM													
Naphthalene													
2-Methylnaphthalene													
1-Methylnaphthalene													
Benzo[a]anthracene	66 U	66		64 UJ	62 UJ		63 UJ						
Chrysene	66 U	84		64 UJ	62 J		63 UJ						
Benzo[b]fluoranthene	66 U	64 U		64 UJ	62 UJ		63 UJ						
Benzo[k]fluoranthene	66 U	64 U		64 UJ	62 UJ		63 UJ						
Benzo[a]pyrene	66 U	64 U		64 UJ	62 UJ		63 UJ						
Indeno[1,2,3-cd]pyrene	66 U	64 U		64 UJ	62 UJ		63 UJ						
Dibenz[a,h]anthracene	66 U	64 U		64 UJ	62 UJ		63 UJ						
Acenaphthene													
Acenaphthylene													
Anthracene													
Benzo[g,h,i]perylene													
Fluoranthene													
Fluorene													
Phenanthrene													
Pyrene													
cPAH TEQ	ND	7.4		ND	6.2		ND						
PCBs (ug/kg)													
Method SW8082													
Aroclor-1016													
Aroclor-1242													
Aroclor-1248													
Aroclor-1254													
Aroclor-1260													
Aroclor-1221													
Aroclor-1232													
Total PCBs													
TOTAL METALS (mg/kg)													
SW6000-7000 Series													
Arsenic			70	5 U	5 U		6 U	90	6				80
Barium													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7.1 (0.5-1.5) JY46I 9/26/2006	D-7.3 (0.4-4) JY46H 9/26/2006	D-7-1 (0-0.5) KW30A/KX38A 4/25/2007	D-7-1 (1-2) KW30B/KX38B/KY42D 4/25/2007	D-7A-1 (0-0.5) KX01D/KY20B/KX02J/LA46L 4/30/2007	D-7A-1 (1-2) KX01E/KX02K 4/30/2007	D-7A-1 (2-3) KY20D/KX02L/LA46M 4/30/2007	D-7-2 (0-0.5) KW17A/KX04A 4/24/2007	D-7-2 (1-2) KW17B/KY09A 4/24/2007	D-7-2 (2-3) KW17C 4/24/2007	D-7-2 (3-4) KX21A 4/24/2007	D-7-2 (4-5) KY97A 4/24/2007	D-7A-2 (0-0.5) KW17D/KX04B 4/24/2007
Cadmium													
Chromium													
Copper													
Lead													
Mercury													
Selenium													
Silver													
Zinc													
<b>TCLP METALS (mg/L)</b>													
<b>Method 6010B</b>													
Arsenic													
Barium													
Cadmium													
Chromium													
Lead													
Mercury													
Selenium													
Silver													
<b>TRIBUTYL TIN (ug/kg)</b>													
<b>TBT Ion by SIM</b>													
Tributyl Tin Chloride													
Dibutyl Tin Dichloride													
Butyl Tin Trichloride													
TBT as Tin ion													
<b>EPH (ug/kg)</b>													
<b>EPH 8015B</b>													
C8-C10 Aliphatics													
C10-C12 Aliphatics													
C12-C16 Aliphatics													
C16-C21 Aliphatics													
C21-C34 Aliphatics													
C8-C10 Aromatics													
C10-C12 Aromatics													
C12-C16 Aromatics													
C16-C21 Aromatics													
C21-C34 Aromatics													
Hazard Index													
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>													
<b>Method 8260B</b>													
Chloromethane													
Bromomethane													
Vinyl chloride													
Chloroethane													
Methylene chloride													
Acetone													
Carbon disulfide													
1,1-Dichloroethene													
1,1-Dichloroethane													
trans-1,2-Dichloroethene													
cis-1,2-Dichloroethene													
Chloroform													
1,2-Dichloroethane													
Methyl ethyl ketone													
1,1,1-Trichloroethane													
Carbon tetrachloride													
Vinyl acetate													
Bromodichloromethane													
1,2-Dichloropropane													
cis-1,3-Dichloropropene													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7.1 (0.5-1.5) JY46I 9/26/2006	D-7.3 (0.4-4) JY46H 9/26/2006	D-7-1 (0-0.5) KW30A/KX38A 4/25/2007	D-7-1 (1-2) KW30B/KX38B/KY42D 4/25/2007	D-7A-1 (0-0.5) KX01D/KY20B/KX02J/LA46L 4/30/2007	D-7A-1 (1-2) KX01E/KX02K 4/30/2007	D-7A-1 (2-3) KY20D/KX02L/LA46M 4/30/2007	D-7-2 (0-0.5) KW17A/KX04A 4/24/2007	D-7-2 (1-2) KW17B/KY09A 4/24/2007	D-7-2 (2-3) KW17C 4/24/2007	D-7-2 (3-4) KX21A 4/24/2007	D-7-2 (4-5) KY97A 4/24/2007	D-7A-2 (0-0.5) KW17D/KX04B 4/24/2007
Trichloroethene													
Dibromochloromethane													
1,1,2-Trichloroethane													
Benzene													
trans-1,3-Dichloropropene													
2-Chloroethylvinylether													
Bromoform													
4-Methyl-2-Pentanone (MIBK)													
2-Hexanone													
Tetrachloroethene													
1,1,2,2-Tetrachloroethane													
Toluene													
Chlorobenzene													
Ethylbenzene													
Styrene													
Trichlorofluoromethane													
1,1,2-Trichloro-1,2,2-trifluoroethane													
m,p-Xylene													
o-Xylene													
1,2-Dichlorobenzene													
1,3-Dichlorobenzene													
1,4-Dichlorobenzene													
Acrolein													
Methyl Iodide													
Bromoethane													
Acrylonitrile													
1,1-Dichloropropene													
Dibromomethane													
1,1,1,2-Tetrachloroethane													
1,2-Dibromo-3-chloropropane													
1,2,3-Trichloropropane													
trans-1,4-Dichloro-2-butene													
1,3,5-Trimethylbenzene													
1,2,4-Trimethylbenzene													
Hexachlorobutadiene													
Ethylene Dibromide													
Bromochloromethane													
2,2-Dichloropropane													
1,3-Dichloropropane													
Isopropylbenzene													
n-Propylbenzene													
Bromobenzene													
2-Chlorotoluene													
4-Chlorotoluene													
tert-Butylbenzene													
sec-Butylbenzene													
4-Isopropyltoluene													
n-Butylbenzene													
1,2,4-Trichlorobenzene													
Naphthalene													
1,2,3-Trichlorobenzene													
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)													
Method 8270C													
Phenol													
Bis-(2-Chloroethyl) Ether													
2-Chlorophenol													
1,3-Dichlorobenzene													
1,4-Dichlorobenzene													
Benzyl Alcohol													
1,2-Dichlorobenzene													
2-Methylphenol													
2,2'-Oxybis(1-Chloropropane)													
4-Methylphenol													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7.1 (0.5-1.5) JY46I 9/26/2006	D-7.3 (0.4-4) JY46H 9/26/2006	D-7-1 (0-0.5) KW30A/KX38A 4/25/2007	D-7-1 (1-2) KW30B/KX38B/KY42D 4/25/2007	D-7A-1 (0-0.5) KX01D/KY20B/KX02J/LA46L 4/30/2007	D-7A-1 (1-2) KX01E/KX02K 4/30/2007	D-7A-1 (2-3) KY20D/KX02L/LA46M 4/30/2007	D-7-2 (0-0.5) KW17A/KX04A 4/24/2007	D-7-2 (1-2) KW17B/KY09A 4/24/2007	D-7-2 (2-3) KW17C 4/24/2007	D-7-2 (3-4) KX21A 4/24/2007	D-7-2 (4-5) KY97A 4/24/2007	D-7A-2 (0-0.5) KW17D/KX04B 4/24/2007
N-Nitroso-Di-N-Propylamine													
Hexachloroethane													
Nitrobenzene													
Isophorone													
2-Nitrophenol													
2,4-Dimethylphenol													
Benzoic Acid													
bis(2-Chloroethoxy) Methane													
2,4-Dinitrophenol													
1,2,4-Trichlorobenzene													
Naphthalene			66 U	66 U	64 U	940	64 U	64 UJ	65 U	270 U			65 U
4-Chloroaniline													
Hexachlorobutadiene													
4-Chloro-3-methylphenol													
2-Methylnaphthalene			66 U	66 U	64 U	3,200	64 U	64 UJ	68	810 U			65 U
1-Methylnaphthalene			66 U	66 U	64 U	2,500	64 U	64 UJ	180	1,600 J			65 U
Total naphthalenes			ND	ND	ND	6,640	ND	ND	248	1,600 J			ND
Hexachlorocyclopentadiene													
2,4,6-Trichlorophenol													
2,4,5-Trichlorophenol													
2-Chloronaphthalene													
2-Nitroaniline													
Dimethylphthalate													
Acenaphthylene													
3-Nitroaniline													
Acenaphthene													
2,4-Dichlorophenol													
4-Nitrophenol													
Dibenzofuran													
2,6-Dinitrotoluene													
2,4-Dinitrotoluene													
Diethylphthalate													
4-Chlorophenyl-phenylether													
Fluorene													
4-Nitroaniline													
4,6-Dinitro-2-Methylphenol													
N-Nitrosodiphenylamine													
4-Bromophenyl-phenylether													
Hexachlorobenzene													
Pentachlorophenol													
Phenanthrene													
Carbazole													
Anthracene													
Di-n-Butylphthalate													
Fluoranthene													
Pyrene													
Butylbenzylphthalate													
3,3'-Dichlorobenzidine													
Benzo(a)anthracene													
bis(2-Ethylhexyl)phthalate													
Chrysene													
Di-n-Octyl phthalate													
Benzo(b)fluoranthene													
Benzo(k)fluoranthene													
Benzo(a)pyrene													
Indeno(1,2,3-cd)pyrene													
Dibenz(a,h)anthracene													
Benzo(g,h,i)perylene													
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-2 (1-2) KW17E/KY09B/LA46F 4/24/2007	D-7A-2 (2-3) KW17F 4/24/2007	D-7A-2 (3-4) KW17G 4/24/2007	D-7-3 (0-0.5) KW18O/KX04YH/KY09I 4/24/2007	D-7-3 (1-2) KW18P 4/24/2007	D-7A-3 (0-0.5) KW48AP/KX96P/LA46C 4/26/2007	D-7A-3 (1-2) KW48AQ/KX96Q/LA46D 4/26/2007	D-7A-3 (2-3) KW48AR/KX96R/LA46E 4/26/2007	D-7-4 (0-0.5) KW18Q/KX04I 4/24/2007	D-7-4 (1-2) KW18R/KY09H/LA46K 4/24/2007	D-7-4 (6-7) KW18S 4/24/2007	D-7A-5 (0-0.5) KY20C/KX02C 4/30/2007
<b>CONVENTIONAL PARAMETERS</b>												
Hexavalent Chrome (mg/kg)												
Total Solids (%)												
pH (Std Units)												
<b>PETROLEUM HYDROCARBONS</b>												
<b>NWTPH-HCID (mg/kg)</b>												
Gasoline												
Diesel												
Motor Oil												
<b>NWTPH-Dx (mg/kg)</b>												
Diesel	82	900	3,500	5.2 U	26	6.9	5.9 U	35	64	8.6	6.7 U	18
Motor Oil	340	48	39	10 U	210	13	12 U	12 U	280	110	15	100
<b>Gasoline (mg/kg)</b>												
<b>Method 8021/NWTPH-G</b>												
Gasoline												
<b>BTEX (ug/kg)</b>												
<b>Method 8021</b>												
Benzene												
Toluene												
Ethylbenzene												
m,p-Xylene												
o-Xylene												
<b>cPAHs/Naphthalenes (ug/kg)</b>												
<b>SW8270C-SIM</b>												
Naphthalene												
2-Methylnaphthalene												
1-Methylnaphthalene												
Benzo[a]anthracene	65 UJ			65 U		60 UJ	60 UJ	63 UJ		65 UJ	64 UJ	
Chrysene	65 UJ			65 U		60 UJ	60 UJ	63 UJ		65 UJ	64 UJ	
Benzo[b]fluoranthene	65 UJ			65 U		60 UJ	60 UJ	63 UJ		65 UJ	64 UJ	
Benzo[k]fluoranthene	65 UJ			65 U		60 UJ	60 UJ	63 UJ		65 UJ	64 UJ	
Benzo[a]pyrene	65 UJ			65 U		60 UJ	60 UJ	63 UJ		65 UJ	64 UJ	
Indeno[1,2,3-cd]pyrene	65 UJ			65 U		60 UJ	60 UJ	63 UJ		65 UJ	64 UJ	
Dibenz[a,h]anthracene	65 UJ			65 U		60 UJ	60 UJ	63 UJ		65 UJ	64 UJ	
Acenaphthene												
Acenaphthylene												
Anthracene												
Benzo[g,h,i]perylene												
Fluoranthene												
Fluorene												
Phenanthrene												
Pyrene												
cPAH TEQ	ND			ND		ND	ND	ND		ND	ND	
<b>PCBs (ug/kg)</b>												
<b>Method SW8082</b>												
Aroclor-1016												
Aroclor-1242												
Aroclor-1248												
Aroclor-1254												
Aroclor-1260												
Aroclor-1221												
Aroclor-1232												
Total PCBs												
<b>TOTAL METALS (mg/kg)</b>												
<b>SW6000-7000 Series</b>												
Arsenic	6			5 U		5 U	6	6 U	30	6		9
Barium												

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-2 (1-2) KW17E/KY09B/LA46F 4/24/2007	D-7A-2 (2-3) KW17F 4/24/2007	D-7A-2 (3-4) KW17G 4/24/2007	D-7-3 (0-0.5) KW18O/KX04YH/KY09I 4/24/2007	D-7-3 (1-2) KW18P 4/24/2007	D-7A-3 (0-0.5) KW48AP/KX96P/LA46C 4/26/2007	D-7A-3 (1-2) KW48AQ/KX96Q/LA46D 4/26/2007	D-7A-3 (2-3) KW48AR/KX96R/LA46E 4/26/2007	D-7-4 (0-0.5) KW18Q/KX04I 4/24/2007	D-7-4 (1-2) KW18R/KY09H/LA46K 4/24/2007	D-7-4 (6-7) KW18S 4/24/2007	D-7A-5 (0-0.5) KY20C/KX02C 4/30/2007
Cadmium												
Chromium												
Copper												
Lead												
Mercury												
Selenium												
Silver												
Zinc												
<b>TCLP METALS (mg/L)</b>												
<b>Method 6010B</b>												
Arsenic												
Barium												
Cadmium												
Chromium												
Lead												
Mercury												
Selenium												
Silver												
<b>TRIBUTYL TIN (ug/kg)</b>												
<b>TBT Ion by SIM</b>												
Tributyl Tin Chloride												
Dibutyl Tin Dichloride												
Butyl Tin Trichloride												
TBT as Tin ion												
<b>EPH (ug/kg)</b>												
<b>EPH 8015B</b>												
C8-C10 Aliphatics												
C10-C12 Aliphatics												
C12-C16 Aliphatics												
C16-C21 Aliphatics												
C21-C34 Aliphatics												
C8-C10 Aromatics												
C10-C12 Aromatics												
C12-C16 Aromatics												
C16-C21 Aromatics												
C21-C34 Aromatics												
Hazard Index												
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>												
<b>Method 8260B</b>												
Chloromethane												
Bromomethane												
Vinyl chloride												
Chloroethane												
Methylene chloride												
Acetone												
Carbon disulfide												
1,1-Dichloroethene												
1,1-Dichloroethane												
trans-1,2-Dichloroethene												
cis-1,2-Dichloroethene												
Chloroform												
1,2-Dichloroethane												
Methyl ethyl ketone												
1,1,1-Trichloroethane												
Carbon tetrachloride												
Vinyl acetate												
Bromodichloromethane												
1,2-Dichloropropane												
cis-1,3-Dichloropropene												

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-2 (1-2) KW17E/KY09B/LA46F 4/24/2007	D-7A-2 (2-3) KW17F 4/24/2007	D-7A-2 (3-4) KW17G 4/24/2007	D-7-3 (0-0.5) KW18O/KX04YH/KY09I 4/24/2007	D-7-3 (1-2) KW18P 4/24/2007	D-7A-3 (0-0.5) KW48AP/KX96P/LA46C 4/26/2007	D-7A-3 (1-2) KW48AQ/KX96Q/LA46D 4/26/2007	D-7A-3 (2-3) KW48AR/KX96R/LA46E 4/26/2007	D-7-4 (0-0.5) KW18Q/KX04I 4/24/2007	D-7-4 (1-2) KW18R/KY09H/LA46K 4/24/2007	D-7-4 (6-7) KW18S 4/24/2007	D-7A-5 (0-0.5) KY20C/KX02C 4/30/2007
Trichloroethene												
Dibromochloromethane												
1,1,2-Trichloroethane												
Benzene												
trans-1,3-Dichloropropene												
2-Chloroethylvinylether												
Bromoform												
4-Methyl-2-Pentanone (MIBK)												
2-Hexanone												
Tetrachloroethene												
1,1,2,2-Tetrachloroethane												
Toluene												
Chlorobenzene												
Ethylbenzene												
Styrene												
Trichlorofluoromethane												
1,1,2-Trichloro-1,2,2-trifluoroethane												
m,p-Xylene												
o-Xylene												
1,2-Dichlorobenzene												
1,3-Dichlorobenzene												
1,4-Dichlorobenzene												
Acrolein												
Methyl Iodide												
Bromoethane												
Acrylonitrile												
1,1-Dichloropropene												
Dibromomethane												
1,1,1,2-Tetrachloroethane												
1,2-Dibromo-3-chloropropane												
1,2,3-Trichloropropane												
trans-1,4-Dichloro-2-butene												
1,3,5-Trimethylbenzene												
1,2,4-Trimethylbenzene												
Hexachlorobutadiene												
Ethylene Dibromide												
Bromochloromethane												
2,2-Dichloropropane												
1,3-Dichloropropane												
Isopropylbenzene												
n-Propylbenzene												
Bromobenzene												
2-Chlorotoluene												
4-Chlorotoluene												
tert-Butylbenzene												
sec-Butylbenzene												
4-Isopropyltoluene												
n-Butylbenzene												
1,2,4-Trichlorobenzene												
Naphthalene												
1,2,3-Trichlorobenzene												
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)												
Method 8270C												
Phenol												
Bis-(2-Chloroethyl) Ether												
2-Chlorophenol												
1,3-Dichlorobenzene												
1,4-Dichlorobenzene												
Benzyl Alcohol												
1,2-Dichlorobenzene												
2-Methylphenol												
2,2'-Oxybis(1-Chloropropane)												
4-Methylphenol												



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-2 (1-2) KW17E/KY09B/LA46F 4/24/2007	D-7A-2 (2-3) KW17F 4/24/2007	D-7A-2 (3-4) KW17G 4/24/2007	D-7-3 (0-0.5) KW18O/KX04YH/KY09I 4/24/2007	D-7-3 (1-2) KW18P 4/24/2007	D-7A-3 (0-0.5) KW48AP/KX96P/LA46C 4/26/2007	D-7A-3 (1-2) KW48AQ/KX96Q/LA46D 4/26/2007	D-7A-3 (2-3) KW48AR/KX96R/LA46E 4/26/2007	D-7-4 (0-0.5) KW18Q/KX04I 4/24/2007	D-7-4 (1-2) KW18R/KY09H/LA46K 4/24/2007	D-7-4 (6-7) KW18S 4/24/2007	D-7A-5 (0-0.5) KY20C/KX02C 4/30/2007
N-Nitroso-Di-N-Propylamine												
Hexachloroethane												
Nitrobenzene												
Isophorone												
2-Nitrophenol												
2,4-Dimethylphenol												
Benzoic Acid												
bis(2-Chloroethoxy) Methane												
2,4-Dinitrophenol												
1,2,4-Trichlorobenzene												
Naphthalene	64 UJ	66 U	81 U	64 U	66 U	63 U	66 U	64 U	64 UJ	65 U	64 UJ	110
4-Chloroaniline												
Hexachlorobutadiene												
4-Chloro-3-methylphenol												
2-Methylnaphthalene	64 UJ	66 U	2,800	64 U	66 U	63 U	66 U	64 U	64 UJ	65 U	64 UJ	65
1-Methylnaphthalene	64 UJ	66 U	5,200	64 U	66 U	63 U	66 U	64 U	64 UJ	65 U	64 UJ	65
Total naphthalenes	ND	ND	8,000	ND	ND	ND	ND	ND	ND	ND	ND	110
Hexachlorocyclopentadiene												
2,4,6-Trichlorophenol												
2,4,5-Trichlorophenol												
2-Chloronaphthalene												
2-Nitroaniline												
Dimethylphthalate												
Acenaphthylene												
3-Nitroaniline												
Acenaphthene												
2,4-Dichlorophenol												
4-Nitrophenol												
Dibenzofuran												
2,6-Dinitrotoluene												
2,4-Dinitrotoluene												
Diethylphthalate												
4-Chlorophenyl-phenylether												
Fluorene												
4-Nitroaniline												
4,6-Dinitro-2-Methylphenol												
N-Nitrosodiphenylamine												
4-Bromophenyl-phenylether												
Hexachlorobenzene												
Pentachlorophenol												
Phenanthrene												
Carbazole												
Anthracene												
Di-n-Butylphthalate												
Fluoranthene												
Pyrene												
Butylbenzylphthalate												
3,3'-Dichlorobenzidine												
Benzo(a)anthracene												
bis(2-Ethylhexyl)phthalate												
Chrysene												
Di-n-Octyl phthalate												
Benzo(b)fluoranthene												
Benzo(k)fluoranthene												
Benzo(a)pyrene												
Indeno(1,2,3-cd)pyrene												
Dibenz(a,h)anthracene												
Benzo(g,h,i)perylene												
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)												

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

CONVENTIONAL PARAMETERS

Hexavalent Chrome (mg/kg)  
Total Solids (%)  
pH (Std Units)

PETROLEUM HYDROCARBONS

NWTPH-HCID (mg/kg)

Gasoline  
Diesel  
Motor Oil

NWTPH-Dx (mg/kg)

Diesel  
Motor Oil

Gasoline (mg/kg)

Method 8021/NWTPH-G

Gasoline

BTEX (ug/kg)

Method 8021

Benzene  
Toluene  
Ethylbenzene  
m,p-Xylene  
o-Xylene

cPAHs/Naphthalenes (ug/kg)

SW8270C-SIM

Naphthalene  
2-Methylnaphthalene  
1-Methylnaphthalene  
Benzo[a]anthracene  
Chrysene  
Benzo[b]fluoranthene  
Benzo[k]fluoranthene  
Benzo[a]pyrene  
Indeno[1,2,3-cd]pyrene  
Dibenz[a,h]anthracene  
Acenaphthene  
Acenaphthylene  
Anthracene  
Benzo[g,h,i]perylene  
Fluoranthene  
Fluorene  
Phenanthrene  
Pyrene  
cPAH TEQ

PCBs (ug/kg)

Method SW8082

Aroclor-1016  
Aroclor-1242  
Aroclor-1248  
Aroclor-1254  
Aroclor-1260  
Aroclor-1221  
Aroclor-1232  
Total PCBs

TOTAL METALS (mg/kg)

SW6000-7000 Series

Arsenic  
Barium

**TABLE B-1**  
**SOIL CHARACTERIZATION ANALYTICAL DATA**  
**WEST END SITE**  
**EVERETT, WASHINGTON**

Cadmium  
Chromium  
Copper  
Lead  
Mercury  
Selenium  
Silver  
Zinc

**TCLP METALS (mg/L)**  
**Method 6010B**  
Arsenic  
Barium  
Cadmium  
Chromium  
Lead  
Mercury  
Selenium  
Silver

**TRIBUTYL TIN (ug/kg)**  
**TBT Ion by SIM**  
Tributyl Tin Chloride  
Dibutyl Tin Dichloride  
Butyl Tin Trichloride  
TBT as Tin ion

**EPH (ug/kg)**  
**EPH 8015B**  
C8-C10 Aliphatics  
C10-C12 Aliphatics  
C12-C16 Aliphatics  
C16-C21 Aliphatics  
C21-C34 Aliphatics  
C8-C10 Aromatics  
C10-C12 Aromatics  
C12-C16 Aromatics  
C16-C21 Aromatics  
C21-C34 Aromatics

Hazard Index

**VOLATILE ORGANIC COMPOUNDS (ug/kg)**  
**Method 8260B**  
Chloromethane  
Bromomethane  
Vinyl chloride  
Chloroethane  
Methylene chloride  
Acetone  
Carbon disulfide  
1,1-Dichloroethene  
1,1-Dichloroethane  
trans-1,2-Dichloroethene  
cis-1,2-Dichloroethene  
Chloroform  
1,2-Dichloroethane  
Methyl ethyl ketone  
1,1,1-Trichloroethane  
Carbon tetrachloride  
Vinyl acetate  
Bromodichloromethane  
1,2-Dichloropropane  
cis-1,3-Dichloropropene

**TABLE B-1**  
**SOIL CHARACTERIZATION ANALYTICAL DATA**  
**WEST END SITE**  
**EVERETT, WASHINGTON**

Trichloroethene  
Dibromochloromethane  
1,1,2-Trichloroethane  
Benzene  
trans-1,3-Dichloropropene  
2-Chloroethylvinylether  
Bromoform  
4-Methyl-2-Pentanone (MIBK)  
2-Hexanone  
Tetrachloroethene  
1,1,2,2-Tetrachloroethane  
Toluene  
Chlorobenzene  
Ethylbenzene  
Styrene  
Trichlorofluoromethane  
1,1,2-Trichloro-1,2,2-trifluoroethane  
m,p-Xylene  
o-Xylene  
1,2-Dichlorobenzene  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
Acrolein  
Methyl Iodide  
Bromoethane  
Acrylonitrile  
1,1-Dichloropropene  
Dibromomethane  
1,1,1,2-Tetrachloroethane  
1,2-Dibromo-3-chloropropane  
1,2,3-Trichloropropane  
trans-1,4-Dichloro-2-butene  
1,3,5-Trimethylbenzene  
1,2,4-Trimethylbenzene  
Hexachlorobutadiene  
Ethylene Dibromide  
Bromochloromethane  
2,2-Dichloropropane  
1,3-Dichloropropane  
Isopropylbenzene  
n-Propylbenzene  
Bromobenzene  
2-Chlorotoluene  
4-Chlorotoluene  
tert-Butylbenzene  
sec-Butylbenzene  
4-Isopropyltoluene  
n-Butylbenzene  
1,2,4-Trichlorobenzene  
Naphthalene  
1,2,3-Trichlorobenzene

**SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)**  
**Method 8270C**  
Phenol  
Bis-(2-Chloroethyl) Ether  
2-Chlorophenol  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
Benzyl Alcohol  
1,2-Dichlorobenzene  
2-Methylphenol  
2,2'-Oxybis(1-Chloropropane)  
4-Methylphenol

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

N-Nitroso-Di-N-Propylamine	
Hexachloroethane	
Nitrobenzene	
Isophorone	
2-Nitrophenol	
2,4-Dimethylphenol	
Benzoic Acid	
bis(2-Chloroethoxy) Methane	
2,4-Dinitrophenol	
1,2,4-Trichlorobenzene	
Naphthalene	
4-Chloroaniline	
Hexachlorobutadiene	
4-Chloro-3-methylphenol	
2-Methylnaphthalene	U
1-Methylnaphthalene	U
Total naphthalenes	
Hexachlorocyclopentadiene	
2,4,6-Trichlorophenol	
2,4,5-Trichlorophenol	
2-Chloronaphthalene	
2-Nitroaniline	
Dimethylphthalate	
Acenaphthylene	
3-Nitroaniline	
Acenaphthene	
2,4-Dichlorophenol	
4-Nitrophenol	
Dibenzofuran	
2,6-Dinitrotoluene	
2,4-Dinitrotoluene	
Diethylphthalate	
4-Chlorophenyl-phenylether	
Fluorene	
4-Nitroaniline	
4,6-Dinitro-2-Methylphenol	
N-Nitrosodiphenylamine	
4-Bromophenyl-phenylether	
Hexachlorobenzene	
Pentachlorophenol	
Phenanthrene	
Carbazole	
Anthracene	
Di-n-Butylphthalate	
Fluoranthene	
Pyrene	
Butylbenzylphthalate	
3,3'-Dichlorobenzidine	
Benzo(a)anthracene	
bis(2-Ethylhexyl)phthalate	
Chrysene	
Di-n-Octyl phthalate	
Benzo(b)fluoranthene	
Benzo(k)fluoranthene	
Benzo(a)pyrene	
Indeno(1,2,3-cd)pyrene	
Dibenz(a,h)anthracene	
Benzo(g,h,i)perylene	
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-5 (1-2) KX02D 4/30/2007	D-7A-5 (2-3) KX01B/KX02E 4/30/2007	D-7A-5 (3-4) KX01C/KY20A 4/30/2007	D-7A-6 (0-0.5) KW17H/KX04C 4/24/2007	D-7A-6 (1-2) KW17I/KY09C/LA46G 4/24/2007	D-7A-6 (2-3) KW17J 4/24/2007	D-7A-6 (3-4) KW17K 4/24/2007	D-7A-6 (4-5) KW16A/KW17L 4/24/2007	D-7A-6 (5-6) KW16B/KW17M/KW40A 4/24/2007	D-7A-6 (6-7) KW16C/KW17N 4/24/2007	D-7A-6 (7-8) KW17O 4/24/2007	D-7A-7 (0-0.5) KW18A/KX04E 4/24/2007	D-7A-7 (1-2) KW18B/KY09E/LA46H 4/24/2007
<b>CONVENTIONAL PARAMETERS</b>													
Hexavalent Chrome (mg/kg)													
Total Solids (%)													
pH (Std Units)													
<b>PETROLEUM HYDROCARBONS</b>													
<b>NWTPH-HCID (mg/kg)</b>													
Gasoline		>20	>20					>240	>270	20 U			
Diesel		>50	>50					>600	>670	50 U			
Motor Oil		100 U	100 U					>1200	>1300	100 U			
<b>NWTPH-Dx (mg/kg)</b>													
Diesel	7,300	5,400	780	59	25	5.2 U	13,000	9,300	830	6.5 U	9.5	290	5.2 U
Motor Oil	1,100 U	1,200 U	22	270	260	10 U	220	910	270	13 U	12	1500	15
<b>Gasoline (mg/kg)</b>													
<b>Method 8021/NWTPH-G</b>													
Gasoline									2,700				
<b>BTEX (ug/kg)</b>													
<b>Method 8021</b>													
Benzene									150 J				
Toluene									400 U				
Ethylbenzene									2,300				
m,p-Xylene									790 U				
o-Xylene									1,300				
<b>cPAHs/Naphthalenes (ug/kg)</b>													
<b>SW8270C-SIM</b>													
Naphthalene													
2-Methylnaphthalene													
1-Methylnaphthalene													
Benzo[a]anthracene													66 UJ
Chrysene													66 UJ
Benzo[b]fluoranthene													66 UJ
Benzo[k]fluoranthene													66 UJ
Benzo[a]pyrene													66 UJ
Indeno[1,2,3-cd]pyrene													66 UJ
Dibenz[a,h]anthracene													66 UJ
Acenaphthene													
Acenaphthylene													
Anthracene													
Benzo[g,h,i]perylene													
Fluoranthene													
Fluorene													
Phenanthrene													
Pyrene													
cPAH TEQ					ND								ND
<b>PCBs (ug/kg)</b>													
<b>Method SW8082</b>													
Aroclor-1016													
Aroclor-1242													
Aroclor-1248													
Aroclor-1254													
Aroclor-1260													
Aroclor-1221													
Aroclor-1232													
Total PCBs													
<b>TOTAL METALS (mg/kg)</b>													
<b>SW6000-7000 Series</b>													
Arsenic				50	6							30	5
Barium													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-5 (1-2) KX02D 4/30/2007	D-7A-5 (2-3) KX01B/KX02E 4/30/2007	D-7A-5 (3-4) KX01C/KY20A 4/30/2007	D-7A-6 (0-0.5) KW17H/KX04C 4/24/2007	D-7A-6 (1-2) KW17I/KY09C/LA46G 4/24/2007	D-7A-6 (2-3) KW17J 4/24/2007	D-7A-6 (3-4) KW17K 4/24/2007	D-7A-6 (4-5) KW16A/KW17L 4/24/2007	D-7A-6 (5-6) KW16B/KW17M/KW40A 4/24/2007	D-7A-6 (6-7) KW16C/KW17N 4/24/2007	D-7A-6 (7-8) KW17O 4/24/2007	D-7A-7 (0-0.5) KW18A/KX04E 4/24/2007	D-7A-7 (1-2) KW18B/KY09E/LA46H 4/24/2007
Cadmium													
Chromium													
Copper													
Lead													
Mercury													
Selenium													
Silver													
Zinc													
<b>TCLP METALS (mg/L)</b>													
<b>Method 6010B</b>													
Arsenic													
Barium													
Cadmium													
Chromium													
Lead													
Mercury													
Selenium													
Silver													
<b>TRIBUTYL TIN (ug/kg)</b>													
<b>TBT Ion by SIM</b>													
Tributyl Tin Chloride													
Dibutyl Tin Dichloride													
Butyl Tin Trichloride													
TBT as Tin ion													
<b>EPH (ug/kg)</b>													
<b>EPH 8015B</b>													
C8-C10 Aliphatics													
C10-C12 Aliphatics													
C12-C16 Aliphatics													
C16-C21 Aliphatics													
C21-C34 Aliphatics													
C8-C10 Aromatics													
C10-C12 Aromatics													
C12-C16 Aromatics													
C16-C21 Aromatics													
C21-C34 Aromatics													
Hazard Index													
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>													
<b>Method 8260B</b>													
Chloromethane													
Bromomethane													
Vinyl chloride													
Chloroethane													
Methylene chloride													
Acetone													
Carbon disulfide													
1,1-Dichloroethene													
1,1-Dichloroethane													
trans-1,2-Dichloroethene													
cis-1,2-Dichloroethene													
Chloroform													
1,2-Dichloroethane													
Methyl ethyl ketone													
1,1,1-Trichloroethane													
Carbon tetrachloride													
Vinyl acetate													
Bromodichloromethane													
1,2-Dichloropropane													
cis-1,3-Dichloropropene													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-5 (1-2) KX02D 4/30/2007	D-7A-5 (2-3) KX01B/KX02E 4/30/2007	D-7A-5 (3-4) KX01C/KY20A 4/30/2007	D-7A-6 (0-0.5) KW17H/KX04C 4/24/2007	D-7A-6 (1-2) KW17I/KY09C/LA46G 4/24/2007	D-7A-6 (2-3) KW17J 4/24/2007	D-7A-6 (3-4) KW17K 4/24/2007	D-7A-6 (4-5) KW16A/KW17L 4/24/2007	D-7A-6 (5-6) KW16B/KW17M/KW40A 4/24/2007	D-7A-6 (6-7) KW16C/KW17N 4/24/2007	D-7A-6 (7-8) KW17O 4/24/2007	D-7A-7 (0-0.5) KW18A/KX04E 4/24/2007	D-7A-7 (1-2) KW18B/KY09E/LA46H 4/24/2007
Trichloroethene													
Dibromochloromethane													
1,1,2-Trichloroethane													
Benzene													
trans-1,3-Dichloropropene													
2-Chloroethylvinylether													
Bromoform													
4-Methyl-2-Pentanone (MIBK)													
2-Hexanone													
Tetrachloroethene													
1,1,2,2-Tetrachloroethane													
Toluene													
Chlorobenzene													
Ethylbenzene													
Styrene													
Trichlorofluoromethane													
1,1,2-Trichloro-1,2,2-trifluoroethane													
m,p-Xylene													
o-Xylene													
1,2-Dichlorobenzene													
1,3-Dichlorobenzene													
1,4-Dichlorobenzene													
Acrolein													
Methyl Iodide													
Bromoethane													
Acrylonitrile													
1,1-Dichloropropene													
Dibromomethane													
1,1,1,2-Tetrachloroethane													
1,2-Dibromo-3-chloropropane													
1,2,3-Trichloropropane													
trans-1,4-Dichloro-2-butene													
1,3,5-Trimethylbenzene													
1,2,4-Trimethylbenzene													
Hexachlorobutadiene													
Ethylene Dibromide													
Bromochloromethane													
2,2-Dichloropropane													
1,3-Dichloropropane													
Isopropylbenzene													
n-Propylbenzene													
Bromobenzene													
2-Chlorotoluene													
4-Chlorotoluene													
tert-Butylbenzene													
sec-Butylbenzene													
4-Isopropyltoluene													
n-Butylbenzene													
1,2,4-Trichlorobenzene													
Naphthalene													
1,2,3-Trichlorobenzene													
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)													
Method 8270C													
Phenol													
Bis-(2-Chloroethyl) Ether													
2-Chlorophenol													
1,3-Dichlorobenzene													
1,4-Dichlorobenzene													
Benzyl Alcohol													
1,2-Dichlorobenzene													
2-Methylphenol													
2,2'-Oxybis(1-Chloropropane)													
4-Methylphenol													



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-5 (1-2) KX02D 4/30/2007	D-7A-5 (2-3) KX01B/KX02E 4/30/2007	D-7A-5 (3-4) KX01C/KY20A 4/30/2007	D-7A-6 (0-0.5) KW17H/KX04C 4/24/2007	D-7A-6 (1-2) KW17I/KY09C/LA46G 4/24/2007	D-7A-6 (2-3) KW17J 4/24/2007	D-7A-6 (3-4) KW17K 4/24/2007	D-7A-6 (4-5) KW16A/KW17L 4/24/2007	D-7A-6 (5-6) KW16B/KW17M/KW40A 4/24/2007	D-7A-6 (6-7) KW16C/KW17N 4/24/2007	D-7A-6 (7-8) KW17O 4/24/2007	D-7A-7 (0-0.5) KW18A/KX04E 4/24/2007	D-7A-7 (1-2) KW18B/KY09E/LA46H 4/24/2007
N-Nitroso-Di-N-Propylamine													
Hexachloroethane													
Nitrobenzene													
Isophorone													
2-Nitrophenol													
2,4-Dimethylphenol													
Benzoic Acid													
bis(2-Chloroethoxy) Methane													
2,4-Dinitrophenol													
1,2,4-Trichlorobenzene													
Naphthalene	2,600	2,900	210	64 U	62 U	65 U	7,000 J	9,600	2,600	64 U	65 U	65 UJ	65 U
4-Chloroaniline													
Hexachlorobutadiene													
4-Chloro-3-methylphenol													
2-Methylnaphthalene	20,000	19,000	96	64 U	62 U	65 U	61,000	41,000 J	5,600	64 U	65 U	65 UJ	65 U
1-Methylnaphthalene	16,000	14,000	680	64 U	62 U	65 U	32,000	23,000 J	3,900	64 U	65 U	65 UJ	65 U
Total naphthalenes	38,600	35,900	986	ND	ND	ND	100,000 J	73,600 J	12,100	ND	ND	ND	ND
Hexachlorocyclopentadiene													
2,4,6-Trichlorophenol													
2,4,5-Trichlorophenol													
2-Chloronaphthalene													
2-Nitroaniline													
Dimethylphthalate													
Acenaphthylene													
3-Nitroaniline													
Acenaphthene													
2,4-Dichlorophenol													
4-Nitrophenol													
Dibenzofuran													
2,6-Dinitrotoluene													
2,4-Dinitrotoluene													
Diethylphthalate													
4-Chlorophenyl-phenylether													
Fluorene													
4-Nitroaniline													
4,6-Dinitro-2-Methylphenol													
N-Nitrosodiphenylamine													
4-Bromophenyl-phenylether													
Hexachlorobenzene													
Pentachlorophenol													
Phenanthrene													
Carbazole													
Anthracene													
Di-n-Butylphthalate													
Fluoranthene													
Pyrene													
Butylbenzylphthalate													
3,3'-Dichlorobenzidine													
Benzo(a)anthracene													
bis(2-Ethylhexyl)phthalate													
Chrysene													
Di-n-Octyl phthalate													
Benzo(b)fluoranthene													
Benzo(k)fluoranthene													
Benzo(a)pyrene													
Indeno(1,2,3-cd)pyrene													
Dibenz(a,h)anthracene													
Benzo(g,h,i)perylene													
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-7 (2-3) KW18C 4/24/2007	D-7A-7 (3-4) KW18D 4/24/2007	D-7A-7 (4-5) KW16H/KW18E 4/24/2007	D-7A-7 (5-6) KW16I/KW18F/KW40D 4/24/2007	D-7A-7 (6-7) KW18G 4/24/2007	D-7A-7 (7-8) KW18H 4/24/2007	D-7A-8 (0-0.5) KW18L/KX04G 4/24/2007	D-7A-8 (1-2) KW18M/KY09G/LA46J 4/24/2007	D-7A-8 (2-3) KW18N 4/24/2007	D-7A-9 (0-0.5) KW17P/KX04D/LA45A 4/24/2007	D-7A-9 (1-2) KW17Q/KY09D/LB43B 4/24/2007	D-7A-9 (2-3) KW17R 4/24/2007	D-7A-9 (5-6) KW16D/KW40B 4/24/2007
<b>CONVENTIONAL PARAMETERS</b>													
Hexavalent Chrome (mg/kg)													
Total Solids (%)													
pH (Std Units)													
<b>PETROLEUM HYDROCARBONS</b>													
<b>NWTPH-HCID (mg/kg)</b>													
Gasoline			20 U	>250									>1200
Diesel			50 U	>620									>2900
Motor Oil			100 U	1200 U									5900 U
<b>NWTPH-Dx (mg/kg)</b>													
Diesel	5.3 U	5.2 U	6.4 U	7500	31	360	76		5.4 U	5.4 U	6.2	18	6.8 U
Motor Oil	10 U	10 U	13 U	1100	13 U	19	920		13	11 U	10 U	110	14 U
<b>Gasoline (mg/kg)</b>													
<b>Method 8021/NWTPH-G</b>													
Gasoline				210									7,000
<b>BTEX (ug/kg)</b>													
<b>Method 8021</b>													
Benzene				39 U									360 U
Toluene				39 U									360 U
Ethylbenzene				92									6,300
m,p-Xylene				77 U									710 U
o-Xylene				56									3,100
<b>cPAHs/Naphthalenes (ug/kg)</b>													
<b>SW8270C-SIM</b>													
Naphthalene													
2-Methylnaphthalene													
1-Methylnaphthalene													
Benzo[a]anthracene									60 UJ			65 UJ	
Chrysene									60 UJ			65 UJ	
Benzo[b]fluoranthene									60 UJ			65 UJ	
Benzo[k]fluoranthene									60 UJ			65 UJ	
Benzo[a]pyrene									60 UJ			65 UJ	
Indeno[1,2,3-cd]pyrene									60 UJ			65 UJ	
Dibenz[a,h]anthracene									60 UJ			65 UJ	
Acenaphthene													
Acenaphthylene													
Anthracene													
Benzo[g,h,i]perylene													
Fluoranthene													
Fluorene													
Phenanthrene													
Pyrene													
cPAH TEQ									ND			ND	
<b>PCBs (ug/kg)</b>													
<b>Method SW8082</b>													
Aroclor-1016													
Aroclor-1242													
Aroclor-1248													
Aroclor-1254													
Aroclor-1260													
Aroclor-1221													
Aroclor-1232													
Total PCBs													
<b>TOTAL METALS (mg/kg)</b>													
<b>SW6000-7000 Series</b>													
Arsenic							60		6		100	6	
Barium													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-7 (2-3) KW18C 4/24/2007	D-7A-7 (3-4) KW18D 4/24/2007	D-7A-7 (4-5) KW16H/KW18E 4/24/2007	D-7A-7 (5-6) KW16I/KW18F/KW40D 4/24/2007	D-7A-7 (6-7) KW18G 4/24/2007	D-7A-7 (7-8) KW18H 4/24/2007	D-7A-8 (0-0.5) KW18L/KX04G 4/24/2007	D-7A-8 (1-2) KW18M/KY09G/LA46J 4/24/2007	D-7A-8 (2-3) KW18N 4/24/2007	D-7A-9 (0-0.5) KW17P/KX04D/LA45A 4/24/2007	D-7A-9 (1-2) KW17Q/KY09D/LB43B 4/24/2007	D-7A-9 (2-3) KW17R 4/24/2007	D-7A-9 (5-6) KW16D/KW40B 4/24/2007
Cadmium													
Chromium													
Copper													
Lead													
Mercury													
Selenium													
Silver													
Zinc													
<b>TCLP METALS (mg/L)</b>													
<b>Method 6010B</b>													
Arsenic										0.2 U			
Barium													
Cadmium													
Chromium													
Lead													
Mercury													
Selenium													
Silver													
<b>TRIBUTYL TIN (ug/kg)</b>													
<b>TBT Ion by SIM</b>													
Tributyl Tin Chloride													
Dibutyl Tin Dichloride													
Butyl Tin Trichloride													
TBT as Tin ion													
<b>EPH (ug/kg)</b>													
<b>EPH 8015B</b>													
C8-C10 Aliphatics													
C10-C12 Aliphatics													
C12-C16 Aliphatics													
C16-C21 Aliphatics													
C21-C34 Aliphatics													
C8-C10 Aromatics													
C10-C12 Aromatics													
C12-C16 Aromatics													
C16-C21 Aromatics													
C21-C34 Aromatics													
Hazard Index													
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>													
<b>Method 8260B</b>													
Chloromethane													
Bromomethane													
Vinyl chloride													
Chloroethane													
Methylene chloride													
Acetone													
Carbon disulfide													
1,1-Dichloroethene													
1,1-Dichloroethane													
trans-1,2-Dichloroethene													
cis-1,2-Dichloroethene													
Chloroform													
1,2-Dichloroethane													
Methyl ethyl ketone													
1,1,1-Trichloroethane													
Carbon tetrachloride													
Vinyl acetate													
Bromodichloromethane													
1,2-Dichloropropane													
cis-1,3-Dichloropropene													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-7 (2-3) KW18C 4/24/2007	D-7A-7 (3-4) KW18D 4/24/2007	D-7A-7 (4-5) KW16H/KW18E 4/24/2007	D-7A-7 (5-6) KW16I/KW18F/KW40D 4/24/2007	D-7A-7 (6-7) KW18G 4/24/2007	D-7A-7 (7-8) KW18H 4/24/2007	D-7A-8 (0-0.5) KW18L/KX04G 4/24/2007	D-7A-8 (1-2) KW18M/KY09G/LA46J 4/24/2007	D-7A-8 (2-3) KW18N 4/24/2007	D-7A-9 (0-0.5) KW17P/KX04D/LA45A 4/24/2007	D-7A-9 (1-2) KW17Q/KY09D/LB43B 4/24/2007	D-7A-9 (2-3) KW17R 4/24/2007	D-7A-9 (5-6) KW16D/KW40B 4/24/2007
Trichloroethene													
Dibromochloromethane													
1,1,2-Trichloroethane													
Benzene													
trans-1,3-Dichloropropene													
2-Chloroethylvinylether													
Bromoform													
4-Methyl-2-Pentanone (MIBK)													
2-Hexanone													
Tetrachloroethene													
1,1,2,2-Tetrachloroethane													
Toluene													
Chlorobenzene													
Ethylbenzene													
Styrene													
Trichlorofluoromethane													
1,1,2-Trichloro-1,2,2-trifluoroethane													
m,p-Xylene													
o-Xylene													
1,2-Dichlorobenzene													
1,3-Dichlorobenzene													
1,4-Dichlorobenzene													
Acrolein													
Methyl Iodide													
Bromoethane													
Acrylonitrile													
1,1-Dichloropropene													
Dibromomethane													
1,1,1,2-Tetrachloroethane													
1,2-Dibromo-3-chloropropane													
1,2,3-Trichloropropane													
trans-1,4-Dichloro-2-butene													
1,3,5-Trimethylbenzene													
1,2,4-Trimethylbenzene													
Hexachlorobutadiene													
Ethylene Dibromide													
Bromochloromethane													
2,2-Dichloropropane													
1,3-Dichloropropane													
Isopropylbenzene													
n-Propylbenzene													
Bromobenzene													
2-Chlorotoluene													
4-Chlorotoluene													
tert-Butylbenzene													
sec-Butylbenzene													
4-Isopropyltoluene													
n-Butylbenzene													
1,2,4-Trichlorobenzene													
Naphthalene													
1,2,3-Trichlorobenzene													
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)													
Method 8270C													
Phenol													
Bis-(2-Chloroethyl) Ether													
2-Chlorophenol													
1,3-Dichlorobenzene													
1,4-Dichlorobenzene													
Benzyl Alcohol													
1,2-Dichlorobenzene													
2-Methylphenol													
2,2'-Oxybis(1-Chloropropane)													
4-Methylphenol													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-7 (2-3) KW18C 4/24/2007	D-7A-7 (3-4) KW18D 4/24/2007	D-7A-7 (4-5) KW16H/KW18E 4/24/2007	D-7A-7 (5-6) KW16I/KW18F/KW40D 4/24/2007	D-7A-7 (6-7) KW18G 4/24/2007	D-7A-7 (7-8) KW18H 4/24/2007	D-7A-8 (0-0.5) KW18L/KX04G 4/24/2007	D-7A-8 (1-2) KW18M/KY09G/LA46J 4/24/2007	D-7A-8 (2-3) KW18N 4/24/2007	D-7A-9 (0-0.5) KW17P/KX04D/LA45A 4/24/2007	D-7A-9 (1-2) KW17Q/KY09D/LB43B 4/24/2007	D-7A-9 (2-3) KW17R 4/24/2007	D-7A-9 (5-6) KW16D/KW40B 4/24/2007
N-Nitroso-Di-N-Propylamine													
Hexachloroethane													
Nitrobenzene													
Isophorone													
2-Nitrophenol													
2,4-Dimethylphenol													
Benzoic Acid													
bis(2-Chloroethoxy) Methane													
2,4-Dinitrophenol													
1,2,4-Trichlorobenzene													
Naphthalene	66 U	65 U	64 U	9,100	210	64 U	110 J	63 U	64 U	65 U	65 U	65 U	
4-Chloroaniline													
Hexachlorobutadiene													
4-Chloro-3-methylphenol													
2-Methylnaphthalene	66 U	65 U	70	49,000	380	360	63 UJ	63 U	64 U	65 U	65 U	65 U	
1-Methylnaphthalene	66 U	65 U	66	25,000	230	250	63 UJ	63 U	64 U	65 U	65 U	65 U	
Total naphthalenes	ND	ND	136	83,100	820	610	110 J	ND	ND	ND	ND	ND	
Hexachlorocyclopentadiene													
2,4,6-Trichlorophenol													
2,4,5-Trichlorophenol													
2-Chloronaphthalene													
2-Nitroaniline													
Dimethylphthalate													
Acenaphthylene													
3-Nitroaniline													
Acenaphthene													
2,4-Dichlorophenol													
4-Nitrophenol													
Dibenzofuran													
2,6-Dinitrotoluene													
2,4-Dinitrotoluene													
Diethylphthalate													
4-Chlorophenyl-phenylether													
Fluorene													
4-Nitroaniline													
4,6-Dinitro-2-Methylphenol													
N-Nitrosodiphenylamine													
4-Bromophenyl-phenylether													
Hexachlorobenzene													
Pentachlorophenol													
Phenanthrene													
Carbazole													
Anthracene													
Di-n-Butylphthalate													
Fluoranthene													
Pyrene													
Butylbenzylphthalate													
3,3'-Dichlorobenzidine													
Benzo(a)anthracene													
bis(2-Ethylhexyl)phthalate													
Chrysene													
Di-n-Octyl phthalate													
Benzo(b)fluoranthene													
Benzo(k)fluoranthene													
Benzo(a)pyrene													
Indeno(1,2,3-cd)pyrene													
Dibenz(a,h)anthracene													
Benzo(g,h,i)perylene													
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)													

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-9 (6-7) KW16E 4/24/2007	D-7A-9 (7-8) KW16F/KW40C 4/24/2007	D-7A-9 (8-9) KW16G 4/24/2007	D-7A-10 (0-0.5) KW18I/KX04F 4/24/2007	D-7A-10 (1-2) KW18J/KY09F/LA46I 4/24/2007	Duplicate D-7A-10 (1-2) LB43A 4/24/2007	D-7A-10 (2-3) KW18K/LC11A 4/24/2007	D-8-CS-3 (2.5-3.5) GI08G 2/11/2004	D-8-1 (0-0.5) KW35E/KX38R 4/25/2007	D-8-1 (1-2) KW35F 4/25/2007	D-8-2 (0-0.5) KW35C/KX38Q 4/25/2007	D-8-2 (1-2) KW35D 4/25/2007	D-8-3 (0-0.5) KW35A/KX38P 4/25/2007	D-8-3 (1-2) KW35B 4/25/2007
<b>CONVENTIONAL PARAMETERS</b>														
Hexavalent Chrome (mg/kg)														
Total Solids (%)														
pH (Std Units)														
<b>PETROLEUM HYDROCARBONS</b>														
<b>NWTPH-HCID (mg/kg)</b>														
Gasoline	20 U	>20	20 U											
Diesel	50 U	>50	50 U											
Motor Oil	100 U	100 U	100 U											
<b>NWTPH-Dx (mg/kg)</b>														
Diesel				210	290		5.4 U							
Motor Oil				1000	2500		20							
<b>Gasoline (mg/kg)</b>														
<b>Method 8021/NWTPH-G</b>														
Gasoline		89												
<b>BTEX (ug/kg)</b>														
<b>Method 8021</b>														
Benzene		38												
Toluene		27 U												
Ethylbenzene		38												
m,p-Xylene		54 U												
o-Xylene		27 U												
<b>cPAHs/Naphthalenes (ug/kg)</b>														
<b>SW8270C-SIM</b>														
Naphthalene														
2-Methylnaphthalene														
1-Methylnaphthalene														
Benzo[a]anthracene					520 J	410 J	64 UJ	7.2 U	65 U		64 U		66 U	
Chrysene					770 J	1200 J	64 UJ	7.2 U	76		64 U		88	
Benzo[b]fluoranthene					710 J	1200 J	64 UJ	7.2 U	99		64 U		96	
Benzo[k]fluoranthene					600 J	1000 J	64 UJ	7.2 U	65 U		64 U		82	
Benzo[a]pyrene					530 J	550 J	64 UJ	7.2 U	65 U		64 U		66 U	
Indeno[1,2,3-cd]pyrene					240 J	380 J	64 UJ	7.2 U	65 U		64 U		66 U	
Dibenz[a,h]anthracene					65 UJ	88 J	64 UJ	7.2 U	65 U		64 U		66 U	
Acenaphthene														
Acenaphthylene														
Anthracene														
Benzo[g,h,i]perylene														
Fluoranthene														
Fluorene														
Phenanthrene														
Pyrene														
cPAH TEQ					745 J	896 J	ND	ND	11		ND		19	
<b>PCBs (ug/kg)</b>														
<b>Method SW8082</b>														
Aroclor-1016														
Aroclor-1242														
Aroclor-1248														
Aroclor-1254														
Aroclor-1260														
Aroclor-1221														
Aroclor-1232														
Total PCBs														
<b>TOTAL METALS (mg/kg)</b>														
<b>SW6000-7000 Series</b>														
Arsenic				40	11				5	5 U	8	5 U	6	6
Barium														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-9 (6-7) KW16E 4/24/2007	D-7A-9 (7-8) KW16F/KW40C 4/24/2007	D-7A-9 (8-9) KW16G 4/24/2007	D-7A-10 (0-0.5) KW18I/KX04F 4/24/2007	D-7A-10 (1-2) KW18J/KY09F/LA46I 4/24/2007	Duplicate D-7A-10 (1-2) LB43A 4/24/2007	D-7A-10 (2-3) KW18K/LC11A 4/24/2007	D-8-CS-3 (2.5-3.5) GI08G 2/11/2004	D-8-1 (0-0.5) KW35E/KX38R 4/25/2007	D-8-1 (1-2) KW35F 4/25/2007	D-8-2 (0-0.5) KW35C/KX38Q 4/25/2007	D-8-2 (1-2) KW35D 4/25/2007	D-8-3 (0-0.5) KW35A/KX38P 4/25/2007	D-8-3 (1-2) KW35B 4/25/2007
Cadmium														
Chromium														
Copper														
Lead														
Mercury														
Selenium														
Silver														
Zinc														
<b>TCLP METALS (mg/L)</b>														
<b>Method 6010B</b>														
Arsenic														
Barium														
Cadmium														
Chromium														
Lead														
Mercury														
Selenium														
Silver														
<b>TRIBUTYL TIN (ug/kg)</b>														
<b>TBT Ion by SIM</b>														
Tributyl Tin Chloride														
Dibutyl Tin Dichloride														
Butyl Tin Trichloride														
TBT as Tin ion														
<b>EPH (ug/kg)</b>														
<b>EPH 8015B</b>														
C8-C10 Aliphatics														
C10-C12 Aliphatics														
C12-C16 Aliphatics														
C16-C21 Aliphatics														
C21-C34 Aliphatics														
C8-C10 Aromatics														
C10-C12 Aromatics														
C12-C16 Aromatics														
C16-C21 Aromatics														
C21-C34 Aromatics														
Hazard Index														
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>														
<b>Method 8260B</b>														
Chloromethane														
Bromomethane														
Vinyl chloride														
Chloroethane														
Methylene chloride														
Acetone														
Carbon disulfide														
1,1-Dichloroethene														
1,1-Dichloroethane														
trans-1,2-Dichloroethene														
cis-1,2-Dichloroethene														
Chloroform														
1,2-Dichloroethane														
Methyl ethyl ketone														
1,1,1-Trichloroethane														
Carbon tetrachloride														
Vinyl acetate														
Bromodichloromethane														
1,2-Dichloropropane														
cis-1,3-Dichloropropene														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-9 (6-7) KW16E 4/24/2007	D-7A-9 (7-8) KW16F/KW40C 4/24/2007	D-7A-9 (8-9) KW16G 4/24/2007	D-7A-10 (0-0.5) KW18I/KX04F 4/24/2007	D-7A-10 (1-2) KW18J/KY09F/LA46I 4/24/2007	Duplicate D-7A-10 (1-2) LB43A 4/24/2007	D-7A-10 (2-3) KW18K/LC11A 4/24/2007	D-8-CS-3 (2.5-3.5) GI08G 2/11/2004	D-8-1 (0-0.5) KW35E/KX38R 4/25/2007	D-8-1 (1-2) KW35F 4/25/2007	D-8-2 (0-0.5) KW35C/KX38Q 4/25/2007	D-8-2 (1-2) KW35D 4/25/2007	D-8-3 (0-0.5) KW35A/KX38P 4/25/2007	D-8-3 (1-2) KW35B 4/25/2007
Trichloroethene														
Dibromochloromethane														
1,1,2-Trichloroethane														
Benzene														
trans-1,3-Dichloropropene														
2-Chloroethylvinylether														
Bromoform														
4-Methyl-2-Pentanone (MIBK)														
2-Hexanone														
Tetrachloroethene														
1,1,2,2-Tetrachloroethane														
Toluene														
Chlorobenzene														
Ethylbenzene														
Styrene														
Trichlorofluoromethane														
1,1,2-Trichloro-1,2,2-trifluoroethane														
m,p-Xylene														
o-Xylene														
1,2-Dichlorobenzene														
1,3-Dichlorobenzene														
1,4-Dichlorobenzene														
Acrolein														
Methyl Iodide														
Bromoethane														
Acrylonitrile														
1,1-Dichloropropene														
Dibromomethane														
1,1,1,2-Tetrachloroethane														
1,2-Dibromo-3-chloropropane														
1,2,3-Trichloropropane														
trans-1,4-Dichloro-2-butene														
1,3,5-Trimethylbenzene														
1,2,4-Trimethylbenzene														
Hexachlorobutadiene														
Ethylene Dibromide														
Bromochloromethane														
2,2-Dichloropropane														
1,3-Dichloropropane														
Isopropylbenzene														
n-Propylbenzene														
Bromobenzene														
2-Chlorotoluene														
4-Chlorotoluene														
tert-Butylbenzene														
sec-Butylbenzene														
4-Isopropyltoluene														
n-Butylbenzene														
1,2,4-Trichlorobenzene														
Naphthalene														
1,2,3-Trichlorobenzene														
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)														
Method 8270C														
Phenol														
Bis-(2-Chloroethyl) Ether														
2-Chlorophenol														
1,3-Dichlorobenzene														
1,4-Dichlorobenzene														
Benzyl Alcohol														
1,2-Dichlorobenzene														
2-Methylphenol														
2,2'-Oxybis(1-Chloropropane)														
4-Methylphenol														



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-7A-9 (6-7) KW16E 4/24/2007	D-7A-9 (7-8) KW16F/KW40C 4/24/2007	D-7A-9 (8-9) KW16G 4/24/2007	D-7A-10 (0-0.5) KW18I/KX04F 4/24/2007	D-7A-10 (1-2) KW18J/KY09F/LA46I 4/24/2007	Duplicate D-7A-10 (1-2) LB43A 4/24/2007	D-7A-10 (2-3) KW18K/LC11A 4/24/2007	D-8-CS-3 (2.5-3.5) GI08G 2/11/2004	D-8-1 (0-0.5) KW35E/KX38R 4/25/2007	D-8-1 (1-2) KW35F 4/25/2007	D-8-2 (0-0.5) KW35C/KX38Q 4/25/2007	D-8-2 (1-2) KW35D 4/25/2007	D-8-3 (0-0.5) KW35A/KX38P 4/25/2007	D-8-3 (1-2) KW35B 4/25/2007
N-Nitroso-Di-N-Propylamine														
Hexachloroethane														
Nitrobenzene														
Isophorone														
2-Nitrophenol														
2,4-Dimethylphenol														
Benzoic Acid														
bis(2-Chloroethoxy) Methane														
2,4-Dinitrophenol														
1,2,4-Trichlorobenzene														
Naphthalene				64 UJ	81 J		64 U							
4-Chloroaniline														
Hexachlorobutadiene														
4-Chloro-3-methylphenol														
2-Methylnaphthalene				64 UJ	99 J		64 U							
1-Methylnaphthalene				64 UJ	110 J		64 U							
Total naphthalenes				ND	290 J		ND							
Hexachlorocyclopentadiene														
2,4,6-Trichlorophenol														
2,4,5-Trichlorophenol														
2-Chloronaphthalene														
2-Nitroaniline														
Dimethylphthalate														
Acenaphthylene														
3-Nitroaniline														
Acenaphthene														
2,4-Dichlorophenol														
4-Nitrophenol														
Dibenzofuran														
2,6-Dinitrotoluene														
2,4-Dinitrotoluene														
Diethylphthalate														
4-Chlorophenyl-phenylether														
Fluorene														
4-Nitroaniline														
4,6-Dinitro-2-Methylphenol														
N-Nitrosodiphenylamine														
4-Bromophenyl-phenylether														
Hexachlorobenzene														
Pentachlorophenol														
Phenanthrene														
Carbazole														
Anthracene														
Di-n-Butylphthalate														
Fluoranthene														
Pyrene														
Butylbenzylphthalate														
3,3'-Dichlorobenzidine														
Benzo(a)anthracene														
bis(2-Ethylhexyl)phthalate														
Chrysene														
Di-n-Octyl phthalate														
Benzo(b)fluoranthene														
Benzo(k)fluoranthene														
Benzo(a)pyrene														
Indeno(1,2,3-cd)pyrene														
Dibenz(a,h)anthracene														
Benzo(g,h,i)perylene														
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-8-4 (0-0.5) KW30S/KX38J 4/25/2007
CONVENTIONAL PARAMETERS	
Hexavalent Chrome (mg/kg)	
Total Solids (%)	
pH (Std Units)	
PETROLEUM HYDROCARBONS	
NWTPH-HCID (mg/kg)	
Gasoline	
Diesel	
Motor Oil	
NWTPH-Dx (mg/kg)	
Diesel	
Motor Oil	
Gasoline (mg/kg)	
Method 8021/NWTPH-G	
Gasoline	
BTEX (ug/kg)	
Method 8021	
Benzene	
Toluene	
Ethylbenzene	
m,p-Xylene	
o-Xylene	
cPAHs/Naphthalenes (ug/kg)	
SW8270C-SIM	
Naphthalene	
2-Methylnaphthalene	
1-Methylnaphthalene	
Benzo[a]anthracene	64 U
Chrysene	64 U
Benzo[b]fluoranthene	64 U
Benzo[k]fluoranthene	64 U
Benzo[a]pyrene	64 U
Indeno[1,2,3-cd]pyrene	64 U
Dibenz[a,h]anthracene	64 U
Acenaphthene	
Acenaphthylene	
Anthracene	
Benzo[g,h,i]perylene	
Fluoranthene	
Fluorene	
Phenanthrene	
Pyrene	
cPAH TEQ	ND
PCBs (ug/kg)	
Method SW8082	
Aroclor-1016	
Aroclor-1242	
Aroclor-1248	
Aroclor-1254	
Aroclor-1260	
Aroclor-1221	
Aroclor-1232	
Total PCBs	
TOTAL METALS (mg/kg)	
SW6000-7000 Series	
Arsenic	6
Barium	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

D-8-4  
(0-0.5)  
KW30S/KX38J  
4/25/2007

Cadmium  
Chromium  
Copper  
Lead  
Mercury  
Selenium  
Silver  
Zinc

**TCLP METALS (mg/L)**  
**Method 6010B**  
Arsenic  
Barium  
Cadmium  
Chromium  
Lead  
Mercury  
Selenium  
Silver

**TRIBUTYL TIN (ug/kg)**  
**TBT Ion by SIM**  
Tributyl Tin Chloride  
Dibutyl Tin Dichloride  
Butyl Tin Trichloride  
TBT as Tin ion

**EPH (ug/kg)**  
**EPH 8015B**  
C8-C10 Aliphatics  
C10-C12 Aliphatics  
C12-C16 Aliphatics  
C16-C21 Aliphatics  
C21-C34 Aliphatics  
C8-C10 Aromatics  
C10-C12 Aromatics  
C12-C16 Aromatics  
C16-C21 Aromatics  
C21-C34 Aromatics

Hazard Index

**VOLATILE ORGANIC COMPOUNDS (ug/kg)**  
**Method 8260B**  
Chloromethane  
Bromomethane  
Vinyl chloride  
Chloroethane  
Methylene chloride  
Acetone  
Carbon disulfide  
1,1-Dichloroethene  
1,1-Dichloroethane  
trans-1,2-Dichloroethene  
cis-1,2-Dichloroethene  
Chloroform  
1,2-Dichloroethane  
Methyl ethyl ketone  
1,1,1-Trichloroethane  
Carbon tetrachloride  
Vinyl acetate  
Bromodichloromethane  
1,2-Dichloropropane  
cis-1,3-Dichloropropene

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-8-4 (0-0.5) KW30S/KX38J 4/25/2007
Trichloroethene	
Dibromochloromethane	
1,1,2-Trichloroethane	
Benzene	
trans-1,3-Dichloropropene	
2-Chloroethylvinylether	
Bromoform	
4-Methyl-2-Pentanone (MIBK)	
2-Hexanone	
Tetrachloroethene	
1,1,2,2-Tetrachloroethane	
Toluene	
Chlorobenzene	
Ethylbenzene	
Styrene	
Trichlorofluoromethane	
1,1,2-Trichloro-1,2,2-trifluoroethane	
m,p-Xylene	
o-Xylene	
1,2-Dichlorobenzene	
1,3-Dichlorobenzene	
1,4-Dichlorobenzene	
Acrolein	
Methyl Iodide	
Bromoethane	
Acrylonitrile	
1,1-Dichloropropene	
Dibromomethane	
1,1,1,2-Tetrachloroethane	
1,2-Dibromo-3-chloropropane	
1,2,3-Trichloropropane	
trans-1,4-Dichloro-2-butene	
1,3,5-Trimethylbenzene	
1,2,4-Trimethylbenzene	
Hexachlorobutadiene	
Ethylene Dibromide	
Bromochloromethane	
2,2-Dichloropropane	
1,3-Dichloropropane	
Isopropylbenzene	
n-Propylbenzene	
Bromobenzene	
2-Chlorotoluene	
4-Chlorotoluene	
tert-Butylbenzene	
sec-Butylbenzene	
4-Isopropyltoluene	
n-Butylbenzene	
1,2,4-Trichlorobenzene	
Naphthalene	
1,2,3-Trichlorobenzene	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)	
Method 8270C	
Phenol	
Bis-(2-Chloroethyl) Ether	
2-Chlorophenol	
1,3-Dichlorobenzene	
1,4-Dichlorobenzene	
Benzyl Alcohol	
1,2-Dichlorobenzene	
2-Methylphenol	
2,2'-Oxybis(1-Chloropropane)	
4-Methylphenol	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

D-8-4  
(0-0.5)  
KW30S/KX38J  
4/25/2007

N-Nitroso-Di-N-Propylamine  
Hexachloroethane  
Nitrobenzene  
Isophorone  
2-Nitrophenol  
2,4-Dimethylphenol  
Benzoic Acid  
bis(2-Chloroethoxy) Methane  
2,4-Dinitrophenol  
1,2,4-Trichlorobenzene  
Naphthalene  
4-Chloroaniline  
Hexachlorobutadiene  
4-Chloro-3-methylphenol  
2-Methylnaphthalene  
1-Methylnaphthalene  
Total naphthalenes  
Hexachlorocyclopentadiene  
2,4,6-Trichlorophenol  
2,4,5-Trichlorophenol  
2-Chloronaphthalene  
2-Nitroaniline  
Dimethylphthalate  
Acenaphthylene  
3-Nitroaniline  
Acenaphthene  
2,4-Dichlorophenol  
4-Nitrophenol  
Dibenzofuran  
2,6-Dinitrotoluene  
2,4-Dinitrotoluene  
Diethylphthalate  
4-Chlorophenyl-phenylether  
Fluorene  
4-Nitroaniline  
4,6-Dinitro-2-Methylphenol  
N-Nitrosodiphenylamine  
4-Bromophenyl-phenylether  
Hexachlorobenzene  
Pentachlorophenol  
Phenanthrene  
Carbazole  
Anthracene  
Di-n-Butylphthalate  
Fluoranthene  
Pyrene  
Butylbenzylphthalate  
3,3'-Dichlorobenzidine  
Benzo(a)anthracene  
bis(2-Ethylhexyl)phthalate  
Chrysene  
Di-n-Octyl phthalate  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a)pyrene  
Indeno(1,2,3-cd)pyrene  
Dibenz(a,h)anthracene  
Benzo(g,h,i)perylene

EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-8-4 (1-2) KW30T 4/25/2007	D-9-1 (0-0.5) KW48AG/KX96K 4/26/2007	D-9-1 (1-2) KY85B 4/26/2007	D-9-1 (2-3) KZ97A 4/26/2007	D-9-2 (0-0.5) KW48AH 4/26/2007	D-9-2 (1-2) KX96L/LA46B 4/26/2007	D-9-3 (0-0.5) KW48AI/KX96M 4/26/2007	D-9-4 (0-0.5) KW48AJ 4/26/2007	D-9-4 (1-2) KX96N 4/26/2007	D-9-4 (2-3) KY85C 4/26/2007	D-9-5 (0-0.5) KW48AK/KX96O 4/26/2007	DX-1 (0-0.5) KX54A/KY42J 4/25/2007	DX-2 (0-0.5) KX54B/KY42K 4/25/2007	DX-2 (1-2) KZ32C 4/25/2007
<b>CONVENTIONAL PARAMETERS</b>														
Hexavalent Chrome (mg/kg)														
Total Solids (%)														
pH (Std Units)														
<b>PETROLEUM HYDROCARBONS</b>														
<b>NWTPH-HCID (mg/kg)</b>														
Gasoline														
Diesel														
Motor Oil														
<b>NWTPH-Dx (mg/kg)</b>														
Diesel														
Motor Oil														
<b>Gasoline (mg/kg)</b>														
<b>Method 8021/NWTPH-G</b>														
Gasoline														
<b>BTEX (ug/kg)</b>														
<b>Method 8021</b>														
Benzene														
Toluene														
Ethylbenzene														
m,p-Xylene														
o-Xylene														
<b>cPAHs/Naphthalenes (ug/kg)</b>														
<b>SW8270C-SIM</b>														
Naphthalene														
2-Methylnaphthalene														
1-Methylnaphthalene														
Benzo[a]anthracene		300	84 J	65 UJ		64 UJ	64 U				65 U	65 UJ	460 J	65 UJ
Chrysene		550	260 J	65 UJ		87 J	64 U				65 U	76 J	560 J	65 UJ
Benzo[b]fluoranthene		390	170 J	65 UJ		79 J	64 U				65 U	65 UJ	470 J	65 UJ
Benzo[k]fluoranthene		510	180 J	65 UJ		66 J	64 U				65 U	91 J	360 J	65 UJ
Benzo[a]pyrene		340	110 J	65 UJ		64 UJ	64 U				65 U	65 UJ	290 J	65 UJ
Indeno[1,2,3-cd]pyrene		190	92 J	65 UJ		64 UJ	64 U				65 U	65 UJ	140 J	65 UJ
Dibenz[a,h]anthracene		64 U	65 UJ	65 UJ		64 UJ	64 U				65 U	65 UJ	66 UJ	65 UJ
Acenaphthene														
Acenaphthylene														
Anthracene														
Benzo[g,h,i]perylene														
Fluoranthene														
Fluorene														
Phenanthrene														
Pyrene														
cPAH TEQ		485	165 J	ND		15.4 J	ND				ND	9.9 J	439 J	ND
<b>PCBs (ug/kg)</b>														
<b>Method SW8082</b>														
Aroclor-1016														
Aroclor-1242														
Aroclor-1248														
Aroclor-1254														
Aroclor-1260														
Aroclor-1221														
Aroclor-1232														
Total PCBs														
<b>TOTAL METALS (mg/kg)</b>														
<b>SW6000-7000 Series</b>														
Arsenic	5	20			30	10	7	50	32	6 U	12	6	10	
Barium														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-8-4 (1-2) KW30T 4/25/2007	D-9-1 (0-0.5) KW48AG/KX96K 4/26/2007	D-9-1 (1-2) KY85B 4/26/2007	D-9-1 (2-3) KZ97A 4/26/2007	D-9-2 (0-0.5) KW48AH 4/26/2007	D-9-2 (1-2) KX96L/LA46B 4/26/2007	D-9-3 (0-0.5) KW48AI/KX96M 4/26/2007	D-9-4 (0-0.5) KW48AJ 4/26/2007	D-9-4 (1-2) KX96N 4/26/2007	D-9-4 (2-3) KY85C 4/26/2007	D-9-5 (0-0.5) KW48AK/KX96O 4/26/2007	DX-1 (0-0.5) KX54A/KY42J 4/25/2007	DX-2 (0-0.5) KX54B/KY42K 4/25/2007	DX-2 (1-2) KZ32C 4/25/2007
Cadmium														
Chromium														
Copper														
Lead														
Mercury														
Selenium														
Silver														
Zinc														
<b>TCLP METALS (mg/L)</b>														
<b>Method 6010B</b>														
Arsenic														
Barium														
Cadmium														
Chromium														
Lead														
Mercury														
Selenium														
Silver														
<b>TRIBUTYL TIN (ug/kg)</b>														
<b>TBT Ion by SIM</b>														
Tributyl Tin Chloride														
Dibutyl Tin Dichloride														
Butyl Tin Trichloride														
TBT as Tin ion														
<b>EPH (ug/kg)</b>														
<b>EPH 8015B</b>														
C8-C10 Aliphatics														
C10-C12 Aliphatics														
C12-C16 Aliphatics														
C16-C21 Aliphatics														
C21-C34 Aliphatics														
C8-C10 Aromatics														
C10-C12 Aromatics														
C12-C16 Aromatics														
C16-C21 Aromatics														
C21-C34 Aromatics														
Hazard Index														
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>														
<b>Method 8260B</b>														
Chloromethane														
Bromomethane														
Vinyl chloride														
Chloroethane														
Methylene chloride														
Acetone														
Carbon disulfide														
1,1-Dichloroethene														
1,1-Dichloroethane														
trans-1,2-Dichloroethene														
cis-1,2-Dichloroethene														
Chloroform														
1,2-Dichloroethane														
Methyl ethyl ketone														
1,1,1-Trichloroethane														
Carbon tetrachloride														
Vinyl acetate														
Bromodichloromethane														
1,2-Dichloropropane														
cis-1,3-Dichloropropene														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-8-4 (1-2) KW30T 4/25/2007	D-9-1 (0-0.5) KW48AG/KX96K 4/26/2007	D-9-1 (1-2) KY85B 4/26/2007	D-9-1 (2-3) KZ97A 4/26/2007	D-9-2 (0-0.5) KW48AH 4/26/2007	D-9-2 (1-2) KX96L/LA46B 4/26/2007	D-9-3 (0-0.5) KW48AI/KX96M 4/26/2007	D-9-4 (0-0.5) KW48AJ 4/26/2007	D-9-4 (1-2) KX96N 4/26/2007	D-9-4 (2-3) KY85C 4/26/2007	D-9-5 (0-0.5) KW48AK/KX96O 4/26/2007	DX-1 (0-0.5) KX54A/KY42J 4/25/2007	DX-2 (0-0.5) KX54B/KY42K 4/25/2007	DX-2 (1-2) KZ32C 4/25/2007
Trichloroethene														
Dibromochloromethane														
1,1,2-Trichloroethane														
Benzene														
trans-1,3-Dichloropropene														
2-Chloroethylvinylether														
Bromoform														
4-Methyl-2-Pentanone (MIBK)														
2-Hexanone														
Tetrachloroethene														
1,1,2,2-Tetrachloroethane														
Toluene														
Chlorobenzene														
Ethylbenzene														
Styrene														
Trichlorofluoromethane														
1,1,2-Trichloro-1,2,2-trifluoroethane														
m,p-Xylene														
o-Xylene														
1,2-Dichlorobenzene														
1,3-Dichlorobenzene														
1,4-Dichlorobenzene														
Acrolein														
Methyl Iodide														
Bromoethane														
Acrylonitrile														
1,1-Dichloropropene														
Dibromomethane														
1,1,1,2-Tetrachloroethane														
1,2-Dibromo-3-chloropropane														
1,2,3-Trichloropropane														
trans-1,4-Dichloro-2-butene														
1,3,5-Trimethylbenzene														
1,2,4-Trimethylbenzene														
Hexachlorobutadiene														
Ethylene Dibromide														
Bromochloromethane														
2,2-Dichloropropane														
1,3-Dichloropropane														
Isopropylbenzene														
n-Propylbenzene														
Bromobenzene														
2-Chlorotoluene														
4-Chlorotoluene														
tert-Butylbenzene														
sec-Butylbenzene														
4-Isopropyltoluene														
n-Butylbenzene														
1,2,4-Trichlorobenzene														
Naphthalene														
1,2,3-Trichlorobenzene														
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)														
Method 8270C														
Phenol														
Bis-(2-Chloroethyl) Ether														
2-Chlorophenol														
1,3-Dichlorobenzene														
1,4-Dichlorobenzene														
Benzyl Alcohol														
1,2-Dichlorobenzene														
2-Methylphenol														
2,2'-Oxybis(1-Chloropropane)														
4-Methylphenol														



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	D-8-4 (1-2) KW30T 4/25/2007	D-9-1 (0-0.5) KW48AG/KX96K 4/26/2007	D-9-1 (1-2) KY85B 4/26/2007	D-9-1 (2-3) KZ97A 4/26/2007	D-9-2 (0-0.5) KW48AH 4/26/2007	D-9-2 (1-2) KX96L/LA46B 4/26/2007	D-9-3 (0-0.5) KW48AI/KX96M 4/26/2007	D-9-4 (0-0.5) KW48AJ 4/26/2007	D-9-4 (1-2) KX96N 4/26/2007	D-9-4 (2-3) KY85C 4/26/2007	D-9-5 (0-0.5) KW48AK/KX96O 4/26/2007	DX-1 (0-0.5) KX54A/KY42J 4/25/2007	DX-2 (0-0.5) KX54B/KY42K 4/25/2007	DX-2 (1-2) KZ32C 4/25/2007
N-Nitroso-Di-N-Propylamine														
Hexachloroethane														
Nitrobenzene														
Isophorone														
2-Nitrophenol														
2,4-Dimethylphenol														
Benzoic Acid														
bis(2-Chloroethoxy) Methane														
2,4-Dinitrophenol														
1,2,4-Trichlorobenzene														
Naphthalene														
4-Chloroaniline														
Hexachlorobutadiene														
4-Chloro-3-methylphenol														
2-Methylnaphthalene														
1-Methylnaphthalene														
Total naphthalenes														
Hexachlorocyclopentadiene														
2,4,6-Trichlorophenol														
2,4,5-Trichlorophenol														
2-Chloronaphthalene														
2-Nitroaniline														
Dimethylphthalate														
Acenaphthylene														
3-Nitroaniline														
Acenaphthene														
2,4-Dichlorophenol														
4-Nitrophenol														
Dibenzofuran														
2,6-Dinitrotoluene														
2,4-Dinitrotoluene														
Diethylphthalate														
4-Chlorophenyl-phenylether														
Fluorene														
4-Nitroaniline														
4,6-Dinitro-2-Methylphenol														
N-Nitrosodiphenylamine														
4-Bromophenyl-phenylether														
Hexachlorobenzene														
Pentachlorophenol														
Phenanthrene														
Carbazole														
Anthracene														
Di-n-Butylphthalate														
Fluoranthene														
Pyrene														
Butylbenzylphthalate														
3,3'-Dichlorobenzidine														
Benzo(a)anthracene														
bis(2-Ethylhexyl)phthalate														
Chrysene														
Di-n-Octyl phthalate														
Benzo(b)fluoranthene														
Benzo(k)fluoranthene														
Benzo(a)pyrene														
Indeno(1,2,3-cd)pyrene														
Dibenz(a,h)anthracene														
Benzo(g,h,i)perylene														
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	DX-3 (0-0.5) KX54C/KY42L 4/25/2007
CONVENTIONAL PARAMETERS	
Hexavalent Chrome (mg/kg)	
Total Solids (%)	
pH (Std Units)	
PETROLEUM HYDROCARBONS	
NWTPH-HCID (mg/kg)	
Gasoline	
Diesel	
Motor Oil	
NWTPH-Dx (mg/kg)	
Diesel	
Motor Oil	
Gasoline (mg/kg)	
Method 8021/NWTPH-G	
Gasoline	
BTEX (ug/kg)	
Method 8021	
Benzene	
Toluene	
Ethylbenzene	
m,p-Xylene	
o-Xylene	
cPAHs/Naphthalenes (ug/kg)	
SW8270C-SIM	
Naphthalene	
2-Methylnaphthalene	
1-Methylnaphthalene	
Benzo[a]anthracene	180 J
Chrysene	300 J
Benzo[b]fluoranthene	280 J
Benzo[k]fluoranthene	180 J
Benzo[a]pyrene	140 J
Indeno[1,2,3-cd]pyrene	69 J
Dibenz[a,h]anthracene	61 UJ
Acenaphthene	
Acenaphthylene	
Anthracene	
Benzo[g,h,i]perylene	
Fluoranthene	
Fluorene	
Phenanthrene	
Pyrene	
cPAH TEQ	214 J
PCBs (ug/kg)	
Method SW8082	
Aroclor-1016	
Aroclor-1242	
Aroclor-1248	
Aroclor-1254	
Aroclor-1260	
Aroclor-1221	
Aroclor-1232	
Total PCBs	
TOTAL METALS (mg/kg)	
SW6000-7000 Series	
Arsenic	9
Barium	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

DX-3  
(0-0.5)  
KX54C/KY42L  
4/25/2007

Cadmium  
Chromium  
Copper  
Lead  
Mercury  
Selenium  
Silver  
Zinc

**TCLP METALS (mg/L)**  
**Method 6010B**  
Arsenic  
Barium  
Cadmium  
Chromium  
Lead  
Mercury  
Selenium  
Silver

**TRIBUTYL TIN (ug/kg)**  
**TBT Ion by SIM**  
Tributyl Tin Chloride  
Dibutyl Tin Dichloride  
Butyl Tin Trichloride  
TBT as Tin ion

**EPH (ug/kg)**  
**EPH 8015B**  
C8-C10 Aliphatics  
C10-C12 Aliphatics  
C12-C16 Aliphatics  
C16-C21 Aliphatics  
C21-C34 Aliphatics  
C8-C10 Aromatics  
C10-C12 Aromatics  
C12-C16 Aromatics  
C16-C21 Aromatics  
C21-C34 Aromatics

Hazard Index

**VOLATILE ORGANIC COMPOUNDS (ug/kg)**  
**Method 8260B**  
Chloromethane  
Bromomethane  
Vinyl chloride  
Chloroethane  
Methylene chloride  
Acetone  
Carbon disulfide  
1,1-Dichloroethene  
1,1-Dichloroethane  
trans-1,2-Dichloroethene  
cis-1,2-Dichloroethene  
Chloroform  
1,2-Dichloroethane  
Methyl ethyl ketone  
1,1,1-Trichloroethane  
Carbon tetrachloride  
Vinyl acetate  
Bromodichloromethane  
1,2-Dichloropropane  
cis-1,3-Dichloropropene

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	DX-3 (0-0.5) KX54C/KY42L 4/25/2007
Trichloroethene	
Dibromochloromethane	
1,1,2-Trichloroethane	
Benzene	
trans-1,3-Dichloropropene	
2-Chloroethylvinylether	
Bromoform	
4-Methyl-2-Pentanone (MIBK)	
2-Hexanone	
Tetrachloroethene	
1,1,2,2-Tetrachloroethane	
Toluene	
Chlorobenzene	
Ethylbenzene	
Styrene	
Trichlorofluoromethane	
1,1,2-Trichloro-1,2,2-trifluoroethane	
m,p-Xylene	
o-Xylene	
1,2-Dichlorobenzene	
1,3-Dichlorobenzene	
1,4-Dichlorobenzene	
Acrolein	
Methyl Iodide	
Bromoethane	
Acrylonitrile	
1,1-Dichloropropene	
Dibromomethane	
1,1,1,2-Tetrachloroethane	
1,2-Dibromo-3-chloropropane	
1,2,3-Trichloropropane	
trans-1,4-Dichloro-2-butene	
1,3,5-Trimethylbenzene	
1,2,4-Trimethylbenzene	
Hexachlorobutadiene	
Ethylene Dibromide	
Bromochloromethane	
2,2-Dichloropropane	
1,3-Dichloropropane	
Isopropylbenzene	
n-Propylbenzene	
Bromobenzene	
2-Chlorotoluene	
4-Chlorotoluene	
tert-Butylbenzene	
sec-Butylbenzene	
4-Isopropyltoluene	
n-Butylbenzene	
1,2,4-Trichlorobenzene	
Naphthalene	
1,2,3-Trichlorobenzene	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)	
Method 8270C	
Phenol	
Bis-(2-Chloroethyl) Ether	
2-Chlorophenol	
1,3-Dichlorobenzene	
1,4-Dichlorobenzene	
Benzyl Alcohol	
1,2-Dichlorobenzene	
2-Methylphenol	
2,2'-Oxybis(1-Chloropropane)	
4-Methylphenol	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	DX-3 (0-0.5) KX54C/KY42L 4/25/2007
N-Nitroso-Di-N-Propylamine	
Hexachloroethane	
Nitrobenzene	
Isophorone	
2-Nitrophenol	
2,4-Dimethylphenol	
Benzoic Acid	
bis(2-Chloroethoxy) Methane	
2,4-Dinitrophenol	
1,2,4-Trichlorobenzene	
Naphthalene	
4-Chloroaniline	
Hexachlorobutadiene	
4-Chloro-3-methylphenol	
2-Methylnaphthalene	
1-Methylnaphthalene	
Total naphthalenes	
Hexachlorocyclopentadiene	
2,4,6-Trichlorophenol	
2,4,5-Trichlorophenol	
2-Chloronaphthalene	
2-Nitroaniline	
Dimethylphthalate	
Acenaphthylene	
3-Nitroaniline	
Acenaphthene	
2,4-Dichlorophenol	
4-Nitrophenol	
Dibenzofuran	
2,6-Dinitrotoluene	
2,4-Dinitrotoluene	
Diethylphthalate	
4-Chlorophenyl-phenylether	
Fluorene	
4-Nitroaniline	
4,6-Dinitro-2-Methylphenol	
N-Nitrosodiphenylamine	
4-Bromophenyl-phenylether	
Hexachlorobenzene	
Pentachlorophenol	
Phenanthrene	
Carbazole	
Anthracene	
Di-n-Butylphthalate	
Fluoranthene	
Pyrene	
Butylbenzylphthalate	
3,3'-Dichlorobenzidine	
Benzo(a)anthracene	
bis(2-Ethylhexyl)phthalate	
Chrysene	
Di-n-Octyl phthalate	
Benzo(b)fluoranthene	
Benzo(k)fluoranthene	
Benzo(a)pyrene	
Indeno(1,2,3-cd)pyrene	
Dibenz(a,h)anthracene	
Benzo(g,h,i)perylene	
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	DX-3 (1-2) KZ32B 4/25/2007	D-FA-15a (0-0.5) KX01A 4/30/2007	ACC- EAST SUMP HQ85M 1/28/2005	EBS-1 (1-1.5) KX36B 5/1/2007	EBS-1 (1.5-2.5) KZ32A 5/1/2007	EBS-2 (1-1.5) KX36F 5/1/2007	EBS-3 (0.9-1.4) KX36J 5/1/2007	EBS-1 (1-1.5) KX36B 5/1/2007	EBS-1 (1.5-2.5) KZ32A 5/1/2007	EBS-2 (1-1.5) KX36F 5/1/2007
<b>CONVENTIONAL PARAMETERS</b>										
Hexavalent Chrome (mg/kg)										
Total Solids (%)										
pH (Std Units)										
<b>PETROLEUM HYDROCARBONS</b>										
<b>NWTPH-HCID (mg/kg)</b>										
Gasoline		20 U								
Diesel		>50								
Motor Oil		>100								
<b>NWTPH-Dx (mg/kg)</b>										
Diesel										
Motor Oil										
<b>Gasoline (mg/kg)</b>										
<b>Method 8021/NWTPH-G</b>										
Gasoline										
<b>BTEX (ug/kg)</b>										
<b>Method 8021</b>										
Benzene										
Toluene										
Ethylbenzene										
m,p-Xylene										
o-Xylene										
<b>cPAHs/Naphthalenes (ug/kg)</b>										
<b>SW8270C-SIM</b>										
Naphthalene										
2-Methylnaphthalene										
1-Methylnaphthalene										
Benzo[a]anthracene	66 UJ			65 U		66 U	63 U	65 U		66 U
Chrysene	66 UJ			65 U		66 U	63 U	65 U		66 U
Benzo[b]fluoranthene	66 UJ			65 U		66 U	63 U	65 U		66 U
Benzo[k]fluoranthene	66 UJ			65 U		66 U	63 U	65 U		66 U
Benzo[a]pyrene	66 UJ			65 U		66 U	63 U	65 U		66 U
Indeno[1,2,3-cd]pyrene	66 UJ			65 U		66 U	63 U	65 U		66 U
Dibenz[a,h]anthracene	66 UJ			65 U		66 U	63 U	65 U		66 U
Acenaphthene										
Acenaphthylene										
Anthracene										
Benzo[g,h,i]perylene										
Fluoranthene										
Fluorene										
Phenanthrene										
Pyrene										
cPAH TEQ	ND			ND		ND	ND	ND		ND
<b>PCBs (ug/kg)</b>										
<b>Method SW8082</b>										
Aroclor-1016			33 U							
Aroclor-1242			33 U							
Aroclor-1248			33 U							
Aroclor-1254			33 U							
Aroclor-1260			33 U							
Aroclor-1221			33 U							
Aroclor-1232			33 U							
Total PCBs			ND							
<b>TOTAL METALS (mg/kg)</b>										
<b>SW6000-7000 Series</b>										
Arsenic			36	45	19	8	5 U	45	19	8
Barium										

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	DX-3 (1-2) KZ32B 4/25/2007	D-FA-15a (0-0.5) KX01A 4/30/2007	ACC- EAST SUMP HQ85M 1/28/2005	EBS-1 (1-1.5) KX36B 5/1/2007	EBS-1 (1.5-2.5) KZ32A 5/1/2007	EBS-2 (1-1.5) KX36F 5/1/2007	EBS-3 (0.9-1.4) KX36J 5/1/2007	EBS-1 (1-1.5) KX36B 5/1/2007	EBS-1 (1.5-2.5) KZ32A 5/1/2007	EBS-2 (1-1.5) KX36F 5/1/2007
Cadmium			0.6							
Chromium										
Copper			59.6							
Lead			45							
Mercury			0.06 U							
Selenium										
Silver										
Zinc			193							
<b>TCLP METALS (mg/L)</b> <b>Method 6010B</b> Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver										
<b>TRIBUTYL TIN (ug/kg)</b> <b>TBT Ion by SIM</b> Tributyl Tin Chloride Dibutyl Tin Dichloride Butyl Tin Trichloride TBT as Tin ion										
<b>EPH (ug/kg)</b> <b>EPH 8015B</b> C8-C10 Aliphatics C10-C12 Aliphatics C12-C16 Aliphatics C16-C21 Aliphatics C21-C34 Aliphatics C8-C10 Aromatics C10-C12 Aromatics C12-C16 Aromatics C16-C21 Aromatics C21-C34 Aromatics										
Hazard Index										
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b> <b>Method 8260B</b> Chloromethane Bromomethane Vinyl chloride Chloroethane Methylene chloride Acetone Carbon disulfide 1,1-Dichloroethene 1,1-Dichloroethane trans-1,2-Dichloroethene cis-1,2-Dichloroethene Chloroform 1,2-Dichloroethane Methyl ethyl ketone 1,1,1-Trichloroethane Carbon tetrachloride Vinyl acetate Bromodichloromethane 1,2-Dichloropropane cis-1,3-Dichloropropene										

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	DX-3 (1-2) KZ32B 4/25/2007	D-FA-15a (0-0.5) KX01A 4/30/2007	ACC- EAST SUMP HQ85M 1/28/2005	EBS-1 (1-1.5) KX36B 5/1/2007	EBS-1 (1.5-2.5) KZ32A 5/1/2007	EBS-2 (1-1.5) KX36F 5/1/2007	EBS-3 (0.9-1.4) KX36J 5/1/2007	EBS-1 (1-1.5) KX36B 5/1/2007	EBS-1 (1.5-2.5) KZ32A 5/1/2007	EBS-2 (1-1.5) KX36F 5/1/2007
Trichloroethene										
Dibromochloromethane										
1,1,2-Trichloroethane										
Benzene										
trans-1,3-Dichloropropene										
2-Chloroethylvinylether										
Bromoform										
4-Methyl-2-Pentanone (MIBK)										
2-Hexanone										
Tetrachloroethene										
1,1,2,2-Tetrachloroethane										
Toluene										
Chlorobenzene										
Ethylbenzene										
Styrene										
Trichlorofluoromethane										
1,1,2-Trichloro-1,2,2-trifluoroethane										
m,p-Xylene										
o-Xylene										
1,2-Dichlorobenzene										
1,3-Dichlorobenzene										
1,4-Dichlorobenzene										
Acrolein										
Methyl Iodide										
Bromoethane										
Acrylonitrile										
1,1-Dichloropropene										
Dibromomethane										
1,1,1,2-Tetrachloroethane										
1,2-Dibromo-3-chloropropane										
1,2,3-Trichloropropane										
trans-1,4-Dichloro-2-butene										
1,3,5-Trimethylbenzene										
1,2,4-Trimethylbenzene										
Hexachlorobutadiene										
Ethylene Dibromide										
Bromochloromethane										
2,2-Dichloropropane										
1,3-Dichloropropane										
Isopropylbenzene										
n-Propylbenzene										
Bromobenzene										
2-Chlorotoluene										
4-Chlorotoluene										
tert-Butylbenzene										
sec-Butylbenzene										
4-Isopropyltoluene										
n-Butylbenzene										
1,2,4-Trichlorobenzene										
Naphthalene										
1,2,3-Trichlorobenzene										
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)										
Method 8270C										
Phenol				350	U					
Bis-(2-Chloroethyl) Ether				350	U					
2-Chlorophenol				350	U					
1,3-Dichlorobenzene				350	U					
1,4-Dichlorobenzene				350	U					
Benzyl Alcohol				1800	U					
1,2-Dichlorobenzene				350	U					
2-Methylphenol				350	U					
2,2'-Oxybis(1-Chloropropane)				350	U					
4-Methylphenol				350	U					



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	DX-3 (1-2) KZ32B 4/25/2007	D-FA-15a (0-0.5) KX01A 4/30/2007	ACC- EAST SUMP HQ85M 1/28/2005	EBS-1 (1-1.5) KX36B 5/1/2007	EBS-1 (1.5-2.5) KZ32A 5/1/2007	EBS-2 (1-1.5) KX36F 5/1/2007	EBS-3 (0.9-1.4) KX36J 5/1/2007	EBS-1 (1-1.5) KX36B 5/1/2007	EBS-1 (1.5-2.5) KZ32A 5/1/2007	EBS-2 (1-1.5) KX36F 5/1/2007
N-Nitroso-Di-N-Propylamine			1800 U							
Hexachloroethane			350 U							
Nitrobenzene			350 U							
Isophorone			350 U							
2-Nitrophenol			1800 U							
2,4-Dimethylphenol			350 U							
Benzoic Acid			3500 U							
bis(2-Chloroethoxy) Methane			350 U							
2,4-Dinitrophenol			1800 U							
1,2,4-Trichlorobenzene			350 U							
Naphthalene			350 U							
4-Chloroaniline			1800 U							
Hexachlorobutadiene			350 U							
4-Chloro-3-methylphenol			1800 U							
2-Methylnaphthalene			270 J							
1-Methylnaphthalene										
Total naphthalenes										
Hexachlorocyclopentadiene			1800 U							
2,4,6-Trichlorophenol			1800 U							
2,4,5-Trichlorophenol			1800 U							
2-Chloronaphthalene			350 U							
2-Nitroaniline			1800 U							
Dimethylphthalate			350 U							
Acenaphthylene			350 U							
3-Nitroaniline			1800 U							
Acenaphthene			270 J							
2,4-Dichlorophenol			3500 U							
4-Nitrophenol			1800 U							
Dibenzofuran			420							
2,6-Dinitrotoluene			1800 U							
2,4-Dinitrotoluene			1800 U							
Diethylphthalate			350 U							
4-Chlorophenyl-phenylether			350 U							
Fluorene			1600							
4-Nitroaniline			1800 U							
4,6-Dinitro-2-Methylphenol			3500 U							
N-Nitrosodiphenylamine			350 U							
4-Bromophenyl-phenylether			350 U							
Hexachlorobenzene			350 U							
Pentachlorophenol			1800 U							
Phenanthrene			5100							
Carbazole			1800							
Anthracene			4800							
Di-n-Butylphthalate			350 U							
Fluoranthene			2500							
Pyrene			1600							
Butylbenzylphthalate			350 U							
3,3'-Dichlorobenzidine			1800 U							
Benzo(a)anthracene			450							
bis(2-Ethylhexyl)phthalate			700							
Chrysene			860							
Di-n-Octyl phthalate			350 U							
Benzo(b)fluoranthene			480							
Benzo(k)fluoranthene			340 J							
Benzo(a)pyrene			260 J							
Indeno(1,2,3-cd)pyrene			350 U							
Dibenz(a,h)anthracene			350 U							
Benzo(g,h,i)perylene			350 U							
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)										

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-FA-1 (5-5.5) HQ96C 1/27/2005	E-FA-2 (5.5-6.0) HQ96A 1/27/2005	E-FA-2a (4.8-5.3) HQ96E 1/27/2005	E-FA-2b (3.8-4.2) HQ96F 1/27/2005	E-FA-3 (9.5-10) HQ96D 1/27/2005	E-FA-4 (7-7.5) HQ96B 1/27/2005	E-FA-5 (4.5-4.9) HP78C 1/18/2005	E-GC-1 (0-0.5) HP08L 1/12/2005	E-GC-1 (1-2) HP10E 1/12/2005	E-GC-1 (2-3) HS28A 1/12/2005	E-GC-1b (0-0.5) HU67F 3/3/2005	E-GC-1c (0-0.5) HU67E 3/3/2005	E-GC-1c (1-2) HW21B 3/3/2005	E-GC-1.1N (0-0.5) JD04S 3/1/2006	E-GC-1.1S (0.5-1.0) JD05T 3/2/2006	E-GC-1c.1N (0-0.5) JD04T 3/1/2006	E-GC-1c.1SW (0-0.5) JD05U 3/2/2006
<b>CONVENTIONAL PARAMETERS</b>																	
Hexavalent Chrome (mg/kg)																	
Total Solids (%)																	
pH (Std Units)																	
<b>PETROLEUM HYDROCARBONS</b>																	
<b>NWTPH-HCID (mg/kg)</b>																	
Gasoline											23 U						
Diesel											58 U						
Motor Oil										>120							
<b>NWTPH-Dx (mg/kg)</b>																	
Diesel	5.0 U	94	5.0 U	610	600	330 J	210	53									
Motor Oil	10 U	10 U	10 U	180	50 U	18 J	630	240									
<b>Gasoline (mg/kg)</b>																	
<b>Method 8021/NWTPH-G</b>																	
Gasoline																	
<b>BTEX (ug/kg)</b>																	
<b>Method 8021</b>																	
Benzene		14 U			25 U												
Toluene		28 U			50 U												
Ethylbenzene		34			140												
m,p-Xylene		56 U			99 U												
o-Xylene		28 U			84												
<b>cPAHs/Naphthalenes (ug/kg)</b>																	
<b>SW8270C-SIM</b>																	
Naphthalene																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Benzo[a]anthracene								64 U									
Chrysene								64 U									
Benzo[b]fluoranthene								64 U									
Benzo[k]fluoranthene								64 U									
Benzo[a]pyrene								64 U									
Indeno[1,2,3-cd]pyrene								64 U									
Dibenz[a,h]anthracene								64 U									
Acenaphthene																	
Acenaphthylene																	
Anthracene																	
Benzo[g,h,i]perylene																	
Fluoranthene																	
Fluorene																	
Phenanthrene																	
Pyrene																	
cPAH TEQ								ND									
<b>PCBs (ug/kg)</b>																	
<b>Method SW8082</b>																	
Aroclor-1016																	
Aroclor-1242																	
Aroclor-1248																	
Aroclor-1254																	
Aroclor-1260																	
Aroclor-1221																	
Aroclor-1232																	
Total PCBs																	
<b>TOTAL METALS (mg/kg)</b>																	
<b>SW6000-7000 Series</b>																	
Arsenic								29	23	10	8	48	7	35	9	16	20
Barium																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-FA-1 (5-5.5) HQ96C 1/27/2005	E-FA-2 (5.5-6.0) HQ96A 1/27/2005	E-FA-2a (4.8-5.3) HQ96E 1/27/2005	E-FA-2b (3.8-4.2) HQ96F 1/27/2005	E-FA-3 (9.5-10) HQ96D 1/27/2005	E-FA-4 (7-7.5) HQ96B 1/27/2005	E-FA-5 (4.5-4.9) HP78C 1/18/2005	E-GC-1 (0-0.5) HP08L 1/12/2005	E-GC-1 (1-2) HP10E 1/12/2005	E-GC-1 (2-3) HS28A 1/12/2005	E-GC-1b (0-0.5) HU67F 3/3/2005	E-GC-1c (0-0.5) HU67E 3/3/2005	E-GC-1c (1-2) HW21B 3/3/2005	E-GC-1.1N (0-0.5) JD04S 3/1/2006	E-GC-1.1S (0.5-1.0) JD05T 3/2/2006	E-GC-1c.1N (0-0.5) JD04T 3/1/2006	E-GC-1c.1SW (0-0.5) JD05U 3/2/2006
Cadmium								0.6	0.2 U	0.2 U	0.7	0.7	0.5				
Chromium																	
Copper								35.7	18.4	16.2	16.8	23.4	20.9				
Lead								15	7	4	26	7	54				
Mercury								0.05 U	0.05 U	0.04 UJ	0.05 U	0.4 U	0.13				
Selenium																	
Silver																	
Zinc								65.9	41.2	41.1	74.2	47.5	70.7				
<b>TCLP METALS (mg/L)</b>																	
<b>Method 6010B</b>																	
Arsenic																	
Barium																	
Cadmium																	
Chromium																	
Lead																	
Mercury																	
Selenium																	
Silver																	
<b>TRIBUTYL TIN (ug/kg)</b>																	
<b>TBT Ion by SIM</b>																	
Tributyl Tin Chloride																	
Dibutyl Tin Dichloride																	
Butyl Tin Trichloride																	
TBT as Tin ion																	
<b>EPH (ug/kg)</b>																	
<b>EPH 8015B</b>																	
C8-C10 Aliphatics																	
C10-C12 Aliphatics																	
C12-C16 Aliphatics																	
C16-C21 Aliphatics																	
C21-C34 Aliphatics																	
C8-C10 Aromatics																	
C10-C12 Aromatics																	
C12-C16 Aromatics																	
C16-C21 Aromatics																	
C21-C34 Aromatics																	
Hazard Index																	
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																	
<b>Method 8260B</b>																	
Chloromethane																	
Bromomethane																	
Vinyl chloride																	
Chloroethane																	
Methylene chloride																	
Acetone																	
Carbon disulfide																	
1,1-Dichloroethene																	
1,1-Dichloroethane																	
trans-1,2-Dichloroethene																	
cis-1,2-Dichloroethene																	
Chloroform																	
1,2-Dichloroethane																	
Methyl ethyl ketone																	
1,1,1-Trichloroethane																	
Carbon tetrachloride																	
Vinyl acetate																	
Bromodichloromethane																	
1,2-Dichloropropane																	
cis-1,3-Dichloropropene																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-FA-1 (5-5.5) HQ96C 1/27/2005	E-FA-2 (5.5-6.0) HQ96A 1/27/2005	E-FA-2a (4.8-5.3) HQ96E 1/27/2005	E-FA-2b (3.8-4.2) HQ96F 1/27/2005	E-FA-3 (9.5-10) HQ96D 1/27/2005	E-FA-4 (7-7.5) HQ96B 1/27/2005	E-FA-5 (4.5-4.9) HP78C 1/18/2005	E-GC-1 (0-0.5) HP08L 1/12/2005	E-GC-1 (1-2) HP10E 1/12/2005	E-GC-1 (2-3) HS28A 1/12/2005	E-GC-1b (0-0.5) HU67F 3/3/2005	E-GC-1c (0-0.5) HU67E 3/3/2005	E-GC-1c (1-2) HW21B 3/3/2005	E-GC-1.1N (0-0.5) JD04S 3/1/2006	E-GC-1.1S (0.5-1.0) JD05T 3/2/2006	E-GC-1c.1N (0-0.5) JD04T 3/1/2006	E-GC-1c.1SW (0-0.5) JD05U 3/2/2006
Trichloroethene																	
Dibromochloromethane																	
1,1,2-Trichloroethane																	
Benzene																	
trans-1,3-Dichloropropene																	
2-Chloroethylvinylether																	
Bromoform																	
4-Methyl-2-Pentanone (MIBK)																	
2-Hexanone																	
Tetrachloroethene																	
1,1,2,2-Tetrachloroethane																	
Toluene																	
Chlorobenzene																	
Ethylbenzene																	
Styrene																	
Trichlorofluoromethane																	
1,1,2-Trichloro-1,2,2-trifluoroethane																	
m,p-Xylene																	
o-Xylene																	
1,2-Dichlorobenzene																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Acrolein																	
Methyl Iodide																	
Bromoethane																	
Acrylonitrile																	
1,1-Dichloropropene																	
Dibromomethane																	
1,1,1,2-Tetrachloroethane																	
1,2-Dibromo-3-chloropropane																	
1,2,3-Trichloropropane																	
trans-1,4-Dichloro-2-butene																	
1,3,5-Trimethylbenzene																	
1,2,4-Trimethylbenzene																	
Hexachlorobutadiene																	
Ethylene Dibromide																	
Bromochloromethane																	
2,2-Dichloropropane																	
1,3-Dichloropropane																	
Isopropylbenzene																	
n-Propylbenzene																	
Bromobenzene																	
2-Chlorotoluene																	
4-Chlorotoluene																	
tert-Butylbenzene																	
sec-Butylbenzene																	
4-Isopropyltoluene																	
n-Butylbenzene																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
1,2,3-Trichlorobenzene																	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																	
Method 8270C																	
Phenol																	
Bis-(2-Chloroethyl) Ether																	
2-Chlorophenol																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Benzyl Alcohol																	
1,2-Dichlorobenzene																	
2-Methylphenol																	
2,2'-Oxybis(1-Chloropropane)																	
4-Methylphenol																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-FA-1 (5-5.5) HQ96C 1/27/2005	E-FA-2 (5.5-6.0) HQ96A 1/27/2005	E-FA-2a (4.8-5.3) HQ96E 1/27/2005	E-FA-2b (3.8-4.2) HQ96F 1/27/2005	E-FA-3 (9.5-10) HQ96D 1/27/2005	E-FA-4 (7-7.5) HQ96B 1/27/2005	E-FA-5 (4.5-4.9) HP78C 1/18/2005	E-GC-1 (0-0.5) HP08L 1/12/2005	E-GC-1 (1-2) HP10E 1/12/2005	E-GC-1 (2-3) HS28A 1/12/2005	E-GC-1b (0-0.5) HU67F 3/3/2005	E-GC-1c (0-0.5) HU67E 3/3/2005	E-GC-1c (1-2) HW21B 3/3/2005	E-GC-1.1N (0-0.5) JD04S 3/1/2006	E-GC-1.1S (0.5-1.0) JD05T 3/2/2006	E-GC-1c.1N (0-0.5) JD04T 3/1/2006	E-GC-1c.1SW (0-0.5) JD05U 3/2/2006
N-Nitroso-Di-N-Propylamine																	
Hexachloroethane																	
Nitrobenzene																	
Isophorone																	
2-Nitrophenol																	
2,4-Dimethylphenol																	
Benzoic Acid																	
bis(2-Chloroethoxy) Methane																	
2,4-Dinitrophenol																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
4-Chloroaniline																	
Hexachlorobutadiene																	
4-Chloro-3-methylphenol																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Total naphthalenes																	
Hexachlorocyclopentadiene																	
2,4,6-Trichlorophenol																	
2,4,5-Trichlorophenol																	
2-Chloronaphthalene																	
2-Nitroaniline																	
Dimethylphthalate																	
Acenaphthylene																	
3-Nitroaniline																	
Acenaphthene																	
2,4-Dichlorophenol																	
4-Nitrophenol																	
Dibenzofuran																	
2,6-Dinitrotoluene																	
2,4-Dinitrotoluene																	
Diethylphthalate																	
4-Chlorophenyl-phenylether																	
Fluorene																	
4-Nitroaniline																	
4,6-Dinitro-2-Methylphenol																	
N-Nitrosodiphenylamine																	
4-Bromophenyl-phenylether																	
Hexachlorobenzene																	
Pentachlorophenol																	
Phenanthrene																	
Carbazole																	
Anthracene																	
Di-n-Butylphthalate																	
Fluoranthene																	
Pyrene																	
Butylbenzylphthalate																	
3,3'-Dichlorobenzidine																	
Benzo(a)anthracene																	
bis(2-Ethylhexyl)phthalate																	
Chrysene																	
Di-n-Octyl phthalate																	
Benzo(b)fluoranthene																	
Benzo(k)fluoranthene																	
Benzo(a)pyrene																	
Indeno(1,2,3-cd)pyrene																	
Dibenz(a,h)anthracene																	
Benzo(g,h,i)perylene																	
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-GC-2 (0-0.5) HP08M 1/12/2005	E-GC-3 (0-0.5) HP08R 1/12/2005	E-GC-4 (0.5-1.0) HP08O 1/12/2005	E-GC-4 (1.5-2.5) HP08P 1/12/2005	E-GC-4c (3.5-4.0) HP10N 1/12/2005	E-GC-4d (3.5-4.0) HP08Q 1/12/2005	E-GC-4g (3.5-4.0) HP10P 1/12/2005	E-GC-5 (1.5-2.0) HP08N 1/12/2005	E-GC-5 (2.5-3.5) HP10I 1/12/2005	E-GC-5.1S (1.5-2.0) JJ13L 5/9/2006	E-GC-5.1E (1.0-1.5) JD05AA 3/2/2006	E-GC-5.1N (1.0-1.5) JD05Z 3/2/2006	E-3-1 (4.5-5.5) JJ12N 5/10/2006	E-3-2 (4.5-5.5) JJ12O 5/10/2006	E-3-3 (3.5-4.5) JJ12P 5/10/2006
<b>CONVENTIONAL PARAMETERS</b>															
Hexavalent Chrome (mg/kg)															
Total Solids (%)															
pH (Std Units)															
<b>PETROLEUM HYDROCARBONS</b>															
<b>NWTPH-HCID (mg/kg)</b>															
Gasoline	22 U	22 U	21 U	23 U		>33		21 U							
Diesel	>54	54 U	53 U	59 U		>83		53 U					11	320	400
Motor Oil	>120	110 U	>100	120 U		160 U		110 U					28	90	120
<b>NWTPH-Dx (mg/kg)</b>															
Diesel	110		35		31	8800	5.0 U								
Motor Oil	1300		360		41 U	69	10 U								
<b>Gasoline (mg/kg)</b>															
<b>Method 8021/NWTPH-G</b>															
Gasoline															
<b>BTEX (ug/kg)</b>															
<b>Method 8021</b>															
Benzene					29 U	33 U	11 U								
Toluene					59 U	67 U	22 U								
Ethylbenzene					59 U	67 U	22 U								
m,p-Xylene					140	130 U	44 U								
o-Xylene					300	480	22 U								
<b>cPAHs/Naphthalenes (ug/kg)</b>															
<b>SW8270C-SIM</b>															
Naphthalene					200	690 M	64 U								
2-Methylnaphthalene					560	1400	64 U								
1-Methylnaphthalene					1100	2500	64 U								
Benzo[a]anthracene	63 U	64 U	66 U	65 U				66 U							
Chrysene	63 U	64 U	66 U	65 U				66 U							
Benzo[b]fluoranthene	63 U	64 U	66 U	65 U				66 U							
Benzo[k]fluoranthene	63 U	64 U	66 U	65 U				66 U							
Benzo[a]pyrene	63 U	64 U	66 U	65 U				66 U							
Indeno[1,2,3-cd]pyrene	63 U	64 U	66 U	65 U				66 U							
Dibenz[a,h]anthracene	63 U	64 U	66 U	65 U				66 U							
Acenaphthene															
Acenaphthylene															
Anthracene															
Benzo[g,h,i]perylene															
Fluoranthene															
Fluorene															
Phenanthrene															
Pyrene															
cPAH TEQ	ND	ND	ND	ND				ND							
<b>PCBs (ug/kg)</b>															
<b>Method SW8082</b>															
Aroclor-1016															
Aroclor-1242															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
Aroclor-1221															
Aroclor-1232															
Total PCBs															
<b>TOTAL METALS (mg/kg)</b>															
<b>SW6000-7000 Series</b>															
Arsenic	6	5 U	5					90	6 U	8	15	12			
Barium															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-GC-2 (0-0.5) HP08M 1/12/2005	E-GC-3 (0-0.5) HP08R 1/12/2005	E-GC-4 (0.5-1.0) HP08O 1/12/2005	E-GC-4 (1.5-2.5) HP08P 1/12/2005	E-GC-4c (3.5-4.0) HP10N 1/12/2005	E-GC-4d (3.5-4.0) HP08Q 1/12/2005	E-GC-4g (3.5-4.0) HP10P 1/12/2005	E-GC-5 (1.5-2.0) HP08N 1/12/2005	E-GC-5 (2.5-3.5) HP10I 1/12/2005	E-GC-5.1S (1.5-2.0) JJ13L 5/9/2006	E-GC-5.1E (1.0-1.5) JD05AA 3/2/2006	E-GC-5.1N (1.0-1.5) JD05Z 3/2/2006	E-3-1 (4.5-5.5) JJ12N 5/10/2006	E-3-2 (4.5-5.5) JJ12O 5/10/2006	E-3-3 (3.5-4.5) JJ12P 5/10/2006
Cadmium	0.2 U	0.2 U	0.2 U					0.2 U	0.2 U						
Chromium															
Copper	15.7	9.0	20.5					20.1	16.6						
Lead	43	5	4					6	4						
Mercury	0.05 U	0.04 U	0.05 U					0.07	0.05 U						
Selenium															
Silver															
Zinc	46.9	30.2	35.6					52.5	65.7						
<b>TCLP METALS (mg/L)</b>															
<b>Method 6010B</b>															
Arsenic															
Barium															
Cadmium															
Chromium															
Lead															
Mercury															
Selenium															
Silver															
<b>TRIBUTYL TIN (ug/kg)</b>															
<b>TBT Ion by SIM</b>															
Tributyl Tin Chloride															
Dibutyl Tin Dichloride															
Butyl Tin Trichloride															
TBT as Tin ion															
<b>EPH (ug/kg)</b>															
<b>EPH 8015B</b>															
C8-C10 Aliphatics					3,300 U	130,000	2,600 U								
C10-C12 Aliphatics					12,000	680,000	2,600 U								
C12-C16 Aliphatics					85,000	3,700,000	2,600 U								
C16-C21 Aliphatics					33,000	1,400,000	2,600 U								
C21-C34 Aliphatics					13,000	94,000	3,400								
C8-C10 Aromatics					3,300 U	16,000 U	2,600 U								
C10-C12 Aromatics					3,300 U	94,000	2,600 U								
C12-C16 Aromatics					33,000	1,300,000	2,600 U								
C16-C21 Aromatics					42,000	1,600,000	2,600 U								
C21-C34 Aromatics					8,900	84,000	10,000								
Hazard Index					0.11	4.11	0.006								
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>															
<b>Method 8260B</b>															
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
trans-1,2-Dichloroethene															
cis-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
Methyl ethyl ketone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Vinyl acetate															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-GC-2 (0-0.5) HP08M 1/12/2005	E-GC-3 (0-0.5) HP08R 1/12/2005	E-GC-4 (0.5-1.0) HP08O 1/12/2005	E-GC-4 (1.5-2.5) HP08P 1/12/2005	E-GC-4c (3.5-4.0) HP10N 1/12/2005	E-GC-4d (3.5-4.0) HP08Q 1/12/2005	E-GC-4g (3.5-4.0) HP10P 1/12/2005	E-GC-5 (1.5-2.0) HP08N 1/12/2005	E-GC-5 (2.5-3.5) HP10I 1/12/2005	E-GC-5.1S (1.5-2.0) JJ13L 5/9/2006	E-GC-5.1E (1.0-1.5) JD05AA 3/2/2006	E-GC-5.1N (1.0-1.5) JD05Z 3/2/2006	E-3-1 (4.5-5.5) JJ12N 5/10/2006	E-3-2 (4.5-5.5) JJ12O 5/10/2006	E-3-3 (3.5-4.5) JJ12P 5/10/2006
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-GC-2 (0-0.5) HP08M 1/12/2005	E-GC-3 (0-0.5) HP08R 1/12/2005	E-GC-4 (0.5-1.0) HP08O 1/12/2005	E-GC-4 (1.5-2.5) HP08P 1/12/2005	E-GC-4c (3.5-4.0) HP10N 1/12/2005	E-GC-4d (3.5-4.0) HP08Q 1/12/2005	E-GC-4g (3.5-4.0) HP10P 1/12/2005	E-GC-5 (1.5-2.0) HP08N 1/12/2005	E-GC-5 (2.5-3.5) HP10I 1/12/2005	E-GC-5.1S (1.5-2.0) JJ13L 5/9/2006	E-GC-5.1E (1.0-1.5) JD05AA 3/2/2006	E-GC-5.1N (1.0-1.5) JD05Z 3/2/2006	E-3-1 (4.5-5.5) JJ12N 5/10/2006	E-3-2 (4.5-5.5) JJ12O 5/10/2006	E-3-3 (3.5-4.5) JJ12P 5/10/2006
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-3-4 (5-7) JJ12J 5/10/2006	E-3-5 (5-6) JJ12M 5/10/2006	E-3-6 (5-6) JJ12L 5/10/2006	E-3-7 (5-7) JJ12I 5/10/2006	E-3-8 (3.5-4.5) JJ12G 5/10/2006	E-3-10 (4-5) JJ12E 5/10/2006	E-3-11 (4-5) JJ12H 5/10/2006	E-3-12 (5-6) JJ12K 5/10/2006	E-3-13 (5-6) JJ12Q 5/10/2006
CONVENTIONAL PARAMETERS									
Hexavalent Chrome (mg/kg)									
Total Solids (%)									
pH (Std Units)									
PETROLEUM HYDROCARBONS									
NWTPH-HCID (mg/kg)									
Gasoline									
Diesel	1000	7.0 U	2500	1000	36	21	6.1 U	11	6.2 U
Motor Oil	71 U	14 U	150 U	73 U	260	210	12	26	12
NWTPH-Dx (mg/kg)									
Diesel									
Motor Oil									
Gasoline (mg/kg)									
Method 8021/NWTPH-G									
Gasoline									
BTEX (ug/kg)									
Method 8021									
Benzene									
Toluene									
Ethylbenzene									
m,p-Xylene									
o-Xylene									
cPAHs/Naphthalenes (ug/kg)									
SW8270C-SIM									
Naphthalene									
2-Methylnaphthalene									
1-Methylnaphthalene									
Benzo[a]anthracene									
Chrysene									
Benzo[b]fluoranthene									
Benzo[k]fluoranthene									
Benzo[a]pyrene									
Indeno[1,2,3-cd]pyrene									
Dibenz[a,h]anthracene									
Acenaphthene									
Acenaphthylene									
Anthracene									
Benzo[g,h,i]perylene									
Fluoranthene									
Fluorene									
Phenanthrene									
Pyrene									
cPAH TEQ									
PCBs (ug/kg)									
Method SW8082									
Aroclor-1016									
Aroclor-1242									
Aroclor-1248									
Aroclor-1254									
Aroclor-1260									
Aroclor-1221									
Aroclor-1232									
Total PCBs									
TOTAL METALS (mg/kg)									
SW6000-7000 Series									
Arsenic									
Barium									

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-3-4 (5-7) JJ12J 5/10/2006	E-3-5 (5-6) JJ12M 5/10/2006	E-3-6 (5-6) JJ12L 5/10/2006	E-3-7 (5-7) JJ12I 5/10/2006	E-3-8 (3.5-4.5) JJ12G 5/10/2006	E-3-10 (4-5) JJ12E 5/10/2006	E-3-11 (4-5) JJ12H 5/10/2006	E-3-12 (5-6) JJ12K 5/10/2006	E-3-13 (5-6) JJ12Q 5/10/2006
Cadmium									
Chromium									
Copper									
Lead									
Mercury									
Selenium									
Silver									
Zinc									
<b>TCLP METALS (mg/L)</b>									
<b>Method 6010B</b>									
Arsenic									
Barium									
Cadmium									
Chromium									
Lead									
Mercury									
Selenium									
Silver									
<b>TRIBUTYL TIN (ug/kg)</b>									
<b>TBT Ion by SIM</b>									
Tributyl Tin Chloride									
Dibutyl Tin Dichloride									
Butyl Tin Trichloride									
TBT as Tin ion									
<b>EPH (ug/kg)</b>									
<b>EPH 8015B</b>									
C8-C10 Aliphatics									
C10-C12 Aliphatics									
C12-C16 Aliphatics									
C16-C21 Aliphatics									
C21-C34 Aliphatics									
C8-C10 Aromatics									
C10-C12 Aromatics									
C12-C16 Aromatics									
C16-C21 Aromatics									
C21-C34 Aromatics									
Hazard Index									
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>									
<b>Method 8260B</b>									
Chloromethane									
Bromomethane									
Vinyl chloride									
Chloroethane									
Methylene chloride									
Acetone									
Carbon disulfide									
1,1-Dichloroethene									
1,1-Dichloroethane									
trans-1,2-Dichloroethene									
cis-1,2-Dichloroethene									
Chloroform									
1,2-Dichloroethane									
Methyl ethyl ketone									
1,1,1-Trichloroethane									
Carbon tetrachloride									
Vinyl acetate									
Bromodichloromethane									
1,2-Dichloropropane									
cis-1,3-Dichloropropene									

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-3-4 (5-7) JJ12J 5/10/2006	E-3-5 (5-6) JJ12M 5/10/2006	E-3-6 (5-6) JJ12L 5/10/2006	E-3-7 (5-7) JJ12I 5/10/2006	E-3-8 (3.5-4.5) JJ12G 5/10/2006	E-3-10 (4-5) JJ12E 5/10/2006	E-3-11 (4-5) JJ12H 5/10/2006	E-3-12 (5-6) JJ12K 5/10/2006	E-3-13 (5-6) JJ12Q 5/10/2006
Trichloroethene									
Dibromochloromethane									
1,1,2-Trichloroethane									
Benzene									
trans-1,3-Dichloropropene									
2-Chloroethylvinylether									
Bromoform									
4-Methyl-2-Pentanone (MIBK)									
2-Hexanone									
Tetrachloroethene									
1,1,2,2-Tetrachloroethane									
Toluene									
Chlorobenzene									
Ethylbenzene									
Styrene									
Trichlorofluoromethane									
1,1,2-Trichloro-1,2,2-trifluoroethane									
m,p-Xylene									
o-Xylene									
1,2-Dichlorobenzene									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
Acrolein									
Methyl Iodide									
Bromoethane									
Acrylonitrile									
1,1-Dichloropropene									
Dibromomethane									
1,1,1,2-Tetrachloroethane									
1,2-Dibromo-3-chloropropane									
1,2,3-Trichloropropane									
trans-1,4-Dichloro-2-butene									
1,3,5-Trimethylbenzene									
1,2,4-Trimethylbenzene									
Hexachlorobutadiene									
Ethylene Dibromide									
Bromochloromethane									
2,2-Dichloropropane									
1,3-Dichloropropane									
Isopropylbenzene									
n-Propylbenzene									
Bromobenzene									
2-Chlorotoluene									
4-Chlorotoluene									
tert-Butylbenzene									
sec-Butylbenzene									
4-Isopropyltoluene									
n-Butylbenzene									
1,2,4-Trichlorobenzene									
Naphthalene									
1,2,3-Trichlorobenzene									
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)									
Method 8270C									
Phenol									
Bis-(2-Chloroethyl) Ether									
2-Chlorophenol									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
Benzyl Alcohol									
1,2-Dichlorobenzene									
2-Methylphenol									
2,2'-Oxybis(1-Chloropropane)									
4-Methylphenol									

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	E-3-4 (5-7) JJ12J 5/10/2006	E-3-5 (5-6) JJ12M 5/10/2006	E-3-6 (5-6) JJ12L 5/10/2006	E-3-7 (5-7) JJ12I 5/10/2006	E-3-8 (3.5-4.5) JJ12G 5/10/2006	E-3-10 (4-5) JJ12E 5/10/2006	E-3-11 (4-5) JJ12H 5/10/2006	E-3-12 (5-6) JJ12K 5/10/2006	E-3-13 (5-6) JJ12Q 5/10/2006
N-Nitroso-Di-N-Propylamine									
Hexachloroethane									
Nitrobenzene									
Isophorone									
2-Nitrophenol									
2,4-Dimethylphenol									
Benzoic Acid									
bis(2-Chloroethoxy) Methane									
2,4-Dinitrophenol									
1,2,4-Trichlorobenzene									
Naphthalene									
4-Chloroaniline									
Hexachlorobutadiene									
4-Chloro-3-methylphenol									
2-Methylnaphthalene									
1-Methylnaphthalene									
Total naphthalenes									
Hexachlorocyclopentadiene									
2,4,6-Trichlorophenol									
2,4,5-Trichlorophenol									
2-Chloronaphthalene									
2-Nitroaniline									
Dimethylphthalate									
Acenaphthylene									
3-Nitroaniline									
Acenaphthene									
2,4-Dichlorophenol									
4-Nitrophenol									
Dibenzofuran									
2,6-Dinitrotoluene									
2,4-Dinitrotoluene									
Diethylphthalate									
4-Chlorophenyl-phenylether									
Fluorene									
4-Nitroaniline									
4,6-Dinitro-2-Methylphenol									
N-Nitrosodiphenylamine									
4-Bromophenyl-phenylether									
Hexachlorobenzene									
Pentachlorophenol									
Phenanthrene									
Carbazole									
Anthracene									
Di-n-Butylphthalate									
Fluoranthene									
Pyrene									
Butylbenzylphthalate									
3,3'-Dichlorobenzidine									
Benzo(a)anthracene									
bis(2-Ethylhexyl)phthalate									
Chrysene									
Di-n-Octyl phthalate									
Benzo(b)fluoranthene									
Benzo(k)fluoranthene									
Benzo(a)pyrene									
Indeno(1,2,3-cd)pyrene									
Dibenz(a,h)anthracene									
Benzo(g,h,i)perylene									
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)									

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-B10-B1 MX93A 5/22/2008	F-B10-B2 MX93B 5/22/2008	F-B10-B3 MX93C 5/22/2008	F-B10-B4 MX93D 5/22/2008	F-B10-B5 MX93E 5/22/2008	F-B10-B6 MX93F 5/22/2008	F-COB-AC-1 MF32A 1/15/2008	F-COB-AC-1 MG62A 1/15/2008	F-COB-B1 (0-0.75) MF21C 1/14/2008	F-COB-B2 (0-0.75) MF21B 1/14/2008	F-COB-B3 (0-0.75) MF21A 1/14/2008	F-COB-B4 (0-0.75) MF21D 1/14/2008	F-COB-B5 (0-0.7) MF21E 1/14/2008	F-COB-B5 (1.0-1.8) MF21F 1/14/2008	F-COB-B6 (0-0.75) MF21G 1/14/2008
<b>CONVENTIONAL PARAMETERS</b>															
Hexavalent Chrome (mg/kg)															
Total Solids (%)															
pH (Std Units)															
<b>PETROLEUM HYDROCARBONS</b>															
<b>NWTPH-HCID (mg/kg)</b>															
Gasoline															
Diesel															
Motor Oil															
<b>NWTPH-Dx (mg/kg)</b>															
Diesel	6 U	140	14	5.2 U	5.4 U	14				15		14	25		18
Motor Oil	12 U	630	35	23	21	85				130		82	74		88
<b>Gasoline (mg/kg)</b>															
<b>Method 8021/NWTPH-G</b>															
Gasoline															
<b>BTEX (ug/kg)</b>															
<b>Method 8021</b>															
Benzene															
Toluene															
Ethylbenzene															
m,p-Xylene															
o-Xylene															
<b>cPAHs/Naphthalenes (ug/kg)</b>															
<b>SW8270C-SIM</b>															
Naphthalene															
2-Methylnaphthalene															
1-Methylnaphthalene															
Benzo[a]anthracene	64 U	63 U	66 U	65 U	64 U	66 U				65 U		62 U	130	70	64 U
Chrysene	64 U	63 U	66 U	65 U	64 U	66 U				65 U		87	89	92	70
Benzo[b]fluoranthene	64 U	63 U	66 U	65 U	64 U	66 U				65 U		74	100	66 U	79
Benzo[k]fluoranthene	64 U	63 U	66 U	65 U	64 U	66 U				65 U		74	66 U	66 U	65
Benzo[a]pyrene	64 U	63 U	66 U	65 U	64 U	66 U				65 U		62 U	74	66 U	69
Indeno[1,2,3-cd]pyrene	64 U	63 U	66 U	65 U	64 U	66 U				65 U		62 U	66 U	66 U	64 U
Dibenz[a,h]anthracene	64 U	63 U	66 U	65 U	64 U	66 U				65 U		62 U	66 U	66 U	64 U
Acenaphthene															
Acenaphthylene															
Anthracene															
Benzo[g,h,i]perylene															
Fluoranthene															
Fluorene															
Phenanthrene															
Pyrene															
cPAH TEQ	NA	NA	NA	NA	NA	NA				ND		15.7	97.9	7.9	84.1
<b>PCBs (ug/kg)</b>															
<b>Method SW8082</b>															
Aroclor-1016															
Aroclor-1242															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
Aroclor-1221															
Aroclor-1232															
Total PCBs															
<b>TOTAL METALS (mg/kg)</b>															
<b>SW6000-7000 Series</b>															
Arsenic	7	9	15	5 U	5 U	5 U	120 U	30	30	90	60	240	80		57
Barium															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-B10-B1 MX93A 5/22/2008	F-B10-B2 MX93B 5/22/2008	F-B10-B3 MX93C 5/22/2008	F-B10-B4 MX93D 5/22/2008	F-B10-B5 MX93E 5/22/2008	F-B10-B6 MX93F 5/22/2008	F-COB-AC-1 MF32A 1/15/2008	F-COB-AC-1 MG62A 1/15/2008	F-COB-B1 (0-0.75) MF21C 1/14/2008	F-COB-B2 (0-0.75) MF21B 1/14/2008	F-COB-B3 (0-0.75) MF21A 1/14/2008	F-COB-B4 (0-0.75) MF21D 1/14/2008	F-COB-B5 (0-0.7) MF21E 1/14/2008	F-COB-B5 (1.0-1.8) MF21F 1/14/2008	F-COB-B6 (0-0.75) MF21G 1/14/2008
Cadmium	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U		0.5	1.0	0.8	2.2	0.6		0.7
Chromium	24.8	30.4	20.9	30.7	18.4	20.6	2,030		58	86	181 J	94	80		65.1
Copper	14.2	27.4	29.5	20.6	17.1	22.3	771		76.3	127	130 J	381	75.8		370
Lead	4	16	10	2	3	5	50 U		45	74	67 J	276	50		80
Mercury	0.05 U	0.04 U	0.04 U	0.04 U	0.05 U	0.07	0.10		0.05 U	0.04 U	0.04	0.10	0.06		0.16
Selenium															
Silver															
Zinc	37	61	57	33	33	41	30		263	576	447	1,230	269		320
<b>TCLP METALS (mg/L)</b>															
<b>Method 6010B</b>															
Arsenic															
Barium															
Cadmium															
Chromium															
Lead															
Mercury															
Selenium															
Silver															
<b>TRIBUTYL TIN (ug/kg)</b>															
<b>TBT Ion by SIM</b>															
Tributyl Tin Chloride															
Dibutyl Tin Dichloride															
Butyl Tin Trichloride															
TBT as Tin ion															
<b>EPH (ug/kg)</b>															
<b>EPH 8015B</b>															
C8-C10 Aliphatics															
C10-C12 Aliphatics															
C12-C16 Aliphatics															
C16-C21 Aliphatics															
C21-C34 Aliphatics															
C8-C10 Aromatics															
C10-C12 Aromatics															
C12-C16 Aromatics															
C16-C21 Aromatics															
C21-C34 Aromatics															
Hazard Index															
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>															
<b>Method 8260B</b>															
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
trans-1,2-Dichloroethene															
cis-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
Methyl ethyl ketone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Vinyl acetate															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-B10-B1	F-B10-B2	F-B10-B3	F-B10-B4	F-B10-B5	F-B10-B6	F-COB-AC-1	F-COB-AC-1	F-COB-B1	F-COB-B2	F-COB-B3	F-COB-B4	F-COB-B5	F-COB-B5	F-COB-B6
	MX93A	MX93B	MX93C	MX93D	MX93E	MX93F	MF32A	MG62A	MF21C	MF21B	MF21A	MF21D	MF21E	MF21F	MF21G
	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	1/15/2008	1/15/2008	1/14/2008	1/14/2008	1/14/2008	1/14/2008	1/14/2008	1/14/2008	1/14/2008
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-B10-B1	F-B10-B2	F-B10-B3	F-B10-B4	F-B10-B5	F-B10-B6	F-COB-AC-1	F-COB-AC-1	F-COB-B1	F-COB-B2	F-COB-B3	F-COB-B4	F-COB-B5	F-COB-B5	F-COB-B6
	MX93A	MX93B	MX93C	MX93D	MX93E	MX93F	MF32A	MG62A	(0-0.75)	(0-0.75)	(0-0.75)	(0-0.75)	(0-0.7)	(1.0-1.8)	(0-0.75)
	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	1/15/2008	1/15/2008	1/14/2008	1/14/2008	1/14/2008	1/14/2008	1/14/2008	1/14/2008	1/14/2008
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-COB-B6 (1.0-1.8) MF21H 1/14/2008	F-COB-B7 (0-0.75) MF21I 1/14/2008	F-COB-B8 (0-0.75) MF21O 1/14/2008	F-COB-B9 (0-0.75) MF21L 1/14/2008	F-COB-B10 (0-0.75) MF21K 1/14/2008	F-COB-B11 (0-0.75) MF21J 1/14/2008	F-COB-B12 (0-0.6) MF21M 1/14/2008	F-COB-B13 (0-0.75) MF21N 1/14/2008	F-COB-IW-1 MG82A 1/14/2008	F-FA-2 (0-2) HR96S 1/18/2005	F-FA-2 (2-4) HR96T 1/18/2005	F-FA-2 (4-6) HR97A 1/18/2005	F-FA-2 (6-8) HR97B 1/18/2005	F-FA-3 (0-0.5) HP32K 1/13/2005	F-FA-3 (3.5-4.5) HR95P 1/13/2005	F-FA-3 (4.5-5.5) HR95Q 1/13/2005
CONVENTIONAL PARAMETERS																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
PETROLEUM HYDROCARBONS																
NWTPH-HCID (mg/kg)																
Gasoline															21 U	
Diesel															52 U	
Motor Oil															100 U	
NWTPH-Dx (mg/kg)																
Diesel				11			52			14						
Motor Oil			43				220			56						
Gasoline (mg/kg)																
Method 8021/NWTPH-G																
Gasoline																
BTEX (ug/kg)																
Method 8021																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
cPAHs/Naphthalenes (ug/kg)																
SW8270C-SIM																
Naphthalene																
2-Methylnaphthalene																
1-Methylnaphthalene																
Benzo[a]anthracene	200			63 U			69								69 U	
Chrysene	240			63 U			98								69 U	
Benzo[b]fluoranthene	130			63 U			72								69 U	
Benzo[k]fluoranthene	86			63 U			64 U								69 U	
Benzo[a]pyrene	97			63 U			64 U								69 U	
Indeno[1,2,3-cd]pyrene	65 U			63 U			64 U								69 U	
Dibenz[a,h]anthracene	65 U			63 U			64 U								69 U	
Acenaphthene																
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ	141			ND			15.1								ND	
PCBs (ug/kg)																
Method SW8082																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																
TOTAL METALS (mg/kg)																
SW6000-7000 Series																
Arsenic		14	23	17	23	39	8	24	12	13	6	10	10	18	7	7
Barium																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-COB-B6 (1.0-1.8) MF21H 1/14/2008	F-COB-B7 (0-0.75) MF21I 1/14/2008	F-COB-B8 (0-0.75) MF21O 1/14/2008	F-COB-B9 (0-0.75) MF21L 1/14/2008	F-COB-B10 (0-0.75) MF21K 1/14/2008	F-COB-B11 (0-0.75) MF21J 1/14/2008	F-COB-B12 (0-0.6) MF21M 1/14/2008	F-COB-B13 (0-0.75) MF21N 1/14/2008	F-COB-IW-1 MG82A 1/14/2008	F-FA-2 (0-2) HR96S 1/18/2005	F-FA-2 (2-4) HR96T 1/18/2005	F-FA-2 (4-6) HR97A 1/18/2005	F-FA-2 (6-8) HR97B 1/18/2005	F-FA-3 (0-0.5) HP32K 1/13/2005	F-FA-3 (3.5-4.5) HR95P 1/13/2005	F-FA-3 (4.5-5.5) HR95Q 1/13/2005
Cadmium		0.3	0.4	0.5	0.8	1.0	0.7	0.9						0.2	U	
Chromium		33.6	59.1	37.4	48.2	47.0	28.6	45.7								
Copper		61.3	197	664	141	142	360	155						25.7		
Lead		18	30	30	38	91	34	84	34					11		
Mercury		0.06	0.09	0.07	0.12	0.07	0.29	0.10						0.05	U	
Selenium																
Silver																
Zinc		93	222	188	273	283	158	292						73.1		
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-COB-B6 (1.0-1.8) MF21H 1/14/2008	F-COB-B7 (0-0.75) MF21I 1/14/2008	F-COB-B8 (0-0.75) MF21O 1/14/2008	F-COB-B9 (0-0.75) MF21L 1/14/2008	F-COB-B10 (0-0.75) MF21K 1/14/2008	F-COB-B11 (0-0.75) MF21J 1/14/2008	F-COB-B12 (0-0.6) MF21M 1/14/2008	F-COB-B13 (0-0.75) MF21N 1/14/2008	F-COB-IW-1 MG82A 1/14/2008	F-FA-2 (0-2) HR96S 1/18/2005	F-FA-2 (2-4) HR96T 1/18/2005	F-FA-2 (4-6) HR97A 1/18/2005	F-FA-2 (6-8) HR97B 1/18/2005	F-FA-3 (0-0.5) HP32K 1/13/2005	F-FA-3 (3.5-4.5) HR95P 1/13/2005	F-FA-3 (4.5-5.5) HR95Q 1/13/2005
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-COB-B6 (1.0-1.8) MF21H 1/14/2008	F-COB-B7 (0-0.75) MF21I 1/14/2008	F-COB-B8 (0-0.75) MF21O 1/14/2008	F-COB-B9 (0-0.75) MF21L 1/14/2008	F-COB-B10 (0-0.75) MF21K 1/14/2008	F-COB-B11 (0-0.75) MF21J 1/14/2008	F-COB-B12 (0-0.6) MF21M 1/14/2008	F-COB-B13 (0-0.75) MF21N 1/14/2008	F-COB-IW-1 MG82A 1/14/2008	F-FA-2 (0-2) HR96S 1/18/2005	F-FA-2 (2-4) HR96T 1/18/2005	F-FA-2 (4-6) HR97A 1/18/2005	F-FA-2 (6-8) HR97B 1/18/2005	F-FA-3 (0-0.5) HP32K 1/13/2005	F-FA-3 (3.5-4.5) HR95P 1/13/2005	F-FA-3 (4.5-5.5) HR95Q 1/13/2005
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-3 (5.5-7.0) HR95R 1/13/2005	F-FA-3 (7.0-8.0) HR95S 1/13/2005	F-FA-4 (0-0.5) HP78B 1/18/2005	F-FA-4 (1-2) HR96O 1/18/2005	F-FA-4 (2-3) HR96P 1/18/2005	F-FA-4 (4-6) HR96Q 1/18/2005	F-FA-4 (6-8) HR96R 1/18/2005	F-FA-5 (0.7-1.2) HP32H 1/13/2005	F-FA-5 (1.7-2.7) HR95F 1/13/2005	F-FA-5 (2.7-3.7) HR95G 1/13/2005	F-FA-5 (4-6) HR95H 1/13/2005	F-FA-5 (6-8) HR95I 1/13/2005	F-FA-6 (1-2) HP32J 1/13/2005	F-FA-6 (2-4) HR95M 1/13/2005	F-FA-6 (4-6) HR95N 1/13/2005
CONVENTIONAL PARAMETERS															
Hexavalent Chrome (mg/kg)															
Total Solids (%)															
pH (Std Units)															
PETROLEUM HYDROCARBONS															
NWTPH-HCID (mg/kg)															
Gasoline				22 U				21 U					22 U		
Diesel				54 U				52 U					>55		
Motor Oil				110 U				100 U					>110		
NWTPH-Dx (mg/kg)															
Diesel													150		
Motor Oil													210		
Gasoline (mg/kg)															
Method 8021/NWTPH-G															
Gasoline															
BTEX (ug/kg)															
Method 8021															
Benzene															
Toluene															
Ethylbenzene															
m,p-Xylene															
o-Xylene															
cPAHs/Naphthalenes (ug/kg)															
SW8270C-SIM															
Naphthalene													240		
2-Methylnaphthalene													74 U		
1-Methylnaphthalene													74 U		
Benzo[a]anthracene				63 U				69 U					76		
Chrysene				63 U				69 U					100		
Benzo[b]fluoranthene				63 U				69 U					74 U		
Benzo[k]fluoranthene				63 U				69 U					74 U		
Benzo[a]pyrene				63 U				69 U					74 U		
Indeno[1,2,3-cd]pyrene				63 U				69 U					74 U		
Dibenz[a,h]anthracene				63 U				69 U					74 U		
Acenaphthene															
Acenaphthylene															
Anthracene															
Benzo[g,h,i]perylene															
Fluoranthene															
Fluorene															
Phenanthrene															
Pyrene															
cPAH TEQ				ND				ND					8.6		
PCBs (ug/kg)															
Method SW8082															
Aroclor-1016															
Aroclor-1242															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
Aroclor-1221															
Aroclor-1232															
Total PCBs															
TOTAL METALS (mg/kg)															
SW6000-7000 Series															
Arsenic	7	10	8	6 U	6 U	9	10	13	8	6 U	8	12	6	9 U	8
Barium															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-3 (5.5-7.0) HR95R 1/13/2005	F-FA-3 (7.0-8.0) HR95S 1/13/2005	F-FA-4 (0-0.5) HP78B 1/18/2005	F-FA-4 (1-2) HR96O 1/18/2005	F-FA-4 (2-3) HR96P 1/18/2005	F-FA-4 (4-6) HR96Q 1/18/2005	F-FA-4 (6-8) HR96R 1/18/2005	F-FA-5 (0.7-1.2) HP32H 1/13/2005	F-FA-5 (1.7-2.7) HR95F 1/13/2005	F-FA-5 (2.7-3.7) HR95G 1/13/2005	F-FA-5 (4-6) HR95H 1/13/2005	F-FA-5 (6-8) HR95I 1/13/2005	F-FA-6 (1-2) HP32J 1/13/2005	F-FA-6 (2-4) HR95M 1/13/2005	F-FA-6 (4-6) HR95N 1/13/2005
Cadmium			0.2					0.2 U					0.2		
Chromium															
Copper			40.6					32.8					28.9		
Lead			12					16					19		
Mercury			0.05 U					0.05 U					0.17		
Selenium															
Silver															
Zinc			76.9					94.4					48.1		
<b>TCLP METALS (mg/L)</b>															
<b>Method 6010B</b>															
Arsenic															
Barium															
Cadmium															
Chromium															
Lead															
Mercury															
Selenium															
Silver															
<b>TRIBUTYL TIN (ug/kg)</b>															
<b>TBT Ion by SIM</b>															
Tributyl Tin Chloride															
Dibutyl Tin Dichloride															
Butyl Tin Trichloride															
TBT as Tin ion															
<b>EPH (ug/kg)</b>															
<b>EPH 8015B</b>															
C8-C10 Aliphatics													2,200 U		
C10-C12 Aliphatics													9,500		
C12-C16 Aliphatics													23,000		
C16-C21 Aliphatics													21,000		
C21-C34 Aliphatics													110,000		
C8-C10 Aromatics													2,200 U		
C10-C12 Aromatics													2,200 U		
C12-C16 Aromatics													2,400		
C16-C21 Aromatics													22,000		
C21-C34 Aromatics													58,000		
Hazard Index													0.06		
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>															
<b>Method 8260B</b>															
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
trans-1,2-Dichloroethene															
cis-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
Methyl ethyl ketone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Vinyl acetate															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-3 (5.5-7.0) HR95R 1/13/2005	F-FA-3 (7.0-8.0) HR95S 1/13/2005	F-FA-4 (0-0.5) HP78B 1/18/2005	F-FA-4 (1-2) HR96O 1/18/2005	F-FA-4 (2-3) HR96P 1/18/2005	F-FA-4 (4-6) HR96Q 1/18/2005	F-FA-4 (6-8) HR96R 1/18/2005	F-FA-5 (0.7-1.2) HP32H 1/13/2005	F-FA-5 (1.7-2.7) HR95F 1/13/2005	F-FA-5 (2.7-3.7) HR95G 1/13/2005	F-FA-5 (4-6) HR95H 1/13/2005	F-FA-5 (6-8) HR95I 1/13/2005	F-FA-6 (1-2) HP32J 1/13/2005	F-FA-6 (2-4) HR95M 1/13/2005	F-FA-6 (4-6) HR95N 1/13/2005
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-3 (5.5-7.0) HR95R 1/13/2005	F-FA-3 (7.0-8.0) HR95S 1/13/2005	F-FA-4 (0-0.5) HP78B 1/18/2005	F-FA-4 (1-2) HR96O 1/18/2005	F-FA-4 (2-3) HR96P 1/18/2005	F-FA-4 (4-6) HR96Q 1/18/2005	F-FA-4 (6-8) HR96R 1/18/2005	F-FA-5 (0.7-1.2) HP32H 1/13/2005	F-FA-5 (1.7-2.7) HR95F 1/13/2005	F-FA-5 (2.7-3.7) HR95G 1/13/2005	F-FA-5 (4-6) HR95H 1/13/2005	F-FA-5 (6-8) HR95I 1/13/2005	F-FA-6 (1-2) HP32J 1/13/2005	F-FA-6 (2-4) HR95M 1/13/2005	F-FA-6 (4-6) HR95N 1/13/2005
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-6 (6-8) HR95O 1/13/2005	F-FA-7 (0-2) HR96K 1/18/2005	F-FA-7 (2-4) HR96L 1/18/2005	F-FA-7 (4-6) HR96M 1/18/2005	F-FA-7 (6-8) HR96N 1/18/2005	F-FA-8 (0-0.5) HP32I 1/13/2005	F-FA-8 (1-2) HP33S 1/13/2005	F-FA-8 (2-3) HR95J 1/13/2005	F-FA-8 (4-6) HR95K 1/13/2005	F-FA-8 (6-8) HR95L 1/13/2005	F-FA-9 (0-0.5) HP78A 1/18/2005	F-FA-9 (1-2) HR96G 1/18/2005	F-FA-9 (2-3) HR96H 1/18/2005	F-FA-9 (4.5-6) HR96I 1/18/2005	F-FA-9 (6-8) HR96J 1/18/2005
CONVENTIONAL PARAMETERS															
Hexavalent Chrome (mg/kg)															
Total Solids (%)															
pH (Std Units)															
PETROLEUM HYDROCARBONS															
NWTPH-HCID (mg/kg)															
Gasoline															
Diesel															
Motor Oil															
NWTPH-Dx (mg/kg)															
Diesel															
Motor Oil															
Gasoline (mg/kg)															
Method 8021/NWTPH-G															
Gasoline															
BTEX (ug/kg)															
Method 8021															
Benzene															
Toluene															
Ethylbenzene															
m,p-Xylene															
o-Xylene															
cPAHs/Naphthalenes (ug/kg)															
SW8270C-SIM															
Naphthalene															
2-Methylnaphthalene															
1-Methylnaphthalene															
Benzo[a]anthracene															
Chrysene															
Benzo[b]fluoranthene															
Benzo[k]fluoranthene															
Benzo[a]pyrene															
Indeno[1,2,3-cd]pyrene															
Dibenz[a,h]anthracene															
Acenaphthene															
Acenaphthylene															
Anthracene															
Benzo[g,h,i]perylene															
Fluoranthene															
Fluorene															
Phenanthrene															
Pyrene															
cPAH TEQ															
PCBs (ug/kg)															
Method SW8082															
Aroclor-1016															
Aroclor-1242															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
Aroclor-1221															
Aroclor-1232															
Total PCBs															
TOTAL METALS (mg/kg)															
SW6000-7000 Series															
Arsenic															
Barium															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-6 (6-8) HR95O 1/13/2005	F-FA-7 (0-2) HR96K 1/18/2005	F-FA-7 (2-4) HR96L 1/18/2005	F-FA-7 (4-6) HR96M 1/18/2005	F-FA-7 (6-8) HR96N 1/18/2005	F-FA-8 (0-0.5) HP32I 1/13/2005	F-FA-8 (1-2) HP33S 1/13/2005	F-FA-8 (2-3) HR95J 1/13/2005	F-FA-8 (4-6) HR95K 1/13/2005	F-FA-8 (6-8) HR95L 1/13/2005	F-FA-9 (0-0.5) HP78A 1/18/2005	F-FA-9 (1-2) HR96G 1/18/2005	F-FA-9 (2-3) HR96H 1/18/2005	F-FA-9 (4.5-6) HR96I 1/18/2005	F-FA-9 (6-8) HR96J 1/18/2005
Cadmium						0.4	0.2 U				0.2 U				
Chromium															
Copper						118	25.3				26.0				
Lead						54	4				11				
Mercury						0.11	0.04 U				0.05 U				
Selenium															
Silver															
Zinc						252	43.8				225				
<b>TCLP METALS (mg/L)</b>															
<b>Method 6010B</b>															
Arsenic															
Barium															
Cadmium															
Chromium															
Lead															
Mercury															
Selenium															
Silver															
<b>TRIBUTYL TIN (ug/kg)</b>															
<b>TBT Ion by SIM</b>															
Tributyl Tin Chloride						1,100	4.8								
Dibutyl Tin Dichloride						250	260								
Butyl Tin Trichloride						23	28								
TBT as Tin ion						1,000	4.3								
<b>EPH (ug/kg)</b>															
<b>EPH 8015B</b>															
C8-C10 Aliphatics															
C10-C12 Aliphatics															
C12-C16 Aliphatics															
C16-C21 Aliphatics															
C21-C34 Aliphatics															
C8-C10 Aromatics															
C10-C12 Aromatics															
C12-C16 Aromatics															
C16-C21 Aromatics															
C21-C34 Aromatics															
Hazard Index															
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>															
<b>Method 8260B</b>															
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
trans-1,2-Dichloroethene															
cis-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
Methyl ethyl ketone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Vinyl acetate															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-6 (6-8) HR95O 1/13/2005	F-FA-7 (0-2) HR96K 1/18/2005	F-FA-7 (2-4) HR96L 1/18/2005	F-FA-7 (4-6) HR96M 1/18/2005	F-FA-7 (6-8) HR96N 1/18/2005	F-FA-8 (0-0.5) HP32I 1/13/2005	F-FA-8 (1-2) HP33S 1/13/2005	F-FA-8 (2-3) HR95J 1/13/2005	F-FA-8 (4-6) HR95K 1/13/2005	F-FA-8 (6-8) HR95L 1/13/2005	F-FA-9 (0-0.5) HP78A 1/18/2005	F-FA-9 (1-2) HR96G 1/18/2005	F-FA-9 (2-3) HR96H 1/18/2005	F-FA-9 (4.5-6) HR96I 1/18/2005	F-FA-9 (6-8) HR96J 1/18/2005
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-6 (6-8) HR95O 1/13/2005	F-FA-7 (0-2) HR96K 1/18/2005	F-FA-7 (2-4) HR96L 1/18/2005	F-FA-7 (4-6) HR96M 1/18/2005	F-FA-7 (6-8) HR96N 1/18/2005	F-FA-8 (0-0.5) HP32I 1/13/2005	F-FA-8 (1-2) HP33S 1/13/2005	F-FA-8 (2-3) HR95J 1/13/2005	F-FA-8 (4-6) HR95K 1/13/2005	F-FA-8 (6-8) HR95L 1/13/2005	F-FA-9 (0-0.5) HP78A 1/18/2005	F-FA-9 (1-2) HR96G 1/18/2005	F-FA-9 (2-3) HR96H 1/18/2005	F-FA-9 (4.5-6) HR96I 1/18/2005	F-FA-9 (6-8) HR96J 1/18/2005
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-10 (0-1) HP57E 1/17/2005	F-FA-10 (1-2) HP61U 1/17/2005	F-FA-10 (2-3) HP57F/HR95T 1/17/2005	F-FA-10 (4-6) HR96B 1/17/2005	F-FA-10 (6-8) HR96C 1/17/2005	F-FA-10.2S JR06A 7/28/2006	F-FA-10.1S JR06B 7/28/2006	F-FA-10.1S.1E JR06C 7/28/2006	F-FA-10.1E JR06D 7/28/2006	F-FA-10.1N JR06E 7/28/2006	F-FA-10.2N JR06F 7/28/2006	F-FA-10.1N.1E JR06G 7/28/2006	F-FA-10.2N.1E JR06H 7/28/2006	F-FA-11 (0-1) HP57G 1/17/2005	F-FA-11 (1-2) HR96D 1/17/2005
CONVENTIONAL PARAMETERS															
Hexavalent Chrome (mg/kg)															
Total Solids (%)															
pH (Std Units)															
PETROLEUM HYDROCARBONS															
NWTPH-HCID (mg/kg)															
Gasoline	21 U		24 U											22 U	
Diesel	53 U		>60											54 U	
Motor Oil	110 U		>120											110 U	
NWTPH-Dx (mg/kg)															
Diesel			210												
Motor Oil			270												
Gasoline (mg/kg)															
Method 8021/NWTPH-G															
Gasoline															
BTEX (ug/kg)															
Method 8021															
Benzene															
Toluene															
Ethylbenzene															
m,p-Xylene															
o-Xylene															
cPAHs/Naphthalenes (ug/kg)															
SW8270C-SIM															
Naphthalene			660												
2-Methylnaphthalene			170												
1-Methylnaphthalene			120												
Benzo[a]anthracene	71 U		130											72 U	
Chrysene	71 U		180											72 U	
Benzo[b]fluoranthene	71 U		87											72 U	
Benzo[k]fluoranthene	71 U		86 U											72 U	
Benzo[a]pyrene	71 U		86 U											72 U	
Indeno[1,2,3-cd]pyrene	71 U		86 U											72 U	
Dibenz[a,h]anthracene	71 U		86 U											72 U	
Acenaphthene															
Acenaphthylene															
Anthracene															
Benzo[g,h,i]perylene															
Fluoranthene															
Fluorene															
Phenanthrene															
Pyrene															
cPAH TEQ	ND		24											ND	
PCBs (ug/kg)															
Method SW8082															
Aroclor-1016															
Aroclor-1242															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
Aroclor-1221															
Aroclor-1232															
Total PCBs															
TOTAL METALS (mg/kg)															
SW6000-7000 Series															
Arsenic	30	6 U	7	12	6 U	5 U	150	140	330	120	110	200	120	15	6 U
Barium															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-10 (0-1) HP57E 1/17/2005	F-FA-10 (1-2) HP61U 1/17/2005	F-FA-10 (2-3) HP57F/HR95T 1/17/2005	F-FA-10 (4-6) HR96B 1/17/2005	F-FA-10 (6-8) HR96C 1/17/2005	F-FA-10.2S JR06A 7/28/2006	F-FA-10.1S JR06B 7/28/2006	F-FA-10.1S.1E JR06C 7/28/2006	F-FA-10.1E JR06D 7/28/2006	F-FA-10.1N JR06E 7/28/2006	F-FA-10.2N JR06F 7/28/2006	F-FA-10.1N.1E JR06G 7/28/2006	F-FA-10.2N.1E JR06H 7/28/2006	F-FA-11 (0-1) HP57G 1/17/2005	F-FA-11 (1-2) HR96D 1/17/2005
Cadmium	0.5 U	2 U												0.2 U	
Chromium															
Copper	91.3 J	29.3												52.5	
Lead	27	18												26	
Mercury	0.05 U	0.06												0.04 U	
Selenium															
Silver															
Zinc	180 J	51.3												149	
<b>TCLP METALS (mg/L)</b>															
<b>Method 6010B</b>															
Arsenic															
Barium															
Cadmium															
Chromium															
Lead															
Mercury															
Selenium															
Silver															
<b>TRIBUTYL TIN (ug/kg)</b>															
<b>TBT Ion by SIM</b>															
Tributyl Tin Chloride															
Dibutyl Tin Dichloride															
Butyl Tin Trichloride															
TBT as Tin ion															
<b>EPH (ug/kg)</b>															
<b>EPH 8015B</b>															
C8-C10 Aliphatics			10,000												
C10-C12 Aliphatics			38,000												
C12-C16 Aliphatics			64,000												
C16-C21 Aliphatics			48,000												
C21-C34 Aliphatics			310,000												
C8-C10 Aromatics			2400 U												
C10-C12 Aromatics			2400 U												
C12-C16 Aromatics			5700												
C16-C21 Aromatics			51,000												
C21-C34 Aromatics			82,000												
Hazard Index			0.15												
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>															
<b>Method 8260B</b>															
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
trans-1,2-Dichloroethene															
cis-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
Methyl ethyl ketone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Vinyl acetate															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-10 (0-1) HP57E 1/17/2005	F-FA-10 (1-2) HP61U 1/17/2005	F-FA-10 (2-3) HP57F/HR95T 1/17/2005	F-FA-10 (4-6) HR96B 1/17/2005	F-FA-10 (6-8) HR96C 1/17/2005	F-FA-10.2S JR06A 7/28/2006	F-FA-10.1S JR06B 7/28/2006	F-FA-10.1S.1E JR06C 7/28/2006	F-FA-10.1E JR06D 7/28/2006	F-FA-10.1N JR06E 7/28/2006	F-FA-10.2N JR06F 7/28/2006	F-FA-10.1N.1E JR06G 7/28/2006	F-FA-10.2N.1E JR06H 7/28/2006	F-FA-11 (0-1) HP57G 1/17/2005	F-FA-11 (1-2) HR96D 1/17/2005
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-10 (0-1) HP57E 1/17/2005	F-FA-10 (1-2) HP61U 1/17/2005	F-FA-10 (2-3) HP57F/HR95T 1/17/2005	F-FA-10 (4-6) HR96B 1/17/2005	F-FA-10 (6-8) HR96C 1/17/2005	F-FA-10.2S JR06A 7/28/2006	F-FA-10.1S JR06B 7/28/2006	F-FA-10.1S.1E JR06C 7/28/2006	F-FA-10.1E JR06D 7/28/2006	F-FA-10.1N JR06E 7/28/2006	F-FA-10.2N JR06F 7/28/2006	F-FA-10.1N.1E JR06G 7/28/2006	F-FA-10.2N.1E JR06H 7/28/2006	F-FA-11 (0-1) HP57G 1/17/2005	F-FA-11 (1-2) HR96D 1/17/2005
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-11 (2-3) HR96E 1/17/2005	F-FA-11 (4-6) HR96F 1/17/2005	F-FA-11 (6-8) HR96A 1/17/2005	F-FA-12 (0-0.5) HP57I 1/17/2005	F-FA-13 (4-6) HP57C 1/17/2005	F-FA-14 (4-6) HP57D 1/17/2005	F-GC-1 (0-0.5) HP39A 1/14/2005	F-GC-3 (0-0.5) HP32N 1/13/2005	F-GC-5 (0-0.5) HP32M 1/13/2005	F-GC-5 (1-2) HP33AG 1/13/2005	F-GC-7 (0-0.5) HP32L 1/13/2005	NMP2-F-6-SS GE76F 12/30/2003	F-GC-8 (0.8-1.3) HP32G 1/13/2005	F-GC-8 (1.8-2.8) HR95D 1/13/2005	F-GC-8 (2.8-3.8) HR95E 1/13/2005
<b>CONVENTIONAL PARAMETERS</b>															
Hexavalent Chrome (mg/kg)												0.11 U			
Total Solids (%)												91.4			
pH (Std Units)															
<b>PETROLEUM HYDROCARBONS</b>															
<b>NWTPH-HCID (mg/kg)</b>															
Gasoline				21 U	24 U	24 U	21 U	21 U	22 U		210 U	26 U	25 U		
Diesel				53 U	59 U	59 U	53 U	53 U	55 U		520 U	50 U	63 U		
Motor Oil				100 U	>120	>120	100 U	110 U	110 U		>100	100 U	120 U		
<b>NWTPH-Dx (mg/kg)</b>															
Diesel					14	5.0 U					33				
Motor Oil					170	25					710				
<b>Gasoline (mg/kg)</b>															
<b>Method 8021/NWTPH-G</b>															
Gasoline															
<b>BTEX (ug/kg)</b>															
<b>Method 8021</b>															
Benzene															
Toluene															
Ethylbenzene															
m,p-Xylene															
o-Xylene															
<b>cPAHs/Naphthalenes (ug/kg)</b>															
<b>SW8270C-SIM</b>															
Naphthalene															
2-Methylnaphthalene							70 U	70 U	75		69 U	12			
1-Methylnaphthalene							70 U	70 U	110		84	25			
Benzo[a]anthracene				70 U			70 U	70 U	83		69 U	24		84 U	
Chrysene				70 U			70 U	70 U	71 J		69 U	17		84 U	
Benzo[b]fluoranthene				70 U			70 U	70 U	97		69 U	9.1		84 U	
Benzo[k]fluoranthene				70 U			70 U	70 U	72 U		69 U	7.0 U		84 U	
Benzo[a]pyrene				70 U			70 U	70 U	72 U		69 U	7.0 U		84 U	
Indeno[1,2,3-cd]pyrene				70 U										84 U	
Dibenz[a,h]anthracene				70 U										84 U	
Acenaphthene															
Acenaphthylene															
Anthracene															
Benzo[g,h,i]perylene															
Fluoranthene															
Fluorene															
Phenanthrene															
Pyrene															
cPAH TEQ				ND			ND	ND	121		0.84	14.7		ND	
<b>PCBs (ug/kg)</b>															
<b>Method SW8082</b>															
Aroclor-1016															
Aroclor-1242															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
Aroclor-1221															
Aroclor-1232															
Total PCBs															
<b>TOTAL METALS (mg/kg)</b>															
<b>SW6000-7000 Series</b>															
Arsenic	7	6	13	14			12	6	17	6	9	14.5	8	10	13
Barium															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-11 (2-3) HR96E 1/17/2005	F-FA-11 (4-6) HR96F 1/17/2005	F-FA-11 (6-8) HR96A 1/17/2005	F-FA-12 (0-0.5) HP57I 1/17/2005	F-FA-13 (4-6) HP57C 1/17/2005	F-FA-14 (4-6) HP57D 1/17/2005	F-GC-1 (0-0.5) HP39A 1/14/2005	F-GC-3 (0-0.5) HP32N 1/13/2005	F-GC-5 (0-0.5) HP32M 1/13/2005	F-GC-5 (1-2) HP33AG 1/13/2005	F-GC-7 (0-0.5) HP32L 1/13/2005	NMP2-F-6-SS GE76F 12/30/2003	F-GC-8 (0.8-1.3) HP32G 1/13/2005	F-GC-8 (1.8-2.8) HR95D 1/13/2005	F-GC-8 (2.8-3.8) HR95E 1/13/2005
Cadmium				0.2 U			0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.7	0.2 U		
Chromium												29.5			
Copper				23.3			83.3 J	31.4	101	19.8	33.5	1120	23.1		
Lead				10			14	4	152	7	6	43	5		
Mercury				0.05 U			0.04 U	0.05 U	0.09	0.05 U	0.04 U	0.73	0.06		
Selenium															
Silver												0.3 U			
Zinc				66.8			105 J	39.6	293	44.5	45.6	376	37.6		
<b>TCLP METALS (mg/L)</b>															
<b>Method 6010B</b>															
Arsenic															
Barium															
Cadmium															
Chromium															
Lead															
Mercury															
Selenium															
Silver															
<b>TRIBUTYL TIN (ug/kg)</b>															
<b>TBT Ion by SIM</b>															
Tributyl Tin Chloride							69		35						
Dibutyl Tin Dichloride							38		50						
Butyl Tin Trichloride							10		8.4						
TBT as Tin ion							61		31						
<b>EPH (ug/kg)</b>															
<b>EPH 8015B</b>															
C8-C10 Aliphatics															
C10-C12 Aliphatics															
C12-C16 Aliphatics															
C16-C21 Aliphatics															
C21-C34 Aliphatics															
C8-C10 Aromatics															
C10-C12 Aromatics															
C12-C16 Aromatics															
C16-C21 Aromatics															
C21-C34 Aromatics															
Hazard Index															
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>															
<b>Method 8260B</b>															
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
trans-1,2-Dichloroethene															
cis-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
Methyl ethyl ketone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Vinyl acetate															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-11 (2-3) HR96E 1/17/2005	F-FA-11 (4-6) HR96F 1/17/2005	F-FA-11 (6-8) HR96A 1/17/2005	F-FA-12 (0-0.5) HP57I 1/17/2005	F-FA-13 (4-6) HP57C 1/17/2005	F-FA-14 (4-6) HP57D 1/17/2005	F-GC-1 (0-0.5) HP39A 1/14/2005	F-GC-3 (0-0.5) HP32N 1/13/2005	F-GC-5 (0-0.5) HP32M 1/13/2005	F-GC-5 (1-2) HP33AG 1/13/2005	F-GC-7 (0-0.5) HP32L 1/13/2005	NMP2-F-6-SS GE76F 12/30/2003	F-GC-8 (0.8-1.3) HP32G 1/13/2005	F-GC-8 (1.8-2.8) HR95D 1/13/2005	F-GC-8 (2.8-3.8) HR95E 1/13/2005
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-FA-11 (2-3) HR96E 1/17/2005	F-FA-11 (4-6) HR96F 1/17/2005	F-FA-11 (6-8) HR96A 1/17/2005	F-FA-12 (0-0.5) HP57I 1/17/2005	F-FA-13 (4-6) HP57C 1/17/2005	F-FA-14 (4-6) HP57D 1/17/2005	F-GC-1 (0-0.5) HP39A 1/14/2005	F-GC-3 (0-0.5) HP32N 1/13/2005	F-GC-5 (0-0.5) HP32M 1/13/2005	F-GC-5 (1-2) HP33AG 1/13/2005	F-GC-7 (0-0.5) HP32L 1/13/2005	NMP2-F-6-SS GE76F 12/30/2003	F-GC-8 (0.8-1.3) HP32G 1/13/2005	F-GC-8 (1.8-2.8) HR95D 1/13/2005	F-GC-8 (2.8-3.8) HR95E 1/13/2005
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-9 (1.5-2.0) HP32F 1/13/2005	F-GC-9 (2.5-3.5) HR95B 1/13/2005	F-GC-9 (3.5-4.5) HR95C 1/13/2005	F-GC-10 (2.5-3.0) HP32C 1/13/2005	F-GC-10 (3.5-4.5) HP33E 1/13/2005	F-GC-10 (4.5-5.5) HR95A 1/13/2005	F-GC-10.1E (0.5-1.0) JD05R 3/2/2006	F-GC-10.1W (1.0-1.5) JD05Q 3/2/2006	F-GC-11 (0-0.5) HP32D 1/13/2005	F-GC-12 (0-0.5) HP32E 1/13/2005	F-GC-13 (0-1) HP57H 1/17/2005	F-GC-13 (1-2) HP61AB 1/17/2005	F-GC-13 (2-3) HT12C 1/17/2005	F-GC-13b (0-0.5) HU67G 3/3/2005	F-GC-13b (1-2) HW21C 3/3/2005
CONVENTIONAL PARAMETERS															
Hexavalent Chrome (mg/kg)															
Total Solids (%)															
pH (Std Units)															
PETROLEUM HYDROCARBONS															
NWTPH-HCID (mg/kg)															
Gasoline	24 U			24 U					21 U	24 U	22 U				
Diesel	59 U			60 U					52 U	60 U	54 U				
Motor Oil	120 U			120 U					100 U	120 U	110 U				
NWTPH-Dx (mg/kg)															
Diesel															
Motor Oil															
Gasoline (mg/kg)															
Method 8021/NWTPH-G															
Gasoline															
BTEX (ug/kg)															
Method 8021															
Benzene															
Toluene															
Ethylbenzene															
m,p-Xylene															
o-Xylene															
cPAHs/Naphthalenes (ug/kg)															
SW8270C-SIM															
Naphthalene															
2-Methylnaphthalene															
1-Methylnaphthalene															
Benzo[a]anthracene	79 U			100	66 U		66 U	65 U	70 U	80 U	330	280	560 J	66 U	
Chrysene	79 U			160	66 U		66 U	65 U	70 U	80 U	340	340	1900 J	66 U	
Benzo[b]fluoranthene	79 U			140	66 U		66 U	65 U	70 U	80 U	440	300	670 J	66 U	
Benzo[k]fluoranthene	79 U			110	66 U		66 U	65 U	70 U	80 U	460	300	670 J	66 U	
Benzo[a]pyrene	79 U			100	66 U		66 U	65 U	70 U	80 U	400	390	500 J	66 U	
Indeno[1,2,3-cd]pyrene	79 U			96	66 U		66 U	65 U	70 U	80 U	140	190 U	260 J	66 U	
Dibenz[a,h]anthracene	79 U			80 U	66 U		66 U	65 U	70 U	80 U	72 U	190 U	110 J	66 U	
Acenaphthene															
Acenaphthylene															
Anthracene															
Benzo[g,h,i]perylene															
Fluoranthene															
Fluorene															
Phenanthrene															
Pyrene															
cPAH TEQ	ND			146	ND		ND	ND	ND	ND	540	480	779 J	ND	
PCBs (ug/kg)															
Method SW8082															
Aroclor-1016															
Aroclor-1242															
Aroclor-1248															
Aroclor-1254															
Aroclor-1260															
Aroclor-1221															
Aroclor-1232															
Total PCBs															
TOTAL METALS (mg/kg)															
SW6000-7000 Series															
Arsenic	8	7	14	6		9			9	6	200	410	50	28	5 U
Barium															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-9 (1.5-2.0) HP32F 1/13/2005	F-GC-9 (2.5-3.5) HR95B 1/13/2005	F-GC-9 (3.5-4.5) HR95C 1/13/2005	F-GC-10 (2.5-3.0) HP32C 1/13/2005	F-GC-10 (3.5-4.5) HP33E 1/13/2005	F-GC-10 (4.5-5.5) HR95A 1/13/2005	F-GC-10.1E (0.5-1.0) JD05R 3/2/2006	F-GC-10.1W (1.0-1.5) JD05Q 3/2/2006	F-GC-11 (0-0.5) HP32D 1/13/2005	F-GC-12 (0-0.5) HP32E 1/13/2005	F-GC-13 (0-1) HP57H 1/17/2005	F-GC-13 (1-2) HP61AB 1/17/2005	F-GC-13 (2-3) HT12C 1/17/2005	F-GC-13b (0-0.5) HU67G 3/3/2005	F-GC-13b (1-2) HW21C 3/3/2005
Cadmium	0.2 U			0.2 U					0.2 U	0.2 U	0.8	1.2	0.6	0.3	0.4
Chromium															
Copper	21.9			21.5					34.6	38.3	420	775	297	97.8	35.2
Lead	5			11					11	8	246	351	78	36	28
Mercury	0.05 U			0.05 U					0.04 U	0.06 U	0.10	0.04 UJ	0.04 UJ	0.05 U	0.16
Selenium															
Silver															
Zinc	35.2			50.1					77.6	43.1	1570	2970	1840	370	56.5
<b>TCLP METALS (mg/L)</b>															
<b>Method 6010B</b>															
Arsenic															
Barium															
Cadmium															
Chromium															
Lead															
Mercury															
Selenium															
Silver															
<b>TRIBUTYL TIN (ug/kg)</b>															
<b>TBT Ion by SIM</b>															
Tributyl Tin Chloride															
Dibutyl Tin Dichloride															
Butyl Tin Trichloride															
TBT as Tin ion															
<b>EPH (ug/kg)</b>															
<b>EPH 8015B</b>															
C8-C10 Aliphatics															
C10-C12 Aliphatics															
C12-C16 Aliphatics															
C16-C21 Aliphatics															
C21-C34 Aliphatics															
C8-C10 Aromatics															
C10-C12 Aromatics															
C12-C16 Aromatics															
C16-C21 Aromatics															
C21-C34 Aromatics															
Hazard Index															
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>															
<b>Method 8260B</b>															
Chloromethane															
Bromomethane															
Vinyl chloride															
Chloroethane															
Methylene chloride															
Acetone															
Carbon disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
trans-1,2-Dichloroethene															
cis-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
Methyl ethyl ketone															
1,1,1-Trichloroethane															
Carbon tetrachloride															
Vinyl acetate															
Bromodichloromethane															
1,2-Dichloropropane															
cis-1,3-Dichloropropene															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-9 (1.5-2.0) HP32F 1/13/2005	F-GC-9 (2.5-3.5) HR95B 1/13/2005	F-GC-9 (3.5-4.5) HR95C 1/13/2005	F-GC-10 (2.5-3.0) HP32C 1/13/2005	F-GC-10 (3.5-4.5) HP33E 1/13/2005	F-GC-10 (4.5-5.5) HR95A 1/13/2005	F-GC-10.1E (0.5-1.0) JD05R 3/2/2006	F-GC-10.1W (1.0-1.5) JD05Q 3/2/2006	F-GC-11 (0-0.5) HP32D 1/13/2005	F-GC-12 (0-0.5) HP32E 1/13/2005	F-GC-13 (0-1) HP57H 1/17/2005	F-GC-13 (1-2) HP61AB 1/17/2005	F-GC-13 (2-3) HT12C 1/17/2005	F-GC-13b (0-0.5) HU67G 3/3/2005	F-GC-13b (1-2) HW21C 3/3/2005
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-9 (1.5-2.0) HP32F 1/13/2005	F-GC-9 (2.5-3.5) HR95B 1/13/2005	F-GC-9 (3.5-4.5) HR95C 1/13/2005	F-GC-10 (2.5-3.0) HP32C 1/13/2005	F-GC-10 (3.5-4.5) HP33E 1/13/2005	F-GC-10 (4.5-5.5) HR95A 1/13/2005	F-GC-10.1E (0.5-1.0) JD05R 3/2/2006	F-GC-10.1W (1.0-1.5) JD05Q 3/2/2006	F-GC-11 (0-0.5) HP32D 1/13/2005	F-GC-12 (0-0.5) HP32E 1/13/2005	F-GC-13 (0-1) HP57H 1/17/2005	F-GC-13 (1-2) HP61AB 1/17/2005	F-GC-13 (2-3) HT12C 1/17/2005	F-GC-13b (0-0.5) HU67G 3/3/2005	F-GC-13b (1-2) HW21C 3/3/2005
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13c (0-0.5) HU67H 3/3/2005	F-GC-13c (1-2) HW21D 3/3/2005	F-GC-13c (2-3) HW66A 3/3/2005	F-GC-13c (3-5) HX19A 3/3/2005	F-GC-13c (5-7) HX19B 3/3/2005	F-GC-13d (3-4) HU88A 3/3/2005
CONVENTIONAL PARAMETERS						
Hexavalent Chrome (mg/kg)						
Total Solids (%)						
pH (Std Units)						
PETROLEUM HYDROCARBONS						
NWTPH-HCID (mg/kg)						
Gasoline						
Diesel						
Motor Oil						
NWTPH-Dx (mg/kg)						
Diesel						
Motor Oil						
Gasoline (mg/kg)						
Method 8021/NWTPH-G						
Gasoline						
BTEX (ug/kg)						
Method 8021						
Benzene						
Toluene						
Ethylbenzene						
m,p-Xylene						
o-Xylene						
cPAHs/Naphthalenes (ug/kg)						
SW8270C-SIM						
Naphthalene						
2-Methylnaphthalene						
1-Methylnaphthalene						
Benzo[a]anthracene	130					64 U
Chrysene	390					64 U
Benzo[b]fluoranthene	320					64 U
Benzo[k]fluoranthene	170					64 U
Benzo[a]pyrene	160					64 U
Indeno[1,2,3-cd]pyrene	140					64 U
Dibenz[a,h]anthracene	63 U					64 U
Acenaphthene						
Acenaphthylene						
Anthracene						
Benzo[g,h,i]perylene						
Fluoranthene						
Fluorene						
Phenanthrene						
Pyrene						
cPAH TEQ	240					ND
PCBs (ug/kg)						
Method SW8082						
Aroclor-1016						
Aroclor-1242						
Aroclor-1248						
Aroclor-1254						
Aroclor-1260						
Aroclor-1221						
Aroclor-1232						
Total PCBs						
TOTAL METALS (mg/kg)						
SW6000-7000 Series						
Arsenic	90	54	48	7	6 U	5 U
Barium						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13c (0-0.5) HU67H 3/3/2005	F-GC-13c (1-2) HW21D 3/3/2005	F-GC-13c (2-3) HW66A 3/3/2005	F-GC-13c (3-5) HX19A 3/3/2005	F-GC-13c (5-7) HX19B 3/3/2005	F-GC-13d (3-4) HU88A 3/3/2005
Cadmium	1.0	3.9	2.7	0.2 U	0.2 U	0.2 U
Chromium						
Copper	607	62.7	62.5	17.6	16.7	16.1
Lead	194	223	286	4	4	4
Mercury	0.06	0.04 U	0.05 U	0.05 UJ	0.05 UJ	0.05 U
Selenium						
Silver						
Zinc	1990	7770	6500	43.7	36.9	34.6
<b>TCLP METALS (mg/L)</b>						
<b>Method 6010B</b>						
Arsenic						
Barium						
Cadmium						
Chromium						
Lead						
Mercury						
Selenium						
Silver						
<b>TRIBUTYL TIN (ug/kg)</b>						
<b>TBT Ion by SIM</b>						
Tributyl Tin Chloride						
Dibutyl Tin Dichloride						
Butyl Tin Trichloride						
TBT as Tin ion						
<b>EPH (ug/kg)</b>						
<b>EPH 8015B</b>						
C8-C10 Aliphatics						
C10-C12 Aliphatics						
C12-C16 Aliphatics						
C16-C21 Aliphatics						
C21-C34 Aliphatics						
C8-C10 Aromatics						
C10-C12 Aromatics						
C12-C16 Aromatics						
C16-C21 Aromatics						
C21-C34 Aromatics						
Hazard Index						
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>						
<b>Method 8260B</b>						
Chloromethane						
Bromomethane						
Vinyl chloride						
Chloroethane						
Methylene chloride						
Acetone						
Carbon disulfide						
1,1-Dichloroethene						
1,1-Dichloroethane						
trans-1,2-Dichloroethene						
cis-1,2-Dichloroethene						
Chloroform						
1,2-Dichloroethane						
Methyl ethyl ketone						
1,1,1-Trichloroethane						
Carbon tetrachloride						
Vinyl acetate						
Bromodichloromethane						
1,2-Dichloropropane						
cis-1,3-Dichloropropene						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13c (0-0.5) HU67H 3/3/2005	F-GC-13c (1-2) HW21D 3/3/2005	F-GC-13c (2-3) HW66A 3/3/2005	F-GC-13c (3-5) HX19A 3/3/2005	F-GC-13c (5-7) HX19B 3/3/2005	F-GC-13d (3-4) HU88A 3/3/2005
Trichloroethene						
Dibromochloromethane						
1,1,2-Trichloroethane						
Benzene						
trans-1,3-Dichloropropene						
2-Chloroethylvinylether						
Bromoform						
4-Methyl-2-Pentanone (MIBK)						
2-Hexanone						
Tetrachloroethene						
1,1,2,2-Tetrachloroethane						
Toluene						
Chlorobenzene						
Ethylbenzene						
Styrene						
Trichlorofluoromethane						
1,1,2-Trichloro-1,2,2-trifluoroethane						
m,p-Xylene						
o-Xylene						
1,2-Dichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
Acrolein						
Methyl Iodide						
Bromoethane						
Acrylonitrile						
1,1-Dichloropropene						
Dibromomethane						
1,1,1,2-Tetrachloroethane						
1,2-Dibromo-3-chloropropane						
1,2,3-Trichloropropane						
trans-1,4-Dichloro-2-butene						
1,3,5-Trimethylbenzene						
1,2,4-Trimethylbenzene						
Hexachlorobutadiene						
Ethylene Dibromide						
Bromochloromethane						
2,2-Dichloropropane						
1,3-Dichloropropane						
Isopropylbenzene						
n-Propylbenzene						
Bromobenzene						
2-Chlorotoluene						
4-Chlorotoluene						
tert-Butylbenzene						
sec-Butylbenzene						
4-Isopropyltoluene						
n-Butylbenzene						
1,2,4-Trichlorobenzene						
Naphthalene						
1,2,3-Trichlorobenzene						
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)						
Method 8270C						
Phenol						
Bis-(2-Chloroethyl) Ether						
2-Chlorophenol						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
Benzyl Alcohol						
1,2-Dichlorobenzene						
2-Methylphenol						
2,2'-Oxybis(1-Chloropropane)						
4-Methylphenol						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13c (0-0.5) HU67H 3/3/2005	F-GC-13c (1-2) HW21D 3/3/2005	F-GC-13c (2-3) HW66A 3/3/2005	F-GC-13c (3-5) HX19A 3/3/2005	F-GC-13c (5-7) HX19B 3/3/2005	F-GC-13d (3-4) HU88A 3/3/2005
N-Nitroso-Di-N-Propylamine						
Hexachloroethane						
Nitrobenzene						
Isophorone						
2-Nitrophenol						
2,4-Dimethylphenol						
Benzoic Acid						
bis(2-Chloroethoxy) Methane						
2,4-Dinitrophenol						
1,2,4-Trichlorobenzene						
Naphthalene						
4-Chloroaniline						
Hexachlorobutadiene						
4-Chloro-3-methylphenol						
2-Methylnaphthalene						
1-Methylnaphthalene						
Total naphthalenes						
Hexachlorocyclopentadiene						
2,4,6-Trichlorophenol						
2,4,5-Trichlorophenol						
2-Chloronaphthalene						
2-Nitroaniline						
Dimethylphthalate						
Acenaphthylene						
3-Nitroaniline						
Acenaphthene						
2,4-Dichlorophenol						
4-Nitrophenol						
Dibenzofuran						
2,6-Dinitrotoluene						
2,4-Dinitrotoluene						
Diethylphthalate						
4-Chlorophenyl-phenylether						
Fluorene						
4-Nitroaniline						
4,6-Dinitro-2-Methylphenol						
N-Nitrosodiphenylamine						
4-Bromophenyl-phenylether						
Hexachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Carbazole						
Anthracene						
Di-n-Butylphthalate						
Fluoranthene						
Pyrene						
Butylbenzylphthalate						
3,3'-Dichlorobenzidine						
Benzo(a)anthracene						
bis(2-Ethylhexyl)phthalate						
Chrysene						
Di-n-Octyl phthalate						
Benzo(b)fluoranthene						
Benzo(k)fluoranthene						
Benzo(a)pyrene						
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene						
Benzo(g,h,i)perylene						
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13b.1E (0-0.5) JD05J 3/2/2006	F-GC-13b.1N (0-0.5) JD05F 3/2/2006	F-GC-13b.1S (0-0.5) JD05I 3/2/2006	F-GC-13b.2E (0-0.5) JD55C 3/2/2006	F-GC-13b.2S (0-0.5) JD55D 3/2/2006	F-GC-13b.3E (0-0.5) JD55B 3/2/2006	F-GC-13b.3S (0-0.5) JE07B 3/1/2006	F-GC-13b.4S (0-0.5) JE81A 3/27/2006	F-GC-13b.5S (0-0.5) JF49B 3/27/2006	F-GC-13b.5S.1W (0-0.5) JF49D 3/27/2006	F-GC-13b.6S (0-0.5) JE81C 3/27/2006	F-GC-13b.6S.2W (0-0.5) JE81E/JH27C 3/27/2006	F-GC-13b.6S.1W (0-0.5) JF49C 3/27/2006	F-GC-13c.1S (0-0.5) JD05M 3/2/2006	F-GC-13c.2S (0-0.5) JE39B 3/2/2006
<b>CONVENTIONAL PARAMETERS</b> Hexavalent Chrome (mg/kg) Total Solids (%) pH (Std Units)															
<b>PETROLEUM HYDROCARBONS</b> <b>NWTPH-HCID (mg/kg)</b> Gasoline Diesel Motor Oil															
<b>NWTPH-Dx (mg/kg)</b> Diesel Motor Oil												5.1 U 10			
<b>Gasoline (mg/kg)</b> <b>Method 8021/NWTPH-G</b> Gasoline															
<b>BTEX (ug/kg)</b> <b>Method 8021</b> Benzene Toluene Ethylbenzene m,p-Xylene o-Xylene															
<b>cPAHs/Naphthalenes (ug/kg)</b> <b>SW8270C-SIM</b> Naphthalene 2-Methylnaphthalene 1-Methylnaphthalene Benzo[a]anthracene Chrysene Benzo[b]fluoranthene Benzo[k]fluoranthene Benzo[a]pyrene Indeno[1,2,3-cd]pyrene Dibenz[a,h]anthracene Acenaphthene Acenaphthylene Anthracene Benzo[g,h,i]perylene Fluoranthene Fluorene Phenanthrene Pyrene cPAH TEQ															
<b>PCBs (ug/kg)</b> <b>Method SW8082</b> Aroclor-1016 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1221 Aroclor-1232 Total PCBs															
<b>TOTAL METALS (mg/kg)</b> <b>SW6000-7000 Series</b> Arsenic Barium	170	62	50	70	170	26	810	590 J	70	8	9	29	14	11	170

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

F-GC-13b.1E	F-GC-13b.1N	F-GC-13b.1S	F-GC-13b.2E	F-GC-13b.2S	F-GC-13b.3E	F-GC-13b.3S	F-GC-13b.4S	F-GC-13b.5S	F-GC-13b.5S.1W	F-GC-13b.6S	F-GC-13b.6S.2W	F-GC-13b.6S.1W	F-GC-13c.1S	F-GC-13c.2S
(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)
JD05J	JD05F	JD05I	JD55C	JD55D	JD55B	JE07B	JE81A	JF49B	JF49D	JE81C	JE81E/JH27C	JF49C	JD05M	JE39B
3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/1/2006	3/27/2006	3/27/2006	3/27/2006	3/27/2006	3/27/2006	3/2/2006	3/2/2006

Cadmium
Chromium
Copper
Lead
Mercury
Selenium
Silver
Zinc
<b>TCLP METALS (mg/L)</b>
<b>Method 6010B</b>
Arsenic
Barium
Cadmium
Chromium
Lead
Mercury
Selenium
Silver
<b>TRIBUTYL TIN (ug/kg)</b>
<b>TBT Ion by SIM</b>
Tributyl Tin Chloride
Dibutyl Tin Dichloride
Butyl Tin Trichloride
TBT as Tin ion
<b>EPH (ug/kg)</b>
<b>EPH 8015B</b>
C8-C10 Aliphatics
C10-C12 Aliphatics
C12-C16 Aliphatics
C16-C21 Aliphatics
C21-C34 Aliphatics
C8-C10 Aromatics
C10-C12 Aromatics
C12-C16 Aromatics
C16-C21 Aromatics
C21-C34 Aromatics
 Hazard Index
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>
<b>Method 8260B</b>
Chloromethane
Bromomethane
Vinyl chloride
Chloroethane
Methylene chloride
Acetone
Carbon disulfide
1,1-Dichloroethene
1,1-Dichloroethane
trans-1,2-Dichloroethene
cis-1,2-Dichloroethene
Chloroform
1,2-Dichloroethane
Methyl ethyl ketone
1,1,1-Trichloroethane
Carbon tetrachloride
Vinyl acetate
Bromodichloromethane
1,2-Dichloropropane
cis-1,3-Dichloropropene

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13b.1E	F-GC-13b.1N	F-GC-13b.1S	F-GC-13b.2E	F-GC-13b.2S	F-GC-13b.3E	F-GC-13b.3S	F-GC-13b.4S	F-GC-13b.5S	F-GC-13b.5S.1W	F-GC-13b.6S	F-GC-13b.6S.2W	F-GC-13b.6S.1W	F-GC-13c.1S	F-GC-13c.2S
	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)
	JD05J	JD05F	JD05I	JD55C	JD55D	JD55B	JE07B	JE81A	JF49B	JF49D	JE81C	JE81E/JH27C	JF49C	JD05M	JE39B
	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/1/2006	3/27/2006	3/27/2006	3/27/2006	3/27/2006	3/27/2006	3/27/2006	3/2/2006	3/2/2006
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
trans-1,3-Dichloropropene															
2-Chloroethylvinylether															
Bromoform															
4-Methyl-2-Pentanone (MIBK)															
2-Hexanone															
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Trichlorofluoromethane															
1,1,2-Trichloro-1,2,2-trifluoroethane															
m,p-Xylene															
o-Xylene															
1,2-Dichlorobenzene															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Acrolein															
Methyl Iodide															
Bromoethane															
Acrylonitrile															
1,1-Dichloropropene															
Dibromomethane															
1,1,1,2-Tetrachloroethane															
1,2-Dibromo-3-chloropropane															
1,2,3-Trichloropropane															
trans-1,4-Dichloro-2-butene															
1,3,5-Trimethylbenzene															
1,2,4-Trimethylbenzene															
Hexachlorobutadiene															
Ethylene Dibromide															
Bromochloromethane															
2,2-Dichloropropane															
1,3-Dichloropropane															
Isopropylbenzene															
n-Propylbenzene															
Bromobenzene															
2-Chlorotoluene															
4-Chlorotoluene															
tert-Butylbenzene															
sec-Butylbenzene															
4-Isopropyltoluene															
n-Butylbenzene															
1,2,4-Trichlorobenzene															
Naphthalene															
1,2,3-Trichlorobenzene															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)															
Method 8270C															
Phenol															
Bis-(2-Chloroethyl) Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
2,2'-Oxybis(1-Chloropropane)															
4-Methylphenol															



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13b.1E	F-GC-13b.1N	F-GC-13b.1S	F-GC-13b.2E	F-GC-13b.2S	F-GC-13b.3E	F-GC-13b.3S	F-GC-13b.4S	F-GC-13b.5S	F-GC-13b.5S.1W	F-GC-13b.6S	F-GC-13b.6S.2W	F-GC-13b.6S.1W	F-GC-13c.1S	F-GC-13c.2S
	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)	(0-0.5)
	JD05J	JD05F	JD05I	JD55C	JD55D	JD55B	JE07B	JE81A	JF49B	JF49D	JE81C	JE81E/JH27C	JF49C	JD05M	JE39B
	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/2/2006	3/1/2006	3/27/2006	3/27/2006	3/27/2006	3/27/2006	3/27/2006	3/27/2006	3/2/2006	3/2/2006
N-Nitroso-Di-N-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy) Methane															
2,4-Dinitrophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-methylphenol															
2-Methylnaphthalene															
1-Methylnaphthalene															
Total naphthalenes															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline															
Dimethylphthalate															
Acenaphthylene															
3-Nitroaniline															
Acenaphthene															
2,4-Dichlorophenol															
4-Nitrophenol															
Dibenzofuran															
2,6-Dinitrotoluene															
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methylphenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Carbazole															
Anthracene															
Di-n-Butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3'-Dichlorobenzidine															
Benzo(a)anthracene															
bis(2-Ethylhexyl)phthalate															
Chrysene															
Di-n-Octyl phthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene															
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)															

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13c.2S.1W (0-0.5) JF49E 3/27/2006	F-GC-13c.3S (0-0.5) JE39C 3/2/2006	F1b-Chara1 KZ26A 5/15/2007	F1b-Chara2 KZ26B 5/15/2007	F1b-Chara3 KZ26C 5/15/2007	AFD-1.4 (0.7-2.0) JY47I 9/26/2006	AFD-1.6 (0-0.9) JY47O 9/26/2006	AFD-1.8 (0.6-1.1) JY47Q 9/26/2006	AFD-2.3 (1.6-2.6) JY47G 9/26/2006	AFD-2.4 (0.4-1.4) JY47F 9/26/2006	AFD-2.5 (1.3-2.8) JY47E 9/26/2006	AFD-2.6 (0-1.6) JY47K 9/26/2006	AFD-2.7 (2.4-3.2) JY47L 9/26/2006	AFD-2.8 (2.9-3.4) JY47M 9/26/2006	AFD-2.9 (2-2.8) JY47N 9/26/2006	AFD-3.3 (2.4-5.2) JY47B 9/26/2006
CONVENTIONAL PARAMETERS																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
PETROLEUM HYDROCARBONS																
NWTPH-HCID (mg/kg)																
Gasoline																
Diesel																
Motor Oil																
NWTPH-Dx (mg/kg)																
Diesel																
Motor Oil																
Gasoline (mg/kg)																
Method 8021/NWTPH-G																
Gasoline																
BTEX (ug/kg)																
Method 8021																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
cPAHs/Naphthalenes (ug/kg)																
SW8270C-SIM																
Naphthalene																
2-Methylnaphthalene																
1-Methylnaphthalene																
Benzo[a]anthracene																
Chrysene						180	120	130	140	130	150	180	64 U	65 U	65 U	130
Benzo[b]fluoranthene						230	160	170	190	170	220	140	64 U	65 U	65 U	130
Benzo[k]fluoranthene						97	68	83	77	64 U	95	71	64 U	65 U	65 U	69
Benzo[a]pyrene						130	67	81	67	81	89	110	64 U	65 U	65 U	69
Indeno[1,2,3-cd]pyrene						93	64 U	66 U	66	64 U	64	76	64 U	65 U	65 U	66 U
Dibenz[a,h]anthracene						63 U	64 U	66 U	65 U	64 U	64 U	65 U	64 U	65 U	65 U	66 U
Acenaphthene						63 U	64 U	66 U	65 U	64 U	64 U	65 U	64 U	65 U	65 U	66 U
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ						136	27.1	31.1	96.3	22.8	100	114	ND	ND	ND	28.1
PCBs (ug/kg)																
Method SW8082																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																
TOTAL METALS (mg/kg)																
SW6000-7000 Series																
Arsenic	8	160	30	70	5											
Barium																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13c.2S.1W (0-0.5) JF49E 3/27/2006	F-GC-13c.3S (0-0.5) JE39C 3/2/2006	F1b-Chara1 KZ26A 5/15/2007	F1b-Chara2 KZ26B 5/15/2007	F1b-Chara3 KZ26C 5/15/2007	AFD-1.4 (0.7-2.0) JY47I 9/26/2006	AFD-1.6 (0-0.9) JY47O 9/26/2006	AFD-1.8 (0.6-1.1) JY47Q 9/26/2006	AFD-2.3 (1.6-2.6) JY47G 9/26/2006	AFD-2.4 (0.4-1.4) JY47F 9/26/2006	AFD-2.5 (1.3-2.8) JY47E 9/26/2006	AFD-2.6 (0-1.6) JY47K 9/26/2006	AFD-2.7 (2.4-3.2) JY47L 9/26/2006	AFD-2.8 (2.9-3.4) JY47M 9/26/2006	AFD-2.9 (2-2.8) JY47N 9/26/2006	AFD-3.3 (2.4-5.2) JY47B 9/26/2006
Cadmium																
Chromium																
Copper																
Lead																
Mercury																
Selenium																
Silver																
Zinc																
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13c.2S.1W (0-0.5) JF49E 3/27/2006	F-GC-13c.3S (0-0.5) JE39C 3/2/2006	F1b-Chara1 KZ26A 5/15/2007	F1b-Chara2 KZ26B 5/15/2007	F1b-Chara3 KZ26C 5/15/2007	AFD-1.4 (0.7-2.0) JY47I 9/26/2006	AFD-1.6 (0-0.9) JY47O 9/26/2006	AFD-1.8 (0.6-1.1) JY47Q 9/26/2006	AFD-2.3 (1.6-2.6) JY47G 9/26/2006	AFD-2.4 (0.4-1.4) JY47F 9/26/2006	AFD-2.5 (1.3-2.8) JY47E 9/26/2006	AFD-2.6 (0-1.6) JY47K 9/26/2006	AFD-2.7 (2.4-3.2) JY47L 9/26/2006	AFD-2.8 (2.9-3.4) JY47M 9/26/2006	AFD-2.9 (2-2.8) JY47N 9/26/2006	AFD-3.3 (2.4-5.2) JY47B 9/26/2006
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-GC-13c.2S.1W (0-0.5) JF49E 3/27/2006	F-GC-13c.3S (0-0.5) JE39C 3/2/2006	F1b-Chara1 KZ26A 5/15/2007	F1b-Chara2 KZ26B 5/15/2007	F1b-Chara3 KZ26C 5/15/2007	AFD-1.4 (0.7-2.0) JY47I 9/26/2006	AFD-1.6 (0-0.9) JY47O 9/26/2006	AFD-1.8 (0.6-1.1) JY47Q 9/26/2006	AFD-2.3 (1.6-2.6) JY47G 9/26/2006	AFD-2.4 (0.4-1.4) JY47F 9/26/2006	AFD-2.5 (1.3-2.8) JY47E 9/26/2006	AFD-2.6 (0-1.6) JY47K 9/26/2006	AFD-2.7 (2.4-3.2) JY47L 9/26/2006	AFD-2.8 (2.9-3.4) JY47M 9/26/2006	AFD-2.9 (2-2.8) JY47N 9/26/2006	AFD-3.3 (2.4-5.2) JY47B 9/26/2006
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	AFD-3.4 (1.2-5.0) JY47C 9/26/2006	AFD-3.5 (2.0-5.2) JY47D 9/26/2006	AFD-3.7 (1.1-1.9) JY48C 9/27/2006	AFD-4.5 (2.1-3.1) JY46Q 9/26/2006	AFD-4.6 (2.0-4.6) JY47A 9/26/2006	AFD-4.7 (0.7-1.3) JY48D 9/27/2006	AFD-5.2 (0-1.4) JY46F 9/26/2006	AFD-5.3 (0-1.5) JY46E 9/26/2006	AFD-5.4 (0-1.0) JY46N 9/26/2006	AFD-5.5 (0.9-2.2) JY46O 9/26/2006	AFD-5.6a (1.0-2.8) JY46P 9/26/2006	AFD-5.6b (0.8-1.9) JY48E 9/27/2006	AFD-5.7 (0.9-1.8) JY48F 9/27/2006	AFD-6.0 (1.5-2.0) JY46D 9/26/2006	AFD-6.1 (1.3-2.0) JY46C 9/26/2006	AFD-6.2 (0.9-1.9) JY46B 9/26/2006	AFD-6.3 (0.5-2.5) JY46A 9/26/2006
<b>CONVENTIONAL PARAMETERS</b>																	
Hexavalent Chrome (mg/kg)																	
Total Solids (%)																	
pH (Std Units)																	
<b>PETROLEUM HYDROCARBONS</b>																	
<b>NWTPH-HCID (mg/kg)</b>																	
Gasoline																	
Diesel																	
Motor Oil																	
<b>NWTPH-Dx (mg/kg)</b>																	
Diesel	170	89															
Motor Oil	360	180															
<b>Gasoline (mg/kg)</b>																	
<b>Method 8021/NWTPH-G</b>																	
Gasoline																	
<b>BTEX (ug/kg)</b>																	
<b>Method 8021</b>																	
Benzene																	
Toluene																	
Ethylbenzene																	
m,p-Xylene																	
o-Xylene																	
<b>cPAHs/Naphthalenes (ug/kg)</b>																	
<b>SW8270C-SIM</b>																	
Naphthalene																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Benzo[a]anthracene																	
Chrysene	150	140	110	63 U	100	120	110	66 U	120	160	120	190	200	63 U	66 U	65 U	120
Benzo[b]fluoranthene	210	160	160	65	130	180	180	98	180	170	200	250	250	63 U	66 U	270	160
Benzo[k]fluoranthene	93	78	68	63 U	65 U	63 U	75	66 U	66	86	70	87	110	63 U	66 U	65 U	72
Benzo[a]pyrene	100	67	69	63 U	69	98	74	66 U	70	74	110	86	110	63 U	66 U	65 U	100
Indeno[1,2,3-cd]pyrene	71	64 U	65 U	63 U	65 U	63 U	64 U	66 U	64 U	72	86	69	88	63 U	66 U	65 U	77
Dibenz[a,h]anthracene	66 U	64 U	65 U	63 U	65 U	63 U	64 U	66 U	64 U	63 U	66 U	66 U	64 U	63 U	66 U	65 U	66 U
Acenaphthene	66 U	64 U	65 U	63 U	65 U	63 U	64 U	66 U	64 U	63 U	66 U	66 U	64 U	63 U	66 U	65 U	66 U
Acenaphthylene																	
Anthracene																	
Benzo[g,h,i]perylene																	
Fluoranthene																	
Fluorene																	
Phenanthrene																	
Pyrene																	
cPAH TEQ	107	30.3	26.3	0.65	18.2	23.6	27.7	0.98	27.4	106	118	108	132	ND	ND	2.7	108
<b>PCBs (ug/kg)</b>																	
<b>Method SW8082</b>																	
Aroclor-1016																	
Aroclor-1242																	
Aroclor-1248																	
Aroclor-1254																	
Aroclor-1260																	
Aroclor-1221																	
Aroclor-1232																	
Total PCBs																	
<b>TOTAL METALS (mg/kg)</b>																	
<b>SW6000-7000 Series</b>																	
Arsenic																	
Barium																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	AFD-3.4 (1.2-5.0) JY47C 9/26/2006	AFD-3.5 (2.0-5.2) JY47D 9/26/2006	AFD-3.7 (1.1-1.9) JY48C 9/27/2006	AFD-4.5 (2.1-3.1) JY46Q 9/26/2006	AFD-4.6 (2.0-4.6) JY47A 9/26/2006	AFD-4.7 (0.7-1.3) JY48D 9/27/2006	AFD-5.2 (0-1.4) JY46F 9/26/2006	AFD-5.3 (0-1.5) JY46E 9/26/2006	AFD-5.4 (0-1.0) JY46N 9/26/2006	AFD-5.5 (0.9-2.2) JY46O 9/26/2006	AFD-5.6a (1.0-2.8) JY46P 9/26/2006	AFD-5.6b (0.8-1.9) JY48E 9/27/2006	AFD-5.7 (0.9-1.8) JY48F 9/27/2006	AFD-6.0 (1.5-2.0) JY46D 9/26/2006	AFD-6.1 (1.3-2.0) JY46C 9/26/2006	AFD-6.2 (0.9-1.9) JY46B 9/26/2006	AFD-6.3 (0.5-2.5) JY46A 9/26/2006
Cadmium																	
Chromium																	
Copper																	
Lead																	
Mercury																	
Selenium																	
Silver																	
Zinc																	
<b>TCLP METALS (mg/L)</b>																	
<b>Method 6010B</b>																	
Arsenic																	
Barium																	
Cadmium																	
Chromium																	
Lead																	
Mercury																	
Selenium																	
Silver																	
<b>TRIBUTYL TIN (ug/kg)</b>																	
<b>TBT Ion by SIM</b>																	
Tributyl Tin Chloride																	
Dibutyl Tin Dichloride																	
Butyl Tin Trichloride																	
TBT as Tin ion																	
<b>EPH (ug/kg)</b>																	
<b>EPH 8015B</b>																	
C8-C10 Aliphatics																	
C10-C12 Aliphatics																	
C12-C16 Aliphatics																	
C16-C21 Aliphatics																	
C21-C34 Aliphatics																	
C8-C10 Aromatics																	
C10-C12 Aromatics																	
C12-C16 Aromatics																	
C16-C21 Aromatics																	
C21-C34 Aromatics																	
Hazard Index																	
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																	
<b>Method 8260B</b>																	
Chloromethane																	
Bromomethane																	
Vinyl chloride																	
Chloroethane																	
Methylene chloride																	
Acetone																	
Carbon disulfide																	
1,1-Dichloroethene																	
1,1-Dichloroethane																	
trans-1,2-Dichloroethene																	
cis-1,2-Dichloroethene																	
Chloroform																	
1,2-Dichloroethane																	
Methyl ethyl ketone																	
1,1,1-Trichloroethane																	
Carbon tetrachloride																	
Vinyl acetate																	
Bromodichloromethane																	
1,2-Dichloropropane																	
cis-1,3-Dichloropropene																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	AFD-3.4 (1.2-5.0) JY47C 9/26/2006	AFD-3.5 (2.0-5.2) JY47D 9/26/2006	AFD-3.7 (1.1-1.9) JY48C 9/27/2006	AFD-4.5 (2.1-3.1) JY46Q 9/26/2006	AFD-4.6 (2.0-4.6) JY47A 9/26/2006	AFD-4.7 (0.7-1.3) JY48D 9/27/2006	AFD-5.2 (0-1.4) JY46F 9/26/2006	AFD-5.3 (0-1.5) JY46E 9/26/2006	AFD-5.4 (0-1.0) JY46N 9/26/2006	AFD-5.5 (0.9-2.2) JY46O 9/26/2006	AFD-5.6a (1.0-2.8) JY46P 9/26/2006	AFD-5.6b (0.8-1.9) JY48E 9/27/2006	AFD-5.7 (0.9-1.8) JY48F 9/27/2006	AFD-6.0 (1.5-2.0) JY46D 9/26/2006	AFD-6.1 (1.3-2.0) JY46C 9/26/2006	AFD-6.2 (0.9-1.9) JY46B 9/26/2006	AFD-6.3 (0.5-2.5) JY46A 9/26/2006
Trichloroethene																	
Dibromochloromethane																	
1,1,2-Trichloroethane																	
Benzene																	
trans-1,3-Dichloropropene																	
2-Chloroethylvinylether																	
Bromoform																	
4-Methyl-2-Pentanone (MIBK)																	
2-Hexanone																	
Tetrachloroethene																	
1,1,2,2-Tetrachloroethane																	
Toluene																	
Chlorobenzene																	
Ethylbenzene																	
Styrene																	
Trichlorofluoromethane																	
1,1,2-Trichloro-1,2,2-trifluoroethane																	
m,p-Xylene																	
o-Xylene																	
1,2-Dichlorobenzene																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Acrolein																	
Methyl Iodide																	
Bromoethane																	
Acrylonitrile																	
1,1-Dichloropropene																	
Dibromomethane																	
1,1,1,2-Tetrachloroethane																	
1,2-Dibromo-3-chloropropane																	
1,2,3-Trichloropropane																	
trans-1,4-Dichloro-2-butene																	
1,3,5-Trimethylbenzene																	
1,2,4-Trimethylbenzene																	
Hexachlorobutadiene																	
Ethylene Dibromide																	
Bromochloromethane																	
2,2-Dichloropropane																	
1,3-Dichloropropane																	
Isopropylbenzene																	
n-Propylbenzene																	
Bromobenzene																	
2-Chlorotoluene																	
4-Chlorotoluene																	
tert-Butylbenzene																	
sec-Butylbenzene																	
4-Isopropyltoluene																	
n-Butylbenzene																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
1,2,3-Trichlorobenzene																	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																	
Method 8270C																	
Phenol																	
Bis-(2-Chloroethyl) Ether																	
2-Chlorophenol																	
1,3-Dichlorobenzene																	
1,4-Dichlorobenzene																	
Benzyl Alcohol																	
1,2-Dichlorobenzene																	
2-Methylphenol																	
2,2'-Oxybis(1-Chloropropane)																	
4-Methylphenol																	



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	AFD-3.4 (1.2-5.0) JY47C 9/26/2006	AFD-3.5 (2.0-5.2) JY47D 9/26/2006	AFD-3.7 (1.1-1.9) JY48C 9/27/2006	AFD-4.5 (2.1-3.1) JY46Q 9/26/2006	AFD-4.6 (2.0-4.6) JY47A 9/26/2006	AFD-4.7 (0.7-1.3) JY48D 9/27/2006	AFD-5.2 (0-1.4) JY46F 9/26/2006	AFD-5.3 (0-1.5) JY46E 9/26/2006	AFD-5.4 (0-1.0) JY46N 9/26/2006	AFD-5.5 (0.9-2.2) JY46O 9/26/2006	AFD-5.6a (1.0-2.8) JY46P 9/26/2006	AFD-5.6b (0.8-1.9) JY48E 9/27/2006	AFD-5.7 (0.9-1.8) JY48F 9/27/2006	AFD-6.0 (1.5-2.0) JY46D 9/26/2006	AFD-6.1 (1.3-2.0) JY46C 9/26/2006	AFD-6.2 (0.9-1.9) JY46B 9/26/2006	AFD-6.3 (0.5-2.5) JY46A 9/26/2006
N-Nitroso-Di-N-Propylamine																	
Hexachloroethane																	
Nitrobenzene																	
Isophorone																	
2-Nitrophenol																	
2,4-Dimethylphenol																	
Benzoic Acid																	
bis(2-Chloroethoxy) Methane																	
2,4-Dinitrophenol																	
1,2,4-Trichlorobenzene																	
Naphthalene																	
4-Chloroaniline																	
Hexachlorobutadiene																	
4-Chloro-3-methylphenol																	
2-Methylnaphthalene																	
1-Methylnaphthalene																	
Total naphthalenes																	
Hexachlorocyclopentadiene																	
2,4,6-Trichlorophenol																	
2,4,5-Trichlorophenol																	
2-Chloronaphthalene																	
2-Nitroaniline																	
Dimethylphthalate																	
Acenaphthylene																	
3-Nitroaniline																	
Acenaphthene																	
2,4-Dichlorophenol																	
4-Nitrophenol																	
Dibenzofuran																	
2,6-Dinitrotoluene																	
2,4-Dinitrotoluene																	
Diethylphthalate																	
4-Chlorophenyl-phenylether																	
Fluorene																	
4-Nitroaniline																	
4,6-Dinitro-2-Methylphenol																	
N-Nitrosodiphenylamine																	
4-Bromophenyl-phenylether																	
Hexachlorobenzene																	
Pentachlorophenol																	
Phenanthrene																	
Carbazole																	
Anthracene																	
Di-n-Butylphthalate																	
Fluoranthene																	
Pyrene																	
Butylbenzylphthalate																	
3,3'-Dichlorobenzidine																	
Benzo(a)anthracene																	
bis(2-Ethylhexyl)phthalate																	
Chrysene																	
Di-n-Octyl phthalate																	
Benzo(b)fluoranthene																	
Benzo(k)fluoranthene																	
Benzo(a)pyrene																	
Indeno(1,2,3-cd)pyrene																	
Dibenz(a,h)anthracene																	
Benzo(g,h,i)perylene																	
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																	

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	AFD-6.4 (0.8-4) JY46L 9/26/2006	AFD-6.5 (1.8-3) JY46M 9/26/2006	AFD-7.1 (0.5-1.5) JY46I 9/26/2006	AFD-7.3 (0.4-4) JY46H 9/26/2006	AFD-8.2 (0.6-2.4) JY46J 9/26/2006	AFD-8.3 (1.1-1.8) JY46K 9/26/2006
<b>CONVENTIONAL PARAMETERS</b>						
Hexavalent Chrome (mg/kg)						
Total Solids (%)						
pH (Std Units)						
<b>PETROLEUM HYDROCARBONS</b>						
<b>NWTPH-HCID (mg/kg)</b>						
Gasoline						
Diesel						
Motor Oil						
<b>NWTPH-Dx (mg/kg)</b>						
Diesel				170		
Motor Oil				300		
<b>Gasoline (mg/kg)</b>						
<b>Method 8021/NWTPH-G</b>						
Gasoline						
<b>BTEX (ug/kg)</b>						
<b>Method 8021</b>						
Benzene						
Toluene						
Ethylbenzene						
m,p-Xylene						
o-Xylene						
<b>cPAHs/Naphthalenes (ug/kg)</b>						
<b>SW8270C-SIM</b>						
Naphthalene						
2-Methylnaphthalene						
1-Methylnaphthalene						
Benzo[a]anthracene						
Chrysene	63 U	250	66 U	66	120 M	100
Benzo[b]fluoranthene	89	240	66 U	84	560 M	150
Benzo[k]fluoranthene	63 U	100	66 U	64 U	65 U	70
Benzo[a]pyrene	63 U	87	66 U	64 U	65 U	79
Indeno[1,2,3-cd]pyrene	63 U	76	66 U	64 U	65 U	65 U
Dibenz[a,h]anthracene	63 U	66 U	66 U	64 U	65 U	65 U
Acenaphthene	63 U	66 U	66 U	64 U	65 U	65 U
Acenaphthylene						
Anthracene						
Benzo[g,h,i]perylene						
Fluoranthene						
Fluorene						
Phenanthrene						
Pyrene						
cPAH TEQ	0.89	122	ND	7.4	17.6	26.4
<b>PCBs (ug/kg)</b>						
<b>Method SW8082</b>						
Aroclor-1016						
Aroclor-1242						
Aroclor-1248						
Aroclor-1254						
Aroclor-1260						
Aroclor-1221						
Aroclor-1232						
Total PCBs						
<b>TOTAL METALS (mg/kg)</b>						
<b>SW6000-7000 Series</b>						
Arsenic						
Barium						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	AFD-6.4 (0.8-4) JY46L 9/26/2006	AFD-6.5 (1.8-3) JY46M 9/26/2006	AFD-7.1 (0.5-1.5) JY46I 9/26/2006	AFD-7.3 (0.4-4) JY46H 9/26/2006	AFD-8.2 (0.6-2.4) JY46J 9/26/2006	AFD-8.3 (1.1-1.8) JY46K 9/26/2006
Cadmium						
Chromium						
Copper						
Lead						
Mercury						
Selenium						
Silver						
Zinc						
<b>TCLP METALS (mg/L)</b>						
<b>Method 6010B</b>						
Arsenic						
Barium						
Cadmium						
Chromium						
Lead						
Mercury						
Selenium						
Silver						
<b>TRIBUTYL TIN (ug/kg)</b>						
<b>TBT Ion by SIM</b>						
Tributyl Tin Chloride						
Dibutyl Tin Dichloride						
Butyl Tin Trichloride						
TBT as Tin ion						
<b>EPH (ug/kg)</b>						
<b>EPH 8015B</b>						
C8-C10 Aliphatics						
C10-C12 Aliphatics						
C12-C16 Aliphatics						
C16-C21 Aliphatics						
C21-C34 Aliphatics						
C8-C10 Aromatics						
C10-C12 Aromatics						
C12-C16 Aromatics						
C16-C21 Aromatics						
C21-C34 Aromatics						
Hazard Index						
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>						
<b>Method 8260B</b>						
Chloromethane						
Bromomethane						
Vinyl chloride						
Chloroethane						
Methylene chloride						
Acetone						
Carbon disulfide						
1,1-Dichloroethene						
1,1-Dichloroethane						
trans-1,2-Dichloroethene						
cis-1,2-Dichloroethene						
Chloroform						
1,2-Dichloroethane						
Methyl ethyl ketone						
1,1,1-Trichloroethane						
Carbon tetrachloride						
Vinyl acetate						
Bromodichloromethane						
1,2-Dichloropropane						
cis-1,3-Dichloropropene						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	AFD-6.4	AFD-6.5	AFD-7.1	AFD-7.3	AFD-8.2	AFD-8.3
	(0.8-4)	(1.8-3)	(0.5-1.5)	(0.4-4)	(0.6-2.4)	(1.1-1.8)
	JY46L	JY46M	JY46I	JY46H	JY46J	JY46K
	9/26/2006	9/26/2006	9/26/2006	9/26/2006	9/26/2006	9/26/2006
Trichloroethene						
Dibromochloromethane						
1,1,2-Trichloroethane						
Benzene						
trans-1,3-Dichloropropene						
2-Chloroethylvinylether						
Bromoform						
4-Methyl-2-Pentanone (MIBK)						
2-Hexanone						
Tetrachloroethene						
1,1,2,2-Tetrachloroethane						
Toluene						
Chlorobenzene						
Ethylbenzene						
Styrene						
Trichlorofluoromethane						
1,1,2-Trichloro-1,2,2-trifluoroethane						
m,p-Xylene						
o-Xylene						
1,2-Dichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
Acrolein						
Methyl Iodide						
Bromoethane						
Acrylonitrile						
1,1-Dichloropropene						
Dibromomethane						
1,1,1,2-Tetrachloroethane						
1,2-Dibromo-3-chloropropane						
1,2,3-Trichloropropane						
trans-1,4-Dichloro-2-butene						
1,3,5-Trimethylbenzene						
1,2,4-Trimethylbenzene						
Hexachlorobutadiene						
Ethylene Dibromide						
Bromochloromethane						
2,2-Dichloropropane						
1,3-Dichloropropane						
Isopropylbenzene						
n-Propylbenzene						
Bromobenzene						
2-Chlorotoluene						
4-Chlorotoluene						
tert-Butylbenzene						
sec-Butylbenzene						
4-Isopropyltoluene						
n-Butylbenzene						
1,2,4-Trichlorobenzene						
Naphthalene						
1,2,3-Trichlorobenzene						
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)						
Method 8270C						
Phenol						
Bis-(2-Chloroethyl) Ether						
2-Chlorophenol						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
Benzyl Alcohol						
1,2-Dichlorobenzene						
2-Methylphenol						
2,2'-Oxybis(1-Chloropropane)						
4-Methylphenol						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	AFD-6.4 (0.8-4) JY46L 9/26/2006	AFD-6.5 (1.8-3) JY46M 9/26/2006	AFD-7.1 (0.5-1.5) JY46I 9/26/2006	AFD-7.3 (0.4-4) JY46H 9/26/2006	AFD-8.2 (0.6-2.4) JY46J 9/26/2006	AFD-8.3 (1.1-1.8) JY46K 9/26/2006
N-Nitroso-Di-N-Propylamine						
Hexachloroethane						
Nitrobenzene						
Isophorone						
2-Nitrophenol						
2,4-Dimethylphenol						
Benzoic Acid						
bis(2-Chloroethoxy) Methane						
2,4-Dinitrophenol						
1,2,4-Trichlorobenzene						
Naphthalene						
4-Chloroaniline						
Hexachlorobutadiene						
4-Chloro-3-methylphenol						
2-Methylnaphthalene						
1-Methylnaphthalene						
Total naphthalenes						
Hexachlorocyclopentadiene						
2,4,6-Trichlorophenol						
2,4,5-Trichlorophenol						
2-Chloronaphthalene						
2-Nitroaniline						
Dimethylphthalate						
Acenaphthylene						
3-Nitroaniline						
Acenaphthene						
2,4-Dichlorophenol						
4-Nitrophenol						
Dibenzofuran						
2,6-Dinitrotoluene						
2,4-Dinitrotoluene						
Diethylphthalate						
4-Chlorophenyl-phenylether						
Fluorene						
4-Nitroaniline						
4,6-Dinitro-2-Methylphenol						
N-Nitrosodiphenylamine						
4-Bromophenyl-phenylether						
Hexachlorobenzene						
Pentachlorophenol						
Phenanthrene						
Carbazole						
Anthracene						
Di-n-Butylphthalate						
Fluoranthene						
Pyrene						
Butylbenzylphthalate						
3,3'-Dichlorobenzidine						
Benzo(a)anthracene						
bis(2-Ethylhexyl)phthalate						
Chrysene						
Di-n-Octyl phthalate						
Benzo(b)fluoranthene						
Benzo(k)fluoranthene						
Benzo(a)pyrene						
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene						
Benzo(g,h,i)perylene						
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)						

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-2-1 (0-0.5) JA50A 2/6/2006	F-2-1 (1-2) JC07A 2/6/2006	F-2-2 (0-0.5) JA50B 2/6/2006	F-2-2 (1-2) JC07B 2/6/2006	F-2-3 (0-0.5) JA50C 2/6/2006	F-2-4 (0.5-1) JA50D 2/6/2006	F-2-5 (0-0.5) JA50E 2/6/2006	F-2-5 (1-2) JC07C 2/6/2006	F-2-6 (0-0.5) JA50F 2/6/2006	F-2-7 (0-0.5) JA50G 2/6/2006	F-2-7 (1-2) JC07D 2/6/2006	F-2-8 (0-0.5) JA50H 2/6/2006	F-2-9 (0-0.5) JA50I 2/6/2006	F-2-9 (1-2) JC07E 2/6/2006	F-2-9 (2-3) JC72A 2/6/2006	F-4-SS (0-0.5) GE76E 12/30/2003
CONVENTIONAL PARAMETERS																
Hexavalent Chrome (mg/kg)																1/0/1900 U
Total Solids (%)																
pH (Std Units)																
PETROLEUM HYDROCARBONS																
NWTPH-HCID (mg/kg)																
Gasoline																30 U
Diesel																50 U
Motor Oil																100 U
NWTPH-Dx (mg/kg)																
Diesel																
Motor Oil																
Gasoline (mg/kg)																
Method 8021/NWTPH-G																
Gasoline																
BTEX (ug/kg)																
Method 8021																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
cPAHs/Naphthalenes (ug/kg)																
SW8270C-SIM																
Naphthalene																210
2-Methylnaphthalene																260
1-Methylnaphthalene																270
Benzo[a]anthracene																210
Chrysene																220
Benzo[b]fluoranthene																110
Benzo[k]fluoranthene																45
Benzo[a]pyrene																
Indeno[1,2,3-cd]pyrene																
Dibenz[a,h]anthracene																
Acenaphthene																
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ																320.6
PCBs (ug/kg)																
Method SW8082																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-2-1 (0-0.5) JA50A 2/6/2006	F-2-1 (1-2) JC07A 2/6/2006	F-2-2 (0-0.5) JA50B 2/6/2006	F-2-2 (1-2) JC07B 2/6/2006	F-2-3 (0-0.5) JA50C 2/6/2006	F-2-4 (0.5-1) JA50D 2/6/2006	F-2-5 (0-0.5) JA50E 2/6/2006	F-2-5 (1-2) JC07C 2/6/2006	F-2-6 (0-0.5) JA50F 2/6/2006	F-2-7 (0-0.5) JA50G 2/6/2006	F-2-7 (1-2) JC07D 2/6/2006	F-2-8 (0-0.5) JA50H 2/6/2006	F-2-9 (0-0.5) JA50I 2/6/2006	F-2-9 (1-2) JC07E 2/6/2006	F-2-9 (2-3) JC72A 2/6/2006	F-4-SS (0-0.5) GE76E 12/30/2003
<b>TOTAL METALS (mg/kg)</b>																
<b>SW6000-7000 Series</b>																
Arsenic	55	5 U	42	7	8	8	81	11	5	27	6	14	115	60	20	57
Barium																
Cadmium	0.7		0.4		0.2 U	0.2 U	1.6		0.2 U	0.2		0.7	0.6			0.9
Chromium																54.6
Copper	188		117		22.2	21.4	211		34	59.6		1050	210			190
Lead	77		55		5	16	175		17	37		155	225			115
Mercury	0.12		0.06		0.04 U	0.05 U	0.26		0.05	0.05 U		0.8	0.11			0.11
Selenium																
Silver																0.4 U
Zinc	787		481		79.4	110	1850		71.2	217		364	425			810
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-2-1 (0-0.5) JA50A 2/6/2006	F-2-1 (1-2) JC07A 2/6/2006	F-2-2 (0-0.5) JA50B 2/6/2006	F-2-2 (1-2) JC07B 2/6/2006	F-2-3 (0-0.5) JA50C 2/6/2006	F-2-4 (0.5-1) JA50D 2/6/2006	F-2-5 (0-0.5) JA50E 2/6/2006	F-2-5 (1-2) JC07C 2/6/2006	F-2-6 (0-0.5) JA50F 2/6/2006	F-2-7 (0-0.5) JA50G 2/6/2006	F-2-7 (1-2) JC07D 2/6/2006	F-2-8 (0-0.5) JA50H 2/6/2006	F-2-9 (0-0.5) JA50I 2/6/2006	F-2-9 (1-2) JC07E 2/6/2006	F-2-9 (2-3) JC72A 2/6/2006	F-4-SS (0-0.5) GE76E 12/30/2003
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-2-1 (0-0.5) JA50A 2/6/2006	F-2-1 (1-2) JC07A 2/6/2006	F-2-2 (0-0.5) JA50B 2/6/2006	F-2-2 (1-2) JC07B 2/6/2006	F-2-3 (0-0.5) JA50C 2/6/2006	F-2-4 (0.5-1) JA50D 2/6/2006	F-2-5 (0-0.5) JA50E 2/6/2006	F-2-5 (1-2) JC07C 2/6/2006	F-2-6 (0-0.5) JA50F 2/6/2006	F-2-7 (0-0.5) JA50G 2/6/2006	F-2-7 (1-2) JC07D 2/6/2006	F-2-8 (0-0.5) JA50H 2/6/2006	F-2-9 (0-0.5) JA50I 2/6/2006	F-2-9 (1-2) JC07E 2/6/2006	F-2-9 (2-3) JC72A 2/6/2006	F-4-SS (0-0.5) GE76E 12/30/2003
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-4.1E (0-0.5) JD05A 3/2/2006	F-4.1N (0-0.5) JD05B 3/2/2006	F-4.1NE (0-0.5) JE81H 3/27/2006	F-4.1NW (0-0.5) JE81I 3/27/2006	F-4.1W (0-0.5) JD05C 3/2/2006	F-4.2E (0-0.5) JD55A 3/2/2006	F-4.2NW (0-0.5) JE81J 3/27/2006	F-5-SS (0-0.5) GE76D 12/30/2003	F-6-SS GE76F 12/30/2003	F-9-CS-3 (2.5-3.5) GI08K 2/12/2004	H-CSO-1 (1.2-1.7) KM95Y 1/30/2007	H-CSO-2 (0.5-1) KM95T 1/30/2007	H-GC-1b (1-1.5) 7/15/2005	H-GC-1b (2-3) 7/15/2005	H-GC-1c (0.9-1.4) 7/15/2005	H-GC-1d (0.7-1.2) 7/15/2005
<b>CONVENTIONAL PARAMETERS</b>																
Hexavalent Chrome (mg/kg)								0.14 U	1/0/1900 U							
Total Solids (%)									3/31/1900							
pH (Std Units)																
<b>PETROLEUM HYDROCARBONS</b>																
<b>NWTPH-HCID (mg/kg)</b>																
Gasoline								61	26 U							
Diesel								280	50 U							
Motor Oil								630	100 U							
<b>NWTPH-Dx (mg/kg)</b>																
Diesel																
Motor Oil																
<b>Gasoline (mg/kg)</b>																
<b>Method 8021/NWTPH-G</b>																
Gasoline																
<b>BTEX (ug/kg)</b>																
<b>Method 8021</b>																
Benzene								1.6 UJ								
Toluene								1.6 UJ								
Ethylbenzene								1.6 UJ								
m,p-Xylene								1.6 UJ								
o-Xylene								1.6 UJ								
<b>cPAHs/Naphthalenes (ug/kg)</b>																
<b>SW8270C-SIM</b>																
Naphthalene																
2-Methylnaphthalene																
1-Methylnaphthalene																
Benzo[a]anthracene								82 J	12	7.7 U	65 U	65 U				
Chrysene								140 J	25	7.7 U	65 U	78				
Benzo[b]fluoranthene								120 J	24	7.7 U	65 U	65 U				
Benzo[k]fluoranthene								77 J	17	7.7 U	65 U	65 U				
Benzo[a]pyrene								87 J	9.1	7.7 U	65 U	65 U				
Indeno[1,2,3-cd]pyrene								51 UJ	7 U	7.7 U	65 U	65 U				
Dibenz[a,h]anthracene								51 UJ	7 U	7.7 U	65 U	65 U				
Acenaphthene																
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ								1.4 J	14.65	ND	ND	0.78				
<b>PCBs (ug/kg)</b>																
<b>Method SW8082</b>																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-4.1E (0-0.5) JD05A 3/2/2006	F-4.1N (0-0.5) JD05B 3/2/2006	F-4.1NE (0-0.5) JE81H 3/27/2006	F-4.1NW (0-0.5) JE81I 3/27/2006	F-4.1W (0-0.5) JD05C 3/2/2006	F-4.2E (0-0.5) JD55A 3/2/2006	F-4.2NW (0-0.5) JE81J 3/27/2006	F-5-SS (0-0.5) GE76D 12/30/2003	F-6-SS GE76F 12/30/2003	F-9-CS-3 (2.5-3.5) GI08K 2/12/2004	H-CSO-1 (1.2-1.7) KM95Y 1/30/2007	H-CSO-2 (0.5-1) KM95T 1/30/2007	H-GC-1b (1-1.5) 7/15/2005	H-GC-1b (2-3) 7/15/2005	H-GC-1c (0.9-1.4) 7/15/2005	H-GC-1d (0.7-1.2) 7/15/2005
<b>TOTAL METALS (mg/kg)</b>																
<b>SW6000-7000 Series</b>																
Arsenic	37	15	6	30	100	6 U	8	53	14.5	4.6			21	10	11	18
Barium																
Cadmium								2.1	0.7	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U
Chromium								71	29.5	24.0						
Copper								1190 J	1120	13.6			24	23.9	27.5	33.4
Lead								241	43	3			6	5	9	24
Mercury								1.03	0.73	0.05 U			0.04 U	0.05 U	0.04 U	0.05 U
Selenium																
Silver								1 U	0.3 U	0.3 U						
Zinc								1790	376	38.0			49.5	38.5	59.5	70.8
<b>TCLP METALS (mg/L)</b>																
<b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b>																
<b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b>																
<b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>																
<b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-4.1E (0-0.5) JD05A 3/2/2006	F-4.1N (0-0.5) JD05B 3/2/2006	F-4.1NE (0-0.5) JE81H 3/27/2006	F-4.1NW (0-0.5) JE81I 3/27/2006	F-4.1W (0-0.5) JD05C 3/2/2006	F-4.2E (0-0.5) JD55A 3/2/2006	F-4.2NW (0-0.5) JE81J 3/27/2006	F-5-SS (0-0.5) GE76D 12/30/2003	F-6-SS GE76F 12/30/2003	F-9-CS-3 (2.5-3.5) GI08K 2/12/2004	H-CSO-1 (1.2-1.7) KM95Y 1/30/2007	H-CSO-2 (0.5-1) KM95T 1/30/2007	H-GC-1b (1-1.5) 7/15/2005	H-GC-1b (2-3) 7/15/2005	H-GC-1c (0.9-1.4) 7/15/2005	H-GC-1d (0.7-1.2) 7/15/2005
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	F-4.1E (0-0.5) JD05A 3/2/2006	F-4.1N (0-0.5) JD05B 3/2/2006	F-4.1NE (0-0.5) JE81H 3/27/2006	F-4.1NW (0-0.5) JE81I 3/27/2006	F-4.1W (0-0.5) JD05C 3/2/2006	F-4.2E (0-0.5) JD55A 3/2/2006	F-4.2NW (0-0.5) JE81J 3/27/2006	F-5-SS (0-0.5) GE76D 12/30/2003	F-6-SS GE76F 12/30/2003	F-9-CS-3 (2.5-3.5) GI08K 2/12/2004	H-CSO-1 (1.2-1.7) KM95Y 1/30/2007	H-CSO-2 (0.5-1) KM95T 1/30/2007	H-GC-1b (1-1.5) 7/15/2005	H-GC-1b (2-3) 7/15/2005	H-GC-1c (0.9-1.4) 7/15/2005	H-GC-1d (0.7-1.2) 7/15/2005
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	H-GC-1e (2-2.5) KM95A 1/30/2007	H-GC-1f (1-1.5) KM95B 1/30/2007	H-GC-2 (1-1.5) HP39O 1/14/2005	H-GC-3 (0-0.5) 0409181-09 9/10/2004	H-GC-4 (0-0.5) 0409181-10 9/10/2004	H-GC-5 (0.8-1.3) HP32B 1/13/2005	H-GC-5 (1.8-2.8) HP33C/HT42A 1/13/2005	H-GC-5 (2.8-3.8) HT81A 1/13/2005	H-GC-5b (1.3-1.6) HU34C 3/2/2005	H-GC-5c (2-2.5) HU35B 3/2/2005	H-GC-5c (3-4) HU88G 3/2/2005	H-GC-5d (1.8-2.3) HU34A 3/2/2005	H-GC-5d (2.8-3.8) HU88H 3/2/2005	H-GC-5e (0-0.5) KM95L 1/30/2007	H-GC-5e (1-2) KM95M 1/30/2007	H-GC-5f (0.8-1.3) KM95AD 1/30/2007
CONVENTIONAL PARAMETERS																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
PETROLEUM HYDROCARBONS																
NWTPH-HCID (mg/kg)																
Gasoline				21 U				22 U								
Diesel				>53				54 U								
Motor Oil				>110				>110								
NWTPH-Dx (mg/kg)																
Diesel				41				80								
Motor Oil				630				750								
Gasoline (mg/kg)																
Method 8021/NWTPH-G																
Gasoline																
BTEX (ug/kg)																
Method 8021																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
cPAHs/Naphthalenes (ug/kg)																
SW8270C-SIM																
Naphthalene																
2-Methylnaphthalene																
1-Methylnaphthalene																
Benzo[a]anthracene				71 U	35 U	34		72 U								
Chrysene				71 U	74	39		72 U								
Benzo[b]fluoranthene				71 U	35 U	28		72 U								
Benzo[k]fluoranthene				71 U	35 U	29		72 U								
Benzo[a]pyrene				71 U	35 U	38		72 U								
Indeno[1,2,3-cd]pyrene				71 U	35 U	15 U		72 U								
Dibenz[a,h]anthracene				71 U	35 U	15 U		72 U								
Acenaphthene																
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ				ND	0.74	47		ND								
PCBs (ug/kg)																
Method SW8082																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	H-GC-1e (2-2.5) KM95A 1/30/2007	H-GC-1f (1-1.5) KM95B 1/30/2007	H-GC-2 (1-1.5) HP39O 1/14/2005	H-GC-3 (0-0.5) 0409181-09 9/10/2004	H-GC-4 (0-0.5) 0409181-10 9/10/2004	H-GC-5 (0.8-1.3) HP32B 1/13/2005	H-GC-5 (1.8-2.8) HP33C/HT42A 1/13/2005	H-GC-5 (2.8-3.8) HT81A 1/13/2005	H-GC-5b (1.3-1.6) HU34C 3/2/2005	H-GC-5c (2-2.5) HU35B 3/2/2005	H-GC-5c (3-4) HU88G 3/2/2005	H-GC-5d (1.8-2.3) HU34A 3/2/2005	H-GC-5d (2.8-3.8) HU88H 3/2/2005	H-GC-5e (0-0.5) KM95L 1/30/2007	H-GC-5e (1-2) KM95M 1/30/2007	H-GC-5f (0.8-1.3) KM95AD 1/30/2007
<b>TOTAL METALS (mg/kg)</b> <b>SW6000-7000 Series</b>																
Arsenic	6	5 U	11	5.8	5.0	24	11 U		7	10	5	17	13	5 U	13	6
Barium																
Cadmium			0.2 U			0.2	0.2		0.2 U	0.2 U		0.2 U				
Chromium																
Copper			21.5	35.0	14.2	23.1	27.0 J		13.3	18.9		24.7	U			
Lead			13	6.8	10.6	7	11		3	6		15				
Mercury			0.05 U	0.03	0.02 J	5.7	26.3	20 J	0.04 U	0.05 U	0.05 U	0.05 U	0.05	0.07	0.04 U	0.04
Selenium																
Silver																
Zinc			85.8			49.1	67.3		33.4	44.5		62.3				
<b>TCLP METALS (mg/L)</b> <b>Method 6010B</b>																
Arsenic																
Barium																
Cadmium																
Chromium																
Lead																
Mercury																
Selenium																
Silver																
<b>TRIBUTYL TIN (ug/kg)</b> <b>TBT Ion by SIM</b>																
Tributyl Tin Chloride																
Dibutyl Tin Dichloride																
Butyl Tin Trichloride																
TBT as Tin ion																
<b>EPH (ug/kg)</b> <b>EPH 8015B</b>																
C8-C10 Aliphatics																
C10-C12 Aliphatics																
C12-C16 Aliphatics																
C16-C21 Aliphatics																
C21-C34 Aliphatics																
C8-C10 Aromatics																
C10-C12 Aromatics																
C12-C16 Aromatics																
C16-C21 Aromatics																
C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b> <b>Method 8260B</b>																
Chloromethane																
Bromomethane																
Vinyl chloride																
Chloroethane																
Methylene chloride																
Acetone																
Carbon disulfide																
1,1-Dichloroethene																
1,1-Dichloroethane																
trans-1,2-Dichloroethene																
cis-1,2-Dichloroethene																
Chloroform																
1,2-Dichloroethane																
Methyl ethyl ketone																
1,1,1-Trichloroethane																
Carbon tetrachloride																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	H-GC-1e (2-2.5) KM95A 1/30/2007	H-GC-1f (1-1.5) KM95B 1/30/2007	H-GC-2 (1-1.5) HP39O 1/14/2005	H-GC-3 (0-0.5) 0409181-09 9/10/2004	H-GC-4 (0-0.5) 0409181-10 9/10/2004	H-GC-5 (0.8-1.3) HP32B 1/13/2005	H-GC-5 (1.8-2.8) HP33C/HT42A 1/13/2005	H-GC-5 (2.8-3.8) HT81A 1/13/2005	H-GC-5b (1.3-1.6) HU34C 3/2/2005	H-GC-5c (2-2.5) HU35B 3/2/2005	H-GC-5c (3-4) HU88G 3/2/2005	H-GC-5d (1.8-2.3) HU34A 3/2/2005	H-GC-5d (2.8-3.8) HU88H 3/2/2005	H-GC-5e (0-0.5) KM95L 1/30/2007	H-GC-5e (1-2) KM95M 1/30/2007	H-GC-5f (0.8-1.3) KM95AD 1/30/2007
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	H-GC-1e	H-GC-1f	H-GC-2	H-GC-3	H-GC-4	H-GC-5	H-GC-5	H-GC-5	H-GC-5b	H-GC-5c	H-GC-5c	H-GC-5d	H-GC-5d	H-GC-5e	H-GC-5e	H-GC-5f
	(2-2.5)	(1-1.5)	(1-1.5)	(0-0.5)	(0-0.5)	(0.8-1.3)	(1.8-2.8)	(2.8-3.8)	(1.3-1.6)	(2-2.5)	(3-4)	(1.8-2.3)	(2.8-3.8)	(0-0.5)	(1-2)	(0.8-1.3)
	KM95A	KM95B	HP39O	0409181-09	0409181-10	HP32B	HP33C/HT42A	HT81A	HU34C	HU35B	HU88G	HU34A	HU88H	KM95L	KM95M	KM95AD
	1/30/2007	1/30/2007	1/14/2005	9/10/2004	9/10/2004	1/13/2005	1/13/2005	1/13/2005	3/2/2005	3/2/2005	3/2/2005	3/2/2005	3/2/2005	1/30/2007	1/30/2007	1/30/2007
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
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	H-GC-5f	H-GC-5f	H-GC-5h	H-GC-5h	H-GC-5i	H-GC-5i	H-GC-5i	H-GC-5i	H-GC-5J	H-GC-5J	Duplicate H-GC-5J	H-GC-5J	H-GC-5K	H-GC-5K	H-GC-7b	H-GC-7c
	(1.3-2.3)	(2.3-3.3)	(1.3-1.8)	(1.8-2.8)	(1.1-1.6)	(1.6-2.6)	(2.6-3.6)	(3.6-4.6)	(0.8-1.8)	(1.8-2.8)	(1.8-2.8)	(2.8-3.8)	(0.8-1.3)	(1.3-2.8)	(1.5-2)	(1.25-1.5)
	KM95AE	KO03E	KM95Z	KM95AA	KM95AB	KM95AC	KO03F	KO96B	KX05A	KY13A	KZ06A	LA15A	KX05D	KY13B	KM95U	KM95V
	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	1/30/2007	1/30/2007
CONVENTIONAL PARAMETERS																
Hexavalent Chrome (mg/kg)																
Total Solids (%)																
pH (Std Units)																
PETROLEUM HYDROCARBONS																
NWTPH-HCID (mg/kg)																
Gasoline																
Diesel																
Motor Oil																
NWTPH-Dx (mg/kg)																
Diesel																
Motor Oil																
Gasoline (mg/kg)																
Method 8021/NWTPH-G																
Gasoline																
BTEX (ug/kg)																
Method 8021																
Benzene																
Toluene																
Ethylbenzene																
m,p-Xylene																
o-Xylene																
cPAHs/Naphthalenes (ug/kg)																
SW8270C-SIM																
Naphthalene																
2-Methylnaphthalene																
1-Methylnaphthalene																
Benzo[a]anthracene															65 U	65 U
Chrysene															65 U	65 U
Benzo[b]fluoranthene															65 U	65 U
Benzo[k]fluoranthene															65 U	65 U
Benzo[a]pyrene															65 U	65 U
Indeno[1,2,3-cd]pyrene															65 U	65 U
Dibenz[a,h]anthracene															65 U	65 U
Acenaphthene																
Acenaphthylene																
Anthracene																
Benzo[g,h,i]perylene																
Fluoranthene																
Fluorene																
Phenanthrene																
Pyrene																
cPAH TEQ															ND	ND
PCBs (ug/kg)																
Method SW8082																
Aroclor-1016																
Aroclor-1242																
Aroclor-1248																
Aroclor-1254																
Aroclor-1260																
Aroclor-1221																
Aroclor-1232																
Total PCBs																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
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	H-GC-5f (1.3-2.3) KM95AE 1/30/2007	H-GC-5f (2.3-3.3) KO03E 1/30/2007	H-GC-5h (1.3-1.8) KM95Z 1/30/2007	H-GC-5h (1.8-2.8) KM95AA 1/30/2007	H-GC-5i (1.1-1.6) KM95AB 1/30/2007	H-GC-5i (1.6-2.6) KM95AC 1/30/2007	H-GC-5i (2.6-3.6) KO03F 1/30/2007	H-GC-5i (3.6-4.6) KO96B 1/30/2007	H-GC-5J (0.8-1.8) KX05A 4/30/2007	H-GC-5J (1.8-2.8) KY13A 4/30/2007	Duplicate H-GC-5J (1.8-2.8) KZ06A 4/30/2007	H-GC-5J (2.8-3.8) LA15A 4/30/2007	H-GC-5K (0.8-1.3) KX05D 4/30/2007	H-GC-5K (1.3-2.8) KY13B 4/30/2007	H-GC-7b (1.5-2) KM95U 1/30/2007	H-GC-7c (1.25-1.5) KM95V 1/30/2007
<b>TOTAL METALS (mg/kg)</b> <b>SW6000-7000 Series</b> Arsenic Barium Cadmium Chromium Copper Lead Mercury Selenium Silver Zinc	39	5	49	14	6	37	27	12	70	24	30	6	23	10		
									0.8 U 37	0.2 U 20.4	0.2 U 25.1	0.2 U 26.3	0.2 U 27.3	0.2 U 26.9		
									76.1	23	26.3	15.2	23.2	18.3		
									8 U	3	4	3	8	3		
	0.05 U		0.05 U	0.04 U	10.8	0.04 U			0.06 U	0.04 U	0.04 U	0.05 U	0.04 U	0.05 U		
									211	61	63	38	60	46		
<b>TCLP METALS (mg/L)</b> <b>Method 6010B</b> Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver																
<b>TRIBUTYL TIN (ug/kg)</b> <b>TBT Ion by SIM</b> Tributyl Tin Chloride Dibutyl Tin Dichloride Butyl Tin Trichloride TBT as Tin ion																
<b>EPH (ug/kg)</b> <b>EPH 8015B</b> C8-C10 Aliphatics C10-C12 Aliphatics C12-C16 Aliphatics C16-C21 Aliphatics C21-C34 Aliphatics C8-C10 Aromatics C10-C12 Aromatics C12-C16 Aromatics C16-C21 Aromatics C21-C34 Aromatics																
Hazard Index																
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b> <b>Method 8260B</b> Chloromethane Bromomethane Vinyl chloride Chloroethane Methylene chloride Acetone Carbon disulfide 1,1-Dichloroethene 1,1-Dichloroethane trans-1,2-Dichloroethene cis-1,2-Dichloroethene Chloroform 1,2-Dichloroethane Methyl ethyl ketone 1,1,1-Trichloroethane Carbon tetrachloride																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	Duplicate															
	H-GC-5f	H-GC-5f	H-GC-5h	H-GC-5h	H-GC-5i	H-GC-5i	H-GC-5i	H-GC-5i	H-GC-5J	H-GC-5J	H-GC-5J	H-GC-5J	H-GC-5K	H-GC-5K	H-GC-7b	H-GC-7c
	(1.3-2.3)	(2.3-3.3)	(1.3-1.8)	(1.8-2.8)	(1.1-1.6)	(1.6-2.6)	(2.6-3.6)	(3.6-4.6)	(0.8-1.8)	(1.8-2.8)	(1.8-2.8)	(2.8-3.8)	(0.8-1.3)	(1.3-2.8)	(1.5-2)	(1.25-1.5)
	KM95AE	KO03E	KM95Z	KM95AA	KM95AB	KM95AC	KO03F	KO96B	KX05A	KY13A	KZ06A	LA15A	KX05D	KY13B	KM95U	KM95V
	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	1/30/2007	1/30/2007
Vinyl acetate																
Bromodichloromethane																
1,2-Dichloropropane																
cis-1,3-Dichloropropene																
Trichloroethene																
Dibromochloromethane																
1,1,2-Trichloroethane																
Benzene																
trans-1,3-Dichloropropene																
2-Chloroethylvinylether																
Bromoform																
4-Methyl-2-Pentanone (MIBK)																
2-Hexanone																
Tetrachloroethene																
1,1,2,2-Tetrachloroethane																
Toluene																
Chlorobenzene																
Ethylbenzene																
Styrene																
Trichlorofluoromethane																
1,1,2-Trichloro-1,2,2-trifluoroethane																
m,p-Xylene																
o-Xylene																
1,2-Dichlorobenzene																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Acrolein																
Methyl Iodide																
Bromoethane																
Acrylonitrile																
1,1-Dichloropropene																
Dibromomethane																
1,1,1,2-Tetrachloroethane																
1,2-Dibromo-3-chloropropane																
1,2,3-Trichloropropane																
trans-1,4-Dichloro-2-butene																
1,3,5-Trimethylbenzene																
1,2,4-Trimethylbenzene																
Hexachlorobutadiene																
Ethylene Dibromide																
Bromochloromethane																
2,2-Dichloropropane																
1,3-Dichloropropane																
Isopropylbenzene																
n-Propylbenzene																
Bromobenzene																
2-Chlorotoluene																
4-Chlorotoluene																
tert-Butylbenzene																
sec-Butylbenzene																
4-Isopropyltoluene																
n-Butylbenzene																
1,2,4-Trichlorobenzene																
Naphthalene																
1,2,3-Trichlorobenzene																
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)																
Method 8270C																
Phenol																
Bis-(2-Chloroethyl) Ether																
2-Chlorophenol																
1,3-Dichlorobenzene																
1,4-Dichlorobenzene																
Benzyl Alcohol																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	Duplicate															
	H-GC-5f	H-GC-5f	H-GC-5h	H-GC-5h	H-GC-5i	H-GC-5i	H-GC-5i	H-GC-5i	H-GC-5J	H-GC-5J	H-GC-5J	H-GC-5J	H-GC-5K	H-GC-5K	H-GC-7b	H-GC-7c
	(1.3-2.3)	(2.3-3.3)	(1.3-1.8)	(1.8-2.8)	(1.1-1.6)	(1.6-2.6)	(2.6-3.6)	(3.6-4.6)	(0.8-1.8)	(1.8-2.8)	(1.8-2.8)	(2.8-3.8)	(0.8-1.3)	(1.3-2.8)	(1.5-2)	(1.25-1.5)
	KM95AE	KO03E	KM95Z	KM95AA	KM95AB	KM95AC	KO03F	KO96B	KX05A	KY13A	KZ06A	LA15A	KX05D	KY13B	KM95U	KM95V
	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	1/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	4/30/2007	1/30/2007	1/30/2007
1,2-Dichlorobenzene																
2-Methylphenol																
2,2'-Oxybis(1-Chloropropane)																
4-Methylphenol																
N-Nitroso-Di-N-Propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2-Nitrophenol																
2,4-Dimethylphenol																
Benzoic Acid																
bis(2-Chloroethoxy) Methane																
2,4-Dinitrophenol																
1,2,4-Trichlorobenzene																
Naphthalene																
4-Chloroaniline																
Hexachlorobutadiene																
4-Chloro-3-methylphenol																
2-Methylnaphthalene																
1-Methylnaphthalene																
Total naphthalenes																
Hexachlorocyclopentadiene																
2,4,6-Trichlorophenol																
2,4,5-Trichlorophenol																
2-Chloronaphthalene																
2-Nitroaniline																
Dimethylphthalate																
Acenaphthylene																
3-Nitroaniline																
Acenaphthene																
2,4-Dichlorophenol																
4-Nitrophenol																
Dibenzofuran																
2,6-Dinitrotoluene																
2,4-Dinitrotoluene																
Diethylphthalate																
4-Chlorophenyl-phenylether																
Fluorene																
4-Nitroaniline																
4,6-Dinitro-2-Methylphenol																
N-Nitrosodiphenylamine																
4-Bromophenyl-phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Carbazole																
Anthracene																
Di-n-Butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3,3'-Dichlorobenzidine																
Benzo(a)anthracene																
bis(2-Ethylhexyl)phthalate																
Chrysene																
Di-n-Octyl phthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)																

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	H-GC-7d (0.7-1.2) KM95W 1/30/2007	H-GC-7e (0.6-1.1) KM95X 1/30/2007	H-1-CS (4-4.5) GE49B 12/23/2003	H-2-CS (4-5) GE49C 12/23/2003	H-3-CS (4.5-5) GE49A 12/22/2003	H-4-CS (5-6) GI08Q 2/11/2004	H-5-CS (5-5.5) GI08R 2/11/2004	JP-1-SS (0-0.5) GE49E 12/23/2003	JP-GC-1 (1-1.5) HP08I 1/12/2005	JP-GC-2 (1.5-2) HP08H 1/12/2005	JP-GC-3 (0-0.5) 0409181-07 9/10/2004	JP-GC-4 (0.5-1) HP08K 1/12/2005	JP-GC-5 (0.5-1) HP08J 1/12/2005	JP-GC-6 (0-0.5) 0409181-08 9/10/2004
CONVENTIONAL PARAMETERS														
Hexavalent Chrome (mg/kg)								0.11 U						
Total Solids (%)														
pH (Std Units)														
PETROLEUM HYDROCARBONS														
NWTPH-HCID (mg/kg)														
Gasoline								27 U	21 U	22 U		22 U	22 U	
Diesel								50 U	53 U	55 U		54 U	54 U	
Motor Oil								100 U	110 U	110 U		110 U	110 U	
NWTPH-Dx (mg/kg)														
Diesel			5 U	5 U	5 U	17	5 U							
Motor Oil			10 U	12	10 U	140	10 U							
Gasoline (mg/kg)														
Method 8021/NWTPH-G														
Gasoline			7.2 UJ	5.9 U	6.6 UJ	5.9 UJ	6.6 UJ							
BTEX (ug/kg)														
Method 8021														
Benzene						30 UJ	33 UJ							
Toluene						30 UJ	33 UJ							
Ethylbenzene						30 UJ	33 UJ							
m,p-Xylene						59 UJ	66 UJ							
o-Xylene						30 UJ	33 UJ							
cPAHs/Naphthalenes (ug/kg)														
SW8270C-SIM														
Naphthalene														
2-Methylnaphthalene														
1-Methylnaphthalene														
Benzo[a]anthracene	64 U	63 U						7.1 U	62 U	65 U	38	64 U	63 U	21
Chrysene	64 U	63 U						7.1 U	62 U	65 U	47	64 U	63 U	26
Benzo[b]fluoranthene	64 U	63 U						7.1 U	62 U	65 U	42	64 U	63 U	15 U
Benzo[k]fluoranthene	64 U	63 U						7.1 U	62 U	65 U	24	64 U	63 U	15 U
Benzo[a]pyrene	64 U	63 U						7.1 U	62 U	65 U	36	64 U	63 U	22
Indeno[1,2,3-cd]pyrene	64 U	63 U						7.1 U	62 U	65 U	14 U	64 U	63 U	15 U
Dibenz[a,h]anthracene	64 U	63 U						7.1 U	62 U	65 U	14 U	64 U	63 U	15 U
Acenaphthene														
Acenaphthylene														
Anthracene														
Benzo[g,h,i]perylene														
Fluoranthene														
Fluorene														
Phenanthrene														
Pyrene														
cPAH TEQ	ND	ND						ND	ND	ND	46.87	ND	ND	24.36
PCBs (ug/kg)														
Method SW8082														
Aroclor-1016														
Aroclor-1242														
Aroclor-1248														
Aroclor-1254														
Aroclor-1260														
Aroclor-1221														
Aroclor-1232														
Total PCBs														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	H-GC-7d (0.7-1.2) KM95W 1/30/2007	H-GC-7e (0.6-1.1) KM95X 1/30/2007	H-1-CS (4-4.5) GE49B 12/23/2003	H-2-CS (4-5) GE49C 12/23/2003	H-3-CS (4.5-5) GE49A 12/22/2003	H-4-CS (5-6) GI08Q 2/11/2004	H-5-CS (5-5.5) GI08R 2/11/2004	JP-1-SS (0-0.5) GE49E 12/23/2003	JP-GC-1 (1-1.5) HP08I 1/12/2005	JP-GC-2 (1.5-2) HP08H 1/12/2005	JP-GC-3 (0-0.5) 0409181-07 9/10/2004	JP-GC-4 (0.5-1) HP08K 1/12/2005	JP-GC-5 (0.5-1) HP08J 1/12/2005	JP-GC-6 (0-0.5) 0409181-08 9/10/2004
<b>TOTAL METALS (mg/kg)</b> <b>SW6000-7000 Series</b>														
Arsenic								3.3	8	6	4.4	5 U	5 U	3.8
Barium														
Cadmium								0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	
Chromium								43.8						
Copper								19.9	19.5	25.3	17.6	19.9	23.8	20.5
Lead						6	5	8	3	15	11.5	3	9	13.2
Mercury								0.05 U	0.04 U	0.05 U	0.029	0.04 U	0.05 U	0.019 J
Selenium														
Silver								0.3 U						
Zinc								44.7	27.8	44.2		27.2	27.7	
<b>TCLP METALS (mg/L)</b> <b>Method 6010B</b>														
Arsenic														
Barium														
Cadmium														
Chromium														
Lead														
Mercury														
Selenium														
Silver														
<b>TRIBUTYL TIN (ug/kg)</b> <b>TBT Ion by SIM</b>														
Tributyl Tin Chloride														
Dibutyl Tin Dichloride														
Butyl Tin Trichloride														
TBT as Tin ion														
<b>EPH (ug/kg)</b> <b>EPH 8015B</b>														
C8-C10 Aliphatics														
C10-C12 Aliphatics														
C12-C16 Aliphatics														
C16-C21 Aliphatics														
C21-C34 Aliphatics														
C8-C10 Aromatics														
C10-C12 Aromatics														
C12-C16 Aromatics														
C16-C21 Aromatics														
C21-C34 Aromatics														
Hazard Index														
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b> <b>Method 8260B</b>														
Chloromethane														
Bromomethane														
Vinyl chloride														
Chloroethane														
Methylene chloride														
Acetone														
Carbon disulfide														
1,1-Dichloroethene														
1,1-Dichloroethane														
trans-1,2-Dichloroethene														
cis-1,2-Dichloroethene														
Chloroform														
1,2-Dichloroethane														
Methyl ethyl ketone														
1,1,1-Trichloroethane														
Carbon tetrachloride														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	H-GC-7d (0.7-1.2) KM95W 1/30/2007	H-GC-7e (0.6-1.1) KM95X 1/30/2007	H-1-CS (4-4.5) GE49B 12/23/2003	H-2-CS (4-5) GE49C 12/23/2003	H-3-CS (4.5-5) GE49A 12/22/2003	H-4-CS (5-6) GI08Q 2/11/2004	H-5-CS (5-5.5) GI08R 2/11/2004	JP-1-SS (0-0.5) GE49E 12/23/2003	JP-GC-1 (1-1.5) HP08I 1/12/2005	JP-GC-2 (1.5-2) HP08H 1/12/2005	JP-GC-3 (0-0.5) 0409181-07 9/10/2004	JP-GC-4 (0.5-1) HP08K 1/12/2005	JP-GC-5 (0.5-1) HP08J 1/12/2005	JP-GC-6 (0-0.5) 0409181-08 9/10/2004
Vinyl acetate														
Bromodichloromethane														
1,2-Dichloropropane														
cis-1,3-Dichloropropene														
Trichloroethene														
Dibromochloromethane														
1,1,2-Trichloroethane														
Benzene														
trans-1,3-Dichloropropene														
2-Chloroethylvinylether														
Bromoform														
4-Methyl-2-Pentanone (MIBK)														
2-Hexanone														
Tetrachloroethene														
1,1,2,2-Tetrachloroethane														
Toluene														
Chlorobenzene														
Ethylbenzene														
Styrene														
Trichlorofluoromethane														
1,1,2-Trichloro-1,2,2-trifluoroethane														
m,p-Xylene														
o-Xylene														
1,2-Dichlorobenzene														
1,3-Dichlorobenzene														
1,4-Dichlorobenzene														
Acrolein														
Methyl Iodide														
Bromoethane														
Acrylonitrile														
1,1-Dichloropropene														
Dibromomethane														
1,1,1,2-Tetrachloroethane														
1,2-Dibromo-3-chloropropane														
1,2,3-Trichloropropane														
trans-1,4-Dichloro-2-butene														
1,3,5-Trimethylbenzene														
1,2,4-Trimethylbenzene														
Hexachlorobutadiene														
Ethylene Dibromide														
Bromochloromethane														
2,2-Dichloropropane														
1,3-Dichloropropane														
Isopropylbenzene														
n-Propylbenzene														
Bromobenzene														
2-Chlorotoluene														
4-Chlorotoluene														
tert-Butylbenzene														
sec-Butylbenzene														
4-Isopropyltoluene														
n-Butylbenzene														
1,2,4-Trichlorobenzene														
Naphthalene														
1,2,3-Trichlorobenzene														
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)														
Method 8270C														
Phenol														
Bis-(2-Chloroethyl) Ether														
2-Chlorophenol														
1,3-Dichlorobenzene														
1,4-Dichlorobenzene														
Benzyl Alcohol														



TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	H-GC-7d (0.7-1.2) KM95W 1/30/2007	H-GC-7e (0.6-1.1) KM95X 1/30/2007	H-1-CS (4-4.5) GE49B 12/23/2003	H-2-CS (4-5) GE49C 12/23/2003	H-3-CS (4.5-5) GE49A 12/22/2003	H-4-CS (5-6) GI08Q 2/11/2004	H-5-CS (5-5.5) GI08R 2/11/2004	JP-1-SS (0-0.5) GE49E 12/23/2003	JP-GC-1 (1-1.5) HP08I 1/12/2005	JP-GC-2 (1.5-2) HP08H 1/12/2005	JP-GC-3 (0-0.5) 0409181-07 9/10/2004	JP-GC-4 (0.5-1) HP08K 1/12/2005	JP-GC-5 (0.5-1) HP08J 1/12/2005	JP-GC-6 (0-0.5) 0409181-08 9/10/2004
1,2-Dichlorobenzene														
2-Methylphenol														
2,2'-Oxybis(1-Chloropropane)														
4-Methylphenol														
N-Nitroso-Di-N-Propylamine														
Hexachloroethane														
Nitrobenzene														
Isophorone														
2-Nitrophenol														
2,4-Dimethylphenol														
Benzoic Acid														
bis(2-Chloroethoxy) Methane														
2,4-Dinitrophenol														
1,2,4-Trichlorobenzene														
Naphthalene														
4-Chloroaniline														
Hexachlorobutadiene														
4-Chloro-3-methylphenol														
2-Methylnaphthalene														
1-Methylnaphthalene														
Total naphthalenes														
Hexachlorocyclopentadiene														
2,4,6-Trichlorophenol														
2,4,5-Trichlorophenol														
2-Chloronaphthalene														
2-Nitroaniline														
Dimethylphthalate														
Acenaphthylene														
3-Nitroaniline														
Acenaphthene														
2,4-Dichlorophenol														
4-Nitrophenol														
Dibenzofuran														
2,6-Dinitrotoluene														
2,4-Dinitrotoluene														
Diethylphthalate														
4-Chlorophenyl-phenylether														
Fluorene														
4-Nitroaniline														
4,6-Dinitro-2-Methylphenol														
N-Nitrosodiphenylamine														
4-Bromophenyl-phenylether														
Hexachlorobenzene														
Pentachlorophenol														
Phenanthrene														
Carbazole														
Anthracene														
Di-n-Butylphthalate														
Fluoranthene														
Pyrene														
Butylbenzylphthalate														
3,3'-Dichlorobenzidine														
Benzo(a)anthracene														
bis(2-Ethylhexyl)phthalate														
Chrysene														
Di-n-Octyl phthalate														
Benzo(b)fluoranthene														
Benzo(k)fluoranthene														
Benzo(a)pyrene														
Indeno(1,2,3-cd)pyrene														
Dibenz(a,h)anthracene														
Benzo(g,h,i)perylene														
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)														

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	PZ-8-CS-3	PZ-8-SS	PZ-9-CS-3	PZ-9-CS-6	PZ-10-CS-3	SBS-1	SBS-2	SBS-3	SBS-4	SBS-5	TP-7
	GI08A	GI08I	(2.5-3.5)	(5.5-6)	GI08O	(1.3-2.0)	(0.8-1.3)	(0.8-1.3)	(0.8-1.3)	(1-1.6)	0411230-01
	2/11/2004	2/11/2004	2/11/2004	2/11/2004	2/11/2004	4/26/2007	4/26/2007	4/26/2007	4/26/2007	5/1/2007	11/11/2004
CONVENTIONAL PARAMETERS											
Hexavalent Chrome (mg/kg)											
Total Solids (%)											
pH (Std Units)											
PETROLEUM HYDROCARBONS											
NWTPH-HCID (mg/kg)											
Gasoline											
Diesel											
Motor Oil											
NWTPH-Dx (mg/kg)											
Diesel						5.0 U					180
Motor Oil						10 U					550
Gasoline (mg/kg)											
Method 8021/NWTPH-G											
Gasoline						6.6 UJ					
BTEX (ug/kg)											
Method 8021											
Benzene						33 UJ					
Toluene						33 UJ					
Ethylbenzene						33 UJ					
m,p-Xylene						66 UJ					
o-Xylene						33 UJ					
cPAHs/Naphthalenes (ug/kg)											
SW8270C-SIM											
Naphthalene											3,300
2-Methylnaphthalene											1,500
1-Methylnaphthalene											
Benzo[a]anthracene	7.2 U	7.2 J	81		11	65 U	62 U	64 U	64 U	65 U	180
Chrysene	7.2 U	9.9	120		19	65 U	62 U	64 U	64 U	65 U	220
Benzo[b]fluoranthene	7.2 U	7.6 U	100		9.8	65 U	62 U	64 U	64 U	65 U	130
Benzo[k]fluoranthene	7.2 U	7.6 U	72		9.8	65 U	62 U	64 U	64 U	65 U	70
Benzo[a]pyrene	7.2 U	7.6 U	53		9.3	65 U	62 U	64 U	64 U	65 U	94
Indeno[1,2,3-cd]pyrene	7.2 U	7.6 U	33		7.2 U	65 U	62 U	64 U	64 U	65 U	57
Dibenz[a,h]anthracene	7.2 U	7.6 U	8.0 U		7.2 U	65 U	62 U	64 U	64 U	65 U	8.0 U
Acenaphthene											1,500
Acenaphthylene											97
Anthracene											770
Benzo[g,h,i]perylene											91
Fluoranthene											980
Fluorene											1,200
Phenanthrene											3,400
Pyrene											1,300
cPAH TEQ	ND	0.8	82.8		12.6	ND	ND	ND	ND	ND	140
PCBs (ug/kg)											
Method SW8082											
Aroclor-1016						36 UJ					
Aroclor-1242						36 U					
Aroclor-1248						36 U					
Aroclor-1254						36 U					
Aroclor-1260						36 U					
Aroclor-1221						36 U					
Aroclor-1232						36 U					
Total PCBs						ND					
TOTAL METALS (mg/kg)											
SW6000-7000 Series											
Arsenic	4	6.5	60	57	6.3	6	6	7	7	5 U	
Barium											

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	PZ-8-CS-3	PZ-8-SS GI08A	PZ-9-CS-3 (2.5-3.5) GI08I	PZ-9-CS-6 (5.5-6) GK06A	PZ-10-CS-3 GI08O	SBS-1 (1.3-2.0) KW48AL	SBS-2 (0.8-1.3) KW48AM	SBS-3 (0.8-1.3) KW48AO	SBS-4 (0.8-1.3) KW48AN	SBS-5 (1-1.6) KX36N	TP-7 0411230-01
	2/11/2004	2/11/2004	2/11/2004	2/11/2004	2/11/2004	4/26/2007	4/26/2007	4/26/2007	4/26/2007	5/1/2007	11/11/2004
Cadmium	0.2 U	0.2 U	0.3	0.3	0.2 U						
Chromium	23.0	30.0	39.4	38.9	31.3						
Copper	11.7	53.4	87.9	91.3	22.1						
Lead	4	26	54	56	8						
Mercury	0.05 U	0.07	0.09	0.06	0.07						
Selenium											
Silver	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U						
Zinc	29.8	79.6 J	188	201	52.1						
<b>TCLP METALS (mg/L)</b>											
<b>Method 6010B</b>											
Arsenic											
Barium											
Cadmium											
Chromium											
Lead											
Mercury											
Selenium											
Silver											
<b>TRIBUTYL TIN (ug/kg)</b>											
<b>TBT Ion by SIM</b>											
Tributyl Tin Chloride											
Dibutyl Tin Dichloride											
Butyl Tin Trichloride											
TBT as Tin ion											
<b>EPH (ug/kg)</b>											
<b>EPH 8015B</b>											
C8-C10 Aliphatics											
C10-C12 Aliphatics											
C12-C16 Aliphatics											
C16-C21 Aliphatics											
C21-C34 Aliphatics											
C8-C10 Aromatics											
C10-C12 Aromatics											
C12-C16 Aromatics											
C16-C21 Aromatics											
C21-C34 Aromatics											
Hazard Index											
<b>VOLATILE ORGANIC COMPOUNDS (ug/kg)</b>											
<b>Method 8260B</b>											
Chloromethane											
Bromomethane											
Vinyl chloride											
Chloroethane											
Methylene chloride											
Acetone											
Carbon disulfide											
1,1-Dichloroethene											
1,1-Dichloroethane											
trans-1,2-Dichloroethene											
cis-1,2-Dichloroethene											
Chloroform											
1,2-Dichloroethane											
Methyl ethyl ketone											
1,1,1-Trichloroethane											
Carbon tetrachloride											
Vinyl acetate											
Bromodichloromethane											
1,2-Dichloropropane											
cis-1,3-Dichloropropene											

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	PZ-8-CS-3	PZ-8-SS GI08A	PZ-9-CS-3 (2.5-3.5) GI08I	PZ-9-CS-6 (5.5-6) GK06A	PZ-10-CS-3 GI08O	SBS-1 (1.3-2.0) KW48AL	SBS-2 (0.8-1.3) KW48AM	SBS-3 (0.8-1.3) KW48AO	SBS-4 (0.8-1.3) KW48AN	SBS-5 (1-1.6) KX36N	TP-7 0411230-01
	2/11/2004	2/11/2004	2/11/2004	2/11/2004	2/11/2004	4/26/2007	4/26/2007	4/26/2007	4/26/2007	5/1/2007	11/11/2004
Trichloroethene											
Dibromochloromethane											
1,1,2-Trichloroethane											
Benzene											
trans-1,3-Dichloropropene											
2-Chloroethylvinylether											
Bromoform											
4-Methyl-2-Pentanone (MIBK)											
2-Hexanone											
Tetrachloroethene											
1,1,2,2-Tetrachloroethane											
Toluene											
Chlorobenzene											
Ethylbenzene											
Styrene											
Trichlorofluoromethane											
1,1,2-Trichloro-1,2,2-trifluoroethane											
m,p-Xylene											
o-Xylene											
1,2-Dichlorobenzene											
1,3-Dichlorobenzene											
1,4-Dichlorobenzene											
Acrolein											
Methyl Iodide											
Bromoethane											
Acrylonitrile											
1,1-Dichloropropene											
Dibromomethane											
1,1,1,2-Tetrachloroethane											
1,2-Dibromo-3-chloropropane											
1,2,3-Trichloropropane											
trans-1,4-Dichloro-2-butene											
1,3,5-Trimethylbenzene											
1,2,4-Trimethylbenzene											
Hexachlorobutadiene											
Ethylene Dibromide											
Bromochloromethane											
2,2-Dichloropropane											
1,3-Dichloropropane											
Isopropylbenzene											
n-Propylbenzene											
Bromobenzene											
2-Chlorotoluene											
4-Chlorotoluene											
tert-Butylbenzene											
sec-Butylbenzene											
4-Isopropyltoluene											
n-Butylbenzene											
1,2,4-Trichlorobenzene											
Naphthalene											
1,2,3-Trichlorobenzene											
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)											
Method 8270C											
Phenol											
Bis-(2-Chloroethyl) Ether											
2-Chlorophenol											
1,3-Dichlorobenzene											
1,4-Dichlorobenzene											
Benzyl Alcohol											
1,2-Dichlorobenzene											
2-Methylphenol											
2,2'-Oxybis(1-Chloropropane)											
4-Methylphenol											

TABLE B-1  
SOIL CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
EVERETT, WASHINGTON

	PZ-8-CS-3	PZ-8-SS GI08A	PZ-9-CS-3 (2.5-3.5) GI08I	PZ-9-CS-6 (5.5-6) GK06A	PZ-10-CS-3 GI08O	SBS-1 (1.3-2.0) KW48AL	SBS-2 (0.8-1.3) KW48AM	SBS-3 (0.8-1.3) KW48AO	SBS-4 (0.8-1.3) KW48AN	SBS-5 (1-1.6) KX36N	TP-7 0411230-01
	2/11/2004	2/11/2004	2/11/2004	2/11/2004	2/11/2004	4/26/2007	4/26/2007	4/26/2007	4/26/2007	5/1/2007	11/11/2004
N-Nitroso-Di-N-Propylamine											
Hexachloroethane											
Nitrobenzene											
Isophorone											
2-Nitrophenol											
2,4-Dimethylphenol											
Benzoic Acid											
bis(2-Chloroethoxy) Methane											
2,4-Dinitrophenol											
1,2,4-Trichlorobenzene											
Naphthalene											
4-Chloroaniline											
Hexachlorobutadiene											
4-Chloro-3-methylphenol											
2-Methylnaphthalene											
1-Methylnaphthalene											
Total naphthalenes											
Hexachlorocyclopentadiene											
2,4,6-Trichlorophenol											
2,4,5-Trichlorophenol											
2-Chloronaphthalene											
2-Nitroaniline											
Dimethylphthalate											
Acenaphthylene											
3-Nitroaniline											
Acenaphthene											
2,4-Dichlorophenol											
4-Nitrophenol											
Dibenzofuran											
2,6-Dinitrotoluene											
2,4-Dinitrotoluene											
Diethylphthalate											
4-Chlorophenyl-phenylether											
Fluorene											
4-Nitroaniline											
4,6-Dinitro-2-Methylphenol											
N-Nitrosodiphenylamine											
4-Bromophenyl-phenylether											
Hexachlorobenzene											
Pentachlorophenol											
Phenanthrene											
Carbazole											
Anthracene											
Di-n-Butylphthalate											
Fluoranthene											
Pyrene											
Butylbenzylphthalate											
3,3'-Dichlorobenzidine											
Benzo(a)anthracene											
bis(2-Ethylhexyl)phthalate											
Chrysene											
Di-n-Octyl phthalate											
Benzo(b)fluoranthene											
Benzo(k)fluoranthene											
Benzo(a)pyrene											
Indeno(1,2,3-cd)pyrene											
Dibenz(a,h)anthracene											
Benzo(g,h,i)perylene											
EXTRACTABLE ORGANIC HALIDES (EOX) (mg/kg)											

U = Indicates the compound was undetected at the reported concentration  
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample  
UJ = The analyte was not detected in the sample; the reported sample detection limit is an estimate  
M = Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	D-FA-10 0411208-06 11/9/2004	D-FA-11 0411208-08 11/9/2004	D-FA-11b 0411208-15 11/9/2004	D-FA-11c 0412318-01 12/21/2004	D-FA-11e 0412318-03 12/21/2004	D-FA-11k 0412318-06 12/21/2004	D-FA-14 0411208-09 11/9/2004	D-FA-14b HU69A 3/3/2005	NMP2- D-1-GW GE75A 12/29/2003	NMP2- D-2-GW GE75B 12/29/2003	NMP2- D-3-GW GE75C 12/29/2003	NMP2- D-4-GW GE75D 12/29/2003	D-7A-2 KW21E 4/24/2007	D-7-3 KW21C 4/24/2007	D-7-4 KW21D 4/24/2007
<b>PETROLEUM HYDROCARBONS</b>															
<b>NWTPH-HCID (mg/L)</b>															
Gasoline	0.12 U	>0.096					0.110 U								
Diesel	>0.300	>0.240					>0.270								
Motor Oil	>0.240	0.190 U					>0.210								
<b>NWTPH-Dx (mg/L)</b>															
Diesel	0.960	6.10		0.330	0.230 U	0.220	0.730		0.25 U	0.25 U	0.25 U	0.26		0.25 U	0.25 U
Motor Oil	0.300	0.610		0.850 U	0.930 U	0.800 U	0.740		0.50 U	0.50 U	0.50 U	0.50 U		0.50 U	0.50 U
<b>BTEX (ug/L)</b>															
<b>Method 8021</b>															
Benzene			0.20 U												
Toluene			0.30 U												
Ethyl Benzene			0.20 U												
m,p-Xylene			0.40 U												
o-Xylene			0.20 U												
<b>NWTPH-G (mg/L)</b>															
<b>Method 8021</b>															
Gasoline		0.34	0.25 U						0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.79
<b>cPAHs (ug/L)</b>															
<b>SW8270C-SIM</b>															
Benzo[a]anthracene									0.15 J	0.017 J	0.011 UJ	0.26 J			
Chrysene									0.20 J	0.021 J	0.012 J	0.24 J			
Benzo[b]fluoranthene									0.13 J	0.022 J	0.011 UJ	0.062 J			
Benzo[k]fluoranthene									0.13 J	0.21 J	0.011 UJ	0.062 J			
Benzo[a]pyrene									0.19 J	0.021 J	0.011 UJ	0.070 J			
Indeno[1,2,3-cd]pyrene									0.10 J	0.014 J	0.011 UJ	0.022 J			
Dibenz[a,h]anthracene									0.042 J	0.011 UJ	0.011 UJ	0.020 UJ			
cPAH TEQ									0.26 J	0.048 J	0.00012 J	0.113 J			
<b>VOLATILE ORGANIC COMPOUNDS (ug/L)</b>															
<b>Method 8260B</b>															
Chloromethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Bromomethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Vinyl chloride	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Chloroethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Methylene chloride	1.0 U	1.0 U		1.0 U			1.0 U		0.3 U	0.3 U	0.3 U	0.3 U			
Acetone	5.0 U	5.0 U		5.0 U			5.0 U		5.7	1.0 U	2.5	1.9			
Carbon disulfide	1.0 U	1.0 U		1.0 U			1.0 U		0.2	0.2 U	0.2 U	0.2 U			
1,1-Dichloroethene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
1,1-Dichloroethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
trans-1,2-Dichloroethene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
cis-1,2-Dichloroethene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Chloroform	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
1,2-Dichloroethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Methyl ethyl ketone	5.0 U	5.0 U		5.0 U			5.0 U		1.0 U	1.0 U	1.0 U	1.0 U			
1,1,1-Trichloroethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Carbon tetrachloride	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Vinyl acetate									0.2 U	0.2 U	0.2 U	0.2 U			
Bromodichloromethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
1,2-Dichloropropane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
cis-1,3-Dichloropropene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Trichloroethene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Dibromochloromethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
1,1,2-Trichloroethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Benzene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
trans-1,3-Dichloropropene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
2-Chloroethylvinylether									0.5 U	0.5 U	0.5 U	0.5 U			
Bromoform	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
4-Methyl-2-Pentanone (MIBK)	5.0 U	5.0 U		5.0 U			5.0 U		1.0 U	1.0 U	1.0 U	1.0 U			
2-Hexanone	5.0 U	5.0 U		5.0 U			5.0 U		1.0 U	1.0 U	1.0 U	1.0 U			
Tetrachloroethene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
1,1,2,2-Tetrachloroethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Toluene	1.0 U	1.0 U		1.0 U			1.4		0.2 U	0.2 U	0.2 U	0.2 U			
Chlorobenzene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Ethylbenzene	1.0 U	3.0		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2			
Styrene	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
Trichlorofluoromethane	1.0 U	1.0 U		1.0 U			1.0 U		0.2 U	0.2 U	0.2 U	0.2 U			
1,1,2-Trichloro-1,2,2-trifluoroethane									0.2 U	0.2 U	0.2 U	0.2 U			
m,p-Xylene	1.0 U	1.0 U		1.0 U			3.9		0.4 U	0.4 U	0.4 U	0.4 U			
o-Xylene	1.0 U	1.0 U		1.0 U			1.9		0.2 U	0.2 U	0.2 U	0.2			
1,2-Dichlorobenzene									0.2 U	0.2 U	0.2 U	0.2 U			
1,3-Dichlorobenzene									0.2 U	0.2 U	0.2 U	0.2 U			
1,4-Dichlorobenzene									0.2 U	0.2 U	0.2 U	0.2 U			
Acrolein									5.0 U	5.0 U	5.0 U	5.0 U			
Methyl Iodide									0.2 U	0.2 U	0.2 U	0.2 U			
Bromoethane									0.2 U	0.2 U	0.2 U	0.2 U			
Acrylonitrile									1.0 U	1.0 U	1.0 U	1.0 U			
1,1-Dichloropropene									0.2 U	0.2 U	0.2 U	0.2 U			
Dibromomethane									0.2 U	0.2 U	0.2 U	0.2 U			
1,1,1,2-Tetrachloroethane									0.2 U	0.2 U	0.2 U	0.2 U			
1,2-Dibromo-3-chloropropane									2.0 U	2.0 U	2.0 U	2.0 U			
1,2,3-Trichloropropane									0.5 U	0.5 U	0.5 U	0.5 U			

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
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	D-FA-10	D-FA-11	D-FA-11b	D-FA-11c	D-FA-11e	D-FA-11k	D-FA-14	D-FA-14b	NMP2- D-1-GW	NMP2- D-2-GW	NMP2- D-3-GW	NMP2- D-4-GW	D-7A-2	D-7-3	D-7-4
	0411208-06	0411208-08	0411208-15	0412318-01	0412318-03	0412318-06	0411208-09	HU69A	GE75A	GE75B	GE75C	GE75D	KW21E	KW21C	KW21D
	11/9/2004	11/9/2004	11/9/2004	12/21/2004	12/21/2004	12/21/2004	11/9/2004	3/3/2005	12/29/2003	12/29/2003	12/29/2003	12/29/2003	4/24/2007	4/24/2007	4/24/2007
trans-1,4-Dichloro-2-butene									1.0 U	1.0 U	1.0 U	1.0 U			
1,3,5-Trimethylbenzene									0.2 U	0.2 U	0.2 U	0.4			
1,2,4-Trimethylbenzene									0.2 U	0.2 U	0.2 U	0.9			
Hexachlorobutadiene									0.5 U	0.5 U	0.5 U	0.5 U			
Ethylene Dibromide									0.2 U	0.2 U	0.2 U	0.2 U			
Bromochloromethane									0.2 U	0.2 U	0.2 U	0.2 U			
2,2-Dichloropropane									0.2 U	0.2 U	0.2 U	0.2 U			
1,3-Dichloropropane									0.2 U	0.2 U	0.2 U	0.2 U			
Isopropylbenzene									0.2 U	0.2 U	0.2 U	0.2 U			
n-Propylbenzene									0.2 U	0.2 U	0.2 U	0.2 U			
Bromobenzene									0.2 U	0.2 U	0.2 U	0.2 U			
2-Chlorotoluene									0.2 U	0.2 U	0.2 U	0.2 U			
4-Chlorotoluene									0.2 U	0.2 U	0.2 U	0.2 U			
tert-Butylbenzene									0.2 U	0.2 U	0.2 U	0.2 U			
sec-Butylbenzene									0.2 U	0.2 U	0.2 U	0.2 U			
4-Isopropyltoluene									0.2 U	0.2 U	0.2 U	0.2 U			
n-Butylbenzene									0.2 U	0.2 U	0.2 U	0.2 U			
1,2,4-Trichlorobenzene									0.5 U	0.5 U	0.5 U	0.5 U			
Naphthalene									0.5 U	0.5 U	0.5 U	660			
1,2,3-Trichlorobenzene									0.5 U	0.5 U	0.5 U	0.5 U			
Dichlorodifluoromethane															
SEMIVOLATILE ORGANIC COMPOUNDS (ug/L)															
Method 8270C															
Phenol	5.0 U				5.0 U			5.0 U							
Bis-(2-Chloroethyl) Ether	5.0 U				5.0 U			5.0 U							
2-Chlorophenol	5.0 U				5.0 U			5.0 U							
1,3-Dichlorobenzene	5.0 U				5.0 U			5.0 U							
1,4-Dichlorobenzene	5.0 U				5.0 U			5.0 U							
Benzyl Alcohol	5.0 U				5.0 U			5.0 U							
1,2-Dichlorobenzene	5.0 U				5.0 U			5.0 U							
2-Methylphenol	5.0 U				5.0 U			5.0 U							
2,2'-Oxybis(1-Chloropropane)	5.0 U				5.0 U			5.0 U							
4-Methylphenol	5.0 U				5.0 U			5.0 U							
N-Nitroso-Di-N-Propylamine	5.0 U				5.0 U			5.0 U							
Hexachloroethane	5.0 U				5.0 U			5.0 U							
Nitrobenzene	5.0 U				5.0 U			5.0 U							
Isophorone	5.0 U				5.0 U			5.0 U							
2-Nitrophenol	5.0 U				5.0 U			5.0 U							
2,4-Dimethylphenol	5.0 U				5.0 U			5.0 U							
Benzoic Acid	11.0 U				10.0 U			10.0 U							
bis(2-Chloroethoxy) Methane	5.0 U				5.0 U			5.0 U							
2,4-Dinitrophenol	11.0 U				10.0 U			10.0 U							
1,2,4-Trichlorobenzene	5.0 U				5.0 U			5.0 U							
Naphthalene	5.0 U				10.0			5.0 U							
4-Chloroaniline	5.0 U				5.0 U			5.0 U							
Hexachlorobutadiene	5.0 U				5.0 U			5.0 U							
4-Chloro-3-methylphenol	5.0 U				5.0 U			5.0 U							
2-Methylnaphthalene	5.0 U				5.0 U			5.0 U							
Hexachlorocyclopentadiene	5.0 U				5.0 UJ			5.0 U							
2,4,6-Trichlorophenol	5.0 U				5.0 U			5.0 U							
2,4,5-Trichlorophenol	5.0 U				5.0 U			5.0 U							
2-Chloronaphthalene	5.0 U				5.0 U			5.0 U							
2-Nitroaniline	5.0 U				5.0 U			5.0 U							
Dimethylphthalate	5.0 U				5.0 U			5.0 U							
Acenaphthylene	5.0 U				5.0 U			5.0 U							
3-Nitroaniline	5.0 U				5.0 U			5.0 U							
Acenaphthene	5.0 U				5.0 U			5.0 U							
2,4-Dichlorophenol	5.0 U				5.0 U			5.0 U							
4-Nitrophenol	5.0 U				5.0 U			5.0 U							
Dibenzofuran	5.0 U				5.0 U			5.0 U							
2,6-Dinitrotoluene	5.0 U				5.0 U			5.0 U							
2,4-Dinitrotoluene	5.0 U				5.0 U			5.0 U							
Diethylphthalate	5.0 U				5.0 U			5.0 U							
4-Chlorophenyl-phenylether	5.0 U				5.0 U			5.0 U							
Fluorene	5.0 U				5.0 U			5.0 U							
4-Nitroaniline	5.0 U				5.0 U			5.0 U							
4,6-Dinitro-2-Methylphenol	5.0 U				5.0 U			5.0 U							
N-Nitrosodiphenylamine	5.0 U				5.0 U			5.0 U							
4-Bromophenyl-phenylether	5.0 U				5.0 U			5.0 U							
Hexachlorobenzene	5.0 U				5.0 U			5.0 U							
Pentachlorophenol	5.0 U				5.0 U			5.0 U							
Phenanthrene	5.0 U				5.0 U			5.0 U							
Carbazole	5.0 U				5.0 U			5.0 U							
Anthracene	5.0 U				5.0 U			5.0 U							
Di-n-Butylphthalate	5.0 U				5.0 U			5.0 U							
Fluoranthene	5.0 U				5.0 U			5.0 U							
Pyrene	5.0 U				5.0 U			5.0 U							
Butylbenzylphthalate	5.0 U				5.0 U			5.0 U							
3,3'-Dichlorobenzidine	5.0 U				5.0 U			5.0 U							
Benzo(a)anthracene	5.0 U				5.0 U			5.0 U							
bis(2-Ethylhexyl)phthalate	5.0 U				5.0 U			5.0 U							
Chrysene	5.0 U				5.0 U			5.0 U							
Di-n-Octyl phthalate	5.0 U				5.0 U			5.0 U							
Benzo(b)fluoranthene	5.0 U				5.0 U			5.0 U							

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
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	D-FA-10	D-FA-11	D-FA-11b	D-FA-11c	D-FA-11e	D-FA-11k	D-FA-14	D-FA-14b	NMP2- D-1-GW	NMP2- D-2-GW	NMP2- D-3-GW	NMP2- D-4-GW	D-7A-2	D-7-3	D-7-4
	0411208-06	0411208-08	0411208-15	0412318-01	0412318-03	0412318-06	0411208-09	HU69A	GE75A	GE75B	GE75C	GE75D	KW21E	KW21C	KW21D
	11/9/2004	11/9/2004	11/9/2004	12/21/2004	12/21/2004	12/21/2004	11/9/2004	3/3/2005	12/29/2003	12/29/2003	12/29/2003	12/29/2003	4/24/2007	4/24/2007	4/24/2007
Benzo(k)fluoranthene	5.0 U			5.0 U				5.0 U							
Benzo(a)pyrene	5.0 U			5.0 U				5.0 U							
Indeno(1,2,3-cd)pyrene	5.0 U			5.0 U				5.0 U							
Dibenz(a,h)anthracene	5.0 U			5.0 U				5.0 U							
Benzo(g,h,i)perylene	5.0 U			5.0 U				5.0 U							
1,2-Diphenylhydrazine															
DISSOLVED METALS (ug/L)															
SW6000-7000 Series															
Arsenic	1.4						67.2	3.0						0.8	0.7
Cadmium								0.2 U							
Chromium (d)	1.0 U						77.5								
Copper	2.0 U						81.3	0.5 U							
Lead	0.02 U						90.6	1 U							
Mercury								0.1 U							
Silver															
Zinc	16.1						279	4 U							
TOTAL METALS (ug/L)															
SW6000-7000 Series															
Arsenic															
Cadmium															
Chromium															
Copper															
Lead															
Mercury															
Zinc															
NATURAL ATTENUATION PARAMETERS															
pH															
Conductivity (us/cm)															
Turbidity (NTU)															
Temperature (C°)															
ORP (mV)															
Dissolved Oxygen (mg/L)															
Alkalinity (mg/L CaCO3)															
Carbonate (Alkalinity) (mg/L CaCO3)															
Bicarbonate (Alkalinity) (mg/L CaCO3)															
Ferrous Iron (mg/L)															
N-Nitrate (mg N/L)															
N-Nitrite (mg N/L)															
Nitrate + Nitrite (NO3+NO2) (mg N/L)															
Sulfate (mg/L)															
TOC (mg/L)															



TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
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	D-7A-6 KX03D/KX06D 4/30/2007	D-7A-7 KX03B/KX06B 4/30/2007	Duplicate of D-7A-7 D-7A-70 KX03C/KX06C 4/30/2007	D-7A-8 KW21A 4/24/2007	D-7A-9 KW40E 4/24/2007	D-7A-10 KW12A/KW21B 4/24/2007	E-FA-2 HQ97A 1/27/2005	E-FA-2a HQ97B 1/27/2005	E-FA-5 HP77E 1/18/2005	NMP2- E-1-GW GE48C 12/22/2003	NMP2- E-2-GW GE75E 12/29/2003	NMP2- E-3-GW GI07C 2/12/2004	NMP2- E-4-GW GI07E 2/12/2004	E-4 KX03A/KX06A 4/30/2007	E-3-2 JJ12C 5/10/2006	E-3-3 JJ12D 5/10/2006	E-3-6 JJ12B 5/10/2006	E-3-10 JJ12A 5/10/2006	NMP2- F-1-GW GE48D 12/22/2003
<b>PETROLEUM HYDROCARBONS</b>																			
<b>NWTPH-HCID (mg/L)</b>																			
Gasoline						<0.25 U													
Diesel						<0.63 U													
Motor Oil						<0.63 U													
<b>NWTPH-Dx (mg/L)</b>																			
Diesel	0.25 U	2.4 J	1.8 J	0.25 U		0.25 U	4.6	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U		2.0	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Motor Oil	0.50 U	0.50 U	0.50 U	0.50 U		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U		0.50 U	0.5 U	0.5 U	0.5 U	0.5 U	0.50 U
<b>BTEX (ug/L)</b>																			
<b>Method 8021</b>																			
Benzene	1.0 U	1.0 U	1.0 U		1.0 U		1.0 U	1.0 U				1.0 U		1.0 U					
Toluene	1.0 U	1.0 U	1.0 U		1.0 U		1.0 U	1.0 U				1.8 U		1.0 U					
Ethyl Benzene	1.0 U	1.8	1.9		1.0 U		1.0 U	1.0 U				1.0 U		1.0 U					
m,p-Xylene	1.0 U	4.4	4.6		1.0 U		1.0 U	1.0 U				1.0 U		1.5					
o-Xylene	1.0 U	1.1	1.1		1.0 U		1.0 U	1.0 U				1.0 U		1.0 U					
<b>NWTPH-G (mg/L)</b>																			
<b>Method 8021</b>																			
Gasoline	0.25 U	0.79	0.82	0.25 U	1.3	0.30				0.25 U	0.25 U	0.25 U		0.25 U					0.25 U
<b>cPAHs (ug/L)</b>																			
<b>SW8270C-SIM</b>																			
Benzo[a]anthracene																			0.080 J
Chrysene																			0.081 J
Benzo[b]fluoranthene																			0.029 J
Benzo[k]fluoranthene																			0.029 J
Benzo[a]pyrene																			0.067 J
Indeno[1,2,3-cd]pyrene																			0.021 J
Dibenz[a,h]anthracene																			0.010 UJ
cPAH TEQ																			0.084 J
<b>VOLATILE ORGANIC COMPOUNDS (ug/L)</b>																			
<b>Method 8260B</b>																			
Chloromethane													0.2 U						0.2 U
Bromomethane													0.2 U						0.2 U
Vinyl chloride													0.2 U						0.5
Chloroethane													0.2 U						0.2 U
Methylene chloride													0.3 U						0.3 U
Acetone													1.0 U						1.6 M
Carbon disulfide													0.2 U						0.2
1,1-Dichloroethene													0.2 U						0.2 U
1,1-Dichloroethane													0.2 U						0.2 U
trans-1,2-Dichloroethene													0.2 U						0.2
cis-1,2-Dichloroethene													0.2 U						0.8
Chloroform													0.2 U						0.2 U
1,2-Dichloroethane													0.2 U						0.2 U
Methyl ethyl ketone													1.0 U						1.0 U
1,1,1-Trichloroethane													0.2 U						0.2 U
Carbon tetrachloride													0.2 U						0.2 U
Vinyl acetate													0.2 U						0.2 U
Bromodichloromethane													0.2 U						0.2 U
1,2-Dichloropropane													0.2 U						0.2 U
cis-1,3-Dichloropropene													0.2 U						0.2 U
Trichloroethene													0.2 U						0.2
Dibromochloromethane													0.2 U						0.2 U
1,1,2-Trichloroethane													0.2 U						0.2 U
Benzene													0.2 U						0.2 U
trans-1,3-Dichloropropene													0.2 U						0.2 U
2-Chloroethylvinylether													0.5 U						0.5 U
Bromoform													0.2 U						0.2 U
4-Methyl-2-Pentanone (MIBK)													1.0 U						1.0 U
2-Hexanone													1.0 U						1.0 U
Tetrachloroethene													0.2 U						0.2 U
1,1,2,2-Tetrachloroethane													0.2 U						0.2 U
Toluene													3.8						0.2 U
Chlorobenzene													0.2 U						0.2 U
Ethylbenzene													0.2 U						0.2 U
Styrene													0.2 U						0.2 U
Trichlorofluoromethane													0.2 U						0.2 U
1,1,2-Trichloro-1,2,2-trifluoroethane													0.2 U						0.2 U
m,p-Xylene													0.4 U						0.4 U
o-Xylene													0.2 U						0.2 U
1,2-Dichlorobenzene													0.2 U						0.2 U
1,3-Dichlorobenzene													0.2 U						0.2 U
1,4-Dichlorobenzene													0.2 U						0.2 U
Acrolein													5.0 U						5.0 U
Methyl Iodide													0.2 U						0.2 U
Bromoethane													0.2 U						0.2 U
Acrylonitrile													1.0 U						1.0 U
1,1-Dichloropropene													0.2 U						0.2 U
Dibromomethane													0.2 U						0.2 U
1,1,1,2-Tetrachloroethane													0.2 U						0.2 U
1,2-Dibromo-3-chloropropane													2.0 U						2.0 U
1,2,3-Trichloropropane													0.5 U						0.5 U

**TABLE B-2**  
**GROUNDWATER CHARACTERIZATION ANALYTICAL DATA**  
**WEST END SITE**  
**PORT OF EVERETT, WASHINGTON**

[illegible]

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	D-7A-6	D-7A-7	Duplicate of D-7A-7 D-7A-70	D-7A-8	D-7A-9	D-7A-10	E-FA-2	E-FA-2a	E-FA-5	NMP2- E-1-GW	NMP2- E-2-GW	NMP2- E-3-GW	NMP2- E-4-GW	E-4	E-3-2	E-3-3	E-3-6	E-3-10	NMP2- F-1-GW
	KX03D/KX06D	KX03B/KX06B	KX03C/KX06C	KW21A	KW40E	KW12A/KW21B	HQ97A	HQ97B	HP77E	GE48C	GE75E	GI07C	GI07E	KX03A/KX06A	JJ12C	JJ12D	JJ12B	JJ12A	GE48D
	4/30/2007	4/30/2007	4/30/2007	4/24/2007	4/24/2007	4/24/2007	1/27/2005	1/27/2005	1/18/2005	12/22/2003	12/29/2003	2/12/2004	2/12/2004	4/30/2007	5/10/2006	5/10/2006	5/10/2006	5/10/2006	12/22/2003
Benzo(k)fluoranthene																			
Benzo(a)pyrene																			
Indeno(1,2,3-cd)pyrene																			
Dibenz(a,h)anthracene																			
Benzo(g,h,i)perylene																			
1,2-Diphenylhydrazine																			
DISSOLVED METALS (ug/L)																			
SW6000-7000 Series																			
Arsenic	0.8	0.4	0.3	0.7		0.3								0.5					
Cadmium																			
Chromium (d)																			
Copper																			
Lead																			
Mercury																			
Silver																			
Zinc																			
TOTAL METALS (ug/L)																			
SW6000-7000 Series																			
Arsenic																			
Cadmium																			
Chromium																			
Copper																			
Lead																			
Mercury																			
Zinc																			
NATURAL ATTENUATION PARAMETERS																			
pH																			
Conductivity (us/cm)																			
Turbidity (NTU)																			
Temperature (C°)																			
ORP (mV)																			
Dissolved Oxygen (mg/L)																			
Alkalinity (mg/L CaCO3)																			
Carbonate (Alkalinity) (mg/L CaCO3)																			
Bicarbonate (Alkalinity) (mg/L CaCO3)																			
Ferrous Iron (mg/L)																			
N-Nitrate (mg N/L)																			
N-Nitrite (mg N/L)																			
Nitrate + Nitrite (NO3+NO2) (mg N/L)																			
Sulfate (mg/L)																			
TOC (mg/L)																			

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	NMP2- F-2-GW GE48E 12/22/2003	NMP2-F-3-GW GE48F 12/22/2003	NMP2- F-8-GW GI07F 2/12/2004	NMP2- H-1-GW GE48I 12/23/2003	NMP2- H-2-GW GE48J 12/23/2003	NMP2- H-3-GW GE48B 12/22/2003	NMP2- H-4-GW GI07H 2/11/2004	NMP2- H-5-GW GI07I 2/11/2004	NMP2- P-3 GI71C 2/19/2004	NMP2- P-5 GI71E 2/19/2004	Dup of NMP2-P5 P-50 GI71F 2/19/2004	NMP2- P-6 GI71G 2/19/2004	NMP2- P-7 GI71H 2/18/2004	NMP2- P-9 GI85A 2/23/2004	P-3 HQ52E/HS20D,H 1/24/2005	P-3 HU64F 3/4/2005	P-5 HU64B 3/4/2005	P-13 HQ52B/HS20B,F 1/24/2005
<b>PETROLEUM HYDROCARBONS</b>																		
<b>NWTPH-HCID (mg/L)</b>																		
Gasoline		0.25 U																
Diesel		0.25 U																
Motor Oil		0.50 U																
<b>NWTPH-Dx (mg/L)</b>																		
Diesel	0.25 U			0.25 U	0.25 U	0.25 U	0.25 U	0.25 U		0.25 U	0.25 U		0.25 U					
Motor Oil	0.50 U			0.50 U	0.50 U	0.50 U	0.50 U	0.50 U		0.50 U	0.50 U		0.50 U					
<b>BTEX (ug/L)</b>																		
<b>Method 8021</b>																		
Benzene							1.0 U	1.0 UJ										
Toluene							1.0 U	1.0 UJ										
Ethyl Benzene							1.0 U	1.0 UJ										
m,p-Xylene							1.0 U	1.0 UJ										
o-Xylene							1.0 U	1.0 UJ										
<b>NWTPH-G (mg/L)</b>																		
<b>Method 8021</b>																		
Gasoline	0.25 U			0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U					
<b>cPAHs (ug/L)</b>																		
<b>SW8270C-SIM</b>																		
Benzo[a]anthracene	0.027 J	0.011 UJ							0.010 UJ	0.010 UJ	0.011 UJ	0.011 UJ	0.011 UJ		0.015 J			
Chrysene	0.028 J	0.011 UJ							0.010 UJ	0.010 UJ	0.011 UJ	0.011 UJ	0.011 UJ		0.030 UJ			
Benzo[b]fluoranthene	0.012 J	0.011 UJ							0.010 UJ	0.010 UJ	0.011 UJ	0.011 UJ	0.011 UJ		0.022 UJ			
Benzo[k]fluoranthene	0.012 J	0.011 UJ							0.010 UJ	0.010 UJ	0.011 UJ	0.011 UJ	0.011 UJ		0.018 J			
Benzo[a]pyrene	0.025 J	0.011 UJ							0.010 UJ	0.010 UJ	0.011 UJ	0.011 UJ	0.011 UJ		0.012 J			
Indeno[1,2,3-cd]pyrene	0.010 UJ	0.011 UJ							0.010 UJ	0.010 UJ	0.011 UJ	0.011 UJ	0.011 UJ		0.011 UJ			
Dibenz[a,h]anthracene	0.010 UJ	0.011 UJ							0.010 UJ	0.010 UJ	0.011 UJ	0.011 UJ	0.011 UJ		0.011 UJ			
cPAH TEQ	0.030 J	ND							ND	ND	ND	ND	ND		0.015 J			
<b>VOLATILE ORGANIC COMPOUNDS (ug/L)</b>																		
<b>Method 8260B</b>																		
Chloromethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Bromomethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Vinyl chloride	17	0.2 U								0.2 U	0.2 U		0.2 U					
Chloroethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Methylene chloride	0.3 U	0.3 U								0.3 U	0.3 U		0.3 U					
Acetone	2.4	1.0 U								1.0 U	1.0 U		1.0 U					
Carbon disulfide	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,1-Dichloroethene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,1-Dichloroethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
trans-1,2-Dichloroethene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
cis-1,2-Dichloroethene	0.4	0.2 U								0.2 U	0.2 U		0.2 U					
Chloroform	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,2-Dichloroethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Methyl ethyl ketone	1.0 U	1.0 U								1.0 U	1.0 U		1.0 U					
1,1,1-Trichloroethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Carbon tetrachloride	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Vinyl acetate	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Bromodichloromethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,2-Dichloropropane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
cis-1,3-Dichloropropene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Trichloroethene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Dibromochloromethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,1,2-Trichloroethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Benzene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
trans-1,3-Dichloropropene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
2-Chloroethylvinylether	0.5 U	0.5 U								0.5 U	0.5 U		0.5 U					
Bromoform	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
4-Methyl-2-Pentanone (MIBK)	1.0 U	1.0 U								1.0 U	1.0 U		1.0 U					
2-Hexanone	1.0 U	1.0 U								1.0 U	1.0 U		1.0 U					
Tetrachloroethene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,1,2,2-Tetrachloroethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Toluene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Chlorobenzene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Ethylbenzene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Styrene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Trichlorofluoromethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
m,p-Xylene	0.4 U	0.4 U								0.4 U	0.4 U		0.4 U					
o-Xylene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,2-Dichlorobenzene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,3-Dichlorobenzene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,4-Dichlorobenzene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Acrolein	5.0 U	5.0 U								5.0 U	5.0 U		5.0 U					
Methyl Iodide	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Bromoethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Acrylonitrile	1.0 U	1.0 U								1.0 U	1.0 U		1.0 U					
1,1-Dichloropropene	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
Dibromomethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,1,1,2-Tetrachloroethane	0.2 U	0.2 U								0.2 U	0.2 U		0.2 U					
1,2-Dibromo-3-chloropropane	2.0 U	2.0 U								2.0 U	2.0 U		2.0 U					
1,2,3-Trichloropropane	0.5 U	0.5 U								0.5 U	0.5 U		0.5 U					

**TABLE B-2**  
**GROUNDWATER CHARACTERIZATION ANALYTICAL DATA**  
**WEST END SITE**  
**PORT OF EVERETT, WASHINGTON**

[illegible]

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	NMP2- F-2-GW GE48E	NMP2-F-3-GW GE48F	NMP2- F-8-GW GI07F	NMP2- H-1-GW GE48I	NMP2- H-2-GW GE48J	NMP2- H-3-GW GE48B	NMP2- H-4-GW GI07H	NMP2- H-5-GW GI07I	NMP2- P-3 GI71C	NMP2- P-5 GI71E	Dup of NMP2-P5 P-50 GI71F	NMP2- P-6 GI71G	NMP2- P-7 GI71H	NMP2- P-9 GI85A	P-3 HQ52E/HS20D,H	P-3 HU64F	P-5 HU64B	P-13 HQ52B/HS20B,F
	12/22/2003	12/22/2003	2/12/2004	12/23/2003	12/23/2003	12/22/2003	2/11/2004	2/11/2004	2/19/2004	2/19/2004	2/19/2004	2/19/2004	2/18/2004	2/23/2004	1/24/2005	3/4/2005	3/4/2005	1/24/2005
Benzo(k)fluoranthene																		
Benzo(a)pyrene																		
Indeno(1,2,3-cd)pyrene																		
Dibenz(a,h)anthracene																		
Benzo(g,h,i)perylene																		
1,2-Diphenylhydrazine																		
DISSOLVED METALS (ug/L)																		
SW6000-7000 Series																		
Arsenic			14						90	1	2	4	1 U	146	66.7	45.7	0.3	12.3
Cadmium			2 U						2 U	2 U	2 U	2 U	2 U	4 U	0.2 U			0.2 U
Chromium (d)			5 U						5 U	5 U	5 U	5 U	5 U	10 U				
Copper			2 U						2 U	2 U	2 U	2 U	2 U	4 U	0.9			0.6
Lead			1 U				1 U	1 U	1 U	1 U	1 U	1 U	1 U	1	1 U			1 U
Mercury			0.1 U						0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U			0.1 U
Silver			3 U						3 U	3 U	3 U	3 U	3 U	6 U				
Zinc			6 U						6 U	6 U	6 U	6 U	6 U	10 U	4 U			4 U
TOTAL METALS (ug/L)																		
SW6000-7000 Series																		
Arsenic															62.3			19.0
Cadmium															0.2 U			0.4
Chromium																		
Copper															2.4			31.6
Lead															1			7
Mercury															0.1 U			0.1 U
Zinc															5			53
NATURAL ATTENUATION PARAMETERS																		
pH																6.94	6.41	
Conductivity (us/cm)																1230	236	
Turbidity (NTU)																20	17	
Temperature (C°)																10.4	8.4	
ORP (mV)																-82.3	-96.25	
Dissolved Oxygen (mg/L)																1.4	0.58	
Alkalinity (mg/L CaCO3)																565	140	
Carbonate (Alkalinity) (mg/L CaCO3)																1.0 U	1.0 U	
Bicarbonate (Alkalinity) (mg/L CaCO3)																565	140	
Ferrous Iron (mg/L)																46.6	5.4	
N-Nitrate (mg N/L)																0.010 U	0.010 U	
N-Nitrite (mg N/L)																0.079	0.010 U	
Nitrate + Nitrite (NO3+NO2) (mg N/L)																0.010 U	0.010 U	
Sulfate (mg/L)																23.7	3.0	
TOC (mg/L)																13.5	5.04	

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	P-13 HU64E 3/4/2005	Dup of P-13 P-33 HU64H 3/4/2005	P-14 HQ52A/HS20A,E 1/24/2005	P-14 HU64D 3/4/2005	P-15 HR01A 1/24/2005	Dup of P-15 P-25 HR01B 1/24/2005	P-15 HU64C 3/4/2005	P-16 HQ52C/HS20C,G 1/24/2005	P-16 HU64G 3/4/2005	P-17 HQ86D 1/28/2005	P-18 HQ86B 1/28/2005	Dup of P-18 P-28 HQ86C 1/28/2005	P-19 HQ86A 1/28/2005	P-20 HQ86E 1/28/2005	P-21 0412400-01 12/29/2004	P-22 HQ97D 1/27/2005	Dup of P-22 P-32 HQ97E 1/27/2005	P-23 HQ97G 1/28/2005
<b>PETROLEUM HYDROCARBONS</b>																		
<b>NWTPH-HCID (mg/L)</b>																		
Gasoline																		
Diesel																		
Motor Oil																		
<b>NWTPH-Dx (mg/L)</b>																		
Diesel															0.220 U	0.25 U	0.25 U	0.25 U
Motor Oil															0.870 U	0.50 U	0.50 U	0.50 U
<b>BTEX (ug/L)</b>																		
<b>Method 8021</b>																		
Benzene																1.0 U	1.0 U	1.0 U
Toluene																1.0 U	1.0 U	1.0 U
Ethyl Benzene																1.0 U	1.0 U	1.0 U
m,p-Xylene																1.0 U	1.0 U	1.0 U
o-Xylene																1.0 U	1.0 U	1.0 U
<b>NWTPH-G (mg/L)</b>																		
<b>Method 8021</b>																		
Gasoline																		
<b>cPAHs (ug/L)</b>																		
<b>SW8270C-SIM</b>																		
Benzo[a]anthracene										0.10 U	0.10 U	0.10 U	0.10 U	0.10 U				
Chrysene										0.10 U	0.10 U	0.10 U	0.10 U	0.10 U				
Benzo[b]fluoranthene										0.10 U	0.10 U	0.10 U	0.10 U	0.10 U				
Benzo[k]fluoranthene										0.10 U	0.10 U	0.10 U	0.10 U	0.10 U				
Benzo[a]pyrene										0.10 U	0.10 U	0.10 U	0.10 U	0.10 U				
Indeno[1,2,3-cd]pyrene										0.10 U	0.10 U	0.10 U	0.10 U	0.10 U				
Dibenz[a,h]anthracene										0.10 U	0.10 U	0.10 U	0.10 U	0.10 U				
cPAH TEQ										ND	ND	ND	ND	ND				
<b>VOLATILE ORGANIC COMPOUNDS (ug/L)</b>																		
<b>Method 8260B</b>																		
Chloromethane																1.0 U		
Bromomethane																1.0 U		
Vinyl chloride																1.0 U		
Chloroethane																1.0 U		
Methylene chloride																1.0 U		
Acetone																5.0 U		
Carbon disulfide																1.0 U		
1,1-Dichloroethane																1.0 U		
1,1-Dichloroethane																1.0 U		
trans-1,2-Dichloroethene																1.0 U		
cis-1,2-Dichloroethene																1.0 U		
Chloroform																1.0 U		
1,2-Dichloroethane																1.0 U		
Methyl ethyl ketone																5.0 U		
1,1,1-Trichloroethane																1.0 U		
Carbon tetrachloride																1.0 U		
Vinyl acetate																		
Bromodichloromethane																1.0 U		
1,2-Dichloropropane																1.0 U		
cis-1,3-Dichloropropene																1.0 U		
Trichloroethene																1.0 U		
Dibromochloromethane																1.0 U		
1,1,2-Trichloroethane																1.0 U		
Benzene																1.0 U		
trans-1,3-Dichloropropene																1.0 U		
2-Chloroethylvinylether																		
Bromoform																1.0 U		
4-Methyl-2-Pentanone (MIBK)																5.0 U		
2-Hexanone																5.0 U		
Tetrachloroethene																1.0 U		
1,1,2,2-Tetrachloroethane																1.0 U		
Toluene																1.0 U		
Chlorobenzene																1.0 U		
Ethylbenzene																1.0 U		
Styrene																1.0 U		
Trichlorofluoromethane																1.0 U		
1,1,2-Trichloro-1,2,2-trifluoroethane																		
m,p-Xylene																1.0 U		
o-Xylene																1.0 U		
1,2-Dichlorobenzene																		
1,3-Dichlorobenzene																		
1,4-Dichlorobenzene																		
Acrolein																		
Methyl Iodide																		
Bromoethane																		
Acrylonitrile																		
1,1-Dichloropropene																		
Dibromomethane																		
1,1,1,2-Tetrachloroethane																		
1,2-Dibromo-3-chloropropane																		
1,2,3-Trichloropropane																		

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	P-13 HU64E 3/4/2005	Dup of P-13 P-33 HU64H 3/4/2005	P-14 HQ52A/HS20A,E 1/24/2005	P-14 HU64D 3/4/2005	P-15 HR01A 1/24/2005	Dup of P-15 P-25 HR01B 1/24/2005	P-15 HU64C 3/4/2005	P-16 HQ52C/HS20C,G 1/24/2005	P-16 HU64G 3/4/2005	P-17 HQ86D 1/28/2005	P-18 HQ86B 1/28/2005	Dup of P-18 P-28 HQ86C 1/28/2005	P-19 HQ86A 1/28/2005	P-20 HQ86E 1/28/2005	P-21 0412400-01 12/29/2004	P-22 HQ97D 1/27/2005	Dup of P-22 P-32 HQ97E 1/27/2005	P-23 HQ97G 1/28/2005
trans-1,4-Dichloro-2-butene																		
1,3,5-Trimethylbenzene																		
1,2,4-Trimethylbenzene																		
Hexachlorobutadiene																		
Ethylene Dibromide																		
Bromochloromethane																		
2,2-Dichloropropane																		
1,3-Dichloropropane																		
Isopropylbenzene																		
n-Propylbenzene																		
Bromobenzene																		
2-Chlorotoluene																		
4-Chlorotoluene																		
tert-Butylbenzene																		
sec-Butylbenzene																		
4-Isopropyltoluene																		
n-Butylbenzene																		
1,2,4-Trichlorobenzene																		
Naphthalene																		
1,2,3-Trichlorobenzene																		
Dichlorodifluoromethane																		
SEMIVOLATILE ORGANIC COMPOUNDS (ug/L)																		
Method 8270C																		
Phenol																		5.0 U
Bis-(2-Chloroethyl) Ether																		5.0 U
2-Chlorophenol																		5.0 U
1,3-Dichlorobenzene																		5.0 U
1,4-Dichlorobenzene																		5.0 U
Benzyl Alcohol																		5.0 U
1,2-Dichlorobenzene																		5.0 U
2-Methylphenol																		5.0 U
2,2'-Oxybis(1-Chloropropane)																		5.0 U
4-Methylphenol																		5.0 U
N-Nitroso-Di-N-Propylamine																		5.0 U
Hexachloroethane																		5.0 U
Nitrobenzene																		5.0 U
Isophorone																		5.0 U
2-Nitrophenol																		5.0 U
2,4-Dimethylphenol																		5.0 U
Benzoic Acid																		11.0 U
bis(2-Chloroethoxy) Methane																		5.0 U
2,4-Dinitrophenol																		11.0 U
1,2,4-Trichlorobenzene																		5.0 U
Naphthalene																		5.0 U
4-Chloroaniline																		5.0 U
Hexachlorobutadiene																		5.0 U
4-Chloro-3-methylphenol																		5.0 U
2-Methylnaphthalene																		5.0 U
Hexachlorocyclopentadiene																		5.0 U
2,4,6-Trichlorophenol																		5.0 U
2,4,5-Trichlorophenol																		5.0 U
2-Chloronaphthalene																		5.0 U
2-Nitroaniline																		5.0 U
Dimethylphthalate																		5.0 U
Acenaphthylene																		5.0 U
3-Nitroaniline																		5.0 U
Acenaphthene																		5.0 U
2,4-Dichlorophenol																		5.0 U
4-Nitrophenol																		5.0 U
Dibenzofuran																		5.0 U
2,6-Dinitrotoluene																		5.0 U
2,4-Dinitrotoluene																		5.0 U
Diethylphthalate																		5.0 U
4-Chlorophenyl-phenylether																		5.0 U
Fluorene																		5.0 U
4-Nitroaniline																		5.0 U
4,6-Dinitro-2-Methylphenol																		5.0 U
N-Nitrosodiphenylamine																		5.0 U
4-Bromophenyl-phenylether																		5.0 U
Hexachlorobenzene																		5.0 U
Pentachlorophenol																		5.0 U
Phenanthrene																		5.0 U
Carbazole																		5.0 U
Anthracene																		5.0 U
Di-n-Butylphthalate																		5.0 U
Fluoranthene																		5.0 U
Pyrene																		5.0 U
Butylbenzylphthalate																		5.0 U
3,3'-Dichlorobenzidine																		5.0 U
Benzo(a)anthracene																		5.0 U
bis(2-Ethylhexyl)phthalate																		5.0 U
Chrysene																		5.0 U
Di-n-Octyl phthalate																		5.0 U
Benzo(b)fluoranthene																		5.0 U



TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	P-13 HU64E 3/4/2005	Dup of P-13 P-33 HU64H 3/4/2005	P-14 HQ52A/HS20A,E 1/24/2005	P-14 HU64D 3/4/2005	P-15 HR01A 1/24/2005	Dup of P-15 P-25 HR01B 1/24/2005	P-15 HU64C 3/4/2005	P-16 HQ52C/HS20C,G 1/24/2005	P-16 HU64G 3/4/2005	P-17 HQ86D 1/28/2005	P-18 HQ86B 1/28/2005	Dup of P-18 P-28 HQ86C 1/28/2005	P-19 HQ86A 1/28/2005	P-20 HQ86E 1/28/2005	P-21 0412400-01 12/29/2004	P-22 HQ97D 1/27/2005	Dup of P-22 P-32 HQ97E 1/27/2005	P-23 HQ97G 1/28/2005
Benzo(k)fluoranthene																		5.0 U
Benzo(a)pyrene																		5.0 U
Indeno(1,2,3-cd)pyrene																		5.0 U
Dibenz(a,h)anthracene																		5.0 U
Benzo(g,h,i)perylene																		5.0 U
1,2-Diphenylhydrazine																		
<b>DISSOLVED METALS (ug/L)</b>																		
<b>SW6000-7000 Series</b>																		
Arsenic	9.3	9.6	68.4	71.3	30.0	29.1	22.2	39.4	32.3	23.2	4	6	0.5 U	3.2	10.3			
Cadmium			0.2 U		0.2 U	0.2 U		0.2 U		0.2 U	1 U	1 U	0.2 U	0.2 U	1.0 U			
Chromium (d)															2.0 U			
Copper			0.6		0.8	0.8		0.5 U		2.8	4	5	1.8	0.5	46.8			
Lead			1 U		1 U	1 U		1 U		1 U	5 U	5 U	1 U	1 U	1.0 U			
Mercury			0.1 U		0.1 U	0.1 U		0.1 U		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.20 U			
Silver																		
Zinc			4 U		4 U	4 U		5		10	20 U	20 U	4 U	7	10.0 U			
<b>TOTAL METALS (ug/L)</b>																		
<b>SW6000-7000 Series</b>																		
Arsenic			79.7		39.6	38.1		41.5		13.9 J	4	4	7.0	9.7	13.0			
Cadmium			0.2		0.6	0.6		0.2		0.2 U	1 U	1 U	0.2	0.2 U	1.0 U			
Chromium															9.4 J			
Copper			30.8		62.0	57.6		17.4		3.3	3	4	27.3	15.1	57.3			
Lead			11		24	19		5		1 U	2 U	2 U	8	11	3.0			
Mercury			0.1 U		0.1	0.1		0.1 U		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.20 U			
Zinc			51		120	110		38		11	20 U	20 U	10	42	13.9			
<b>NATURAL ATTENUATION PARAMETERS</b>																		
pH	6.54	6.54		6.44				6.31		7.16								
Conductivity (us/cm)	930	930		1630				1260		622								
Turbidity (NTU)	17	17		19				8		24								
Temperature (C°)	10.6	10.6		10.2				10.2		10.1								
ORP (mV)	-104.35	-104.35		-68.7				-113.9		-92.925								
Dissolved Oxygen (mg/L)	1.0	1.0		2.1				1.6		0.2								
Alkalinity (mg/L CaCO3)	420	425		719				499		346								
Carbonate (Alkalinity) (mg/L CaCO3)	1.0 U	1.0 U		1.0 U				1.0 U		1.0 U								
Bicarbonate (Alkalinity) (mg/L CaCO3)	420	425		719				499		346								
Ferrous Iron (mg/L)	41.1	43.6		82.0				56.5		20.0								
N-Nitrate (mg N/L)	0.010 U	0.010 U		0.010 U				0.010 U		0.010 U								
N-Nitrite (mg N/L)	0.076 J	0.061 J		0.125				0.087		0.023								
Nitrate + Nitrite (NO3+NO2) (mg N/L)	0.010 U	0.010 U		0.010 U				0.010 U		0.010 U								
Sulfate (mg/L)	25.0	28.3		32.8				37.6		24.2								
TOC (mg/L)	13.3	14.1		27.6				16.6		9.17								

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	P-24 HQ97F 1/28/2005	P-25 KX03E/KX06E 4/30/2007
<b>PETROLEUM HYDROCARBONS</b>		
<b>NWTPH-HCID (mg/L)</b>		
Gasoline		
Diesel		
Motor Oil		
<b>NWTPH-Dx (mg/L)</b>		
Diesel	0.25 U	0.43
Motor Oil	0.50 U	0.50 U
<b>BTEX (ug/L)</b>		
<b>Method 8021</b>		
Benzene	1.0 U	1.0 U
Toluene	1.0 U	1.0 U
Ethyl Benzene	1.0 U	1.0 U
m,p-Xylene	1.0 U	1.0 U
o-Xylene	1.0 U	1.0 U
<b>NWTPH-G (mg/L)</b>		
<b>Method 8021</b>		
Gasoline		0.91
<b>cPAHs (ug/L)</b>		
<b>SW8270C-SIM</b>		
Benzo[a]anthracene		
Chrysene		
Benzo[b]fluoranthene		
Benzo[k]fluoranthene		
Benzo[a]pyrene		
Indeno[1,2,3-cd]pyrene		
Dibenz[a,h]anthracene		
cPAH TEQ		
<b>VOLATILE ORGANIC COMPOUNDS (ug/L)</b>		
<b>Method 8260B</b>		
Chloromethane		
Bromomethane		
Vinyl chloride		
Chloroethane		
Methylene chloride		
Acetone		
Carbon disulfide		
1,1-Dichloroethene		
1,1-Dichloroethane		
trans-1,2-Dichloroethene		
cis-1,2-Dichloroethene		
Chloroform		
1,2-Dichloroethane		
Methyl ethyl ketone		
1,1,1-Trichloroethane		
Carbon tetrachloride		
Vinyl acetate		
Bromodichloromethane		
1,2-Dichloropropane		
cis-1,3-Dichloropropene		
Trichloroethene		
Dibromochloromethane		
1,1,2-Trichloroethane		
Benzene		
trans-1,3-Dichloropropene		
2-Chloroethylvinylether		
Bromoform		
4-Methyl-2-Pentanone (MIBK)		
2-Hexanone		
Tetrachloroethene		
1,1,2,2-Tetrachloroethane		
Toluene		
Chlorobenzene		
Ethylbenzene		
Styrene		
Trichlorofluoromethane		
1,1,2-Trichloro-1,2,2-trifluoroethane		
m,p-Xylene		
o-Xylene		
1,2-Dichlorobenzene		
1,3-Dichlorobenzene		
1,4-Dichlorobenzene		
Acrolein		
Methyl Iodide		
Bromoethane		
Acrylonitrile		
1,1-Dichloropropene		
Dibromomethane		
1,1,1,2-Tetrachloroethane		
1,2-Dibromo-3-chloropropane		
1,2,3-Trichloropropane		

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	P-24 HQ97F 1/28/2005	P-25 KX03E/KX06E 4/30/2007
trans-1,4-Dichloro-2-butene		
1,3,5-Trimethylbenzene		
1,2,4-Trimethylbenzene		
Hexachlorobutadiene		
Ethylene Dibromide		
Bromochloromethane		
2,2-Dichloropropane		
1,3-Dichloropropane		
Isopropylbenzene		
n-Propylbenzene		
Bromobenzene		
2-Chlorotoluene		
4-Chlorotoluene		
tert-Butylbenzene		
sec-Butylbenzene		
4-Isopropyltoluene		
n-Butylbenzene		
1,2,4-Trichlorobenzene		
Naphthalene		
1,2,3-Trichlorobenzene		
Dichlorodifluoromethane		
SEMIVOLATILE ORGANIC COMPOUNDS (ug/L)		
Method 8270C		
Phenol		
Bis-(2-Chloroethyl) Ether		
2-Chlorophenol		
1,3-Dichlorobenzene		
1,4-Dichlorobenzene		
Benzyl Alcohol		
1,2-Dichlorobenzene		
2-Methylphenol		
2,2'-Oxybis(1-Chloropropane)		
4-Methylphenol		
N-Nitroso-Di-N-Propylamine		
Hexachloroethane		
Nitrobenzene		
Isophorone		
2-Nitrophenol		
2,4-Dimethylphenol		
Benzoic Acid		
bis(2-Chloroethoxy) Methane		
2,4-Dinitrophenol		
1,2,4-Trichlorobenzene		
Naphthalene		
4-Chloroaniline		
Hexachlorobutadiene		
4-Chloro-3-methylphenol		
2-Methylnaphthalene		
Hexachlorocyclopentadiene		
2,4,6-Trichlorophenol		
2,4,5-Trichlorophenol		
2-Chloronaphthalene		
2-Nitroaniline		
Dimethylphthalate		
Acenaphthylene		
3-Nitroaniline		
Acenaphthene		
2,4-Dichlorophenol		
4-Nitrophenol		
Dibenzofuran		
2,6-Dinitrotoluene		
2,4-Dinitrotoluene		
Diethylphthalate		
4-Chlorophenyl-phenylether		
Fluorene		
4-Nitroaniline		
4,6-Dinitro-2-Methylphenol		
N-Nitrosodiphenylamine		
4-Bromophenyl-phenylether		
Hexachlorobenzene		
Pentachlorophenol		
Phenanthrene		
Carbazole		
Anthracene		
Di-n-Butylphthalate		
Fluoranthene		
Pyrene		
Butylbenzylphthalate		
3,3'-Dichlorobenzidine		
Benzo(a)anthracene		
bis(2-Ethylhexyl)phthalate		
Chrysene		
Di-n-Octyl phthalate		
Benzo(b)fluoranthene		

TABLE B-2  
GROUNDWATER CHARACTERIZATION ANALYTICAL DATA  
WEST END SITE  
PORT OF EVERETT, WASHINGTON

	P-24 HQ97F 1/28/2005	P-25 KX03E/KX06E 4/30/2007
Benzo(k)fluoranthene		
Benzo(a)pyrene		
Indeno(1,2,3-cd)pyrene		
Dibenz(a,h)anthracene		
Benzo(g,h,i)perylene		
1,2-Diphenylhydrazine		
DISSOLVED METALS (ug/L)		
SW6000-7000 Series		
Arsenic		0.3
Cadmium		
Chromium (d)		
Copper		
Lead		
Mercury		
Silver		
Zinc		
TOTAL METALS (ug/L)		
SW6000-7000 Series		
Arsenic		
Cadmium		
Chromium		
Copper		
Lead		
Mercury		
Zinc		
NATURAL ATTENUATION PARAMETERS		
pH		
Conductivity (µs/cm)		
Turbidity (NTU)		
Temperature (C°)		
ORP (mV)		
Dissolved Oxygen (mg/L)		
Alkalinity (mg/L CaCO3)		
Carbonate (Alkalinity) (mg/L CaCO3)		
Bicarbonate (Alkalinity) (mg/L CaCO3)		
Ferrous Iron (mg/L)		
N-Nitrate (mg N/L)		
N-Nitrite (mg N/L)		
Nitrate + Nitrite (NO3+NO2) (mg N/L)		
Sulfate (mg/L)		
TOC (mg/L)		

U = Indicates the compound was undetected at the reported concentration.  
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample  
UJ = The analyte was not detected in the sample; the reported sample detection limit is an estimate  
M = Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match

# Terrestrial Ecological Exclusion Form

## Terrestrial Ecological Evaluation Process - Primary Exclusions

## Documentation Form

Exclusion #	Exclusion Detail	Yes or No?	Are Institutional Controls Required If The Exclusion Applies?
1	Will soil contamination be located at least 6 feet beneath the ground surface and less than 15 feet?	Yes / No	Yes
	Will soil contamination be located at least 15 feet beneath the ground surface?	Yes / No	No
	Will soil contamination be located below the conditional point of compliance?	Yes / No	Yes
2	Will soil contamination be covered by buildings, paved roads, pavement, or other physical barriers that will prevent plants or wildlife from being exposed?	Yes / No	Yes
3	Is there less than 1.5 acres of <a href="#">contiguous undeveloped land</a> on the site, or within 500 feet of any area of the site affected by hazardous substances <b>other than</b> those listed in the table of <a href="#">Hazardous Substances of Concern</a> ?	Yes	Other factors determine
	And  Is there less than 0.25 acres of <a href="#">contiguous undeveloped land</a> on or within 500 feet of any area of the site affected by hazardous substances <b>listed in</b> the table of <a href="#">Hazardous Substances of Concern</a> ?	Yes	
4	Are concentrations of hazardous substances in the soil less than or equal to natural background concentrations of those substances at the point of compliance	Yes / No	No