Final Remedial Investigation Report
BCA Everett Plant
Everett, Washington

Volume 1B Report

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The Boeing Company

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URS

Landau Associates

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FINAL REMEDIAL INVESTIGATION REPORT

VOLUME 1B REPORT

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BCA EVERETT PLANT
EVERETT, WASHINGTON

Prepared for

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&
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17.0 FORMER GUN CLUB

Presented in this section are the results of the investigation of soils and groundwater monitoring performed at Attachment 5 SWMU/AOC No. 100 Paine Field Sports (Gun) Club located in the southeast portion of the Everett Plant (Figure 17-1). The subsurface conditions, prior investigations and remedial actions, and description of this SWMU/AOC are presented in Section 5.0 of the IAWP. This investigation was performed in accordance with Section 5.4 of the IAWP, Section 3.7 of the Supplemental RIWP (Dames & Moore, 2000), and Section 2.3 of the Supplemental RIWP Addendum (URS, 2000). Also presented in this section is a summary of sampling and analysis associated with an interim action of soils performed in a portion of this SWMU/AOC (see Section 17.4) subsequent to the RI. The IA and associated sampling and analysis was performed in accordance with Ecology-approved work plans (URS, 2007a, 2008a)

The Paine Field Sports Club, referred to hereafter as the Former Gun Club, operated a trap shooting range on the site from the late 1940s until 1988 when Boeing purchased the property from Snohomish County. Shotgun pellets are typically composed of approximately 95% lead and 5% hardening agents such as antimony, arsenic, cadmium, copper, nickel, and chromium. Trap shooting clay pigeons used at the Former Gun Club were 4.5-inch disks made of tar-based derivatives containing PAHs.

This SWMU/AOC area encompasses approximately 25 acres in size and is located west of Airport Road and directly south of Boeing Lake (Figure 17-1). After acquiring the property from Snohomish County, Boeing constructed two access roads through the Former Gun Club area: Bomarc Road and West Frontage Road. Road construction began in October 1988 and was completed in December 1989. Consequently, the Former Gun Club area is divided into three sub-areas: (1) Area A is the portion south of Bomarc Road and west of West Frontage Road, (2) Area B is the portion north of Bomarc Road, and (3) Area C lies between Airport Road, West Frontage Road, and Bomarc Road. Areas A and C are bounded on the south by the property boundary with Paine Field (Snohomish County Airport). Area A is further subdivided into portions located west and east of the K-Line. The “K-line” is a grid line that was established during a previous soil investigation at the Former Gun Club. Further details regarding this SWMU/AOC are presented in Section 5.0 of the IAWP. The following sections describe the investigation results for:

- Area A – west of the K-line
- Area A – east of the K-line
- Area B
- Area C
- Groundwater – downgradient of Area A west of the K-line and Area B

Seven monitoring wells installed between 1988 and 1996 in the Former Gun Club area (EGW016, EGW018, EGW024, EGW025, EGW047, EGW048, and EGW049) have been monitored on a quarterly or semiannual basis since February 1995 or May 1996, as appropriate (Figure 17-2). Wells EGW048 and EGW049 replaced Former wells EGW022 and EGW023 and well EGW047 replaced Former well B-MW-1. The older wells were removed and the new wells installed in May 1996. The older wells did not meet the Ecology minimum standards for monitoring wells. Well EGW016 had to be abandoned during the interim action work described in Section 17.4. It was replaced in October 2008 with well EGW016A, which is located near the original location of EGW016 and constructed with a similar screened interval. The current wells range in depth from 7½ feet to 36 feet bgs and are screened in a zone of perched groundwater that flows toward the northwest to Boeing Lake.

The analytical results for groundwater samples from the Former Gun Club area wells prior to the RI indicate polynuclear aromatic hydrocarbons (PAHs) and VOCs have not been detected above applicable MTCA Method A or Method B cleanup levels. VOC analysis was discontinued after February 1996 as there were minimal detections and most were attributed to laboratory contamination (Dames & Moore, 1997). Arsenic and/or lead concentrations above the applicable MTCA Method A or B groundwater cleanup levels have been detected at least once in unfiltered samples from all of the wells. However, concentrations in filtered samples are less than applicable cleanup levels for lead. Arsenic concentrations in filtered samples are generally the same as or lower than concentrations in unfiltered samples (Dames & Moore, 1998a). This suggests that metal concentrations in the unfiltered samples are largely attributable to suspended soil particles. However, this can be associated with: (1) improperly constructed or developed monitoring wells that results in turbid groundwater samples, (2) metals adsorbed to colloid particles that move with the groundwater, and (3) metals associated with suspended particle fines, as well as other potential causes. Ecology requires the chemical analysis of unfiltered groundwater samples unless it can be shown that analysis of filtered groundwater samples are appropriate for this area.

17.1 AIRPORT ROAD PARCEL

Subsequent to completion of the RI for the Former Gun Club area, limited additional investigation of soils was conducted near the intersection of Airport Road and Bomarc Road (in Area C), and on the west side of Airport Road north of Bomarc Road (in Area B). This investigation was conducted on a parcel of land that was acquired by Snohomish County for the widening of Airport Road. This investigation was performed as Additional Work initiated by Boeing per the Agreed Order (Section VII.6) between Boeing and Ecology. It is supplemental to the investigation of the Former Gun Club area described in this section of the RI Report. The sampling and analysis plan for this supplemental investigation was approved by Ecology in a letter to Boeing dated September 3, 1998. The results are presented in a report (Dames & Moore, 1998b) previously submitted to Ecology.

The purpose of the soil investigation was to obtain baseline analytical data of representative soil samples collected in the parcel to be transferred. Presented below is a description of the scope of investigation:

- Completed five hand auger borings to depths of approximately 2 to 6 feet bgs
- Collected and field screened soil samples at prescribed intervals
- Submitted selected soil samples for chemical analysis
- Analyzed 11 soil samples for PAHs and selected metals: arsenic, antimony, copper, cadmium, chromium, lead, and nickel. Three of the 11 samples were also analyzed for VOCs, and three additional samples were analyzed only for either lead or arsenic.

The hand auger drilling and soil sampling was conducted on September 9 and 11, 1998. Four hand auger borings (ESB1326 through ESB1329) were completed in the eastern portion of Area B and one hand auger boring (ESB1325) was completed near the northeast corner of Area C (Figure 17-3) to depths ranging from 2 to 6 feet bgs. The analytical results are summarized in Tables 17-1 and 17-2.

The analytical results for soil samples collected from the Airport Road parcel indicate that VOCs and PAHs were not detected at concentrations above the MTCA Method B soil cleanup levels except for the Total Toxicity Equivalent Concentration (TTEC) of carcinogenic PAHS (cPAHs) in two samples that are above the current 100 µg/kg Method A and 137 µg/kg Method B soil cleanup levels. The TTEC of cPAHs ranged from 111 µg/kg to 898 µg/kg (in the duplicate sample) in the surface sample and the 1½-foot sample from boring ESB1325 in Area C (Table 17-1). The concentrations of certain individual cPAH compounds in these same samples also exceeded the most conservative preliminary soil cleanup level protective of groundwater. These samples were collected from fill soil placed as road base for Bomarc Road that did not have visible shards from the Former Gun Club. Consequently, it is possible that the elevated PAH concentrations are from asphalt or activities associated with road construction and may not be a direct result of prior Gun Club operations.

Ecology and Boeing do not agree on the potential source of the carcinogenic PAHs detected at ESB1325. Ecology believes the PAHs are from previous Gun Club activities because: (1) the relative and total concentrations of specific carcinogenic PAHs in soil samples from the Former Gun Club area are consistent with those detected in soils from ESB1325, (2) soils near ESB1240 are within approximately 100 feet of ESB1325, and (3) borings ESB1325 and ESB1240 are within the projected trajectory of clay targets and shot.

The analytical results indicate that antimony was not detected above the method reporting limits. In about half of the soil samples tested for antimony, the laboratory reporting limit slightly exceeded the preliminary soil cleanup level protective of groundwater. The concentrations of the other metals were below the applicable MTCA Method A or B soil cleanup levels in all the samples with the exception of arsenic, chromium, and lead (Table 17-2). Only one sample (from 1½ feet in ESB1326) contained a lead concentration (331 mg/kg) that is less than the MTCA Method A industrial soil cleanup level (1,000 mg/kg) but greater than the MTCA Method A unrestricted soil cleanup level (250 mg/kg).

Arsenic concentrations (2.6 mg/kg to 16 mg/kg) detected in the 13 samples analyzed are above the MTCA Method B soil cleanup level (0.667 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (0.03 mg/kg). However, only three of the 13 samples (1-foot and 1½-foot bgs samples from ESB1328 and 1½-foot sample from ESB1325) had concentrations (ranging from 9.9 mg/kg to 16 mg/kg) above the Puget Sound background concentration of 7.3 mg/kg (Ecology, 1994), but below the MTCA Method A soil cleanup level protective of groundwater (20 mg/kg). The duplicate sample of the 1½-foot sample from ESB1325 had an arsenic concentration of only 4.5 mg/kg relative to the 11 mg/kg in the initial 1½-foot sample from ESB1325 (Table 17-2).

Total chromium concentrations ranged from 27.0 mg/kg to 57.9 mg/kg and are below the applicable MTCA Method A and B soil cleanup levels for trivalent chromium (2,000 mg/kg and 120,000 mg/kg, respectively) and the Method B level for hexavalent chromium (240 mg/kg). These concentrations were above the MTCA Method A level for hexavalent chromium (19 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (18 mg/kg), but with the exception of the surface sample collected at ESB1325, all detected total chromium concentrations are below the Puget Sound background concentration of 48.2 mg/kg (Ecology, 1994). The duplicate sample collected at the surface at ESB1325 was below the background concentration.

With the possible exception of lead in the 1½-foot sample from boring ESB1326, the elevated metals concentrations detected are in excess fill soils generated by previous grading for Airport Road or road base materials placed for construction of Bomarc Road. The lead concentration of 331 mg/kg in the 1½-foot sample from boring ESB1326 may be from prior Gun Club operations. Soils north of Bomarc Road and on the west side of Airport Road were removed during subsequent road construction by Snohomish County and disposed of by Boeing at a permitted facility. The soil in the vicinity of ESB1325 remains in place.

17.2 AREA A – WEST OF K-LINE

The ground surface of Area A has been developed through several grading and filling activities. In the fall of 1988, the Paine Field Sports Club conducted lead recovery operations in Area A east of the K-line and an area approximately 200 feet to 300 feet west of the K-line. At the time of the RI, the portion of Area A located west of K-line was covered by approximately 10 feet of pre-load surcharge fill placed for a future flight-line extension. Previous investigations (Landau, 1993) detected cPAHs in fill soil underlying the surcharge fill in the central and southern portion of the area at concentrations (up to 116,500 μg/kg) above the 1991 MTCA Method C industrial soil cleanup level (1,000 μg/kg) applicable at the time of the historical investigation. The Flightline was expanded in 2008 and soil containing lead and PAHs located beneath the surcharge fill was removed under an interim action (see Section 17.4).

17.2.1 Purpose and Scope

The purpose of the investigation was to further delineate the horizontal and vertical extent of carcinogenic and non-carcinogenic PAHs previously detected in the fill soil underlying the existing pre-load surcharge fill in Area A west of K-line. In addition, several samples of the surcharge fill were analyzed to assess PAH and metal concentrations in the surcharge fill. The scope of investigation performed was in general accordance with Section 5.4.2 of the IAWP and Section 2.3 of the Supplemental RIWP Addendum, and included the following:

- Drilled nine soil borings to depths ranging from 20½ feet to 25 feet bgs using a truck-mounted hollow-stem auger drilling rig
- Collected soil samples at prescribed depth intervals
- Field screened samples for organic vapors and visual evidence of shot and shards
- Completed a monitoring well in two borings
- Collected groundwater samples on a quarterly basis since installation
- Submitted groundwater samples from the new well and selected soil samples for analysis for carcinogenic and non-carcinogenic PAHs. Samples were not analyzed for metals because shot was not observed
- Deviations from the planned scope of investigation include analyzing three samples of surcharge fill soil (ESB1234 at 5 feet, ESB1236 at 5 feet, ESB1237 at 5 feet) to assess PAH and metals concentrations in this fill

17.2.2 Documentation of Drilling and Sampling

On June 1 and June 2, 1998 Dames & Moore monitored drilling of seven soil borings (ESB1231 through ESB1237) shown on Figure 17-4. The existing ground surface elevation in this area is estimated to be approximately 570 feet. The borings were completed at depths ranging from approximately 20½ feet to 21½ feet bgs. During drilling, soil samples were retrieved using a Dames & Moore U-type sampler fitted with stainless steel rings. After sampling, the borings were backfilled with hydrated bentonite chips. Well EGW056 was installed in a drilled boring to a depth of 39 feet bgs on June 2, 1998. On June 12, 2000, a boring was drilled and a monitoring well (EGW064) was installed to a depth of 20 feet bgs. A boring was drilled and a monitoring well (EGW067) was installed to a depth of 25 feet bgs on June 14, 2000. Well EGW067 was later abandoned during the Flightline expansion and interim action (see Section 17.4) and replaced with well EGW067A. The monitoring well locations are shown on Figure 17-2. Drilling techniques and sampling procedures utilized were in general accordance with the SAP presented in Appendix B of the IAWP.

17.2.3 Field Observations and Sample Analysis Results

Presented in this section are the field observations and sample results associated with soil borings ESB1231 through ESB1237 and wells EGW056, EGW064 and EGW067. Geologic logs of the soil borings and well construction details are presented in Appendix P1. The chain-of-custody forms and analytical laboratory reports are presented in Appendix P2. Data validation reports are in Appendix P3. Soil analytical results are summarized in Tables 17-3 and 17-4. Groundwater analytical results for samples from wells EGW056, EGW064 and EGW067 are presented in Section 17.7.

17.2.3.1 Field Observations

Area A west of the K-line was covered with grass and weeds at the time of the RI. Fill soil placed as surcharge for future flight line expansion consisted of silty sand with some gravel and extends from the ground surface to depths ranging from approximately 9 feet (ESB1235) to 15 feet (EGW067). Underlying this surcharge fill, a layer of sand fill soil ranging from 1 foot to 5 feet thick was encountered in borings ESB1231 through ESB1235. Beneath the sand and surcharge fill, fill and/or alluvial soil consisting of silty sand with gravel was encountered to depths of up to 24 feet bgs. Locally this unit includes some peat and wood debris. Native glacial till was encountered at 24 feet bgs at EGW067. Perched water was encountered at depths ranging from 4 feet to 18 feet bgs in all the borings except ESB1234.

At wells EGW056 and EGW064, the soil encountered to a depth of 5 feet is fill soil serving as road base that consisted of sand and gravel. Underlying this road base fill was soil consisting of silty sand with occasional gravel, peat, and decomposing plant vegetation to a depth of 21 feet bgs. At a depth of 21 to 25½ feet was a layer of peat. Below this peat and extending to a depth of 36 feet was silt and fine sand with occasional fine roots. From a depth of 36 feet to 39 feet was fine to medium sand. Native glacial till was not encountered.

Visual evidence of shot and shards was not observed. Staining or other visual indications of dangerous constituents were not observed. PID readings indicated organic vapors were not elevated above the ambient background levels in the soil samples screened.

17.2.3.2 Sample Analysis Results

Selected soil samples were submitted for analysis per the sample selection criteria specified in Section 5.4.2 of the IAWP. Two or three samples of fill soil underlying the surcharge fill from each boring were analyzed. Table 17-3 summarizes the soil analytical data for PAHs detected in one or more samples and lists the applicable MTCA Method A or B cleanup levels. PAHs were either not detected above method reporting limits or were detected at concentrations less than the applicable MTCA Method A or B cleanup levels, including the most conservative preliminary soil cleanup levels protective of groundwater.

Table 17-4 summarizes the soil analytical data for metals detected in one or more of the three samples of surcharge fill analyzed. It also lists the applicable MTCA Method A and B soil cleanup levels. Metals detected were at concentrations below the applicable MTCA Method A or B soil cleanup levels in all the samples except for arsenic and chromium.

Arsenic was detected at concentrations (2.4 mg/kg to 2.9 mg/kg) above the MTCA Method B soil cleanup level (0.667 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (0.03 mg/kg). However, the detected arsenic concentrations are below the Puget Sound background concentration of 7.30 mg/kg (Ecology, 1994), and below the MTCA Method A soil cleanup level protective of groundwater (20 mg/kg).

Total chromium concentrations ranged from 30.6 mg/kg to 33.8 mg/kg and are below the applicable MTCA Method A and B soil cleanup levels for trivalent chromium (2,000 mg/kg and 120,000 mg/kg, respectively) and the Method B level for hexavalent chromium (240 mg/kg). Concentrations were above the MTCA Method A level for hexavalent chromium (19 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (18 mg/kg), but all detected total chromium concentrations are below the Puget Sound background concentration of 48.2 mg/kg (Ecology, 1994).

17.3 AREA A – EAST OF K-LINE

This area includes the northern portion of Area A located east of the K-Line. In the fall of 1988, lead recovery operations were conducted in the Former Gun Club in Area A east of the K-line. The recovery operations involved scraping the top six inches of surficial fill and placing the soil in a stockpile in the southeastern corner of Area A. The stockpile was subsequently mined for recoverable lead shot. During road construction, surficial soil containing lead shot was scraped from the access road right-of-ways and stockpiled in the southeastern corner of Area A along with the stockpile resulting from previous lead recovery operations conducted in 1988. The stockpiles were subsequently sampled and analyzed for total metals, TCLP metals, and PAHs. Total lead and cPAHs were detected at concentrations above the 1991 MTCA Method A unrestricted industrial (200 mg/kg lead) and Method C industrial (1,000 μg/kg cPAHs) soil cleanup levels. Arsenic concentrations were less than the 1991 Method A industrial cleanup level of 200 mg/kg. In December 1992 and January 1993, soils stockpiled in Area A were transported to the Chemical Waste Management Facility in Arlington, Oregon for stabilization and disposal as dangerous/hazardous waste. A previous investigation indicates that lead (up to 3,670 mg/kg) and cPAHs (up to 131 μg/kg) were detected in soils in the northeastern portion of Area A (Landau, 1993). These concentrations were above the applicable 1991 MTCA Method A unrestricted and industrial soil cleanup levels at the time of the investigation. At the time of the RI, the northeast portion of Area A was covered with deciduous trees and was north of the area where surficial soils were previously removed.

17.3.1 Purpose and Scope

The purpose of the RI was to further characterize, if present, the vertical extent of metals, carcinogenic PAHs, and non-carcinogenic PAHs in soil in the northeast portion of Area A. The scope of investigation performed was in general accordance with Section 5.4.2 of the IAWP and Section 3.7 of the Supplemental RIWP and included the following:

- Drilled eight soil borings to a depth of 4 to 6 feet bgs using a hand auger
- Collected soil samples at prescribed depth intervals
- Field screened samples for organic vapors and visual evidence of shot and shards
- Submitted selected soil samples for analysis for carcinogenic and non-carcinogenic PAHs, and the metals antimony, arsenic, cadmium, copper, chromium, lead, and nickel

There were no deviations from the planned scope of investigation in this sub-area.

17.3.2 Documentation of Drilling and Sampling

On June 3, 1998, Dames & Moore drilled five hand auger borings (ESB1238 through ESB1242) shown on Figure 17-4. These borings were completed to a depth of 4 feet bgs. On April 3, 2000, three additional borings (ESB1363, ESB1364, and ESB1365 on Figure 17-4) were completed by URS. These borings were completed to a depth of 6 feet bgs. Samples were retrieved using a hand auger. After sampling was completed, the borings were backfilled with hydrated bentonite chips. Drilling techniques and sampling procedures utilized were in general accordance with the SAP presented in Appendix B of the IAWP.

17.3.3 Field Observations and Sample Analysis Results

Presented in this section are the field observations and sample results associated with soil borings ESB1238 through ESB1242, and ESB1363, ESB1364, and ESB1365. Geologic logs of the soil borings are presented in Appendix P1. The chain-of-custody forms and analytical laboratory reports are presented in Appendix P2. Data validation reports are in Appendix P3. Analytical results are summarized in Tables 17-5 and 17-6.

17.3.3.1 Field Observations

The soil encountered in the borings consisted of silty fine sand to the maximum depth explored of 4 feet bgs. No shot and no shards were observed. Staining or other visual indications of dangerous constituents were not observed. PID readings indicated organic vapors were not elevated above ambient background in the soil samples screened. Groundwater was not encountered.

17.3.3.2 Sample Analysis Results

Selected soil samples were submitted for analysis per the sample selection criteria specified in Section 5.4.2 of the IAWP. Twenty-two soil samples from depths ranging from 0 feet to 2½ feet were analyzed. A duplicate sample was collected from the surface soil at boring ESB1242 and analyzed.

Table 17-5 summarizes the soil analytical data for PAHs detected in one or more samples and lists the applicable MTCA Method A and B soil cleanup levels. Non-carcinogenic PAHs were either not detected above method reporting limits or were detected at concentrations less than the applicable MTCA Method B cleanup levels including the most conservative preliminary soil cleanup levels protective of groundwater. Carcinogenic PAHs were only detected in five of the six surface and three ½-foot soil samples analyzed. Detected TTEC of cPAHs in the initial RI surface samples (ranging from 30 μg/kg to 220 μg/kg) are below the MTCA Method B soil cleanup level (137 μg/kg) except for PAHs in the surface sample from boring ESB1241 (220 μg/kg). The TTEC of cPAHs detected in the ½-foot samples from the supplemental borings range in concentration from 506 μg/kg to 25,980 μg/kg, with the highest concentrations from boring ESB1363. The concentrations of some individual cPAH compounds in these same samples also exceeded the most conservative preliminary soil cleanup level protective of groundwater. Carcinogenic PAHs were not detected above applicable MTCA Method A or B soil cleanup levels in any of the 13 deeper (1½ feet and 2½ feet) samples analyzed.

Table 17-6 summarizes the soil analytical data for metals detected in one or more of the 16 samples analyzed. It also lists the applicable MTCA Method A, A industrial, and B soil cleanup levels. Metals detected were at concentrations below the applicable MTCA Method A or B soil cleanup levels except for arsenic and chromium in all the samples analyzed and lead in three samples analyzed.

Arsenic was detected at concentrations (2.4 mg/kg to 8.6 mg/kg) above the MTCA Method B soil cleanup level (0.667 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (0.03 mg/kg). However, the detected arsenic concentrations are below the Puget Sound background concentration of 7.30 mg/kg (Ecology, 1994) with the exception of the ½ foot sample from ESB1363 (8.6 mg/kg). The detected arsenic concentrations are all below the MTCA Method A soil cleanup level protective of groundwater (20 mg/kg).

Total chromium concentrations ranged from 27.0 mg/kg to 41.5 mg/kg, below the applicable MTCA Method A and B soil cleanup levels for trivalent chromium (2,000 mg/kg and 120,000 mg/kg, respectively) and the Method B level for hexavalent chromium (240 mg/kg). Detected total chromium concentrations were above the MTCA Method A level for hexavalent chromium (19 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (18 mg/kg), but are below the Puget Sound background concentration of 48.2 mg/kg (Ecology, 1994).

Lead was detected in two surface soil samples (borings ESB1240 and ESB1241) at concentrations (638 mg/kg and 417 mg/kg, respectively) above the MTCA Method A unrestricted soil cleanup level (250 mg/kg) but less than the MTCA Method A industrial soil cleanup level (1,000 mg/kg). One sample had a lead concentration (1,070 mg/kg at ½ foot bgs in ESB1363) above the MTCA Method A industrial cleanup level. Lead concentrations detected in all the other samples analyzed from these borings were not above the MTCA Method A unrestricted soil cleanup level.

17.4 AREA A – INTERIM SOIL CLEANUP ACTION

In 2008, Boeing implemented plans to expand the existing Flightline into Area A as shown on Figure 17-1. Boeing and Ecology concluded that the Flightline expansion necessitated that Boeing complete an interim action (IA) for Area A soil prior to implementation of the formal FS and CAP. Completing soil remediation prior to completion of the facility-wide FS and CAP presented an opportunity to remediate portions of the Former Gun Club more completely and with less impact on aircraft development than would be the case if the remedy was completed after the Flightline expansion was completed and impacted soils were covered with concrete.

17.4.1 Purpose and Scope

The IA was conducted pursuant to the Fourth Amendment to the AO, dated January 24, 2008 (Amendment 4). The soils in Area A known to be contaminated above RI screening levels with arsenic, lead, and cPAHs based on results of the RI (URS, 2006) and located within the footprint of the planned Flightline expansion were remediated by the IA. The IA was conducted in general accordance with the Ecology-approved IA work plan (IAWP, URS, 2008a), with deviations reported to Ecology as they occurred. The scope of work performed during the IA included the following primary elements:

- Pre-design sampling and analysis
- Design of the interim cleanup action
- Oversight during soil excavation and disposal or treatment
- Post-excavation sampling and analysis.

The scope of the IA, deviations, and post-excavation soil sample analytical results are documented in detail in the IA Completion Report (URS, 2008b) and are summarized below

17.4.2 Pre-Design Sampling and Analysis

During November and December 2007 and January 2008, additional soil samples were collected throughout Area A to help delimit the lateral and vertical extent of soil to be removed during the IA, and to provide pre-characterization data for excavated soil disposal. Sampling locations were selected generally within the footprint of the planned Flightline expansion, and were widely distributed within this footprint but at an increased sample density (compared to previous investigations) to further constrain the area and depth of soil to be removed and disposed of during the IA. In general, the initial sampling locations were placed around pre-RI and RI sample locations where PAH or metals concentrations exceeded applicable MTCA cleanup levels, to further delimit the soil requiring removal around these locations. As field screening and laboratory analytical data were obtained, additional sampling locations were added to fill data gaps. Samples collected on January 31, 2008 (locations PD-43 through PD-52) were collected at locations and depths specified by Ecology, to further characterize soil for disposal in areas where lead shot had been observed in historical samples.

Planned sample locations were adjusted in the field as necessary based on access issues, utility locate results, and subsurface obstacles (e.g., asphalt slabs). At five of the sampling locations (labeled “GEI#” on figures and tables in this RI), samples were collected by URS environmental field staff during geotechnical drilling by another consultant working on the Flightline expansion design team. URS collected soil samples for chemical analysis when the drilling locations and depths had the potential to provide data useful for supplementing the pre-IA data set.

Soil samples were collected for laboratory analysis from test pits, hollow-stem auger soil borings, push-probe soil borings, and hand-auger or hand-dug soil borings at a total of 60 locations. During sampling, soil from each location was also screened in the field for visual evidence of shot and target fragments (shards). Surface soil at eight additional locations was screened in the field for shot and shards; however no samples were collected for laboratory analysis. As requested by Ecology, soil samples representative of the pre-load fill were also collected from nine locations and analyzed.

In the pre-load fill area, soil sample collection depths ranged from ground surface to 40 feet bgs. As requested by Ecology, two pre-load soil samples were collected at nine locations: from the ground surface and from 5 to 6 feet bgs (representing the approximate mid-point of the pre-load depth). Soil samples were collected from just below the contact of the pre-load fill with underlying soil (based on field identification of this contact). Additional samples were generally collected up to 4 feet below this contact. At the "GEI#" locations, some additional deeper samples were collected from a soil/peat layer observed in these borings.

In portions of Area A outside the limits of the pre-load fill, sample depths were also selected based on field identification of the soil horizon most likely to have been impacted by Former Gun Club operations. At most locations this soil horizon was at or very near ground surface but was beneath up to approximately 4.5 feet of recent fill in some areas. Where recent fill was observed, sampling in test pits was begun at the contact with the pre-existing soil surface. Samples were collected to a maximum depth of 4 feet below the pre-existing soil surface. Hand-auger boring samples were collected from the upper two feet of the recent fill (samples labeled "PDRF#") to assess whether this soil should be disposed of as contaminated.

Except where sample depths were explicitly specified by Ecology (locations PD-43 through PD-52), the number of samples and precise sampling depths at each location were chosen by the field team based on the soil horizons observed and logged at each location. In general, samples were collected at 0.5 to 2.0 foot intervals, with samples representative of each distinct soil horizon logged, down into native glacial till. In accordance with the Ecology-approved sampling protocol (Boeing, 2007), samples with visible shot or shards were not retained for laboratory analysis. Selected pre-design samples (PD-37 through PD-52) were specifically collected and analyzed from soil horizons observed to contain shot or shards, to ensure that this material was properly characterized for disposal.

17.4.2.1 Field Observations

Soil types observed during the pre-design investigation were consistent with those encountered during previous investigations and included recent fill in and around the construction laydown area, pre-load soil, older fill (including reworked glacial till), recent and older topsoil and peat horizons, weathered glacial till, and unoxidized, in-place glacial till. Logs of test pits and soil borings from the pre-design investigation are included in Appendix P1.

Lead shot was not observed during field screening, however shards were observed at 14 sampling locations – all of which are located outside of the pre-load fill limits in the eastern portion of Area A. Shards were observed at the ground surface and/or subsurface to depths of up to 2 feet along the eastern margin of Area A at sample locations PD-17, PD-17A, PD-18, PD-18A, PD-25, PD-39, PDSCR-8, PDSCR-31, PDSCR-33. Shards were also observed in the upper foot of soil in PD-14, located southeast of the paved laydown area. At PD-26, located northwest of the paved laydown area, shards were observed at 2.5 feet bgs. Shards were observed in the upper 0.5-foot soil horizon at PD-1, located immediately west of the paved laydown area,. To the southwest of the laydown area where recent fill was placed, the pre-existing soils contained shards at locations PD-2 (3.5 feet bgs) and PD-3 (4.5 feet bgs).

Within the pre-load, concrete and asphalt debris was observed at many sample locations. The loose nature of the pre-load soils also complicated the use of backhoe test pits to perform sampling, resulting in severe side-wall caving at several locations. Because of the difficulties with test pit exploration through the pre-load, additional exploration was completed using push-probe borings. Where both a test pit and a push-probe boring were used to investigate at a planned location, the follow-on push-probe boring was given an "A" designator in the location name (e.g., PD-09 and PD-09A on Figure 17-4).

17.4.2.2 Analytical Results

Analytical results for the pre-design soil samples are presented in Table 17-7 and summarized on Figure 17-4. These samples include pre-load and recent fill soil samples, and older soil beneath and east of the pre-load pile. The complete pre-design laboratory data package is available in the Ecology-approved, IA work plan (URS, 2008a).

Pre-Load and Recent Fill Soil

Pre-load and "recent fill" soil samples were analyzed for VOCs, SVOCs, PAHs, PCBs, and RCRA metals as requested by Ecology. Based on the prior soil analytical results in Area A, non-pre-load soil samples were analyzed for PAHs, and arsenic and lead. The non-pre-load soil samples exhibiting total lead concentrations greater than 95 mg/kg were also analyzed for lead using the EPA Toxicity Characteristic Leaching Procedure (TCLP) for disposal characterization purposes.

Some pre-load soil samples contained VOCs, SVOCs, and PCBs; however all detected concentrations were below applicable MTCA Method B soil cleanup levels for direct contact. The laboratory reporting limit for Aroclor 1254 (32 to 33 µg/kg) exceeded the preliminary soil cleanup level for protection of groundwater (1.3 µg/kg). The preliminary soil cleanup level for protection of groundwater for Aroclor 1254 is below the practical quantitation limit for this PCB. The benzo(a)pyrene concentration in one pre-load soil sample was equal to the Method A soil cleanup level protective of groundwater and direct contact (100 µg/kg). Most pre-load soil samples also contained detectable concentrations of one or more of the RCRA 8 metals. Metals concentrations in pre-load soil samples were below either the applicable MTCA A or B soil cleanup levels or the Puget Sound background concentrations (Ecology, 1994).

Non-carcinogenic PAHs, where detected, were at concentrations below the applicable MTCA Method B cleanup levels, including the most conservative preliminary soil cleanup levels protective of groundwater. Arsenic was detected in all non-pre-load pre-design soil samples, typically at concentrations below both the MTCA Method A cleanup levels, which are protective of both direct contact and groundwater, and the Puget Sound background concentration (Ecology, 1994). Three of the pre-design soil samples contained arsenic concentrations above the Puget Sound background concentration, but below the MTCA Method A cleanup level.

Soil

Carcinogenic PAHs and lead were detected at concentrations above the applicable MTCA A or B soil cleanup levels in many of the pre-design soil samples at locations both east of the pre-load pile and beneath the eastern half of the pre-load pile. Total PAHs were consistently less than 1 percent in all pre-design soil samples, which is the Washington State PAH criterion for a persistent dangerous waste (WP03).

In general, lead concentrations in soil were less widespread compared to cPAH concentrations. Lead concentrations in soil exceeding the MTCA Method A cleanup level of 250 mg/kg were detected primarily in the eastern 150 feet of Area A, adjacent to West Frontage Road. The maximum lead concentration detected in soil was 2,190 mg/kg, in the 0.5-foot deep sample at location PD-15. At locations where lead was detected at concentrations exceeding the MTCA Method A cleanup level, deeper samples from the sample location exhibited concentrations below 5.0 mg/kg, thereby delimiting the vertical extent of soil requiring removal. TCLP lead concentrations in 12 soil samples from nine locations PD-15, PD-18A, PD-21, PD-24, PD-27, PD-48, PD-50, PD-51, and PD-52 exceeded the Washington dangerous waste and Federal RCRA TCLP criterion for lead of 5.0 mg/L (WAC 173-303-090). Soil in these areas was therefore disposed of as RCRA hazardous waste (D008) (see also Section 17.4.3.2). The rest of the contaminated soils were disposed of as Washington non-dangerous (non-RCRA) waste.

Carcinogenic PAHs were detected in soil samples from the majority of pre-design sampling locations east of the pre-load pile and from many of the soil samples collected from beneath the pre-load pile. The TTEC of cPAHs exceeding the MTCA Method B cleanup level were typically detected in a soil horizon 0.5 to 2 feet thick. The highest detected TTEC cPAH concentration was 23,980 µg/kg in the sample from 1.0 feet bgs at location PD-15. This sample also had the highest detected total PAH concentration of 161,830 µg/kg. In many of the samples exhibiting TTEC cPAH concentrations exceeding the MTCA Method B cleanup level for direct contact, the concentrations of some individual cPAH compounds, and in a few samples the concentrations of 2-methylnaphthalene and dibenzofuran, also exceeded the most conservative preliminary soil cleanup level protective of groundwater. In the case of a single sample, PDRF2 at 1 foot bgs, the concentration of chrysene exceeded the most conservative preliminary soil cleanup level protective of groundwater although the TTEC cPAH concentration did not exceed the MTCA Method B cleanup level for direct contact. Soil from this location was later removed as part of the IA.

Where target shards were observed at or near ground surface, cPAH concentrations were typically below laboratory reporting limits from the sample collected from 0.5 to 1 foot beneath the last occurrence of shards (e.g. see the results for PD-17 at 2.5 feet bgs where shards were observed to a depth of 1.5 feet bgs). At locations where no shards were observed but relatively high cPAH concentrations were detected (e.g. see PD-19 at 0.5 feet), cPAH concentrations in the sample collected from 0.5 to 1 foot deeper were typically below the MTCA Method B cleanup level. The deeper sample results thereby delimited the vertical extent of soil requiring removal.

17.4.2.3 IA Design

Based on the pre-design and historical analytical data, cPAHs and lead were determined to be the contaminants of concern (COCs) for the IA. The IA design established excavation “cells”, based on these analytical results, which are depicted on a plan view of Area A (Figure 17-5). Each excavation cell showed the lateral and vertical dimensions of soil removal expected to be necessary to remove soil containing lead or PAHs exceeding the Ecology-approved IA remediation goals. The design also pre-characterized the soil in each cell for disposal as Washington non-dangerous or dangerous waste based on the lead and PAH concentrations in samples from the cell. Excavation cell boundaries outlined in the IAWP were marked in the field by a professional land surveyor and utilities were also marked on this date by a utility location contractor.

17.4.3 Soil Excavation and Disposition

Soil excavation and handling was performed by Gary Merlino Construction Company, Incorporated (Merlino) under contract to Boeing. Soil disposal was managed by Philip Services, Incorporated (Philip Services), under contract to Boeing. Construction stormwater treatment was performed by Clear Water Compliance Services, Incorporated, under contract to Merlino. Other subcontractors to Merlino provided surveying and utility locating services. URS supported Boeing with full-time monitoring of excavation, post-excavation sampling and documentation, sample and data management, reporting, and contractor management. URS staff performing field monitoring of the excavation and sample collection included qualified geologists, environmental scientists, and engineers.

The contractors mobilized personnel and equipment to the BCA Everett Plant on February 18, 2008, and began constructing haul roads and installing silt fencing that same day. Haul roads consisted of geotextile placed on the existing soil surface, a quarry-spall road bed, and a crushed rock top course. Haul roads were reconfigured as needed during performance of the IA. Stormwater management equipment, including pumps and sand bags, were staged on site during initial mobilization and used as needed to move stormwater from excavations and existing stormwater ponds to an on-site treatment system.

Excavation of soil contaminated above IA remediation goals began on February 20, 2008, with test loads from an excavation cell where soil required stabilization prior to land disposal. The test loads were sent to the selected RCRA Subtitle C disposal facility (U.S. Ecology in Grand View, Idaho) for treatability testing in advance of full-scale soil excavation. Removal of vegetation overlying excavation cells, as well as some initial excavation was also initiated on this date.

Additional soil sampling was required under the IAWP to verify the disposal characterization of soil located in some excavation cells. The first test pits for additional soil disposal characterization sampling were excavated on February 20, 2008, and additional test pits were excavated and sampled during the course of the work.

Excavation cell boundaries outlined in the IAWP were marked in the field by a professional land surveyor, with marking completed on February 20, 2008. Utilities were also marked on this date by a utility location contractor.

Treatability test loads of non-RCRA soil (i.e., soil not designated under the IAWP for stabilization and disposal at a RCRA Subtitle C landfill) were hauled on February 21, 2008 to the LaFarge cement plant in Seattle, Washington to be recycled as feed soil material for cement. During test load excavation some soil containing greater than 1 percent shards was found and segregated by placement in two roll-off containers staged on site. These containers were later sampled for soil disposal profiling and disposed of as non-RCRA waste, with Ecology approval.

Test pits and excavation of soils for waste disposal treatability testing were initiated on February 20-21. The first post-excavation samples were collected on February 22, 2008 and full-scale excavation of non-dangerous waste (non-RCRA) soil was initiated on February 23, 2008. Full-scale excavation of soil (including dangerous/RCRA waste) continued on February 25, 2008, and full-scale excavation of RCRA soil was initiated on this date.

Concurrent with removal of soil contaminated above the IA remediation goals located east of the preload pile, the preload pile itself was being removed from the site to prepare it for Flightline construction and expose the planned excavation cells beneath the preload pile. As preload removal neared the elevation of the top of soil contaminated above the IA remediation goals in each cell, URS staff observed the preload removal, identified the top of contaminated soil, and provided direction to the excavation contractor to stop preload removal at the top of contaminated soil. Where required by the IAWP, test pits were excavated outside of the lateral limits of cells beneath preload, and soil samples were collected from the test pits to confirm that the lateral extent of each cell was adequate. Excavation of soil contaminated above IA remediation goals from beneath the preload pile began on March 11, 2008.

As excavation proceeded and laboratory results were received, over excavation was performed as warranted by the laboratory results or as required by Ecology. In many cases over excavation was performed within a cell based on initial samples, before excavation and sampling of the entire cell was complete.

During performance of the IA, the Flightline expansion plans were altered. The effect on the IA was that a portion of the preload above one excavation cell originally scheduled to remain in place was now scheduled for removal. Based on this change, soil contaminated above the IA remediation goals excavation and disposal from this additional cell was included in the work performed.

Excavation and disposal of soil contaminated above IA remediation goals from all cells except three cells under the northern portion of the pre-load pile was completed on April 18, 2008. Validated data were available on April 25, 2008 to confirm that no further excavation was warranted in these areas.

Removal of the remaining preload began in late May 2008. As preload removal neared the elevation of the top of soil contaminated above IA remediation goals, URS staff observed the preload removal, identified the top of contaminated soil, and provided direction to the excavation contractor to stop preload removal at the top of contaminated soil. Most preload soil was removed by June 19, 2008; therefore removal of remaining soil contaminated above IA remediation goals began on this date and continued as preload removal was completed. Excavation and disposal was completed on July 1, 2008, and the last post-excavation sample was collected on this date. Validated data were available on July 11, 2008, confirming that excavation and disposal were complete for all areas selected for IA activities in the IAWP, and the remediation team demobilized from the site.

Following completion of the IA, Boeing completed construction of the Flightline expansion project. Most of Area A is currently paved with concrete and is part of the active Flightline. The area within the ordinary high water (OHW) mark of Pond D and the area between the northern bank of Pond D and 94 Street SW was outside the planned limits of excavation under this IA, because soil excavation in this area required a permit from the U.S. Army Corps of Engineers that likely could not be obtained within the accelerated project schedule. This area is configured currently much as it was prior to the IA. The area south of Pond D and east of the expanded Flightline was used during final construction to receive excess preload fill material, creating a large soil berm between the active Flightline and Frontage road.

17.4.3.1 Waste Disposition

Soil characterized as a RCRA D008 waste was disposed of at the U.S. Ecology landfill in Grandview, Idaho. This site is a RCRA Subtitle C and TSCA landfill. The 12,296.21 tons of soil was stabilized prior to disposal at this facility.

Soil not characterized as a RCRA D008 waste, but containing lead and/or cPAHs above the remediation goal, was disposed of or recycled at two facilities: Rabanco's Roosevelt Regional Landfill in Roosevelt, Washington (5,948 tons) or LaFarge Cement Plant (28,717.61 tons) in Seattle, Washington.

Based on the analytical results of treated stormwater samples collected in accordance with the Construction Stormwater Permit, stormwater collected and treated (as needed) during the IA was discharged either to surface water or to the on-site sanitary sewer system in accordance with the criteria of the Construction Stormwater Permit. A total of 902,702 gallons of treated stormwater were discharged to the sanitary sewer system or surface water between February 18, 2008 and May 13, 2008, with no violations of water quality standards. Treatment during this time consisted of a chitosan-enhanced sand filtration (CESF) system. After May 13, 2008, during completion of the IA by removal of soil from Cells R, S, and T, treatment using the CESF system was no longer needed to meet the requirements of the Construction Stormwater Permit. During this time, stormwater was managed along with other construction stormwater associated with the Flightline construction.

Based on the analytical results of the samples collected from the two roll-off containers used to stage soil containing greater than 1 percent target shards, the soil in these roll-off containers was not a State-only dangerous waste or a RCRA hazardous waste. Soil in these containers was disposed of at Rabanco on March 13, 2008.

Concrete and asphalt was disposed of as construction debris by Merlino. Approximately 211 tons of concrete were disposed of at East Valley Sand and Gravel, and 88 tons of concrete were disposed of at Pacific Topsoil. Approximately 1,056 tons of asphalt was disposed of at East Valley Sand and Gravel.

Results of waste profiling samples and the rationale for waste disposition are presented in Section 17.4.4.3.

17.4.4 Interim Action Sampling and Analysis

The following sample types were collected during the IA:

- Post-excavation soil samples from the floors and sidewalls of excavations
- Lateral extent verification soil samples
- Waste profiling soil samples
- Stormwater samples

Table 2 summarizes the results of IA soil samples that are representative of soil remaining on site. Complete laboratory data reports, including results for initial post-excavation soil samples of soil subsequently removed from the site during the IA, are available in the IA Completion Report (URS, 2008b).

17.4.4.1 Post-Excavation Soil Samples

A total of 204 post-excavation soil samples (and 12 field duplicates) were collected. These do include samples collected to verify lateral extent of excavation cells or to characterize soil for disposal. Post-excavation soil samples were of four general types:

- Initial post-excavation floor samples, collected when an excavation area had reached its planned depth
- Over-excavation soil samples collected as a follow-up when the analytical results of initial post-excavation samples indicated that additional excavation was warranted within a cell
- Post-excavation wall samples collected when an excavation sidewall was exposed and the local distribution of COCs warranted documenting that further lateral excavation was not necessary
- Field duplicate samples

The locations of all post-excavation samples are shown on Figure 17-5. The analytical results for post-excavation samples representative of soil remaining on site are summarized in Table 17-8.

The remainder of this subsection summarizes the concentrations of COCs in post-excavation samples representative of soil remaining on site following performance of the IA. Of the soil samples collected during the IA, 199 samples are representative of soil remaining on site following excavation. Some samples collected during the pre-design phase of the IA and during earlier investigations also remain representative of soil on site, but are not re-reported here. For clarity, the portion of the site within excavation Cell E that includes Pond D and the area north of Pond D is discussed separately from remainder of the site.

For the area within the ordinary high water (OHW) mark of Pond D and the area between the northern bank of Pond D and 94 Street SW, COC concentrations in soil and sediment remaining on site exceed the IA remediation goals. COCs in soil remaining on site in this area (samples PEX-E04, PEX-E05, PEX-E06, PEX-E10, PEX-E11) exhibit the following concentration ranges:

- Lead: 7 mg/kg (estimated) to 31,500 mg/kg (estimated)
- Arsenic: 3.4 mg/kg to 63.3 mg/kg (estimated)
- TTEC cPAHs: 31 µg/kg to 1,325 µg/kg

Sediment accumulated on the bottom of Pond D exhibits the following COC concentrations (sample PEX-E08-SED):

- Lead: 120 mg/kg
- Arsenic: 4.1 mg/kg
- TTEC cPAHs: 26 µg/kg

In place soil beneath accumulated sediment in Pond D (sample PEX-E09) exhibits the following COC concentrations:

- Lead: 6 mg/kg
- Arsenic: 2.6 mg/kg
- TTEC cPAHs: Not Detected above 4.8 µg/kg

For all other portions of the Area A IA, outside of the Pond D vicinity, soil remaining on site exhibits the following concentration ranges:

- Lead: 1.0 mg/kg to 56 mg/kg (estimated)
- Arsenic: 0.8 mg/kg to 19.5 mg/kg
- TTEC cPAHs: Not detected (at 4.6 µg/kg reporting limit) to 94 µg/kg

17.4.4.2 Lateral Extent Verification Samples

Where required by the IAWP, test pits were excavated outside of the lateral limits of cells beneath preload, and soil samples were collected from the test pits to confirm that the lateral extent of each cell was adequate. Samples in these areas were planned in the IAWP because of the limited pre-design data available in these areas. One sample location outside of Cell P (samples PEX-P01 and PEX-P02) was not required in the IAWP but was added based on a field decision that additional data were warranted in this area.

Test pits were excavated outside the lateral limits of Cells O, P, and R in accordance with the IAWP, after preload had been removed and the potentially contaminated historical soil surface had been exposed. Samples were collected from the test pits at the historical soil surface and from one foot below the surface. At Cells O and P, the results of these samples (PEX-O01 through PEX-O04 and PEX-P01 through PEX-P04) verified that the lateral limits of Cells O and P were properly selected in the IAWP and no revision to the lateral limits was necessary during performance of the IA.

The western boundary of Cell R was expanded to the west approximately 100 feet based on the presence of occasional target shards. The three soil sampling locations planned in the IAWP to verify the westward lateral extent of Cell R were therefore also moved westward. At these three sampling locations, samples were collected from the soil surface beneath the preload and from one foot below this surface (PEX-R01, PEX-R01SS, PEX-R02, PEX-R02SS, PEX-R03, PEX-R03SS). The results of most of these samples indicated that the new western boundary of Cell R had been correctly selected. However, the PAH concentration in PEX-R02 indicated that excavation should be extended further west in this area. Additional excavation and sampling was performed around this location accordingly.

In accordance with the IAWP, four samples were collected from within the “No Excavation” area between Cells D, F, J, and B to document that excavation was not required in this area. The results of these samples (NO-EX-01, NO-EX-02, NO-EX-03, and NO-EX-04) verified that this area was properly characterized in the IAWP as not requiring excavation.

17.4.4.3 Waste Profiling Samples

Most of the soil disposed of during the IA was pre-characterized based on pre-design samples and historical analytical results. This pre-characterization was reflected in the IAWP. In particular, the IAWP segregated the site into 22 excavation cells and identified four of these cells (Cells A, B, C, and E) as containing soil designated as a RCRA D008 waste and requiring stabilization prior to landfilling at a RCRA Subtitle C landfill.

In addition to this pre-characterization, the IAWP required additional soil sampling for disposal characterization at two locations: the vicinities of historical test pits A-TP18/A-TP18A and A-TP5. The analytical results in these two areas showed that total lead concentrations were below 95 mg/kg in all soil samples collected from these areas and no TCLP lead results exceeded 5.0 mg/L. Based on these results, soil in the vicinity of historical test pits A-TP18/A-TP18A and A-TP5 was not disposed of as RCRA hazardous waste (D008). The PAH results showed that soil in these areas was also not a Washington dangerous waste. Ecology concurred with the waste designation for soils in these areas.

During performance of the IA, additional soil disposal characterization sampling, not required by the IAWP, was performed to help clarify the disposal requirements for two roll-off containers of soil exhibiting greater than 1 percent target shards and for recent fill material observed within Cell K. The analytical results for composite samples from the roll-off containers showed that this soil did not meet the criteria for a Washington dangerous waste and the soil was therefore disposed of along with other soil from the site not designated as hazardous or dangerous waste, with the concurrence of Ecology. The results of 10 soil samples from the recent fill material indicated that a portion of the soil could potentially be segregated for reuse on site. However, segregation of the small volume of soil was not cost effective and Boeing elected to dispose of the entire stockpile off site as non-dangerous (non-RCRA waste) contaminated soil, with the concurrence of Ecology.

During demobilization of the stormwater treatment system, one sample was collected from a roll-off container of solids removed from treatment tanks. This sample was analyzed for lead to help characterize the material for disposal.

17.4.4.4 Stormwater Samples

During the time period February 18, 2008 through May 13, 2008, samples of treated stormwater were collected and analyzed prior to discharge of each batch of stormwater to either the on-site sanitary sewer system (which in turn discharges to the City of Everett Publicly Owned Treatment Works [POTW]) or to surface water. Stormwater collection, treatment, sampling, discharge, and reporting was performed in accordance with the Construction Stormwater General Permit number WAR-010072.

Prior to mobilization on February 18, 2008, Boeing and its subcontractors sought Ecology’s approval to treat construction stormwater using a CESF system and to discharge treated stormwater to surface water.

Boeing received Ecology's permission on April 7, 2008. Until permission was received, all treated stormwater was discharged to the POTW. Following Ecology's approval of treatment and discharge to surface water, treated stormwater batches exhibiting lead concentrations below the chronic effects surface water standard were discharged to surface water. Batches of treated stormwater that exceeded this standard were discharged to the POTW.

After May 13, 2008, stormwater was managed along with other construction stormwater associated with the Flightline construction. Construction stormwater was collected and temporarily stored in on-site ponds and not allowed to discharge to surface water. Instead, the water was used to irrigate hydroseeded areas on site.

17.4.5 Replacement Monitoring Wells

The two monitoring wells (EGW016 and EGW067) abandoned during performance of the IA in accordance with the IAWP (URS, 2008a) were replaced with monitoring wells EGW016A and EGW067A on October 30, 2008. The original wells had been installed through the preload soil pile, which was removed as part Flightline expansion construction, concurrent with performance of the IA.

Ecology approved the proposed replacement monitoring well locations and construction specifications in a letter dated August 21, 2008 with minor clarifications requested. Clarifications and responses between Boeing and Ecology to the August 21, 2008 approval letter were made via a Boeing response letter on August 25, 2008 and subsequent electronic mail on between August 25 and September 2, 2008.

Replacement well locations were selected to be:

- Within approximately 50 to 60 feet of the original well location
- In areas likely to be accessible when the Flightline Stall 213 is in use
- Away from likely utilities (including fuel, compressed air, water, power, and sewer)

Well bore drilling and well construction was performed using a hollow-stem auger in accordance with the procedures in Appendix A of the Ecology-approved Remedial Investigation Work Plan (Dames & Moore, 1997) and the Monitoring Well Replacement Technical Memorandum (URS, 2008c).

Split-spoon samples were retrieved at 5-foot intervals during well-bore drilling and used for logging of soil types. No chemical analysis of soil samples was performed. The screened interval for each well was based on the soils observed in split-spoon samples and the depth of the first occurrence of groundwater determined during drilling.

EGW016A was drilled east-southeast of EGW016 to a depth of 30 feet below ground surface (bgs) and screened 19-29 feet bgs which is consistent with the replaced monitoring well. EGW067A was drilled east of EGW067 to 22 feet bgs and screened 6-21 feet bgs which is approximately 9 feet lower than the replaced monitoring well. This lower screen placement was planned and approved by Ecology because EGW067 was occasionally dry during previous sampling events.

The replacement wells were developed in general accordance with the procedures in Appendix A of the Remedial Investigation Work Plan (Dames & Moore, 1997) and the Groundwater Monitoring Plan for upland AOCs and SWMUs (URS, 2007b). Sampling of the replacement wells continued on a semiannual basis, as scheduled for the original wells.

17.5 AREA B

Area B is forested with second and third growth deciduous and coniferous trees and contains several drainage swales and designated wetlands, both modified by past earthwork. Boeing Lake bounds Area B on the northwest. The results of previous investigations indicated lead was detected at concentrations (maximum of 37,900 mg/kg) in soil samples above the 1991 MTCA Method A industrial (1,000 mg/kg) soil cleanup level applicable at the time of the investigation (Landau, 1993). In addition, cPAHs were detected at concentrations (up to 1,100 μg/kg total cPAHs) above the 1991 MTCA Method C industrial soil cleanup level (1,000 μg/kg) applicable at that time. Limited soil removal was subsequently performed at the sample locations with concentrations above the MTCA Method A industrial cleanup levels.

17.5.1 Purpose and Scope

The purpose of the RI investigation was to further delineate the lateral and vertical extent of carcinogenic and non-carcinogenic PAHs and selected metals in Area B soil. The scope of investigation performed was in general accordance with Section 5.4.3 of the IAWP, Section 3.7 of the Supplemental RIWP, and Section 2.3 of the Supplemental RIWP Addendum, and included the following:

- Drilled 12 soil borings to a depth of 4 feet bgs using a hand auger
- Collected soil samples at prescribed depth intervals
- Field screened samples for organic vapors and visual evidence of shot and shards
- Drilled one boring to 15 feet bgs using a solid stem auger and installed a monitoring well
- Submitted selected soil samples for analysis of carcinogenic and non-carcinogenic PAHs, and the metals antimony, arsenic, cadmium, copper, chromium, lead, and nickel

There were no deviations from the planned scope of investigation, which was performed in 1998 and 2000 (see Section 17.5.2).

In late 2009 and early 2010, Ecology requested additional investigation of Area B to assess the absence or presence, and if present the concentrations, of PAHs and metals in sediment and surface water in wetlands of Area B. This was performed concurrent with additional investigation in Area C (see Section 17.6). The purpose was to evaluate the contribution of metals and PAHs into Area B from drainage areas and outfalls from Pond D in Area A and a drainage ditch located along the east side of Area C. This drainage ditch receives runoff from Airport Road as well as the eastern margin of Area C. The COCs for this investigation were PAHs (carcinogenic and non-carcinogenic) and metals (antimony, arsenic, cadmium, chromium, copper, lead and nickel). These data were to be used to evaluate whether an interim action was warranted to clean up soils containing elevated concentrations of these constituents in the source area of the stormwater runoff (i.e. Area C and adjacent to Pond D (a portion of Area A). The additional investigation included the following scope of work within Area B:

- Collection of sediment samples from 36 locations where sediment was observed to be accumulated or interpreted to most likely accumulate along the flow path from the culvert outfalls conveying stormwater from Pond D and the east side of Area C , through Area B, to Boeing Lake.

- Collection of surface soil samples from 21 locations near the sediment sample locations (Figure 17-6).

- Collection of surface water samples from outfalls to Area B at two locations and at the discharge from Area B to Boeing Lake during two storm events.

The field observations and analytical results of the Area B soil samples are presented below. Results of the sediment sampling performed in Area B in 2010 are presented separately in the sediment and surface water RI for the facility.

17.5.2 Documentation of Drilling and Soil Sampling

On June 4 and June 5, 1998, Dames & Moore drilled seven soil borings (ESB1243 through ESB1249) north of Bomarc Road. On April 6, 2000, five supplemental RI borings (ESB1379 through ESB1383) were completed in this area (Figure 17-4). The borings were completed to a depth of 4 feet bgs. Samples were retrieved using a hand auger. After sampling was completed, the borings were backfilled with hydrated bentonite chips. On October 25, 2000, a boring was drilled and a monitoring well (EGW068 on Figure 17-2) was installed to a depth of 15 feet bgs. Drilling techniques and sampling procedures utilized were in general accordance with the SAP presented in Appendix B of the IAWP.

Surface soil sampling was performed on February 4, 5, and 8, 2010. Soil sampling was performed in accordance with the Ecology-approved SAP (URS, 2009). One deviation regarding sediment sampling was reported to Ecology via email on February 8, 2010; the planned sample location SED18 in Pond B was inaccessible because of dense vegetation and depth in the middle of the pond. In addition, location SED14 was located approximately 15 feet north of the original location at the outfall at the location where the first significant amount of sediment was encountered. The floor of the pond was found to be covered in rock at the original location at the mouth of the outfall.

17.5.3 Field Observations and Sample Analysis Results

Presented in this section are the field observations and sample results associated with soil borings ESB1243 through ESB1249 and ESB1379 through ESB1383, and the surface soil sampling performed in 2010. Results of the surface water and sediment sampling performed in 2010, and evaluation of the combined soil, sediment, and surface water data for Area B are presented separately in the sediment and surface water RI for the facility. Geologic logs of the soil borings are presented in Appendix P1. The chain of custody forms and analytical laboratory reports for soil borings ESB1243 through ESB1249 and ESB1379 through ESB1383 are presented in Appendix P2. Data validation reports are in Appendix P3. Laboratory reports and data validation memoranda for the 2010 soil sample were provided previously to Ecology (Boeing, 2010). Soil sample analytical results are summarized in Tables 17-9 and 17-10. Groundwater analytical results from well EGW068 are presented in Section 17.7.

17.5.3.1 Field Observations

The vegetation in this area consists of brush and second and third growth deciduous and coniferous trees. Two to ten inches of forest duff covers the soil surface in this area, which consists of silty fine sand. The soil grades to include a trace of gravel in several of the borings (ESB1243, ESB1244, ESB1247, and ESB1249). Sand was encountered in two soil borings at a depth of 2½ feet (ESB1248) and 3½ feet (ESB1245). Native glacial till was encountered at a depth of 6 feet bgs in well EGW068 boring and weathered glacial till was encountered in several of the supplemental soil borings. Perched groundwater was observed in boring ESB1248 at a depth of 3½ feet, and in well EGW068 at a depth of 8 feet bgs.

Although visual evidence of shot was observed, shards were not found within soil to a depth of 1-foot bgs at borings ESB1243, ESB1244, ESB1246, and ESB1248. Visual evidence of shot and shards was not observed in soil from borings ESB1245, ESB1247, ESB1249, and ESB1379 through ESB1383, or any of the surface soil samples collected in 2010. Staining or other visual indications of dangerous constituents were not observed. PID readings indicated organic vapors were not elevated above ambient background in the soil samples screened.

17.5.3.2 Sample Analysis Results

During the 1998 and 2000 investigations, selected soil samples were submitted for analysis per the sample selection criteria specified on Section 5.4.3 of the IAWP and Section 3.7 of the Supplemental RIWP. Twenty-nine soil samples from depths ranging from 0 feet to 2½ feet bgs were analyzed. During the 2010 investigation, 23 surface soil samples (including the two field duplicates) were collected and analyzed.

Table 17-9 summarizes the soil analytical data for PAHs detected in one or more samples and lists the applicable MTCA Method A and B cleanup levels. Non-carcinogenic PAHs were either not detected above the reporting limits or were detected at concentrations less than the MTCA Method A and B cleanup levels, including the most conservative preliminary soil cleanup levels protective of groundwater. Carcinogenic PAHs were detected above the MTCA Method A unrestricted soil cleanup level in 13 of the 36 surface and ½-foot soil samples that were analyzed. The concentrations of some individual cPAH compounds in these same samples also exceeded the most conservative preliminary soil cleanup level protective of groundwater. Carcinogenic PAHs were not detected in the 16 deeper (1½ feet and 2½ feet) samples analyzed.

Table 17-10 summarizes the soil analytical data for metals detected in one or more of the 39 samples analyzed. It also lists the applicable MTCA Method A, A industrial, and B soil cleanup levels. Metals detected were at concentrations below the applicable MTCA Method A or B soil cleanup levels in all the samples except for arsenic, chromium, lead, and antimony as discussed below.

Arsenic was detected at concentrations (1.7 mg/kg to 1,470 mg/kg) above the MTCA Method B soil cleanup level (0.667 mg/kg) in all the samples analyzed, with the highest concentrations at each location in the surface or ½-foot sample. However, the detected arsenic concentrations in the deeper (1½ feet and 2½ feet) samples from each boring, and in nine of the 2010 surface soil samples are below the Puget Sound background concentration of 7.30 mg/kg (Ecology, 1994) and the MTCA Method A soil cleanup level protective of groundwater (20 mg/kg).

Total chromium concentrations ranged from 17.0 mg/kg to 46.2 mg/kg, below the applicable MTCA Method A and B soil cleanup levels for trivalent chromium (2,000 mg/kg and 120,000 mg/kg, respectively) and the Method B level for hexavalent chromium (240 mg/kg). Concentrations were above the MTCA Method A level for hexavalent chromium (19 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (18 mg/kg), but below the Puget Sound background concentration of 48.2 mg/kg (Ecology, 1994).

Lead was detected in 17 of the 35 surface and ½-foot soil samples at concentrations (277 mg/kg to 77,600 mg/kg) above the MTCA Method A unrestricted soil cleanup level (250 mg/kg). Of these 17 samples, 10 samples are also above the MTCA Method A industrial soil cleanup level (1,000 mg/kg). Lead concentrations in all the other samples analyzed were not above the cleanup levels.

Antimony concentrations were elevated in two surface samples in borings ESB1244 and ESB1246 (580 mg/kg and 850 mg/kg) and two 2010 surface soil samples (GC-7 and GC-10 at 148 mg/kg [estimated] and 1,130 mg/kg [estimated], respectively) in the southern portion of this area relative to antimony concentrations in other samples from the Former Gun Club area. These concentrations are above the MTCA Method B soil cleanup level protective of direct contact (32 mg/kg). However, antimony was not detected in the samples from 1½ feet or 2½ feet in each of the two borings. Estimated concentrations of antimony in seven of the samples (ESB1247- 2 ½, SOIL-GC5 DUP, SOIL-GC6 through SOIL-GC9, and SOIL GC-11) exceeded the preliminary soil cleanup level protective of groundwater (5.8 mg/kg) but were below the MTCA Method B soil cleanup level protective of direct contact (32 mg/kg). In addition, for many 1998 samples in which antimony was not detected, the reporting limits ranged from 6.0 mg/kg to 20 mg/kg, which exceeds the preliminary soil cleanup level protective of groundwater (5.8 mg/kg).

17.6 AREA C

Area C lies between West Frontage Road and Airport Road (Figure 17-1). Area C contains a stormwater ditch formerly delineated as a wetland along the eastern portion of the site (Figure 17-6). The results of previous investigations in Area C indicate lead and cPAHs in soils were detected in concentrations (up to 6,740 mg/kg lead and 1,451,000 μg/kg total cPAHs) above applicable 1991 MTCA Method A unrestricted industrial (200 mg/kg lead) and Method C industrial (1,000 μg/kg cPAHs) soil cleanup levels at the time of the investigation (Landau, 1993). In 1996 prior to the RI, a remedial action was completed in Area C that included the removal of surface soils containing lead and PAHs except in the wetland and a 25-foot buffer area (Woodward-Clyde, 1997). Prior to remediation activities in 1996, Area C was covered with grass and alder trees. Following soil remediation activities the site was seeded with grass and a berm and silt fence were installed for erosion control. The portion of Area C evaluated by the additional 2010 investigation has not previously been remediated and includes the stormwater ditch along the eastern portion of Area C (Figure 17-6). This ditch was re-evaluated by a wetlands biologist in 2008, and found to no longer meet the criteria for a wetland.

17.6.1 Purpose and Scope

The purpose of the additional RI was to delineate the vertical extent of carcinogenic and non-carcinogenic PAHs and selected metals in the soil of the stormwater ditch (former wetland) and buffer areas in the eastern portion of Area C. The scope of investigation performed was in general accordance with Section 5.4.4 of the IAWP and included the following:

- Drilled 12 soil borings (ESB1250 through ESB1261) to a depth of 4 feet bgs using a hand auger
- Collected soil samples at prescribed depth intervals
- Field screened samples for organic vapors and visual evidence for shot and shards
- Submitted selected soil samples for analysis for carcinogenic and non-carcinogenic PAHs, and metals including antimony, arsenic, cadmium, copper, chromium, lead, and nickel

There were no deviations from the planned scope of investigation, which was performed in 1998 (see Section 17.6.2).

In late 2009 and early 2010, Ecology requested additional investigation of the Area C stormwater ditch and buffer. The purpose of the additional work was to evaluate the contribution of metals and PAHs into Area B from drainage areas and outfalls from Pond D in Area A and the stormwater ditch located along the east side of Area C. The COCs for this investigation were PAHs (carcinogenic and non-carcinogenic) and metals (antimony, arsenic, cadmium, chromium, copper, lead and nickel). These data were to be used to evaluate whether an interim action to clean up soils containing elevated concentrations of these constituents in Area C and adjacent to Pond D (a portion of Area A) was warranted. The additional investigation included the following scope of work within Area C:

- Collection of sediment samples from 6 locations where sediment was observed to be accumulated or interpreted to most likely accumulate along the flow path in the stormwater ditch along the east side of Area C.

- Collection of surface soil samples from one location at the top of the check dam berm within the Area C stormwater ditch (Figure 17-6).

The field observations and analytical results of the Area C soil samples are presented below. Results of the sediment sampling performed in Area C in 2010 are presented separately in the sediment and surface water RI for the facility.

17.6.2 Documentation of Drilling and Soil Sampling

On June 5, June 8 and June 9, 1998, Dames & Moore drilled 12 soil borings (ESB1250 through ESB1261) shown on Figure 17-6 south of Bomarc Road and west of Airport Road. The borings were completed at a depth of 4 feet bgs. Samples were retrieved using a hand auger. After sampling was completed, the borings were backfilled with hydrated bentonite chips. Drilling techniques and sampling procedures utilized were in general accordance with the SAP presented in Appendix B of the IAWP.

In accordance with the Ecology-approved Sampling and Analysis Plan (SAP) (URS, 2009), an attempt was made to collect two soil samples from the rock and soil mound within the Area C ditch on February 4, 2010. The sample Soil-GC-23 was collected from 3-4 inches below ground surface at the top of the check dam by aggregating fine material collected from between the rip-rap. However, a deeper sampler from 12 to 18 inches below ground surface could not be obtained because only rip-rap was present in the check dam at this depth. Per Ecology's approval letter of the SAP for this additional investigation, a soil sample was only required at a depth of 12 to 18 inched below ground surface if soil was present at this depth.

17.6.3 Field Observations and Sample Analysis Results

Presented in this section are the field observations and sample results associated with soil borings ESB1250 through ESB1261, and the soil sample collected in 2010. Geologic logs of the soil borings are presented in Appendix P1. The chain of custody forms and analytical laboratory reports for ESB1250 through ESB1261 are presented in Appendix P2. Data validation reports are in Appendix P3. Laboratory reports and data validation memoranda for the 2010 soil sample were provided previously to Ecology (Boeing, 2010). Analytical results are summarized in Tables 17-11 and 17-12.

17.6.3.1 Field Observations

The vegetation in this area consists of brush and second and third growth deciduous trees. Much of the soil surface is covered with up to four inches of forest duff. The sample locations were adjacent to a drainage ditch along Airport Road (Figure 17-6). The soil encountered consists of silty fine sand. The soil grades to include occasional gravel in several of the borings. Sand was encountered in one soil boring (ESB1256) at a depth of 2½ feet bgs to 3½ feet bgs. Native glacial till was not encountered. Perched water was observed in soil borings ESB1250, ESB1251, ESB1252, ESB1253, ESB1254, and ESB1260 at depths ranging from ½ foot to 3 feet bgs. The berm from which sample SOIL-GC-23 was collected in February 2010 was found to be constructed of rip-rap, with fine soil material.

Shot was observed in soil samples collected from soil borings ESB1250, ESB1252, ESB1253, ESB1254, ESB1256, ESB1257 and ESB1259. Shards were also observed in soil samples collected from soil borings ESB1253, ESB1257, ESB1258, ESB1259, and ESB1261. The shot and shards were typically observed from the soil surface to a depth of up to 1 foot bgs, however, shot was observed at soil borings ESB1252 and ESB1254 to depths of 1½ feet and 3½ feet, respectively. Neither shot nor shards were observed at location GC-23. Staining or other visual indications of dangerous constituents were not observed. PID readings indicated organic vapors were not elevated above ambient background in the soil samples screened.

17.6.3.2 Sample Analysis Results

During the 1998 and 2000 investigations, selected soil samples were submitted for analysis per the sample selection criteria specified on Section 5.4.3 of the IAWP. Twenty-nine samples from depths of 0 to 2½ feet bgs were submitted for analysis. A duplicate sample collected from the surface at soil boring ESB1252 was also analyzed. During the 2010 investigation, one soil sample was collected from within Area C.

Table 17-11 summarizes the soil analytical data for PAHs detected in one or more samples and lists the MTCA Method A and B cleanup levels. Non-carcinogenic PAHs were either not detected above method reporting limits or detected at concentrations less than the applicable MTCA Method A and B cleanup levels for direct contact with the exception of naphthalene in surface soils collected at ESB1258 and ESB1259 and 2-methylnaphthalene in surface soils at ESB1257, ESB1258, and ESB1259. These concentrations of naphthalene and 2-methylnaphthalene were above the MTCA Method A levels but below the Method B levels for direct contact. In addition, the naphthalene concentration in the surface soil sample from

ESB1257 (4,900 µg/kg) and the 2-methylnaphthalene concentration in the soil sample from ESB1257 at 1 ½ feet bgs (420 µg/kg) exceeded the most conservative preliminary soil cleanup levels protective of groundwater (4,457 µg/kg and 128 µg/kg, respectively). The fluoranthene and pyrene concentrations in the surface soil samples from ESB 1258 and ESB1259 were below the MTCA Method A and Method B cleanup levels for direct contact, but exceeded the most conservative preliminary soil cleanup levels protective of groundwater. Concentrations at 1½ feet bgs in these borings were below the MTCA levels. Carcinogenic PAHs were detected in the surface soil samples at each location and five deeper (1½ feet and 2½ feet) samples from four borings (ESB1252, ESB1253, ESB1257, and ESB1261). Detected TTEC cPAH concentrations range from 101 µg/kg to 1,490,400 µg/kg and are above the MTCA Method A unrestricted soil cleanup level (100 µg/kg). Most are also above the MTCA Method B soil cleanup level (137 µg/kg). Carcinogenic PAHs were not detected in the deepest (1½ feet or 2½ feet bgs) samples analyzed for each boring except ESB1253. In ESB1253, cPAHs were detected at 2½ feet bgs but the TTEC concentrations were below the applicable MTCA Method A or B cleanup levels. In some soil samples exhibiting TTEC cPAH exceeding the MTCA Method A or B cleanup level protective of direct contact, the concentrations of some individual cPAH compounds also exceeded the most conservative preliminary soil cleanup level protective of groundwater.

Table 17-12 summarizes the soil analytical data for metals detected in one or more samples analyzed and lists the applicable MTCA Method A, A industrial, or B soil cleanup levels. Arsenic, chromium, lead and antimony, all metals associated with the former gun club operations, were detected at concentrations above the MTCA Method A or Method B soil cleanup levels.

Arsenic was detected at concentrations (2.3 mg/kg to 980 mg/kg) above the MTCA Method B soil cleanup level (0.667 mg/kg) in all the samples analyzed with the highest concentrations at each boring in the surface sample. Detected arsenic concentrations at depth in the 1½ feet or 2½ feet bgs sample from each boring are below the Puget Sound background concentration of 7.30 mg/kg (Ecology, 1994) with the exception of location ESB1252. Arsenic at the 1½ feet bgs depth was 8.8 mg/kg, but decreased to below the Puget Sound background concentration at 2½ feet bgs. All of the detected arsenic concentrations were below the MTCA Method A soil cleanup level protective of direct contact and groundwater (20 mg/kg).

Total chromium concentrations ranged from 30.0 mg/kg to 51.9 mg/kg, below the MTCA Method A and B soil cleanup levels for trivalent chromium (2,000 mg/kg and 120,000 mg/kg, respectively) and the Method B level for hexavalent chromium (240 mg/kg). Concentrations were above the MTCA Method A level (19 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (18 mg/kg) for hexavalent chromium, but below the Puget Sound background concentration of 48.2 mg/kg (Ecology, 1994) with the exception of the surface sample from ESB1250. The sample collected at this location at 1½ feet bgs was below the background concentration.

Lead was detected in 11 of the 14 surface soil samples and two deeper (1½ foot) samples at concentrations (330 mg/kg to 79,900 mg/kg) above the MTCA Method A unrestricted soil cleanup level (250 mg/kg), but only samples from six borings (ESB1251, ESB1252, ESB1253, ESB1254, ESB1255 and ESB1257) are above the MTCA Method A industrial soil cleanup level (1,000 mg/kg). Lead concentrations in all the other samples from these borings analyzed, including the deepest sample from each boring, were not above the MTCA Method A unrestricted soil cleanup level.

Antimony was detected above the MTCA Method B soil cleanup level (32 mg/kg) in the surface samples collected at four locations, ESB1253, ESB1254, ESB1255, and ESB1257. However, antimony was not detected in the sample from 1½ feet in this boring. The estimated concentrations of antimony in the surface soil sample from ESB1252 and the field duplicate (9 mg/k and 12 mg/kg, respectively) exceeded the preliminary soil cleanup level protective of groundwater (5.8 mg/kg), but were below the MTCA Method B soil cleanup level protective of direct contact (32 mg/kg). In addition, for many 1998 samples in which antimony was not detected, the reporting limits ranged from 6.0 mg/kg to 10 mg/kg, which exceeds the preliminary soil cleanup level protective of groundwater (5.8 mg/kg).

17.7 GROUNDWATER

Groundwater monitoring has been conducted by Boeing personnel on a quarterly or semiannual basis since February 1995 and includes measuring groundwater elevations, and collecting and analyzing groundwater samples from seven monitoring wells installed prior to the RI. Based on the measured groundwater elevations, the shallow perched groundwater flow is to the northwest toward Boeing Lake (Figures 17-10 and 17-11). Presented in this section is a discussion of the groundwater analytical results for groundwater samples collected from the existing and new wells since initiation of the RI. Documentation of the well installation and subsurface soils encountered at the well locations was previously presented in Sections 17.2.2 and 17.5.2.

17.7.1 Purpose and Scope

The purpose of the investigation was to install three additional monitoring wells, two near the south boundary of Boeing Lake and one in Area A west of the K-line. The wells were situated in order to obtain additional information regarding groundwater flow direction and obtain groundwater quality within and downgradient from the western portion of Area A. These wells were included in the groundwater monitoring program for the Former Gun Club area subsequent to installation and development. The scope of investigation performed was in general accordance with Section 5.4.1 of the IAWP and Section 2.3 of the Supplemental RIWP Addendum and included the following:

- Installed four monitoring wells to depths of 9 to 39 feet bgs using truck-mounted hollow-stem auger and track-mounted solid stem auger drilling rigs
- Collected groundwater samples on a quarterly basis after each well was installed and developed
- Submitted the samples for analysis for PAHs and total and dissolved lead and arsenic

In addition, the EGW056 sample collected on August 18, 1998 was analyzed for VOCs. Drilling, well installation, and sampling procedures utilized were in general accordance with the SAP presented in Appendix B of the IAWP. There were no deviations from the planned scope of this portion of the Former Gun Club investigation. Monitoring well EGW067 is located in Area A west of the K line. As discussed in Section 7.4.5, the original well EGW067 was replaced with well EGW067A in October 2008 following completion of the IA in Area A. Wells EGW056 and EGW064 are located in Area B south of Boeing Lake but are on the downgradient (north) margin of Area A. Monitoring well EGW068 is located in Area B (Figure 17-2).

17.7.2 Field Observations

Presented in this section are the field observations regarding groundwater occurrence made during the installation of the four monitoring wells, and the hydrogeology of the Former Gun Club area. At well EGW056, groundwater was first encountered below a peat layer at a depth of approximately 25 feet bgs and rose to a depth of 19 feet in approximately 2½ hours indicating a confined or semi-confined groundwater condition. The well was completed with the screened section located at a depth of 27 feet to 37 feet bgs. A bentonite seal was placed from 2 to 26 feet bgs to prevent migration of groundwater up the annular space between the well casing and borehole wall. The well was developed and first sampled during the third quarterly groundwater monitoring event in August 1998. The groundwater level was subsequently measured at depths of approximately 15 to 16 feet bgs. Well EGW064 was subsequently installed within the fill above the peat layer. The well was developed and first sampled in June 2000 and sampled quarterly beginning in August 2000. Obvious perched groundwater was not observed during drilling at EGW064, similar to EGW056. However, it subsequently entered the well and typically occurs at a depth of approximately 9 to 11 feet bgs.

Groundwater was encountered at a depth of 18 feet during drilling at well EGW067 and has was typically found at a depth of approximately 18 to 20 feet until the well was abandoned on February 8, 2008. During drilling the EGW067A well boring, groundwater was encountered at a depth of 21 feet and has typically been measured at a depth of approximately 9 to 10 feet in the well since installation. Original well EGW067 was first sampled in June 2000 and quarterly sampling of this well was initiated in August 2000. The sampling frequency was decreased to semi-annual in mid-2005 per Ecology's approval. Well EGW067A has been sampled on a semi-annual basis since installation. At well EGW068, groundwater was encountered at 8 feet bgs and has subsequently been measured as shallow as 6 feet bgs. This well was sampled at the same frequency as EGW067/067A.

A hydrogeologic cross section was constructed from the logs of selected monitoring well borings and prior borings and test pits. The line of section (Figure 17-8) is approximately parallel to the general southeast to northwest groundwater flow direction. The hydrogeologic cross section is presented on Figure 17-9. As shown on this figure, perched groundwater occurs in fill and alluvial deposits overlying native glacial till. The depth to perched groundwater ranges from approximately 6 feet to 16 feet bgs and groundwater flow is northwest towards Boeing Lake. Peat is located within alluvium in the buried drainage at the south end of Boeing Lake. The difference in groundwater levels in well EGW064 (screened above the peat) and well EGW056 (screened below the peat) supports the interpretation that the peat acts as an aquitard between the fill and underlying alluvium and semi-confines groundwater within the underlying alluvium.

17.7.3 Groundwater Analytical Results

Groundwater analytical results from 1995 through April 2010 for lead and arsenic are summarized on Table 17-13 and PAHs are summarized in Table 17-14. Laboratory analytical reports for these samples have been submitted previously to Ecology separate from this report. VOCs were not detected in the initial EGW056 sample.

The groundwater samples were analyzed for total (unfiltered sample) and dissolved (filtered sample) lead and arsenic. Dissolved lead was not detected above the method reporting limit or was detected at concentrations less than the MTCA Method A groundwater cleanup level in all of the samples. Historically, total arsenic, dissolved arsenic and total lead were detected at concentrations above the MTCA Method A cleanup levels (0.005 mg/L) in samples from one or more wells. Since conversion to dedicated sampling pumps in most of the wells and use of the low-flow sampling method in all of the wells in 1998, concentrations of these three constituents have generally decreased and had less variation. Since 1998, total lead has only been detected above the MTCA Method A cleanup level in samples from EGW018, and occasionally in EGW056 samples. Total and dissolved arsenic concentrations have been detected at or above the 0.005 mg/L MTCA Method A cleanup level in samples from EGW018, EGW024, EGW047, EGW048, EGW056, EGW064, and EGW067.

PAHs (naphthalene, 2-methylnaphthalene, 1-methylnaphthalene, acenaphthylene, acenapthene, benzo(g,h,i)perylene, dibenzofuran, fluorene, phenanthrene, and/or pyrene) were reported as detected at concentrations below applicable MTCA Method A or B groundwater cleanup levels in samples from wells EGW016, EGW018, EGW024, EGW047, EGW048, EGW049, EGW056, EGW064, EGW067, and EGW068 during one or more sampling events. Carcinogenic PAHs were not detected in any of the groundwater samples collected from wells installed in the Former Gun Club areas.

17.8 CONCLUSIONS AND RECOMMENDATIONS

During the 2008 IA within Former Gun Club Area A, soil exhibiting contaminant concentrations exceeding the Ecology-approved IA cleanup goals was excavated and removed from the site, with the exception of a comparatively small area immediately north of Pond D. Following completion of the IA, most of Area A is paved with concrete and is part of the active Flightline. The area around Pond D was not part of the Flightline expansion and is configured much as it was prior to the IA. A large soil berm is now present between the active Flightline and Frontage road, constructed of excess preload fill material moved during Flightline expansion. The soil berm and Pond D area is primarily vegetated with grass planted during site restoration activities.

In Area B and Area C, the soils encountered to the maximum depth investigated (4½ feet bgs) consist of silty sand with or without gravel. Areas B and C have up to 10 inches of vegetative matter at the ground surface. Shards and/or shot were observed in the surficial soils (generally 1 foot or less) in Areas B and C.

Previous investigations and groundwater monitoring, and the borings and new wells in Area A west of the K-line and Area B, indicate that shallow, perched groundwater is present in fill and alluvial soils throughout the Former Gun Club area. This groundwater occurs at depths ranging from 6 feet to 16 feet bgs and flows north to northwest toward Boeing Lake. Very dense glacial till separates this perched groundwater from groundwater in the uppermost, regional aquifer (Esperance Sand) at a depth of at least 200 feet bgs (see Section 14.0). Consequently, the primary environmental receptor and transport pathway for shallow groundwater beneath the Former Gun Club is surface water in Boeing Lake.

The analytical results for soil samples from the Airport Road parcel and the Area A IA are summarized in Sections 17.8.1 and 17.8.2, respectively. The analytical results for soil samples from Pond D (Area A), Area B, and Area C are summarized together in Section 17.8.3 because: (1) the near surface soils are physically similar, (2) the same constituents were detected above applicable MTCA cleanup levels, (3) the vertical extent of these constituents were similar in these three areas, and (4) these three areas are linked by surface water flow patterns. Analytical results for groundwater samples from monitoring wells installed in the Former Gun Club area are summarized in Section 17.8.4.

17.8.1 Airport Road Parcel

The analytical results for soil samples from this investigation indicate that:

- VOCs and PAHs were not detected at concentrations above the MTCA Method B soil cleanup levels except for several TTEC cPAHs detected at 111 µg/kg to 898 µg/kg in the 1½-foot sample from boring ESB1325 in Area C (Table 17-1). These concentrations are above the 100 µg/kg Method A or 137 µg/kg MTCA Method B soil cleanup level. These samples were collected from fill soil placed as road base for Bomarc Road that did not have visible shards from the Former Gun Club. Consequently, it is possible that the elevated PAH concentrations are from asphalt or activities associated with road construction and may not be a direct result of prior Gun Club operations. Ecology and Boeing do not agree on the potential source of the carcinogenic PAHs detected at ESB1325. Ecology believes the PAHs are from previous Gun Club activities because: (1) the relative and total concentrations of specific carcinogenic PAHs in soil samples from the Former Gun Club area are consistent with those detected in soils from ESB1325, (2) soils near ESB1240 are within approximately 100 feet of ESB1325, and (3) borings ESB1325 and ESB1340 are within the projected trajectory of clay targets and shot.
- With the possible exception of lead in the 1½-foot sample from boring ESB1326, the elevated metals concentrations detected are in excess fill soils generated by previous grading for Airport Road or road base materials placed for construction of Bomarc Road. The lead concentration of 331 mg/kg in the 1½-foot sample from boring ESB1326 may be from prior Gun Club operations.
- The soils with elevated metals located north of BOMARC Road and on the west side of Airport Road were removed during subsequent road construction by Snohomish County in 2000 and disposed of by Boeing at a permitted facility. Soil containing PAHs near boring ESB1325 remains in place.

17.8.2 Area A – Conditions Following Interim Action

The analytical results for post-excavation soil samples and earlier investigation samples representative of soil remaining on site following the IA within Area A, but excluding the Pond D area, indicate that:

- Non-carcinogenic PAHs and carcinogenic PAHs in soil were either not detected above method reporting limits or were detected at concentrations less than the applicable MTCA Method A or B cleanup levels, including the most conservative preliminary soil cleanup level protective of groundwater.
- Metals concentrations in soil were either less than applicable MTCA soil cleanup levels or the Puget Sound regional background levels (arsenic and chromium).

Based on these results, contaminants remaining in Area A soils outside of the Pond D area are: (1) below applicable MTCA cleanup levels, and (2) have not affected downgradient groundwater quality (Section

17.8.6). The adequacy of the Area A IA as a final cleanup action for Area A will be assessed during the feasibility study.

17.8.3 Pond D (Area A), Area B, and Area C

The analytical results for PAHs in soil samples collected from the vicinity of Pond D (Area A), Area B, and Area C indicate that:

- Non-carcinogenic PAHs were either not detected above method reporting limits or were detected at concentrations less than the applicable MTCA Method A and B cleanup levels with the exception of three surface soil samples collected in Area C at ESB1257, ESB1258, and ESB1259. Non-carcinogenic PAHs were not detected or were below MTCA cleanup levels in samples collected at 1½ feet bgs from each of these locations.
- Carcinogenic PAHs were detected in all surface samples collected during investigations for this RI in Areas B and C but in only five deeper (1½ feet and 2½ feet) samples in Area C.
- Within Area A, cPAHs remain in surface and subsurface soils in the area between the northern bank of Pond D and 94 Street SW, at concentrations exceeding the MTCA Method A and B soil cleanup levels based on direct contact for soil (100 μg/kg and 137 μg/kg, respectively).
- Carcinogenic PAHs were detected above the MTCA Method A unrestricted soil cleanup level for direct contact in 13 of the 36 Area B surface and ½-foot soil samples that were analyzed, as well as all 13 Area C surface soil samples. Carcinogenic PAHs were not detected in the 16 deeper (1½ feet and 2½ feet) samples analyzed from Area B. The vertical extent of carcinogenic PAHs in soils is limited to depths of less than 1½ feet bgs in Area B and 2½ feet bgs in Area C except for boring ESB1253.
- In some soil samples exhibiting TTEC cPAH exceeding the MTCA Method A or B cleanup level protective of direct contact, the concentrations of some individual cPAH compounds also exceeded the most conservative preliminary soil cleanup level protective of groundwater.

Analytical results for metals in soil samples from the three areas indicate that:

- Lead and arsenic concentrations exceed applicable MTCA Method A and B soil cleanup levels or Puget Sound background concentrations in soil samples north of Pond D and within Areas B and C. Antimony and chromium concentrations in some samples within Areas B and C also exceed applicable MTCA Method A and B soil cleanup levels or Puget Sound background concentrations. Concentrations of other metals were below applicable MTCA Method A and B soil cleanup levels or Puget Sound background concentrations in soil samples collected within Areas A, B, and C.
- Lead concentrations in soil immediately north of Pond D (Area A) at a depth of approximately 4 feet bgs (samples PEX-E10 and PEX-E11) exceed the MTCA Method A soil cleanup level (250 mg/kg) and Puget Sound background concentrations (24 mg/kg). Lead concentrations in surficial soil immediately north of Pond D (samples PEX-05 and

PEX-06) also exceed the MTCA Method A soil cleanup level and Puget Sound background concentrations.

- In Areas B and C, arsenic was detected at concentrations above the MTCA Method B soil cleanup level (0.667 mg/kg) in all of the surficial samples analyzed. Arsenic concentrations in 34 of the 50 surficial soil samples collected in these two areas exceeded the Puget Sound background concentration of 7.30 mg/kg (Ecology, 1994). Arsenic concentrations in 14 of the 50 surficial soil samples exceeded the MTCA Method A soil cleanup level protective of direct contact and groundwater (20 mg/kg). However, the detected arsenic concentrations in the samples from 1½ foot and/or 2½ feet in each boring are below the Puget Sound background concentration with the exception of one sample at ESB1252. Arsenic at this location was just above background at 1½ feet bgs but was below background at 2½ feet bgs.

- In Areas B and C, lead was detected in 28 of the 50 surface soil samples and only two (ESB1252 and ESB1254 in Area C) deeper (1½ foot) samples at concentrations above the MTCA Method A unrestricted cleanup level (250 mg/kg). Of these 28 samples, 18 are above the MTCA Method A industrial soil cleanup level (1,000 mg/kg). Lead concentrations in all the other samples analyzed from these borings, including the deepest sample from each boring, were not above these cleanup levels. The 28 locations where soil samples exceeded the MTCA Method A unrestricted cleanup level are located adjacent to the stormwater ditch along the eastern side of Area C, and within the southernmost approximately 150 feet of Area B north of BOMARC Road.

- In the southern portion of Area B, antimony was detected in two surface soil samples borings ESB1244 and ESB1246 (580 mg/kg and 850 mg/kg) and two 2010 surface soil samples (GC-7 and GC-10 at 148 mg/kg [estimated] and 1,130 mg/kg [estimated], respectively) above the MTCA Method B soil cleanup level (32 mg/kg). Four surface soil samples in Area C (ESB1253, ESB1254, ESB1255, and ESB1257) had concentrations (49 mg/kg to 1,210 mg/kg) that are above the MTCA Method B level. However, antimony was not detected in the samples from 1½ feet or 2½ feet in each of the borings where deeper samples were collected and analyzed. Estimated concentrations of antimony in seven of the samples (ESB1247- 2 ½, SOIL-GC5 DUP, SOIL-GC6 through SOIL-GC9, and SOIL GC-11) exceeded the preliminary soil cleanup level protective of groundwater (5.8 mg/kg) but were below the MTCA Method B soil cleanup level protective of direct contact (32 mg/kg). In addition, many 1998 samples in which antimony was not detected had reporting limits ranging from 6.0 mg/kg to 20 mg/kg, which exceeds the preliminary soil cleanup level protective of groundwater (5.8 mg/kg).

- Total chromium concentrations in 38 of 44 Area B and C surficial soil samples exceeded the MTCA Method A soil cleanup level (19 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (18 mg/kg) for hexavalent chromium, but were well below the Method A soil cleanup level for trivalent chromium (2,000 mg/kg) and the Method B soil cleanup levels for both trivalent and hexavalent chromium (240 mg/kg and 120,000 mg/kg, respectively). All of the total chromium concentrations detected in soil were below the Puget Sound background concentration of 48.2 mg/kg (Ecology, 1994) except for the surface sample from boring ESB1250. The sample collected at this location at 1½ feet bgs was below the background concentration.

17.8.4 Groundwater

Analytical results for groundwater from the monitoring wells indicate that PAHs were not detected above MTCA Method A or B groundwater cleanup levels in any of the samples analyzed for these constituents. Naphthalene, 2-methylnaphthalene, 1-methylnaphthalene, acenaphthylene, acenapthene, benzo(g,h,i)perylene, dibenzofuran, fluorene, phenanthrene, and/or pyrene were detected in one or more samples collected from EGW016, EGW018, EGW024, EGW047, EGW048, EGW049, EGW056, EGW064, EGW067, and EGW068 but concentrations are below MTCA cleanup levels. Total and dissolved arsenic and total lead have been detected above applicable MTCA Method A groundwater cleanup levels in groundwater samples from several monitoring wells.

17.8.5 Summary

It is recommended that the Former Gun Club area be evaluated in the FS because: (1) carcinogenic PAHs, antimony, arsenic, and lead are present in surficial soil in Areas B and C and near Pond D (Area A) at concentrations above applicable MTCA Method A or B soil cleanup levels, and (2) total and dissolved arsenic and total lead have been detected above applicable MTCA Method A groundwater cleanup levels in groundwater samples from several monitoring wells. Concentrations of antimony in soil were detected above the soil screening levels; however, groundwater was not sampled and analyzed for antimony. Ecology and Boeing will evaluate the need for adding antimony to the groundwater monitoring plan for this area during the FS. Evaluation of the vapor intrusion (VI) pathway for this SWMU/AOC is not planned for the FS. Screening of the VI pathway was performed in this RI using Ecology's review draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated October 2009 (VI guidance). Applying the Preliminary Assessment step of the VI guidance to this SWMU shows that chemicals present in soil beneath the SWMU are not sufficiently volatile to be a potential VI source. It is recommended that Boeing continue semiannual groundwater monitoring from the monitoring wells until a remedial action is completed, or approval is obtained from Ecology to terminate this interim action per the Agreed Order.

17.9 REFERENCES

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Table 17-1
Summary of Soil Sample Analytical Results for SVOCs, (ug/kg)
Airport Road Parcel
Boeing Everett Plant Remedial Investigation

Sample ID/Date		TTEC	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[2]	Benzo(a) pyrene[2]	Benzo(b) fluoranthene[2]	Benzo(g, h, i) perylene	Benzo(k) fluoranthene[2]	Chrysene[2]	Dibenzo(a,h) anthracene[2]	Dibenzofuran	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene[2]	Naphthalene	Phenanthrene	Pyrene
1996 MTCA Method B Soil Cleanup Level		NE	NE	4,800,000	NE	24,000,000	137	137	137	NE	137	137	137	NE	3,200,000	3,200,000	137	3,200,000	NE	2,400,000
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	NE	96,000	NE	480,000	1.2	1.2	1.2	NE	1.2	1.2	1.2	NE	64,000	64,000	1.2	32,000	NE	48,000
2001 MTCA Method A or B Soil Cleanup Level		100 (A) 137 (B*)	5,000 (A)[1] 320,000 (B*)	4,800,000 (B)	NE	24,000,000 (B)	See note 2	100 (A) 2,000 (AI) 137 (B)	See note 2	NE	See note 2	See note 2	See note 2	160,000 (B)	3,200,000 (B)	3,200,000 (B)	See note 2	5,000 (A)[1] 320,000 (B*)	NE	2,400,000 (B)
MTCA Method A or B Protection of Groundwater		NE	128 (B)	97,892 (B)	NE	2,274,550 (B)	715 (A) 86 (B)	100 (A) 232 (B)	2,460 (A) 295 (B)	NE	2,460 (A) 295 (B)	796 (A) 95 (B)	3,579 (A) 429 (B)	128 (B)	630,990 (B)	101,212 (B)	6,940 (A) 832 (B)	5,000 (A) 4,457 (B)	NE	654,644 (B)
ESB1325-0'	09/09/98	**111**	3.4 U	5.4	3.4 U	8.1	76	81	76	97	70	70	3.4 U	17 U	81	3.4 U	68	3.4 U	28	110
ESB1325-1 1/2'	09/09/98	**710**	3.4 U	26	3.4 U	34	370	**540**	500	290	430	470	43	17 U	340	9.2	310	3.4 U	110	540
ESB1325-1 1/2' (DUP)	09/11/98	**898**	41	33	3.3 U	46	440	**730**	730	400	160	440	3.3 U	4.6	460	12	310	78	160	500
ESB1326-0'	09/09/98	13	3.4 U	3.4 U	3.4 U	3.4 U	7.1	9.7	16	3.4 U	9.7	5.7	3.4 U	17 U	13	3.4 U	3.4 U	3.4 U	4.4	10
ESB1326-1 1/2'	09/09/98	NA	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	23 U	6.5	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U
ESB1327-0'	09/09/98	0.08	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	7.8	3.7 U	19 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	4.9
ESB1327-2 1/2'	09/09/98	NA	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	18 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
ESB1328-1'	09/09/98	15	4.1 U	4.1 U	6.5	4.9	21	13	4.1 U	4.1 U	4.1 U	27	4.1 U	20 U	31	4.1 U	4.1 U	13	31	54
ESB1328-5 1/2'	09/09/98	NA	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	18 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U
ESB1329-0'	09/09/98	2.0	3.8 U	3.8 U	3.8 U	3.8 U	9.0	3.8 U	9.8	5.6	3.8 U	7.5	3.8 U	19 U	6.4	3.8 U	3.8 U	3.8 U	6.0	11
ESB1329-2 1/2'	09/09/98	1.1	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	6.0	3.8 U	4.9	3.8 U	3.8 U	19 U	5.6	3.8	3.8 U	3.8 U	4.1	5.6

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate

NE - Not established
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
[1] Cleanup level is based on the total of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
[2] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations. The cleanup level is based on benzo(a)pyrene.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-2
Summary of Soil Sample Analytical Results for Metals, (mg/kg)
Airport Road Parcel
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Antimony	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel
1996 MTCA Method A, AI, or B Soil Cleanup Level		NE	1.67 (B)	80.0 (B)	100 (A) 500 (AI)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	0.00583	1.6	1,600 (Cr^{+3})	59.2	NE	32.0
2001 MTCA Method A or B Soil Cleanup Level		32 (B)	20 (A) 0.667 (B)	2 (A) 80 (B)	2,000(Cr^{+3}) / 19 (Cr^{+6}) (A) 120,000(Cr^{+3}) / 240 (Cr^{+6}) (B)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
MTCA Method A or B Protection of Groundwater		5.8 (B)	20 (A) 0.03 (B)	2 (A) 1.1 (B)	2,000 (Cr^{+3}) / 19 (Cr^{+6}) (A) 480,096 (Cr^{+3}) / 18 (Cr^{+6}) (B)	263 (B)	250 (A)	417 (B)
WA Department of Ecology - Puget Sound Background Regional Concentration		NE	7.30	0.8	48.2	36.4	24.0	47.8
ESB1325-0'	09/09/98	5 UJ	**6.5**	0.5	**57.9 J**	27.9	32	83
ESB1325-1 1/2'	09/09/98	5 UJ	**11**	0.2 U	**41.3 J**	24.1	8	64
ESB1325-1 1/2' (DUP)	09/11/98	5 UJ	**4.5**	0.3	**59.5**	23.3	12	63
ESB1326-0'	09/09/98	5 UJ	**4.1**	0.2	**49.5 J**	21.7	19	49
ESB1326-1 1/2'	09/09/98	7 UJ	**5.8**	0.3 U	**34.7 J**	12.7	**331**	37
ESB1326-2 1/2'	09/09/98	NA	NA	NA	NA	NA	6	NA
ESB1327-0'	09/09/98	6 UJ	**5.3**	0.2	**27.0 J**	7.3	7	35
ESB1327-2 1/2'	09/09/98	5 UJ	**3.9**	0.2 U	**41.0 J**	12.9	5	45
ESB1328-1'	09/09/98	6 UJ	**16**	0.5	**31.4 J**	12.8	32	35
ESB1328-1 1/2'	09/09/98	NA	**9.9**	NA	NA	NA	NA	NA
ESB1328-2 1/2'	09/09/98	NA	**2.6**	NA	NA	NA	NA	NA
ESB1328-5 1/2'	09/09/98	6 UJ	**5.0**	0.2 U	**38.5 J**	11.7	5	45
ESB1329-0'	09/09/98	6 UJ	**5.2**	0.3	**30.8 J**	10.3	17	35
ESB1329-2 1/2'	09/09/98	6 UJ	**2.6**	0.2	**34.2 J**	11.5	3	41

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
NA - Not analyzed
NE - Not established
J - Estimated value
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-3
Summary of Soil Sample Analytical Results for PAHs, (ug/kg)
Gun Club Area A (West of K-Line)
Boeing Everett Plant Remedial Investigation

Sample ID/Date		TTEC	2-Methyl naphthalene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g, h, i) perylene	Benzo(k) fluoranthene[1]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Fluoranthene	Indeno (1,2,3-cd) pyrene[1]	Phenanthrene	Pyrene
1996 MTCA Method B Soil Cleanup Level		NE	NE	137	137	137	NE	137	137	137	3,200,000	137	NE	2,400,000
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	NE	1.2	1.2	1.2	NE	1.2	1.2	1.2	64,000	1.2	NE	48,000
2001 MTCA Method A or B Soil Cleanup Level		100 (A) 137 (B*)	5,000 (A)[2] 320,000 (B*)	See note 2	100 (A) 2,000 (AI) 137 (B)	See note 2	NE	See note 2	See note 2	See note 2	3,200,000 (B)	See note 2	NE	2,400,000 (B)
MTCA Method A or B Protection of Groundwater		NE	128 (B)	715 (A) 86 (B)	100 (A) 232 (B)	2,460 (A) 295 (B)	NE	2,460 (A) 295 (B)	796 (A) 95 (B)	3,579 (A) 429 (B)	630,990 (B)	6,940 (A) 832 (B)	NE	654,644 (B)
ESB1231-12 1/2'	06/01/98	NA	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
ESB1231-15'	06/01/98	NA	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
ESB1232-12 1/2'	06/01/98	NA	14.0	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1232-15'	06/01/98	NA	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
ESB1232-17 1/2'	06/01/98	NA	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ
ESB1233-12 1/2'	06/01/98	NA	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
ESB1233-15'	06/01/98	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1233-17 1/2'	06/01/98	NA	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ
ESB1234-5'	06/01/98	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1234-12 1/2'	06/01/98	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1234-15'	06/01/98	0.085	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	8.5	7.7 U	7.7 U	7.7 U	7.7 U	12
ESB1234-17 1/2'	06/01/98	NA	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ	7.4 UJ
ESB1235-12 1/2'	06/02/98	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1235-15'	06/02/98	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1236-5'	06/02/98	14	7.3 U	7.3 U	11	10	12	9.5	11	7.3 U	7.3 U	8.0	7.3 U	8.7
ESB1236-12 1/2'	06/02/98	NA	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	8.6
ESB1236-15'	06/02/98	NA	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
ESB1237-5'	06/02/98	NA	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U
ESB1237-12 1/2'	06/02/98	12	8.4	8.4	9.9	7.6 U	7.6 U	7.6	12	7.6 U	11	7.6 U	16	17
ESB1237-15'	06/02/98	NA	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U

Notes:

MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) MTCA Method B soil cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
[1] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations. The cleanup level is based on benzo(a)pyrene.
[2] Cleanup level is based on the total of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
J - Estimated value.
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.

Table 17-4
Summary of Soil Sample Analytical Results for Metals, (mg/kg)
Gun Club Area A (West of K-Line)
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Antimony	Arsenic	Chromium	Copper	Lead	Nickel
1996 MTCA Method A, AI, or B Soil Cleanup Level		NE	1.67 (B)	100 (A) 500 (AI)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	0.00583	1,600 (Cr^{+3})	59.2	NE	32.0
2001 MTCA Method A, AI, or B Soil Cleanup Level		32 (B)	20 (A) 0.667 (B)	2,000(Cr^{+3}) / 19 (Cr^{+6}) (A) 120,000(Cr^{+3}) / 240 (Cr^{+6}) (B)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
MTCA Method A or B Protection of Groundwater		5.8 (B)	20 (A) 0.03 (B)	2,000 (Cr+3) / 19 (Cr+6) (A) 480,096 (Cr+3) / 18 (Cr+6) (B)	263 (B)	250 (A)	417 (B)
WA Department of Ecology - Puget Sound Background Concentration		NE	7.30	48.2	36.4	24.0	47.8
ESB1234-5'	06/02/98	6 UJ	**2.5**	**30.6**	14.2	4	41
ESB1236-5'	06/02/98	5 UJ	**2.4**	**33.8**	18.1	3	45
ESB1237-5'	06/02/98	R	**2.9**	**31.0**	14.9	3	43

Notes:
MTCA - Model Toxics Control Act. Method A, AI, and B values shown are reported with the same concentration units as the sample results.
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
NA - Not analyzed
NE - Not established
J - Estimated value
R - Data rejected due to quality assurance parameters.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
Samples were analyzed for cadmium, but it was not detected in the samples analyzed.
Numbers in bold font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-5
Summary of Soil Sample Analytical Results for PAHs, (ug/kg)
Gun Club Area A (East of K-Line)
Boeing Everett Plant Remedial Investigation

Sample ID/Date		TTEC	2-Methyl naphthalene	Acenaphthene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g, h, i) perylene	Benzo(k) fluoranthene[1]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Fluoranthene	Indeno (1,2,3-cd) pyrene[1]	Phenanthrene	Pyrene
1996 MTCA Method B Soil Cleanup Level		NE	NE	4,800,000	24,000,000	137	137	137	NE	137	137	137	3,200,000	137	NE	2,400,000
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	NE	96,000	480,000	1.2	1.2	1.2	NE	1.2	1.2	1.2	64,000	1.2	NE	48,000
2001 MTCA Method A or B Soil Cleanup Level		100 (A) 137 (B*)	5,000 (A)[2] 320,000 (B*)	4,800,000 (B)	24,000,000 (B)	See note 2	100 (A) 2,000 (AI) 137 (B*)	See note 2	NE	See note 2	See note 2	See note 2	3,200,000 (B)	See note 2	NE	2,400,000 (B)
MTCA Method A or B Protection of Groundwater		NE	128 (B)	97,892 (B)	2,274,550 (B)	715 (A) 86 (B)	100 (A) 232 (B)	2,460 (A) 295 (B)	NE	2,460 (A) 295 (B)	796 (A) 95 (B)	3,579 (A) 429 (B)	630,990 (B)	6,940 (A) 832 (B)	NE	654,644 (B)
ESB1238-0'	06/03/98	30	7.8 U	7.8 U	7.8 U	14	22	26	16	15	27	7.8 U	36	18	19	23
ESB1238-1 1/2'	06/03/98	NA	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U
ESB1238-2 1/2'	06/03/98	NA	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U
ESB1239-0'	06/03/98	96	7.6 U	7.6 U	7.6 U	41	75	70	40	41	60	8.4	59	44	21	64
ESB1239-1 1/2'	06/03/98	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1239-2 1/2'	06/03/98	NA	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
ESB1240-0'	06/03/98	54	8.0 U	8 U	8 U	19	45	22	23	26	27	8.0 U	22	22	8.0 U	22
ESB1240-1 1/2'	06/03/98	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1240-2 1/2'	06/03/98	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1241-0'	06/03/98	**220**	7.9 U	7.9 U	7.9 U	91	**170**	150	160	110	120	29	110	110	35	110
ESB1241-1 1/2'	06/03/98	NA	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	7.9 U	9.5
ESB1241-2 1/2'	06/03/98	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1242-0'	06/03/98	36	7.8 U	7.8 U	7.8 U	16 J	27 J	30 J	30 J	21 J	23 J	7.8 U	27 J	22 J	11	23 J
ESB1242-0' (DUP)	06/03/98	NA	7.3 U	7.3 U	7.3 U	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 UJ	7.3 U	7.3 UJ	7.3 UJ	7.3 U	7.3 UJ
ESB1242-1 1/2'	06/03/98	NA	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
ESB1242-2 1/2'	06/03/98	NA	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U	7.3 U
ESB1363-1/2'	04/03/00	**25,980**	410 U	1,100	1,400	12,000	**20,000**	14,000	13,000	16,000	14,000	3,400	16,000	13,000	5,400	13,000
ESB1363-2 1/2'	04/03/00	61	7.3 U	7.3 U	7.3 U	30	47	39	35	30	37	7.3	32	30	12	36
ESB1364-1/2'	04/03/00	**506**	7.4 U	11	18	250	**380**	340	290	310	300	67	290	260	84	320
ESB1364-2 1/2'	04/03/00	NA	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U
ESB1365-1/2'	04/03/00	**625**	15 U	15 U	16	270	**480**	380	370	350	360	96	360	320	100	350
ESB1365-2 1/2'	04/03/00	NA	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) MTCA Method B soil cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
J - Estimated value.
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
[1] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations. The cleanup level is based on benzo(a)pyrene.
[2] Cleanup level is based on the total of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-6
Summary of Soil Sample Analytical Results for Metals, (mg/kg)
Gun Club Area A (East of K-Line)
Boeing Everett Plant Remedial Investigation

Sample ID	Date	Antimony	Arsenic	Chromium	Copper	Lead	Nickel
1996 MTCA Method A, AI, or B Soil Cleanup Level		NE	1.67 (B)	100 (A) 500 (AI)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	0.00583	1,600 (Cr^{+3})	59.2	NE	32.0
2001 MTCA Method A, AI, or B Soil Cleanup Level		32 (B)	20 (A) 0.667 (B)	2,000(Cr^{+3}) / 19 (Cr^{+6}) (A) 120,000(Cr^{+3}) / 240 (Cr^{+6}) (B)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
MTCA Method A or B Protection of Groundwater		5.8 (B)	20 (A) 0.03 (B)	2,000 (Cr+3) / 19 (Cr+6) (A) 480,096 (Cr+3) / 18 (Cr+6) (B)	263 (B)	250 (A)	417 (B)
WA Department of Ecology - Puget Sound Background Regional Concentration		NE	7.30	48.2	36.4	24.0	47.8
ESB1238-0'	06/03/98	5 R	**4.8**	**40.3 J**	13.5	71 J	45
ESB1238-2 1/2'	06/03/98	5 R	**2.4**	**38.7 J**	8.7	4 J	33
ESB1239-0'	06/03/98	5 R	**3.8**	**36.9 J**	12.6	31 J	53
ESB1239-2 1/2'	06/03/98	5 R	**2.8**	**29.0 J**	16.6	3 J	47
ESB1240-0'	06/03/98	6 R	**8**	**32.0 J**	9.6	**638J**	41
ESB1240-1 1/2'	06/03/98	NA	**2.4**	NA	NA	8	45
ESB1240-2 1/2'	06/03/98	5 R	**3.2**	**29.4 J**	10.7	4 J	45
ESB1241-0'	06/03/98	6 J	**7.1**	**29.6 J**	7.7	**417 J**	39
ESB1241-1 1/2'	06/03/98	NA	**2.6**	NA	NA	57	43
ESB1241-2 1/2'	06/03/98	5 R	**2.4**	**27.0 J**	12.8	7 J	48
ESB1242-0'	06/03/98	6 R	**2.7 J**	**41.5 J**	10.1	4 J	44 J
ESB1242-0' (DUP)	06/03/98	5 J	**3.5 J**	**39.9 J**	11.6	3 J	56 J
ESB1242-2 1/2'	06/03/98	5 R	**2.4**	**33.3 J**	15.7	3 J	48
ESB1363-1/2'	04/03/00	NA	**8.6**	NA	NA	**1,070**	NA
ESB1363-2 1/2'	04/03/00	NA	**2.7**	NA	NA	2	NA
ESB1364-1/2'	04/03/00	NA	**2.8**	NA	NA	5	NA
ESB1364-2 1/2'	04/03/00	NA	**3.2**	NA	NA	2 U	NA
ESB1365-1/2'	04/03/00	NA	**2.6**	NA	NA	13	NA
ESB1365-2 1/2'	04/03/00	NA	**1.4**	NA	NA	2 U	NA

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
J - Estimated value
NA - Not analyzed
NE - Not established
R - Data rejected due to quality assurance parameters.
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
Samples were analyzed for cadmium (except ESB1240-1 1/2' and ESB 1241-1 1/2'), but it was not detected in the samples analyzed.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-7
Summary of Pre-Design Soil Sample Analytical Results
Former Gun Club Soil Interim Removal Action
Boeing Everett Plant

Sample ID:	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		PSNSBC[1]	PD1		PD2			PD3			PD4		PD5		PD6		PD8							PD9	
Sample Date:						11/16/2007		11/16/2007			11/16/2007			11/16/2007		11/16/2007		11/16/2007		11/15/2007			11/29/2007				11/15/2007	
Sample Depth (ft bgs):	Method A	Method B	Method A	Method B		1	2	4.5		5.5	5.5	7	8	1	2	0.1	1.0	3.0	4.0	0	6		10	11	12.5	14	0	6
									(DUP)											(Pre-Load)	(Pre-Load)	(Pre-Load, DUP)					(Pre-Load)	(Pre-Load)
VOCs (ug/kg)																												
Acetone	NE	8,000,000	NE	3,211	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	92	14	15	NA	NA	NA	NA	82	14
2-Butanone	NE	48,000,000	NE	19,200	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5	3.7 U	3.4 U	NA	NA	NA	NA	6.3	3.2 U
Carbon disulfide	NE	8,000,000	NE	5,651	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.9 U	0.7 U	0.7 U	NA	NA	NA	NA	0.8 U	0.7
Methylene chloride	20	133,333	20	25	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8 U	1.5 U	1.4	NA	NA	NA	NA	1.5 U	1.3 U
Toluene	7,000	6,400	7,000	4,654	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.9 U	0.7 U	0.7 U	NA	NA	NA	NA	0.8 U	0.6 U
PCBs (ug/kg)																												
Aroclor 1254	NE	1,600	NE	1.3	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	32 U	33 U	32 U	NA	NA	NA	NA	33 U	32 U
Aroclor 1260	1,000 (R), 10,000 (I) [c]	500 [c]	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	32 U	33 U	32 U	NA	NA	NA	NA	33 U	32 U
SVOCs (ug/kg)[b]																												
bis-(2-Ethylhexyl)phthalate	NE	71,000	NE	13,915	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	64 U	65 U	64 U	NA	NA	NA	NA	64 U	65 U
Carbazole	NE	50,000	NE	314	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	64 U	65 U	64 U	NA	NA	NA	NA	64 U	65 U
PAHs (ug/kg)																												
Naphthalene	5,000	1,600,000	5,000	4,457	NE	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	6.9	32	5.0 U	7.9	5.0 U	4.8 U	5.0 U	4.9 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	18	5.0 U	4.8 U	5.0 U	4.8 U
2-Methylnaphthalene	5,000	320,000	NE	128	NE	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	9.4	50	5.0 U	10	5.0 U	4.8 U	5.0 U	4.9 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	29	5.0 U	4.8 U	5.0 U	4.8 U
1-Methylnaphthalene	5,000	24,000	NE	NE	NE	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	6.9	39	5.0 U	7.9	5.0 U	4.8 U	5.0 U	4.9 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	21	5.0 U	4.8 U	5.0 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	NE	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	5.0 U	5.0 U	4.8 U	5.0 U	4.9 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	NE	5.3	5.0 U	4.9 U	4.8 U	4.8 U	31	150	5.0 U	32	5.0 U	4.8 U	5.0	4.9 U	5.0 U	5.0 U	6.2	11	5.0 U	120	5.0 U	4.8 U	5.0 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	NE	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	19	120	5.0 U	21	5.0 U	4.8 U	5.0 U	4.9 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	89	5.0 U	4.8 U	5.0 U	4.8 U
Phenanthrene	NE	NE	NE	NE	NE	37	6.0	4.9 U	4.8 U	4.8 U	300	1,500	5.0 U	290	5.0 U	12	28	6.9	5.0 U	5.0 U	12 J	26 J	5.0 U	1,400	9.9	4.8 U	10	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	NE	7.3	5.0 U	4.9 U	4.8 U	4.8 U	59	330	5.0 U	57	5.0 U	4.8 U	6.9	4.9 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	260	5.0 U	4.8 U	5.0 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	NE	120	21	4.9 U	4.8 U	4.8 U	250	1,000	5.0 U	270	5.0 U	39	88	8.3	5.0 U	5.0 U	26 J	48 J	5.0	1,000	10	4.8 U	33	4.8 U
Pyrene	NE	2,400,000	NE	654,644	NE	130	22	4.9 U	4.8 U	4.8 U	430	1,500	5.0 U	420	5.0 U	36	80	9.8	5.0 U	5.0 U	17 J	30 J	5.0 U	2,100	11	4.8 U	30	4.8 U
Benzo(a)anthracene [a]	See note a	See note a	715	86	NE	98	18	4.9 U	4.8 U	4.8 U	210	780	5.0 U	230	5.0 U	30	71	6.4	5.0 U	5.0 U	7.2	11	5.0 U	1,000	5.0 U	4.8 U	26	4.8 U
Chrysene [a]	See note a	See note a	796	95	NE	130	24	4.9 U	4.8 U	4.8 U	300	1,200	5.0 U	330	5.0 U	34	83	8.8	5.0 U	5.0 U	10	16	5.0 U	1,200	7.4	4.8 U	30	4.8 U
Benzo(b)fluoranthene [a]	See note a	See note a	2,460	295	NE	120	24	4.9 U	4.8 U	4.8 U	130	420	5.0 U	190	5.0 U	29	72	5.9	5.0 U	5.0 U	4.8 U	6.5	5.0 U	620	5.0 U	4.8 U	39	4.8 U
Benzo(k)fluoranthene [a]	See note a	See note a	2,460	295	NE	100	20	4.9 U	4.8 U	4.8 U	130	420	5.0 U	190	5.0 U	29	72	5.9	5.0 U	5.0 U	4.8 U	6.5	5.0 U	630	5.0 U	4.8 U	20	4.8 U
Benzo(a)pyrene [a]	100	137	100	232	NE	**170**	32	4.9 U	4.8 U	4.8 U	**270**	**860**	5.0 U	**310**	5.0 U	40	97	6.9	5.0 U	5.0 U	5.8	8.5	5.0 U	**1,400**	5.0 U	4.8 U	36	4.8 U
Indeno(1,2,3-cd)pyrene [a]	See note a	See note a	6,940	832	NE	92	18	4.9 U	4.8 U	4.8 U	96	290	5.0 U	120	5.0 U	20	55	4.9 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	400	5.0 U	4.8 U	19	4.8 U
Dibenz(a,h)anthracene [a]	See note a	See note a	3,579	429	NE	25	5.0	4.9 U	4.8 U	4.8 U	25	160	5.0 U	70	5.0 U	9.7	15	4.9 U	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	260	5.0 U	4.8 U	5.9	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	NE	120	24	4.9 U	4.8 U	4.8 U	140	350	5.0 U	160	5.0 U	28	63	5.4	5.0 U	5.0 U	4.8 U	5.0 U	5.0 U	710	5.0 U	4.8 U	22	4.8 U
Dibenzofuran	NE	160,000	NE	128	NE	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	7.7	5.0 U	5.0 U	5.0 U	4.8 U	5.0 U	4.9 U	5.0 U	5.0 U	4.8 U	5.0	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NA	NA	NE	**215**	41	NA	NA	NA	**332**	**1,079**	NA	**393**	NA	52	126	9	NA	NA	6.6	11	NA	**1,703**	0.074	NA	47	NA
Total Metals (mg/kg)																												
Arsenic	20	0.667	20	0.030	7	2.6	3.7	2.3	2.4	2.3	2.4	2.7	NA	3.0	2.5	2.4	5.5	3.1	2.3	2.7 J	2.1 J	2.6 J	2.8 J	2.3 J	NA	NA	3.6 J	0.2 J
Barium	NE	16,000	NE	2,637	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	47.2	42.2	50.6	NA	NA	NA	NA	53.9	43
Chromium	19 (Cr^{+6}), 2,000 (Cr^{+3})	240 (Cr^{+6}), 120,000 (Cr^{+3})	19 (Cr^{+6}), 2,000 (Cr^{+3})	18 (Cr^{+6}), 480,096 (Cr^{+3})	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	23.3	26.0	29.7	NA	NA	NA	NA	37.3	30.4
Lead	250	NE	250	NE	24	3	11	2 U	2 U	2 U	6	17	NA	10	6	12	69	4	3	3.4 J	6 J	7 J	10 J	6 U	NA	NA	5.5 J	0.8 J
Mercury	2	24	2	5	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.04 U	0.05 U	0.04 U	NA	NA	NA	NA	0.05 U	0.04 U
TCLP Metals (mg/L)	**Toxicity Characteristic[2]**																											
Lead	5.0		NA		NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level or the Puget Sound Soil Background Concentration. For metals, concentrations that exceed a MTCA cleanup level, but are less than the background soil concentration are not considered exceedances and are not bolded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) MTCA Method A soil cleanup level for unrestricted land use
(I) MTCA Method A soil cleanup level for industrial property
bgs - below ground surface
(DUP) - Field duplicate
NA - Not applicable or not analyzed
ND - Not detected
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
PCBs - Polychlorinated biphenyls
PSNSBC - Puget Sound Natural Soil Background Concentration
SVOCs - Semivolatile organic compounds
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] Washington State Department of Ecology 1994. "Natural Background Soil Metals Concentrations in Washington State." Publ. 94-115. (http://www.ecy.wa.gov/pubs/94115.pdf)
[2] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[3] The sample from 6 feet bgs at location PD-28A was incorrectly labeled on the chain of custody as PD28-6-071130. This sample was collected from the PD-28A sampling location.
[4] Non-Wastewater Standard. Universal Treatment Standards from 40 CFR 268.48 and 268.49.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[b] SVOCs other than PAHs
[c] The MTCA Method A and B values listed for Aroclor 1260 are cleanup level for total PCBs.
[d] The Universal Treatment Standard listed for Aroclor 1260 is for total PCBs. The standard is temporarily deferred for soil exhibiting a hazardous chararateristic due to D004-D011 designation only.

Table 17-7
Summary of Pre-Design Soil Sample Analytical Results
Former Gun Club Soil Interim Removal Action
Boeing Everett Plant

Sample ID:	**MTCA Soil Cleanup Levels**		**MTCA Protection of Groundwater**		**PSNSBC**[1]	**PD9A**		**PD10**					**PD10A**		**PD11**			**PD11A**			**PD12**				**PD12A**		**PD13**		**PD13A**		**PD14**	
Sample Date:						11/30/2007		11/15/2007					11/30/2007		11/15/2007			11/30/2007			11/15/2007				11/29/2007		11/15/2007		11/29/2007		11/14/2007	
Sample Depth (ft bgs):	**Method A**	**Method B**	**Method A**	**Method B**		13	14	0 (Pre-Load)	6 (Pre-Load)	6 (Pre-Load, DUP)	15	16	14	15	0 (Pre-Load)	6 (Pre-Load)	12	18	19	20	0 (Pre-Load)	6 (Pre-Load)	6 (Pre-Load, DUP)	12	16	17	0 (Pre-Load)	6 (Pre-Load)	17	18	1.5	2.5
VOCs (ug/kg)																																
Acetone	NE	8,000,000	NE	3,211	NE	NA	NA	120	17 J	34 J	NA	NA	NA	NA	230	7.5	NA	NA	NA	NA	58	18	18	NA	NA	NA	200 J	36	NA	NA	NA	NA
2-Butanone	NE	48,000,000	NE	19,200	NE	NA	NA	9.3	3.0 U	3.3	NA	NA	NA	NA	23	2.2 U	NA	NA	NA	NA	4.7	3.1 U	3.2 U	NA	NA	NA	22	3.4	NA	NA	NA	NA
Carbon disulfide	NE	8,000,000	NE	5,651	NE	NA	NA	0.8 U	0.6 U	1.1	NA	NA	NA	NA	1.0	0.4 U	NA	NA	NA	NA	0.5 U	1.6	1.1	NA	NA	NA	1.0 U	0.5 U	NA	NA	NA	NA
Methylene chloride	20	133,333	20	25	NE	NA	NA	1.6 U	1.2 U	1.2 U	NA	NA	NA	NA	1.9 U	0.9 U	NA	NA	NA	NA	1.1 U	1.2 U	1.3 U	NA	NA	NA	2.1 U	1.0 U	NA	NA	NA	NA
Toluene	7,000	6,400	7,000	4,654	NE	NA	NA	0.8 U	0.6 U	0.6 U	NA	NA	NA	NA	0.9 U	0.4 U	NA	NA	NA	NA	0.5 U	0.6 U	0.6 U	NA	NA	NA	1.0 U	0.5 U	NA	NA	NA	NA
PCBs (ug/kg)																																
Aroclor 1254	NE	1,600	NE	1.3	NE	NA	NA	33 U	33 U	33 U	NA	NA	NA	NA	33 U	33 U	NA	NA	NA	NA	33 U	32 U	33 U	NA	NA	NA	33 U	33 U	NA	NA	NA	NA
Aroclor 1260	1,000 (R), 10,000 (I) [c]	500 [c]	NE	NE	NE	NA	NA	90	33 U	33 U	NA	NA	NA	NA	33 U	33 U	NA	NA	NA	NA	33 U	32 U	87	NA	NA	NA	33 U	33 U	NA	NA	NA	NA
SVOCs (ug/kg)[b]																																
bis-(2-Ethylhexyl)phthalate	NE	71,000	NE	13,915	NE	NA	NA	64 U	65 U	66 U	NA	NA	NA	NA	63 U	65 U	NA	NA	NA	NA	64 U	64 U	63 U	NA	NA	NA	65 U	65 U	NA	NA	NA	NA
Carbazole	NE	50,000	NE	314	NE	NA	NA	64 U	65 U	66 U	NA	NA	NA	NA	63 U	65 U	NA	NA	NA	NA	64 U	64 U	63 U	NA	NA	NA	65 U	65 U	NA	NA	NA	NA
PAHs (ug/kg)																																
Naphthalene	5,000	1,600,000	5,000	4,457	NE	4.8 U	5.0 U	4.8 U	9.7 U	5.8	4.9 U	4.8 U	4.8	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	16	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	8.8	4.8 U	24	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	NE	4.8 U	5.0 U	4.8 U	9.7 U	7.8	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	7.2	4.8 U	4.8 U	18	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	12	4.8 U	31	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	NE	4.8	5.0 U	4.8 U	9.7 U	6.3	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	5.3	4.8 U	4.8 U	12	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	8.8	4.8 U	28	4.8 U
Acenaphthylene	NE	NE	NE	NE	NE	4.8 U	5.0 U	4.8 U	9.7 U	4.8 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	4.9 U	4.8 U	15 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	NE	4.8 U	5.0 U	4.8 U	11	6.8	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	5.3	4.8 U	6.2	120	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	30	4.8 U	250	4.8 U
Fluorene	NE	3,200,000	NE	101,212	NE	5.3	5.0 U	4.8 U	9.7 U	8.7	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	5.8	4.8 U	5.3	61	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	21	4.8 U	86	4.8 U
Phenanthrene	NE	NE	NE	NE	NE	22	16	4.8 U	42	34	4.9 U	4.8 U	16	7.9	6.7	43	10	58	720	4.8	8.2	4.8 U	4.8 U	6.2	5.0 U	4.8 U	5.0	4.8 U	250	4.8 U	2,400	44
Anthracene	NE	24,000,000	NE	2,274,550	NE	4.8 U	5.0 U	4.8 U	9.7 U	4.8 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	8.6	4.8 U	11	180	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	51	4.8 U	360	8.2
Fluoranthene	NE	3,200,000	NE	630,990	NE	24	21	13	25	25	4.9 U	4.8 U	16	10	20	46	13	59	950	4.8 U	11	5.7	6.8	8.1	5.0 U	4.8 U	22	4.8 U	240	4.8 U	7,600	61
Pyrene	NE	2,400,000	NE	654,644	NE	23	24	11	71	70	4.9 U	4.8 U	24	8.4	17	32	19	87	1,200	6.2	9.1	19	27	9.0	5.0 U	4.8 U	18	4.8 U	370	4.8 U	7,400	86
Benzo(a)anthracene [a]	See note a	See note a	715	86	NE	9.6	12	8.6	16	15	4.9 U	4.8 U	11	5.9	14	11	11	51	800	4.8 U	5.3	5.7	5.8	4.8 U	5.0 U	4.8 U	15	4.8 U	160	4.8 U	5,000	50
Chrysene [a]	See note a	See note a	796	95	NE	23	23	16	61	50	4.9 U	4.8 U	19	11	17	22	14	72	900	4.8 U	7.2	27	37	10	5.0 U	4.8 U	19	4.8 U	210	4.8 U	6,300	67
Benzo(b)fluoranthene [a]	See note a	See note a	2,460	295	NE	9.1	10	11	9.7 U	12	4.9 U	4.8 U	11	5.0 U	21	6.7	9.0	43	690	4.8 U	5.3	6.2	5.3	4.8 U	5.0 U	4.8 U	17	4.8 U	96	4.8 U	5,300	56
Benzo(k)fluoranthene [a]	See note a	See note a	2,460	295	NE	9.1	10	11	9.7 U	12	4.9 U	4.8 U	8.7	5.0 U	11	11	9.0	41	460	4.8 U	5.3	6.2 J	16 J	4.8 U	5.0 U	4.8 U	17	4.8 U	86	4.8 U	4,000	34
Benzo(a)pyrene [a]	100	137	100	232	NE	13	13	11	18	23 UJ	4.9 U	4.8 U	14	6.4	20	11 J	16	73	**860**	4.8 U	6.2	9.0 UJ	16 UJ	5.2	5.0 U	4.8 U	24	4.8 U	**180**	4.8 U	**6,700**	68
Indeno(1,2,3-cd)pyrene [a]	See note a	See note a	6,940	832	NE	4.8 U	5.0 U	5.3	9.7 U	4.8 U	4.9 U	4.8 U	4.8 U	5.0 U	9.6	4.8 U	6.7	30	380	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	12	4.8 U	53	4.8 U	3,100	32
Dibenz(a,h)anthracene [a]	See note a	See note a	3,579	429	NE	4.8 U	5.0 U	4.8 U	9.7 U	4.8 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	9.6	150	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	6.9	4.8 U	17	4.8 U	1,200	12
Benzo(g,h,i)perylene	NE	NE	NE	NE	NE	6.7	5.9	11	9.7 U	15	4.9 U	4.8 U	5.3	5.0 U	14	5.3	11	43	400	4.8 U	4.8 U	5.2 J	8.7 J	4.8 U	5.0 U	4.8 U	18	4.8 U	76	4.8 U	3,600	42
Dibenzofuran	NE	160,000	NE	128	NE	4.8 U	5.0 U	4.8 U	9.7 U	4.8	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	12	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	4.9 U	4.8 U	19	4.8 U
TTEC Concentration (c-PAHs)	100	137	NA	NA	NE	16	16	15	20	4.4	NA	NA	17	7.1	25.7	14.1	20	91	**1,117**	NA	7.9	2.1	3.1	5.3	NA	NA	31	NA	**223**	NA	**8,623**	87
Total Metals (mg/kg)																																
Arsenic	20	0.667	20	0.030	7	3.6 J	2.4 J	1.5 J	1.7 J	2.9 J	3.3	3.0	2.7 J	2.5 J	2.1 J	1.5 J	3.0	1.7 J	1.9 J	NA	0.5 J	1.1 J	1.6 J	2.2	2.6 J	2.0 J	1.4 J	1.4 J	2.3 J	1.9 J	2.9	2.9
Barium	NE	16,000	NE	2,637	NE	NA	NA	39.6	58.8	51.7	NA	NA	NA	NA	48.2	56.9	NA	NA	NA	NA	54.6	48.7	47.5	NA	NA	NA	49.5	57.2	NA	NA	NA	NA
Chromium	19 (Cr^{+6}), 2,000 (Cr^{+3})	240 (Cr^{+6}), 120,000 (Cr^{+3})	19 (Cr^{+6}), 2,000 (Cr^{+3})	18 (Cr^{+6}), 480,096 (Cr^{+3})	48	NA	NA	29.6	33.7	27.8	NA	NA	NA	NA	28.3	33.4	NA	NA	NA	NA	34.8	28.2	42	NA	NA	NA	29.2	46.3	NA	NA	NA	NA
Lead	250	NE	250	NE	24	4	4	3.8 J	4.6 J	4.3 J	3	3	3	3	4 J	2.2 J	3	3	4	NA	2 J	4.2 J	4.7 J	3	6 J	4 J	3.6 J	3.2 J	21 J	5 J	14 J	3 J
Mercury	2	24	2	5	0.07	NA	NA	0.04 U	0.04	0.05 U	NA	NA	NA	NA	0.04 U	0.04 U	NA	NA	NA	NA	0.04 U	0.04 U	0.05 U	NA	NA	NA	0.05 U	0.04 U	NA	NA	NA	NA
TCLP Metals (mg/L)	**Toxicity Characteristic**[2]																															
Lead	5.0		NA		NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level or the Puget Sound Soil Background Concentration. For metals, concentrations that exceed a MTCA cleanup level, but are less than the background soil concentration are not considered exceedances and are not bolded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) MTCA Method A soil cleanup level for unrestricted land use
(I) MTCA Method A soil cleanup level for industrial property
bgs - below ground surface
(DUP) - Field duplicate
NA - Not applicable or not analyzed
ND - Not detected
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
PCBs - Polychlorinated biphenyls
PSNSBC - Puget Sound Natural Soil Background Concentration
SVOCs - Semivolatile organic compounds
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] Washington State Department of Ecology 1994. "Natural Background Soil Metals Concentrations in Washington State." Publ. 94-115. (http://www.ecy.wa.gov/pubs/94115.pdf)
[2] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[3] The sample from 6 feet bgs at location PD-28A was incorrectly labeled on the chain of custody as PD28-6-071130. This sample was collected from the PD-28A sampling location.
[4] Non-Wastewater Standard. Universal Treatment Standards from 40 CFR 268.48 and 268.49.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[b] SVOCs other than PAHs
[c] The MTCA Method A and B values listed for Aroclor 1260 are cleanup level for total PCBs.
[d] The Universal Treatment Standard listed for Aroclor 1260 is for total PCBs. The standard is temporarily deferred for soil exhibiting a hazardous chararateristic due to D004-D011 designation only.

Table 17-7
Summary of Pre-Design Soil Sample Analytical Results
Former Gun Club Soil Interim Removal Action
Boeing Everett Plant

Sample ID: / Sample Date: / Sample Depth (ft bgs):	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		PSNSBC[1]	PD15 11/14/2007			PD16 11/14/2007		PD17 11/14/2007		PD17A 12/21/2007		PD18 11/14/2007		PD18A 12/21/2007	PD19 11/14/2007		PD20 11/14/2007		PD21 11/14/2007			PD22 11/14/2007		PD23 11/16/2007	
	Method A	Method B	Method A	Method B		0.5	1.0	2.0	2	4	2.5	4	0.5	0.5 (DUP)	3	4	0.5	0.5	1	0.3	1	0.5	1.0	2.0	0.5	1	3.5	4
VOCs (ug/kg)																												
Acetone	NE	8,000,000	NE	3,211	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NE	48,000,000	NE	19,200	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	8,000,000	NE	5,651	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	20	133,333	20	25	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	7,000	6,400	7,000	4,654	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (ug/kg)																												
Aroclor 1254	NE	1,600	NE	1.3	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	1,000 (R), 10,000 (I) [c]	500 [c]	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs (ug/kg)[b]																												
bis-(2-Ethylhexyl)phthalate	NE	71,000	NE	13,915	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	50,000	NE	314	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (ug/kg)																												
Naphthalene	5,000	1,600,000	5,000	4,457	NE	32 J	160 J	4.8 U	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	140 J	4.8 U	4.9 U	4.8 U	180 J	16 J	4.9 U	4.8 U	5.0 U	7.4	4.9 U
2-Methylnaphthalene	NE	320,000	NE	128	NE	33 J	140 J	4.8 U	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	120 J	4.8 U	4.9 U	4.8 U	130 J	11 J	4.9 U	4.8 U	5.0 U	6.4	4.9 U
1-Methylnaphthalene	NE	24,000	NE	NE	NE	20	60	4.8 U	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	65	4.8 U	4.9 U	4.8 U	66	5.8	4.9 U	4.8 U	5.0 U	5.0	4.9 U
Acenaphthylene	NE	NE	NE	NE	NE	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	4.9 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U	4.9 U	4.8 U	5.0 U	5.0 U	4.9 U
Acenaphthene	NE	4,800,000	NE	97,892	NE	380 J	1,900	4.8 U	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	1400	4.8 U	4.9 U	4.8 U	1,800	150 J	4.9 U	4.8 U	5.0 U	28	4.9 U
Fluorene	NE	3,200,000	NE	101,212	NE	120 J	570	4.8 U	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	450 J	4.8 U	4.9 U	4.8 U	540	59 J	4.9 U	4.8 U	5.0 U	14	4.9 U
Phenanthrene	NE	NE	NE	NE	NE	2,100	8,400	18	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	6,300	9.1	4.9 U	4.8 U	6,900	760	4.9 U	14	5.0 U	230	9.8
Anthracene	NE	24,000,000	NE	2,274,550	NE	450	2,200	4.8 U	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	1,600	4.8 U	4.9 U	4.8 U	1,800	210	4.9 U	4.8 U	5.0 U	46	4.9 U
Fluoranthene	NE	3,200,000	NE	630,990	NE	6,600	24,000	57	4.9 U	4.8 U	4.9 U	11	NA	NA	11	7.4	NA	17,000	32	9.3	4.8 U	16,000	2,000	4.9 U	33	5.0 U	530	22
Pyrene	NE	2,400,000	NE	654,644	NE	6,600	22,000	62	4.9 U	4.8 U	4.9 U	12	NA	NA	16	9.3	NA	16,000	50	13	4.8 U	15,000	1,900	4.9 U	41	5.0 U	520	24
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	NE	5,100	18,000	50	4.9 U	4.8 U	4.9 U	11	NA	NA	10	6.9	NA	13,000	36	8.8	4.8 U	12,000	1,600	4.9 U	26	5.0 U	420	19
Chrysene [(a)]	See note a	See note a	796	95	NE	5,900	18,000	56	4.9 U	4.8 U	4.9 U	13	NA	NA	10	8.3	NA	13,000	39	9.3	4.8 U	12,000	1,700	4.9 U	35	5.0 U	520	23
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	NE	6,600	15,000	68	4.9 U	4.8 U	4.9 U	16	NA	NA	15	11	NA	9,900	47	12	4.8 U	12,000	1,800	4.9 U	24	5.0 U	540	24
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	NE	4,100	14,000	47	4.9 U	4.8 U	4.9 U	13	NA	NA	8.9	4.9	NA	9,900	31	6.9	4.8 U	8,300	1,300	4.9 U	36	5.0 U	360	16
Benzo(a)pyrene [(a)]	100	137	100	232	NE	7,100	**18,000**	75	4.9 U	4.8 U	4.9 U	17	NA	NA	15	9.8	NA	**14,000**	53	13	4.8 U	**14,000**	**2,000**	4.9 U	39	5.0 U	**620**	25
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	NE	3,900	8,300	46	4.9 U	4.8 U	4.9 U	9.8	NA	NA	9.4	7.8	NA	6,700	36	9.3	4.8 U	7,000	1,100	4.9 U	22	5.0 U	350	14
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	NE	1,000	2,700	19	4.9 U	4.8 U	4.9 U	4.9	NA	NA	5.0 U	4.9 U	NA	2,400	9.1	4.9 U	4.8 U	2,400	200	4.9 U	7.2	5.0 U	110	4.9 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	NE	4,700	8,700	55	4.9 U	4.8 U	4.9 U	11	NA	NA	10	6.9	NA	7,400	41	8.8	4.8 U	7,900	1,300	4.9 U	28	5.0 U	430	17
Dibenzofuran	NE	160,000	NE	128	NE	42 J	240 J	4.8 U	4.9 U	4.8 U	4.9 U	4.9 U	NA	NA	5.0 U	4.9 U	NA	160 J	4.8 U	4.9 U	4.8 U	230 J	23 J	4.9 U	4.8 U	5.0 U	5.0 U	4.9 U
TTEC Concentration (c-PAHs)	100	137	NA	NA	NE	**9,229**	**23,980**	99	NA	NA	NA	23	NA	NA	19	13	NA	**18,320**	69	17	NA	**18,290**	**2,617**	NA	51	NA	**803**	33
Total Metals (mg/kg)																												
Arsenic	20	0.667	20	0.030	7	**18**	**15.8**	2.1	2.6	3.1	3.2	3.0	NA	NA	3.1	3.6	NA	6.9	3.6	3.2	3.0	**8.8**	3.5	NA	3.0	2.0	4.1	3.3
Barium	NE	16,000	NE	2,637	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	19 (Cr^{+6}), 2,000 (Cr^{+3})	240 (Cr^{+6}), 120,000 (Cr^{+3})	19 (Cr^{+6}), 2,000 (Cr^{+3})	18 (Cr^{+6}), 480,096 (Cr^{+3})	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	250	NE	250	NE	24	**2,190**	**2,060**	11	3	10 J	5	4	249	**273**	3	3	**492**	**343**	3	3	2 U	**780**	131	2 U	77	2 U	49	5
Mercury	2	24	2	5	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals (mg/L)	**Toxicity Characteristic[2]**																											
Lead	5.0		NA		NE	**11.9**	**33.7**	NA	NA	NA	NA	NA	3.0 J	0.3 J	NA	NA	**16.9**	4.9	NA	NA	NA	**14.0**	**12.8**	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level or the Puget Sound Soil Background Concentration. For metals, concentrations that exceed a MTCA cleanup level, but are less than the background soil concentration are not considered exceedances and are not bolded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) MTCA Method A soil cleanup level for unrestricted land use
(I) MTCA Method A soil cleanup level for industrial property
bgs - below ground surface
(DUP) - Field duplicate
NA - Not applicable or not analyzed
ND - Not detected
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
PCBs - Polychlorinated biphenyls
PSNSBC - Puget Sound Natural Soil Background Concentration
SVOCs - Semivolatile organic compounds
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] Washington State Department of Ecology 1994. "Natural Background Soil Metals Concentrations in Washington State." Publ. 94-115. (http://www.ecy.wa.gov/pubs/94115.pdf)
[2] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[3] The sample from 6 feet bgs at location PD-28A was incorrectly labeled on the chain of custody as PD28-6-071130. This sample was collected from the PD-28A sampling location.
[4] Non-Wastewater Standard. Universal Treatment Standards from 40 CFR 268.48 and 268.49.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[b] SVOCs other than PAHs
[c] The MTCA Method A and B values listed for Aroclor 1260 are cleanup level for total PCBs.
[d] The Universal Treatment Standard listed for Aroclor 1260 is for total PCBs. The standard is temporarily deferred for soil exhibiting a hazardous charaarateristic due to D004-D011 designation only.

Table 17-7
Summary of Pre-Design Soil Sample Analytical Results
Former Gun Club Soil Interim Removal Action
Boeing Everett Plant

Sample ID: / Sample Date: / Sample Depth (ft bgs):	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		PSNSBC[1]	PD24 11/16/2007		PD25 11/14/2007		PD26 11/16/2007		PD27 11/14/2007			PD28 11/15/2007	PD28A 11/30/2007	PD28A 11/30/2007	PD29 11/15/2007		PD29 11/29/2007		PD30 11/15/2007					PD30A 11/29/2007	
	Method A	Method B	Method A	Method B		0.5	1.0	1.5	3	3.0	4.0	0.5	0.5 (DUP)	1	0 (Pre-Load)	6[(3)] (Pre-Load)	20	0 (Pre-Load)	6 (Pre-Load)	19.5	20.5	0 (Pre-Load)	6 (Pre-Load)	12	13	13 (DUP)	12	14
VOCs (ug/kg)																												
Acetone	NE	8,000,000	NE	3,211	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	40	NA	240	8.8	NA	NA	80	22	NA	NA	NA	NA	NA
2-Butanone	NE	48,000,000	NE	19,200	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.2	4.5	NA	13	3.1 U	NA	NA	6.1	3.0 U	NA	NA	NA	NA	NA
Carbon disulfide	NE	8,000,000	NE	5,651	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U	3.4	NA	0.6 U	0.6 U	NA	NA	0.7 U	0.6 U	NA	NA	NA	NA	NA
Methylene chloride	20	133,333	20	25	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4 U	1.4 U	NA	1.3 U	1.2 U	NA	NA	1.4 U	1.2 U	NA	NA	NA	NA	NA
Toluene	7,000	6,400	7,000	4,654	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.7 U	0.7 U	NA	0.6 U	0.6 U	NA	NA	0.7 U	0.6 U	NA	NA	NA	NA	NA
PCBs (ug/kg)																												
Aroclor 1254	NE	1,600	NE	1.3	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	32 U	33 U	NA	32 U	33 U	NA	NA	32 U	32 U	NA	NA	NA	NA	NA
Aroclor 1260	1,000 (R), 10,000 (I) [c]	500 [c]	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	33 U	NA	32 U	33 U	NA	NA	32 U	32 U	NA	NA	NA	NA	NA
SVOCs (ug/kg)[b]																												
bis-(2-Ethylhexyl)phthalate	NE	71,000	NE	13,915	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	65 U	66 U	NA	63 U	64 U	NA	NA	64 U	65 U	NA	NA	NA	NA	NA
Carbazole	NE	50,000	NE	314	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	65 U	66 U	NA	63 U	64 U	NA	NA	64 U	65 U	NA	NA	NA	NA	NA
PAHs (ug/kg)																												
Naphthalene	5,000	1,600,000	5,000	4,457	NE	6.9	4.8 U	4.9 U	4.9 U	4.8 U	5.0 U	37	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	NE	8.9	4.8 U	4.9 U	4.9 U	4.8 U	5.0 U	150 J	4.8 UJ	4.8 U	5.0 U	5.0	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	NE	6.9	4.8 U	4.9 U	4.9 U	4.8 U	5.0 U	110 J	4.8 UJ	4.8 U	5.0 U	5.0 U	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	NE	5.0 U	4.8 U	4.9 U	4.9 U	4.8 U	5.0 U	15 U	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	NE	41	4.8 U	4.9 U	4.9 U	4.8 U	5.0 U	960 J	13 J	4.8 U	5.0 U	5.0 U	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	NE	23	4.8 U	4.9 U	4.9 U	4.8 U	5.0 U	740 J	8.7 J	4.8 U	5.0 U	5.0 U	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
Phenanthrene	NE	NE	NE	NE	NE	350	4.8 U	10	4.9 U	4.8 U	5.0 U	9,800 J	120 J	12	5.0 U	7.5	4.9 U	4.9 U	26	5.0 U	5.3	4.8 U	4.8 U	5.0 U	12	17	5.0 U	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	NE	70	4.8 U	4.9 U	4.9 U	4.8 U	5.0 U	2,600 J	24 J	4.8 U	5.0 U	5.0 U	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	NE	410	4.8 U	33	4.9 U	4.8 U	9.5	5,000 J	94 J	15	7.0	5.0 U	4.9 U	91	31	5.0 U	4.8 U	14	4.8 U	5.0 U	23	30	5.0 U	4.8 U
Pyrene	NE	2,400,000	NE	654,644	NE	540	4.8	36	4.9 U	4.8 U	16	8,600 J	160 J	21	6.5	10	4.9 U	96	26	5.0 U	4.8 U	13	4.8 U	5.0 U	23	26	5.0 U	4.8 U
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	NE	340	4.8 U	22	4.9 U	4.8 U	8.0	3,800 J	77 J	12	5.0 U	5.0 U	4.9 U	9.8	10	5.0 U	4.8 U	10	4.8 U	5.0 U	14	16	5.0 U	4.8 U
Chrysene [(a)]	See note a	See note a	796	95	NE	460	4.8 U	31	4.9 U	4.8 U	9.0	5,800 J	120 J	16	6.5	25	4.9 U	74	16	5.0 U	4.8 U	14	4.8 U	5.0 U	21	22	5.0 U	4.8 U
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	NE	300	4.8 U	21	4.9 U	4.8 U	5.0 U	1,200 J	70 J	11	7.0	5.5	4.9 U	93	9.6	5.0 U	4.8 U	16	4.8 U	5.0 U	17	25	5.0 U	4.8 U
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	NE	300	4.8 U	23	4.9 U	4.8 U	6.5	1,200 J	40 J	7.8	5.0 U	5.5	4.9 U	82	9.6	5.0 U	4.8 U	9.2	4.8 U	5.0 U	17	14	5.0 U	4.8 U
Benzo(a)pyrene [(a)]	100	137	100	232	NE	**470**	4.8 U	30	4.9 U	4.8 U	9.5	**3,600 J**	96 J	15	6.0	8.5 UJ	4.9 U	100	14	5.0 U	4.8 U	18	4.8 U	5.0 U	23	24	5.0 U	4.8 U
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	NE	280	4.8 U	15	4.9 U	4.8 U	5.0 U	830 J	40 J	7.3	5.0 U	5.0 U	4.9 U	5.9	6.7	5.0 U	4.8 U	7.3	4.8 U	5.0 U	13	14	5.0 U	4.8 U
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	NE	130	4.8 U	5.9	4.9 U	4.8 U	5.0 U	300 J	16 J	4.8 U	5.0 U	5.0 U	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	NE	360	4.8 U	18	4.9 U	4.8 U	5.5	1,000 J	55 J	8.2	5.0 U	7.0	4.9 U	8.3	7.7	5.0 U	4.8 U	11	4.8 U	5.0 U	17	16	5.0 U	4.8 U
Dibenzofuran	NE	160,000	NE	128	NE	5.0 U	4.8 U	4.9 U	4.9 U	4.8 U	5.0 U	28	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.9 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	5.0 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NA	NA	NE	**610**	NA	39	NA	NA	11	**4,391**	122	19	6.8	1.4	NA	120	18	NA	NA	22	NA	NA	29	31	NA	NA
Total Metals (mg/kg)																												
Arsenic	20	0.667	20	0.030	7	3.6	3.5	2.8	3.0	4.4	2.5	3.2	3.5	2.9	1.7 J	2.2 J	2.7 J	4.3 J	2.2 J	2.3 J	2.4 J	1.2 J	0.5 J	2.9	3.2	3.2	2.2 J	2.4 J
Barium	NE	16,000	NE	2,637	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	49.7	57.2	NA	48.7	52.3	NA	NA	48.5	53.6	NA	NA	NA	NA	NA
Chromium	19 (Cr^{+6}), 2,000 (Cr^{+3})	240 (Cr^{+6}), 120,000 (Cr^{+3})	19 (Cr^{+6}), 2,000 (Cr^{+3})	18 (Cr^{+6}), 480,096 (Cr^{+3})	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	32.3	33.9	NA	29.9	33.0	NA	NA	30.9	34.3	NA	NA	NA	NA	NA
Lead	250	NE	250	NE	24	28	158	3 J	2 J	14	4	98 J	159 J	11 J	5 J	3	3	4.3 J	19 J	7 J	7 J	3.3 J	1.3 J	5	5	5	4 J	5 J
Mercury	2	24	2	5	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.06 U	0.05	NA	0.05 U	0.05 U	NA	NA	0.05 U	0.05 U	NA	NA	NA	NA	NA
TCLP Metals (mg/L)	**Toxicity Characteristic[2]**																											
Lead	5.0		NA		NE	NA	**9.0**	NA	NA	NA	NA	**5.6**	**7.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level or the Puget Sound Soil Background Concentration. For metals, concentrations that exceed a MTCA cleanup level, but are less than the background soil concentration are not considered exceedances and are not bolded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) MTCA Method A soil cleanup level for unrestricted land use
(I) MTCA Method A soil cleanup level for industrial property
bgs - below ground surface
(DUP) - Field duplicate
NA - Not applicable or not analyzed
ND - Not detected
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
PCBs - Polychlorinated biphenyls
PSNSBC - Puget Sound Natural Soil Background Concentration
SVOCs - Semivolatile organic compounds
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] Washington State Department of Ecology 1994. "Natural Background Soil Metals Concentrations in Washington State." Publ. 94-115. (http://www.ecy.wa.gov/pubs/94115.pdf)
[2] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[3] The sample from 6 feet bgs at location PD-28A was incorrectly labeled on the chain of custody as PD28-6-071130. This sample was collected from the PD-28A sampling location.
[4] Non-Wastewater Standard. Universal Treatment Standards from 40 CFR 268.48 and 268.49.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[b] SVOCs other than PAHs
[c] The MTCA Method A and B values listed for Aroclor 1260 are cleanup level for total PCBs.
[d] The Universal Treatment Standard listed for Aroclor 1260 is for total PCBs. The standard is temporarily deferred for soil exhibiting a hazardous chararateristic due to D004-D011 designation only.

Table 17-7
Summary of Pre-Design Soil Sample Analytical Results
Former Gun Club Soil Interim Removal Action
Boeing Everett Plant

Sample ID:	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		PSNSBC[1]	PD31				PD32		PD33					PD34				PD35		PD36				PD37	PD38	PD39	PD40	PD41	PD42
Sample Date:						11/30/2007				11/30/2007		12/3/2007					12/3/2007				12/3/2007		12/3/2007				12/21/2007	12/21/2007	12/21/2007	12/21/2007	12/21/2007	12/21/2007
Sample Depth (ft bgs):						14	14	15	16	14	15	0.5	1.5	1.5	2.5	3.5	0.5	1.5	2.5	3.5	0.5	1.5	0.5	1.5	2.5	3.5	0.5	0.5	0.5	0.5	0.5	0.5
	Method A	**Method B**	**Method A**	**Method B**			(DUP)							(DUP)																		
VOCs (ug/kg)																																
Acetone	NE	8,000,000	NE	3,211	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NE	48,000,000	NE	19,200	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	8,000,000	NE	5,651	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	20	133,333	20	25	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	7,000	6,400	7,000	4,654	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (ug/kg)																																
Aroclor 1254	NE	1,600	NE	1.3	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	1,000 (R), 10,000 (I) [c]	500 [c]	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs (ug/kg)[b]																																
bis-(2-Ethylhexyl)phthalate	NE	71,000	NE	13,915	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	50,000	NE	314	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (ug/kg)																																
Naphthalene	5,000	1,600,000	5,000	4,457	NE	5.4	8.8	9.8	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	18	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	320,000	NE	128	NE	8.9	14	16	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	19	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	24,000	NE	NE	NE	6.4	9.8	12	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	15	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	NA	NA	NA	NA	NA	NA
Acenaphthylene	NE	NE	NE	NE	NE	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	NA	NA	NA	NA	NA	NA
Acenaphthene	NE	4,800,000	NE	97,892	NE	20 J	43 J	41	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	120	28	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	NA	NA	NA	NA	NA	NA
Fluorene	NE	3,200,000	NE	101,212	NE	17 J	33 J	37	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	74	8.2	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NE	190 J	440 J	380	5.0 U	8.9	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	1,000	150	7.7	4.8 U	5.0 U	6.3	4.9 U	5.0 U	47	4.9 U	NA	NA	NA	NA	NA	NA
Anthracene	NE	24,000,000	NE	2,274,550	NE	39 J	85 J	76	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	240	35	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	8.7	4.9 U	NA	NA	NA	NA	NA	NA
Fluoranthene	NE	3,200,000	NE	630,990	NE	130 J	410 J	240	5.0 U	23	4.9 U	5.4	4.8 U	4.8 U	4.9 U	5.0 U	1,500	540	6.2	4.8 U	5.0 U	6.8	4.9 U	5.0 U	35	4.9 U	NA	NA	NA	NA	NA	NA
Pyrene	NE	2,400,000	NE	654,644	NE	220 J	650 J	420	5.0 U	24	4.9 U	6.4	4.8 U	4.8 U	4.9 U	5.0 U	1,700	480	8.2	4.8 U	5.0 U	9.2	4.9 U	5.0 U	64	4.9 U	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	NE	120 J	340 J	200	5.0 U	16	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	1,100	440	4.8 U	4.8 U	5.0 U	4.8	4.9 U	5.0 U	29	4.9 U	NA	NA	NA	NA	NA	NA
Chrysene [(a)]	See note a	See note a	796	95	NE	180 J	440 J	290	5.0 U	23	4.9 U	5.9	4.8 U	4.8 U	4.9 U	5.0 U	1,400	500	7.2	4.8 U	5.0 U	6.3	4.9 U	5.0 U	43	4.9 U	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	NE	71 J	230 J	110	5.0 U	23	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	1,500	400	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	25	4.9 U	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	NE	71 J	230 J	110	5.0 U	16	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	710	330	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	14	4.9 U	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene [(a)]	100	137	100	232	NE	**140 J**	**450 J**	**250**	5.0 U	27	4.9 U	5.9	4.8 U	4.8 U	4.9 U	5.0 U	**1,500**	**550**	6.2	4.8 U	5.0 U	4.8	4.9 U	5.0 U	35	4.9 U	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	NE	46 J	120 J	72	5.0 U	13	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	840	310	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	14	4.9 U	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	NE	18 J	44 J	28	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	440	130	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	5.8	4.9 U	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NE	NE	NE	NE	NE	68 J	170 J	110	5.0 U	15	4.9 U	5.4	4.8 U	4.8 U	4.9 U	5.0 U	960	320	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	19	4.9 U	NA	NA	NA	NA	NA	NA
Dibenzofuran	NE	160,000	NE	128	NE	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	11	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	NA	NA	NA	NA	NA	NA
TTEC Concentration (c-PAHs)	100	137	NA	NA	NE	**174**	**551**	**305**	NA	34	NA	6.0	NA	NA	NA	NA	**1,973**	**716**	6.3	NA	NA	5.3	NA	NA	44	NA	NA	NA	NA	NA	NA	NA
Total Metals (mg/kg)																																
Arsenic	20	0.667	20	0.030	7	2.1 J	2.5 J	3.0 J	2.0 J	2.5 J	2.9 J	2.9	2.7	2.5	3.8	3.3	3.1	3.4	2.9	3.1	4.4	4.6	3.1	3.0	3.1	2.9	NA	NA	NA	NA	NA	NA
Barium	NE	16,000	NE	2,637	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	19 (Cr^{+6}), 2,000 (Cr^{+3})	240 (Cr^{+6}), 120,000 (Cr^{+3})	19 (Cr^{+6}), 2,000 (Cr^{+3})	18 (Cr^{+6}), 480,096 (Cr^{+3})	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	250	NE	250	NE	24	10	8	8	2	7	3	4	3	3	4	3	19	9	2 U	2 U	9	10	2 U	2	7	3	4	13	**265**	81	32	3
Mercury	2	24	2	5	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals (mg/L)	**Toxicity Characteristic[2]**																															
Lead	5.0		NA		NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.8	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level or the Puget Sound Soil Background Concentration. For metals, concentrations that exceed a MTCA cleanup level, but are less than the background soil concentration are not considered exceedances and are not bolded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) MTCA Method A soil cleanup level for unrestricted land use
(I) MTCA Method A soil cleanup level for industrial property
bgs - below ground surface
(DUP) - Field duplicate
NA - Not applicable or not analyzed
ND - Not detected
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
PCBs - Polychlorinated biphenyls
PSNSBC - Puget Sound Natural Soil Background Concentration
SVOCs - Semivolatile organic compounds
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] Washington State Department of Ecology 1994. "Natural Background Soil Metals Concentrations in Washington State." Publ. 94-115. (http://www.ecy.wa.gov/pubs/94115.pdf)
[2] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[3] The sample from 6 feet bgs at location PD-28A was incorrectly labeled on the chain of custody as PD28-6-071130. This sample was collected from the PD-28A sampling location.
[4] Non-Wastewater Standard. Universal Treatment Standards from 40 CFR 268.48 and 268.49.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[b] SVOCs other than PAHs
[c] The MTCA Method A and B values listed for Aroclor 1260 are cleanup level for total PCBs.
[d] The Universal Treatment Standard listed for Aroclor 1260 is for total PCBs. The standard is temporarily deferred for soil exhibiting a hazardous chararateristic due to D004-D011 designation only.

Table 17-7
Summary of Pre-Design Soil Sample Analytical Results
Former Gun Club Soil Interim Removal Action
Boeing Everett Plant

Sample ID:	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		PSNSBC[1]	PD43		PD44		PD45		PD46		PD47		PD48		PD49			PD50		PD51	
Sample Date:						1/31/2008		1/31/2008		1/31/2008		1/31/2008		1/31/2008		1/31/2008		1/31/2008			1/31/2008		1/31/2008	
Sample Depth (ft bgs):	Method A	Method B	Method A	Method B		0	0.5	0	1.5	0	1.5	0	1.5	0	1.5	0	0.5	0	0.5	0.5 (DUP)	0	0.5	0	0.5
VOCs (ug/kg)																								
Acetone	NE	8,000,000	NE	3,211	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NE	48,000,000	NE	19,200	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	8,000,000	NE	5,651	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	20	133,333	20	25	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	7,000	6,400	7,000	4,654	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (ug/kg)																								
Aroclor 1254	NE	1,600	NE	1.3	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	1,000 (R), 10,000 (I) [c]	500 [c]	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs (ug/kg)[b]																								
bis-(2-Ethylhexyl)phthalate	NE	71,000	NE	13,915	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	50,000	NE	314	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (ug/kg)																								
Naphthalene	5,000	1,600,000	5,000	4,457	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	320,000	NE	128	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	24,000	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NE	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NE	4,800,000	NE	97,892	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NE	3,200,000	NE	101,212	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NE	24,000,000	NE	2,274,550	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NE	3,200,000	NE	630,990	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NE	2,400,000	NE	654,644	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene [(a)]	See note a	See note a	796	95	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene [(a)]	100	137	100	232	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NE	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NE	160,000	NE	128	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TTEC Concentration (c-PAHs)	100	137	NA	NA	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals (mg/kg)																								
Arsenic	20	0.667	20	0.030	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NE	16,000	NE	2,637	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	19 (Cr^{+6}), 2,000 (Cr^{+3})	240 (Cr^{+6}), 120,000 (Cr^{+3})	19 (Cr^{+6}), 2,000 (Cr^{+3})	18 (Cr^{+6}), 480,096 (Cr^{+3})	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	250	NE	250	NE	24	59 J	180 J	3 J	2.6 J	7 J	5 J	8 J	3.0 J	6 J	4 J	**480**	186	6	3.0	2.7	**500**	220	113	113
Mercury	2	24	2	5	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals (mg/L)	**Toxicity Characteristic[2]**																							
Lead	5.0		NA		NE	NA	0.2	NA	NA	NA	NA	NA	NA	NA	NA	4.3	**6.4**	NA	NA	NA	**17.6**	0.6	**7.0**	**12.3**

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level or the Puget Sound Soil Background Concentration. For metals, concentrations that exceed a MTCA cleanup level, but are less than the background soil concentration are not considered exceedances and are not bolded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) MTCA Method A soil cleanup level for unrestricted land use
(I) MTCA Method A soil cleanup level for industrial property
bgs - below ground surface
(DUP) - Field duplicate
NA - Not applicable or not analyzed
ND - Not detected
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
PCBs - Polychlorinated biphenyls
PSNSBC - Puget Sound Natural Soil Background Concentration
SVOCs - Semivolatile organic compounds
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] Washington State Department of Ecology 1994. "Natural Background Soil Metals Concentrations in Washington State." Publ. 94-115. (http://www.ecy.wa.gov/pubs/94115.pdf)
[2] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[3] The sample from 6 feet bgs at location PD-28A was incorrectly labeled on the chain of custody as PD28-6-071130. This sample was collected from the PD-28A sampling location.
[4] Non-Wastewater Standard. Universal Treatment Standards from 40 CFR 268.48 and 268.49.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[b] SVOCs other than PAHs
[c] The MTCA Method A and B values listed for Aroclor 1260 are cleanup level for total PCBs.
[d] The Universal Treatment Standard listed for Aroclor 1260 is for total PCBs. The standard is temporarily deferred for soil exhibiting a hazardous charaarateristic due to D004-D011 designation only.

Table 17-7
Summary of Pre-Design Soil Sample Analytical Results
Former Gun Club Soil Interim Removal Action
Boeing Everett Plant

Sample ID:	**MTCA Soil Cleanup Levels**		**MTCA Protection of Groundwater**		**PSNSBC[1]**	**PD52**		**PDRF1**		**PDRF2**	**PDRF3**	**PDRF4**	**GEI1**			**GEI4**		**GEI5**		**GEI7**			**GEI10**	
Sample Date:						1/31/2008		1/17/2008		1/17/2008	1/17/2008	1/17/2008	1/21/2008			1/21/2008		1/21/2008		1/18/2008			1/17/2008	
Sample Depth (ft bgs):	**Method A**	**Method B**	**Method A**	**Method B**		0	0.5	2	(DUP)	1	1	1	16.5	26	35.5	20	25.5	20	40	18	25.5	30	12	30.5
VOCs (ug/kg)																								
Acetone	NE	8,000,000	NE	3,211	NE	NA	NA	18 U	20 U	30 U	47	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NE	48,000,000	NE	19,200	NE	NA	NA	3.5 U	3.3 U	3.0 U	3.9	2.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NE	8,000,000	NE	5,651	NE	NA	NA	0.7 U	0.7 U	1.1	1.3	0.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	20	133,333	20	25	NE	NA	NA	1.4 U	1.3 U	1.2 U	1.2 U	0.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	7,000	6,400	7,000	4,654	NE	NA	NA	0.7 U	0.7 U	0.6 U	0.7	0.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs (ug/kg)																								
Aroclor 1254	NE	1,600	NE	1.3	NE	NA	NA	370	300	200	190	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	1,000 (R), 10,000 (I) [c]	500 [c]	NE	NE	NE	NA	NA	32 U	33 U	32 U	33 U	33 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs (ug/kg)[b]																								
bis-(2-Ethylhexyl)phthalate	NE	71,000	NE	13,915	NE	NA	NA	70	68	89	98	65 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	50,000	NE	314	NE	NA	NA	63 U	66 U	63 U	82	65 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (ug/kg)																								
Naphthalene	5,000	1,600,000	5,000	4,457	NE	NA	NA	5.0 U	4.8 U	5.0 U	50 U	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	57	5.0 U	4.9 U
2-Methylnaphthalene	NE	320,000	NE	128	NE	NA	NA	5.9	4.8	7.9	50 U	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	18	5.9	4.9 U
1-Methylnaphthalene	NE	24,000	NE	NE	NE	NA	NA	5.0 U	4.8 U	5.0 U	50 U	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	14	5.0	4.9 U
Acenaphthylene	NE	NE	NE	NE	NE	NA	NA	5.0 U	4.8 U	5.0 U	50 U	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	11 U	5.0 U	4.9 U
Acenaphthene	NE	4,800,000	NE	97,892	NE	NA	NA	5.0 U	4.8 U	5.4	64	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	11 U	5.0 U	4.9 U
Fluorene	NE	3,200,000	NE	101,212	NE	NA	NA	5.0 U	4.8 U	5.9	74	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	11 U	5.0 U	4.9 U
Phenanthrene	NE	NE	NE	NE	NE	NA	NA	53 J	8.7 J	50	760	7.1	12	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	67	19	4.9 U
Anthracene	NE	24,000,000	NE	2,274,550	NE	NA	NA	11	4.8 U	12	130	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	11 U	5.0 U	4.9 U
Fluoranthene	NE	3,200,000	NE	630,990	NE	NA	NA	190 J	27 J	190	1,200	20	23	5.4	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	95	23	4.9 U
Pyrene	NE	2,400,000	NE	654,644	NE	NA	NA	110 J	25 J	220	1,300	73	23	5.4	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	70	29	4.9 U
Benzo(a)anthracene [a]	See note a	See note a	715	86	NE	NA	NA	53 J	13 J	81	430	13	11	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	16	15	4.9 U
Chrysene [a]	See note a	See note a	796	95	NE	NA	NA	43 J	23 J	100	590	87	16	5.0	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	49	24	4.9 U
Benzo(b)fluoranthene [a]	See note a	See note a	2,460	295	NE	NA	NA	57 J	21 J	150	440	24	20	5.0	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	68	33 J	4.9 U
Benzo(k)fluoranthene [a]	See note a	See note a	2,460	295	NE	NA	NA	20	21 J	67	440	10	12	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	40 J	12	4.9 U
Benzo(a)pyrene [a]	100	137	100	232	NE	NA	NA	38 J	18 J	96	420	13	14	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	23	23	4.9 U
Indeno(1,2,3-cd)pyrene [a]	See note a	See note a	6,940	832	NE	NA	NA	17	7.8	31	120	5.7	11	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	16	5.0 U	4.9 U
Dibenz(a,h)anthracene [a]	See note a	See note a	3,579	429	NE	NA	NA	5.4	4.8 U	10	50 U	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	11 U	5.0 U	4.9 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	NE	NA	NA	19	7.8	30	130	6.2	13	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	18	6.9	4.9 U
Dibenzofuran	NE	160,000	NE	128	NE	NA	NA	5.0 U	4.8 U	5.0 U	50	4.8 U	4.8 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	4.8 U	4.0 U	4.2 U	24	5.0 U	4.9 U
TTEC Concentration (c-PAHs)	100	137	NA	NA	NE	NA	NA	54	25	131	**569**	19	20	1	NA	NA	NA	NA	NA	NA	NA	37	29	NA
Total Metals (mg/kg)																								
Arsenic	20	0.667	20	0.030	7	NA	NA	3.1	2.5	2.7	9.3	3.3	3.7	2.7	1.6	2.5	1.4	2.7	1.5	2.9	3.2	**9.3**	3.5	1.4
Barium	NE	16,000	NE	2,637	NE	NA	NA	47.2	49.4	50.7	54.9	52.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	19 (Cr^{+6}), 2,000 (Cr^{+3})	240 (Cr^{+6}), 120,000 (Cr^{+3})	19 (Cr^{+6}), 2,000 (Cr^{+3})	18 (Cr^{+6}), 480,096 (Cr^{+3})	48	NA	NA	31.6	35.3	35.0	28.2	35.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	250	NE	250	NE	24	51	**1,270**	3	3	3	7	3	14	5	6	3	5	3	4	3	5	47	4	3
Mercury	2	24	2	5	0.07	NA	NA	0.04 U	0.04 U	0.05 U	0.04 U	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP Metals (mg/L)	**Toxicity Characteristic[2]**																							
Lead	5.0		NA		NE	NA	**33.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level or the Puget Sound Soil Background Concentration. For metals, concentrations that exceed a MTCA cleanup level, but are less than the background soil concentration are not considered exceedances and are not bolded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) MTCA Method A soil cleanup level for unrestricted land use
(I) MTCA Method A soil cleanup level for industrial property
bgs - below ground surface
(DUP) - Field duplicate
NA - Not applicable or not analyzed
ND - Not detected
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
PCBs - Polychlorinated biphenyls
PSNSBC - Puget Sound Natural Soil Background Concentration
SVOCs - Semivolatile organic compounds
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] Washington State Department of Ecology 1994. "Natural Background Soil Metals Concentrations in Washington State." Publ. 94-115. (http://www.ecy.wa.gov/pubs/94115.pdf)
[2] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[3] The sample from 6 feet bgs at location PD-28A was incorrectly labeled on the chain of custody as PD28-6-071130. This sample was collected from the PD-28A sampling location.
[4] Non-Wastewater Standard. Universal Treatment Standards from 40 CFR 268.48 and 268.49.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[b] SVOCs other than PAHs
[c] The MTCA Method A and B values listed for Aroclor 1260 are cleanup level for total PCBs.
[d] The Universal Treatment Standard listed for Aroclor 1260 is for total PCBs. The standard is temporarily deferred for soil exhibiting a hazardous chararateristic due to D004-D011 designation only.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

Sample ID:	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		Cell A						Cell B						
Sample ID:					**PEX-A01**	**PEX-A02**	**PEX-A03**	**PEX-A04**	**PEX-A05**	**PEX-A06**	**PEX-B01**	**PEX-B02**	**PEX-B03**	**PEX-B04**	**PEX-B05**	**PEX-B07**	**PEX-B08**
Sample Date:					2/27/2008	2/27/2008	2/27/2008	3/3/2008	3/3/2008	3/3/2008	3/4/2008	3/4/2008	3/4/2008	3/4/2008	3/6/2008	3/6/2008	3/6/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					575.02	573.70	573.24	573.60	573.20	572.60	574.68	573.85	571.82	571.95	573.05	570.72	575.11
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**													
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
Phenanthrene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	11	5.4	9.2	4.8 U	4.6 U	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	4.8 U	5.0 U	5.0 U	5.9	4.8 U	5.0 U	50	15	25	5.8	4.6 U	7.8
Pyrene	NE	2,400,000	NE	654,644	4.8 U	4.8 U	5.0 U	5.0 U	6.9	4.8 U	5.0 U	47	18	24	7.3	4.6 U	8.2
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	4.8 U	4.8 U	5.0 U	5.0 U	4.9	4.8 U	5.0 U	39	12	19	5.8	4.6 U	5.3
Chrysene [(a)]	See note a	See note a	796	95	4.8 U	4.8 U	5.0 U	5.0 U	5.4	4.8 U	5.0 U	43	13	19	5.3	4.6 U	7.8
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	4.8 U	5.0 U	5.0 U	7.4	4.8 U	6.9	41	17	26	4.8 U	4.6 U	6.3
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	41	9.8	14	4.8 U	4.6 U	6.3
Benzo(a)pyrene [(a)]	100	137	100	232	4.8 U	4.8 U	5.0 U	5.0 U	5.9	4.8 U	5.0	50	16	25	5.8	4.6 U	8.7
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	28	9.3	14	4.8 U	4.6 U	7.3
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	7.4	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	33	12	16	5.3	4.6 U	8.7
Dibenzofuran	NE	160,000	NE	128	4.8 U	4.8 U	5.0 U	5.0 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U	4.8 U	4.8 U	4.6 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	7.2	NA	5.7	66	21	32	6.4	NA	11
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	4.3	3.4	13.2	3.2	2.8	3.7	3.3	3.1	4.5	3.0	3.9	4.4	3.4
Lead	250	NE	250	NE	3	3	6	4	4	5	6	3	12	4	56 J	3 J	6 J
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated value
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell B (continued)												
Sample ID:	**MTCA Soil Cleanup Levels**		**MTCA Protection of Groundwater**		**PEX-B09**	**PEX-B11**	**PEX-B12**	**PEX-B13**		**PEX-B14**	**PEX-B15**	**PEX-B16**	**PEX-B17**	**PEX-B18**	**PEX-B19**	**PEX-B20**	
Sample Date:					3/6/2008	3/11/2008	3/12/2008	3/18/2008		3/20/2008	3/20/2008	3/20/2008	3/20/2008	3/24/2008	3/24/2008	3/24/2008	
Sample Type:					Floor	Floor	Floor	Floor		Floor	Floor	Floor	Floor	Floor	Floor	Floor	
Sample Elevation (NGVD29):					572.86	569.91	568.61	569.02		569.08	568.62	569.27	569.64	572.78	573.81	574.00	
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**					(DUP)								(DUP)
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.9 U	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.9 U	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.9 U	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.9 U	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.9 U	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	4.9 U	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Phenanthrene	NE	NE	NE	NE	28 U	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	8.5	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	5.4	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	47	4.9	4.8 U	4.8 U	4.9 U	4.9 U	15	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Pyrene	NE	2,400,000	NE	654,644	83	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	18	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	41	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	12	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Chrysene [(a)]	See note a	See note a	796	95	45	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	14	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	48	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	12	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	14	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	12	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(a)pyrene [(a)]	100	137	100	232	51	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	14	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	22	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	8.5	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	5.9	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	33	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	12	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Dibenzofuran	NE	160,000	NE	128	4.9 U	4.9 U	4.8 U	4.8 U	4.9 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	65	NA	NA	NA	NA	NA	19	NA	NA	NA	NA	NA	NA
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	2.3	4.8	2.7	3.2	3.0	3.6	6.6	2.0	2.4	4.1 J	3.0 J	2.8 J	2.7 J
Lead	250	NE	250	NE	3 J	11	4	2	2	4	29	2	2	3	2	2	2
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell B (continued)				Cell C								
Sample ID:	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		PEX-B21	PEX-B22	PEX-B23	PEX-B24	PEX-C01	PEX-C02	PEX-C03	PEX-C04	PEX-C05	PEX-C06	PEX-C07	PEX-C10	PEX-C11
Sample Date:					3/25/2008	3/31/2008	4/4/2008	4/8/2008	3/27/2008	3/27/2008	3/27/2008	4/2/2008	4/2/2008	4/2/2008	4/3/2008	4/16/2008	4/16/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					572.40	572.18	563.80	570.34	574.28	573.14	574.30	573.78	574.97	574.81	575.68	572.81	573.35
Field QC:	Method A	Method B	Method A	Method B													
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
2-Methylnaphthalene	NE	320,000	NE	128	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Acenaphthylene	NE	NE	NE	NE	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Acenaphthene	NE	4,800,000	NE	97,892	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Fluorene	NE	3,200,000	NE	101,212	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Phenanthrene	NE	NE	NE	NE	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Anthracene	NE	24,000,000	NE	2,274,550	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Fluoranthene	NE	3,200,000	NE	630,990	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Pyrene	NE	2,400,000	NE	654,644	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Chrysene [(a)]	See note a	See note a	796	95	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Benzo(a)pyrene [(a)]	100	137	100	232	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
Dibenzofuran	NE	160,000	NE	128	4.9 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U	4.8 U	5.0 U	4.9 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	3.1	3.3	3.8	3.1	2.6	2.9	2.4	3.2	2.4	2.5	2.5	2.3	2.5
Lead	250	NE	250	NE	2	3 J	2	6	2	2	2	2	2	2	2	2	3
TCLP Metals (mg/L)	Toxicity Characteristic[1]																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell D						**Cell E**						
Sample ID:	**MTCA Soil Cleanup Levels**		**MTCA Protection of Groundwater**		**PEX-D01**	**PEX-D02**	**PEX-D03**	**PEX-D04**	**PEX-D05**	**PEX-D06**	**PEX-E01**	**PEX-E02**	**PEX-E03**	**PEX-E04**	**PEX-E05**		**PEX-E06**
Sample Date:					4/2/2008	4/2/2008	4/2/2008	4/2/2008	4/3/2008	4/9/2008	4/1/2008	4/1/2008	4/1/2008	4/1/2008	4/1/2008		4/1/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor		Floor
Sample Elevation (NGVD29):					571.47	572.54	569.51	573.59	573.90	574.22	564.60	565.09	563.14	564.19	563.31		565.68
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**												(DUP)	
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	30	29	23
Fluorene	NE	3,200,000	NE	101,212	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	8.7	9.2	6.7
Phenanthrene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	11	170	170	170
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	40	36	47
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	29	620	580	860
Pyrene	NE	2,400,000	NE	654,644	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	33	630	640	820
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	22	540	500	750
Chrysene [(a)]	See note a	See note a	796	95	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	29	640	620	800
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	44	980	860	1,200
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	17	410	370	490 J
Benzo(a)pyrene [(a)]	100	137	100	232	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	36	**860**	**780**	**1,000**
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	19	490	420	560 J
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	5.8	140	120	170
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	26	580	520	620
Dibenzofuran	NE	160,000	NE	128	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	5.0 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	47	**1,122**	**1,013**	**1,325**
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	3.3	3.2	2.2	2.5	2.8	3.2	3.5	2.6	2.4	3.4	**63.3 J**	7.2 J	4.9
Lead	250	NE	250	NE	3	2	2	2	2	2	16 J	5 J	3 J	7 J	**31,500 J**	**480 J**	85 J
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell E (continued)					Cell F					
Sample ID:	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		**PEX-E07**	**PEX-E08-SED**	**PEX-E09**	**PEX-E10**	**PEX-E11**	**PEX-F01**	**PEX-F02**	**PEX-F03**	**PEX-F04**	**PEX-F05**	**PEX-F06**
Sample Date:					4/1/2008	4/4/2008	4/4/2008	4/7/2008	4/7/2008	4/2/2008	4/2/2008	4/3/2008	4/3/2008	4/7/2008	4/7/2008
Sample Type:					Floor	Floor	Floor	Floor	Wall	Floor	Floor	Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					565.07	561.06	560.06	560.87	559.65	569.08	571.04	568.33	570.73	571.38	567.34
Field QC:	Method A	Method B	Method A	Method B											
PAHs (ug/kg)															
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
Phenanthrene	NE	NE	NE	NE	4.8 U	5.0	4.8 U	26	20	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	16	4.8 U	22	57	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	8.7
Pyrene	NE	2,400,000	NE	654,644	4.8 U	19	4.8 U	42	54	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	10
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	4.8 U	15	4.8 U	19	37	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	6.8
Chrysene [(a)]	See note a	See note a	796	95	4.8 U	16	4.8 U	25	45	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	9.2
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	24	4.8 U	14	66	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	11
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	8.4	4.8 U	14	25	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	6.8
Benzo(a)pyrene [(a)]	100	137	100	232	4.8 U	20	4.8 U	25	44	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	9.7
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	4.8 U	13	4.8 U	10	21	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	7.8
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	4.8 U	5.0 U	4.8 U	4.8 U	4.8	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	17	4.8 U	16	21	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	10
Dibenzofuran	NE	160,000	NE	128	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.9 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	26	NA	31	60	NA	NA	NA	NA	NA	13
Total Metals (mg/kg)															
Arsenic	20	0.667	20	0.03	2.0	4.1	2.6	20.1	**50.4**	2.6	2.6	1.7	3.4	3.1	3.4
Lead	250	NE	250	NE	3 J	120	6	**2,210**	**9,800**	4	2	2	2	2	3
TCLP Metals (mg/L)	Toxicity Characteristic[1]														
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
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NA - Not applicable or not analyzed
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PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
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U - Compound was analyzed for but not detected above the reporting limit shown.
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[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
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[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		Cell F (continued)			Cell G		Cell H						Cell I
Sample ID:					**PEX-F07**		**PEX-F09**	**PEX-G01**	**PEX-G03**	**PEX-H02**	**PEX-H03**	**PEX-H04**	**PEX-H05**	**PEX-H06**	**PEX-H07**	**PEX-I01**
Sample Date:					4/10/2008		4/17/2008	2/27/2008	3/10/2008	2/22/2008	2/22/2008	2/27/2008	2/27/2008	2/28/2008	2/28/2008	4/11/2008
Sample Type:					Floor		Floor	Floor	Floor	Wall	Floor	Floor	Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					570.54		567.70	565.85	564.98	559.55	556.70	561.23	561.66	557.24	556.61	566.66
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**		(DUP)										
PAHs (ug/kg)																
Naphthalene	5,000	1,600,000	5,000	4,457	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.9 U
2-Methylnaphthalene	NE	320,000	NE	128	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.9 U
1-Methylnaphthalene	NE	24,000	NE	NE	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.9 U
Acenaphthylene	NE	NE	NE	NE	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.9 U
Acenaphthene	NE	4,800,000	NE	97,892	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.4	4.9 U
Fluorene	NE	3,200,000	NE	101,212	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.9 U
Phenanthrene	NE	NE	NE	NE	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	40	4.8 U	4.8 U	4.8 U	4.8 U	50	4.9 U
Anthracene	NE	24,000,000	NE	2,274,550	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	7.2	4.8 U	4.8 U	4.8 U	4.8 U	12	4.9 U
Fluoranthene	NE	3,200,000	NE	630,990	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	36	4.8 U	4.8 U	4.8 U	5.8	47	4.9 U
Pyrene	NE	2,400,000	NE	654,644	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	64	4.8 U	4.8 U	4.8 U	4.8 U	79	4.9 U
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	29	4.8 U	4.8 U	4.8 U	4.8 U	36	4.9 U
Chrysene [(a)]	See note a	See note a	796	95	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	44	4.8 U	4.8 U	4.8 U	4.8	50	4.9 U
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	36	4.8 U	4.8 U	4.8 U	5.8	21	4.9 U
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	9.6	4.8 U	4.8 U	4.8 U	5.8	21	4.9 U
Benzo(a)pyrene [(a)]	100	137	100	232	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	36	4.8 U	4.8 U	4.8 U	4.8 U	40	4.9 U
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	17	4.8 U	4.8 U	4.8 U	4.8	17	4.9 U
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	5.8	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.9 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	26	4.8 U	4.8 U	4.8 U	4.8	27	4.9 U
Dibenzofuran	NE	160,000	NE	128	5.0 U	5.0 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.9 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	46	NA	NA	NA	1.7	50	NA
Total Metals (mg/kg)																
Arsenic	20	0.667	20	0.03	4	5	4.3	2.1	2.5	3.3	3.2	3.8	2.8	2.9	3.9	3
Lead	250	NE	250	NE	3	3	2	3	3	26	3	3	4	9	21	3
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**															
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2]These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3]Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4]Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5]Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6]Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7]Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell J												
Sample ID:	**MTCA**		**MTCA**		**PEX-J01**	**PEX-J03**	**PEX-J04**	**PEX-J05**	**PEX-J06**	**PEX-J08**	**PEX-J09**	**PEX-J13**	**PEX-J14**	**PEX-J15**	**PEX-J16**		**PEX-J17**
Sample Date:	**Soil Cleanup Levels**		**Protection of Groundwater**		2/22/2008	2/29/2008	2/29/2008	3/24/2008	3/25/2008	3/25/2008	3/25/2008	4/1/2008	4/1/2008	4/1/2008	4/1/2008		4/4/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor		Floor
Sample Elevation (NGVD29):					562.21	556.18	562.34	565.87	567.38	557.70	554.11	568.25	569.06	566.93	564.38		567.49
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**												(DUP)	
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Fluorene	NE	3,200,000	NE	101,212	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Phenanthrene	NE	NE	NE	NE	4.8 U	7.8	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	6.4	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Pyrene	NE	2,400,000	NE	654,644	4.8 U	13	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	4.8 U	5.4	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Chrysene [(a)]	See note a	See note a	796	95	4.8 U	6.4	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Benzo(a)pyrene [(a)]	100	137	100	232	4.8 U	5.9	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
Dibenzofuran	NE	160,000	NE	128	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	5.0 U	5.0 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	6.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	2.4	2.7	3.6	2.1	2.9	2.9	2.5	3.4	2.4	2.8	2.9	3.2	2.0
Lead	250	NE	250	NE	2	3	2	3	2	3	2	2 J	3 J	2 J	4 J	4 J	4
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell J (continued)					**Cell K**							
Sample ID:	**MTCA Soil Cleanup Levels**		**MTCA Protection of Groundwater**		**PEX-J18**	**PEX-J19**	**PEX-J20**	**PEX-J21**	**PEX-J23**	**PEX-K01**	**PEX-K02**	**PEX-K05**	**PEX-K06**	**PEX-K07**	**PEX-K08**	**PEX-K09**	**PEX-K12**
Sample Date:					4/4/2008	4/10/2008	4/10/2008	4/11/2008	4/18/2008	2/29/2008	2/29/2008	3/18/2008	3/18/2008	3/18/2008	3/18/2008	3/26/2008	4/14/2008
Sample Type:					Floor	Floor	Wall	Floor	Wall	Floor	Floor	Wall	Floor	Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					568.26	549.95	551 (4)	551.87	550 (4)	562.20	566.74	562.86	561.94	561.40	559.35	554.74	550.94
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**													
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	6.2	4.8 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.8 U	5.3	4.8 U	4.8 U	6.7	4.8 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.8 U	7.7	4.8 U	4.8 U	6.2	4.8 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.8 U	7.2	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
Phenanthrene	NE	NE	NE	NE	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	16	4.8 U	65	4.8 U	4.8 U	50	4.8 U	32
Anthracene	NE	24,000,000	NE	2,274,550	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.8 U	14	4.8 U	4.8 U	10	4.8 U	5.3
Fluoranthene	NE	3,200,000	NE	630,990	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	50	9.2	34	4.8 U	4.8 U	43	4.8 U	22
Pyrene	NE	2,400,000	NE	654,644	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	55	8.7	75	4.8 U	4.8 U	89	4.8 U	46
Benzo(a)anthracene (a)	See note a	See note a	715	86	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	34	5.8	32	4.8 U	4.8 U	40	4.8 U	19
Chrysene (a)	See note a	See note a	796	95	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	45	8.2	53	4.8 U	4.8 U	54	4.8 U	29
Benzo(b)fluoranthene (a)	See note a	See note a	2,460	295	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	57	11	18	4.8 U	4.8 U	27	4.8 U	12
Benzo(k)fluoranthene (a)	See note a	See note a	2,460	295	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	29	4.8 U	18	4.8 U	4.8 U	27	4.8 U	11
Benzo(a)pyrene (a)	100	137	100	232	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	54	8.7	36	4.8 U	4.8 U	50	4.8 U	19
Indeno(1,2,3-cd)pyrene (a)	See note a	See note a	6,940	832	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	29	5.8	14	4.8 U	4.8 U	21	4.8 U	6.8
Dibenz(a,h)anthracene (a)	See note a	See note a	3,579	429	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	8.8	4.8 U	6.2	4.8 U	4.8 U	8.6	4.8 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	39	7.3	21	4.8 U	4.8 U	31	4.8 U	11
Dibenzofuran	NE	160,000	NE	128	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	70	11	45	NA	NA	63	NA	24
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	3.1	3.4	3.4	2.1	5.8	2.5	2.3	2.4	2.3	2.7	2.4	2.1	2.7
Lead	250	NE	250	NE	2	3	5	5	8	4	3	3	3	3	3	3	3
TCLP Metals (mg/L)	**Toxicity Characteristic**[1]																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
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U - Compound was analyzed for but not detected above the reporting limit shown.
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[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		Cell K (continued)							Cell L				Cell M	
Sample ID:					**PEX-K13**	**PEX-K14**	**PEX-K15**	**PEX-K16**	**PEX-K17**	**PEX-K18**		**PEX-L01**		**PEX-L03**	**PEX-L04**	**PEX-M01**	**PEX-M02**
Sample Date:					4/14/2008	4/14/2008	4/14/2008	4/15/2008	4/15/2008	4/15/2008		2/29/2008		2/29/2008	4/4/2008	3/5/2008	3/5/2008
Sample Type:					Wall	Floor	Wall	Floor	Wall	Floor		Floor		Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					552 (4)	552.40	553.4 (4)	547.45	555.46	561.52		567.50		564.31	567.80	566.24	561.98
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**							(DUP)		(DUP)				
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	4.9 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	4.9 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	6.9	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	4.9 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	6.4	4.8 U
Fluorene	NE	3,200,000	NE	101,212	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	5.4	4.8 U
Phenanthrene	NE	NE	NE	NE	4.8 U	5.0 U	5.9	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	48	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	11	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	5.0 U	5.4 UJ	4.9 U	6.4	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	45	4.8 U
Pyrene	NE	2,400,000	NE	654,644	4.8 U	5.0 U	4.9 U	4.9 U	6.9	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	66	4.8 U
Benzo(a)anthracene [a]	See note a	See note a	715	86	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	30	4.8 U
Chrysene [a]	See note a	See note a	796	95	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	41	4.8 U
Benzo(b)fluoranthene [a]	See note a	See note a	2,460	295	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	24	4.8 U
Benzo(k)fluoranthene [a]	See note a	See note a	2,460	295	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	21	4.8 U
Benzo(a)pyrene [a]	100	137	100	232	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	36	4.8 U
Indeno(1,2,3-cd)pyrene [a]	See note a	See note a	6,940	832	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	14	4.8 U
Dibenz(a,h)anthracene [a]	See note a	See note a	3,579	429	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	5.4	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	19	4.8 U
Dibenzofuran	NE	160,000	NE	128	4.8 U	5.0 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.9 U	4.6 U	5.0 U	4.9 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	46	NA
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	2.2	2.1	5.3	1.6	2.9	2.8	3.3	2.1	1.6	2.7	2.5	2.5	2.9
Lead	250	NE	250	NE	4	3	12	3	4	3	3	2	1	2	3	5	2
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell M (continued)				**Cell N**								
Sample ID:	**MTCA Soil Cleanup Levels**		**MTCA Protection of Groundwater**		**PEX-M03**		**PEX-M05**	**PEX-M06**	**PEX-N01**	**PEX-N02**	**PEX-N03**	**PEX-N04**	**PEX-N05**	**PEX-N06**		**PEX-N07**	**PEX-N08**
Sample Date:					3/5/2008		3/7/2008	3/20/2008	3/7/2008	3/7/2008	3/10/2008	3/12/2008	3/12/2008	3/14/2008		3/14/2008	3/14/2008
Sample Type:					Floor		Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor		Floor	Floor
Sample Elevation (NGVD29):					562.03		563.39	563.41	568.51	564.60	565.49	567.71	565.89	565.80		566.26	568.17
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**		(DUP)									(DUP)		
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	14	16	4.7 U	4.8 U	5.0 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	6.4	7.2	4.7 U	4.8 U	5.0 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.9 U	4.8 U	4.7 U	4.8 U	5.0 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.9 U	4.8 U	4.7 U	4.8 U	5.0 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	6.4	6.2	4.7 U	4.8 U	6.0	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	8.8	6.2	4.7 U	4.8 U	5.0 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Phenanthrene	NE	NE	NE	NE	28	24	4.7 U	6.3	60	5.0	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	5.9	4.8 U	4.7 U	4.8 U	12	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	55	50	4.7 U	10	49	5.0	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Pyrene	NE	2,400,000	NE	654,644	59	43	4.7 U	14	110	5.9	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	14	14	4.7 U	7.8	47	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Chrysene [(a)]	See note a	See note a	796	95	13	14	4.7 U	8.7	58	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	9.8	8.6	4.7 U	5.8	23	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	9.8	8.6	4.7 U	6.8	23	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Benzo(a)pyrene [(a)]	100	137	100	232	15	8.2	4.7 U	8.2	47	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	6.9	5.8	4.7 U	4.8 U	21	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	4.9 U	4.8 U	4.7 U	4.8 U	7.5	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	7.4	6.7	4.7 U	4.8	37	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
Dibenzofuran	NE	160,000	NE	128	4.9 U	4.8 U	4.7 U	4.8 U	5.0 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U	4.9 U	5.0 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	19	12	NA	10	60	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	3.4	4.7	2.5	3.5	2.9	2.9	3.4	2.5	2.1	3.4	3.2	2.9	3.4
Lead	250	NE	250	NE	9	13	5	6	12	5	3	2	3	2	2	2	2
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2]These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3]Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4]Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5]Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6]Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7]Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		Cell N (continued)						Cell O						
Sample ID:					**PEX-N09**	**PEX-N10**	**PEX-N11**	**PEX-N13**	**PEX-N14**	**PEX-N15**	**PEX-O01**	**PEX-O02**	**PEX-O03**	**PEX-O04**	**PEX-O05**	**PEX-O06**	**PEX-O07**
Sample Date:					3/17/2008	3/20/2008	3/20/2008	4/2/2008	4/2/2008	4/4/2008	2/28/2008	2/28/2008	2/28/2008	2/28/2008	3/11/2008	3/11/2008	3/11/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Test Pit	Test Pit	Test Pit	Test Pit	Floor	Floor	Floor
Sample Elevation (NGVD29):					567.49	564.37	555.07	570.05	571.26	560.04	557.67	556.67	557 (3)	556 (3)	557.07	556.32	556.54
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**													
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Phenanthrene	NE	NE	NE	NE	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Pyrene	NE	2,400,000	NE	654,644	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(a)anthracene (a)	See note a	See note a	715	86	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Chrysene (a)	See note a	See note a	796	95	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(b)fluoranthene (a)	See note a	See note a	2,460	295	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(k)fluoranthene (a)	See note a	See note a	2,460	295	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(a)pyrene (a)	100	137	100	232	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Indeno(1,2,3-cd)pyrene (a)	See note a	See note a	6,940	832	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Dibenz(a,h)anthracene (a)	See note a	See note a	3,579	429	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
Dibenzofuran	NE	160,000	NE	128	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	2.7	3.6	1.9	3.7	3.2	8.5	3.8	3.0	3.4	4.1	2.9	3.2	3.0
Lead	250	NE	250	NE	2	3	2	3	3	5	4	3	4	4	3	3	3
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
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NA - Not applicable or not analyzed
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U - Compound was analyzed for but not detected above the reporting limit shown.
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[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell O (continued)						Cell P						
Sample ID:	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		**PEX-O08**	**PEX-O09**	**PEX-O10**	**PEX-O11**	**PEX-O12**	**PEX-O13**	**PEX-P01**	**PEX-P02**	**PEX-P03**	**PEX-P04**	**PEX-P05**	**PEX-P06**	**PEX-P07**
Sample Date:					4/3/2008	4/3/2008	4/4/2008	4/4/2008	4/7/2008	4/7/2008	3/7/2008	3/7/2008	3/7/2008	3/7/2008	3/19/2008	3/19/2008	3/19/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Test Pit	Test Pit	Test Pit	Test Pit	Floor	Floor	Floor
Sample Elevation (NGVD29):					558.79	559.26	557.84	557.60	556.43	558.49	557.17	556.17	557.01	556.01	559.90	558.92	558.94
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**													
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
2-Methylnaphthalene	NE	320,000	NE	128	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
1-Methylnaphthalene	NE	24,000	NE	NE	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Acenaphthylene	NE	NE	NE	NE	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Acenaphthene	NE	4,800,000	NE	97,892	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Fluorene	NE	3,200,000	NE	101,212	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Phenanthrene	NE	NE	NE	NE	5.4	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Anthracene	NE	24,000,000	NE	2,274,550	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Fluoranthene	NE	3,200,000	NE	630,990	5.9	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	6.9
Pyrene	NE	2,400,000	NE	654,644	9.4	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	7.9
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Chrysene [(a)]	See note a	See note a	796	95	12	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.9
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	6.9 UJ	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	6.9
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	6.9 UJ	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Benzo(a)pyrene [(a)]	100	137	100	232	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0
Dibenzofuran	NE	160,000	NE	128	5.0 U	15 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	3.8	3.0	2.8	2.9	3.0	3.5	3.2	2.7	19.5	2.4	3.1	3.4	3.2
Lead	250	NE	250	NE	5	4	3	2	4	5	3	3	12	2	3	3	5
TCLP Metals (mg/L)	**Toxicity Characteristic**[1]																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		Cell P (continued)									Cell Q			Cell R
Sample ID:					**PEX-P08**	**PEX-P09**	**PEX-P10**	**PEX-P11**	**PEX-P12**	**PEX-P13**	**PEX-P14**	**PEX-P15**	**PEX-P16**	**PEX-Q01**	**PEX-Q02**	**PEX-Q03**	**PEX-R01-SS**
Sample Date:					3/21/2008	3/21/2008	3/24/2008	3/25/2008	3/25/2008	3/26/2008	3/27/2008	4/2/2008	4/2/2008	3/31/2008	4/1/2008	4/1/2008	6/19/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					556.71	558.85	558.75	556.71	558.60	556.23	557.06	559.49	558.42	558.18	558.27	557.88	558.52
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**													
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	5.0 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	5.0 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	5.0 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	5.0 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	5.0 U
Fluorene	NE	3,200,000	NE	101,212	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	5.0 U
Phenanthrene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	38
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	6.9
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	29
Pyrene	NE	2,400,000	NE	654,644	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	6.9	4.8 U	4.8 U	4.8 U	56
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	26
Chrysene [(a)]	See note a	See note a	796	95	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	36
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	18
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	22
Benzo(a)pyrene [(a)]	100	137	100	232	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	32
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	14
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	5.4
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	21
Dibenzofuran	NE	160,000	NE	128	4.8 U	4.8 U	5.0 U	5.0 U	4.8 U	4.8 U	4.9 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	5.0 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	41
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	2.7	1.7	2.2	3.2	3.0	2.5	3.2	2.6	2.8	2.7	4.4	2.9	3.8
Lead	250	NE	250	NE	4	2	2	3	4	3	3	3	3	2 J	6 J	3 J	4
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		Cell R (continued)												
Sample ID:					**PEX-R01**	**PEX-R02-SS**	**PEX-R03-SS**	**PEX-R03**	**PEX-R04**	**PEX-R05**	**PEX-R06**	**PEX-R07**	**PEX-R08**	**PEX-R09**	**PEX-R10**	**PEX-R11**	**PEX-R12**
Sample Date:					6/19/2008	6/19/2008	6/20/2008	6/20/2008	6/24/2008	6/24/2008	6/24/2008	6/24/2008	6/24/2008	6/24/2008	6/24/2008	6/25/2008	6/25/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					557.52	558.92 (6)	556.15	555.15	558.87	557.52	557.25	557.23	557.15	556.14	555.87	557.81	556.93
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**													
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U
Fluorene	NE	3,200,000	NE	101,212	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	25
Phenanthrene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	5.4	4.8 U	5.0 U	4.9 U	25
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	6.9	4.8 U	5.0 U	4.9 U	13
Pyrene	NE	2,400,000	NE	654,644	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	6.9	4.8 U	5.0 U	4.9 U	28
Benzo(a)anthracene (a)	See note a	See note a	715	86	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	13
Chrysene (a)	See note a	See note a	796	95	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	21
Benzo(b)fluoranthene (a)	See note a	See note a	2,460	295	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	6.9
Benzo(k)fluoranthene (a)	See note a	See note a	2,460	295	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	8.8
Benzo(a)pyrene (a)	100	137	100	232	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	14
Indeno(1,2,3-cd)pyrene (a)	See note a	See note a	6,940	832	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	6.9
Dibenz(a,h)anthracene (a)	See note a	See note a	3,579	429	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	8.8
Dibenzofuran	NE	160,000	NE	128	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.9 U	4.9 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	2.5	3.2	3.6	3.3	2.2	2.7	2.9	2.5	2.9	2.6	2.8	3.4	2.8
Lead	250	NE	250	NE	6	3	7	3	3	6	3	2	3	3	3	3	3
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
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J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell R (continued)												
Sample ID:	**MTCA**		**MTCA**		**PEX-R13**	**PEX-R14**	**PEX-R15**	**PEX-R16**	**PEX-R17**	**PEX-R18**	**PEX-R19**	**PEX-R20**		**PEX-R21**	**PEX-R22**	**PEX-R23**	**PEX-R24**
Sample Date:	**Soil Cleanup Levels**		**Protection of Groundwater**		6/26/2008	6/26/2008	6/26/2008	6/26/2008	6/26/2008	6/26/2008	6/26/2008	7/1/2008		7/1/2008	7/1/2008	7/1/2008	7/1/2008
Sample Type:					Floor	Floor	Floor	Floor	Floor	Floor	Floor	Floor		Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					555.95	556.73	557.00	555.79	553.39	553.53	556.82	554.94		555.85	554.85	556.35	555.72
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**									(DUP)				
PAHs (ug/kg)																	
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	5.0 U	5.3	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	5.5	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Phenanthrene	NE	NE	NE	NE	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	50	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	13	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	90	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Pyrene	NE	2,400,000	NE	654,644	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	92	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Benzo(a)anthracene [(a)]	See note a	See note a	715	86	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	58	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Chrysene [(a)]	See note a	See note a	796	95	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	69	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Benzo(b)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	59	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Benzo(k)fluoranthene [(a)]	See note a	See note a	2,460	295	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	68	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Benzo(a)pyrene [(a)]	100	137	100	232	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	70	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Indeno(1,2,3-cd)pyrene [(a)]	See note a	See note a	6,940	832	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	35	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Dibenz(a,h)anthracene [(a)]	See note a	See note a	3,579	429	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	12	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	38	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
Dibenzofuran	NE	160,000	NE	128	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	NA	NA	NA	NA	94	NA	NA	NA	NA	NA	NA
Total Metals (mg/kg)																	
Arsenic	20	0.667	20	0.03	0.8	0.8	5.5	3.5	2.8	2.6	1.6	2.8	2.3	2.8	2.4	2.8	2.3
Lead	250	NE	250	NE	4	1	13	5	3	3	4	3	2	7	2	5	2
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-8
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
Former Gun Club Area A
Boeing Everett Plant

					Cell R (continued)			**Cell S**		**Cell T**	**Cell U**					**Cell V**	**No Excavation Area**			
Sample ID:					**PEX-R25**	**PEX-R26**	**PEX-R27**	**PEX-S01**		**PEX-T02**	**PEX-U01**	**PEX-U02**	**PEX-U03**		**PEX-U04**	**PEX-V01**	**NOEX-1**	**NOEX-2**	**NOEX-3**	**NOEX-4**
Sample Date:	**MTCA Soil Cleanup Levels**		**MTCA Protection of Groundwater**		7/1/2008	7/1/2008	7/1/2008	6/26/2008		7/1/2008	2/23/2008	2/23/2008	2/23/2008		2/23/2008	4/2/2008	4/10/2008	4/10/2008	4/10/2008	4/10/2008
Sample Type:					Floor	Floor	Wall	Floor		Floor	Test Pit	Test Pit	Floor		Floor	Floor	Floor	Floor	Floor	Floor
Sample Elevation (NGVD29):					555.69	557.31	558 (7)	558.00		559.5 (5)	572 (2)	574 (2)	575.01		576.36	572.03	567.14	567.19	568.10	567.51
Field QC:	**Method A**	**Method B**	**Method A**	**Method B**					(DUP)					(DUP)						
PAHs (ug/kg)																				
Naphthalene	5,000	1,600,000	5,000	4,457	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
1-Methylnaphthalene	NE	24,000	NE	NE	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Fluorene	NE	3,200,000	NE	101,212	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Phenanthrene	NE	NE	NE	NE	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	7.4	4.9 U	4.8	9.7	8.9	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	18	4.9 U	8.2 J	30 J	8.9	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Pyrene	NE	2,400,000	NE	654,644	4.8 U	5.0 U	4.8	4.9 U	5.0 U	7.4	24	4.9 U	14 J	35 J	11	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Benzo(a)anthracene (a)	See note a	See note a	715	86	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	15	4.9 U	7.7 J	27 J	5.0	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Chrysene (a)	See note a	See note a	796	95	4.8 U	5.0 U	4.8	4.9 U	5.0 U	4.9 U	19	4.9 U	9.1 J	30 J	5.9	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Benzo(b)fluoranthene (a)	See note a	See note a	2,460	295	4.8 U	5.0 U	7.3	4.9 U	5.0 U	4.9 U	24	4.9 U	12 J	41 J	5.9	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Benzo(k)fluoranthene (a)	See note a	See note a	2,460	295	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	9.9	4.9 U	5.3	18	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Benzo(a)pyrene (a)	100	137	100	232	4.8 U	5.0 U	5.8	4.9 U	5.0 U	4.9 U	19	4.9 U	12 J	34 J	5.4	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Indeno(1,2,3-cd)pyrene (a)	See note a	See note a	6,940	832	4.8 U	5.0 U	5.8	4.9 U	5.0 U	4.9 U	7.9	4.9 U	5.3	18	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Dibenz(a,h)anthracene (a)	See note a	See note a	3,579	429	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	5.3	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.8 U	5.0 U	6.3	4.9 U	5.0 U	4.9 U	9.9	4.9 U	6.2	21	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
Dibenzofuran	NE	160,000	NE	128	4.8 U	5.0 U	4.8 U	4.9 U	5.0 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	5.0 U	4.8 U	4.8 U	4.8 U	5.0 U	4.8 U
TTEC Concentration (c-PAHs)	100	137	NE	NE	NA	NA	7.2	NA	NA	NA	25	NA	15	45	6.5	NA	NA	NA	NA	NA
Total Metals (mg/kg)																				
Arsenic	20	0.667	20	0.03	2.6	2.5	3.6	2.2	2.1	3.8	3.0	3.7	2.6	2.7	3.4	3.6	3.0	2.7	3.8	3.1
Lead	250	NE	250	NE	2	2	3	3	3	3	3	3	13	11	7	2	2	2	3	2
TCLP Metals (mg/L)	**Toxicity Characteristic[1]**																			
Lead	5.0		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Numbers in **bold** font indicate that the result reported exceeds the IA remediation goal established in the approved IAWP.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
NGVD29 - National Geodetic Vertical Datum (1929)
(DUP) - Field duplicate
NA - Not applicable or not analyzed
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TCLP - Toxicity Characteristic Leaching Procedure
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration.
[1] The toxicity characteristic list is from the WAC 173-303-090 dangerous waste regulations.
[2] These sample locations not surveyed because of their location within the haul road alignment. Elevations estimated from LIDAR contour map.
[3] Location not surveyed. Elevations estimated based on PEX-O01 and PEX-O02.
[4] Location not surveyed. Elevations estimated based on nearby surveyed floor samples.
[5] Location not surveyed. Elevation estimated based on elevation of PEX-T01 and depth of overexcavation.
[6] Surveyed elevation suspected to be incorrect because of movement of sample stake located immediately adjacent to haul road. Elevation estimated based on elevation of PEX-R26, PEX-R07, PEX-R08, and PEX-R01-SS.
[7] Location not surveyed. Elevation estimated based on surveyed elevation of PEX-R26 and field observations.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

Table 17-9
Summary of Soil Sample Analytical Results for PAHs, (ug/kg)
Gun Club Area B
Boeing Everett Plant Remedial Investigation

Sample ID/Date		TTEC	Naphthalene	2-Methyl naphthalene	1-Methyl naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a) anthracene[1]	Chrysene[1]	Benzo(b) fluoranthene[1]	Benzo(k) fluoranthene[1]	Benzo(a) pyrene[1]	Indeno (1,2,3-cd) pyrene[1]	Dibenzo(a,h) anthracene[1]	Benzo(g, h, i) perylene	Dibenzofuran
1996 MTCA Method B Soil Cleanup Level		NE	3,200,000	NE	NE	NE	4,800,000	3,200,000	NE	24,000,000	3,200,000	2,400,000	137	137	137	137	137	137	137	NE	NE
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	32,000	NE	NE	NE	96,000	64,000	NE	480,000	64,000	48,000	1.2	1.2	1.2	1.2	1.2	1.2	1.2	NE	NE
2001 MTCA Method B Soil Cleanup Level		100 (A) 137 (B*)	5,000 (A)[2] 1,600,000 (B)	5,000 (A)[2] 1,600,000 (B)	5,000 (A)[2] 1,600,000 (B)	NE	4,800,000 (B)	3,200,000 (B)	NE	24,000,000 (B)	3,200,000 (B)	2,400,000 (B)	See note 1	See note 1	See note 1	See note 1	100 (A) 2,000 (AI) 137 (B*)	See note 1	See note 1	NE	160,000 (B)
2001 MTCA Method A or B Protection of Groundwater		NE	5,000 (A) 4,457 (B)	128 (B)	NE	NE	97,892 (B)	101,212 (B)	NE	2,274,550 (B)	630,990 (B)	654,644 (B)	715 (A) 86 (B)	796 (A) 95 (B)	2,460 (A) 295 (B)	2,460 (A) 295 (B)	100 (A) 232 (B)	6,940 (A) 832 (B)	3,759 (A) 429 (B)	NE	128 (B)
ESB1243-0'	06/04/98	37	7.9 U	7.9 U	NA	7.9 U	7.9 U	7.9 U	10	7.9 U	28	28	14	28	30	21	29	15	7.9 U	17	7.9 U
ESB1243-1 1/2'	06/04/98	NA	7.4 U	7.4 U	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1244-0'	06/04/98	**324**	39	18 U	NA	18 U	18 U	18 U	130	18 U	310	310	160	310	230	220	**240**	160	37	170	18 U
ESB1244-1 1/2'	06/04/98	NA	7.6 U	7.6 U	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1245-0'	06/04/98	**169**	31	13 U	NA	13 U	13 U	13 U	98	13 U	190	190.0	89	170	140	130	**120**	93	19	92	13 U
ESB1245-1 1/2'	06/04/98	NA	8.5 U	8.5 U	NA	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U
ESB1245-2 1/2'	06/04/98	NA	8.4 U	8.4 U	NA	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U
ESB1246-0'	06/04/98	**354**	37	22 U	NA	22 U	22 U	22 U	160	22 U	300	360	170	310	260	210	**270**	140	31	140	22 U
ESB1246-1 1/2'	06/04/98	NA	9.6 U	9.6 U	NA	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U	9.6 U
ESB1246-2 1/2'	06/04/98	NA	9.5 U	9.5 U	NA	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U
ESB1247-0'	06/04/98	**1,043**	24	24 U	NA	24 U	24 U	24 U	300	24	890	920	610	840	730	740	**780**	370	93	320	24 U
ESB1247-1 1/2'	06/04/98	NA	8.3 U	8.3 U	NA	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U	8.3 U
ESB1247-2 1/2'	06/04/98	NA	8.1 U	8.1 U	NA	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U
ESB1248-0'	06/05/98	**914**	89	26	NA	18	31	16	410	44	840	650	460	760	660	590	**680**	430	120	510	38
ESB1248-1 1/2'	06/05/98	NA	9.4 U	9.4 U	NA	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U	9.4 U
ESB1249-0'	06/05/98	**221**	18 U	18 U	NA	18 U	18 U	18 U	68	18 U	180	150	100	160	160	110	**170**	100	22	120	18 U
ESB1249-1 1/2	06/05/98	NA	8.4 U	8.4 U	NA	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U	8.4 U
ESB1249-2 1/2'	06/05/98	NA	8.0 U	8.0 U	NA	8 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U
ESB1379-1/2'	04/06/00	NA	9.1 U	9.1 U	NA	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 UJ	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
ESB1379-1 1/2'	04/06/00	NA	8.8 U	8.8 U	NA	8.8 U	8.8 U	8.8 U	8.8 U	8.8 U	8.8 U	8.8 U	8.8 U	8.8 UJ	8.8 U	8.8 U	8.8 U	8.8 U	8.8 U	8.8 U	8.8 U
ESB1380-1/2'	04/06/00	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ESB1380-1 1/2'	04/06/00	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ESB1381-1/2'	04/06/00	NA	9.0 U	9.0 U	NA	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 UJ	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U
ESB1381-1/2' (DUP)	04/06/00	NA	9.0 U	9.0 U	NA	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 UJ	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U	9.0 U
ESB1381-1 1/2'	04/06/00	NA	45 U	45 U	NA	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 U	45 UJ	45 U	45 U	45 U	45 U	45 U	45 U	45 U
ESB1382-1/2'	04/06/00	NA	11 U	11 U	NA	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 UJ	11 U	11 U	11 U	11 U	11 U	11 U	11 U
ESB1382-1 1/2'	04/06/00	NA	9.1 U	9.1 U	NA	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 UJ	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U	9.1 U
ESB1383-1/2'	04/06/00	NA	49 U	49 U	NA	49 U	49 U	49 U	49 U	49 U	49 U	49 U	49 U	49 UJ	49 U	49 U	49 U	49 U	49 U	49 U	49 U
ESB1383-1 1/2'	04/06/00	NA	7.7 U	7.7 U	NA	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 UJ	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U
SOIL-GC1	02/04/10	**209**	5.0 U	5.0 U	5.0 U	5.0 U	7.0	5.0 U	62	11	160	120 J	96	140 J	110 J	110 J	**160**	120	42	170	5.0 U
SOIL-GC2	02/04/10	31	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	11	4.8 U	28	20 J	15	24	18	18	23	16	6.3	21	4.8 U
SOIL-GC3	02/04/10	**192**	8.3	4.9 U	4.9 U	4.9 U	9.3	5.9	81	14	160	140 J	100	170	71	100	**150**	90	42	120	4.9 U
SOIL-GC4	02/04/10	37	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	16	4.8 U	34	27 J	19	34	22	22	28	20	5.3	28	4.8 U
SOIL-GC5	02/04/10	84	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	28	5.4	74	54 J	41	67	40	40	65	42	17	57	5.0 U
SOIL-GC5 (DUP)	02/04/10	74	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	25	4.8	69	52	38	60	40	40	57	35	12	44 J	4.8 U
SOIL-GC6	02/04/10	**142**	5.0 U	5.0 U	5.0 U	5.0 U	5.9	5.0 U	45	8.4	120	94 J	73	110	73	73	**110**	62	24	88	5.0 U
SOIL-GC7	02/04/10	49	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	22	5.0 U	49	37	27	45	29	29	37	25	8.9	32 J	5.0 U
SOIL-GC8	02/08/10	49	5.4	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	24	4.9 U	36	48	22	39	30	33	37	24	7.4	30	4.9 U
SOIL-GC9	02/08/10	59	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	16	4.7 U	40	48	27	42	34	34 J	46	24	9.0	32	4.7 U
SOIL-GC10	02/08/10	**162**	4.8 U	4.8 U	4.8 U	4.8 U	5.3	4.8 U	44	6.7	99	120	69	120	74	74	**130**	62	28	89	4.8 U
SOIL-GC11	02/08/10	**105**	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	30	4.8	70	82	48	76	50	50	83	43	21	59	4.8 U
SOIL-GC12	02/05/10	57	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	18	4.7 U	42	44	27	44	33	33	44	27	9.4	36	4.7 U
SOIL-GC13	02/05/10	21	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	12	4.8 U	20	23	10	22	16	16	15	11	4.8 U	16	4.8 U
SOIL-GC14	02/05/10	**479**	4.8 U	4.8 U	4.8 U	4.8 U	14	4.8	84	16	260	300	220	280	240	240	**380**	200	64	260	4.8 U
SOIL-GC15	02/05/10	44	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U	13	4.9 U	31	35	22	29	26	26	34	21	6.9	27	4.9 U
SOIL-GC16	02/05/10	38	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	9.4	5.0 U	25	25	17	25	22	22	29	17	6.9	23	5.0 U
SOIL-GC17	02/05/10	**114**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	28	5.0	78	80	54	75	58	58	90	48	15	60	5.0 U
SOIL-GC17 (DUP)	02/05/10	99	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	26	4.7 U	70	68	48	66	48	48	78	43	16	54	4.7 U
SOIL-GC18	02/05/10	21	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	6.4	5.0 U	16	16	10	15	13	13	16	9.9	5.0 U	12	5.0 U
SOIL-GC19	02/05/10	15	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	6.1	4.7 U	12	12	7.5	11	9.8	9.8	11	7.0	4.7 U	9.4	4.7 U
SOIL-GC20	02/05/10	16	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	6.2	4.8 U	12	13	8.1	13	10	10	12	7.1	4.8 U	10	4.8 U
SOIL-GC21	02/05/10	53	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	16	4.7 U	42	41	26	37	30	30	41	24	9.4	30	4.7 U

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) MTCA Method B soil cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
[1] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations. The cleanup level is based on benzo(a)pyrene.
[2] Cleanup level is based on the total of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-10
Summary of Soil Sample Analytical Results for Metals, (mg/kg)
Gun Club Area B
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Antimony	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel
1996 MTCA Method A, AI, or B Soil Cleanup Level		NE	1.67 (B)	80.0 (B)	100 (A) 500 (AI)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	0.00583	1.6	1,600 (Cr^{+3})	59.2	NE	32.0
2001 MTCA Method A, AI, or B Soil Cleanup Level		32 (B)	20 (A) 0.667 (B)	2 (A) 80 (B)	2,000(Cr^{+3}) / 19 (Cr^{+6}) (A) 120,000(Cr^{+3}) / 240 (Cr^{+6}) (B)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
MTCA Method A or B Protection of Groundwater		5.8 (B)	20 (A) 0.03 (B)	2 (A) 1.1 (B)	2,000 (Cr+3) / 19 (Cr+6) (A) 480,096 (Cr+3) / 18 (Cr+6) (B)	263 (B)	250 (A)	417 (B)
WA Department of Ecology - Puget Sound Background Regional Concentration		NE	7.30	0.8	48.2	36.4	24.0	47.8
ESB1243-0'	06/04/98	6 UJ	**10 J**	0.2 U	**33.0**	14.5	**642**	46
ESB1243-1 1/2'	06/04/98	5 UJ	**6.5 J**	0.2 U	**36.1**	13.8	29	45
ESB1244-0'	06/04/98	**580 J**	**1,470 J**	0.9 U	6.0	36.1	**76,800**	14
ESB1244-1 1/2'	06/04/98	5 UJ	**3.2 J**	0.2 U	**39.9**	17.3	15	52
ESB1245-0'	06/04/98	8 UJ	**31.6 J**	0.4	**22.3**	12.4	**355**	20
ESB1245-1 1/2'	06/04/98	NA	**3.0**	NA	NA	NA	17	29
ESB1245-2 1/2'	06/04/98	6 UJ	**1.8 J**	0.3 U	**39.7**	11.5	5	49
ESB1246-0'	06/04/98	**850 J**	**500 J**	0.7 U	7.0	42.6	**77,600**	12
ESB1246-1 1/2'	06/04/98	NA	**2**	NA	NA	NA	9	34
ESB1246-2 1/2'	06/04/98	7 UJ	**2.8 J**	0.3 U	**37.3**	15.4	11	41
ESB1247-0'	06/04/98	20 UJ	**10 J**	0.7 U	7.0	24.4	**920**	13
ESB1247-1 1/2'	06/04/98	NA	**2.1**	NA	NA	NA	5	33
ESB1247-2 1/2'	06/04/98	6 J	**2.2 J**	0.2 U	**46.2**	9.8	5	49
ESB1248-0'	06/05/98	8 UJ	**41 J**	0.6	**29.4**	16.2	**2,850**	31
ESB1248-1 1/2'	06/05/98	7 UJ	**2.9 J**	0.3 U	**35.9**	10.0	60	36
ESB1249-0'	06/05/98	20 UJ	**4.6 J**	0.7 U	9.0	27.4	**277**	14
ESB1249-1 1/2'	06/05/98	NA	**2.5**	NA	NA	NA	5	25
ESB1249-2 1/2'	06/05/98	6 UJ	**2.7 J**	0.2 U	**31.8**	9.6	3	50
ESB1379-1/2'	04/06/00	NA	**8.2 J**	NA	NA	NA	11	NA
ESB1379-1 1/2'	04/06/00	NA	**2.9 J**	NA	NA	NA	5	NA
ESB1380-1/2'	04/06/00	NA	**8.3 J**	NA	NA	NA	55	NA
ESB1380-1 1/2'	04/06/00	NA	**3.8 J**	NA	NA	NA	7	NA
ESB1381-1/2'	04/06/00	NA	**5.9 J**	NA	NA	NA	10	NA
ESB1381-1/2' (DUP)	04/06/00	NA	**7.8 J**	NA	NA	NA	16	NA
ESB1381-1 1/2'	04/06/00	NA	**1.7 J**	NA	NA	NA	5	NA
ESB1382-1/2'	04/06/00	NA	**3.7 J**	NA	NA	NA	27	NA
ESB1382-1 1/2'	04/06/00	NA	**2.2 J**	NA	NA	NA	4	NA
ESB1383-1/2'	04/06/00	NA	**5.2 J**	NA	NA	NA	22	NA
ESB1383-1 1/2'	04/06/00	NA	**2.5 J**	NA	NA	NA	3	NA
SOIL-GC1	02/04/10	0.2 UJ	**12.9 J**	0.3	**36.7 J**	22.5	33	**124 J**
SOIL-GC2	02/04/10	0.4 J	**6.5 J**	0.3 U	**29.9 J**	9.3	158	**32 J**
SOIL-GC3	02/04/10	**36.6 J**	**40.6 J**	0.5 U	**21.0 J**	28.1	**2,830**	24 J
SOIL-GC4	02/04/10	0.4 J	**12.8 J**	0.3	**25.0 J**	12.5	209	**33 J**
SOIL-GC5	02/04/10	3.4 J	**11.4 J**	0.3 U	**27.9 J**	10.8	**440**	**32 J**
SOIL-GC5 (DUP)	02/04/10	8.0 J	**13.4 J**	0.3 U	**26.8 J**	11.1	**524**	30 J
SOIL-GC6	02/04/10	15.8 J	**21.7 J**	0.4 U	**24.0 J**	14.6	**4,170**	26 J
SOIL-GC7	02/04/10	148 J	**44.5 J**	0.4 U	**19.0 J**	18.3	**815**	22 J
SOIL-GC8	02/08/10	15.4 J	**38.7 J**	2 U	**21.0**	13 J	**7,080 J**	26
SOIL-GC9	02/08/10	31.8 J	**33.5 J**	0.3	**30.0**	11.1 J	**5,150 J**	**40**
SOIL-GC10	02/08/10	**1,130 J**	**516 J**	0.4	**23.8**	15.4 J	**14,400 J**	27
SOIL-GC11	02/08/10	19 J	**39 J**	0.8 U	17.0	14.1 J	**69,300 J**	22
SOIL-GC12	02/05/10	0.5 J	**13.1**	0.3	**21.6**	10.6	129 J	26
SOIL-GC13	02/05/10	0.2 UJ	**5.9**	0.2 U	**26.5**	9.9	26 J	**41**
SOIL-GC14	02/05/10	2.1 J	**16.4**	0.3 U	**26.7**	14.0	**2,290 J**	**39**
SOIL-GC15	02/05/10	0.2 UJ	**4.4**	0.2 U	**26.2**	12.0	32 J	**38**
SOIL-GC16	02/05/10	0.3 UJ	**4.0**	0.2 U	**39.8**	15.3	22 J	**54**
SOIL-GC17	02/05/10	0.3 UJ	**5.8**	0.3 U	**29.4**	12.0	46 J	**36**
SOIL-GC17 (DUP)	02/05/10	0.3 UJ	**6.1**	0.3 U	**25.4**	12.7	61 J	**34**
SOIL-GC18	02/05/10	0.2 UJ	**5.4**	0.2 U	**37.6**	13.3	14 J	**45**
SOIL-GC19	02/05/10	0.2 UJ	**7.6**	0.3	**28.3**	8.9	22 J	**34**
SOIL-GC20	02/05/10	0.2 UJ	**3.7**	0.2 U	**31.8**	14.0	7 J	**40**
SOIL-GC21	02/05/10	0.3 UJ	**5.3**	0.3 U	**33.8**	15.2	17 J	**40**

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
J - Estimated value
NA - Not analyzed
NE - Not established
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-11
Summary of Soil Sample Analytical Results for PAHs, (ug/kg)
Gun Club Area C
Boeing Everett Plant Remedial Investigation

Sample ID/Date		TTEC	Naphthalene	2-Methyl naphthalene	1-Methyl naphthalene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a) anthracene[1]	Chrysene[1]	Benzo(b) fluoranthene[1]	Benzo(k) fluoranthene[1]	Benzo(a) pyrene[1]	Indeno (1,2,3-cd) pyrene[1]	Dibenzo(a,h) anthracene[1]	Benzo(g, h, i) perylene	Dibenzofuran
1996 MTCA Method B Soil Cleanup Level		NE	3,200,000	NE	NE	4,800,000	3,200,000	NE	24,000,000	3,200,000	2,400,000	137	137	137	137	137	137	137	NE	NE
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	32,000	NE	NE	96,000	64,000	NE	480,000	64,000	48,000	1.2	1.2	1.2	1.2	1.2	1.2	1.2	NE	NE
2001 MTCA Method A or B Soil Cleanup Level		100 (A) 137 (B*)	5,000 (A)[2] 1,600,000 (B)	5,000 (A)[2] 1,600,000 (B)	5,000 (A)[2] 1,600,000 (B)	4,800,000 (B)	3,200,000 (B)	NE	24,000,000 (B)	3,200,000 (B)	2,400,000 (B)	See note 1	See note 1	See note 1	See note 1	100 (A) 2,000 (AI) 137 (B)	See note 1	See note 1	NE	160,000 (B)
MTCA Method A or B Protection of Groundwater		NE	5,000 (A) 4,457 (B)	128 (B)	NE	97,892 (B)	101,212 (B)	NE	2,274,550 (B)	630,990 (B)	654,644 (B)	715 (A) 86 (B)	796 (A) 95 (B)	2,460 (A) 295 (B)	2,460 (A) 295 (B)	100 (A) 232 (B)	6,940 (A) 832 (B)	3,759 (A) 429 (B)	NE	128 (B)
ESB1250-0'	06/05/98	**224**	15 U	15 U	NA	15 U	15 U	100	15 U	180	220	110	180	140	120	**170**	120	34	140	15 U
ESB1250-1 1/2'	06/05/98	NA	8.6 U	8.6 U	NA	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U
ESB1251-0'	06/05/98	**396**	11 U	11 U	NA	11 U	11 U	120	17	290	310	200	290	280	200	**300**	200	51	220	11 U
ESB1251-1 1/2'	06/05/98	NA	7.6 U	7.6 U	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1252-0'	06/05/98	**747**	16	20	NA	51	40	660	110	580 J	870 J	470 J	700 J	400 J	320 J	**580 J**	310 J	98 J	350 J	9 U
ESB1252-0' (DUP)	06/05/98	**1,642**	19	17	NA	62	30	720	130	1,200 J	1,900 J	930 J	1,200 J	850 J	670 J	**1,300 J**	660 J	190 J	700 J	9.8 U
ESB1252-1 1/2'	06/05/98	**835**	23	32	NA	85	66	810	190	640	1,300	510	690	440	280	**660**	340	110	380	8 U
ESB1252-2 1/2'	06/05/98	NA	7.6 U	7.6 U	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1253-0'	06/05/98	**4,256**	54	78	NA	340	130	2,700	560	3,800	5,700	2,600	3,400	2,500	1,700	**3,300**	2,000	420	2,200	20
ESB1253-1 1/2'	06/05/98	79	7.6 U	7.6 U	NA	7.6 U	7.6 U	110	20	68	140	59	98	36	30	64	20	7.6 U	24	7.6 U
ESB1253-2 1/2'	06/05/98	40	7.7 U	7.7 U	NA	7.7 U	7.7 U	59	12	36	66	31	46	20	13	32	13	7.7 U	15	7.7 U
ESB1254-0'	06/08/98	**528**	19	22	NA	55	48	610	110	420	800	350	530	210	250	**420**	160	55	170	9 U
ESB1254-1 1/2'	06/08/98	NA	8.1 U	8.1 U	NA	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U
ESB1254-3 1/2'	06/08/98	NA	7.6 U	7.6 U	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1255-0'	06/08/98	**591**	11	8.6 U	NA	20	8.6 U	260	42	420	610	300	430	320	280	**470**	210	59	210	8.6 U
ESB1255-1 1/2'	06/08/98	NA	7.7 U	7.7 U	NA	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U
ESB1256-0'	06/08/98	**190**	8.1 U	8.1 U	NA	8.1 U	8.1 U	90	11	140	180	89	140	96	110	**150**	72	20	76	8.1 U
ESB1256-1 1/2'	06/08/98	NA	7.4 U	7.4 U	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1257-0'	06/08/98	**227,300**	4,900	**7,200**	NA	20,000	13,000	160,000	41,000	160,000	320,000	130,000	200,000	110,000	100,000	**180,000**	78,000	35,000	110,000	620 U
ESB1257-1 1/2'	06/08/98	**3,565**	270	420	NA	670	620	6,800	1500	3,000	6,900	3,200	4,800	1,600	1,300	**2,800**	760	310	860	21
ESB1257-2 1/2'	06/08/98	NA	7.7 U	7.7 U	NA	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U
ESB1258-0'	06/09/98	**1,069,500**	**9,900**	**8,800**	NA	36,000	17,000	410,000	88,000	840,000	1,000,000	580,000	750,000	510,000	560,000	**840,000**	420,000	150,000	400,000	2,700 U
ESB1258-1 1/2'	06/09/98	NA	7.4 U	7.4 U	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1259-0'	06/09/98	**1,490,400**	**13,000**	**14,000**	NA	48,000	22,000	480,000	100,000	850,000	1,500,000	660,000	840,000	860,000	640,000	**1,200,000**	470,000	190,000	520,000	3,200 U
ESB1259-1 1/2'	06/09/98	NA	7.4 U	7.4 U	NA	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
ESB1260-0'	06/09/98	**15,410**	190 U	190 U	NA	340	190 U	5,400	860	11,000	13,000	8,300	11,000	9,100	7,200	**12,000**	6,400	2,000	6,800	190 U
ESB1260-1 1/2'	06/09/98	NA	7.5 U	7.5 U	NA	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
ESB1261-0'	06/09/98	**321,100**	1,000 U	1,000 U	NA	9300	1,600	45,000	9300	210,000	150,000	140,000	200,000	170,000	140,000	**250,000**	160,000	81,000	200,000	1,000 U
ESB1261-1 1/2'	06/09/98	**172**	7.6 U	7.6 U	NA	7.6 U	7.6 U	85	15	85	200	85	130	71	64	**140**	66	17	92	7.6 U
ESB1261-2 1/2'	06/09/98	NA	7.6 U	7.6 U	NA	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
SOIL-GC23	02/04/10	**101**	4.6 U	4.6 U	4.6 U	5.0	4.6 U	38	7.8	87	73 J	55	78	56	56	78	45	14	61	4.6 U

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) MTCA Method B soil cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
J - Estimated value
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TTEC - Total Toxicity Equivalent Concentration
1 These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations. The cleanup level is based on benzo(a)pyrene.
2 Cleanup level is based on the total of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-12
Summary of Soil Sample Analytical Results for Metals, (mg/kg)
Gun Club Area C
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Antimony	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel
1996 MTCA Method A, AI, or B Soil Cleanup Level		NE	1.67 (B)	80.0 (B)	100 (A) 500 (AI)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	0.00583	1.6	1,600 (Cr^{+3})	59.2	NE	32.0
2001 MTCA Method A, AI, or B Soil Cleanup Level		32 (B)	20 (A) 0.667 (B)	2 (A) 80 (B)	2,000(Cr^{+3}) / 19 (Cr^{+6}) (A) 120,000(Cr^{+3}) / 240 (Cr^{+6}) (B)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)
MTCA Method A or B Protection of Groundwater		5.8 (B)	20 (A) 0.03 (B)	2 (A) 1.1 (B)	2,000 (Cr+3) / 19 (Cr+6) (A) 480,096 (Cr+3) / 18 (Cr+6) (B)	263 (B)	250 (A)	417 (B)
WA Department of Ecology - Puget Sound Background Regional Concentration		NE	7.30	0.8	48.2	36.2	24.0	47.8
ESB1250-0'	06/05/98	10 UJ	**4.1**	0.4 U	**51.9 J**	27.3	**526**	**57**
ESB1250-1 1/2'	06/05/98	6 UJ	**2.9**	0.2 U	**44.1 J**	9.7	12	**52**
ESB1251-0'	06/05/98	6 UJ	**8.0**	0.2 U	**35.8 J**	12.5	**1,140**	48
ESB1251-1 1/2'	06/05/98	6 UJ	**3.5**	0.2 U	**33.8 J**	11.1	4	**51**
ESB1252-0'	06/05/98	9 J	**29**	0.3 U	**35.3 J**	13.9	**4,540**	44
ESB1252-0' (DUP)	06/05/98	12 J	**33**	0.3 U	**41.6 J**	15.4	**4,670**	44
ESB1252-1 1/2'	06/05/98	NA	**8.8**	NA	NA	NA	**642**	46
ESB1252-2 1/2'	06/05/98	6 UJ	**2.9**	0.2 U	**35.9 J**	13.8	24	40
ESB1253-0'	06/05/98	**66 J**	**52**	0.3 U	**31.4 J**	12.2	**5,150**	31
ESB1253-1 1/2'	06/05/98	5 UJ	**3.2**	0.2 U	**36.2 J**	15.2	75	44
ESB1254-0'	06/08/98	**49 J**	**23**	0.3 U	**32.3 J**	18.9	**6,370**	41
ESB1254-1 1/2'	06/05/98	NA	**3.3**	NA	NA	NA	**344**	**49**
ESB1254-3 1/2'	06/08/98	5 UJ	**2.9**	0.2 U	**36.8 J**	16	58	**49**
ESB1255-0'	06/08/98	**210 J**	**260**	0.5 U	**28.0 J**	12.9	**64,900**	35
ESB1255-1 1/2'	06/08/98	6 UJ	**2.3**	0.2 U	**35.7 J**	13.1	4	**50**
ESB1256-0'	06/08/98	7 UJ	**8.2**	0.3 U	**30.3 J**	10.3	**911**	31
ESB1256-1 1/2'	06/08/98	5 UJ	**3.1**	0.2 U	**34.0 J**	14.5	8	**50**
ESB1257-0'	06/08/98	**1,210 J**	**980**	0.5 U	**32.0 J**	35.4	**79,900**	35
ESB1257-1 1/2'	06/08/98	5 UJ	**2.9**	0.2 U	**30.9 J**	11.2	3	39
ESB1258-0'	06/09/98	6 UJ	**5.1**	0.3	**30.0**	10.5	97 J	31
ESB1258-1 1/2'	06/09/98	5 UJ	**3.0**	0.2 U	**33.1**	12.2	2 U	43
ESB1259-0'	06/09/98	6 UJ	**8.9**	0.3 U	**30.4**	10.1	**330 J**	31
ESB1259-1 1/2'	06/09/98	5 UJ	**2.8**	0.2 U	**38.4**	15.1	2 U	44
ESB1260-0'	06/09/98	6 UJ	**5.2**	0.3 U	**40.0**	14.1	142 J	44
ESB1260-1 1/2'	06/09/98	5 UJ	**3.3**	0.2 U	**34.8**	15.7	2 U	40
ESB1261-0'	06/09/98	5 UJ	**62**	0.5	12.8	20	134 J	11
ESB1261-1 1/2'	06/09/98	5 UJ	**3.4**	0.2 U	**35.4**	14.4	2 U	**53**
SOIL-GC23	02/04/10	1.4 J	**13.9 J**	0.3 U	**45.9**	17.1	**657 J**	**73**

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
J - Estimated value
NA - Not analyzed
NE - Not established
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW016	02/16/95	**0.006**	0.001 U	0.002 U	0.002 U
	04/26/95	NA	NA	NA	0.001 U
	08/08/95	NA	NA	NA	0.001 U
	11/07/95	**0.002**	**0.001**	0.002	0.001 U
	02/27/96	**0.002**	**0.001**	0.004	0.001
	05/29/96	**0.001**	0.001 U	0.001	0.001 U
	05/29/96 (DUP)	**0.002**	**0.001**	0.002	0.001 U
	08/28/96	**0.003**	**0.002**	0.006	0.001 U
	12/04/96	**0.002**	0.001 U	0.002	0.001 U
	03/05/97	**0.002**	**0.001**	0.002	0.001 U
	05/21/97	**0.002**	0.001 U	0.002	0.001 U
	08/14/97	**0.002**	**0.001**	0.002	0.001 U
	11/19/97	**0.001**	0.001 U	0.003	0.001 U
	03/17/98	**0.002**	**0.001**	0.001 U	0.001 U
	05/19/98	**0.002**	0.001 U	0.001 U	0.001 U
	08/18/98	**0.001**	**0.001**	0.001 U	0.001 U
	11/12/98	**0.002**	**0.001**	0.02 U	0.02 U
	02/08/99	**0.002**	0.002 U	0.001 U	0.001 U
	05/17/99	**0.001**	0.001 U	0.001 U	0.001 U
	08/09/99	0.001 U	**0.001**	0.001 U	0.001 U
	11/15/99	**0.001**	0.001 U	0.001 U	0.001 U
	02/07/00	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/00	0.001 U	**0.001**	0.001 U	0.001 U
	08/07/00	**0.003**	**0.002**	0.001 U	0.001 U
	11/17/00	**0.002**	**0.001**	0.001 U	0.001 U
	02/07/01	**0.001**	**0.002**	0.001 U	0.001 U
	05/08/01	0.001 U	0.001 U	0.001	0.001 U
	08/10/01	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/01	**0.002**	0.001 U	0.001 U	0.002 U
	02/12/02	**0.001**	0.001 U	0.001 U	0.001 U
	05/13/02	0.001 U	0.001 U	0.002	0.001 U
	08/12/02	**0.001**	**0.001**	0.001 U	0.001 U
	11/18/02	0.001 U	0.001 U	0.001 U	0.001 U
	02/10/03	**0.001**	**0.001**	0.002	0.001 U
	05/12/03	0.001 U	**0.001**	0.001	0.001 U
	07/24/03	**0.001**	0.001 U	0.001 U	0.001 U
	11/10/03	0.001 U	0.001 U	0.001 U	0.001 U
	01/22/04	**0.001**	**0.001**	0.001	0.001 U
	04/19/04	**0.001**	0.001 U	0.001	0.001 U
	07/15/04	**0.001**	**0.001**	0.001 U	0.001 U
	10/07/04	**0.001**	0.001 U	0.001	0.001 U
	01/14/05	0.001 U	**0.001**	0.002	0.001 U
	04/13/05	**0.001**	0.001 U	0.001 U	0.001 U
	10/20/05	**0.004**	0.001 U	0.001	0.001
	01/17/06	**0.001**	0.001 U	0.001 U	0.001 U
	07/06/06	0.002 U	0.002 U	0.001 U	0.001 U
	01/23/07	0.001 U	**0.001**	0.001	0.001
	07/05/07	0.001 U	0.001 U	0.001 U	0.001 U
	01/16/08	**0.002**	**0.001**	0.001 U	0.001 U
EGW016A	07/01/09	**0.0041**	**0.0035**	0.002	0.001 U
	01/07/10	**0.0034**	**0.0026**	0.002	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW018	02/15/95	**0.052**	**0.002**	**0.170**	0.004
	04/26/95	NA	NA	NA	0.002
	08/08/95	NA	NA	NA	0.003
	11/07/95	**0.024**	**0.004**	**0.064**	0.002
	02/27/96	**0.047**	**0.003**	**0.085**	0.003
	02/27/96 (DUP)	**0.044**	**0.003**	**0.092**	0.003
	05/29/96	**0.061**	**0.020**	**0.018**	0.002
	08/28/96	**0.064**	**0.021**	**0.036**	0.004
	12/04/96	**0.280**	**0.007**	**0.074**	0.001 U
	03/05/97	**0.100**	**0.023**	**0.015**	0.002
	05/21/97	**0.23**	**0.017**	**0.035**	0.001
	08/14/97	**0.24**	**0.058**	**0.050**	0.003
	11/19/97	**0.16**	**0.012**	**0.053**	0.001 U
	03/18/98	**0.20**	**0.032**	0.010	0.002
	05/19/98	**0.25**	**0.066**	0.013	0.003
	05/19/98 (DUP)	**0.27**	**0.068**	0.012	0.002
	08/17/98	**0.106 J**	**0.094 J**	0.008	0.001
	11/12/98	**0.018**	**0.006**	0.02 U	0.02 U
	02/08/99	**0.006**	**0.004**	0.005	0.003
	05/17/99	**0.008**	**0.004**	0.006	0.002
	08/09/99	**0.010**	**0.005**	0.003	0.001 U
	11/15/99	**0.014**	**0.003**	0.010	0.001
	02/07/00	**0.020**	**0.009**	0.005	0.001 U
	02/07/00 (DUP)	**0.020**	**0.009**	0.004	0.001 U
	05/08/00	**0.130**	**0.086**	0.006	0.003
	05/08/00 (DUP)	**0.128**	**0.090**	0.006	0.003
	08/07/00	**0.19**	**0.058**	**0.028**	0.001 U
	11/17/00	**0.20**	**0.025**	0.008	0.001 U
	02/12/01	**0.57**	**0.019**	0.014	0.001
	05/08/01	**0.11**	**0.006**	0.005	0.001
	08/10/01	**0.14**	**0.082**	0.011	0.001 U
	08/10/01 (DUP)	**0.134**	**0.084**	0.009	0.001 U
	11/16/01	**0.18**	**0.016**	**0.022**	0.003
	02/12/02	**0.049**	**0.003**	0.005	0.001 U
	0514/02	**0.047**	**0.011**	0.005	0.001 U
	08/12/02	**0.078**	**0.041**	0.005	0.001 U
	11/18/02	**0.008**	**0.004**	0.003	0.001 U
	02/10/03	**0.004**	**0.002**	0.001	0.001 U
	05/12/03	**0.008**	**0.005**	0.003	0.001 U
	07/24/03	**0.015**	**0.006**	0.005	0.001 U
	11/10/03	**0.014**	**0.002**	0.010	0.001 U
	01/26/04	**0.004**	**0.002**	0.005	0.001 U
	04/20/04	**0.004**	**0.002**	0.003	0.001 U
	07/19/04	**0.013**	**0.011**	0.004	0.001 U
	10/07/04	**0.010**	**0.006**	0.003	0.001 U
	01/17/05	**0.008**	**0.004**	0.005	0.001 U
	04/12/05	**0.016**	**0.004**	0.005	0.001 U
	10/20/05	**0.700**	**0.028**	**0.019**	0.002
	01/16/06	**0.160**	**0.010**	0.014	0.001 U
	1/16/06 (DUP)	**0.140**	**0.006**	0.012	0.001 U
	07/06/06	**0.160**	**0.082**	0.010	0.001
	01/19/07	**0.160**	**0.008**	**0.017**	0.001 U
	07/03/07	**0.042**	**0.024**	0.009	0.001 U
	01/15/08	**0.12**	**0.006**	**0.018**	0.001 U
	07/22/08	**0.10**	**0.046**	**0.011**	0.001 U
	01/12/09	**0.24**	**0.007**	**0.016**	0.001 U
	07/02/09	**0.246**	**0.0764**	**0.022**	0.001 U
	01/08/10	**0.0383**	**0.0058**	**0.003**	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW024	02/16/95	**0.004**	0.001 U	0.004	0.001 U
	02/16/95 (DUP)	0.002 R	0.001 U	0.004 U	0.002 U
	04/26/95	NA	NA	NA	0.001 U
	04/26/95 (DUP)	NA	NA	NA	0.001 U
	08/07/95	NA	NA	NA	0.001 U
	08/07/95 (DUP)	NA	NA	NA	0.001 U
	11/07/95	**0.002**	**0.001**	0.004	0.001
	11/07/95 (DUP)	**0.002**	0.001 U	0.003	0.001 U
	02/27/96	0.001 U	0.001 U	0.002	0.003
	05/29/96	**0.002**	0.001 U	0.002	0.001 U
	08/28/96	**0.002**	**0.001**	0.001	0.002
	12/04/96	**0.001**	0.001 U	0.003	0.001
	12/04/96 (DUP)	**0.001**	0.001 U	0.003	0.002
	03/05/97	0.001 U	0.001 U	0.001	0.001 U
	05/21/97	**0.001**	0.001 U	0.003	0.001 U
	05/21/97 (DUP)	0.001 U	0.001 U	0.004	0.001 U
	08/14/97	**0.001**	**0.001**	0.001 U	0.001 U
	11/19/97	**0.001**	0.001 U	0.001 U	0.001 U
	11/19/97 (DUP)	**0.001**	0.001 U	0.001 U	0.001 U
	03/18/98	0.001 U	0.001 U	0.001 U	0.001 U
	3/18/98 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/19/98	**0.001**	0.001 U	0.001 U	0.001 U
	08/17/98	0.001 U	0.001 U	0.001	0.001 U
	08/17/98 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	11/12/98	0.001 U	0.001 U	0.02 U	0.02 U
	02/08/99	**0.002**	**0.001**	0.002	0.001 U
	05/17/99	**0.002**	0.001 U	0.001 U	0.001 U
	05/17/99 (DUP)	**0.002**	0.001 U	0.001 U	0.001 U
	08/09/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/15/99	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/00	**0.002**	**0.001**	0.001	0.001 U
	08/07/00	0.001 U	**0.001**	0.001 U	0.001 U
	11/16/00	**0.001**	**0.002**	0.001 U	0.001 U
	02/12/01	0.001 U	0.001 U	0.001 U	0.001 U
	05/07/01	0.001 U	0.001 U	0.001 U	0.001 U
	08/10/01	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/11/02	**0.001**	0.001 U	0.001 U	0.001 U
	05/14/02	**0.001**	0.001 U	0.001 U	0.001 U
	08/12/02	0.001 U	0.001 U	0.001 U	0.001 U
	11/18/02	0.001 U	0.001 U	0.001 U	0.001 U
	02/10/03	0.001 U	0.001 U	0.001 U	0.001 U
	05/12/03	0.001 U	**0.002**	0.001 U	0.001 U
	07/24/03	**0.004**	**0.003**	0.001 U	0.001 U
	11/10/03	**0.003**	**0.003**	0.002	0.001 U
	01/26/04	0.001 U	0.001 U	0.001 U	0.001 U
	04/20/04	0.001 U	0.001 U	0.001 U	0.001 U
	07/19/04	**0.006**	**0.006**	0.001 U	0.001 U
	10/07/04	**0.006**	**0.005**	0.001 U	0.001 U
	01/17/05	0.001 U	**0.002**	0.001	0.001 U
	04/12/05	**0.004**	0.001 U	0.002	0.001 U
	10/20/05	**0.004**	**0.003**	0.001	0.002
	01/16/06	**0.002**	0.001 U	0.001	0.001 U
	07/06/06	**0.002**	**0.003**	0.002	0.001 U
	01/19/07	**0.004**	**0.001**	0.003	0.001 U
	07/03/07	**0.003**	**0.003**	0.001 U	0.001 U
	01/16/08	**0.002**	**0.002**	0.006	0.001 U
	07/22/08	**0.003**	**0.002**	0.002	0.001 U
	01/12/09	**0.001**	0.001 U	0.001 U	0.001 U
	07/02/09	**0.0046**	**0.0013**	0.005	0.001 U
	01/08/10	**0.0013**	**0.0007**	0.002	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	**Dissolved**	**Total**	**Dissolved**
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW025	02/14/95	**0.008**	NA	0.010	NA
	04/26/95	NA	NA	NA	0.001 U
	08/07/95	NA	NA	NA	0.001 U
	11/07/95	**0.003**	**0.002**	0.003	0.002
	02/27/96	**0.018**	0.001 U	**0.043**	0.002
	05/29/96	**0.017**	**0.001**	**0.025**	0.001 U
	08/28/96	**0.004**	**0.001**	0.002	0.001 U
	12/04/96	**0.010**	0.001 U	0.012	0.001 U
	03/05/97	**0.006**	0.001 U	0.008	0.001 U
	05/21/97	**0.002**	**0.001**	0.004	0.001 U
	08/14/97	**0.006**	**0.001**	0.007	0.001 U
	11/19/97	**0.008**	0.001 U	0.012	0.001 U
	03/17/98	**0.001**	**0.001**	0.002	0.001 U
	05/19/98	**0.002**	**0.001**	0.001	0.001 U
	08/17/98	0.001 U	0.001 U	0.001 U	0.001 U
	11/12/98	**0.002**	**0.002**	0.02 U	0.02 U
	02/08/99	**0.001**	0.001 U	0.001 U	0.001 U
	05/17/99	**0.001**	0.001 U	0.001 U	0.001 U
	08/09/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/15/99	**0.001**	0.001 U	0.001 U	0.001 U
	02/03/00	0.001 U	0.001 U	0.001	0.001 U
	05/08/00	**0.001**	0.001 U	0.001 U	0.001 U
	08/07/00	0.001 U	0.001 U	0.001 U	0.001 U
	11/17/00	**0.002**	0.001 U	0.001 U	0.001 U
	02/07/01	**0.003**	0.001	0.002	0.001 U
	05/08/01	0.001 U	0.001 U	0.001 U	0.001
	08/10/01	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/12/02	**0.001**	0.001 U	0.001 U	0.001 U
	05/13/02	0.001 U	0.001 U	0.002	0.001 U
	08/12/02	**0.002**	0.001 U	0.001 U	0.001 U
	11/18/02	DRY	DRY	DRY	DRY
	01/07/03	**0.001**	0.001 U	0.001 U	0.001 U
	02/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	02/06/03 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/12/03	0.001 U	**0.002**	0.001 U	0.001 U
	07/24/03	DRY	DRY	DRY	DRY
	11/10/03	DRY	DRY	DRY	DRY
	01/22/04	**0.001**	0.001 U	0.001 U	0.001 U
	04/19/04	0.001 U	0.001 U	0.001 U	0.001 U
	07/19/04	**0.002**	**0.002**	0.001 U	0.001 U
	10/07/04	DRY	DRY	DRY	DRY
	01/17/05	0.001 U	**0.001**	0.001 U	0.001 U
	04/12/05	**0.001**	0.001 U	0.001 U	0.001 U
	10/20/05	DRY	DRY	DRY	DRY
	01/13/06	**0.002**	**0.001**	0.001 U	0.001 U
	07/06/06	0.002 U	**0.002**	0.001 U	0.001 U
	01/19/07	**0.002**	0.001 U	0.001 U	0.001 U
	07/03/07	**0.003**	**0.003**	0.001 U	0.001 U
	01/16/08	0.001 U	0.001 U	0.001 U	0.001 U
	07/22/08	**0.005**	**0.003**	0.001 U	0.001 U
	01/12/09	**0.001**	0.001 U	0.001 U	0.001 U
	07/02/09	**0.0044**	**0.0032**	0.001 U	0.001 U
	01/07/10	**0.0007**	**0.0008**	0.001 U	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW047[1]	05/09/96	**0.005**	**0.004**	0.008	0.001
	08/28/96	**0.003**	**0.002**	0.001 U	0.001 U
	12/04/96	**0.004**	**0.001**	0.009	0.001 U
	03/05/97	**0.005**	**0.001**	0.005	0.001 U
	05/21/97	**0.005**	**0.002**	0.004	0.001 U
	08/14/97	**0.005**	**0.002**	0.008	0.001 U
	11/19/97	**0.004**	0.001 U	0.003	0.001 U
	03/18/98	**0.008**	**0.003**	0.01	0.001 U
	05/19/98	**0.007**	**0.005**	0.003	0.001 U
	08/18/98	**0.005**	**0.002**	0.003	0.001 U
	11/12/98	**0.007**	**0.004**	0.02 U	0.02 U
	02/09/99	**0.007**	0.002 U	0.007	0.001 U
	05/17/99	**0.008**	**0.004**	0.010	0.001 U
	08/09/99	**0.004**	**0.003**	0.002	0.001 U
	11/15/99	**0.005**	**0.001**	0.004	0.001 U
	02/07/00	**0.004**	**0.004**	0.003	0.001 U
	05/08/00	**0.005**	**0.003**	0.003	0.001 U
	08/07/00	**0.007**	**0.002**	0.009	0.001 U
	11/16/00	**0.007**	**0.003**	0.008	0.001 U
	02/12/01	**0.004**	**0.003**	0.001 U	0.001 U
	05/07/01	**0.013**	**0.002**	0.009	0.001 U
	08/09/01	**0.002**	**0.001**	0.001 U	0.001 U
	11/16/01	**0.002**	**0.002**	0.001 U	0.001 U
	02/11/02	**0.002**	**0.001**	0.001 U	0.001 U
	05/13/02	**0.006**	**0.003**	0.001	0.001 U
	08/13/02	**0.004**	**0.003**	0.001 U	0.001 U
	11/18/02	**0.001**	**0.001**	0.001 U	0.001 U
	02/06/03	**0.003**	**0.003**	0.001 U	0.001 U
	05/08/03	**0.004**	**0.003**	0.001 U	0.001 U
	07/24/03	**0.002**	**0.002**	0.001 U	0.001 U
	11/10/03	**0.002**	**0.002**	0.001 U	0.001 U
	01/22/04	**0.002**	**0.002**	0.001 U	0.001 U
	04/19/04	**0.003**	**0.003**	0.001 U	0.001 U
	07/15/04	**0.005**	**0.005**	0.001 U	0.001 U
	10/07/04	**0.004**	**0.002**	0.001	0.001 U
	01/14/05	**0.005**	**0.005**	0.001 U	0.001 U
	04/12/05	**0.002**	**0.001**	0.001 U	0.001 U
	10/20/05	**0.004**	**0.002**	0.002	0.002
	01/13/06	**0.002**	0.001 U	0.001	0.001 U
	07/06/06	**0.010**	**0.008**	0.004	0.001 U
	01/19/07	**0.029**	**0.004**	**0.020**	0.001 U
	07/03/07	**0.012**	**0.006**	0.004 J	0.001 U
	7/3/07 (DUP)	**0.019**	**0.006**	0.009 J	0.001 U
	01/16/08	**0.014**	**0.003**	**0.032**	0.001 U
	07/22/08	**0.005**	**0.003**	0.003	0.001 U
	7/22/08 (DUP)	**0.005**	**0.003**	0.004	0.001 U
	01/12/09	**0.003**	0.001 U	0.004	0.001 U
	07/01/09	**0.009**	**0.0026**	0.006	0.001 U
	01/07/10	**0.0042**	**0.0014**	0.004	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW048[1]	05/09/96	**0.020**	**0.011**	0.013	0.001 U
	08/28/96	**0.014**	**0.006**	0.001	0.001 U
	12/04/96	**0.025**	0.005	0.006	0.001 U
	03/05/97	**0.019**	**0.007**	0.005	0.001 U
	05/21/97	**0.022**	**0.008**	0.002	0.001 U
	08/14/97	**0.022**	**0.008**	0.001 U	0.001 U
	11/19/97	**0.028**	**0.009**	0.003	0.001 U
	03/18/98	**0.036**	**0.022**	0.001 U	0.001 U
	05/19/98	**0.042**	**0.022**	0.001 U	0.001 U
	08/17/98	**0.018 J**	**0.017 J**	0.001 U	0.001 U
	11/12/98	**0.018**	**0.016**	0.02 U	0.02 U
	02/09/99	**0.011**	**0.011**	0.001 U	0.001 U
	05/17/99	**0.010**	**0.008**	0.001 U	0.001 U
	08/09/99	**0.014**	**0.015**	0.001 U	0.001 U
	08/09/99 (DUP)	**0.014**	**0.015**	0.001 U	0.001 U
	11/15/99	**0.024**	**0.019**	0.001 U	0.001 U
	11/15/99 (DUP)	**0.026**	**0.019**	0.001 U	0.001 U
	02/07/00	**0.011**	**0.011**	0.001 U	0.001 U
	05/08/00	**0.014**	**0.014**	0.001	0.001 U
	08/03/00	**0.016**	**0.018**	0.001 U	0.001 U
	11/17/00	**0.016**	**0.008**	0.001 U	0.001 U
	02/12/01	**0.016**	**0.014**	0.001 U	0.001 U
	05/07/01	**0.014**	**0.012**	0.001 U	0.001 U
	08/10/01	**0.015**	**0.016**	0.001 U	0.001 U
	11/16/01	**0.009**	**0.010**	0.001 U	0.001 U
	11/16/01 (DUP)	**0.010**	**0.009**	0.001 U	0.001 U
	02/11/02	**0.008**	**0.007**	0.001 U	0.001 U
	02/11/02 (DUP)	**0.007**	**0.006**	0.001 U	0.001 U
	05/13/02	**0.006**	**0.006**	0.001 U	0.001 U
	05/13/02 (DUP)	**0.007**	**0.008**	0.001 U	0.001 U
	08/13/02	**0.015**	**0.015**	0.001 U	0.001 U
	11/18/02	DRY	DRY	DRY	DRY
	01/07/03	**0.040**	**0.044**	0.002	0.001 U
	02/10/03	**0.008**	**0.008**	0.001 U	0.001 U
	05/12/03	**0.013**	**0.010**	0.001 U	0.001 U
	07/24/03	**0.017**	**0.017**	0.001 U	0.001 U
	07/24/03 (DUP)	**0.017**	**0.017**	0.001 U	0.001 U
	11/10/03	DRY	DRY	DRY	DRY
	01/22/04	**0.011**	**0.010**	0.001 U	0.001 U
	04/20/04	**0.012**	**0.012**	0.001 U	0.001 U
	4/20/04 (DUP)	**0.012**	**0.012**	0.001 U	0.001 U
	07/19/04	**0.015**	**0.016**	0.001 U	0.004
	10/07/04	**0.010**	**0.010**	0.001	0.004
	01/17/05	**0.004**	**0.004**	0.001 U	0.001 U
	04/12/05	**0.005**	**0.005**	0.001 U	0.001 U
	10/20/05	DRY	DRY	DRY	DRY
	01/16/06	**0.004**	**0.004**	0.001	0.001 U
	07/06/06	**0.004**	**0.005**	0.001	0.001 U
	01/19/07	**0.004**	**0.004**	0.001 U	0.001 U
	07/03/07	**0.007**	**0.003**	0.002	0.001 U
	01/15/08	**0.004**	**0.003**	0.002	0.001 U
	07/22/08	**0.004**	**0.003**	0.004	0.001 U
	01/12/09	**0.004**	**0.003**	0.006	0.001 U
	07/01/09	**0.0025**	**0.0032**	0.001 U	0.001 U
	07/01/09 (DUP)	**0.0024**	**0.0025**	0.001 U	0.001 U
	01/08/10	**0.0020**	**0.0017**	0.002	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW049[1]	05/09/96	**0.007**	**0.004**	0.007	0.002
	08/28/96	**0.004**	**0.004**	0.001 U	0.001 U
	08/28/96 (DUP)	**0.005**	**0.004**	0.001 U	0.001 U
	12/04/96	**0.008**	**0.003**	0.007	0.001 U
	03/05/97	**0.005**	**0.002**	0.005	0.001 U
	03/05/97 (DUP)	**0.005**	**0.002**	0.004	0.001 U
	05/21/97	**0.004**	**0.003**	0.003	0.001 U
	08/14/97	**0.004**	**0.004**	0.002	0.001 U
	08/14/97 (DUP)	**0.005**	**0.004**	0.002	0.001 U
	11/19/97	**0.004**	**0.002**	0.002	0.001 U
	03/17/98	**0.002**	**0.003**	0.001 U	0.001 U
	05/19/98	**0.003**	**0.002**	0.001 U	0.001 U
	08/17/98	**0.003 J**	**0.003 J**	0.001 U	0.001 U
	11/12/98	**0.003**	**0.003**	0.02 U	0.02 U
	02/08/99	**0.003**	**0.002**	0.001 U	0.001 U
	05/17/99	**0.002**	**0.001**	0.001 U	0.001 U
	08/09/99	**0.002**	**0.002**	0.001 U	0.001 U
	11/15/99	**0.003**	**0.002**	0.001 U	0.001 U
	02/03/00	**0.002**	**0.002**	0.001 U	0.001 U
	05/08/00	**0.002**	**0.002**	0.001 U	0.001 U
	08/07/00	**0.003**	**0.002**	0.001 U	0.001 U
	11/17/00	**0.004**	**0.002**	0.001 U	0.001 U
	02/12/01	**0.002**	**0.002**	0.001 U	0.001 U
	05/07/01	**0.001**	**0.001**	0.001 U	0.001 U
	08/10/01	**0.002**	**0.002**	0.001 U	0.001 U
	11/16/01	**0.002**	**0.002**	0.001 U	0.001 U
	02/11/02	**0.002**	**0.001**	0.001 U	0.001 U
	05/14/02	**0.002**	**0.002**	0.001 U	0.001 U
	08/12/02	**0.003**	**0.003**	0.001 U	0.001 U
	11/18/02	**0.003**	**0.002**	0.001 U	0.001 U
	02/10/03	**0.002**	**0.002**	0.001 U	0.001 U
	05/12/03	**0.001**	**0.002**	0.001 U	0.001 U
	5/12/03 (DUP)	**0.001**	**0.003**	0.001 U	0.001 U
	07/24/03	**0.003**	**0.001**	0.001 U	0.001 U
	11/10/03	**0.002**	**0.002**	0.001	0.001 U
	01/26/04	**0.003**	**0.002**	0.001 U	0.001 U
	04/20/04	**0.002**	**0.002**	0.001 U	0.001 U
	07/19/04	**0.003**	**0.003**	0.001 U	0.001 U
	10/07/04	**0.003**	**0.003**	0.001 U	0.001 U
	01/17/05	**0.002**	**0.002**	0.001 U	0.001 U
	04/12/05	**0.002**	**0.002**	0.001 U	0.001 U
	10/20/05	**0.003**	**0.003**	0.001 U	0.002
	01/16/06	**0.002**	**0.002**	0.001 U	0.001 U
	07/06/06	**0.002**	**0.002**	0.001 U	0.001 U
	01/19/07	**0.003**	**0.002**	0.002	0.001 U
	07/03/07	**0.003**	**0.003**	0.001 U	0.001 U
	01/15/08	**0.002**	**0.002**	0.001 U	0.001 U
	07/22/08	**0.003**	**0.002**	0.003	0.001 U
	01/12/09	**0.002**	**0.001**	0.001 U	0.001 U
	07/02/09	**0.0026**	**0.0020**	0.001	0.001 U
	01/08/10	**0.0046**	**0.0023**	0.002	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW056 [1]	08/18/98	**0.023**	**0.002**	**0.023**	0.001 U
	11/16/98	**0.01**	**0.005**	0.008	0.001 U
	02/08/99	**0.015**	**0.007**	**0.016**	0.001 U
	02/08/99 (DUP)	**0.013**	**0.006**	**0.016**	0.001 U
	05/17/99	**0.007**	**0.004**	0.004	0.001 U
	08/09/99	**0.008**	**0.004**	0.005	0.001 U
	11/15/99	**0.005**	**0.004**	0.001 U	0.001 U
	02/07/00	**0.004**	**0.004**	0.003	0.001 U
	05/08/00	**0.010**	**0.010**	0.001	0.001 U
	08/03/00	**0.009**	**0.004**	0.006	0.001 U
	11/17/00	**0.010**	**0.008**	**0.020**	0.001 U
	11/17/00 (Dup)	**0.011**	**0.007**	0.003	0.001 U
	02/12/01	**0.008**	**0.007**	0.003	0.001 U
	05/07/01	**0.007**	**0.004**	0.003	0.001 U
	08/10/01	**0.005**	**0.003**	0.003	0.001 U
	11/15/01	**0.008**	**0.005**	0.005	0.001 U
	02/11/02	**0.007**	**0.005**	0.002	0.001 U
	05/13/02	**0.006**	**0.004**	0.003	0.001 U
	08/13/02	**0.010**	**0.009**	0.001 U	0.001 U
	08/13/02 (DUP)	**0.009**	**0.008**	0.001 U	0.001 U
	11/18/02	**0.007**	**0.005**	0.002	0.001 U
	02/06/03	**0.008**	**0.005**	0.004	0.001 U
	05/12/03	**0.009**	**0.007**	0.002	0.001 U
	07/24/03	**0.009**	**0.010**	0.001 U	0.001 U
	11/10/03	**0.008**	**0.006**	0.001	0.001 U
	01/26/04	**0.008**	**0.007**	0.001 U	0.001 U
	04/20/04	**0.008**	**0.007**	0.001	0.001 U
	07/19/04	**0.009**	**0.008**	0.002	0.001 U
	10/06/04	**0.009**	**0.009**	0.002	0.001
	01/17/05	**0.008**	**0.006**	0.003	0.001 U
	04/13/05	**0.007**	**0.006**	0.003	0.001 U
	10/20/05	**0.006**	**0.005**	0.002	0.001 U
	01/16/06	**0.011**	**0.010**	0.001 U	0.001 U
	07/06/06	**0.008**	**0.008**	0.001 U	0.001 U
	01/17/07	**0.010**	**0.008**	0.001	0.001 U
	07/03/07	**0.011**	**0.007**	0.001 U	0.001 U
	01/15/08	**0.008**	**0.007**	0.003	0.001 U
	1/15/08 (DUP)	**0.008**	**0.006**	0.003	0.001 U
	07/22/08	**0.007**	**0.007**	0.003	0.001 U
	01/12/09	**0.010**	**0.007**	0.002	0.001 U
	1/12/09 (DUP)	**0.012**	0.005 U	0.002	0.001 U
	07/01/09	**0.0088**	**0.0073**	0.002	0.001 U
	01/07/10	**0.0048**	**0.0034**	0.001	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW064	06/27/00	**0.010**	**0.008**	0.002	0.001 U
	08/03/00	**0.013**	**0.012**	0.003	0.001
	11/17/00	**0.018**	**0.015**	0.001	0.001 U
	02/12/01	**0.017**	**0.015**	0.002	0.001 U
	05/07/01	**0.017**	**0.016**	0.002	0.001 U
	08/10/01	**0.017**	**0.014**	0.003	0.001 U
	11/15/01	**0.018**	**0.016**	0.004	0.002 U
	02/11/02	**0.017**	**0.015**	0.003	0.001
	05/13/02	**0.016**	**0.016**	0.002	0.004
	08/13/02	**0.016**	**0.016**	0.001	0.001
	11/18/02	**0.015**	**0.015**	0.001	0.001 U
	02/06/03	**0.019**	**0.020**	0.002	0.001 U
	05/12/03	**0.017**	**0.017**	0.002	0.001 U
	07/24/03	**0.017**	**0.016**	0.001 U	0.001 U
	11/10/03	**0.019**	**0.018**	0.002	0.001 U
	11/10/03 (DUP)	**0.018**	**0.017**	0.003	0.001 U
	01/26/04	**0.018**	**0.016**	0.003	0.001 U
	04/20/04	**0.017**	**0.016**	0.002	0.001
	07/19/04	**0.018**	**0.018**	0.001	0.001 U
	7/19/04 (DUP)	**0.017**	**0.018**	0.001 U	0.001 U
	10/06/04	**0.021**	**0.017**	0.003	0.002
	01/17/05	**0.020**	**0.019**	0.004	0.001 U
	04/13/05	**0.017**	**0.018**	0.004	0.001 U
	10/20/05	**0.020**	**0.018**	0.002	0.001
	10/20/05 (DUP)	**0.022**	**0.019**	0.001 U	0.001 U
	01/16/06	**0.022**	**0.019**	0.002	0.001 U
	07/06/06	**0.018**	**0.014**	0.001	0.001 U
	7/6/06 (DUP)	**0.016**	**0.017**	0.002	0.001 U
	01/17/07	**0.025**	**0.021**	0.003	0.004
	07/03/07	**0.019**	**0.018**	0.001 U	0.001 U
	01/15/08	**0.021**	**0.021**	0.003	0.001 U
	07/22/08	**0.024**	**0.019**	0.002	0.001 U
	01/12/09	**0.019**	**0.020**	0.002	0.001 U
	07/01/09	**0.0162**	**0.0143**	0.001	0.001 U
	01/07/10	**0.0146**	**0.0132**	0.001 U	0.001 U
	1/7/10 (DUP)	**0.0143**	**0.0130**	0.001	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW067	06/27/00	**0.004**	**0.004**	0.001 U	0.001 U
	08/07/00	**0.007**	**0.006**	0.001	0.001 U
	08/07/00 (DUP)	**0.007**	**0.006**	0.001	0.001 U
	11/16/00	**0.011**	**0.012**	0.001 U	0.001 U
	02/07/01	**0.012**	**0.010**	0.001	0.001 U
	02/07/01 (DUP)	**0.012**	**0.011**	0.001	0.001 U
	05/08/01	**0.009**	**0.008**	0.001	0.001 U
	05/08/01 (DUP)	**0.009**	**0.007**	0.001	0.001 U
	08/10/01	**0.014**	**0.010**	0.002	0.001 U
	11/16/01	**0.015**	**0.012**	0.001	0.001 U
	02/12/02	**0.014**	**0.012**	0.001 U	0.001 U
	05/13/02	**0.013**	**0.012**	0.002	0.001 U
	08/12/02	**0.016**	**0.014**	0.001 U	0.001 U
	11/18/02	DRY	DRY	DRY	DRY
	01/07/03	**0.016**	**0.015**	0.001 U	0.001 U
	02/10/03	**0.016**	**0.013**	0.001	0.001 U
	05/12/03	**0.015**	**0.013**	0.001 U	0.001 U
	07/24/03	**0.015**	**0.015**	0.001 U	0.001 U
	11/10/03	**0.016**	**0.012**	0.001	0.001 U
	01/22/04	**0.010**	**0.010**	0.001 U	0.001 U
	1/22/04 (DUP)	**0.010**	**0.010**	0.001 U	0.001 U
	04/19/04	**0.009**	**0.010**	0.001 U	0.001 U
	07/15/04	**0.013**	**0.012**	0.001 U	0.001 U
	10/07/04	**0.016**	**0.014**	0.001 U	0.001 U
	01/14/05	**0.015**	**0.013**	0.001	0.001 U
	1/14/05 (DUP)	**0.005**	**0.004**	0.002	0.001 U
	04/12/05	**0.009**	**0.008**	0.001 U	0.001 U
	4/12/05 (DUP)	**0.010**	**0.009**	0.001 U	0.001 U
	10/20/05	DRY	DRY	DRY	DRY
	01/13/06	**0.015**	**0.018**	0.001 U	0.001 U
	07/06/06	**0.016**	**0.019**	0.001 U	0.001 U
	01/19/07	**0.015**	**0.014**	0.001 U	0.001 U
	1/19/07 (DUP)	**0.015**	**0.014**	0.001 U	0.001 U
	07/05/07	**0.017**	**0.014**	0.001 U	0.001 U
	01/16/08	**0.015**	**0.015**	0.001 U	0.001 U
EGW067A	07/01/09	**0.0141**	**0.0138**	0.001 U	0.001 U
	01/07/10	**0.0182**	**0.0160**	0.001 U	0.001 U

Table 17-13
Summary of Groundwater Analytical Results for Metals, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW068	11/16/00	**0.001**	0.001 U	0.001 U	0.001 U
	02/12/01	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/01	0.001 U	0.001 U	0.001 U	0.001 U
	08/09/01	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/11/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/13/02	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/02	DRY	DRY	DRY	DRY
	11/18/02	DRY	DRY	DRY	DRY
	01/07/03	**0.001**	0.001 U	0.001 U	0.001 U
	02/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/03	0.001 U	0.001 U	0.001 U	0.001 U
	07/24/03	DRY	DRY	DRY	DRY
	11/10/03	0.001 U	0.001 U	0.001 U	0.001 U
	01/22/04	**0.002**	0.001 U	0.001 U	0.001 U
	04/19/04	**0.004**	0.001 U	0.001	0.001 U
	07/15/04	**0.002**	0.001 U	0.001 U	0.001 U
	10/07/04	**0.004**	0.001 U	0.001 U	0.001 U
	10/07/04 (DUP)	**0.004**	**0.002**	0.001 U	0.001 U
	01/14/05	**0.004**	0.001 U	0.001	0.001 U
	04/12/05	**0.003**	**0.002**	0.001 U	0.001 U
	10/20/05	0.001 U	0.001 U	0.001	0.002
	01/13/06	0.001 U	0.001 U	0.001 U	0.001 U
	07/06/06	0.002 U	0.002 U	0.001 U	0.001 U
	01/19/07	0.001 U	0.001 U	0.001 U	0.001 U
	07/03/07	0.001 U	0.001 U	0.001 U	0.001 U
	01/16/08	0.001 U	0.001 U	0.001 U	0.001 U
	07/22/08	0.001 U	0.001 U	0.001	0.001 U
	01/12/09	0.001 U	0.001 U	0.001 U	0.001 U
	07/01/09	**0.0003**	**0.0002**	0.001 U	0.001 U
	01/07/10	**0.0003**	**0.0003**	0.001 U	0.001 U

Notes:

Values in **bold** font indicate that the result reported exceeds the most current MTCA levels based on the Ecology website.

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded as of June 2010. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).

(A) - MTCA Method A

(B) - MTCA Method B

(DUP) - Field duplicate

J - Estimated value

R - Results rejected due to deficiencies in quality control criteria.

U - Compound was analyzed for but not detected above the reporting limit shown.

[1] Wells EGW047, EGW048, and EGW049 installed in May, 1996; EGW056 installed in June, 1998.

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	**Naphthalene**	**2-Methylnaphthalene**	**1-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(g,h,i) perylene**	**Dibenzofuran**
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW016	02/16/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/08/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/07/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/27/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/29/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/29/96 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/28/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/21/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/14/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/17/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/19/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/18/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/12/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/17/00	ND*	0.00017	0.00058	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/02	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	05/13/02	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	08/12/02	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	11/18/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/22/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/15/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/14/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/13/05	ND*	0.00002	0.00001 U	NA	0.00001 U	0.00004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00003 U
	10/20/05	ND*	0.00001 U	0.00001	NA	0.00001 U	0.00001 U	0.00003 J	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/17/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND*	0.000014	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/23/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/05/07	ND*	0.000015	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/08	ND	0.000016 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
EGW016A	07/01/09	ND*	0.000035	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012	0.00001 U	0.00001 U	0.00001 U
	01/07/10	ND*	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000013	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	**Naphthalene**	**2-Methylnaphthalene**	**1-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(g,h,i) perylene**	**Dibenzofuran**
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW018	02/15/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/08/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/07/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/27/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/27/96 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/29/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/28/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/21/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/14/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/18/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/19/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/19/98 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/17/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/12/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/00 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/17/00	ND*	0.0001 U	0.0002 J	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/14/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/12/02	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	11/18/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/26/04	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	04/20/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	ND	0.00012 U	0.00012 U	NA	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
	01/17/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/12/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	10/20/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	1/16/06 (DUP)	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/19/07	ND*	0.000016	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/15/08	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/02/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012 UJ
	01/08/10	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Pyrene	Benzo(g,h,i) perylene	Dibenzofuran
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW024	02/16/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/16/95 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/95 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/07/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/07/95 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/07/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/07/95 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/27/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/29/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/28/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/96 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/21/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/21/97 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/14/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/97 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/18/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	3/18/98 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/19/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/17/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/17/98 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/12/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/03/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/11/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/14/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/12/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/18/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/26/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/20/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	ND	0.00012 U	0.00012 U	NA	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U
	01/17/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/12/05	ND*	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001	0.00001 U	0.00001 U
	10/20/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/19/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/08	ND	0.000014 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND*	0.000017	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.000011 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/02/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000013 U	0.00001 U
	01/08/10	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2] Total Polynuclear Aromatics	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Pyrene	Benzo(g,h,i) perylene	Dibenzofuran
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW025	02/14/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/07/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/07/95	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/27/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/29/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/28/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/21/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/14/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/17/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/19/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/17/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/12/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/03/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/17/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/12/02	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	11/18/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/07/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/06/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/06/03 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	11/10/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/22/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/17/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/12/05	ND	0.00001 U	0.00002 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	10/20/05	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/13/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/19/07	ND*	0.000015	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/08	ND	0.000012 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/02/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/07/10	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	**Naphthalene**	**2-Methylnaphthalene**	**1-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(g,h,i) perylene**	**Dibenzofuran**
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW047[1]	05/09/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/28/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/21/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/14/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/18/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/19/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/18/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/12/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/11/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/18/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/06/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/22/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/15/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/14/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/12/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	10/20/05	ND*	0.00001	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001	0.00001 U
	01/13/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/19/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	7/3/07 (DUP)	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/08	ND	0.000015 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U
	7/22/08 (DUP)	ND*	0.000019	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.000014 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/01/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/07/10	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Pyrene	Benzo(g,h,i) perylene	Dibenzofuran
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW048[1]	05/09/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/28/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/21/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/14/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/18/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/19/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/17/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/12/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/03/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/17/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/11/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/11/02 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/13/02 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/18/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/07/03	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	02/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/22/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/20/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	4/20/04 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	01/17/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/12/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	10/20/05	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/16/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/19/07	ND*	0.000016	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/15/08	ND	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND*	0.000011	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/01/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/01/09 (DUP)	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/08/10	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	**Naphthalene**	**2-Methylnaphthalene**	**1-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(g,h,i) perylene**	**Dibenzofuran**
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW049[1]	05/09/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/28/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/28/96 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/96	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/05/97 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/21/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/14/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/14/97 (DUP)	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/17/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/19/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/17/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/12/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/03/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/17/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/11/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/14/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/12/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/18/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	5/12/03 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/26/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/20/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/17/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/12/05	ND	0.00001 U	0.00002 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	10/20/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/19/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND*	0.000011	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/15/08	ND	0.000014 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND*	0.000021	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/02/09	ND*	0.00001	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/08/10	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	**Naphthalene**	**2-Methylnaphthalene**	**1-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(g,h,i) perylene**	**Dibenzofuran**
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW056[1]	08/18/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/98	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/08/99 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/17/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/99	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/03/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/17/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/17/00 (DUP)	ND*	0.00008 J	0.00034	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/11/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/13/02 (DUP)	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	11/18/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/06/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/26/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/20/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/06/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/17/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/13/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	10/20/05	ND*	0.00001	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND*	0.000011	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/17/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND*	0.000013	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/15/08	ND	0.000016 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	1/15/08 (DUP)	ND	0.000018 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND*	0.000033	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.000011 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	1/12/09 (DUP)	ND*	0.000017 U	0.00002	0.000013	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012	0.00001 U	0.00001 U
	07/01/09	ND*	0.000013	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/07/10	ND*	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000018	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	**Naphthalene**	**2-Methylnaphthalene**	**1-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(g,h,i) perylene**	**Dibenzofuran**
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW064	06/27/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/03/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/17/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/15/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/11/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/18/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/06/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/26/04	ND*	0.00045	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	04/20/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	7/19/04 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/06/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/17/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/13/05	ND*	0.00001	0.00012 U	NA	0.00002	0.00001 U	0.00001 U	0.00003	0.00001 U	0.00001 U	0.00001
	10/20/05	ND*	0.00002	0.00003	NA	0.00001	0.00001 J	0.00001 J	0.00001 U	0.00001 U	0.00001 U	0.00002
	10/20/05 (DUP)	ND*	0.00001	0.00003	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	7/6/06 (DUP)	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/17/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND*	0.000026	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/15/08	ND	0.000018 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND*	0.000024	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.000012 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/01/09	ND*	0.00001	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/07/10	ND*	0.000012	0.00001 U	0.00001 U	0.00001 U	0.000024	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	1/7/10 (DUP)	ND*	0.000011	0.00001 U	0.00001 U	0.00001 U	0.000021 J	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
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Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	Naphthalene	2-Methylnaphthalene	1-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Pyrene	Benzo(g,h,i) perylene	Dibenzofuran
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW067	06/27/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/07/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/07/00 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/07/01 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	5/8/01 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/10/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/12/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/12/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/18/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/07/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/12/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/22/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	1/22/04 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/15/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	ND	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U
	01/14/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	1/14/05 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/12/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	4/12/05 (DUP)	ND	0.00001 U	0.00002 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	10/20/05	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/13/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/19/07	ND*	0.000014	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	1/19/07 (DUP)	ND*	0.000012	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/05/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/08	ND	0.000011 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
EGW067A	07/01/09	ND*	0.000017	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/07/10	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Table 17-14
Summary of Groundwater Analytical Results for Semi-volatile Organic Compounds, (mg/L)
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	SVOCs [2]										
		Total Polynuclear Aromatics	**Naphthalene**	**2-Methylnaphthalene**	**1-Methylnaphthalene**	**Acenaphthylene**	**Acenaphthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(g,h,i) perylene**	**Dibenzofuran**
MTCA Method A and B Groundwater Screening Level		Variable	0.16 (A) 0.16 (B)	0.032 (B)	NE	NE	0.96 (B)	0.64 (B)	NE	0.48 (B)	NE	0.032 (B)
EGW068	11/16/00	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	2/12/2001	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/09/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	11/16/01	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/11/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/13/02	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	08/13/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	11/18/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/07/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	02/06/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	05/08/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/24/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	11/10/03	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/22/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/19/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	07/15/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	10/07/04 (DUP)	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	01/14/05	ND	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
	04/12/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	10/20/05	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/13/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/06/06	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/19/07	ND*	0.000010	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/03/07	ND	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/16/08	ND	0.000015 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/22/08	ND*	0.000016	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/12/09	ND	0.000011 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	07/01/09	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U
	01/07/10	ND	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U

Notes:
Values in **bold** font indicate that the result reported exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology
website CLARC tables downloaded as of June 2010. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
(DUP) - Field duplicate
DRY - Monitoring well dry, groundwater sample not collected
NA - Not available (1995-1997 data predates the RI) or not analyzed
ND - Compounds analyzed for were not detected above the specific compound reporting limits
ND* - Compounds were not detected above the specific compound reporting limits, except as shown.
NE - Not established
[1] Wells EGW047, EGW048, and EGW049 installed in May, 1996; EGW056 installed in June, 1998.
[2] Analytes for SVOCs analysis were 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno (1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene.
SVOCs were not analyzed for in February 1996.

Job No. 33761927

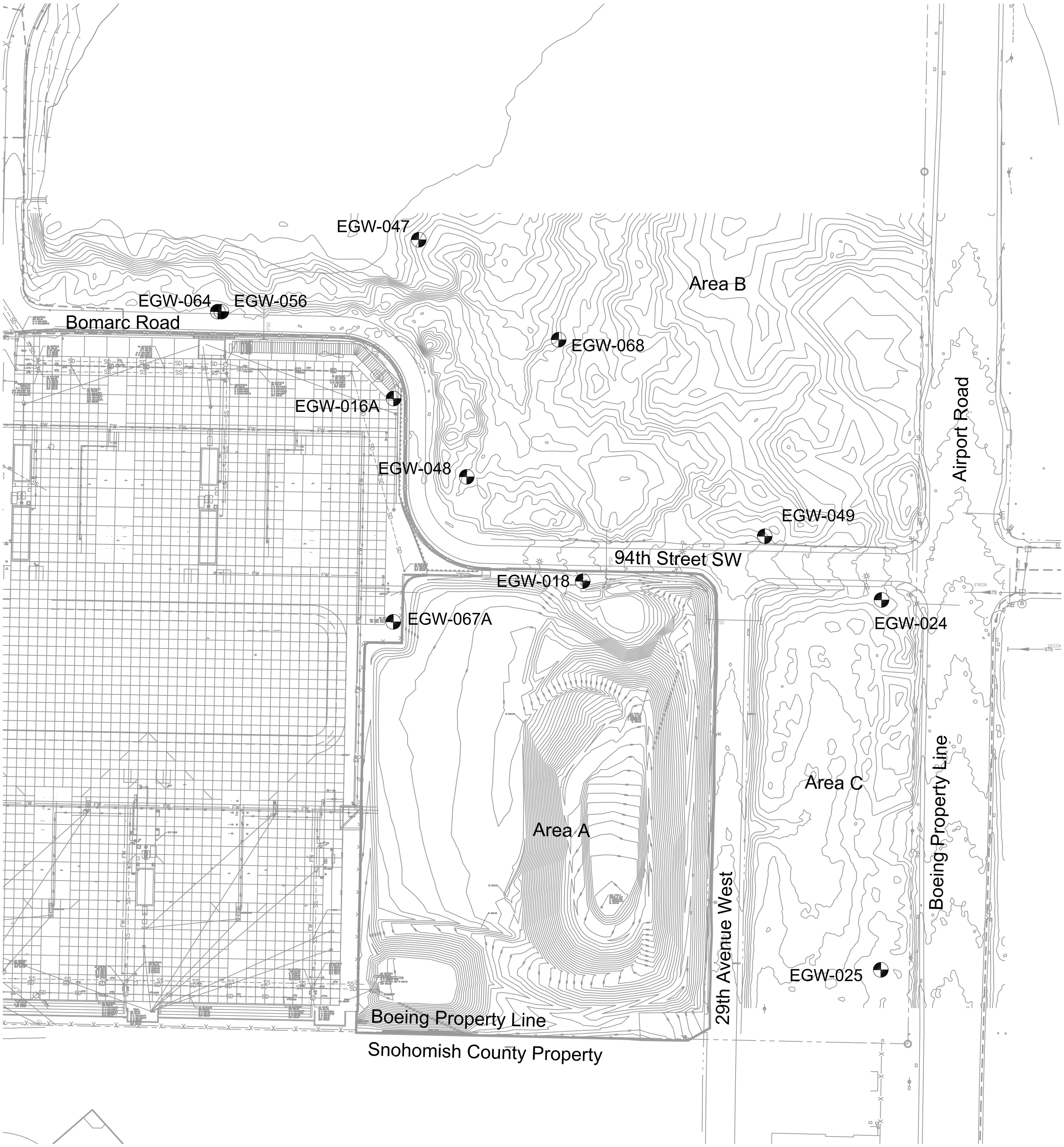
URS

\\Seaprojects\projectWM&RD\BOEING EVERETT\CORRECTIVE ACTION\GIS\maps\Figure 17-1 - SWMU 100 - Locations of Areas A B & C.mxd

Figrue 17-1

SWMU 100 - Locations of Areas A, B, C
Former Gun Club

Boeing Commercial Airplanes, Everett Plant
Remedial Investigation Report



LEGEND

Monitoring Well and Groundwater Elevation

0 100 200

SCALE IN FEET

Q:\geo\Boeing\Everett\RI\2010\Fig 17-2 GW_MW Locs.dwg
Mod: 08/03/2010, 08:12 | Plotted: 09/21/2010, 08:30 | Chad_Stickel

Figure 17-2
Groundwater Monitoring Well Locations
Former Gun Club

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Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

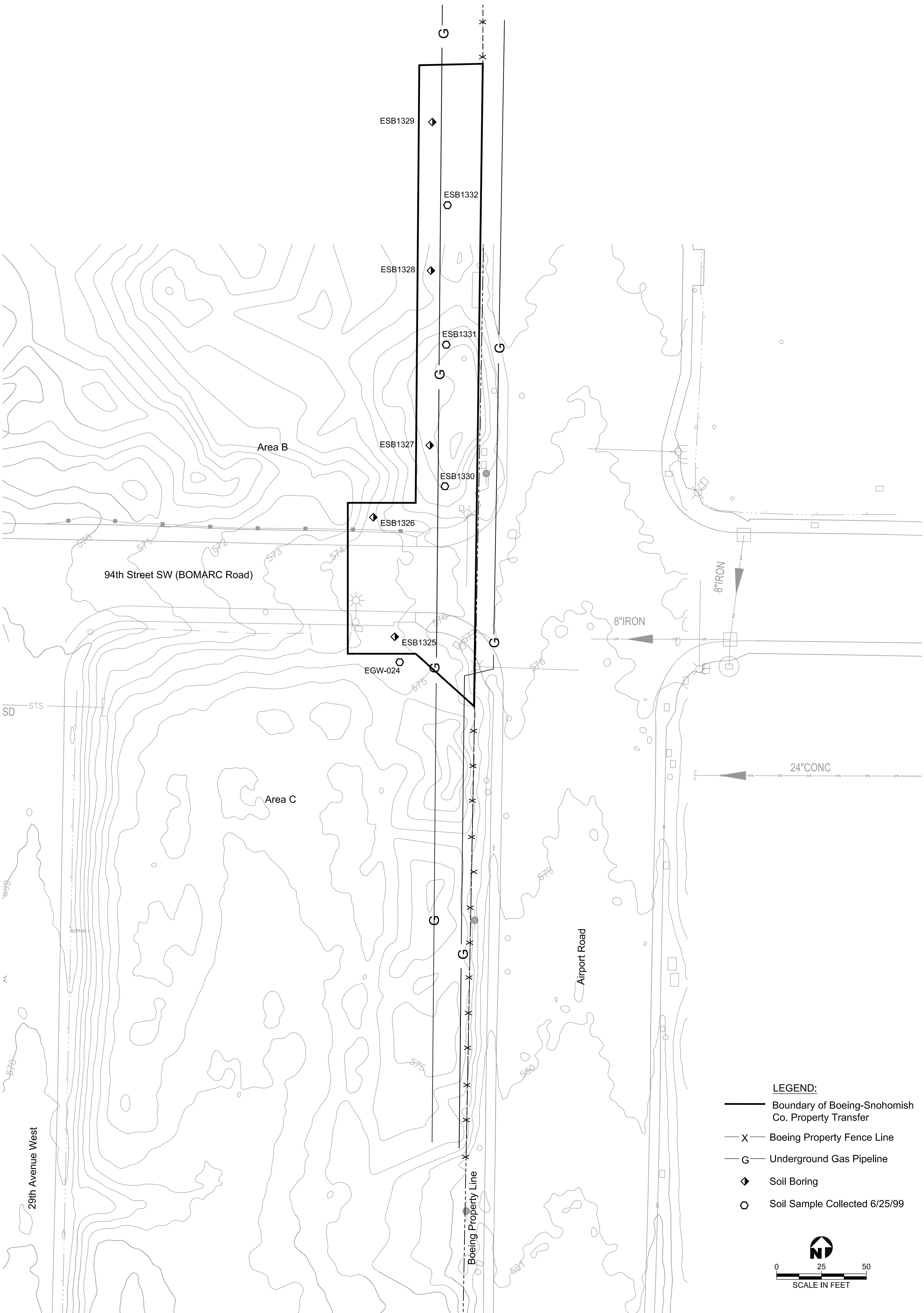

Figure 17-3
Soil Boring Locations
Airport Road Parcel Former Gun Club

Q:\geo\Boeing\Everett\RI\2010\Fig 17-3 Soil Bor.dwg
Mod: 12/15/2010, 14:09 | Plotted: 12/15/2010, 14:09 | john_knobbs

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REMEDIAL INVESTIGATION REPORT

Figure 17-4
Interim Action Pre-Design
Data Summary Area A Former Gun Club

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REMEDIAL INVESTIGATION
REPORT

Figure 17-5
Interim Action Soil Sample Locations Area A
Former Gun Club

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Figure 17-6
Soil Sampling Locations and Data Summary Area B
Former Gun Club

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Q:\geo\Boeing\Everett\RI2010\FIG 17-6 Soil Samp_Data.dwg
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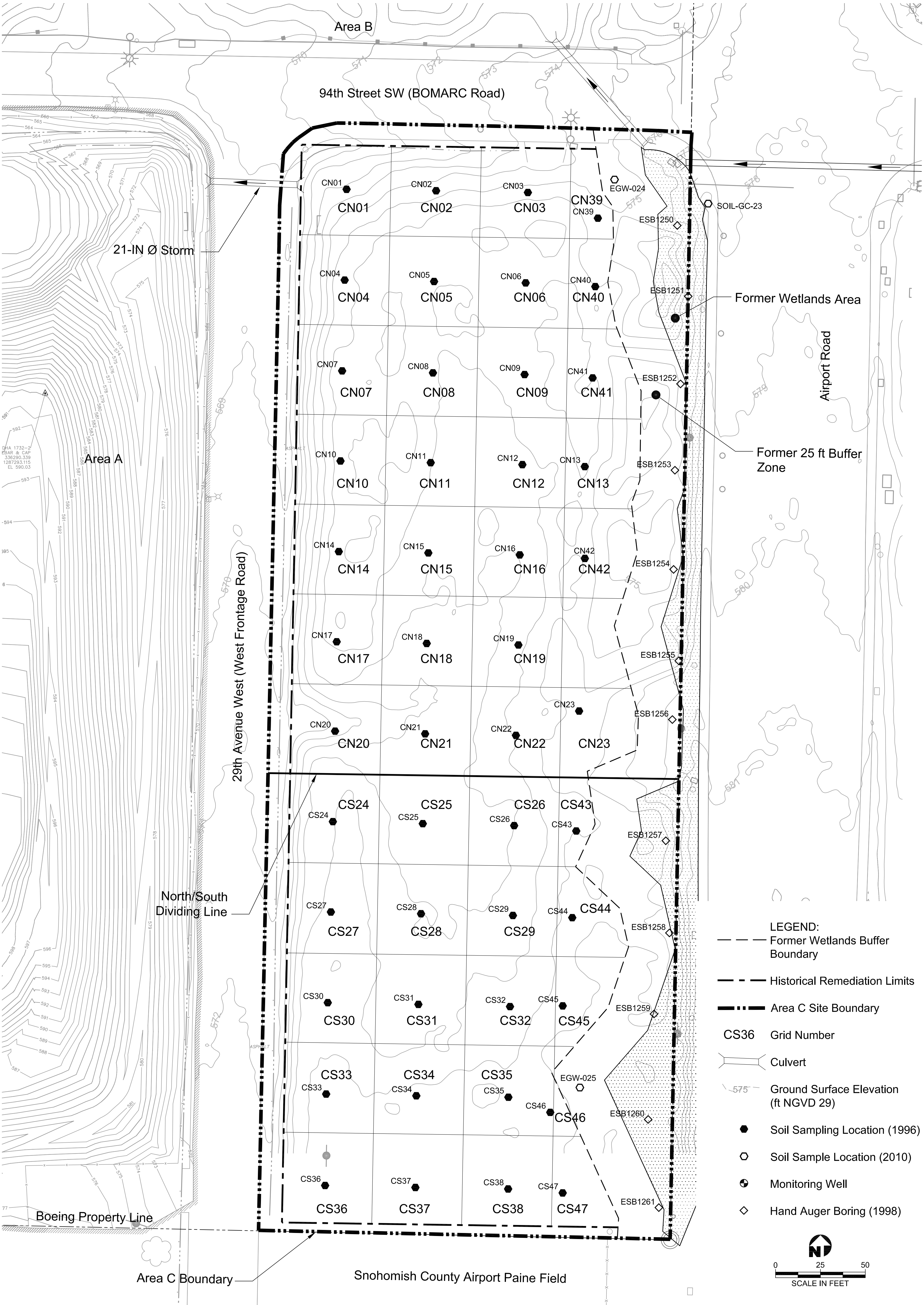

Figure 17-7
Soil Sampling Locations Area C
Former Gun Club

Q:\geo\Boeing\Everett\RI\2010\Fig 17-7 Soil Samp.dwg
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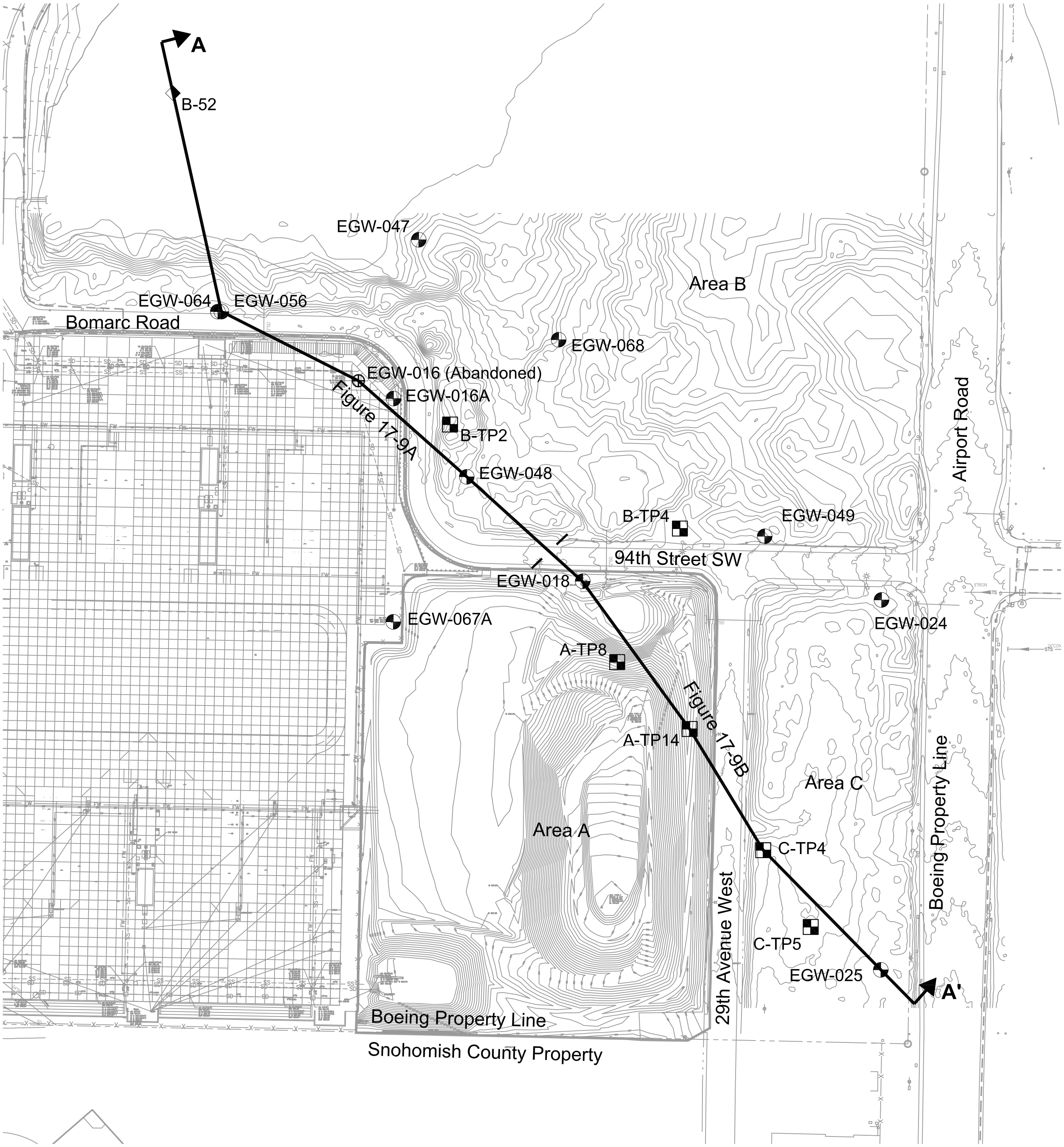
REMEDIAL INVESTIGATION REPORT



LEGEND

Monitoring Well

Geotechnical Boring

Test Pit (Landau, 1993)

A A' Line of Section, Figure 17-9

N

0 100 200

SCALE IN FEET

Figure 17-8

Cross Section A-A' Location
Former Paine Field Sports (Gun) Club Area

Q:\geo\Boeing\Everett\RI\2010\Fig 17-8 XSEC A-A.dwg
Mod: 12/15/2010, 14:20 | Plotted: 12/15/2010, 14:20 | john_knobbs

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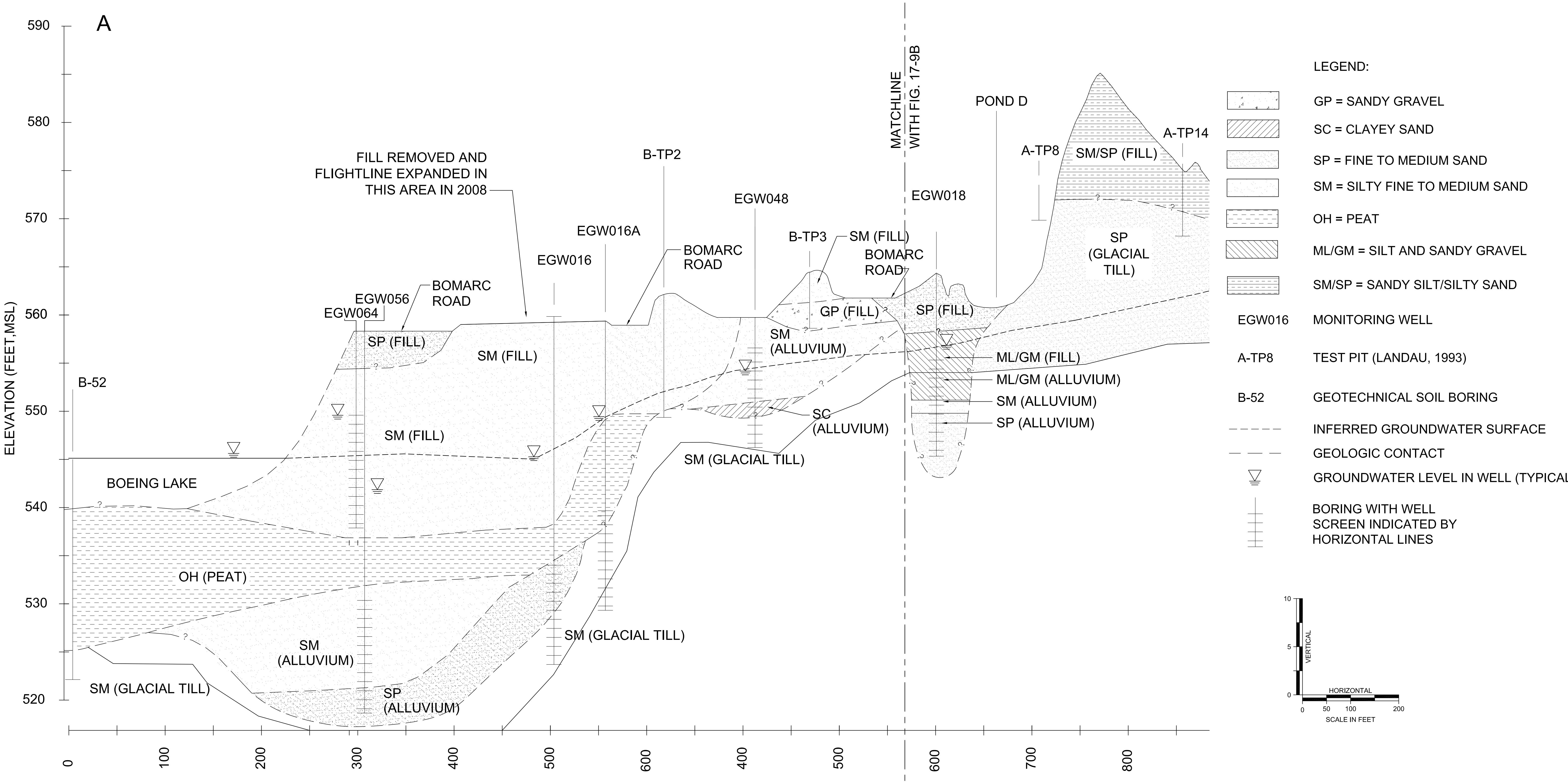
REMEDIAL INVESTIGATION REPORT



Q:\geo\Boeing\Everett\RI\2010\Fig 17-9A Gun Hydrogeo.dwg
Mod: 12/15/2010, 14:24 | Plotted: 12/15/2010, 14:24 | john_knobbs

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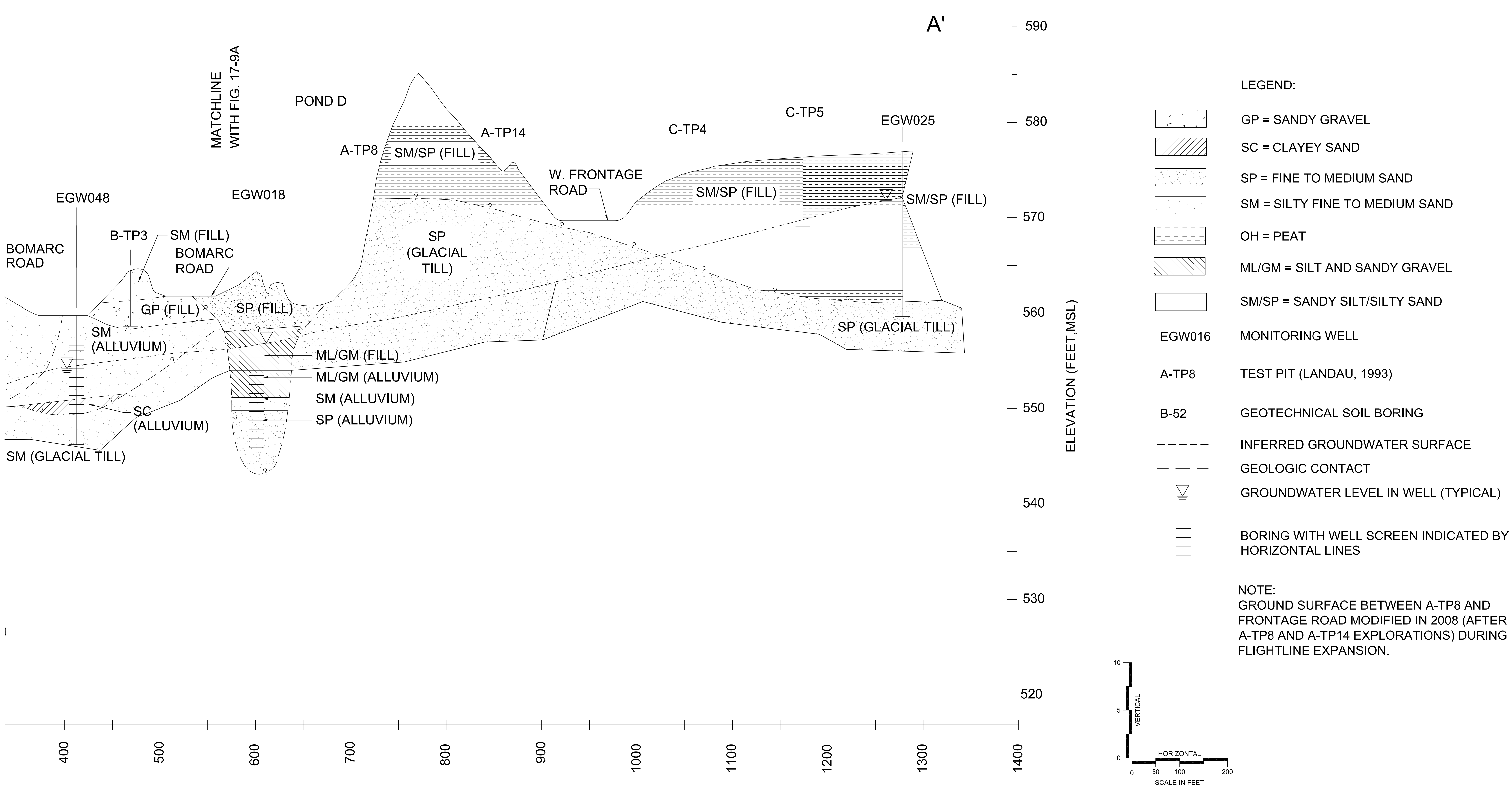
Figure 17-9A
Hydrogeologic Cross Section A-A'
Former Gun Club

Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT



Q:\geo\Boeing\Everett\RI\2010\Fig 17-9B Gun Hydrogeo.dwg
Mod: 12/15/2010, 14:22 | Plotted: 12/15/2010, 14:22 | john_knobbs

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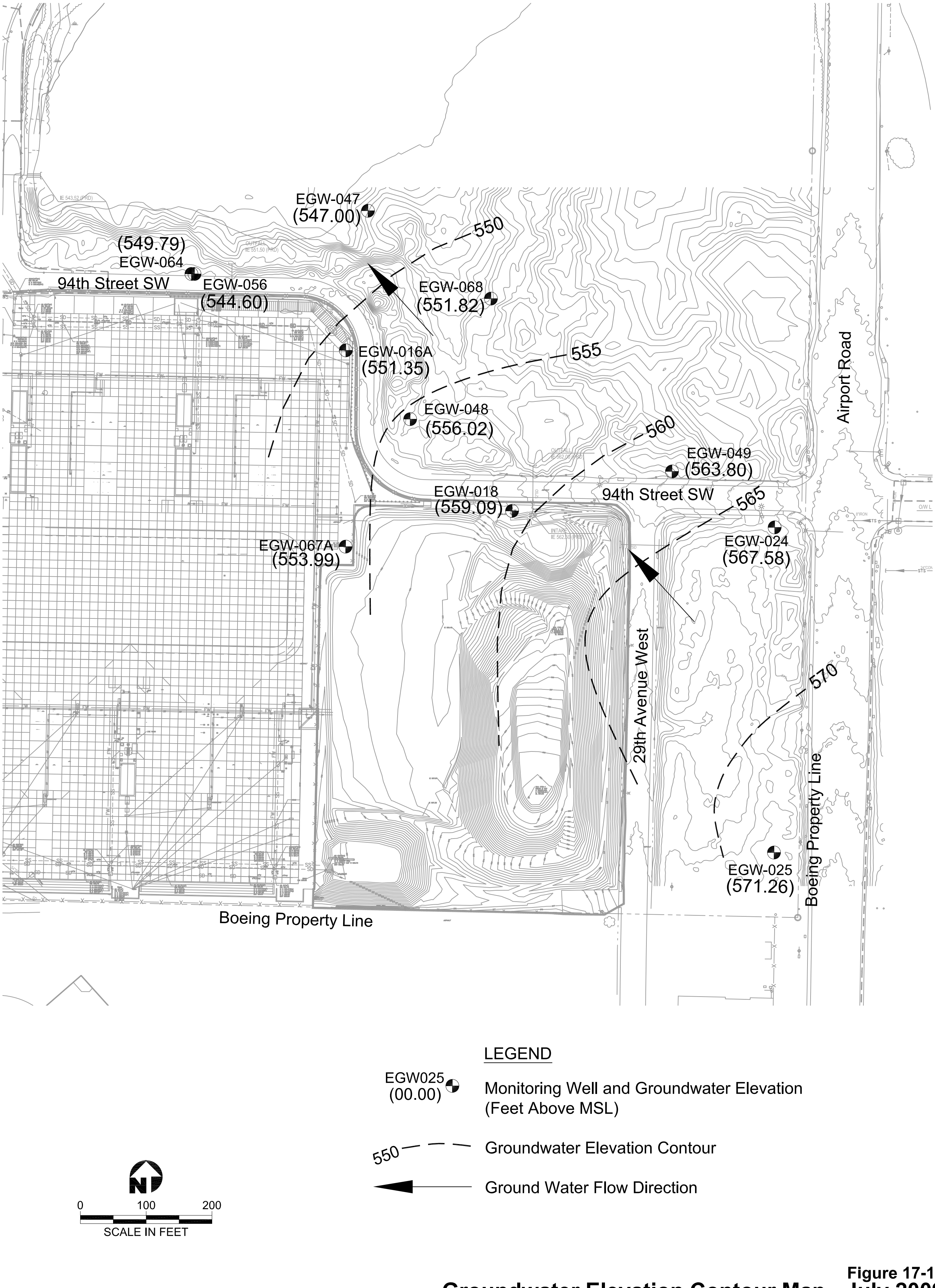
Figure 17-9B
Hydrogeologic Cross Section A-A'
Former Gun Club

Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT



Q:\geo\Boeing\Everett\RI\2010\Fig 17-10 Gun GW Jul 09.dwg
Mod: 12/15/2010, 14:29 | Plotted: 12/15/2010, 14:46 | john_knobbs

Figure 17-10
Groundwater Elevation Contour Map - July 2009
Former Gun Club

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Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

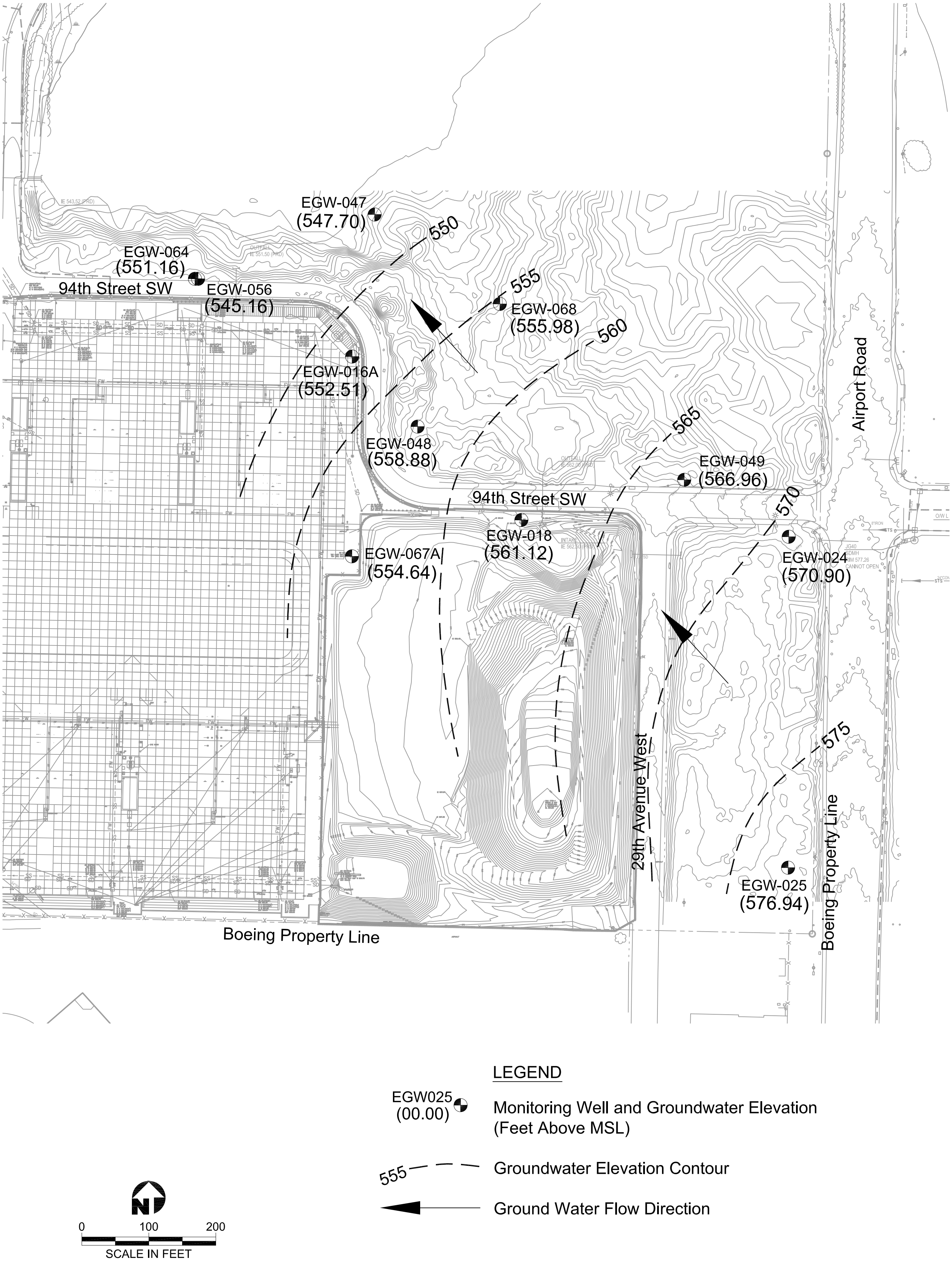

Figure 17-11

Groundwater Elevation Contour Map - January 2010
Former Gun Club

Q:\geo\Boeing\Everett\RI\2010\Fig 17-11 Gun GW Jan 10.dwg
Mod: 12/15/2010, 14:38 | Plotted: 12/15/2010, 14:38 | john_knobbs

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Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

18.0 BUILDING 45-53 (UST EV-110-1)

Presented in this section are the results of the soil investigation performed at the Attachment 6 SWMU/AOC (No. 166) located near Building 45-53 at the Everett Plant (Figure 18-1). The subsurface conditions, prior investigations and remedial actions, and description of this SWMU/AOC are presented in Section 8.0 of the IAWP. This investigation was performed in accordance with Section 8.4.2 of the IAWP and Section B.1.2.5 of Appendix B of the IAWP.

18.1 SWMU/AOC NO. 166 FORMER UST EV-110-1

SWMU/AOC No. 166 is the removed UST EV-110-1 located near Building 45-53 (Figure 18-1) used to temporarily store Jet A fuel recovered from a jet fuel filtration and transfer system. A known release of Jet A fuel to the soils and groundwater near EV-110-1 was previously detected. Potential dangerous constituents are petroleum hydrocarbons (diesel-range and Jet A-range) and volatile aromatic compounds (VOCs). The UST was removed and a remedial action consisting of excavation and disposal of soil containing Jet A was completed in 1997 (SECOR, 1997). Several environmental investigations and immiscible hydrocarbon recovery were performed prior to the remedial action. Monitoring of groundwater quality in monitoring wells in this area is ongoing. Further details regarding this SWMU/AOC are presented in Section 8.0 of the IAWP.

18.2 PURPOSE AND SCOPE

The purpose of the investigation was to assess whether Jet A fuel is present in subsurface soil near groundwater monitoring well EGW035 (Figure 18-1) located in the vicinity of former UST EV-110-1. Organic vapors above ambient background were detected near this well during a previous soil vapor survey (Converse Consultants NW, 1994a) but Jet A and associated VOCs were not detected in soil samples collected during installation of EGW035 (Converse Consultants NW, 1994b). Dissolved concentrations of Jet A up to 5.8 mg/L have been historically detected in groundwater samples from this well. The scope of work performed included the following:

- Drilled three soil borings to a depth of 15½ feet bgs using a truck-mounted drilling rig equipped with hollow stem auger
- Collected soil samples at prescribed depth intervals
- Field screened samples for organic vapors
- Collected groundwater samples from the existing monitoring wells on a quarterly or semi-annual basis
- Submitted groundwater and selected soil samples for analysis of diesel-range and Jet A-range TPH and benzene, toluene, ethylbenzene, and xylenes (BTEX)

18.3 DOCUMENTATION OF DRILLING AND SAMPLING ACTIVITIES

On February 18, 1998, Dames & Moore monitored drilling of the three soil borings (ESB1113, ESB1114, and ESB1115) as shown on Figure 18-1. The borings were completed to a depth of approximately 15½ feet. Samples were retrieved using a Dames & Moore U-type sampler fitted with stainless steel rings. After sampling was completed, the borings were backfilled with bentonite chips and capped with concrete. Drilling techniques and sampling procedures utilized were in general accordance with the SAP presented in Appendix B of the IAWP. Groundwater samples were collected in accordance with the Groundwater Monitoring Plan presented in Appendix A of the IAWP.

18.4 FIELD OBSERVATIONS AND RESULTS OF SAMPLE ANALYSIS

Presented in this section are the field observations and sample results associated with soil borings ESB1113, ESB1114, and ESB1115. Geologic logs of the soil borings are presented in Appendix Q1. The chain of custody forms and analytical laboratory reports are presented in Appendix Q2. Data validation reports are in Appendix Q3. Soil analytical results are summarized in Table 18-1. In addition, groundwater sampling from existing wells has occurred on a quarterly or semiannual basis. Groundwater analytical results are summarized in Tables 18-2 and 18-3.

18.4.1 Field Observations

The area investigated is covered with approximately 3-inch thick asphalt pavement. Underlying the asphalt is fill soil consisting of medium dense crushed rock, and silty sand with gravel to depths ranging from 5 feet (ESB1114 and ESB1115) to 11 feet (ESB1113) bgs. The fill soil is underlain by native glacial till consisting of very dense silty sand with gravel. Wet soil was encountered at a depth of 10½ feet bgs in boring ESB1113 but was not encountered in the other borings.

A petroleum hydrocarbon odor was detected at ESB1113 at depths between 7 and 11 feet bgs. PID readings of organic vapors above ambient background levels (751 to 3000 ppmv) were recorded for samples collected from a depth of 7 to 15½ feet bgs in this boring. PID readings from the soil samples from borings ESB1114 and ESB1115 did not indicate elevated organic vapor levels. Staining or other visual indications of dangerous constituents were not observed.

18.4.2 Soil Sample Analytical Results

Selected soil samples were submitted for analysis per the sample selection criteria specified in Section 8.4.2 of the IAWP. Soil samples from depths of 10 feet, 12½ feet, and 15 feet bgs from soil boring ESB1113, and from depths of 5 feet, 10 feet, and 15 feet bgs from soil borings ESB1114 and ESB1115 were analyzed. Table 18-1 summarizes the analytical data and lists the MTCA Method A cleanup level for TPH and Method B soil cleanup levels for BTEX in soil. Diesel-range TPH, Jet A-range TPH, and BTEX were not detected at concentrations exceeding the reporting limits in any of the samples analyzed. The detection limits for benzene in soil exceed the current MTCA Method A cleanup level for direct contact and protection of groundwater, and the MTCA Method B preliminary cleanup level for protection of groundwater. Benzene has not been detected in groundwater since 1998.

18.4.3 Groundwater Analytical Results

Groundwater samples have been collected from monitoring wells EGW033, EGW035 and EGW038 on a quarterly or semiannual basis since January 1995 and from wells EGW052 and EGW053 since March 1997. The samples were analyzed for diesel-range TPH, Jet A-range TPH, and BTEX. In addition, gasoline-range

TPH and motor oil-range TPH were analyzed for in March 1997 and November 1999, respectively. Analytical results from 1995 through the April 2010 monitoring period are summarized in Tables 18-2 and 18-3 and discussed below. Chain-of-custody forms and analytical laboratory reports have been previously submitted to Ecology separate from this report. In May 2005, the groundwater monitoring program for this area was revised and analysis for BTEX was removed as BTEX had not been detected in several of the previous monitoring rounds.

TPH constituents have not been detected at concentrations above the method reporting limits in any of the samples from EGW038. TPH constituents have not been detected at concentrations above the method reporting limits or were detected at concentrations below the applicable MTCA Method A groundwater cleanup levels in all of the samples collected from EGW033, EGW052, and EGW053 since February 1999, October 2004, and November 2001, respectively. Diesel-range and Jet A-range TPH were detected at concentrations above the applicable MTCA Method A groundwater cleanup level (0.5 mg/L) in all samples from EGW035. Gasoline-range TPH was only analyzed for during the March 1997 sampling event and it exceeded the MTCA Method A cleanup level(1.0 mg/L) in well EGW052 (Table 18-2). Because the known source is Jet-A fuel, all future samples were quantified relative to Jet-A fuel rather than gasoline-range TPH.

BTEX were not detected at concentrations above the method reporting limits or were detected below the applicable MTCA Method A groundwater cleanup levels in all the samples from wells EGW033, EGW035, EGW038, and EGW053. Benzene was detected above the MTCA Method B groundwater cleanup level in samples collected at well EGW052 between March 1997 and November 1998, however, benzene has not been detected since November 1998.

18.5 CONCLUSIONS AND RECOMMENDATIONS

Prior remedial actions have removed the source of jet fuel (former UST EV-110-1) and the associated soil containing jet fuel. Based on the analytical results discussed in Section 18.4.2, the soil in the vicinity of EGW035 does not contain Jet A fuel or BTEX from the prior release near EV-110-1. The presence of elevated organic vapors detected during the previous soil vapor survey and in soil samples from boring ESB1113 are interpreted to be vapors emanating from the remaining groundwater containing dissolved Jet A fuel. The groundwater in this area is discontinuous and perched in the fill soil overlying very dense glacial till. Its presence in this area appears to be principally controlled by the location of the removed UST excavation and subgrade utility lines. Based on these results and the prior remedial actions, no further investigation and remediation of soil are warranted in this area. It is recommended that this area be assessed in the FS for TPH as diesel, benzene, and Jet-A fuel in groundwater only. Groundwater monitoring should be continued until such time that the termination criteria specified in Section 8.5 of the IAWP are met and termination is approved by Ecology.

Evaluation of the vapor intrusion (VI) pathway for this SWMU/AOC is not recommended for the FS. Screening of the VI pathway was performed in this RI using Ecology's review draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated October 2009 (VI guidance). Volatile chemicals that could pose a potential source of VI have not been detected in soil samples from this SWMU/AOC. The concentrations of TPH-D and Jet-A consistently detected in groundwater samples from one well at the site are low. The well exhibiting TPH-D and Jet-A is not located near existing buildings.

18.6 REFERENCES

SECOR, 1997, Independent Remedial Action Report EV-110-1 UST Closure Project, Boeing Commercial Airplane Group, Everett, Washington.

Table 18-1
Summary of Soil Sample Analytical Results for TPH and Volatile Organic Compounds
Building 45-53 (EV-110)
Boeing Everett Plant Remedial Investigation

Sample ID	Sample Date	TPH Analysis (mg/kg)		Volatile Organic Compounds (µg/kg)				
		Jet-A-Range	Diesel-Range	Benzene	Ethylbenzene	Toluene	m,p-Xylene	o-Xylene
1996 MTCA Method A or B Soil Cleanup Value		200 (A)	200 (A)	34,500 (B)	8,000,000 (B)	16,000,000 (B)	160,000,000 (B)	160,000,000 (B)
1996 MTCA Method B 100x GW Soil Cleanup Value		NE	NE	151	80,000	160,000	1,600,000	1,600,000
2001 MTCA Method A or B Soil Cleanup Value		NE	2,000 (A)	30 (A) 18,200 (B)	6,000 (A) 8,000,000 (B)	7,000 (A) 16,000,000 (B) 6,400,000 (B*)	9,000 (A) 160,000,000 (B)	9,000 (A) 160,000,000 (B)
MTCA Method A or B Protection of Groundwater		NC	NC	30 (A) 4.5 (B)	6,000 (A) 6,912 (B)	7,000 (A) 4,654 (B)	135,068 (B)	147,027 (B)
ESB1113-10'	02/18/98	11 U	5.5 U	46 U	46 U	46 U	46 U	46 U
ESB1113-12 1/2'	02/18/98	11 U	5.5 U	52 U	52 U	52 U	52 U	52 U
ESB1113-15'	02/18/98	11 U	5.4 U	51 U	51 U	51 U	51 U	51 U
ESB1114-5'	02/18/98	11 U	5.5 U	51 U	51 U	51 U	45 U	51 U
ESB1114-10'	02/18/98	11 U	5.6 U	45 U	45 U	45 U	45 U	45 U
ESB1114-15'	02/18/98	11 U	5.4 U	47 U	47 U	47 U	47 U	47 U
ESB1115-5'	02/18/98	11 U	5.7 U	49 U	49 U	49 U	49 U	49 U
ESB1115-10'	02/18/98	11 U	5.4 U	50 U	50 U	50 U	50 U	50 U
ESB1115-15'	02/18/98	11 U	5.3 U	42 U	42 U	42 U	42 U	42 U

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(B) MTCA Method B soil cleanup levels
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
NC - Not calculated
NE - Not Established
TPH - Total Petroleum Hydrocarbons; Diesel and Jet-A range fractions were quantitated using NWTPH-Dx extended.
U - Compound was analyzed for but not detected above the reporting limit shown.
Numbers in grey shading indicate rereporting limit that exceeds a MTCA protection of groundwater level and the current lowest MTCA soil cleanup level protective of direct contact.

Table 18-2
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Gasoline-Range	Jet A-Range	Diesel-Range	Motor Oil Range
MTCA Method A Groundwater Screening Level		0.8 / 1.0 [b]	0.5	0.5	0.5
EGW033	01/30/95	NA	NA	0.25 U	NA
	04/28/95	NA	0.50 U	0.25 U	NA
	08/03/95	NA	0.50 U	0.25 U	NA
	11/08/95	NA	**0.50**	**0.51**	NA
	02/26/96	NA	0.5 U	0.34	NA
	06/04/96	NA	0.5 U	0.36	NA
	06/04/96 (DUP)	NA	0.5 U	0.30	NA
	08/26/96	NA	0.5 U	0.46	NA
	11/26/96	NA	**0.74**	**1.0**	NA
	03/06/97	0.25 U	0.50 U	0.25 U	NA
	05/27/97	NA	0.50 U	0.25 U	NA
	05/27/97 (DUP)	NA	0.50 U	0.25 U	NA
	08/13/97	NA	0.50 U	0.25 U	NA
	08/13/97 (DUP)	NA	0.50 U	0.25 U	NA
	11/18/97	NA	0.50 U	0.25 U	NA
	03/12/98	NA	0.50 U	0.48	NA
	05/14/98	NA	0.50 U	0.25 U	NA
	08/13/98	NA	0.5 U	0.28*	NA
	11/11/98	NA	0.50 U	0.25 U	NA
	02/03/99	NA	0.50 U	**0.50****	NA
	05/11/99	NA	0.50 U	0.35**	NA
	08/03/99	NA	0.50 U	0.30**	NA
	11/10/99	NA	0.50 U	0.25 U	0.50 U
	02/03/00	NA	0.50 U	0.25 U	NA
	05/04/00	NA	0.50 U	0.25 U	NA
	08/03/00	NA	0.50 U	0.25 U	NA
	11/16/00	NA	0.50 U	0.25 U	NA
	02/07/01	NA	0.50 U	0.28 **	NA
	05/04/01	NA	0.50 U	0.25 U	NA
	08/02/01	NA	0.50 U	0.25 U	NA
	11/15/01	NA	0.50 U	0.25 U	NA
	02/07/02	NA	0.50 U	0.25 U	NA
	05/08/02	NA	0.50 U	0.25 U	NA
	11/17/02	NA	0.50 U	0.25 U	NA
	05/08/03	NA	0.50 U	0.25 U	NA
	11/06/03	NA	0.50 U	0.25 U	NA
	04/18/04	NA	0.50 U	0.25 U	NA
	10/05/04	NA	0.50 U	0.25 U	NA
	03/28/05	NA	0.25 U	0.25 U	NA
	10/19/05	NA	0.25 U	0.25 U	NA
	01/12/06	NA	0.25 U	0.25 U	NA
	07/07/06	NA	0.25 U	0.25 U	NA
	01/08/07	NA	0.25 U	0.25 U	NA
	07/05/07	NA	0.25 U	0.25 U	NA
	01/04/08	NA	0.25 U	0.25 U	0.50 U
	07/08/08	NA	0.25 U	0.25 U	0.50 U
	01/05/09	NA	0.25 U	0.25 U	0.50 U
	07/06/09	NA	0.25 U	0.25 U	0.50 U
	01/11/10	NA	0.25 U	0.25 U	0.50 U

Table 18-2
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Gasoline-Range	Jet A-Range	Diesel-Range	Motor Oil Range
MTCA Method A Groundwater Screening Level		0.8 / 1.0 [b]	0.5	0.5	0.5
EGW035	01/30/95	NA	NA	**2.7**	NA
	01/30/95 (DUP)	NA	NA	**2.4**	NA
	04/28/95	NA	**3.8**	**2.7**	NA
	08/03/95	NA	**4.4**	**3.6**	NA
	08/03/95 (DUP)	NA	**3.1**	**2.4**	NA
	11/08/95	NA	**11**	**8.4**	NA
	02/26/96	NA	**1.2**	**0.79**	NA
	06/04/96	NA	**1.3**	**0.75**	NA
	08/26/96	NA	**1.4**	**0.84**	NA
	11/26/96	NA	**1.2**	**0.90**	NA
	03/06/97	NA	**0.89**	**0.85**	NA
	05/27/97	NA	**1.4**	**0.96**	NA
	08/13/97	NA	**0.95**	**0.75**	NA
	11/18/97	NA	**1.1**	**0.6**	NA
	11/18/97 (DUP)	NA	**1.0**	**0.54**	NA
	03/12/98	NA	**2.1**	**1.4**	NA
	05/14/98	NA	**1.6**	**1.3***	NA
	05/14/98 (DUP)	NA	**1.2**	**0.91***	NA
	08/13/98	NA	**1.8**	**1.6***	NA
	11/11/98	NA	**1.2**	**0.62***	NA
	02/03/99	NA	**3.8**	**2.4***	NA
	05/11/99	NA	**11**	**5.8***	NA
	08/03/99	NA	**5.8**	**3.6***	NA
	08/03/99 (DUP)	NA	**3.0**	**1.6***	NA
	11/10/99	NA	**3.6****	**2.2****	0.50 U
	02/03/00	NA	**1.8**	**1.0***	NA
	05/04/00	NA	**1.0**	**0.6***	NA
	08/03/00	NA	**4.3**	**3.0 ***	NA
	11/16/00	NA	**2.3**	**1.7 ***	NA
	02/07/01	NA	**2.3 ****	**1.6 ****	NA
	05/04/01	NA	**2.2 ****	**1.5 ****	NA
	08/02/01	NA	**2.1 ****	**1.6 ****	NA
	11/15/01	NA	**2.5**	**2.2 ***	NA
	02/07/02	NA	**2.0 ****	**1.5 ****	NA
	05/08/02	NA	**2.4 ****	**1.9 ****	NA
	05/08/02 (DUP)	NA	**2.4 ****	**1.8 ****	NA
	11/17/02	NA	**2.7 ****	**2.2 ****	NA
	05/08/03	NA	**2.5 ****	**2.1 ****	NA
	11/06/03	NA	**3.0 ****	**2.7 ****	NA
	04/18/04	NA	**4.8 J ****	**4.2 J ****	NA
	10/05/04	NA	**3.1****	**2.7****	NA
	03/28/05	NA	**4.5****	**3.7****	NA
	3/28/05 (DUP)	NA	**3.4****	**2.9****	NA
	10/19/05	NA	**3.4**	**2.4***	NA
	10/19/05 (DUP)	NA	**4.2**	**3.0***	NA
	01/12/06	NA	**6.9****	**5.6****	NA
	1/12/06 (DUP)	NA	**6.0****	**4.9****	NA
	07/07/06	NA	**3.2**	**2.6**	NA
	7/7/06 (DUP)	NA	**4.3**	**3.3**	NA
	01/08/07	NA	**2.8*****	**2.8**	NA
	1/8/07 (DUP)	NA	**3.0*****	**3.0**	NA
	07/05/07	NA	**3.3*****	**2.6**	NA
	7/5/07 (DUP)	NA	**4.1*****	**3.1**	NA
	01/04/08	NA	**25***	**16****	5.0 U
	1/4/08 (DUP)	NA	**21***	**14****	5.0 U
	07/08/08	NA	**0.93***	**0.78***	0.50 U
	01/05/09	NA	**2.2***	**2.4****	0.50 U
	1/5/09 (DUP)	NA	**2.6***	**2.9****	0.50 U
	07/06/09	NA	**1.3*****	**1.5**	0.50 U
	01/11/10	NA	**1.7***	**1.1***	0.50 U
	1/11/10 (DUP)	NA	**1.7***	**1.2***	0.50 U

Table 18-2
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Gasoline-Range	Jet A-Range	Diesel-Range	Motor Oil Range
MTCA Method A Groundwater Screening Level		0.8 / 1.0 [b]	0.5	0.5	0.5
EGW038	01/30/95	NA	NA	0.25 U	NA
	04/28/95	NA	0.50 U	0.25 U	NA
	08/03/95	NA	0.50 U	0.25 U	NA
	11/08/95	NA	0.50 U	0.25 U	NA
	02/26/96	NA	0.50 U	0.25 U	NA
	02/26/96 (DUP)	NA	0.50 U	0.25 U	NA
	06/04/96	NA	0.50 U	0.25 U	NA
	08/26/96	NA	0.50 U	0.25 U	NA
	11/26/96	NA	0.50 U	0.25 U	NA
	03/06/97	0.25 U	0.50 U	0.25 U	NA
	03/06/97 (DUP)	0.25 U	0.50 U	0.25 U	NA
	05/27/97	NA	0.50 U	0.25 U	NA
	08/13/97	NA	0.50 U	0.25 U	NA
	11/18/97	NA	0.50 U	0.25 U	NA
	03/12/98	NA	0.50 U	0.25 U	NA
	05/14/98	NA	0.50 U	0.25 U	NA
	08/13/98	NA	0.50 U	0.25 U	NA
	11/11/98	NA	0.50 U	0.25 U	NA
	11/11/98 (DUP)	NA	0.50 U	0.25 U	NA
	02/03/99	NA	0.50 U	0.25 U	NA
	05/11/99	NA	0.50 U	0.25 U	NA
	08/03/99	NA	0.50 U	0.25 U	NA
	11/10/99	NA	0.50 U	0.25 U	0.50 U
	11/10/99 (DUP)	NA	0.50 U	0.25 U	0.50 U
	02/03/00	NA	0.50 U	0.25 U	NA
	02/03/00 (DUP)	NA	0.50 U	0.25 U	NA
	05/04/00	NA	0.50 U	0.25 U	NA
	08/03/00	NA	0.50 U	0.25 U	NA
	08/03/00 (DUP)	NA	0.50 U	0.25 U	NA
	11/16/00	NA	0.50 U	0.25 U	NA
	11/16/00 (Dup)	NA	0.50 U	0.25 U	NA
	02/07/01	NA	0.50 U	0.25 U	NA
	05/04/01	NA	0.50 U	0.25 U	NA
	05/04/01 (DUP)	NA	0.50 U	0.25 U	NA
	08/02/01	NA	0.50 U	0.25 U	NA
	08/02/01 (DUP)	NA	0.50 U	0.25 U	NA
	11/15/01	NA	0.50 U	0.25 U	NA
	11/15/01 (DUP)	NA	0.50 U	0.25 U	NA
	02/07/02	NA	0.50 U	0.25 U	NA
	05/08/02	NA	0.50 U	0.25 U	NA
	11/17/02	NA	0.50 U	0.25 U	NA
	11/17/02 (DUP)	NA	0.50 U	0.25 U	NA
	05/08/03	NA	0.50 U	0.25 U	NA
	11/06/03	NA	0.50 U	0.25 U	NA
	04/18/04	NA	0.50 U	0.25 U	NA
	4/18/04 (DUP)	NA	0.50 U	0.25 U	NA
	10/05/04	NA	0.50 U	0.25 U	NA
	03/28/05	NA	0.25 U	0.25 U	NA
	10/19/05	NA	0.25 U	0.25 U	NA
	01/12/06	NA	0.25 U	0.25 U	NA
	07/07/06	NA	0.25 U	0.25 U	NA
	01/08/07	NA	0.25 U	0.25 U	NA
	07/05/07	NA	0.25 U	0.25 U	NA
	01/04/08	NA	0.25 U	0.25 U	0.50 U
	07/08/08	NA	0.25 U	0.25 U	0.50 U
	01/05/09	NA	0.25 U	0.25 U	0.50 U
	07/06/09	NA	0.25 U	0.25 U	0.50 U
	01/11/10	NA	0.25 U	0.25 U	0.50 U

Table 18-2
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Gasoline-Range	Jet A-Range	Diesel-Range	Motor Oil Range
MTCA Method A Groundwater Screening Level		0.8 / 1.0 [b]	0.5	0.5	0.5
EGW052[a]	03/07/97	**9.7**	**3.9**	**4.0**	NA
	05/28/97	NA	**4.7**	**3.6**	NA
	08/13/97	NA	**2.2**	**1.7**	NA
	11/18/97	NA	**4**	**2.3**	NA
	03/12/98	NA	**1.7**	**1.3**	NA
	05/14/98	NA	**1.6****	**1.5****	NA
	08/13/98	NA	**1.3**	**1.6***	NA
	11/11/98	NA	**2.8*****	**1.9**	NA
	02/03/99	NA	**4.9**	**3.7***	NA
	05/11/99	NA	**8.2**	**4.8***	NA
	08/03/99	NA	**6.1**	**4.2***	NA
	11/10/99	NA	**10****	**7.4****	**0.68****
	02/03/00	NA	**1.8****	**1.5****	NA
	05/04/00	NA	**1.3*****	**1.4**	NA
	08/03/00	NA	**1.9**	**1.6 ***	NA
	11/16/00	NA	**3.4 ****	**3.8 ****	NA
	02/07/01	NA	**1.6 ****	**1.4 ****	NA
	05/04/01	NA	**1.2**	**1.0 ***	NA
	08/02/01	NA	**1.8 ****	**1.8 ****	NA
	11/15/01	NA	**1.9 ****	**2.3 ****	NA
	02/07/02	NA	0.50 U	0.25 **	NA
	05/08/02	NA	**0.64 ****	**0.54 ****	NA
	11/17/02	NA	**1.5 ****	**1.4 ****	NA
	05/08/03	NA	0.50 U	**0.43 ****	NA
	11/06/03	NA	**1.6 ****	**1.9 ****	NA
	04/18/04	NA	0.50 U	0.25 U	NA
	10/05/04	NA	**0.71****	**0.83****	NA
	03/28/05	NA	0.25 U	0.25 U	NA
	10/19/05	NA	0.25 U	0.25 U	NA
	01/12/06	NA	0.25 U	0.25 U	NA
	07/07/06	NA	0.25 U	0.25 U	NA
	01/08/07	NA	0.25 U	0.25 U	NA
	07/05/07	NA	0.25 U	0.25 U	NA
	01/04/08	NA	0.25 U	0.25 U	0.50 U
	07/08/08	NA	0.25 U	0.25 U	0.50 U
	01/05/09	NA	0.25 U	0.25 U	0.50 U
	07/06/09	NA	0.25 U	0.25 U	0.50 U
	01/11/10	NA	0.25 U	0.25 U	0.50 U

Table 18-2
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	**Sample Date**	**Gasoline-Range**	**Jet A-Range**	**Diesel-Range**	**Motor Oil Range**
MTCA Method A Groundwater Screening Level		0.8 / 1.0 [b]	0.5	0.5	0.5
EGW053[a]	03/06/97	0.25 U	**1.6**	**2.4**	NA
	05/27/97	NA	**1.5**	**1.7**	NA
	08/13/97	NA	**1.5**	**1.7**	NA
	11/18/97	NA	**1.4**	**1.5**	NA
	03/12/98	NA	0.5 U	0.25	NA
	03/12/98 (DUP)	NA	0.5 U	0.38	NA
	05/14/98	NA	0.5 U	**0.62****	NA
	08/13/98	NA	**0.92**	**1.2***	NA
	08/13/98 (DUP)	NA	**0.92**	**1.2***	NA
	11/11/98	NA	**2.0*****	**2.4**	NA
	02/03/99	NA	0.5 U	**0.84****	NA
	02/03/99 (DUP)	NA	0.5 U	**0.80****	NA
	05/11/99	NA	0.5 U	**0.65****	NA
	05/11/99 (DUP)	NA	0.5 U	0.48**	NA
	08/03/99	NA	0.50 U	**0.60****	NA
	11/10/99	NA	**1.1****	**1.4****	0.50 U
	02/03/00	NA	0.50 U	0.28**	NA
	05/04/00	NA	0.50 U	0.25 U	NA
	05/04/00 (DUP)	NA	0.50 U	0.25 U	NA
	08/03/00	NA	0.50 U	0.32 **	NA
	11/16/00	NA	**0.68 ****	**1.4 ****	NA
	02/07/01	NA	0.50 U	**0.51 ****	NA
	02/07/01 (DUP)	NA	0.50 U	**0.52 ****	NA
	05/04/01	NA	0.50 U	0.25 U	NA
	08/02/01	NA	0.50 U	0.26 **	NA
	11/15/01	NA	0.50 U	**0.56 ****	NA
	02/07/02	NA	0.50 U	0.25 U	NA
	02/07/02 (DUP)	NA	0.50 U	0.25 U	NA
	05/08/02	NA	0.50 U	0.25 U	NA
	11/17/02	NA	0.5 U	0.27 **	NA
	05/08/03	NA	0.50 U	0.25 U	NA
	05/08/03 (DUP)	NA	0.50 U	0.25 U	NA
	11/06/03	NA	0.50 U	0.25 U	NA
	11/6/2003 (DUP)	NA	0.50 U	0.25 **	NA
	04/18/04	NA	0.50 U	0.25 U	NA
	10/05/04	NA	0.50 U	0.25 U	NA
	10/05/04 (DUP)	NA	0.50 U	0.25 U	NA
	03/28/05	NA	0.25 U	0.25 U	NA
	10/19/05	NA	0.25 U	0.25 U	NA
	01/12/06	NA	0.25 U	0.25 U	NA
	07/07/06	NA	0.25 U	0.25 U	NA
	01/08/07	NA	0.25 U	0.25 U	NA
	07/05/07	NA	0.25 U	0.25 U	NA
	01/04/08	NA	0.25 U	0.25 U	0.50 U
	07/08/08	NA	0.25 U	0.25 U	0.50 U
	07/08/08 (DUP)	NA	0.25 U	0.25 U	0.50 U
	01/05/09	NA	0.25 U	0.25 U	0.50 U
	07/06/09	NA	0.25 U	0.25 U	0.50 U
	7/6/2009 (DUP)	NA	0.25 U	0.25 U	0.50 U
	01/11/10	NA	0.25 U	0.25 U	0.50 U

Notes:
Values in **bold** font indicate that the result reported exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A values are from Ecology website CLARC tables downloaded as of June 2010. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(DUP) - Field duplicate
NA - Not analyzed
TPH - Total Petroleum Hydrocarbons
U - Compound was analyzed for but not detected above the reporting limit shown.
[a] Well installed in February, 1997.
[b] The groundwater screening level is 1.0 mg/L if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less th of the gasoline mixture. The screening level for all other gasoline mixtures is 0.8 mg/L.
*Pattern profile is indicative of Jet-A fuel.
**Pattern profile does not match a typical diesel, motor oil, or Jet-A fuel pattern.
***Pattern profile is indicative of diesel range hydrocarbon.

Table 18-3
Summary of Groundwater Analytical Results for Volatile Aromatic Compounds, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
1996 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.00151 (B)	0.03 (A) 0.8 (B)	0.04 (A) 1.6 (B)	0.02 (A) 16 (B)
2001 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.000795 (B)	0.7 (A) 0.8 (B)	1 (A) 1.6 (B) 0.64 (B*)	1 (A) 16 (B)
EGW033	01/30/95	NA	NA	NA	NA
	04/28/95	NA	NA	NA	NA
	08/03/95	NA	NA	NA	NA
	11/08/95	NA	NA	NA	NA
	02/26/96	NA	NA	NA	NA
	06/04/96	NA	NA	NA	NA
	06/04/96 (DUP)	NA	NA	NA	NA
	08/26/96	NA	NA	NA	NA
	11/26/96	NA	NA	NA	NA
	03/06/97	0.001 U	0.001 U	0.001 U	0.001 U
	05/27/97	0.001 U	0.001 U	0.001 U	0.001 U
	05/27/97 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/97	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/97 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	11/18/97	0.001 U	0.001 U	0.001 U	0.001 U
	03/12/98	0.001 U	0.001 U	0.001 U	0.001 U
	05/14/98	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/98	0.001 U	0.001 U	0.001 U	0.001 U
	11/11/98	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/99	0.001 U	0.001 U	0.001 U	0.001 U
	05/11/99	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/10/99	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/00	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/00	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/01	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/01	0.001 U	0.001 U	0.001 U	0.001 U
	08/02/01	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	11/15/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/02	0.001 U	0.001 U	0.001 U	0.001 U
	11/17/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/03	0.001 U	0.001 U	0.001 U	0.001 U
	11/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	04/18/04	0.001 U	0.001 U	0.001 U	0.001 U
	10/05/04	0.001 U	0.001 U	0.001 U	0.001 U
	03/28/05	0.001 U	0.001 U	0.001 U	0.001 U

Table 18-3
Summary of Groundwater Analytical Results for Volatile Aromatic Compounds, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
1996 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.00151 (B)	0.03 (A) 0.8 (B)	0.04 (A) 1.6 (B)	0.02 (A) 16 (B)
2001 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.000795 (B)	0.7 (A) 0.8 (B)	1 (A) 1.6 (B) 0.64 (B*)	1 (A) 16 (B)
EGW035	01/30/95	NA	NA	NA	NA
	01/30/95 (DUP)	NA	NA	NA	NA
	04/28/95	NA	NA	NA	NA
	08/03/95	NA	NA	NA	NA
	08/03/95 (DUP)	NA	NA	NA	NA
	11/08/95	NA	NA	NA	NA
	02/26/96	NA	NA	NA	NA
	06/04/96	NA	NA	NA	NA
	08/26/96	NA	NA	NA	NA
	11/26/96	NA	NA	NA	NA
	03/06/97	0.001 U	0.001 U	0.001 U	0.001 U
	05/27/97	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/97	0.001 U	0.001 U	0.001 U	0.001 U
	11/18/97	0.001 U	0.001 U	0.001 U	0.001 U
	11/18/97 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	03/12/98	0.001 U	0.001 U	0.001 U	0.001 U
	05/14/98	0.001 U	0.001 U	0.001 U	0.001 U
	05/14/98 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/98	0.001 U	0.001 U	0.001 U	0.0011
	11/11/98	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/99	0.001 U	0.001 U	0.001 U	0.001 U
	05/11/99	0.001 U	0.001	0.001 U	0.0011
	08/03/99	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/99 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	11/10/99	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/00	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/00	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/01	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/01	0.001 U	0.001 U	0.001 U	0.001 U
	08/02/01	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	11/15/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/02 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	11/17/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/03	0.001 U	0.001 U	0.001 U	0.001 U
	11/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	04/18/04	0.001 U	0.001 U	0.001 U	0.001 U
	10/05/04	0.001 U	0.001 U	0.001 U	0.001 U
	03/28/05	0.001 U	0.001 U	0.001 U	0.001 U
	3/28/05 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U

Table 18-3
Summary of Groundwater Analytical Results for Volatile Aromatic Compounds, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
1996 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.00151 (B)	0.03 (A) 0.8 (B)	0.04 (A) 1.6 (B)	0.02 (A) 16 (B)
2001 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.000795 (B)	0.7 (A) 0.8 (B)	1 (A) 1.6 (B) 0.64 (B*)	1 (A) 16 (B)
EGW038	01/30/95	NA	NA	NA	NA
	04/28/95	NA	NA	NA	NA
	08/03/95	NA	NA	NA	NA
	11/08/95	NA	NA	NA	NA
	02/26/96	NA	NA	NA	NA
	02/26/96 (DUP)	NA	NA	NA	NA
	06/04/96	NA	NA	NA	NA
	08/26/96	NA	NA	NA	NA
	11/26/96	NA	NA	NA	NA
	03/06/97	0.001 U	0.001 U	0.001 U	0.001 U
	03/06/97 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/27/97	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/97	0.001 U	0.001 U	0.001 U	0.001 U
	11/18/97	0.001 U	0.001 U	0.001 U	0.001 U
	03/12/98	0.001 U	0.001 U	0.001 U	0.001 U
	05/14/98	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/98	0.001 U	0.001 U	0.001 U	0.001 U
	11/11/98	0.001 U	0.001 U	0.001 U	0.001 U
	11/11/98 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/99	0.001 U	0.001 U	0.001 U	0.001 U
	05/11/99	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/10/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/10/99 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/00 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/00	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/00 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/00	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/00 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/01	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/01	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/01 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	08/02/01	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	08/02/01 (DUP)	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	11/15/01	0.001 U	0.001 U	0.001 U	0.001 U
	11/15/01 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/02	0.001 U	0.001 U	0.001 U	0.001 U
	11/17/02	0.001 U	0.001 U	0.001 U	0.001 U
	11/17/02 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/03	0.001 U	0.001 U	0.001 U	0.001 U
	11/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	04/18/04	0.001 U	0.001 U	0.001 U	0.001 U
	4/18/04 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	10/05/04	0.001 U	0.001 U	0.001 U	0.001 U
	03/28/05	0.001 U	0.001 U	0.001 U	0.001 U

Table 18-3
Summary of Groundwater Analytical Results for Volatile Aromatic Compounds, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
1996 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.00151 (B)	0.03 (A) 0.8 (B)	0.04 (A) 1.6 (B)	0.02 (A) 16 (B)
2001 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.000795 (B)	0.7 (A) 0.8 (B)	1 (A) 1.6 (B) 0.64 (B*)	1 (A) 16 (B)
EGW052[1]	03/07/97	**0.003**	0.001 U	0.0018	0.440
	05/28/97	**0.0024**	0.006	0.002	0.0631
	08/13/97	**0.0028**	0.022	0.002	0.0442
	11/18/97	**0.0018**	0.024	0.0011	0.042
	03/12/98	**0.0011**	0.015	0.001 U	0.0279
	05/14/98	0.001 U	0.015	0.001 U	0.0278
	08/13/98	0.001 U	0.014	0.001 U	0.0323
	11/11/98	**0.0013**	0.023	0.001 U	0.0455
	02/03/99	0.001 U	0.001 U	0.001 U	0.0305
	05/11/99	0.001 U	0.017	0.001 U	0.0199
	08/03/99	0.001 U	0.016	0.001 U	0.026
	11/10/99	0.001 U	0.011	0.001 U	0.0378
	02/03/00	0.001 U	0.0092	0.001 U	0.0041
	05/04/00	0.001 U	0.016	0.001 U	0.0068
	08/03/00	0.001 U	0.02	0.001 U	0.0212
	11/16/00	0.001 U	0.0071	0.001 U	0.0027
	02/07/01	0.001 U	0.0071	0.001 U	0.001 U
	05/04/01	0.001 U	0.012	0.001 U	0.001 U
	08/02/01	0.001 UJ	0.012 J	0.001 UJ	0.001 UJ
	11/15/01	0.001 U	0.007	0.001 U	0.001 U
	02/07/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/02	0.001 U	0.0043	0.001 U	0.001 U
	11/17/02	0.001 U	0.011	0.001 U	0.0044
	05/08/03	0.001 U	0.001 U	0.001 U	0.001 U
	11/06/03	0.001 U	0.0012	0.001 U	0.001 U
	04/18/04	0.001 U	0.001 U	0.001 U	0.001 U
	10/05/04	0.001 U	0.001 U	0.001 U	0.001 U
	03/28/05	0.001 U	0.001 U	0.001 U	0.001 U

Table 18-3
Summary of Groundwater Analytical Results for Volatile Aromatic Compounds, (mg/L)
Building 45-53 (UST EV-110-1)
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
1996 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.00151 (B)	0.03 (A) 0.8 (B)	0.04 (A) 1.6 (B)	0.02 (A) 16 (B)
2001 MTCA Method A or B Groundwater Cleanup Level		0.005 (A) 0.000795 (B)	0.7 (A) 0.8 (B)	1 (A) 1.6 (B) 0.64 (B*)	1 (A) 16 (B)
EGW053[1]	03/06/97	0.001 U	0.001 U	0.001 U	0.001 U
	05/27/97	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/97	0.001 U	0.0013	0.001 U	0.001 U
	11/18/97	0.001 U	0.001 U	0.001 U	0.001 U
	03/12/98	0.001 U	0.001 U	0.001 U	0.001 U
	03/12/98 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/14/98	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/98	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/98 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	11/11/98	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/99	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/99 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/11/99	0.001 U	0.001 U	0.001 U	0.001 U
	05/11/99 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/10/99	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/00	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/00 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	08/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/00	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/01 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/01	0.001 U	0.001 U	0.001 U	0.001 U
	08/02/01	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	11/15/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/02	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/02 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/02	0.001 U	0.001 U	0.001 U	0.001 U
	11/17/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/03	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/03 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	11/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	11/06/03 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	04/18/04	0.001 U	0.001 U	0.001 U	0.001 U
	10/05/04	0.001 U	0.001 U	0.001 U	0.001 U
	10/05/04 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	03/28/05	0.001 U	0.001 U	0.001 U	0.001 U

Notes:
MTCA - Model Toxics Control Act
(A) MTCA Method A groundwater cleanup level
(B) MTCA Method B groundwater cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA groundwater cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 groundwater cleanup levels, published 2001.
(DUP) - Field duplicate
NA - Not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
[1] Well installed in February, 1997.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.

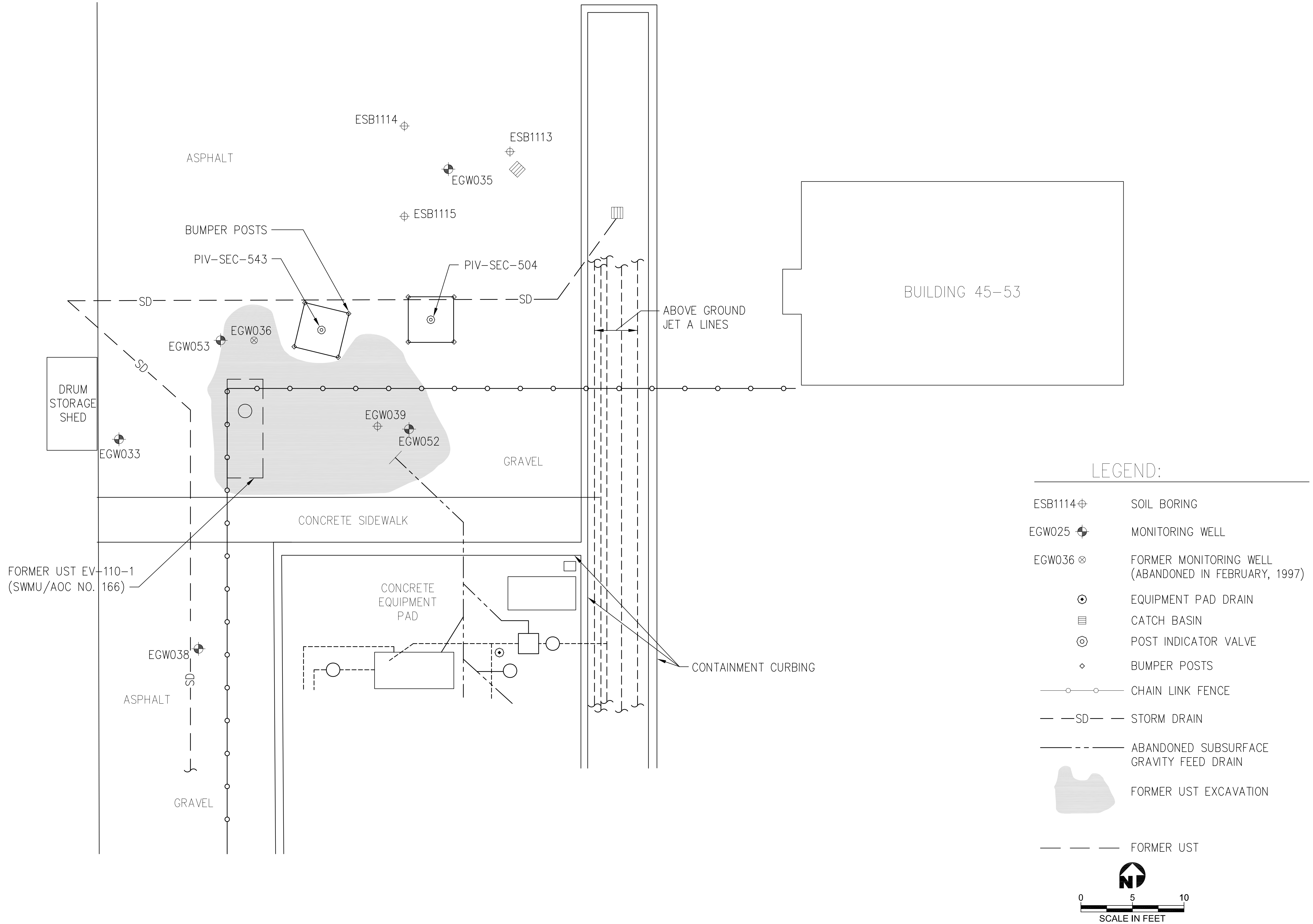

Figure 18-1
BUILDING 45-53 REMEDIAL EXCAVATION GROUNDWATER MONITORING WELL AND SOIL BORING LOCATIONS

Job No. 33761927

URS Q:\geo\Boeing\Everett\GW Monitoring Report\2010 RI06 Report\Fig 18-1.dwg
Mod: 01/11/2007, 11:28 | Plotted: 08/12/2010, 08:49 | john_knobbs

Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

19.0 BOMARC BUSINESS PARK

Presented in this section are the results of the 2000 and 2007 subsurface investigations performed at the BOMARC Business Park Building 45-70 property, the results of an interim action (IA) performed in 2008, and the results of additional investigation performed in 2009-2010. The BOMARC Business Park is located in the southeast portion of the Everett Plant (Figure 19-1). The 2000 investigation was performed to supplement the previous investigation of the Snohomish County Airport Road property which is located adjacent and to the west of the BOMARC Business Park (Figure 19-1), performed by AGI Technologies in March 1997 (AGI, 1997a, b). The 2007 investigations were performed to collect design data related to an interim action, and to satisfy Phase II due diligence investigation requirements as part of a planned property transaction of BOMARC Building 45-70 (which ultimately did not occur). The 2009-2010 investigation was performed in response to Ecology's comments on the Phase II due diligence investigation results. The investigations were performed in accordance with applicable sections of the Supplemental RIWP and IAWP, and work plans prepared specific to the IA and 2009-2010 BOMARC Building 45-70 investigations (URS 2008b, 2009b) that were approved by Ecology. The results of the 2009-2010 investigation and a summary of analytical results of the various prior investigations of soil, soil vapor and groundwater are presented in the focused RI report for BOMARC Building 45-70 (URS, 2010a), and summarized in this section.

Although Boeing owns Building 45-70, it leases the BOMARC property from Snohomish County. The BOMARC property is located near the southeast corner of the Airport Road and BOMARC Road intersection at 9205 Airport Road (Section 14, Township 28 North, Range 4 East) within unincorporated Snohomish County (Figure 19-1). The site vicinity consists of commercial retail, office, and light industrial property use. Snohomish County's Paine Field Airport is located adjacent to the west of the subject property (across Airport Road) and the main Boeing Everett facility is located adjacent to the northwest of the subject property (across Airport Road).

The BOMARC Building 45-70 property is an approximately 30.1 acre parcel consisting of an approximately 455,380 square foot (sf) building (Building 45-70) surrounded by asphalt-paved parking and storage areas (Figures 19-1 and 19-2). With the exception of the parking lot on the northwest portion of the site, the subject property is fenced. A fenced wetland area is located west of the building and south and east of the northwest parking lot. Currently, Boeing has three tenants who occupy Building 45–70: Fibres International, Inc. (Fibres) (recycling facility), Giddens Industries (Giddens) (aerospace components and assemblies manufacturing), and New Breed Logistics (New Breed) (warehousing and distribution of Boeing 787 parts).

19.1 BOMARC BUILDING 45-70 PROPERTY BACKGROUND

19.1.1 Pre-Boeing Operations

The BOMARC Building 45-70 property appears to have been undeveloped until the late 1940s/early 1950s when it was developed with two storage silos and dirt roads. The property and surrounding area were reportedly used by the United States Air Force (USAF) to store weapons ordnance during World War II and the Korean War. A bunker complex was present in the south portion of the subject property from the late

1950s/early 1960s until the current facility was developed by Snohomish County and Boeing into its current configuration in 1990.

19.1.2 Boeing Operations

Boeing occupied the subject property from 1990 through 1999 and on-site operations included sub-assembly of commercial aircraft interiors (IT, 1999). Boeing used glosses, putties, enamels, adhesives, solvents, methyl ethyl ketone (MEK), primers, epoxies, acrylics, inks, grease, lube oil, paints, and lacquers at the subject facility. These materials were stored in containers ranging in size from 2 ounces to 55 gallons. Drawings of the facility during Boeing's operation show one exterior chemical storage area, five interior chemical storage rooms, and six paint or glue rooms. The interior areas of the building had paint spray booth rooms and chemical storage rooms for the manufacturing process of aircraft interiors of Boeing aircraft. The exterior areas included the underground storage tanks (USTs) used for capturing spilled chemical waste, a hazardous chemical storage area, and the facility's oil/water separators (IT Corporation, 1999).

19.1.3 Post-Boeing Operations

Building 45-70 was unoccupied between 1999 and 2003. Since 2003, Boeing has leased the building to several tenants. Current tenants include Fibres, Giddens, and New Breed.

Fibres has operated at the BOMARC property since approximately 2003. On-site operations include recycling of paper, cardboard, plastic, aluminum cans and other scrap metals. These materials are brought to the facility "loose" and are compacted and bundled on-site by a large bailing machine (bailer) located in the central portion of the facility. Once compacted and bundled, the material is transported off-site.

Giddens is an aerospace components and assemblies manufacturer and has operated at the BOMARC property since late 2004. On-site operations include the use of presses, laser cutters, and a heat treatment machine. An overhead coolant distribution/recycling system provides coolant to certain machinery.

New Breed has operated at the BOMARC property since approximately October 2006. On-site operations include warehousing and distribution of Boeing 787 parts.

19.1.4 Adjacent Property Background

Surrounding properties appear to have been undeveloped until the 1930s when Paine Field Air Force Base was developed. The majority of the adjacent properties appear to have been owned by Snohomish County and used by the USAF from the 1940s through the late 1960s. The Paine Field Sports (Gun) Club was located adjacent to the west of the subject property from the 1950s through the 1990.

Under the AO, a portion of the BOMARC property is considered part of SWMU 100 – Former Gun Club. The northwestern portion of the BOMARC property is situated within the eastern margin of the projected area affected by the former Paine Field Sports (Gun) Club (Figure 19-2). According to pre-development plans, the northwest portion of the BOMARC area was graded in 1992 to remove surficial organic materials and soils prior to development of the current parking lot. Apparently, the only fill placed in this area was base course for the asphalt parking area and fill within the adjacent curbed landscaped areas.

Potentially dangerous constituents from historical activities at the Former Gun Club (see Section 17.0) may be present in the shallow soil of the northwest portion of the BOMARC Building 45-70 property. The constituents may include shotgun pellets (shot), and pieces of trap shooting clay pigeons (shards) made of tar-based derivatives containing polynuclear aromatic hydrocarbons (PAHs). The shot is typically composed of approximately 95% lead and 5% hardening agents such as antimony, copper, nickel, or chromium.

19.2 OTHER SUBSURFACE INVESTIGATIONS

This section provides a brief overview of subsurface investigations conducted at the BOMARC Building 45-70 property, for purposes other than characterization under this RI. These other subsurface investigations were identified by several historical Phase I Environmental Site Assessments performed by multiple parties since 1989. A tabular summary of subsurface investigations is provided in Table 19-1. A summary of analytical data generated during the previous investigations is included in the focused RI report for BOMARC Building 45-70 (URS, 2010a).

19.2.1 Dames & Moore (1989)

In 1989, Dames & Moore (D&M) conducted a Preliminary Site Assessment (PSA) and limited subsurface investigation at the BOMARC property for Boeing. This investigation was conducted prior to the AO being established for the site and was not performed with Ecology oversight. The investigation focused on the bunker complex located in the southern portion of the BOMARC property and extending onto the southern adjacent property, two storage silos (bunkers) located in the north-central portion of the BOMARC property, a septic tank located in the southwest corner of the BOMARC property, and an oil UST located on the adjacent property to the south (Figure 19-3). This investigation identified limited areas of petroleum-impacted soil in the southeastern portion of the BOMARC property at the north end of the bunker complex and at the location of the storage silos in the north-central portion of the BOMARC property. In addition, water samples collected from the septic tank contained metals and halogenated volatiles above drinking water standards. During pre-construction work, the septic tank was dewatered and removed by a contractor during site preparation on behalf of Boeing; however, the septic tank excavation was backfilled before soil conditions at the bottom of the excavation could be assessed by D&M (D&M, 1989a,b).

19.2.2 Moran Geotechnical Consultants (1989)

In 1989, Moran Geotechnical Consultants (Moran) conducted a pre-construction geotechnical investigation that consisted of the excavation and logging of soils exposed in 30 test pits on the BOMARC Business Park property, including the Building 45-70 parcels leased by Boeing. This investigation was conducted prior to the AO being established for the site and was not performed with Ecology oversight. According to Moran, fill soils extend to depths of between 1 to 7 feet bgs from regrading activities. In 1992, 110 cubic yards of petroleum-contaminated soil was reportedly excavated from the adjacent property to the south as part of the development of BOMARC Business Park – Phase II, and treated offsite at Paine Field (Moran, 1992).

19.2.3 Landau Associates (2002 And 2003)

In 2002 and 2003, Landau Associates (Landau) conducted a Phase I ESA and UST removal at the BOMARC property, respectively. The Landau sampling locations are shown on Figure 19-3. No releases from the USTs were reported and no evidence of releases to surrounding soils was noted during their removal in 2003. One perched groundwater collected from within the former UST backfill material had a benzene concentration (0.9 µg/L) less than the MTCA Method A groundwater cleanup level (5 µg/L) but greater than the MTCA Method B cleanup level (0.5 μg/L). Based on their findings, Landau did not recommend additional investigation or remedial action to support unrestricted land use activities at the subject property (Landau, 2002 and 2003).

19.2.4 Farallon Consulting Subsurface Investigation (2003)

In 2003, Farallon Consulting (Farallon) conducted a limited subsurface investigation beneath the Giddens' lease area (Figure 19-3). This investigation was conducted as an independent assessment on behalf of a Building 45-70 tenant prior to their operations at the site. PCE was detected in soil below the MTCA Method A cleanup level in a boring completed in the southeast portion of the current Giddens tenant space (i.e. east central portion of the building). Petroleum hydrocarbons, PAHs, polychlorinated biphenyls (PCBs), metals and other volatile organic compounds (VOCs) were not detected above laboratory method detection limits in the remaining soil samples. Groundwater was not encountered during Farallon's investigation (Farallon, 2003).

19.2.5 Farallon Consulting Phase II Investigation (2007)

In 2007, Farallon performed a Phase II Subsurface Investigation of the New Breed tenant space in Building 45-70 (Figure 19-3) on behalf of New Breed. This investigation was conducted as an independent assessment on behalf of a Building 45-70 tenant prior to their operations at the site. Soil samples collected during the investigation were analyzed for petroleum hydrocarbons, VOCs, selected metals, and compounds associated with military ordnance. VOCs, petroleum hydrocarbons, and metals were not detected above MTCA Method A or B cleanup levels with the exception of cadmium in one sample. Groundwater was not encountered in any of the borings (Farallon, 2007).

19.2.6 The 2007 Investigation for the Collection of RI data and As Part of Due Diligence Activities Prior to Listing Building 45-70 for Sale

The 2007 investigation was conducted as an independent action on behalf of Boeing as part of due diligence activities prior to listing Building 45-70 for sale and was not an Ecology requirement of the RI. The purpose, methods, and results of this investigation are summarized in the paragraphs below. Additional detail is available in the Phase II Investigation report (URS, 2008a) and the Supplemental RI for the BOMARC Building 45-70 property (URS, 2010a).

The purpose of the 2007 investigation was to assess whether chemicals used historically by Boeing were present in subsurface soil or sub-slab vapor at selected locations beneath Building 45-70 (URS, 2008a). The investigation was intended to supplement the prior investigations described in subsections 19.2.1 through 19.2.5 and was focused on former paint and glue rooms, chemical storage rooms, and oil/water separators used historically by Boeing at the BOMARC Building 45-70 property (Figure 19-3). Except for the oil/water separators located outside of the building, all of the areas of interest were located within the current New Breed tenant space. The scope of investigation conducted in November 2007 included the following:

- Collection of 11 sub-slab vapor samples (SSV-1 through SSV-11) beneath the existing building floor slab near potential source areas with on-site (mobile) laboratory analysis for petroleum compounds and VOCs.

- Completion of 7 push-probe soil borings (GP-1 through GP-7) within Building 45-70 and adjacent to two oil/water separators. Logs of the soil borings are provided in Appendix T-1.

- Collection of soil samples from each boring for off-site laboratory analysis for petroleum hydrocarbons, VOCs, SVOCs, and selected metals.

- Collection of ambient air samples from 5 locations, with Tedlar-bag samples from each location analyzed by a mobile laboratory and Summa-canister samples analyzed by an off-site laboratory for dichlorodifluoromethane (DCDFM).

Soils encountered in push-probe borings GP-1 through GP-7 consisted principally of fine-grained sand, silt, fine gravel, and some organics (wood debris). The borings were drilled to a total depth of 6.5 bgs, except for GP-2 where refusal was reached at 2.5 feet bgs.

Perched water or groundwater was not encountered in any of the soil borings. No significant staining of soil was observed. A visqueen vapor barrier was observed at several of the push-probe boring locations, typically on the bottom of the concrete core.

The subslab vapor results (Table 19-2) showed that the compound DCDFM appeared to be widely dispersed beneath the Building 45-70 foundation slab in the area of the New Breed tenant space. However, this compound was not detected in indoor air samples collected within Building 45-70 (Table 19-3) and was concluded to not present a health risk to workers in the building at the measured concentrations in sub-slab vapor. No source for this compound in sub-slab vapor was been identified.

Petroleum constituents were found to be present in soil beneath the New Breed tenant space in Building 45-70 and near the oil/water separators (Table 19-4). In one sample from one location (GP-1 at 6 feet bgs) gasoline-range TPH exceeded the MTCA Method A soil cleanup level. The petroleum constituent concentrations did not exhibit a clear spatial pattern and therefore were not clearly indicative of a specific type of petroleum product release. Petroleum hydrocarbons were detected in soil at several locations on the subject property prior to Boeing’s construction of Building 45-70 (Dames & Moore, 1989). Gasoline was not known to be used by Boeing or New Breed within the area of the building where GP-1 is located.

Carcinogenic PAH compounds were present in soil near the oil/water separators at concentrations exceeding MTCA soil cleanup levels. Oil-range TPH concentrations were also slightly higher (although below MTCA Method A soil cleanup levels) near the oil/water separators than at most other locations sampled during the 2007 investigation.

For those analytes not discussed in the preceding paragraphs, the laboratory analytical results indicated that most chemicals of interest selected for the 2007 investigation were not detected in either soil or sub-slab vapor above the laboratory reporting limits, or were detected at concentrations below applicable MTCA A and B soil cleanup levels and EPA soil vapor screening levels.

19.3 2000 RI INVESTIGATION

This section presents the results of the subsurface investigation performed as part of the facility-wide RI in 2000.

19.3.1 Purpose and Scope

The purpose of the 2000 investigation was to assess whether potentially dangerous constituents in the shallow soil in the northwest portion of the BOMARC Building 45-70 property were affected by historical activities at the former Gun Club. The scope of investigation performed was in general accordance with Section 3.6 of the Supplemental RIWP and included the following:

- Completed 10 hydraulic probe soil borings to depths ranging from 5 to 6 feet bgs using a truck-mounted Geoprobe rig
- Collected soil samples at prescribed depth intervals
- Field screened samples for organic vapors and visual evidence of shot and shards
- Submitted selected soil samples for analysis for PAHs, arsenic and lead

There were no deviations from the planned scope of investigation.

19.3.2 Documentation of Drilling and Sampling

On April 3, 2000, Dames & Moore monitored the completion of ten soil probe borings (ESB1353 through ESB1362) in an approximately 80-foot grid, situated within landscaped medians and asphalt-paved parking areas, as shown on Figure 19-4. One soil probe (ESB1362) was completed to a depth of 5 feet bgs and the other nine soil probes (ESB1353 through ESB1361) were completed to a depth of 6 feet bgs. Soil samples were retrieved using SPT split spoon samplers. Soil samples were sieved in the field and visually inspected for presence of shot or shards. The samples were transferred to laboratory prepared glassware using a cleaned stainless spoon. After sampling was completed, the borings were backfilled with hydrated bentonite chips and capped with concrete. Drilling techniques and sampling procedures utilized were in general accordance with the SAP presented in Appendix A of the RIWP.

19.3.3 Field Observations and Sample Analysis Results

Presented in this section are the field observations and sample results associated with soil probe borings ESB1353 through ESB1362 as shown on Figure 19-4. Geologic logs of the borings are presented in Appendix T1. The chain of custody forms and analytical laboratory reports are presented in Appendix T2. Data validation reports are in Appendix T3. Analytical results are summarized in Tables 19-5, 19-6, and 19-7.

19.3.3.1 Field Observations

The area investigated was covered with approximately 6 inches to 2½ feet of dark brown silty topsoil or 6-inch-thick asphalt. Underlying the topsoil and asphalt is fill soil consisting of dense fine to medium sand with silt and gravel to depths ranging from ½ -foot to 2½ feet bgs. Native glacial till underlying the fill consisted of fine to medium silty sand with trace gravel. The till was encountered at depths ranging from 1½ feet bgs to the maximum depth investigated. Perched groundwater was not encountered in the probe borings. Soil samples were moist or contained wet seams at the maximum depth investigated.

Staining or other visual indications of dangerous constituents were not observed. No evidence of shot or shards was observed in the fill soil samples collected. PID readings did not indicate elevated organic vapors above background ambient levels in the soil samples.

19.3.3.2 Sample Analysis Results

Twenty-one soil samples from depths ranging from ½ foot to 2½ feet bgs were submitted for analysis per the sample selection criteria specified in Section 3.6 of the Supplemental RIW. Table 19-5 summarizes the analytical results for PAHs. Table 19-6 summarizes the analytical results for cumulative carcinogenic and non-carcinogenic PAH concentrations. Table 19-7 summarizes the analytical results for arsenic and lead. These tables also list the applicable MTCA Method A and B soil cleanup levels.

Non-carcinogenic and carcinogenic PAHs were detected in all of the ½-foot samples, and two of the 2 ½-foot samples (ESB1357 and ESB1359). All individual non-carcinogenic PAH concentration values detected at ½ and 2½ feet bgs are less than the MTCA Method B soil direct contact cleanup levels for these compounds (Table 19-5). TTEC cPAH values were above the MTCA Method A and/or B soil cleanup levels for all samples collected at the ½-foot depth except from borings ESB1358, ESB1359, ESB1361, and ESB1362. The concentrations of certain individual PAH compounds in some of these same samples also exceeded the most conservative preliminary soil cleanup level protective of groundwater. TTEC cPAH values were below the MTCA Method A and B soil cleanup levels at 2 ½ feet bgs (Table 19-6).

Arsenic concentrations ranging from 1.9 mg/kg to 8.0 mg/kg were detected in the 20 samples analyzed. These concentrations are above the MTCA Method B soil cleanup level (0.667 mg/kg). Only one sample (ESB1358 at ½-foot bgs) is above the Puget Sound background concentration of 7.3 mg/kg (Ecology, 1994). Arsenic concentrations in all of the soil samples were below the MTCA Method A cleanup level protective of direct contact and groundwater (20 mg/kg).

19.4 2009-2010 RI INVESTIGATION

19.4.1 Purpose and Scope

The purpose of the 2009-2010 investigation was to obtain additional soil, sediment, and groundwater data in specific areas of the site where, based on the historical data, Ecology believed that additional investigation was warranted. The supplemental investigation included the collection of 13 sediment samples from seven locations on and off of the property, and the drilling of 19 soil borings, three of which were converted to groundwater monitoring wells. The boring and monitoring well locations are shown on Figure 19-3. Sediment sampling results are documented separately in the Focused RI for BOMARC Building 45-70 (URS, 2010a) and the facility-wide RI for sediment samples and surface water. The supplemental Phase II investigation was performed as described in the Ecology-approved *Supplemental Phase II Investigation Work Plan* dated July 8, 2009 (URS, 2009b) as amended by subsequent correspondence between Ecology and Boeing) with the exception of the following deviations related to soil and groundwater sampling tasks:

- A grab groundwater sample was collected from perched groundwater in boring ESB1727 and was analyzed for TPH, VOCs, PAHs, and RCRA metals.

- The grab groundwater sample collected from boring ESB1732 was collected at 14 feet bgs, rather than the 15 feet bgs depth presented in the work plan.

Ecology was notified of these deviations via email correspondence on December 21 and 22, 2009.

19.4.2 Documentation of Drilling and Sampling

The 2009-2010 investigation was completed between December 17, 2009 and January 13, 2010 and consisted of the following soil and groundwater sampling elements listed below:

1. Subsurface soil sampling and analysis for TPH as gasoline (TPH-G), diesel (TPH-D), and heavy oil (TPH-O), VOCs and metals from the vicinity of the former septic tank (locations ESB1725 through ESB1727 on Figure 19-3). Samples from location ESB1727 were also analyzed for PAHs based on its proximity to prior sampling location GP-7. Soil borings ESB1725 and ESB1727 were drilled to 23 feet bgs, and boring ESB1726 was drilled to 22 feet bgs. A grab groundwater sample was collected from perched groundwater in boring ESB1727 and was analyzed for TPH, VOCs, PAHs, and RCRA metals.

2. Sampling of groundwater perched within the glacial till in the vicinity of the former septic tanks (location EGW179 on Figure 19-3). The groundwater sample was analyzed for TPH-G, TPH-D, and TPH-O, VOCs, PAHs, and metals. Perched groundwater was encountered during the drilling of monitoring well EGW179 at approximately 15 feet bgs and the well was screened from 9 to 24 feet bgs.

3. Subsurface soil sampling and analysis for PAHs from the vicinity of prior sampling locations GP-6 and GP-7 (ESB1728 through ESB1731 and the boring for well EGW180 on Figure 19-3). Soil borings ESB1728 and ESB1729 were drilled to depths of 8 feet bgs, and borings ESB1730 and ESB1731 were drilled to 14 feet bgs. The soil sample for EGW180 was collected at 20 feet bgs.

4. Sampling of groundwater perched within the glacial till in the vicinity of prior sampling location GP-7 (location EGW180 on Figure 19-3). The groundwater sample was analyzed for TPH-G, TPH-D, and TPH-O, VOCs, PAHs, and metals. Groundwater was not encountered during the drilling of the well bore for EGW180; however, a well was constructed at this location and was screened from 20 to 40 feet bgs. Approximately 11 feet of groundwater was present in the well the day after installation.

5. Groundwater sampling and analysis for benzene from the former UST basin EV-229 (location ESB1732 on Figure 19-3). Perched groundwater was encountered during the drilling of soil boring ESB1732 in the UST basin at approximately 13 feet bgs.

6. Sampling of groundwater perched within the glacial till in the vicinity of the former UST basin EV-229 (location EGW181 on Figure 19-3). The groundwater was analyzed for TPH-G, TPH-D, and TPH-O, VOCs, PAHs, and metals. Perched groundwater was encountered during the drilling of monitoring well EGW181 at approximately 20, 31.5, and 35 feet bgs, and the well was screened from 27 to 42 feet bgs.

7. Subsurface soil sampling and analysis for TPH-G from the vicinity of prior sampling location GP-1 (locations ESB1733 through ESB1736 on Figure 19-3). Soil borings ESB1733 through ESB1736 were drilled to 8 feet bgs and groundwater was not encountered.

8. Subsurface soil sampling and analysis for cadmium from the vicinity of historical sample location B4 (locations ESB1737 through ESB1740 on Figure 19-3). Soil borings ESB1737 through ESB1740 were drilled to 10 feet bgs and groundwater was not encountered.

9. Surveyed groundwater monitoring wells EGW179 through EGW181. The monitoring wells were surveyed by Duane Hartman & Associates, Surveyors, on February 26, 2010 and were tied into the existing facility-wide coordinate system (Washington State Plan Coordinate System, North Zone [horizontal datum] and NGVD-29 [vertical datum]).

Soil boring and well construction logs are included in Appendix T-1. Laboratory analytical data and data validation memoranda for the soil samples collected in 2009 and 2010 are provided the focused RI for BOMARC Building 45-70 (URS, 2010a). Laboratory analytical data and data validation memoranda for the groundwater samples collected from monitoring wells EGW179 through EGW181 are provided in the quarterly groundwater monitoring reports beginning with the second quarter 2010 report (URS, 2010b).

19.4.3 Field Observations and Sample Analysis Results

Presented in this section are the field observations and sample results associated with soil and groundwater samples collected and analyzed during the 2009-2010 investigation as shown on Figure 19-3. Geologic logs of the borings are presented in Appendix T1. The analytical laboratory reports, chain of custody forms, and Data validation reports are presented in Appendix the Focused RI for the BOMARC Building 45-70 property (URS, 2010a). Analytical results are summarized in Tables 19-8 through 19-10.

19.4.3.1 Field Observations

Geologic deposits found beneath the BOMARC Building 45-70 property during the 2009-2010 investigation were consist with past investigations (Section 19-2) and included anthropogenic fill, glacial till, and glacial outwash sands. Fill is reported in exploratory borings and test pits on the site drilled or excavated prior to Boeing's development of the site in 1990 (Moran, 1989, Dames & Moore, 1989b), as a result of previous grading during use of the property for military purposes. Fill was also presumably placed as part of Boeing's development of the site, and was used to backfill former septic tank and underground storage tank (UST) excavations (e.g. Landau, 2003). Fill depths range from 0 to 20 feet bgs. The fill is underlain by glacial till to a documented depth of at least 35 feet (Dames & Moore, 1989b).

Perched groundwater was encountered within permeable septic system backfill during drilling for this Supplemental RI at depths ranging from 8.5 to 15 feet bgs; however, native soils beneath the septic system excavation (at approximately 20 to 22 feet bgs) were not saturated. Perched groundwater accumulating in relatively permeable excavation backfill materials is common throughout the Puget Sound region. In such cases the perched water is frequently present only within the backfill materials and is not observed in wells and borings outside of the excavation limits within glacial till. Groundwater seepage was reported at the contact between fill and the underlying very dense glacial till in some, but not all, test pits previously completed at the site (Moran, 1989; AGI, 1997a). Perched groundwater was also found within permeable UST backfill during a tank decommissioning project; however the native soil beneath the tank excavation (at approximately 15 feet bgs) was not saturated (Landau, 2003).

Perched groundwater was also been detected during this and previous investigations in sand lenses within glacial till in various locations across the property at depths ranging between 20 feet bgs (EGW181) and 40 feet bgs (EGW179). Perched groundwater contained within sand lenses is common in glacial till. Such water is typically of low volume and not laterally extensive. Wells placed in glacial till across a site frequently intersect different water-bearing sand lenses that may or may not be hydrologically connected. Very dense glacial till separates perched groundwater beneath the site from groundwater in the regional Esperance Sand aquifer at an estimated depth of 200 feet bgs.

19.4.3.2 Sample Analysis Results

<u>Soil Sample Results</u>

The soil analytical results for the 2009-2010 investigation are summarized in Table 19-8. The soil samples were collected between December 20, 2009 and January 7, 2010. Selected soil samples were analyzed for VOCs, PAHs, TPH, and metals. VOCs, TPH, and metals were not detected in the soil samples above their respective screening levels with the exception of total chromium in the 15-foot bgs sample collected from boring ESB1727 and cadmium in the 10-foot bgs sample collected from boring ESB1740. The detected concentrations of arsenic (up to 6 mg/kg) and the reporting limit for arsenic (5 mg/kg to 6 mg/kg) exceeded the most conservative preliminary cleanup level for protection of groundwater but were less than the Puget Sound background concentration of 7.3 mg/kg (Ecology, 1994) and the MTCA Method A soil cleanup level protective of direct contact and groundwater (20 mg/kg).

The concentration of chromium detected in boring ESB1727 is consistent with the natural background soil concentration screening level for chromium of 48.2 mg/kg (Ecology, 1994). Chromium was not detected above the screening level of 48.2 mg/kg in the 20-foot bgs sample collected from boring ESB1727. Chromium was also not detected above the screening level in soil samples collected from two other borings drilled in the vicinity of the former septic system (ESB1725 and ESB1726).

The concentration of cadmium (2.7 mg/kg) detected in the 10-foot bgs sample collected from fill soil in boring ESB1740 exceeded the MTCA Method A screening level of 2.0 mg/kg. Cadmium was not detected above the laboratory reporting limit in the 3 and 7.5-foot bgs samples collected from boring ESB1740, nor was it detected in soil samples collected at similar depths in adjacent borings ESB1737 through ESB1739 (Figure 19-3). Therefore, it appears that fill soil containing concentrations of cadmium exceeding the screening level is isolated to the immediate vicinity of soil borings ESB1740 and the 2003 Farallon boring B4. The vertical extent of cadmium exceeding the screening level was not delimited at this location.

The TTEC for total cPAHs was above the screening level in the soil samples collected from 3 and 6 feet bgs in boring ESB1727; however, cPAHs were either not detected above screening levels or not detected above laboratory reporting limits in soil samples collected at deeper intervals in boring ESB1727 or in any samples analyzed from nearby borings ESB1728 and ESB1729 (see Table 19-8). Therefore, the vertical extent of soils containing concentrations of cPAHs exceeding screening levels appears to be limited to the upper 6 feet of soil at ESB1727 and the southern and eastern lateral extent of cPAHs exceeding screening levels also appears to be limited in this area. The western extent has not been delimited by the available data.

The TTEC for cPAHs was above the screening level in soil samples collected from depths of 2, 4, and 10 feet bgs in boring ESB1731. cPAHs were either not detected above screening levels or not detected above laboratory reporting limits in soil samples collected from nearby borings ESB1730 and EGW180. The western extent of soils containing cPAH concentrations exceeding screening levels appears to be delimited in this area. However, the vertical extent and lateral extent of soils containing cPAH concentrations exceeding screening levels to the north, south and east was not delimited in this area.

Where TTEC cPAH concentrations exceeded the MTCA Method A or Method B cleanup level for direct contact, the concentrations of certain individual PAH compounds sometimes also exceeded the most conservative preliminary soil cleanup level protective of groundwater.

The TPH-G results for soil samples collected from borings ESB1733 through ESB173 indicate that TPH-G detected in a soil sample from URS’ 2007 boring GP1 at a depth of approximately 6 feet bgs has degraded to below the screening level.

Groundwater Results

The groundwater analytical results for the 2009-2010 investigation are summarized in Tables 19-9 and 19-10, including quarterly sampling results up through the second quarter of 2010. A grab groundwater sample was collected from boring ESB1727 on December 22, 2009 and was analyzed for VOCs, PAHs, TPH, and total and dissolved metals. Boring ESB1727 was situated within the backfill of the former septic system leach field and the groundwater sample was collected within the backfill at approximately 8.5 feet bgs. VOCs, PAHs, TPH, and total and dissolved metals were either not detected above screening levels or not detected above laboratory reporting limits.

A grab groundwater sample was also collected from boring ESB1732 on December 22, 2009 and was analyzed for benzene. Boring ESB1732 was installed within the UST basin EV-229 backfill and was intended to further assess the benzene detection identified in a grab groundwater during Landau’s 2003 investigation, which slightly exceeded the MTCA Method B cleanup level. Landau’s 2003 sample was collected within the UST basin backfill at approximately 16 feet bgs and the benzene concentration was 0.9 micrograms per liter (μg/L). The grab groundwater sample from boring ESB1732 was collected within the UST basin backfill at a depth of approximately 14 feet bgs, and benzene was not detected above the laboratory reporting limit 0.2 µg/L. This result indicates that benzene detected during Landau's 2003 investigation has degraded to below the screening level.

Groundwater monitoring wells EGW179 through EGW181 were installed between January 5, 2010 and January 7, 2010. Prior to sampling on January 13, 2010 and April 26, 2010, the depth to groundwater measurements in the monitoring wells were 10.36 and 10.35 feet below top of casing (TOC) (EGW179), 20.39 and 20.94 feet below TOC (EGW180), and 14.15 and 14.12 feet below TOC (EGW-181). Groundwater samples collected from the wells on both sampling dates were analyzed for VOCs, PAHs, TPH, and total and dissolved metals.

Acetone was detected at a concentration of 21 µg/L in the January 13, 2010 sample from monitoring well EGW181, which is below the screening level of 800 µg/L. Acetone was not detected above 5.0 µg/L in the April 26, 2010 sample from this well. Carbon disulfide was detected at a concentration of 0.3 µg/L in the January 13, 2010 sample from monitoring well EGW179, but was not detected above 0.2 µg/L in the April 26, 2010 sample from this well. A screening level for carbon disulfide has not been established. Other VOCs were not detected above their respective laboratory reporting limits in the groundwater samples.

Non-carcinogenic PAHs were detected below their respective screening levels in the January 13, and April 26, 2010 groundwater samples collected from monitoring well EGW179, and the April 26, 2010 groundwater samples collected from monitoring wells EGW180 and EGW181. Non-carcinogenic PAHs were not detected above their respective laboratory reporting limits in the January 13, 2010 groundwater samples collected from monitoring wells EGW180 and EGW181. Carcinogenic PAHs were only detected above their respective laboratory reporting limits in the April 26, 2010 groundwater sample from monitoring well EGW-180. The TTEC cPAH concentration in this sample was 0.00371 µg/L, below the screening level of 0.012 µg/L.

TPH-D was detected at a concentration of 0.43 milligrams per liter (mg/L) in the January 13, 2010 groundwater sample collected from monitoring well EGW179, which is below the screening level of 0.5 mg/L. TPH was not detected above the laboratory reporting limits in the remaining groundwater monitoring well samples.

Total and dissolved barium were detected below their respective screening levels in each of the groundwater monitoring well samples. Dissolved selenium was detected at the reporting limit of 0.05 mg/L (below the screening level of 0.08 µg/L) in the groundwater sample collected from monitoring well EGW179, but not in any other groundwater samples. Total selenium was not detected in any of the groundwater samples above 0.05 µg/L. Total chromium was detected in the April 26, 2010 samples from wells EGW180 and EGW181 at concentrations of 0.016 µg/L and 0.076 µg/L, respectively. The concentration detected in well EGW181 is above the screening level for hexavalent chromium but below the screening level for trivalent chromium. Dissolved chromium was not detected in any of the groundwater samples above 0.005 µg/L. Other total and dissolved metals were not detected above their respective laboratory reporting limits.

19.5 SOIL CLEANUP INTERIM ACTION

A soil cleanup interim action (IA) was performed in 2008 and consisted of soil excavation and disposal at the BOMARC Business Park property in advance of marketing and potential sale of the BOMARC Building 45-70, which would necessitate termination or transfer of the existing ground lease with Snohomish County.

The removal of soil from the BOMARC property was necessary to eliminate future exposure pathways because, after terminating or re-assigning its lease agreement with Snohomish County for this property (URS, 2008b). Even if Boeing relinquishes the lease of the property and sells the building, if contamination greater than unrestricted cleanup levels remains, Boeing will need to require institutional controls for future use of the building.

19.5.1 Purpose and Scope

The IA was conducted pursuant to the Fourth Amendment to the AO, dated January 24, 2008 (Amendment 4). The IA was conducted in general accordance with the Ecology-approved interim action work plan (IAWP, URS, 2008). No deviations from the IAWP occurred during performance of the IA and the soil excavation and disposal met the interim action cleanup objectives established in the IAWP. The results of the IA are presented in an IA Completion Report (URS, 2009a) and are summarized herein.

The scope of the interim action included:

- Obtaining coverage under the Washington State General Stormwater Permit for Construction Activities and obtain a Snohomish County Grading and Drainage Permit
- Characterization of soil for disposal
- Mobilization of personnel, equipment, materials, and supplies
- Site preparation, including environmental protection measures, utility location, and marking of excavation area
- Removal and off-site disposal of landscaping vegetation, concrete, asphalt, topsoil and base course material
- Excavation of soil and transport to approved off-site disposal facilities
- Collection and analysis of post-excavation samples
- Backfill of the excavation
- Upgrading of stormwater features to meet current Snohomish County code
- Re-installing curbing and pavement
- Re-striping the parking lot
- Replanting landscaping and reinstall irrigation system
- Documenting field observations, work activity, and sample results in an IA completion report (URS, 2009a)

19.5.2 Pre-Design Sampling and Analysis

19.5.2.1 Extent of Investigation

To supplement the investigation performed in the IA work area in 2000 (Section 19.3.2) and allow for design, 11 hydraulic probe soil borings were completed and sampled (ESB1354A, ESB1355A, ESB1357A, ESB1360A, and ESB1681 through ESB1687, Figure 19-4) to a maximum depth of 4.5 feet bgs on August 30, 2007. Seven of these borings were completed at locations not sampled previously (ESB1681 through ESB1687), and 4 borings were completed at locations adjacent to previous borings ESB1354, ESB1355, ESB1357, and ESB1360. Boring locations were selected to assess the following:

- Lateral extent of soil containing PAHs above applicable cleanup levels to the north, south, and east of the 2000 boring locations.

- Depth of soil containing PAHs above applicable cleanup levels based on more closely spaced vertical sampling than that available from the 2000 borings (from which samples were collected at 0.5-foot and 2.5-foot intervals)

To meet these assessment objectives, borings were located as follows:

- Three boring locations to the south of the 2000 boring locations (ESB1681 through ESB1683)

- Three boring locations to the east of the 2000 boring locations (ESB1684 through ESB1686)

- One boring location to the north of the 2000 boring locations (ESB1687)

- Four boring locations immediately adjacent to 2000 boring locations where the highest PAH concentrations were detected (ESB1354A, ESB1355A, ESB1357A, and ESB1360A)

At each sampling location, asphalt was cored and removed (if present) and gravel base course or topsoil (in planter areas) was removed by hand to a depth of approximately 0.5 feet bgs. Continuous soil cores were then recovered from the interval 0.5 feet bgs to 4.5 feet bgs. Note that the ground surface elevation varies up to approximately 2 feet between the asphalt parking lot and landscaped areas.

Asphalt, topsoil, and base course present in the core barrel were discarded prior to sample collection. Soil samples were then collected from the continuous cores at 0.5-foot intervals (0.0-0.5, 0.5-1.0, 1.0-1.5, 1.5-2.0, and 2.0-2.5 feet), as measured from the bottom of the discarded material. Selected soil samples were analyzed for PAHs. Sample depths selected for initial analysis were based on the prior (2000) data and field observations. Based on the results of these initial results (presented below under ***Analytical Results***), additional samples from the 0.5-1.0 foot interval from borings ESB1354A, ESB1355A, ESB1357A, ESB1360A, ESB1682, and ESB1687 were analyzed to further constrain the vertical distribution of soil containing PAHs above applicable MTCA Method B cleanup levels.

19.5.2.2 Field Observations

Soil types and thicknesses were consistent with those reported for the 2000 soil borings, and included asphalt, gravel base course, and dark brown silty topsoil. As in the 2000 soil borings, perched groundwater was not encountered in the pre-design borings. Staining or other visual indications of dangerous constituents were not observed. No evidence of shot or shards was observed in the soil samples collected.

19.5.2.3 Analytical Results

Analytical results for the pre-design investigation are provided in Table 19-11. Eighteen soil samples (and two field duplicates) from depth intervals between 0.5 feet and 1.5 feet were submitted for analysis. PAHs were detected in soil samples from the 0.0 to 0.5-foot interval at two of the 7 new sampling locations (ESB1682 and ESB1687). The TTEC cPAH concentrations in these two samples are above the MTCA Method A or B levels. The concentrations of certain individual PAH compounds in some of these same samples also exceeded the most conservative preliminary soil cleanup level protective of groundwater. PAHs were not detected in any of the pre-design soil samples from the 1.0 to 1.5-foot depth interval. PAHs were not detected in any of the 6 soil samples analyzed from the 0.5 to 1.0-foot depth interval except for a result of 100 µg/kg pyrene at location ESB1682. This pyrene concentration is below the MTCA Method B cleanup level of 2,400,000 µg/kg and the preliminary soil cleanup level protective of groundwater of 654,644 µg/kg.

19.5.3 IA Design

Based on the pre-design data and earlier historical data, the IA design established the area of excavation depicted on (Figure 19-1), and the expected depth of excavation required to meet the IA remediation goal of the applicable MTCA Method B cleanup levels for PAHs. Design elements were also included to restore the site as a parking lot while meeting the current stormwater treatment requirements of Snohomish County.

19.5.4 Soil Excavation, Soil Disposition, and Site Restoration

19.5.4.1 Summary of Interim Action

This section presents a chronology and summary of construction activities conducted for the soil excavation, disposal and site restoration at the BOMARC property. Soil excavation and handling, construction stormwater monitoring and management, and site restoration was performed by Gary Merlino Construction Company, Incorporated (Merlino) under contract to Boeing. Soil disposal was managed by Philip Services, Incorporated (Philip Services), under contract to Boeing. Other subcontractors to Merlino provided surveying, utility locating services, landscaping, and irrigation installation. URS supported Boeing with on-site sampling and documentation, sample and data management, compaction testing, reporting, and contractor management. Krazan and Associates, Inc. (Krazan) was subcontracted to URS and provided geotechnical testing of soil, compaction testing of asphalt, and slump testing of concrete. URS staff performing field monitoring of the excavation and sample collection included qualified geologists, environmental scientists, and engineers.

The contractors mobilized personnel and equipment to BOMARC on August 20, 2008 and site preparation (marking of excavation cell boundaries, tree removal, light standard removal, and demolition of the site) began on August 21, 2008. Excavation of soil contaminated above IA remediation goals began on August 24, 2008. This work began in the southwest corner of the excavation boundaries. The first post-excavation samples were collected on September 3, 2008. Excavation and disposal of soil contaminated above the IA remediation goals from BOMARC property was completed and the final post-excavation sample was collected on September 19, 2008. Validated data were available on October 3, 2008 to confirm that no further excavation was warranted. Backfilling and compaction testing began on September 11, 2008 and was completed on September 26, 2008.

19.5.4.2 Waste Disposition

Soil containing PAHs above the remediation goal was recycled at the LaFarge Cement Plant in Seattle, Washington, where it was incorporated into concrete mix. A total of 5,492 tons were transported to the LaFarge Cement Plant. Concrete, asphalt, sod and trees were disposed of as construction debris. Approximately 1,447 tons of asphalt and 82 tons of concrete were disposed of at East Valley Sand and Gravel, in Arlington, Washington, while 15 loads of sod and trees went to Pacific Topsoil in Everett, Washington.

19.5.5 Interim Action Sampling and Analysis

The following sample types were collected during the IA:

- Post-excavation soil samples from the floor and sidewalls of the excavation
- Import material samples for the gravel, topsoil, and crushed rock

The subsections below discuss the analytical results for the sample types. Comprehensive results are presented in Appendix B of the IA completion report (URS, 2009a).

19.5.5.1 Post-Excavation Soil Samples

Post-excavation soil samples were collected in general accordance with the IAWP. Overall, 18 post-excavation soil samples (and 1 field duplicate) were collected. Post-excavation soil samples were of three types.

- Post-excavation floor samples, collected when the excavation area had reached its planned depth, or a depth at which no field evidence of target shards was observed
- Post-excavation wall samples, collected when the excavation sidewall was exposed
- Field duplicate sample

The locations of all post-excavation samples are shown on Figure 19-4. The analytical results for post-excavation samples representative of soil remaining on site are summarized in Table 19-12.

Carcinogenic PAHs were not detected in the post-excavation floor samples. TTEC of cPAHs in post-excavation wall samples ranged from 0.06 µg/kg to 7.7 µg/kg. These concentrations of cPAHs are well below the IA remediation goal of 100 µg/kg TTEC of cPAHs. All detected concentrations of individual

PAH compounds in post-excavation soil samples were also well below the IA cleanup levels and the preliminary soil cleanup levels protective of groundwater.

19.5.5.2 Import Material Sampling

Import material samples were collected in general accordance with the IAWP, and results are tabulated in Appendix B of the IA completion report (URS, 2009a). Overall, 12 import material samples were collected. These samples were collected to confirm that the import materials were not potential sources of PAHs, RCRA metals, TPH, VOCs, SVOCsPCBs, or chlorinated pesticides. Three import samples for topsoil were shown to have high levels of cPAHs (SOILIMP-1, SOILIMP-2, and SOILIMP-3). The topsoil source represented by these samples was rejected and no topsoil was imported from this source. An alternate topsoil source was identified and tested. The remaining three import samples for topsoil and all rock-gravel material met the required limits to be used on site.

19.6 CONCLUSIONS

The analytical results for soil samples collected from the northwest portion of the BOMARC Building 45-70 property following the 2008 IA demonstrate that soil containing PAHs above RI screening levels and IA remediation goals was removed during the IA. Carcinogenic PAHs were not detected in the post-excavation floor samples. TTEC of cPAHs in post-excavation wall samples ranged from 0.06 µg/kg to 7.7 µg/kg. These concentrations of cPAHs are well below the IA remediation goal and RI screening level of 100 µg/kg TTEC of cPAHs. All detected concentrations of individual PAH compounds in post-excavation soil samples were also well below the IA remediation goals, RI screening levels of the applicable MTCA Method B soil cleanup levels, and the preliminary soil cleanup levels protective of groundwater..

The nature and extent of contamination identified at other areas of the BOMARC Building 45-70 property is summarized in subsections 19.6.1 and 19.6.2. Any additional data collected to complete the BOMARC Building 45-70 RI after publication of this RI will be presented in a separate focused RI document (URS, 2010a or most current version).

19.6.1 Soil

Cadmium and cPAHs are the only constituents remaining in soil at the BOMARC property at concentrations above the RI screening levels, including the preliminary soil cleanup levels protective of groundwater. Although strontium was detected in three soil samples collected in 2007 (GP6 at 4 ft bgs and 6 feet bgs; GP7 Field Duplicate at 5 feet bgs) at concentrations exceeding the preliminary soil cleanup level protective of groundwater, the measured strontium concentrations are not considered indicative of a release. Strontium was detected in all of the soil samples analyzed for this metal, with the concentrations in three of 15 samples exceeding the most conservative preliminary soil cleanup level protective of groundwater (38.4 mg/kg) but well below the MTCA Method B soil cleanup level protective of direct contact (48,000 mg/kg). The detected concentrations of strontium were within a relatively narrow range of approximately 20 to 60 mg/kg. The relatively consistent strontium concentrations detected in soil at this site and through the Everett facility, and the fact that the concentrations are approximately 1,000 times below the cleanup level based on direct contact demonstrates that the measured strontium concentrations are not indicative of a release, but rather are typical concentrations for native soil in the area.

The lateral extent of soil containing concentrations of cadmium exceeding the MTCA Method A soil cleanup level (2.0 mg/kg) is isolated to the immediate vicinity of soil borings ESB1740 and B4, which are within 2 feet of one another. The cadmium exceedance at 7.5 to 9.0 feet at location B4 was not replicated by the 7.5-foot bgs sample from ESB1740, in which cadmium was not detected. Therefore the lateral extent of the cadmium exceedance at 7.5 feet bgs in B4 is very small – less than 2 feet from the sample exhibiting the exceedance. The vertical extent of cadmium exceeding the screening level in the vicinity of ESB1740 and B4 is not delimited because a deeper soil sample was not collected below the cadmium exceedance at 10 feet bgs at ESB1740. The small horizontal and vertical distances (2.0 to 2.5 feet) between adjacent samples exhibiting either cadmium exceedance or no cadmium detections demonstrates that the lateral and vertical extents of cadmium exceedance in this area are irregular and very limited. The lack of cadmium detections in shallow soil, and the lack of a known source of cadmium in this area since construction of Building 45-70, indicates that a surface release of cadmium is an unlikely source, however, the possibility cannot be eliminated. Regardless of the source of cadmium soil contamination, Boeing is responsible for the cleanup under MTCA regulations. The vertical and lateral extent of cadmium in soils will be characterized by a supplemental investigation in 2011requested by Ecology.

The vertical and lateral extent of soils containing cPAH concentrations exceeding the screening level of TTEC cPAH concentration of 100 µg/kg in the vicinity of boring locations ESB1731 and GP6 has not been fully delimited. The lateral extent has been delimited to the west and north by ESB1730 and EGW180; however the lateral extent to the east and south has not been delimited. The vertical extent of cadmium is not delimited because deeper soil samples were not collected below the exceedances at 6 feet bgs in GP6 and 10 feet bgs at ESB1731. The distribution of cPAHs in this area is irregular, based on the exceedances detected in samples from ESB1731 at depths of 2, 4, and 10 feet bgs but the lack of cPAH detections at 6 and 8 feet bgs. Based on the heterogeneous nature of the cPAH exceedances, it is also possible that cPAHs were present in the fill material used during grading of the site for development. The vertical and lateral extent of cPAHs in soils will be characterized by a supplemental investigation in 2011 requested by Ecology.

The vertical extent of soil containing concentrations of cPAHs exceeding screening levels, including the preliminary soil cleanup levels protective of groundwater at boring locations ESB1727 and GP7 appears to be limited to the upper 3 to 6 feet of soil. The lateral extent of cPAHs exceeding screening levels in this area has not been delimited to the northwest. Although not observed in samples collected from borings ESB1727 and GP7, asphalt was observed in fill soils between 3 and 4 feet bgs in nearby borings ESB1726 and ESB1728. Carcinogenic PAHs are considered to be high molecular weight PAHs (Ecology, 1997). The predominant constituents of asphalt are high molecular weight hydrocarbons with high carbon to hydrogen ratios. PAHs are known components of asphalt and limited studies have identified cPAHs in asphalt fumes (NIOSH, 2001). Based on this information, buried asphalt-paved roads and/or asphalt in fill soils could be a source of cPAHs in this area. However, based on the absence of elevated PAH concentrations in soil samples collected from other locations on the property where oil/water separators are not present, it is likely that the oil/water separator located in the southwest corner of the property is the source of cPAHs in soil in this area. The vertical and lateral extent of cPAHs in soils will be characterized by a supplemental investigation in 2011 requested by Ecology.

19.6.2 Groundwater

Based on the data collected between 1989 and 2010, no impacts to groundwater have been observed at the BOMARC Building 45-70 property. Although benzene was detected just above the screening level at one location during Landau's 2003 investigation, results of the current investigation indicate that benzene has degraded to below screening levels at this location. In addition, compounds detected in soil above screening levels have not been detected or detected below screening levels in groundwater at the property. Based on the results to date, groundwater on the BOMARC property is not recommended for evaluation in the FS; however, the potential for future downward migration of soil contaminants detected to the groundwater and associated cleanup levels protective of groundwater should be evaluated in the FS, which includes at a minimum, groundwater monitoring. The existing monitoring wells will continue to be monitored on a quarterly basis per Ecology's request.

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Table 19-1
Summary of 2000 Soil Sample Analytical Results for Metals, (mg/kg)
BOMARC Property
Boeing Everett Plant Remedial Investigation

Date Range	Investigated By	Scope of Investigation	Key Findings	References and Data Sources
1989	Dames & Moore (D&M)	Collected 15 soil samples (BMS-1, BMS-2, BMS-4, BMS-5, BMS-7, BMS-8, BMS-10, BMS-11, BMS-12, BMS-15 through BMS-19, and BMS-22) ranging in depth from the surface to 2 feet bgs; collected 1 surface water sample (BMS-14W) from a former septic tank; and installed 2 groundwater monitoring wells (MW-B1 and MW-B1A).	The D&M investigation identified limited areas of petroleum impacted soil in the southeastern portion of the BOMARC property at the north end of the bunker complex and at the location of the storage silos in the north-central portion of the BOMARC property. In addition, water samples collected from the septic tank by D&M contained metals and halogenated volatiles above drinking water standards. During pre-construction work, the septic tank was dewatered and removed by a contractor during site preparation on behalf of Boeing; however, the septic tank excavation was backfilled before soil conditions at the bottom of the excavation could be assessed by D&M. Groundwater sample collected from monitoring well MW-B1 only (MW-B1A was dry) - some RCRA 8 metals detected below drinking water standards; SVOCs (bis[2-ethylhexyl]phthalate and di-n-butylphthalate) detected at concentrations of 7.8 and 2.2 ug/L; VOCs and TPH not detected.	D&M 1989a and 1989b
1989	Moran Geotechnical Consultants (Moran)	Conducted a pre-construction geotechnical investigation that consisted of the excavation and logging of soils exposed in 30 test pits on the BOMARC property and adjacent property to the south.	Fill soils were noted to extend to depths of between 1 to 7 feet bgs from regrading activities.	Moran 1992
August 2000	URS Corporation (URS)	Ten soil borings (ESB1353 through ESB1362) were advanced in the parking area located in the northwest portion of the BOMARC property as part of a Phase II investigation of areas potentially impacted by activities at the former Gun Club located to the west and across Airport Road from the BOMARC property.	The results of the investigation indicated that PAHs were detected in all nine of the 0.5 feet bgs samples and in two of the nine 2.5 feet bgs samples. The contaminants identified during the Parcel E Phase II ESA with concentrations greater than MTCA Method A and B soil cleanup levels were carcinogenic PAHs.	Section 19.3
2002/2003	Landau Associates (Landau)	Collected 19 soil samples and 11 groundwater samples from 14 soil borings installed adjacent to 5 emergency containment USTs. Removed 5 emergency containment USTs from the BOMARC property.	No releases to or from the USTs were reported and evidence of a release to surrounding soils was not noted during their removal in 2003. A grab sample (EV229M-16) of perched groundwater collected from within backfill of UST EV-229 exhibited a benzene concentration of 0.9 ug/L, which exceeds the MTCA Method B groundwater cleanup level of 0.5 ug/L.	Landau 2003
2003	Farallon Consulting (Farallon)	Collected 8 soil samples from 8 soil borings (HC1 through HC8) installed to depths ranging between 2 and 8.5 feet bgs beneath the Giddens lease area of Building 45-70.	PCE was detected below the MTCA Method A cleanup level in a boring completed in the southeast portion of the Giddens tenant space (i.e. east central portion of Building 45-70). Petroleum hydrocarbons, PAHs, PCBs, metals and other VOCs were not detected above laboratory method detection limits in the remaining soil samples. Groundwater was not encountered during the investigation.	Farallon 2003
2007	Farallon	Collected 7 soil samples from 6 soil borings (B1 through B6) within and adjacent to the New Breed lease area of Building 45-70.	VOCs, petroleum hydrocarbons, and metals were not detected above MTCA A or B cleanup levels with the exception of cadmium, which was detected at a concentration of 3.5 mg/kg in the 7.5 to 9 foot bgs sample collected from boring B4 and exceeded the MTCA A soil cleanup level of 2.0 mg/kg.	Farallon 2007
2008	URS	Collected 11 sub-slab vapor samples (SSV-1 through SSV-11) beneath the existing building floor slab; collected 14 soil samples from 7 push-probe borings (GP-1 through GP-7); and collection of ambient air samples from 5 locations within and outside of Building 45-70.	The compound DCDFM (Freon-12 or R-12) appeared to be widely dispersed beneath the Building 45-70 foundation slab in the area of the New Breed tenant space. However, this compound was not detected in indoor air samples collected within Building 45-70 and does not present a health risk to workers in the building at the measured concentrations in sub-slab vapor. No source for this compound in sub-slab vapor was identified.	URS 2008a

Table 19-1
Summary of 2000 Soil Sample Analytical Results for Metals, (mg/kg)
BOMARC Property
Boeing Everett Plant Remedial Investigation

Date Range	Investigated By	Scope of Investigation	Key Findings	References and Data Sources
(cont.)	(cont.)	(cont.)	Petroleum constituents were present in soil beneath the New Breed tenant space in Building 45-70 and near the oil/water separators. In one sample from one location (GP-1 at 6 feet bgs) gasoline-range TPH exceeded the MTCA Method A soil cleanup level. The petroleum constituent concentrations did not exhibit a clear spatial pattern and therefore are not clearly indicative of a specific petroleum release location. Petroleum hydrocarbons were detected in soil at several locations on the BOMARC property prior to Boeing's construction of Building 45-70 (Dames and Moore 1989). Gasoline was not known to be used by Boeing or New Breed within the area of the building where GP 1 is located. While the release of detected petroleum constituents cannot be precluded during Boeing's occupancy, the wide distribution of low concentrations of petroleum hydrocarbons detected were most likely associated with pre-Boeing land use and were incorporated in the fill material during pre-construction grading of the site. cPAH compounds were present in soil near the oil/water separators at concentrations exceeding MTCA soil cleanup levels. Oil-range TPH concentrations were also slightly higher (although below MTCA Method A soil cleanup levels) near the oil/water separators than at most other locations sampled during this investigation. Although not observed in samples from the two borings located near the oil/water separators (GP-6 and GP-7), burnt wood debris was observed in soil at other locations at the site. Burnt wood can be a source of cPAHs in soil.	(cont.)
2007	URS	Eleven soil borings (ESB1354A, ESB1355A, ESB1357A, ESB1360A, and ESB1681 through ESB1687) were completed to a maximum depth of 4.5 feet bgs in the parking area located in the northwest portion of the BOMARC property to further characterize the extent of PAHs in soil above applicable cleanup levels associated with activities at the former Gun Club located to the west and across Airport Road from the BOMARC property and identified during URS' 2000 RI	cPAHs were detected above the screening level in soil samples collected at 0 to 0.5 feet bgs in borings ESB1682 and ESB1687. PAHs were either not detected above laboratory reporting limits or not detected above screening levels in the remaining soil samples collected during this investigation.	URS 2009b
2008/2009	URS	As part of an interim action (IA), removal of 5,492 tons of soil containing PAHs exceeding remediation goals from the northwest portion of the BOMARC property and collection of 18 post-excavation soil samples (8 floor samples and 10 wall samples). Under the AO, this portion of the BOMARC property is considered part of SWMU 100 - Former Gun Club (Former Paine Field Sports Club).	cPAHs were not detected in the post-excavation floor samples. The TTEC of cPAHs in post-excavation wall samples ranged from 0.06 ug/kg to 7.7 ug/kg, which were below the IA cleanup level. All detected concentrations of individual PAH compounds in post-excavation soil samples were also well below the IA cleanup levels.	URS 2009a
2009/2010	URS	As a follow-up to historical subsurface investigations in and around Building 45-70, collected 57 soil samples, 13 sediment/accumulated solids samples, 2 grab groundwater samples, and groundwater samples from 3 permanent monitoring wells. Samples were analyzed for a variety of constituents based on the results of nearby sampling locations.	Cadmium and cPAHs are the only constituents remaining in soil at the BOMARC property at concentrations above screening levels. TPH and three metals were detected in sediments in wetland 3A adjacent to the BOMARC property. However, no analytes were present above screening levels in sediments sampled onsite. Based on the data collected between 1989 and 2010, no impacts to groundwater have been observed at the BOMARC Building 45-70 property.	URS, 2010a

Notes
AO = Agreed Order
bgs = below ground surface
cPAH = carcinogenic polynuclear aromatic hydrocarbon
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
PAH = polynuclear aromatic hydrocarbon
PCBs = polychlorinated biphenyls
PCE = tetrachloroethene
SVOCs = semi volatile organic compounds
SWMU = solid waste management unit
TPH = total petroleum hydrocarbons
TTEC = total toxicity equivalency concentration
ug/kg = micrograms per kilogram
ug/L = micrograms per liter
USTs = underground storage tanks
VOCs = volatile organic compounds

Table 19-2
Summary of 2007 Sub-Slab Vapor Analytical Results
BOMARC Property
Boeing Everett Plant Remedial Investigation

		Total Petroleum Hydrocarbons (mg/m^3)				**Volatile Organic Compounds (mg/m^3)**	
Sample ID	**Date Collected**	Gasoline-Range	Diesel-Range	Mineral Oil-Range	Motor Oil-Range	DCDFM	Toluene
EPA Residential Screening Criteria (shallow soil vapor)[1]		NE	NE	NE	NE	2	4
SSV-1	11/10/2007	10 U	250 U	400 U	400 U	1.12	0.2 U
SSV-2	11/10/2007	10 U	250 U	400 U	400 U	**2.77**	0.31
SSV-3	11/10/2007	10 U	250 U	400 U	400 U	0.56	0.2 U
SSV-4	11/10/2007	10 U	250 U	400 U	400 U	**19.2**	0.2 U
SSV-5	11/10/2007	10 U	250 U	400 U	400 U	**3.82**	0.2 U
SSV-6	11/10/2007	10 U	250 U	400 U	400 U	0.42	0.2 U
SSV-7	11/10/2007	10 U	250 U	400 U	400 U	**5.85**	0.2 U
SSV-8	11/10/2007	10 U	250 U	400 U	400 U	**29.2**	0.2 U
SSV-9	11/10/2007	10 U	250 U	400 U	400 U	**2.00**	0.2 U
SSV-10	11/10/2007	10 U	250 U	400 U	400 U	0.80	0.2 U
SSV-11	11/10/2007	10 U	250 U	400 U	400 U	0.46	0.2 U
	11/10/2007 (DUP)	10 U	250 U	400 U	400 U	0.2 U	0.2 U

Notes:

Numbers in **bold** font indicate that the result reported exceeds the EPA residential screening criteria for shallow soils.

DCDFM - Dichlorodifluoromethane

(DUP) - Field duplicate

NE - Not established

U - Compound was analyzed for but not detected above the reporting limit shown.

[1] The EPA Residential Screening Criteria is located in EPA530-D-02-004 : *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance), November 2002* . Downloaded from EPA's website November 2007: http://www.epa.gov/correctiveaction/eis/vapor/complete.pdf.

Table 19-3
Summary of 2007 Ambient Air Analytical Results
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID: Date Collected:	**SUMMA-1 / TEDLAR-1** **11/20/2007**	**SUMMA-2 / TEDLAR-2** **11/20/2007**	**SUMMA-3 / TEDLAR-3** **11/20/2007**	**SUMMA-4 / TEDLAR-4** **11/20/2007**	**TEDLAR-5** **11/20/2007**
VOCs (mg/m^3)					
Dichlorodifluoromethane	0.025 U / 0.2 U	0.015 U / 0.2 U	0.020 U / 0.2 U	0.0034 / 0.2 U	0.2 U

Notes:
U - Compound was analyzed for but not detected above the reporting limit shown.
VOCs - Volatile organic compounds
Samples were collected using a SUMMA Canister and TEDLAR bag at locations 1 through 4.

Table 19-4
Summary of 2007 Soil Analytical Results
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID:	MTCA Soil Cleanup Levels		MTCA Protection of Groundwater		GP-1		GP-2		GP-3		GP-4		GP-5		GP-6		GP-7		
Date Collected:					11/11/2007		11/11/2007		11/11/2007		11/11/2007		11/11/2007		11/11/2007		11/11/2007		
Sample Depth (feet bgs):	Method A	Method B	Method A	Method B	2	6	1	2	3	5.5	3	6	5	6	4	6	5		6
																		Field Duplicate	
TPHs (mg/kg)																			
Gasoline-Range	30 / 100 [a]	NE	30 / 100 [a]	NE	5.2 *	**240 ***	4.9 *	5.1 U	3.3 *	3.8 U	4.4 U	4.6 U	4.6 U	8.4 *	8.5 *	4.6 *	6.6 *	5.1 *	3.9 U
Diesel-Range	2,000	NE	NC	NE	5.4 U	550 *	6.2 *	34 *	5.4 U	5.4 U	8.8 *	17 *	41 *	16 *	59 *	140 *	53 *	45 *	8.1 *
Oil-Range	2,000	NE	NC	NE	11 U	940 *	28	64 *	16 *	11 U	37 *	52 *	100 *	80 *	130 *	200 *	220	180	34
VOCs (ug/kg)																			
Acetone	NE	8,000,000	NE	3,211	11	460	46	150	8.9	11	55	99	240	280	180	260	43	39	17
Carbon Disulfide	NE	8,000,000	NE	5,651	2.4	2.6 U	0.8 U	0.7 U	0.6 U	0.7 U	0.8 U	0.8 U	0.9 U	0.9 U	1.2	1	1.5	4.2	0.6 U
2-Butanone (methyl ethyl ketone)	NE	48,000,000	NE	19,200	3.0 U	73	5.6	25	3.0 U	3.3 U	8.7	13	38	39	23	24	7.2	6.1	3.2 U
Toluene	7,000	6,400,000	7,000	4,654	0.6 U	2.6 U	0.8 U	0.7 U	0.6 U	0.7 U	0.8 U	0.8 U	0.9 U	0.9 U	9.4	3.1	3.6	3	0.6 U
Ethylbenzene	6,000	8,000,000	6,000	6,912	0.6 U	2.6 U	0.8 U	0.7 U	0.6 U	0.7 U	0.8 U	0.8 U	0.9 U	0.9 U	0.7 U	0.7 U	2.2	2.3	0.6 U
m,p-Xylene	9,000 [c]	160,000,000	NE	135,068	0.6 U	2.6 U	0.8 U	0.7 U	0.6 U	0.7 U	0.8 U	0.8 U	0.9 U	0.9 U	0.7 U	0.7 U	7.1	7.6	0.6 U
o-Xylene	9,000 [c]	160,000,000	NE	147,027	0.6 U	2.6 U	0.8 U	0.7 U	0.6 U	0.7 U	0.8 U	0.8 U	0.9 U	0.9 U	0.7 U	0.7 U	1.9	2.1	0.6 U
Dichlorodifluoromethane	NE	16,000,000	NE	6,400	0.6 U	2.6 U	0.8 U	0.7 U	0.6 U	0.7 U	0.8 U	0.8 U	0.9 U	0.9 U	0.7 U	0.7 U	0.7 U	0.7 U	0.6 U
PAHs (ug/kg)																			
Naphthalene	5,000	1,600,000	5,000	4,457	4.9 U	7.4	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	600	1,000	300	220	4.8 U
2-Methylnaphthalene	NE	320,000	NE	128	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	210	440	110	75	4.8 U
1-Methylnaphthalene	NE	NE	NE	NE	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	150	280	70	46	4.8 U
Acenaphthylene	NE	NE	NE	NE	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	35	280	12	5.0 U	4.8 U
Acenaphthene	NE	4,800,000	NE	97,892	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	210	370	66	45	4.8 U
Fluorene	NE	3,200,000	NE	101,212	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	320	790	98	60	4.8 U
Phenanthrene	NE	NE	NE	NE	4.9 U	5.4	4.8 U	4.8 U	9.3	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	1,400	5,100	400 J	220 J	4.8 U
Anthracene	NE	24,000,000	NE	2,274,550	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	330	1,400	100 J	50 J	4.8 U
Fluoranthene	NE	3,200,000	NE	630,990	4.9 U	5.0 U	4.8 U	4.8 U	10	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	1,300	4,800	300 J	150 J	4.8 U
Pyrene	NE	2,400,000	NE	654,644	4.9 U	5.0 U	4.8 U	4.8 U	11	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	1,300	4,900	380 J	210 J	4.8 U
Benzo(a)anthracene [(b)]	See Note B	See Note B	715	86	4.9 U	5.0 U	4.8 U	4.8 U	5.9	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	**680**	**2,700**	**170 J**	82 J	4.8 U
Chrysene [(b)]	See Note B	See Note B	796	95	4.9 U	5.0 U	4.8 U	4.8 U	7.4	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	**690**	**2,800**	**190 J**	91 J	4.8 U
Benzo(b)fluoranthene [(b)]	See Note B	See Note B	2,460	295	4.9 U	5.0 U	4.8 U	4.8 U	6.9	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	**790**	**2,200**	**230 J**	110 J	4.8 U
Benzo(k)fluoranthene [(b)]	See Note B	See Note B	2,460	295	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	**300**	**1,800**	91 J	53 J	4.8 U
Benzo(a)pyrene [(b)]	See Note B	See Note B	100	232	4.9 U	5.0 U	4.8 U	4.8 U	5.9	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	**650**	**2,700**	**170 J**	83 J	4.8 U
Indeno(1,2,3-cd)pyrene [(b)]	See Note B	See Note B	6,940	832	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	**220**	**1,200**	33 J	14 J	4.8 U
Dibenz(a,h)anthracene [(b)]	See Note B	See Note B	3,579	429	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	70	**630**	9.5 J	5.0 UJ	4.8 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	210	1,200	27 J	11 J	4.8 U
Dibenzofuran	NE	160,000	NE	128	4.9 U	5.0 U	4.8 U	4.8 U	4.9 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U	160	410	60	39	4.8 U
TTEC	100 (R) / 2,000 (I)	137	NE	NE	NA	NA	NA	NA	7.3	NA	NA	NA	NA	NA	**863**	**3,581**	**225**	110	NA
SVOCs (ug/kg)																			
4-Methylphenol	NE	400,000	NE	160	63 U	66 U	71	66 U	63 U	64 U	63 U	64 U	64 U	63 U	63 U	63 U	64 U	64 U	66 U
Diethylphthalate	NE	64,000,000	NE	72,192	68	66 U	89	66 U	63 U	70	63 U	160	64 U	63 U	63 U	63 U	230	87	66 U
Carbazole	NE	50,000	NE	314	63 U	66 U	63 U	66 U	63 U	64 U	63 U	64 U	64 U	63 U	130	270	64 U	64 U	66 U
Di-n-Butylphthalate	NE	NE	NE	56,544	63 U	66 U	67	66 U	63 U	64 U	63 U	64 U	64 U	63 U	63 U	63 U	64 U	64 U	66 U
Metals (mg/kg)																			
Arsenic	20	0.667	20	0.03	**2.5**	**3.3**	**2.7**	**3.2**	**3.2**	**2.1**	**2.7**	**2.6**	**2.5**	**4.1**	**5**	**5.9**	**3.2**	**3.6**	**2.6**
Beryllium	NE	160	NE	506	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1
Cadmium	2	80	2	1.1	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	19 (Cr+6), 2,000 (Cr+3)	240 (Cr+6), 120,000 (Cr+3)	19 (Cr+6), 2,000 (Cr+3)	18 (Cr+6), 480,096 (Cr+3)	**31.1**	**22.9**	**33.1**	**29.5**	**33**	**29.5**	**29.2**	**27.3**	**29.6**	**27.4**	**30.1**	**40.1**	**34.3**	**36**	**23.8**
Cobalt	NE	NE	NE	NE	6.2	4.4	9.3	6.7	6.8	6.1	6	5.8	5.8	5.3	6.5	7.6	7.3	7.2	4.8
Lead	250 (R) / 1,000 (I)	NE	250	NE	2.1	17.7	3.3	5.6	4.1	2.5	4.6	4.1	4.5	10	4.8	28	3.7	4.3	3.1
Mercury	2	24	2	5.02	0.04	0.08	0.04 U	0.06	0.04 U	0.05 U	0.07	0.06	0.07	0.09	0.05	0.04	0.05 U	0.04 U	0.05
Nickel	NE	NE	NE	417	41	25	45	42	46	43	35	38	37	32	38	45	45	45	32
Strontium	NE	48,000	NE	38	29.7	28.7	27.7	25.1	31.3	29.9	27.1	20.7	20.1	22.6	58.3	43.5	35.6	40.9	21.4
Zinc	NE	24,000	NE	5,971	24	32	31	33	29	24	29	29	30	32	43	38	36	38	22
Conventionals																			
Total Solids (%)	NE	NE	NE	NE	91.70	71.00	93.60	90.00	91.00	92.30	87.40	86.30	85.70	83.70	88.40	87.80	90.90	91.20	90.20
Hexavalent Chromium (mg/kg)	19	240	19	18	0.433 UJ	2.77 U	0.426 U	0.436 U	0.436 U	0.422 U	0.454 U	0.451 U	0.465 U	0.476 U	0.451 U	0.45 U	0.431 U	0.43 U	0.442 U

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level or the TTEC.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) - MTCA Method A soil cleanup level for unrestricted land use
(I) MTCA Method A soil cleanup level for industrial land use
bgs - below ground surface
cPAHs - Carcinogenic polynuclear aromatic hydrocarbons
mg/kg - milligrams per kilogram
NA - Not applicable
NC - Not calculated
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
SVOCs - Semivolatile organic compounds
TPH - Total petroleum hydrocarbons
TTEC - Total Toxicity Equivalent Soil Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
ug/kg - micrograms per kilogram
VOCs - Volatile organic compounds
* The result did not match the laboratory chromatogram standard.
[a] The soil cleanup level is 100 mg/kg if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 30 mg/kg.
[b] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration.
[c] MTCA Method A cleanup level is for total xylenes.

Table 19-5
Summary of 2000 Soil Sample Analytical Results for Polynuclear Aromatic Hydrocarbons (PAHs), (ug/kg)
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID/Date		2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene [1]	Benzo(a) pyrene [1]	Benzo(b) fluoranthene [1]	Benzo(g, h, i) perylene	Benzo(k) fluoranthene [1]	Chrysene [1]	Dibenzo(a,h) anthracene [1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene [1]	Naphthalene	Phenanthrene	Pyrene
1996 MTCA Method B Soil Cleanup Level		NE	4,800,000	NE	24,000,000	137	137	137	NE	137	137	137	NE	3,200,000	3,200,000	137	3,200,000	NE	2,400,000
1996 MTCA Method B 100x GW Soil Cleanup Level		NE	96,000	NE	480,000	1.2	1.2	1.2	NE	1.2	1.2	1.2	NE	64,000	64,000	1.2	32,000	NE	48,000
2001 MTCA Method A or B Soil Cleanup Level		5,000 (A)[2] 1,600,000 (B)	4,800,000 (B)	NE	24,000,000 (B)	See note 1	See note 1	See note 1	NE	See note 1	See note 1	See note 1	160,000 (B)	3,200,000 (B)	3,200,000 (B)	See note 1	5,000 (A)[2] 1,600,000 (B)	NE	2,400,000 (B)
MTCA Method A or B Protection of Groundwater		128 (B)	97,892 (B)	NE	2,274,550 (B)	715 (A) 86 (B)	100 (A) 232 (B)	2,460 (A) 295 (B)	NE	2,460 (A) 295 (B)	796 (A) 95 (B)	3,759 (A) 429 (B)	128 (B)	630,990 (B)	101,212 (B)	6,940 (A) 832 (B)	5,000 (A) 4,457 (B)	NE	654,644 (B)
ESB1353-1/2'	04/03/00	5.5 J	16	18	51	130	140	120	72	100	140	22	7.9	260	24	80	13	180	230
ESB1353-2 1/2'	04/03/00	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U	8.5 U
ESB1354-1/2'	04/03/00	7.9 U	14	7.9	29	77	110	94	57	82	92	17	6.3 J	150	18	61	12	120	140
ESB1354- 2 1/2'	04/03/00	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
ESB1355-1/2'	04/03/00	10	26	13	61	110	170	130	78	120	130	25	14	290	36	87	23	230	200
ESB1355-2 1/2"	04/03/00	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U
ESB1356-1/2'	04/03/00	18	26	7.0 J	50	110	120	84	58	87	130	20	16	190	35	66	43	190	210
ESB1356-2 1/2'	04/03/00	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
ESB1357-1/2'	04/03/00	14	31	14	66	170	160	120	100	110	190	30	17	310	41	100	34	260	310
ESB1357-2 1/2'	04/03/00	7.5 U	8.3	7.5 U	18	56	52	47	34	36	63	9.8	7.5 U	110	9.0	33	6.0 J	74	85
ESB1358-1/2'	04/03/00	8.8 U	11	5.3 J	21	57	55	47	36	41	64	8.8	8.8 U	120	12	35	12	87	97
ESB1358-2 1/2'	04/03/00	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U
ESB1359-1/2'	04/03/00	8.3 U	8.3 U	8.3 U	8.3 U	21	19	17	12	12	21	8.3 U	8.3 U	35	8.3 U	12	8.3 U	24	34
ESB1359-2 1/2'	04/03/00	7.7 U	7.7 U	7.7 U	7.7 U	11	8.4	6.9 J	4.6 J	5.4 J	10	7.7 U	7.7 U	15	7.7 U	4.6 J	7.7 U	11	14
ESB1360-1/2'	04/03/00	8.0 J	17	8.9	35	76	87	66	57	75	84	16	8.0 J	180	21	56	21	130	140
ESB1360-2 1/2'	04/03/00	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U
ESB1360-2 1/2' (DUP)	04/03/00	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U	7.7 U
ESB1361-1/2'	04/03/00	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	18 U	7.2	14 U	11	22	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	9.4	35
ESB1361-2 1/2'	04/03/00	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
ESB1362-1/2'	04/03/00	22 U	22 U	22 U	22 U	22 U	16 J	22 U	18 J	22 U	22	22 U	22 U	18 J	22 U	22 U	22 U	25	34
ESB1362-2 1/2'	04/03/00	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U	7.8 U

Notes:

MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) MTCA Method B soil cleanup level
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
J - Estimated value
NE - Not established
U - Compound was analyzed for but not detected above the reporting limit shown.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
[1]These compounds are considered carcinogenic PAHs (cPAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations. The cleanup level is based on benzo(a)pyrene.
[2] Cleanup level is based on the total of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.

Table 19-6
Summary of 2000 Soil Sample Analytical Results for TTEC, Total PAHs, and Total CPAHs (ug/kg)
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID/Date		TTEC	Total PAHs	Total CPAHs
1996 MTCA Method A or B Soil Cleanup Level		NE	NE	1,000 (A) 137 (B)
2001 MTCA Method A or B Soil Cleanup Level		100 (A) 137 (B*)	NE	NE
ESB1353-1/2'	04/03/00	**187**	1,609	732
ESB1353-2 1/2'	04/03/00	NA	ND	ND
ESB1354-1/2'	04/03/00	**144**	1,087	533
ESB1354- 2 1/2'	04/03/00	NA	ND	ND
ESB1355-1/2'	04/03/00	**219**	1,753	772
ESB1355-2 1/2"	04/03/00	NA	ND	ND
ESB1356-1/2'	04/03/00	**158**	1,460	617
ESB1356-2 1/2'	04/03/00	NA	ND	ND
ESB1357-1/2'	04/03/00	**215**	2,084	880
ESB1357-2 1/2'	04/03/00	71	641	296.8
ESB1358-1/2'	04/03/00	75	709	307.8
ESB1358-2 1/2'	04/03/00	NA	ND	ND
ESB1359-1/2'	04/03/00	25	212	102
ESB1359-2 1/2'	04/03/00	11	91	46.3
ESB1360-1/2'	04/03/00	**117**	1,086	460
ESB1360-2 1/2'	04/03/00	NA	ND	ND
ESB1360-2 1/2' (DUP)	04/03/00	NA	ND	ND
ESB1361-1/2'	04/03/00	2.0	85	40.2
ESB1361-2 1/2'	04/03/00	NA	ND	ND
ESB1362-1/2'	04/03/00	16	133	38
ESB1362-2 1/2'	04/03/00	NA	ND	ND

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B CPAH soil cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010
(https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
cPAHs - Carcinogenic polynuclear aromatic hydrocarbons
(DUP) - Field duplicate
ND - Sample analyzed for, but not detected above the reporting limit.
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TTEC - Total Toxicity Equivalent Concentration
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.

Table 19-7
Summary of 2000 Soil Sample Analytical Results for Metals, (mg/kg
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Arsenic	Lead
1996 MTCA Method A, AI, or B Soil Cleanup Level		1.67 (B)	250 (A) 1,000 (AI)
1996 MTCA Method B 100x GW Soil Cleanup Level		0.00583	NE
2001 MTCA Method A, AI, or B Soil Cleanup Level		20 (A) 0.667 (B)	250 (A) 1,000 (AI)
MTCA Method A or B Protection of Groundwater		20 (A) 0.03 (B)	250 (A)
WA Department of Ecology - Puget Sound Background Regional Concentration		7.30	24.0
ESB1353-1/2'	04/03/00	**3.8** J	12
ESB1353-2 1/2'	04/03/00	**2.9** J	2 U
ESB1354-1/2'	04/03/00	**3.9** J	13
ESB1354- 2 1/2'	04/03/00	**2.4** J	2 U
ESB1355-1/2'	04/03/00	**3.6** J	12
ESB1355-2 1/2"	04/03/00	**2.3** J	4
ESB1356-1/2'	04/03/00	**4.4** J	9
ESB1356-2 1/2'	04/03/00	**2.7** J	2 U
ESB1357-1/2'	04/03/00	**4.9** J	13
ESB1357-2 1/2'	04/03/00	**2.1** J	3
ESB1358-1/2'	04/03/00	**8.0** J	16
ESB1358-2 1/2'	04/03/00	**2.1** J	2 U
ESB1359-1/2'	04/03/00	**4.8** J	15
ESB1359-2 1/2'	04/03/00	**4.0** J	5
ESB1360-1/2'	04/03/00	**5.7** J	13
ESB1360-2 1/2'	04/03/00	**2.3** J	2 U
ESB1360-2 1/2' (DUP)	04/03/00	**1.9** J	2 U
ESB1361-1/2'	04/03/00	**2.9** J	2 U
ESB1361-2 1/2'	04/03/00	**2.1** J	2 U
ESB1362-1/2'	04/03/00	**3.1** J	3
ESB1362-2 1/2'	04/03/00	**2.2** J	2 U

Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
(DUP) - Field duplicate
J - Estimated value
NE - Not established
U - Compound was analyzed for but not detected above the reporting limit shown.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.

Table 19-8
Summary of 2009-2010 Soil Analytical Results
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID:	**MTCA Soil Screening Levels**		**MTCA Protection of Groundwater**			**SOIL-ESB1725**		**SOIL-ESB1726**			**SOIL-ESB1727**							**SOIL-ESB1728**			**SOIL-ESB1729**		
Sample Depth (ft bgs):	**Method A**	**Method B**	**Method A**	**Method B**	**NBSM**	20	23	20		22	3	5	6	8	10	15	20	3	5	6	3	5	6
Sample Date:						12/20/2009	12/21/2009	12/21/2009		12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/21/2009	########	12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/21/2009
Field QC:									(DUP)														
Volatile Organic Compounds (ug/kg)																							
Methylene Chloride	20	130,000	20	25	NA	3.6	1.9 U	2.2	2.0 U	3.6	2.1 U	2.2	2.4	2.4 U	2.2 U	2.0 U	2.4	NA	NA	NA	NA	NA	NA
Acetone	NE	8,000,000	NE	3,211	NA	41	6.2	9.8	9.5	26	57	75	48	23	46	14	12	NA	NA	NA	NA	NA	NA
2-Butanone	NE	64,000,000	NE	19,200	NA	5.2 U	4.7 U	5.1 U	4.9 U	7.7 U	8.3	10	4.8	5.9 U	5.6 U	4.9 U	4.8 U	NA	NA	NA	NA	NA	NA
PAHs (ug/kg)																							
Naphthalene	5,000	1,600,000	5,000	4,457	NA	NA	NA	NA	NA	NA	850	110	74	7.9	12	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
2-Methylnaphthalene	NE	320,000	NE	128	NA	NA	NA	NA	NA	NA	280	38	35	18	24	4.8 U	4.6 U	4.6 U	17	4.7 U	4.6 U	4.8 U	4.6 U
1-Methylnaphthalene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	180	31	24	11	33	4.8 U	4.6 U	4.6 U	12	4.7 U	4.6 U	4.8 U	4.6 U
Acenapthylene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	31	4.8 U	4.7	4.7 U	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
Acenapthene	NE	4,800,000	NE	97,892	NA	NA	NA	NA	NA	NA	280	9.7	28	4.7 U	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
Fluorene	NE	3,200,000	NE	101,212	NA	NA	NA	NA	NA	NA	480	4.8 U	46	4.7 U	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	2,200	9.7	200	29	5.0 U	4.8 U	4.6 U	4.6 U	59	4.7 U	4.6 U	4.8 U	8.3
Anthracene	NE	24,000,000	NE	2,274,550	NA	NA	NA	NA	NA	NA	520	4.8 U	44	4.7 U	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
Fluoranthene	NE	3,200,000	NE	630,990	NA	NA	NA	NA	NA	NA	1,500	7.8	150	31	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	6.5
Pyrene	NE	2,400,000	NE	654,644	NA	NA	NA	NA	NA	NA	1,300	6.8	130	21	5.0 U	4.8 U	4.6 U	4.6 U	18	4.7 U	4.6 U	4.8 U	7.4
Benzo(a)anthracene [(a)]	See Note a	See Note a	715	86	NA	NA	NA	NA	NA	NA	670	4.8 U	77	7.0	5.0 U	4.8 U	4.6 U	4.6 U	11	4.7 U	4.6 U	4.8 U	4.6 U
Chrysene [(a)]	See Note a	See Note a	796	95	NA	NA	NA	NA	NA	NA	800	5.3	98	9.8	5.0 U	4.8 U	4.6 U	4.6 U	47	4.7 U	4.6 U	4.8 U	5.1
Benzo(b)fluoranthene [(a)]	See Note a	See Note a	2,460	295	NA	NA	NA	NA	NA	NA	430	4.8 U	50	5.1	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
Benzo(k)fluoranthene [(a)]	See Note a	See Note a	2,460	295	NA	NA	NA	NA	NA	NA	430	4.8 U	59	5.1	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
Benzo(a)pyrene [(a)]	See Note a	See Note a	100	232	NA	NA	NA	NA	NA	NA	700	4.8 U	81	5.6	5.0 U	4.8 U	4.6 U	4.6 U	10 UJ	4.7 U	4.6 U	4.8 U	4.6 U
Indeno(1,2,3-cd)pyrene [(a)]	See Note a	See Note a	6,940	832	NA	NA	NA	NA	NA	NA	360	4.8 U	42	4.7 U	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
Dibenz(a,h)anthracene [(a)]	See Note a	See Note a	3,579	429	NA	NA	NA	NA	NA	NA	190	4.8 U	23	4.7 U	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	420	4.8 U	52	4.7 U	5.0 U	4.8 U	4.6 U	4.6 U	15 UJ	4.7 U	4.6 U	4.8 U	4.6 U
Dibenzofuran	NE	160,000	NE	128	NA	NA	NA	NA	NA	NA	300	4.8 U	28	4.7 U	5.0 U	4.8 U	4.6 U	4.6 U	9.4 U	4.7 U	4.6 U	4.8 U	4.6 U
TTEC Concentration (c-PAHs)	100 (R) / 2,000 (I)	137	NE	NE	NA	NA	NA	NA	NA	NA	**916**	0.053	**107**	7.4	NA	NA	NA	NA	1.6	NA	NA	NA	0.05
TPHs (mg/kg)																							
Gasoline-Range	30 / 100 [c]	NE	30 / 100 [c]	NE	NA	3.9 U	5.0 U	12*	4.2 U	4.6 U	12*	4.6 U	4.8 U	4.4 U	20*	5.2 U	4.2 U	NA	NA	NA	NA	NA	NA
Diesel-Range	2,000	NE	NC	NE	NA	5.6 U	5.4 U	5.7 U	18*	5.5 U	76*	17*	320*	15*	18*	6.2 U	5.6 U	NA	NA	NA	NA	NA	NA
Motor Oil-Range	2,000	NE	NC	NE	NA	11 U	11 U	12 U	11 U	11 U	150	37*	530	63	38*	12 U	11 U	NA	NA	NA	NA	NA	NA
Metals (mg/kg)																							
Arsenic	20	0.667	20	0.03	7.3	5 U	5 U	6 U	5 U	5 U	6	5 U	5 U	6 U	6 U	6	6 U	NA	NA	NA	NA	NA	NA
Barium	NE	16,000	NE	2,637	NE	82.5	47.4	55.9	47.6	57.2	76.8	69.2	85.5	86.3	99.1	159	56.0	NA	NA	NA	NA	NA	NA
Cadmium	2	80	2	1.1	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA	NA	NA	NA	NA
Chromium	19 (Cr^{+6}) / 2,000 (Cr^{+3})	240 (Cr^{+6}) / 120,000 (Cr^{+3})	19 (Cr+6), 2,000 (Cr+3)	18 (Cr+6), 480,096 (Cr+3)	48.2	**27.6**	**34.5**	**34.8**	**31.2**	**29.9**	**37.0**	**32.5**	**47.0**	**39.3**	**42.6**	**48.5**	**33.1**	NA	NA	NA	NA	NA	NA
Copper	NE	3,000	NE	263	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	250 (R) / 1,000 (I)	NE	250	NE	24	2 U	2 U	2 U	2 U	2 U	3	2	3	4	4	2 U	2 U	NA	NA	NA	NA	NA	NA
Mercury	2	24	2	5.02	0.07	0.03 U	0.02 U	0.02	0.03 U	0.02 U	0.03	0.03	0.03	0.03	0.04	0.03	0.02 U	NA	NA	NA	NA	NA	NA
Selenium	NE	400	NE	8.3	38	5 U	5 U	6 U	5 U	5 U	6 U	5 U	5 U	6 U	6 U	6 U	6 U	NA	NA	NA	NA	NA	NA
Silver	NE	400	NE	13.6	NE	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.3 U	NA	NA	NA	NA	NA	NA
Zinc	NE	24,000	NE	5,971	85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Model Toxics Control Act (MTCA) Cleanup Regulation, chapter 173-340 WAC; MTCA Method B from Ecology website downloaded August 2008
(https://fortress.wa.gov/ecy/clarc/Reporting/CLARCReporting.aspx).
(R) - Unrestricted Land Use
(I) - Industrial Land Use
ft bgs - feet below ground surface
Bold values indicate the applicable soil screening level is exceeded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
J - Estimated concentration.
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated concentration.
NA - Not applicable or Not analyzed
NC - Not calculated
ND - Compounds analyzed for were not detected above the specific compound reporting limits
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TPHs - Total petroluem hydrocarbons
TTEC - Total Toxicity Equivalent Soil Concentration
*The reported result does not match the laboratory standard chromatogram.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[c] The soil cleanup level is 100 mg/kg if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture.
The cleanup level for all other gasoline mixtures is 30 mg/kg.

Table 19-8
Summary of 2009-2010 Soil Analytical Results
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID:	MTCA Soil Screening Levels		MTCA Protection of Groundwater			SOIL-ESB1730						SOIL-ESB1731						SOIL-ESB1733			SOIL-ESB1734			SOIL-ESB1735			SOIL-ESB1736		
Sample Depth (ft bgs):	Method A	Method B	Method A	Method B	NBSM	2	4	6	8	10	14	2		4	6	8	10	4	6	8	4	6	8	4	6	8	4	6	8
Sample Date:						12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/21/2009		12/21/2009	12/21/2009	12/21/2009	12/21/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009
Field QC:													(DUP)																
Volatile Organic Compounds (ug/kg)																													
Methylene Chloride	20	130,000	20	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NE	8,000,000	NE	3,211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NE	64,000,000	NE	19,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PAHs (ug/kg)																													
Naphthalene	5,000	1,600,000	5,000	4,457	NA	4.8 U	5.0 U	5.0 U	4.8 U	4.6 U	4.7 U	180	180	440	4.6 U	4.7 U	520	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	320,000	NE	128	NA	4.8 U	5.0 U	5.0 U	4.8 U	4.6 U	4.7 U	87	110	180	4.6 U	4.7 U	290	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NE	NE	NE	NE	NA	4.8 U	5.0 U	5.0 U	4.8 U	4.6 U	4.7 U	87	100	180	4.6 U	4.7 U	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenapthylene	NE	NE	NE	NE	NA	4.8 U	5.0 U	5.0 U	4.8 U	4.6 U	4.7 U	46	55	110	4.6 U	4.7 U	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenapthene	NE	4,800,000	NE	97,892	NA	4.8 U	5.0 U	5.0 U	4.8 U	5.1	4.7 U	220	280	390	4.6 U	4.7 U	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NE	3,200,000	NE	101,212	NA	4.8 U	5.0 U	5.0 U	4.8 U	6.0	4.7 U	240	270	530	4.6 U	4.7 U	670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NE	NE	NE	NE	NA	4.8 U	5.0 U	5.0 U	4.8 U	44	4.7 U	1,900	2,900	3,600	4.6 U	4.7 U	4,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NE	24,000,000	NE	2,274,550	NA	4.8 U	5.0 U	5.0 U	4.8 U	11	4.7 U	450	600	940	4.6 U	4.7 U	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NE	3,200,000	NE	630,990	NA	4.8 U	5.0 U	5.0 U	4.8 U	53	4.7 U	3,000	3,200	5,700	4.6 U	4.7 U	5,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NE	2,400,000	NE	654,644	NA	4.8 U	5.0 U	5.0 U	4.8 U	53	4.7 U	2,400	2,600	4,000	4.6 U	4.7 U	3,900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene [(a)]	See Note a	See Note a	715	86	NA	4.8 U	5.0 U	5.0 U	4.8 U	31	4.7 U	1,400	1,400	2,200	4.6 U	4.7 U	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene [(a)]	See Note a	See Note a	796	95	NA	4.8 U	5.0 U	5.0 U	4.8 U	38	4.7 U	1,600	1,600	2,600	4.6 U	4.7 U	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene [(a)]	See Note a	See Note a	2,460	295	NA	4.8 U	5.0 U	5.0 U	4.8 U	18	4.7 U	770	830	1,100	4.6 U	4.7 U	1,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene [(a)]	See Note a	See Note a	2,460	295	NA	4.8 U	5.0 U	5.0 U	4.8 U	22	4.7 U	1,100	1,100	1,800	4.6 U	4.7 U	1,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene [(a)]	See Note a	See Note a	100	232	NA	4.8 U	5.0 U	5.0 U	4.8 U	31	4.7 U	1,300	1,400	2,200	4.6 U	4.7 U	2,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene [(a)]	See Note a	See Note a	6,940	832	NA	4.8 U	5.0 U	5.0 U	4.8 U	16	4.7 U	660	700	1,100	4.6 U	4.7 U	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene [(a)]	See Note a	See Note a	3,579	429	NA	4.8 U	5.0 U	5.0 U	4.8 U	7.4	4.7 U	350	350	460	4.6 U	4.7 U	590	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NE	NE	NE	NE	NA	4.8 U	5.0 U	5.0 U	4.8 U	18	4.7 U	800	830	1,300	4.6 U	4.7 U	1,300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	NE	160,000	NE	128	NA	4.8 U	5.0 U	5.0 U	4.8 U	4.6 U	4.7 U	150	210	260	4.6 U	4.7 U	360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TTEC Concentration (c-PAHs)	100 (R) / 2,000 (I)	137	NE	NE	NA	NA	NA	NA	NA	41	NA	**1,744**	**1,854**	**2,892**	NA	NA	**2,894**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs (mg/kg)																													
Gasoline-Range	30 / 100 [c]	NE	30 / 100 [c]	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.6 U	21 U	6.0 U	7.5 U	54 *	10 *	5.5 U	6.5 U	5.5 U	8.2 U	15 U	7.8 *
Diesel-Range	2,000	NE	NC	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Motor Oil-Range	2,000	NE	NC	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (mg/kg)																													
Arsenic	20	0.667	20	0.03	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NE	16,000	NE	2,637	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	2	80	2	1.1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	19 (Cr^{+6}) / 2,000 (Cr^{+3})	240 (Cr^{+6}) / 120,000 (Cr^{+3})	19 (Cr+6), 2,000 (Cr+3)	8 (Cr+6), 480,096 (Cr+3	48.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NE	3,000	NE	263	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	250 (R) / 1,000 (I)	NE	250	NE	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	24	2	5.02	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NE	400	NE	8.3	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NE	400	NE	13.6	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NE	24,000	NE	5,971	85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Model Toxics Control Act (MTCA) Cleanup Regulation, chapter 173-340 WAC; MTCA Method B from Ecology website downloaded August 2008
(https://fortress.wa.gov/ecy/clarc/Reporting/CLARCReporting.aspx).
(R) - Unrestricted Land Use
(I) - Industrial Land Use
ft bgs - feet below ground surface
Bold values indicate the applicable soil screening level is exceeded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
J - Estimated concentration.
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated concentration.
NA - Not applicable or Not analyzed
NC - Not calculated
ND - Compounds analyzed for were not detected above the specific compound reporting limits
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TPHs - Total petroluem hydrocarbons
TTEC - Total Toxicity Equivalent Soil Concentration
*The reported result does not match the laboratory standard chromatogram.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[c] The soil cleanup level is 100 mg/kg if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture.
The cleanup level for all other gasoline mixtures is 30 mg/kg.

Table 19-8
Summary of 2009-2010 Soil Analytical Results
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID:	MTCA Soil Screening Levels		MTCA Protection of Groundwater			SOIL-ESB1737			SOIL-ESB1738			SOIL-ESB1739			SOIL-ESB1740			SOIL-EGW179	SOIL-EGW180			
Sample Depth (ft bgs):	Method A	Method B	Method A	Method B	NBSM	5	7.5	10	5	7.5	10	5	7.5	10	5	7.5	10	20	2	6	8	10
Sample Date:						12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	12/20/2009	1/7/2010	1/5/2010	1/5/2010	1/5/2010	1/5/2010
Field QC:																						
Volatile Organic Compounds (ug/kg)																						
Methylene Chloride	20	130,000	20	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2 U	NA	NA	NA	NA
Acetone	NE	8,000,000	NE	3,211	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.5	NA	NA	NA	NA
2-Butanone	NE	64,000,000	NE	19,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5 U	NA	NA	NA	NA
PAHs (ug/kg)																						
Naphthalene	5,000	1,600,000	5,000	4,457	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
2-Methylnaphthalene	NE	320,000	NE	128	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
1-Methylnaphthalene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Acenapthylene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Acenapthene	NE	4,800,000	NE	97,892	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Fluorene	NE	3,200,000	NE	101,212	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Phenanthrene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Anthracene	NE	24,000,000	NE	2,274,550	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Fluoranthene	NE	3,200,000	NE	630,990	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Pyrene	NE	2,400,000	NE	654,644	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Benzo(a)anthracene [(a)]	See Note a	See Note a	715	86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Chrysene [(a)]	See Note a	See Note a	796	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Benzo(b)fluoranthene [(a)]	See Note a	See Note a	2,460	295	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Benzo(k)fluoranthene [(a)]	See Note a	See Note a	2,460	295	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Benzo(a)pyrene [(a)]	See Note a	See Note a	100	232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Indeno(1,2,3-cd)pyrene [(a)]	See Note a	See Note a	6,940	832	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Dibenz(a,h)anthracene [(a)]	See Note a	See Note a	3,579	429	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Benzo(g,h,i)perylene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
Dibenzofuran	NE	160,000	NE	128	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6 U	4.8 U	4.7 U	4.8 U	4.6 U
TTEC Concentration (c-PAHs)	100 (R) / 2,000 (I)	137	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHs (mg/kg)																						
Gasoline-Range	30 / 100 [c]	NE	30 / 100 [c]	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.2 U	NA	NA	NA	NA
Diesel-Range	2,000	NE	NC	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5 U	NA	NA	NA	NA
Motor Oil-Range	2,000	NE	NC	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11 U	NA	NA	NA	NA
Metals (mg/kg)																						
Arsenic	20	0.667	20	0.03	7.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 U	NA	NA	NA	NA
Barium	NE	16,000	NE	2,637	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.3	NA	NA	NA	NA
Cadmium	2	80	2	1.1	1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.7**	0.2 U	NA	NA	NA	NA
Chromium	19 (Cr^{+6}) / 2,000 (Cr^{+3})	240 (Cr^{+6}) / 120,000 (Cr^{+3})	19 (Cr+6), 2,000 (Cr+3)	8 (Cr+6), 480,096 (Cr+3	48.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**41.6**	NA	NA	NA	NA
Copper	NE	3,000	NE	263	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	250 (R) / 1,000 (I)	NE	250	NE	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2 U	NA	NA	NA	NA
Mercury	2	24	2	5.02	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02 U	NA	NA	NA	NA
Selenium	NE	400	NE	8.3	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5 U	NA	NA	NA	NA
Silver	NE	400	NE	13.6	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3 U	NA	NA	NA	NA
Zinc	NE	24,000	NE	5,971	85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Model Toxics Control Act (MTCA) Cleanup Regulation, chapter 173-340 WAC; MTCA Method B from Ecology website downloaded August 2008
(https://fortress.wa.gov/ecy/clarc/Reporting/CLARCReporting.aspx).
(R) - Unrestricted Land Use
(I) - Industrial Land Use
ft bgs - feet below ground surface
Bold values indicate the applicable soil screening level is exceeded.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.
J - Estimated concentration.
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated concentration.
NA - Not applicable or Not analyzed
NC - Not calculated
ND - Compounds analyzed for were not detected above the specific compound reporting limits
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TPHs - Total petroluem hydrocarbons
TTEC - Total Toxicity Equivalent Soil Concentration
*The reported result does not match the laboratory standard chromatogram.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[c] The soil cleanup level is 100 mg/kg if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture.
The cleanup level for all other gasoline mixtures is 30 mg/kg.

Table 19-9
Summary of Groundwater Analytical Results for Organic (VOCs, PAHs, PCBs, Phosphate Compounds, BHT and TPH) and Conventional Analyses
Building 45-70 (BOMARC)
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)		Polynuclear Aromatic Hydrocarbons (PAHs) (ug/L)														Total Petroleum Hydrocarbons (mg/L)		
		Acetone	Carbon Disulfide	Naphthalene	2-Methylnaphthalene	Acenaphthylene	Fluorene	Phenanthrene	Antharcene	Fluoranthene	Pyrene	Benzo(a) anthracene[a]	Chrysene[a]	Benzo(b) fluoranthene[a]	Benzo(k) fluoranthene[a]	Dibenzofuran	TTEC[b]	Gas-Range	Diesel-Range	Oil-Range
MTCA Method A or B Groundwater Screening Level		800 (B)	800 (B)	160 (A) 160 (B)	32 (B)	NE	640 (B)	NE	4,800 (B)	640 (B)	480 (B)	See Note a	See Note a	See Note a	See Note a	32 (B)	0.1 (A) 0.012 (B)	0.8 / 1.0 [c]	0.5	0.5
EGW179	1/13/2010	5.0 U	0.3	0.023	0.017	0.013	0.078	0.23	0.011	0.044	0.026	0.010 U	0.010 U	0.010 U	0.010 U	0.08	NA	0.25 U	0.43	0.43
	04/26/10	5.0 U	0.2 U	0.011	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	0.25 U	0.25 U	0.50 U
EGW180	01/13/10	5.0 U	0.2 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	0.25 U	0.25 U	0.50 U
	04/26/10	5.0 U	0.2 U	0.010 U	0.010 U	0.010 U	0.010 U	0.070	0.010 U	0.19	0.12	0.011	0.041	0.011	0.011	0.010 U	0.00371	0.25 U	0.25 U	0.50 U
EGW181	01/13/10	21	0.2 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	0.25 U	0.25 U	0.50 U
	01/13/10 (DUP)	5.0 U	0.2 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	0.25 U	0.25 U	0.50 U
	04/26/10	5.0 U	0.2 U	0.010 U	0.010 U	0.010 U	0.010 U	0.014	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	0.25 U	0.25 U	0.50 U

Notes:
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
NA - Not applicable
NE - Not established
ND - Compounds analyzed for were not detected above the specific compound reporting limits
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.
[b] The MTCA cleanup level for TTEC is based on benzo(a)pyrene
[c] The groundwater screening level is 1.0 mg/L if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The screening level for all other gasoline mixtures is 0.8 mg/L.

Table 19-10
Summary of Groundwater Analytical Results for Metals, (mg/L)
BOMARC Property
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Barium		Chromium		Selenium	
		Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		3.2 (B)		0.05 (A) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.08 (B)	
EGW179	01/13/10	0.298	0.277	0.005 U	0.005 U	0.05 U	0.05
	04/26/10	0.177	0.152	0.005 U	0.005 U	0.05 U	0.05 U
EGW180	01/13/10	0.059	0.056	0.005 U	0.005 U	0.05 U	0.05 U
	04/26/10	0.118	0.047	0.016	0.005 U	0.05 U	0.05 U
EGW181	01/13/10	0.053	0.052	0.005 U	0.005 U	0.05 U	0.05 U
	01/13/10	0.053	0.052	0.005 U	0.005 U	0.05 U	0.05 U
	04/26/10	0.235	0.032	**0.076**	0.005 U	0.05 U	0.05 U
ESB1727	12/22/09	0.084	0.092	0.009	0.005 U	0.05 U	0.05 U
ESB1732	12/22/09	NA	NA	NA	NA	NA	NA

Notes:
Values in **bold** font indicate that the result reported exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
U - Compound was analyzed for but not detected above the reporting limit shown.

Table 19-11
Summary of Pre-Design Soil Sample Analytical Results for Polynuclear Aromatic Hydrocarbons (PAHs), (ug/kg)
BOMARC Property Soil Removal Interim Action
Boeing Everett Plant Remedial Investigation

Sample Location	Sample Depth	Date Collected	Total PAHs	TTEC	2-Methyl naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene [b]	Benzo(a)pyrene [b]	Benzo(b) fluoranthene [b]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene [b]	Chrysene [b]	Dibenzo(a,h) anthracene [b]	Dibenzofuran	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene [b]	Naphthalene	Phenanthrene	Pyrene
MTCA Soil Cleanup Levels		Method A	NE	100 (R) / 2,000 (I)	NE	NE	NE	NE	See note a	See note a	See note a	NE	See note a	See note a	See note a	NE	NE	NE	See note a	5,000	NE	NE
		Method B	NE	137	320,000	4,800,000	NE	24,000,000	See note a	See note a	See note a	NE	See note a	See note a	See note a	160,000	3,200,000	3,200,000	See note a	1,600,000	NE	2,400,000
MTCA Protection of Groundwater		Method A	NE	NE	NE	NE	NE	NE	715	100	2,460	NE	2,460	796	3,579	NE	NE	NE	6,940	5,000	NE	NE
		Method B	NE	NE	128	97,892	NE	2,274,550	86	232	295	NE	295	95	429	128	630,990	101,212	832	4,457	NE	654,644
ESB1354A	0.5 - 1	8/30/2007	ND	NA	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U
	1 - 1.5	8/30/2007	ND	NA	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U
ESB1355A	0.5 - 1	8/30/2007	ND	NA	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U
	1 - 1.5	8/30/2007	ND	NA	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
ESB1357A	0.5 - 1	8/30/2007	ND	NA	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U
	1 - 1.5	8/30/2007	ND	NA	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U
ESB1360A	0.5 - 1	8/30/2007	ND	NA	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U
	1 - 1.5	8/30/2007	ND	NA	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U
	1 - 1.5	8/30/2007 (DUP)	ND	NA	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U
ESB1681	0 - 0.5	8/30/2007	ND	NA	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U
	1 - 1.5	8/30/2007	ND	NA	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U
ESB1682	0 - 0.5	8/30/2007	3,313	**534**	62 U	62 U	62 U	73 J	280 J	450 J	210 J	170 J	210 J	380 J	62 U	62 U	400 J	62 U	100 J	62 U	390 J	650 J
	0 - 0.5	8/30/2007 (DUP)	8,959	**1,329**	66 U	69	66 U	170 J	700 J	1,100 J	430 J	630 J	600 J	970 J	110	66 U	840 J	66 U	350 J	66 U	990 J	2,000 J
	0.5 - 1	8/30/2007	100	NA	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	100
	1 - 1.5	8/30/2007	ND	NA	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U
ESB1683	0 - 0.5	8/30/2007	ND	NA	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U
	1 - 1.5	8/30/2007	ND	NA	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U
ESB1684	0 - 0.5	8/30/2007	ND	NA	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U
	1 - 1.5	8/30/2007	ND	NA	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U
ESB1685	0 - 0.5	8/30/2007	ND	NA	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
	1 - 1.5	8/30/2007	ND	NA	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U	60 U
ESB1686	0 - 0.5	8/30/2007	ND	NA	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U
	1 - 1.5	8/30/2007	ND	NA	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U	63 U
ESB1687	0 - 0.5	8/30/2007	1,206	**152**	63 U	63 U	63 U	63 U	110	120	97	69	100	140	63 U	63 U	230	63 U	63 U	63 U	160	180
	0.5 - 1	8/30/2007	ND	NA	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U
	1 - 1.5	8/30/2007	ND	NA	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U	61 U

Notes:
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed the preliminary soil cleanup levels protective of groundwater, but do not exceed the soil cleanup level protective of direct contact.
MTCA - Model Toxics Control Act Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(R) - MTCA cleanup level for unrestricted land use
(I) - MTCA cleanup level for industrial property
(DUP) - Field duplicate
J - Estimated value
NA - Not applicable
ND - Not detected
NE - Not established
PAH - Polunuclear aromatic hydrocarbon
TTEC - Total Toxicity Equivalency Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
ug/kg - micrograms per kilogram
[a] Carcinogenic PAHs- Compliance with cleanup levels for carcinogenic PAHs under 2007 MTCA is evaluated using the Toxicity Equivalency Methodology in WAC 173-340-708 (8). The TTEC is calculated and this value is compared to the reference chemical cleanup level.
[b] Carcinogenic PAH

Table 19-12
Summary of Post Excavation Soil Sample Analytical Results
Samples Representative of Soil Remaining On Site Following Interim Action
BOMARC Property
Boeing Everett Plant Remedial Investigation

Sample ID: / Sample Date: / Sample Elevation (feet): / Field QC:	Interim Action Cleanup Level	MTCA Method A or B Protection of Groundwater	PEX-Floor1 9/3/2008 579.56	PEX-Floor1 9/3/2008 579.56 (DUP)	PEX-Floor2 9/3/2008 580.18	PEX-Floor3 9/3/2008 580.62	PEX-Floor4 9/3/2008 581.11	PEX-Floor5 9/9/2008 579.98	PEX-Floor6 9/9/2008 581.11	PEX-Floor7 9/9/2008 580.45	PEX-Floor8 9/9/2008 580.34	PEX-Wall1 9/3/2008 579.62	PEX-Wall2 9/3/2008 582.00	PEX-Wall3 9/9/2008 581.09	PEX-Wall4 9/9/2008 578.85	PEX-Wall5 9/9/2008 583.16	PEX-Wall6 9/16/2008 581.58	PEX-Wall7 9/16/2008 579.54	PEX-Wall8 9/18/2008 580.11	PEX-Wall9 9/18/2008 582.59	PEX-Wall10 9/19/2008 582.09
PAHs (ug/kg)																					
Naphthalene	1,600,000	5,000 (A) / 4,457 (B)	4.8 U	4.8 U	5.2	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	25	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7 U	4.6 U
2-Methylnaphthalene	NE	128 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7 U	4.6 U
1-Methylnaphthalene	NE	NE	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7 U	4.6 U
Acenapthylene	NE	NE	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7 U	4.6 U
Acenapthene	4,800,000	97,892 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7 U	4.6 U
Fluorene	3,200,000	101,212 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	15	4.8 U	4.7 U	4.6 U
Phenanthrene	NE	NE	4.8 U	4.8 U	9.0	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	9.9	4.8 U	5.2	4.8 U	4.7 U	4.9 U	85	4.8 U	4.7 U	4.6
Anthracene	24,000,000	2,274,550 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	17	4.8 U	4.7 U	4.6 U
Fluoranthene	3,200,000	630,990 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.9	4.8 U	6.2	4.8	4.7 U	4.9 U	17	4.8 U	7.6	4.6
Pyrene	2,400,000	654,644 (B)	4.8 U	4.8 U	5.2	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	7.6	5.8	4.7 U	4.9 U	16	5.3	8.0	7.9
Benzo(a)anthracene [a]	86	715 (A) / 86 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7	4.6 U
Chrysene [a]	96	796 (A) / 95 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	5.2	5.6
Benzo(b)fluoranthene [a]	See Note a	2,460 (A) / 295 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	7.6	4.6 U
Benzo(k)fluoranthene [a]	See Note a	2,460 (A) / 295 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	7.1	4.6 U
Benzo(a)pyrene [a]	See Note a	100 (A) / 232 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	5.7	4.6 U
Indeno(1,2,3-cd)pyrene [a]	See Note a	6,940 (A) / 832 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7 U	4.6 U
Dibenz(a,h)anthracene [a]	See Note a	3,579 (A) / 429 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7 U	4.6 U
Benzo(g,h,i)perylene	NE	NE	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	5.0 U	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	4.9 U	4.8 U	4.7 U	4.6 U
Dibenzofuran	NE	128 (B)	4.8 U	4.8 U	4.8 U	4.7 U	4.7 U	4.6 U	4.9 U	4.8 U	4.9 U	7.4	4.8 U	4.8 U	4.8 U	4.7 U	4.9 U	9.8	4.8 U	4.7 U	4.6 U
TTEC Concentration (c-PAHs)	100	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.7	0.06

Notes:
DUP - Field duplicate
U - Compound was analyzed for but not detected above the reporting limit shown.
NA - Not applicable
NE - Not established
PAHs - Polynuclear aromatic hydrocarbons
TTEC - Total Toxicity Equivalent Soil Concentration
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Soil Concentration calculations.

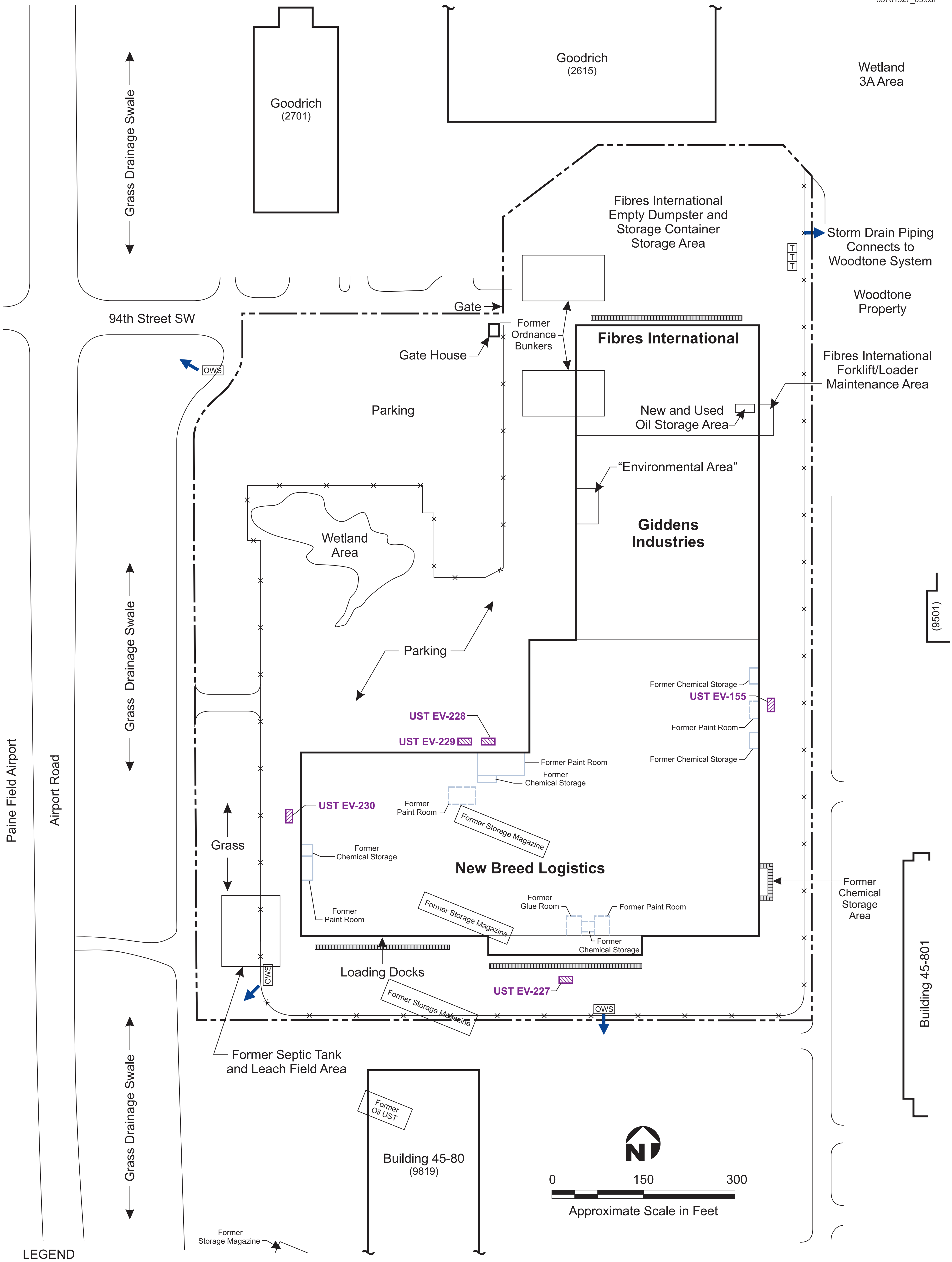
\\Seaprojects\Project\WM&RD\BOEING EVERETT\CORRECTIVE ACTION\GIS\maps\Figure 19-1 - BOMARC Property Overview.mxd

Job No. 33761927

Figure 19-1
BOMARC Property Overview

URS

Boeing Commercial Airplanes
Everett Plant
Remedial Investigation Report



LEGEND

Subject property/parcel boundary

Fence

Trench Drain

Stormwater discharge point

Former room location

Existing room location

OWS Oil/water separator

Former UST location

Figure 19-2
BOMARC BUILDING 45-70
SITE PLAN

Job No. 33761927

URS

Boeing Commercial Airplanes, Everett Plant
Remedial Investigation Report

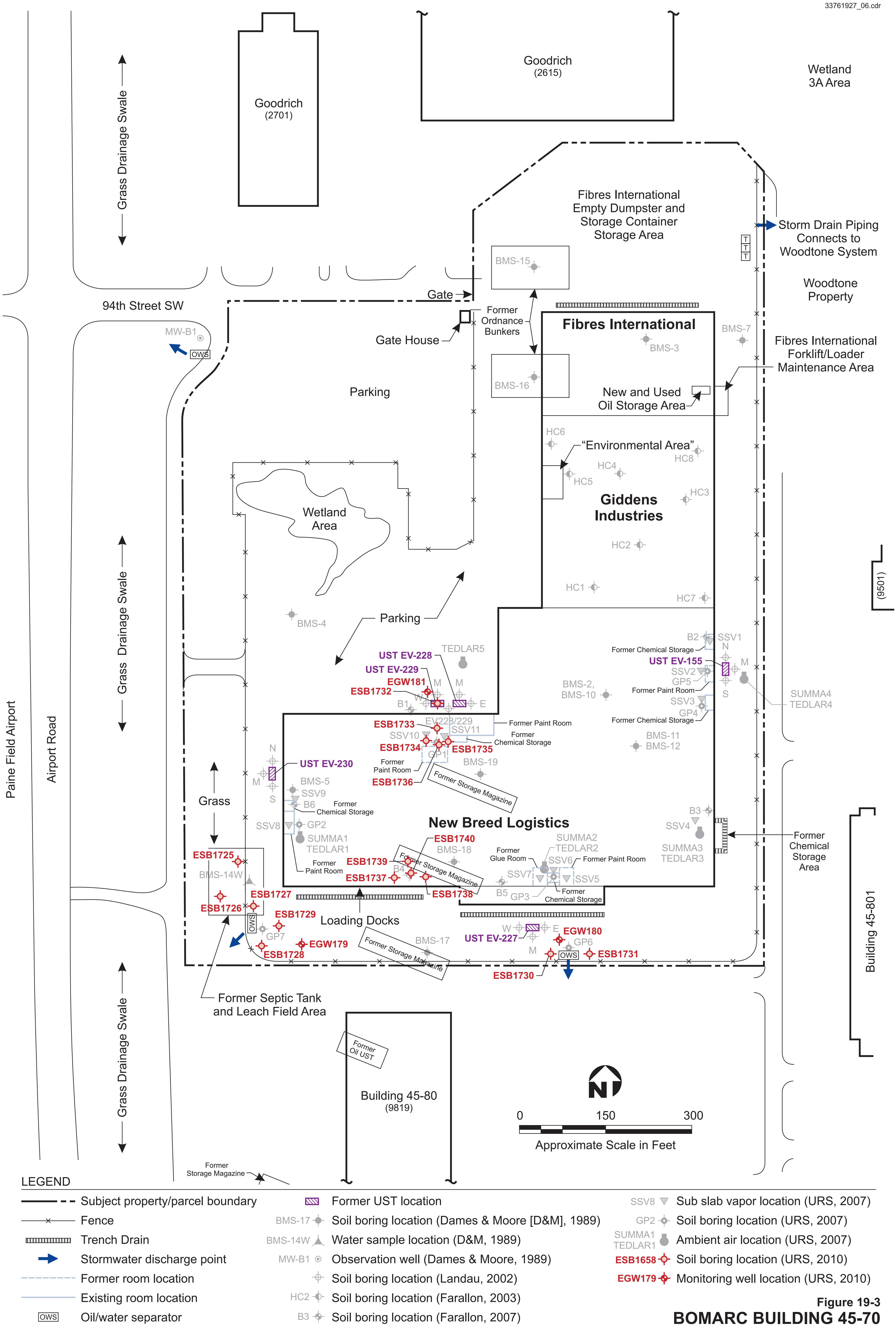


Figure 19-3

BOMARC BUILDING 45-70

SOIL AND GROUNDWATER SAMPLING LOCATIONS

Job No. 33761927

URS

Boeing Commercial Airplanes, Everett Plant
Remedial Investigation Report

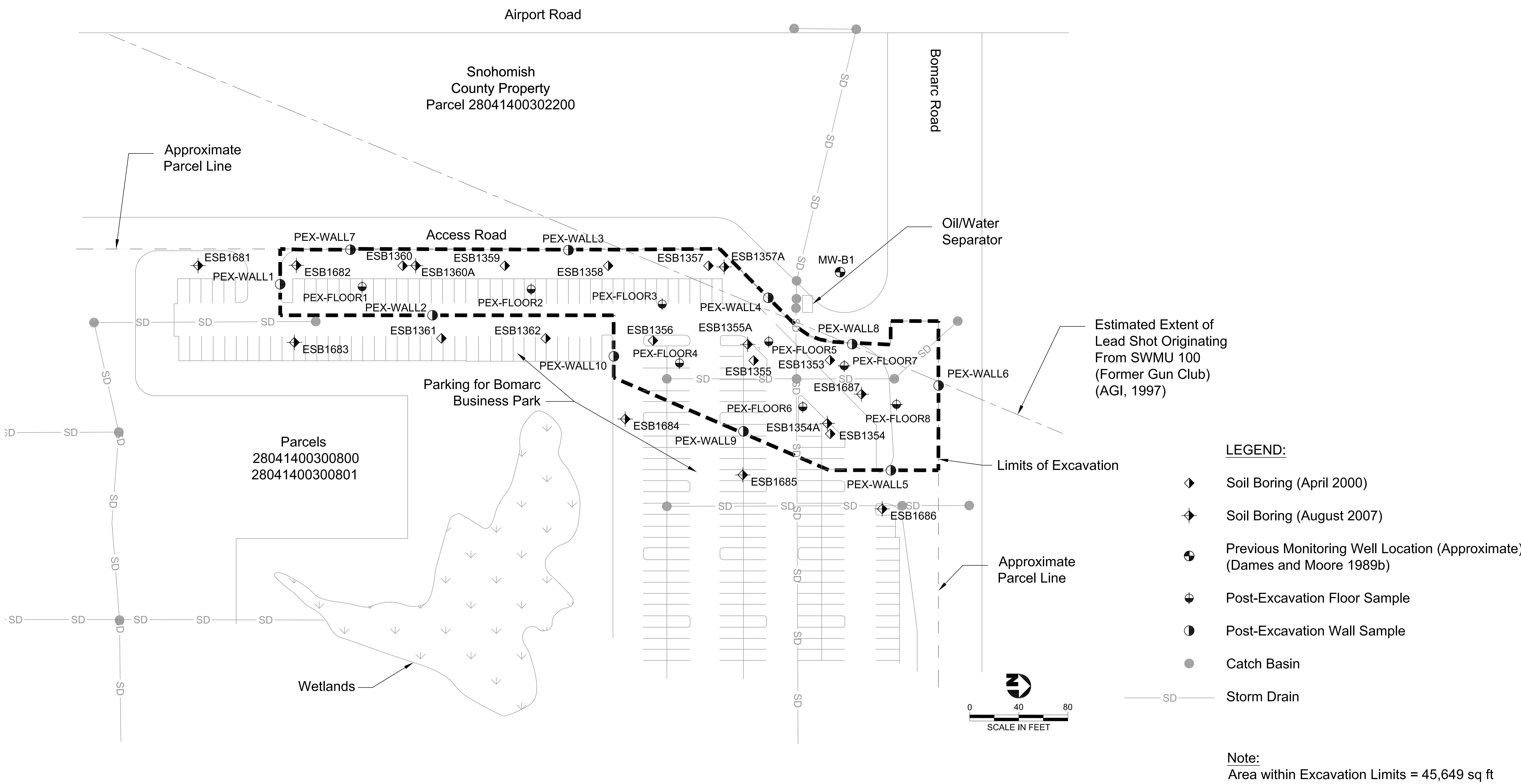


Figure 19-4
BOMARC Building 45-70
Interim Action Sample Locations

Job No. 33761927

URS

Q:\geo\Boeing\Everett\RI\2010\Fig 19-4 Interim Samp Loc.dwg
Mod: 11/16/2010, 14:34 | Plotted: 11/16/2010, 14:34 | john_knobbs

20.0 BUILDINGS 40-25 AND 40-26

This section presents the results of the subsurface investigation of two Attachment 7 SWMUs/AOCs located adjacent to the south side of Building 40-25 and Building 40-26 at the Everett Plant (Figures 20-1 and 20-2). These SWMUs/AOCs include:

- No. 177 - Building 40-25, Utility Vault
- No. 178 - Building 40-26, Utility Vault

These SWMUs/AOCs consist of two vaults that were constructed in the early 1990s, and are 9 feet by 12 feet in plan (Figures 20-3 and 20-4) and 8 feet deep (Figures 20-5 and 20-6). The vaults are composed of cast-in-place reinforced concrete with a 2-foot diameter by 4-foot deep sump in one corner, and serve as the southern terminus for below grade utility corridors coming from the 40-25 and 40-26 Buildings. These corridors contain a variety of piped utilities, including hydraulic fluid pipelines. The principal dangerous constituents of the fluid contained in these areas are tributyl phosphate (TBP), dibutyl phenyl phosphate (DPP), butyl diphenyl phosphate (BDP), and triphenyl phosphate (TPP), and 2,6-di-tert-butyl-p-cresol (also known as butylated hydroxytoluene or BHT). There have been no prior subsurface environmental investigations of these SWMUs/AOCs; the locations of geotechnical borings that pre-date construction are shown on Figure 20-1 and 20-2.

20.1 PURPOSE AND SCOPE

The purpose of the investigation was to assess whether hydraulic fluid constituents are present within the engineered fill which surrounds each vault, at the fill/glacial till interface, and in the underlying glacial till soils. The subsurface investigation was also intended to document if free-phase hydraulic fluid and/or perched water are present in fill adjacent to the vaults and sumps and, if so, whether there has been vertical migration of hydraulic fluid constituents into the underlying glacial till. This investigation was performed in general accordance with the Supplemental RIWP for these two areas (URS, 2001) and the scope of investigation included the following:

- Completed two soil borings adjacent to both vaults to a depth of 25 to 26½ feet below ground surface using a truck-mounted hollow stem auger drill rig
- Collected soil samples at prescribed depth intervals
- Field screened soil samples for presence of hydraulic fluid by monitoring for organic vapors, visual inspection, and sheen testing of selected samples
- Submitted selected soil samples for analysis for the four phosphate compounds and BHT, and one sample from each boring for VOCs, metals, non-halogenated SVOCs, SVOCs, RCRA (8) metals plus copper, nickel, strontium and zinc

The field investigation was completed in general accordance with the planned scope of work in the Supplemental RIWP except that two borings (one at each vault) were not completed. These borings could not be advanced beyond 1 foot bgs due to the presence of underground high voltage electrical utilities (Figures 20-3 and 20-4) adjacent to one side of each vault.

20.2 DOCUMENTATION OF DRILLING AND SAMPLING

Between April 3 and April 12, 2001, URS monitored the drilling of four soil borings (ESB1397, ESB1398, ESB 1399 and ESB1400) in the area of the two utility vaults as shown on Figures 20-3 and 20-4. Four soil borings were completed to depths ranging from 25½ feet to 26½ feet. Boring ESB1398 and ESB1400 were completed on the west and south side of the Building 40-25 vault (Figure 20-3). Borings ESB1397 and ESB1399 were completed adjacent to the east and south side of the Building 40-26 vault (Figure 20-4).

Soil samples were retrieved using a Dames & Moore U-type split spoon sampler. Oversized hollow stem augers (HSA), 10¼-inch inside diameter (ID), were used for the upper 15 feet of drilling and 4 ¼-inch ID augers were used to advance the boring past 15 feet bgs. The Dames & Moore sampler was fitted with 3” to 6” stainless steel rings. The rings that were filled with soil were capped with a Teflon cover and plastic cap upon removal from the sampler. All soil samples were stored in a cooler on ice. After sampling was completed, the borings were backfilled with hydrated bentonite chips and capped with concrete to match the surrounding area. Drilling techniques and sampling procedures utilized were in general accordance with the SAP presented in Appendix A of the RIWP and Appendix B of the IAWP.

20.2.1 Field Observations and Sample Analysis Results

Presented in this section are the field observations and sample results associated with soil borings ESB1397 through ESB1400. The locations of the soil borings and geologic cross section locations are presented on Figures 20-3 and 20-4. The cross sections are presented on Figures 20-5 and 20-6. Geologic logs of the borings are presented in Appendix U1. Data validation reports are in Appendix U2. The chain of custody forms and analytical laboratory reports are presented in Appendix U3. Analytical results are summarized in Tables 20-1, 20-2, and 20-3.

20.2.2 Field Observations

The areas investigated on the south side of Buildings 40-25 and 40-26 are covered with an approximately 13-inch to 14-inch thick concrete slab. Fill soil, associated with the backfill of excavations for the utility vault, consisted of fine to coarse sand and gravel that was encountered to a depth of 8½ feet to 9 feet bgs in all four borings. Glacial till consisting of a gray and brown silt and sand was encountered beneath the fill soils. The glacial till extends to the maximum depth investigated of 26½ feet bgs. Perched water was not encountered at the till/fill interface or within the till soils.

Staining, sheens or other visual indications of dangerous constituents were not observed in any of the soil samples. PID readings did not indicate organic vapors significantly elevated above background ambient levels in the soil samples screened.

20.2.3 Soil Sample Analysis Results

20.2.3.1 Building 40-25

Selected soil samples from depths between 5 feet to 15 feet bgs from borings ESB1398 and ESB1400 were submitted for analysis. The samples were selected per the criteria specified in the Supplemental RIWP (URS, 2001). Tables 20-1 through 20-3 summarize the analytical results for the soil samples. These tables also list the applicable MTCA Method A and B cleanup levels and screening levels for hydraulic fluid compounds calculated by Boeing. Selected sample results are shown on the geologic cross-section (Figure 20-5).

The analytical results for samples from adjacent and subjacent to the vault near Building 40-25 indicate that the phosphate compounds, VOCs, non-halogenated SVOCs, SVOCs, and total metals analyzed were either not detected at concentrations above the method reporting limits or were detected at concentrations below the applicable MTCA cleanup levels for direct contact with the exception of arsenic and chromium. Samples from both borings have levels of arsenic (ESB1398-6.5 at 1.8 mg/kg and ESB1400-8.0 at 2.3 mg/kg) above the MTCA Method B soil cleanup level of 0.667 mg/kg (Table 20-3). However, both of these values are below the Puget Sound background concentration of 7.3 mg/kg (Ecology, 1994) and the MTCA Method A soil cleanup level protective of groundwater (20 mg/kg). Samples from both borings have levels of total chromium (ESB1398-6.5 at 37.1 mg/kg and ESB1400-8.0 at 29.8 mg/kg) below the applicable MTCA Method A and B soil cleanup levels for trivalent chromium (2,000 mg/kg and 120,000 mg/kg, respectively) and the MTCA Method B level for hexavalent chromium (240 mg/kg), but above the MTCA Method A level (19 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (18 mg/kg) for hexavalent chromium. However, results are below the Puget Sound background concentration of 48.2 mg/kg.

N-butyl alcohol was detected in one soil sample (ESB1398 at 6.5 feet bgs) at a concentration (12 mg/kg) that exceeds the preliminary soil cleanup level protective of groundwater (3.311 mg/kg). In the other soil sample, in which n-butyl alcohol was not detected, the reporting limit (12 mg/kg) exceeded the preliminary soil cleanup level protective of groundwater (3.311 mg/kg). The MTCA Method B soil cleanup level protective of direct contact is 8,000 mg/kg.

20.2.3.2 Building 40-26

Selected soil samples from depths between 5 feet to 15 feet bgs from borings ESB1397 and ESB1399 were submitted for analysis. The samples were selected per the criteria specified in the Supplemental RIWP (URS, 2001). Tables 20-1 through 20-3 summarize the analytical results for the soil samples. These tables also list the applicable MTCA Method A and B soil cleanup levels and the screening levels for phosphate compounds calculated by Boeing. Selected sample results are shown on the geologic cross-section (Figure 20-6).

Analytical results for soil samples from adjacent to the Building 40-26 vault indicate that phosphate compounds, VOCs, non-halogenated SVOCs, SVOCs, and total metals analyzed were either not detected at concentrations above the method reporting limits, or were detected at concentrations below the applicable MTCA cleanup levels for direct contact with the exception of arsenic and chromium. Samples from both borings have levels of arsenic (ESB1397-9.0 at 4.6 mg/kg and ESB1399-6.5 at 2.2 mg/kg) above the MTCA Method B soil cleanup level of 0.667 mg/kg (Table 20-3). However, both of these values are below the Puget Sound background concentration of 7.3 mg/kg (Ecology, 1994) and the MTCA Method A soil cleanup level protective of groundwater (20 mg/kg). Samples from both borings have levels of total chromium (ESB1397-9.0 at 35.6 mg/kg and ESB1399-6.5 at 37.4 mg/kg) below the applicable MTCA Method A and B soil cleanup levels for trivalent chromium (2,000 mg/kg and 120,000 mg/kg, respectively) and the MTCA Method B level for hexavalent chromium (240 mg/kg), but above the MTCA Method A level for hexavalent chromium (19 mg/kg) and the most conservative preliminary soil cleanup level protective of groundwater (18 mg/kg). However, results are below the Puget Sound background concentration of 48.2 mg/kg.

The strontium concentration from 9 feet bgs in ESB1397 (86.1 mg/kg) exceeds the preliminary soil cleanup level protective of groundwater (38.4 mg/kg) but is well below the MTCA Method B soil cleanup level protective of direct contact (48,000 mg/kg). In the other three soil samples analyzed for strontium, the concentrations measured were less than both the preliminary soil cleanup level protective of groundwater (38.4 mg/kg) and the MTCA Method B soil cleanup level protective of direct contact (48,000 mg/kg).

N-butyl alcohol was detected in one soil sample (ESB1399 at 6.5 feet bgs) at a concentration (14 mg/kg) exceeding the preliminary soil cleanup level protective of groundwater (3.311 mg/kg). In the other soil sample, in which n-butyl alcohol was not detected, the estimated reporting limit (12 mg/kg) exceeded the preliminary soil cleanup level protective of groundwater (3.311 mg/kg). The MTCA Method B soil cleanup level protective of direct contact is 8,000 mg/kg.

20.3 CONCLUSIONS

The results of drilling adjacent to the two SWMUs/AOCs in the vicinity of Buildings 40-25 and 40-26 indicate the presence of sand and gravel fill to depths ranging from 8 feet to 9½ feet bgs. The fill soils are underlain by very dense, glacial till to the maximum depth investigated of 26½ feet bgs. The glacial till consists of silty sand with gravel.

Phosphate compounds, BHT, VOCs, non-halogenated SVOCs and SVOCs were not detected in soil at concentrations above the applicable MTCA Method A or B soil cleanup levels or screening values calculated by Boeing. TBP was detected at low concentrations in at least one fill soil sample from adjacent to the utility vaults in three of the four borings. BDP and DPP were also detected at low levels in fill soil in one boring adjacent to the Building 40-25 vault. However, these compounds were not detected in the deeper samples of native glacial till.

Arsenic and chromium were detected above an applicable MTCA Method A or B cleanup level in the four samples analyzed. However, the detected concentrations are below Puget Sound background levels for arsenic and chromium.

Strontium was detected in all four of the soil samples analyzed for this metal, with the concentration in one one sample exceeding the most conservative preliminary soil cleanup level protective of groundwater (38.4 mg/kg) but well below the MTCA Method B soil cleanup level protective of direct contact (48,000 mg/kg). The detected concentrations of strontium were within a relatively narrow range of approximately 20 to 90 mg/kg. The relatively consistent strontium concentrations detected in soil at this SWMU and throughout the Everett facility, and the fact that the concentrations are approximately 1,000 times below the cleanup level based on direct contact demonstrates that the measured strontium concentrations are not indicative of a release, but rather are typical concentrations for native soil in the area.

The detected concentrations, and the laboratory reporting limit, for n-butyl alcohol exceed the preliminary soil cleanup level protective of groundwater (3.311 mg/kg). However, perched groundwater was not encountered beneath this SWMU/AOC to a depth of 26½ feet bgs. N-butyl alcohol has not been detected in the regional Esperance Sand aquifer, located at a depth of approximately 200 feet bgs. This constitutes an empirical demonstration that the measured concentrations of n-butyl alcohol in soil are protective of groundwater.

Evaluation of the vapor intrusion (VI) pathway for this SWMU/AOC is not recommended for the FS. Screening of the VI pathway was performed in this RI using Ecology's review draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated October 2009 (VI guidance). Application of the Preliminary Assessment step of the VI guidance to this SWMU shows that four chemicals detected in soil beneath the SWMU (MEK, carbon disulfide, methylene chloride, and toluene, Table 20-2) are sufficiently volatile to be a potential VI source. However, these detections of volatile chemicals are not considered to be a potential source of VI for Buildings 40-25 or 40-26 for the following reasons:

- In accordance with WAC 173-340-740(3)(b)(iii)(C)(III), the concentrations of volatile chemicals other than methylene chloride are lower than the protection of groundwater soil cleanup levels calculated based on the applicable MTCA Method A or Method B groundwater cleanup levels.

- The estimated concentration of methylene chloride in one sample, although higher than the protection of groundwater soil cleanup level for this compound, is a suspected laboratory contaminant.

- PID readings taken during field sampling generally did not indicate organic vapors significantly elevated above background ambient levels in the soil samples.

Groundwater was not encountered beneath this SWMU/AOC to a depth of 26½ feet bgs.

Based on field observations and the analytical results, no further investigation or remediation are warranted in the area of the Building 40-25 and Building 40-26 vaults. Therefore, these SWMUs/AOCs are not recommended for inclusion in the FS.

20.4 REFERENCES

URS, 2001, Supplemental Remedial Investigation Work Plan, Building 40-25 and 40-26, Utility Vaults (Revision 1.0), BCAG Everett Plant, March 6, 2001.

Table 20-1
Summary of Soil Sample Analytical Results for Phosphate Compounds and BHT (mg/kg)
Building 40-25 and Building 40-26
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Butyl Diphenyl Phosphate	Dibutyl Phenyl Phosphate	Tributyl Phosphate	Triphenyl Phosphate	Butylated Hydroxytoluene
MTCA Method B 100x GW Soil Cleanup Level*		552	516	480	588	NE
MTCA Method B Soil Cleanup Level*		27,605	25,802	24,000	29,398	NE
ESB 1397-5.0	04/03/01	0.37 U	0.15 U	0.073 UJ	0.37 UJ	0.0022 U
ESB 1397-8.0	04/03/01	0.35 U	0.14 U	0.069 UJ	0.35 UJ	0.0021 U
ESB 1397-9.0	04/03/01	0.36 U	0.14 U	0.072 UJ	0.36 UJ	0.0022 U
ESB 1397-15.0	04/03/01	0.36 U	0.15 U	0.073 UJ	0.36 UJ	0.0022 U
ESB1398-5.0	04/06/01	0.37 U	0.15 U	0.13	0.37 UJ	0.0022 U
ESB1398-6.5	04/06/01	0.35 U	0.26	1.2	0.35 UJ	0.0021 U
ESB1398-8.0	04/06/01	1.7	5.7	24	0.36 UJ	0.029
ESB1398-9.5	04/06/01	0.36 U	0.14 U	0.19	0.36 UJ	0.0022 U
ESB1398-15.0	04/06/01	0.36 U	0.15 U	0.073 UJ	0.36 U	0.0022 UJ
ESB1399-5.0	04/06/01	0.36 U	0.14 U	0.072 U	0.36 UJ	0.0022 U
ESB1399-6.5	04/06/01	0.37 U	0.15 U	0.074 U	0.37 UJ	0.0022 U
ESB1399-8.0	04/06/01	0.36 U	0.15 U	0.28	0.36 U	0.0022 U
ESB1399-9.5	04/06/01	0.37 U	0.15 U	0.074 U	0.37 UJ	0.0022 U
ESB1400-6.5	04/12/01	0.34 U	0.14 U	0.068 U	0.34 U	R
ESB1400-8.0	04/12/01	0.36 U	0.14 U	0.20	0.36 U	R
ESB1400-9.5	04/12/01	0.37 U	0.15 U	0.074 U	0.37 U	R
ESB1400-12.5	04/12/01	0.37 U	0.15 U	0.073 U	0.37 U	R

Notes:
MTCA - Model Toxics Control Act.
(B) - MTCA Method B soil cleanup level
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
*Value calculated by Boeing consistent with 1996 MTCA Method B methodology.
J - Estimated value
NE - Not established
R - Data rejected due to quality assurance parameters. The presence or absence of this analyte cannot be verified.
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

Table 20-2
Summary of Soil Sample Analytical Results for VOCs, Non-halogenated SVOCs, and SVOCs (mg/kg)
Building 40-25 and Building 40-26
Boeing Everett Plant Remedial Investigation

Sample ID/Date		VOCs					Non-Halogenated SVOCs	SVOCs
		2-Butanone (MEK)	Acetone	Carbon Disulfide	Methylene Chloride	Toluene	n-Butyl Alcohol	bis(2-Ethylhexyl) Phthalate
1996 MTCA Method A or B Soil Cleanup Level		48,000 (B)	8,000 (B)	8,000 (B)	0.5 (A, AI) 133 (B)	40 (A, AI) 16,000 (B)	8,000 (B)	71.4 (B)
1996 MTCA Method B 100x GW Soil Cleanup Level		480	80	80	0.583	160	160	0.625
2001 MTCA Method A or B Soil Cleanup Level		48,000 (B)	8,000 (B)	8,000 (B)	0.02 (A) 133 (B)	7 (A) 16,000 (B) 6,400 (B*)	8,000 (B)	71.4 (B)
MTCA Method A or B Protection of Groundwater		19.2 (B)	3.211 (B)	5.651 (B)	0.02 (A) 0.025 (B)	7 (A) 4.654 (B)	3.311 (B)	13.915 (B)
ESB 1397-9.0	04/03/01	0.057**	0.01 UJ	0.0028 **	0.0033 U	0.028**	12 UJ	0.073
ESB1398-6.5	04/06/01	0.0054	0.036 U*	0.001 U	0.003 U	0.001 U	12	0.085
ESB1399-6.5	04/06/01	0.0055 U	0.043 U*	0.0011 U	0.0033 U	0.0011 U	14	0.074 U
ESB1400-8.0	04/12/01	0.0054 U	0.033 U*	0.0011 U	0.1 J**	0.0011 UJ	12 U	0.072 U

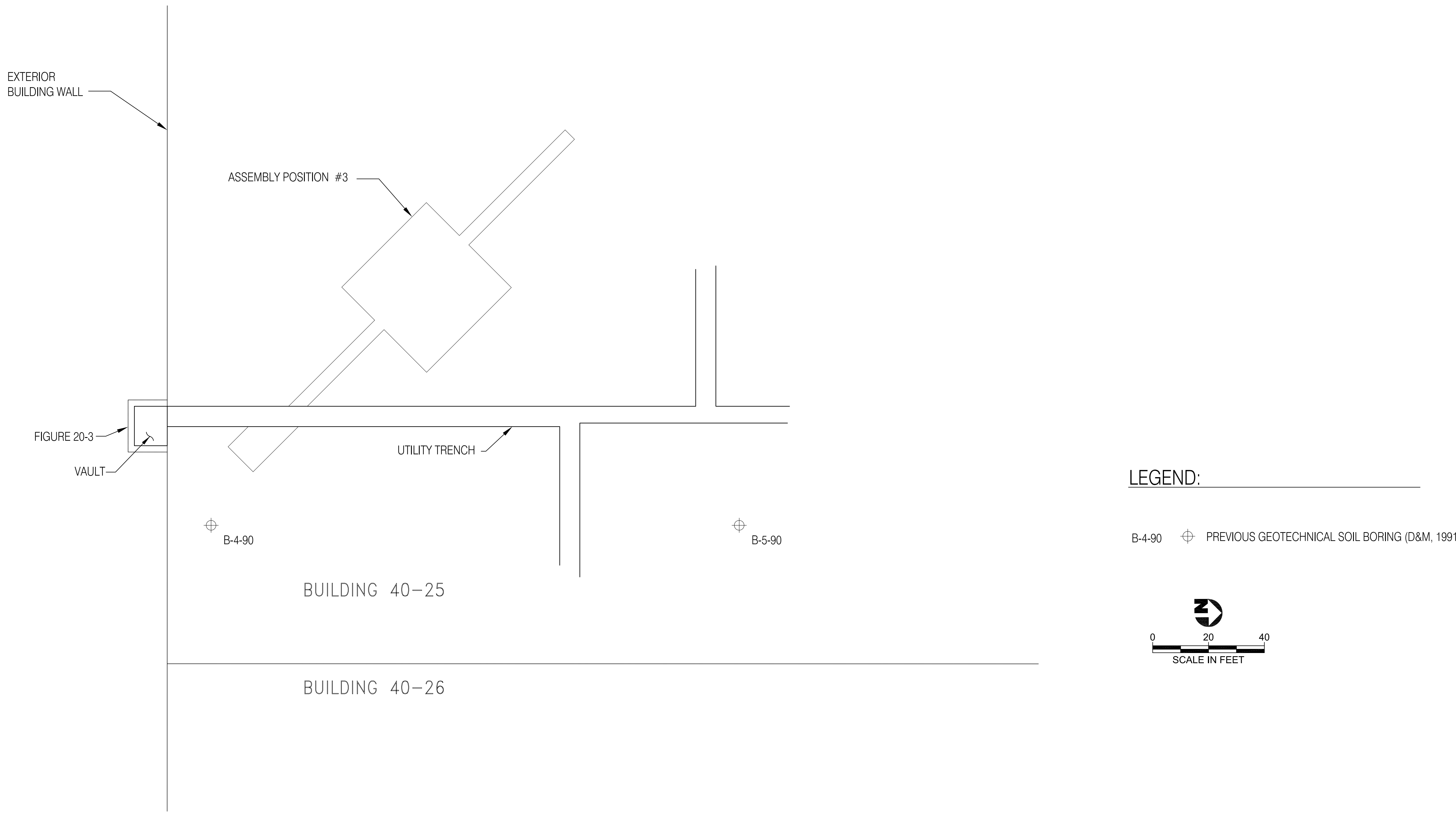
Notes:

MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
J - Estimated value
NE - Not established
SVOCs - Semivolatile organic compounds
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
U* - Result was qualified as not detected due to method blank contamination.
VOCs - Volatile organic compounds
** Result is suspected laboratory contamination.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.

Table 20-3
Summary of Soil Sample Analytical Results for Metals (mg/kg)
Building 40-25 and Building 40-26
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Nickel	Strontium	Zinc
		Total Metals								
1996 MTCA Method A or B Soil Cleanup Level		20 (A) 200 (AI) 1.67 (B)	5,600 (B)	2.0 (A) 10 (AI) 80 (B)	100 (A) 500 (AI)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)	48,000 (B)	24,000 (B)
1996 MTCA Method B 100x GW Soil Cleanup Level		0.00583	112	1.6	1,600 (Cr^{+3})	59.2	NE	32	960	480
2001 MTCA Method A or B Soil Cleanup Level		20 (A) 0.667 (B)	5,600 (B) 16,000 (B*)	2 (A) 80 (B)	2,000 (Cr^{+3}) / 19 (Cr^{+6}) (A) 120,000 (Cr^{+3}) / 240 (Cr^{+6}) (B)	2,960 (B)	250 (A) 1,000 (AI)	1,600 (B)	48,000 (B)	24,000 (B)
MTCA Method A or B Protection of Groundwater		20 (A) 0.03 (B)	2,637 (B)	2 (A) 1.1 (B)	2,000 (Cr^{+3}) / 19 (Cr^{+6}) (A) 480,096 (Cr^{+3}) / 18 (Cr^{+6}) (B)	263 (B)	250 (A)	417 (B)	38.4 (B)	5,971 (B)
WA Department of Ecology - Puget Sound Background Regional Concentration		7.30	NE	0.8	48.2	36.4	24.0	47.8	NE	85.1
ESB 1397-9.0	04/03/01	**4.6**	86.5	0.2 U*	**35.6**	19.7	7	35	86.1	49.7
ESB1398-6.5	04/06/01	**1.8**	42.9	0.2 U	**37.1**	17.8	2	52	26.4	33.6
ESB1399-6.5	04/06/01	**2.2**	42.4	0.2 U	**37.4**	15.9	2 U	43	22.3	33.6
ESB1400-8.0	04/12/01	**2.3**	46.2	0.2 U	**29.8**	14.8	4	39	30.6	30.9

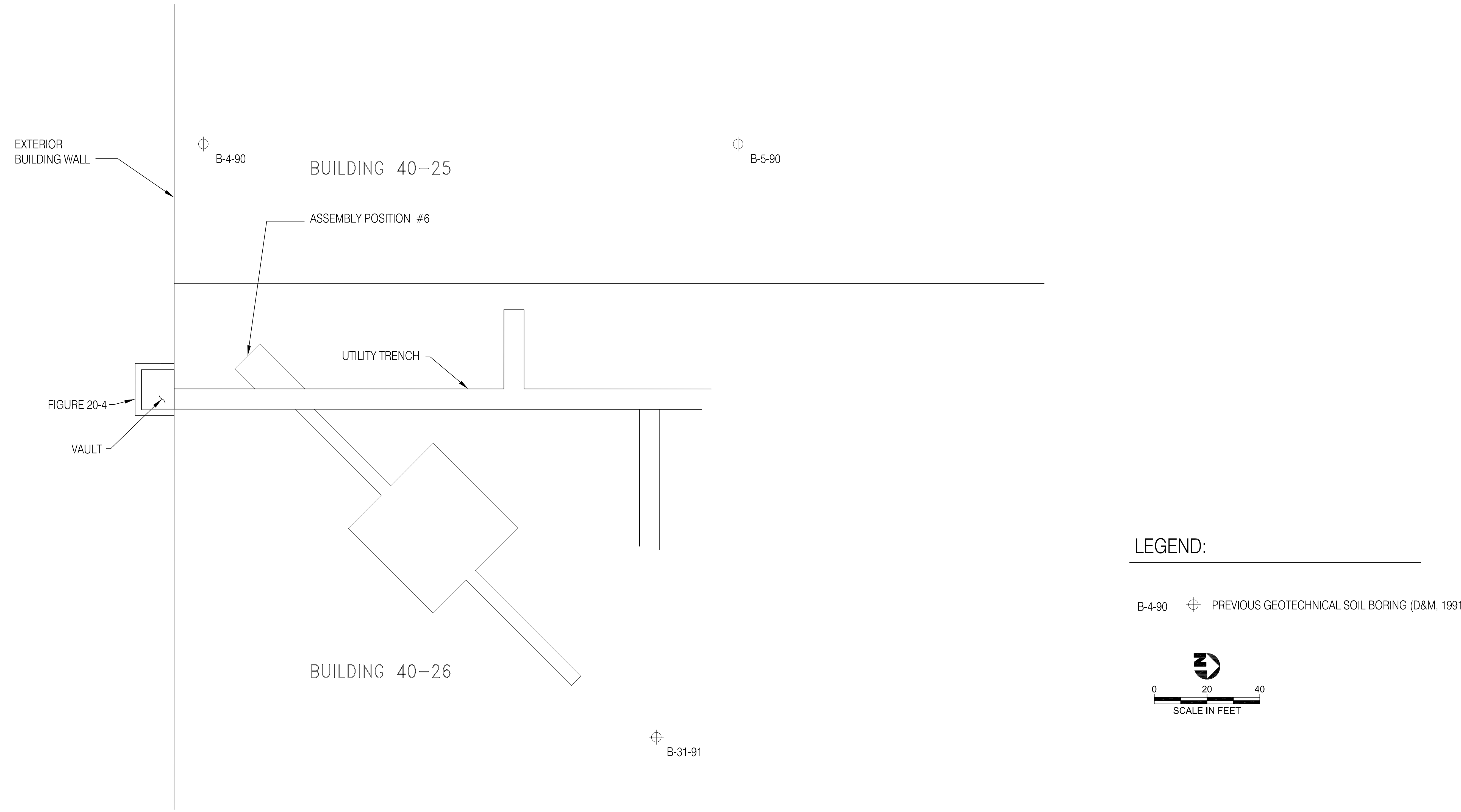
Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
(B*) Revised 2001 MTCA Method B value from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
1996 - Indicates MTCA soil cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
J - Estimated value
NE - Not established
U - Compound was analyzed for but not detected above the reporting limit shown.
U* - Result was qualified as not detected due to method blank contamination.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Samples were analyzed for mercury, selenium and silver but these were not detected in any of the samples.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.



Job No. 33761927

Figure 20-1

BUILDING 40-25 SWMU/AOC No. 177 VAULT SITE PLAN



Job No. 33761927

Figure 20-2

BUILDING 40-26 SWMU/AOC No. 178 VAULT SITE PLAN

URS Q:\geo\Boeing\Everett\RI\2010\Fig 20-2.dwg
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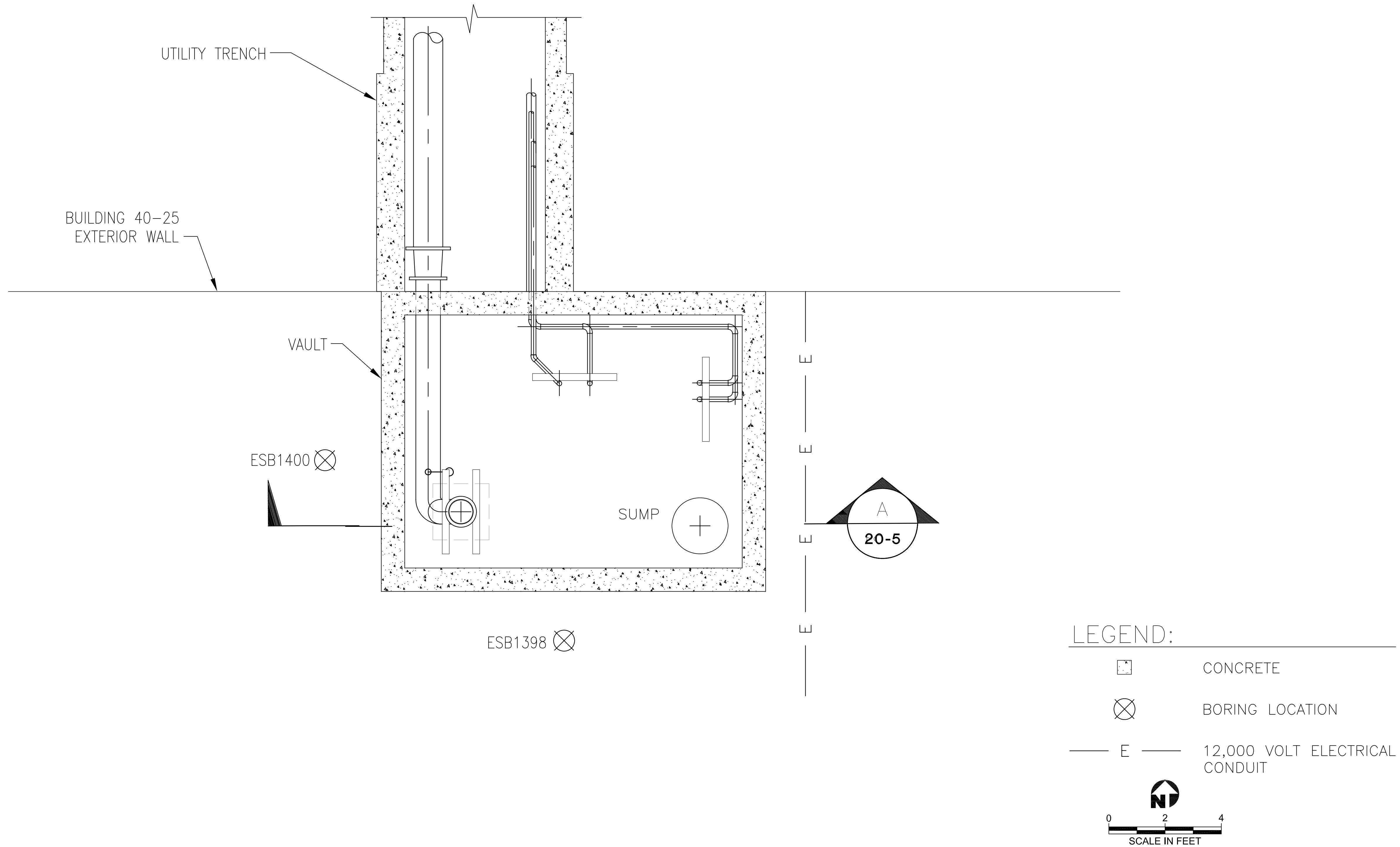
Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT



Job No. 33761927

Figure 20-3

BUILDING 40-25 VAULT SOIL BORING LOCATIONS

URS

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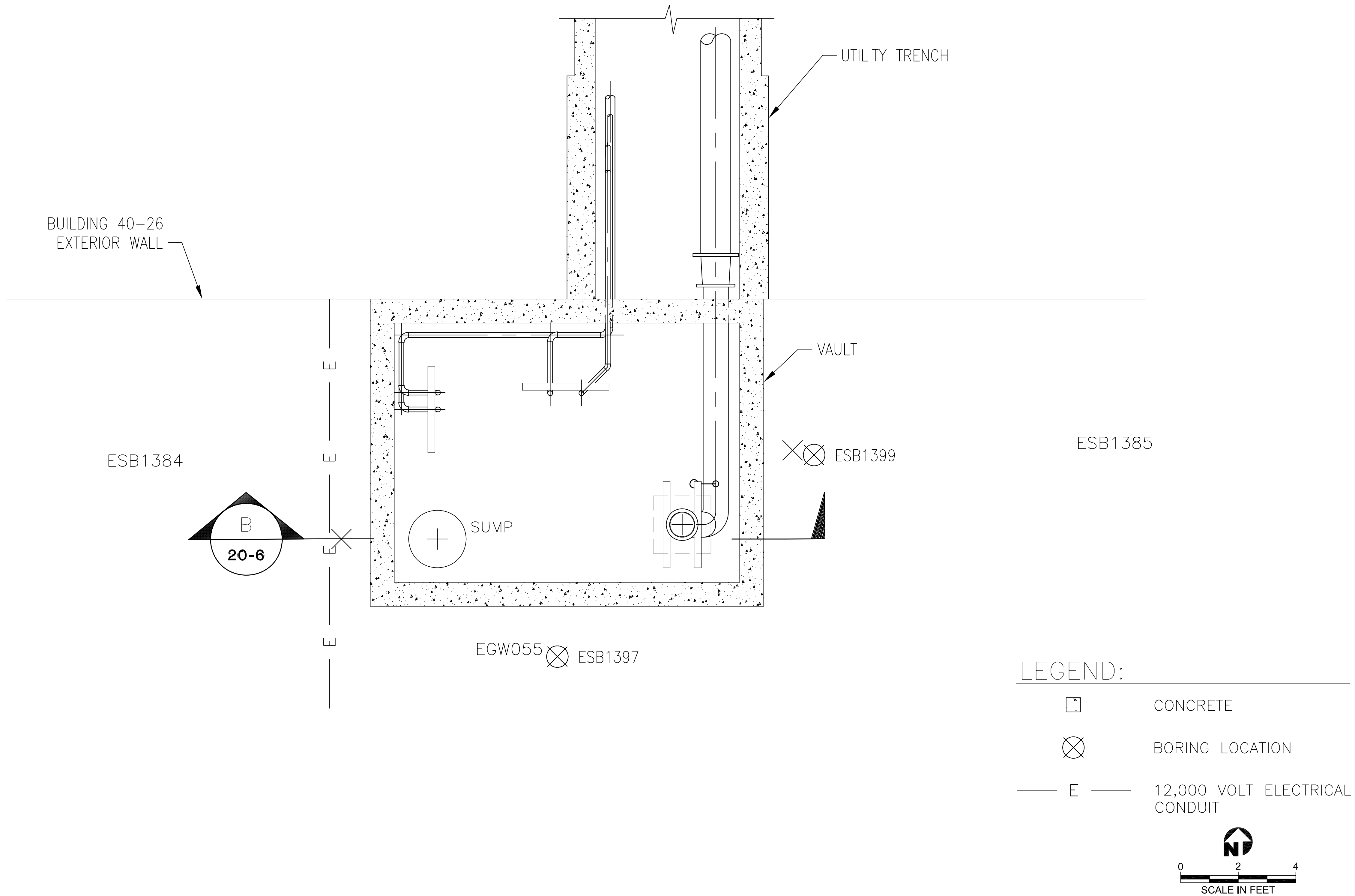
Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT



Job No. 33761927

Figure 20-4

BUILDING 40-26 VAULT SOIL BORING LOCATIONS

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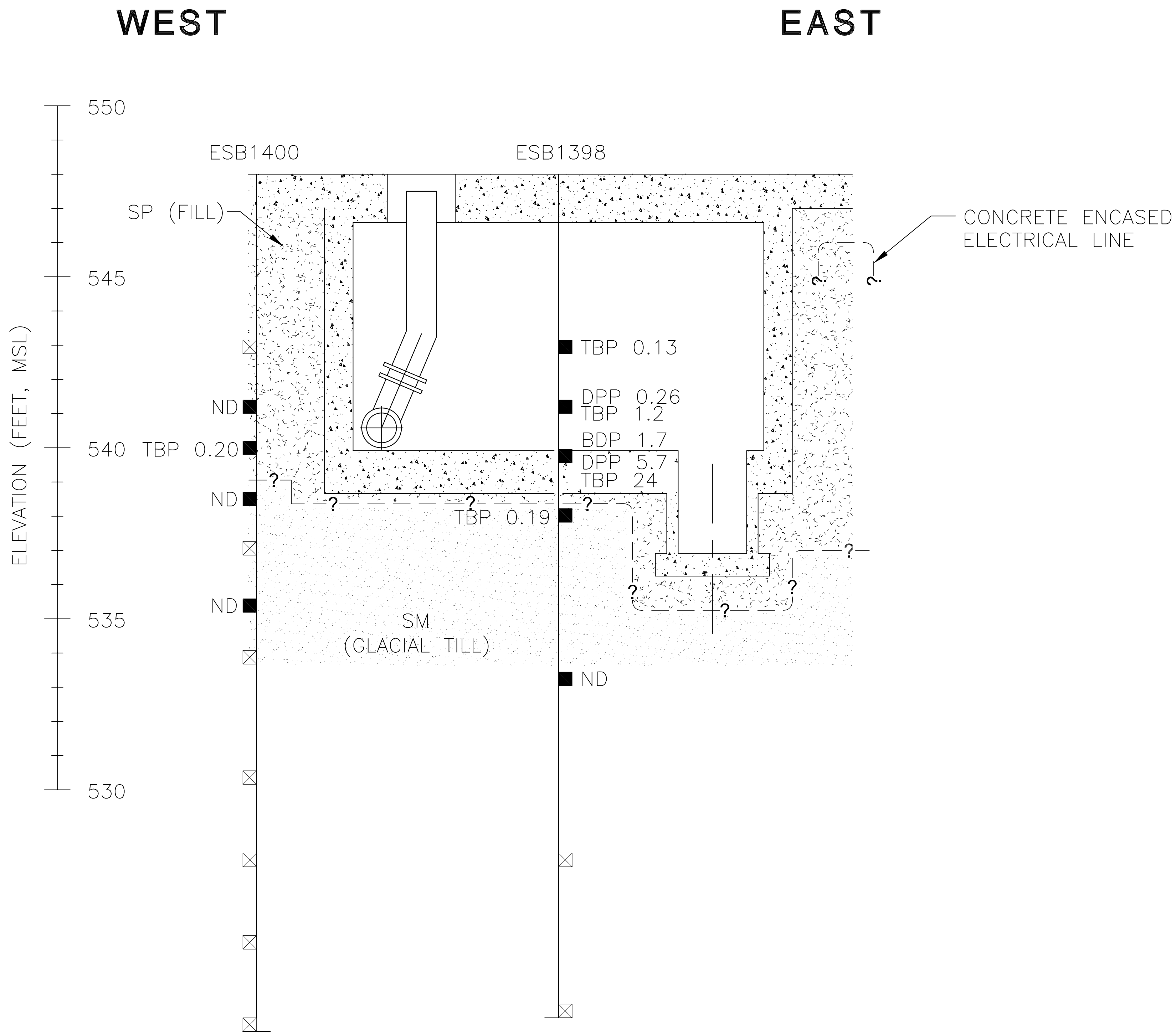
Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT



LEGEND:

SP = FINE TO COARSE SAND AND GRAVEL

SM = SILTY FINE TO MEDIUM SAND AND SANDY SILT WITH OCCASIONAL GRAVEL

CONCRETE OR ASPHALT

ESB1296 SOIL BORING

SAMPLE COLLECTED AND ANALYZED

SAMPLE NOT ANALYZED

BDP BUTYL DIPHENYL PHOSPHATE

TBP TRIBUTYL PHOSPHATE

DPP DIBUTYL PHENYL PHOSPHATE

ND TBP AND OTHER PHOSPHATE COMPOUNDS NOT DETECTED ABOVE METHOD REPORTING LIMITS

160 CONCENTRATION IN SOIL mg/kg

0 2 4
SCALE IN FEET

Job No. 33761927

Figure 20-5

BUILDING 40-25 CROSS SECTION A

URS

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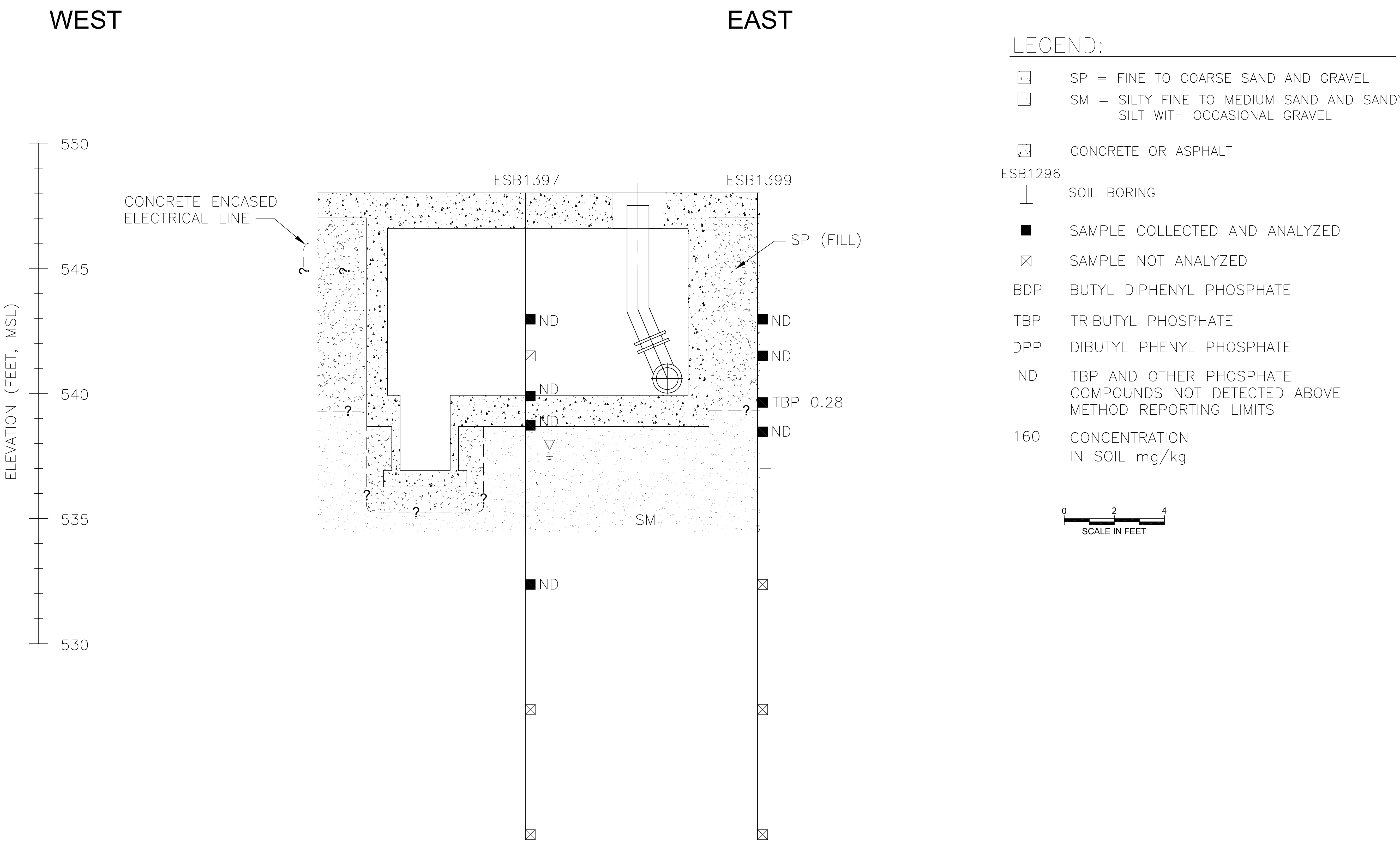
Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT



Job No. 33761927

Figure 20-6

BUILDING 40-26 CROSS SECTION B

URS

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Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

21.0 POWDER MILL GULCH GROUNDWATER

This section presents the results of the investigation of trichloroethylene (TCE) and other volatile organic compounds (VOCs) in groundwater and surface water in upper Powder Mill Gulch (PMG[1]) (Figure 21-1) on and downgradient/downstream of the Everett Plant. The investigation included additional characterization of the Esperance Sand aquifer to supplement data previously obtained for the upland portion of the Everett Plant presented in Section 14.0. This investigation was performed as additional work to the remedial investigation work plan (RIWP) and was completed in several phases beginning in May 2003 and continuing through the April 2010 groundwater monitoring event and the implementation of Supplemental RI Work Plan Addendum No. 9 (Landau Associates 2009a). The scope of each phase was presented in a memorandum or other correspondence with the Washington State Department of Ecology (Ecology) (e.g., e-mail, meeting notes summary, work plan, etc.) and was approved by Ecology prior to implementation.

The following work was also performed in addition to the RI and supplemental RI activities including:

- A separate remedial investigation and interim cleanup action for contaminated sediment in Powder Mill Creek. Results of the sediment cleanup are reported as a separate sediment RI, and are not included in this report.
- TCE groundwater source area interim cleanup actions were completed beneath the detention basin, including implementation of an electrical resistance heating and a bioremediation injection program. These interim cleanup action results have been reported separately through progress reports, technical memorandums and reports. Within the RI, only those interim cleanup action findings directly relevant to site characterization are summarized. Supporting documentation including: well logs, boring logs, and monitoring results, are also included within this uplands RI report. The interim cleanup action results shall be appropriately discussed in more detail within the Feasibility Study.

A description of the Esperance Sand hydrogeology underlying the upland portion of the site is presented in Section 14.0. As described therein, the two principal hydrogeologic units beneath the upland portion of the site are the Vashon till (glacial till) and the underlying Esperance Sand (Vashon advance outwash; USGS 1997). The Vashon till beneath the Everett Plant is generally non-waterbearing (see Section 14.0) and the Esperance Sand is the uppermost aquifer. Based on regional information (USGS 1997) and groundwater elevation data from Esperance Sand monitoring wells in the upland portion of the Everett Plant, the groundwater flow in Esperance Sand is to the northwest toward Port Gardner Bay in Possession Sound. On a more local scale, groundwater in the Esperance Sand also flows toward incised drainages, such as PMG and Japanese Gulch located west of PMG.

Upper PMG is located on the north side of the Everett Plant. This gulch is incised into the Vashon-till capped upland (Figure 21-1) and extends downward into the Esperance Sand and eventually into the Lawton Clay. PMG formerly extended south-southeast from its current southerly extent, but the upper reaches were filled for construction of the Everett Plant. Currently, the head of the gulch is occupied by the plant's stormwater detention basin, sedimentation basin, and the associated peat filter system and created wetlands. The detention basin was constructed during the original plant construction in 1968-1969 and is asphalt lined.

The detention basin was modified and the sedimentation basin (also asphalt-lined), peat filters, and createdwetlands were constructed in 1991-1992. Stormwater is primarily routed to the sedimentation basin and then up to 8 cubic feet per second (cfs) of flow is routed through the peat filter system. The peat filter system discharges to the created wetlands, which then discharge to Powder Mill Creek at a point approximately 500 feet (ft) north of the detention basin spillway as shown on Figure 21-1 (at creek sampling location SW-PMG4). The sedimentation basin can receive up to 100 cfs of runoff during a typical stormwater event. The flow is limited by the design of the inlet structures of the basin. Overflow from the sedimentation basin via a spillway between the two basins, and influent flow in excess of 100 cfs is routed to the detention basin bypassing the peat filter and created wetlands. Rainfall with an intensity of approximately 0.07-0.13 inches/hour or greater generally results in inflows to the sedimentation basin that exceeds 100 cfs.

[1] Upper PMG is defined as the portion of PMG extending from the North Perimeter Road at the north end of the Boeing Plant to the northerly extent of the Esperance Sand aquifer and TCE contamination in PMG, which occurs approximately 1,600 ft north of Seaway Boulevard along Powder Mill Creek.

Powder Mill Creek exits Boeing property via a 320-ft-long culvert beneath Seaway Boulevard (Figure 21-1) and extends through City of Everett (Lot 9) and private property for approximately 1¼ miles prior to discharging into Port Gardner Bay.

Surface water sampling in Powder Mill Creek during the RI in 1998-1999 detected TCE in surface water samples from location SW-PMG4 at concentrations ranging from 3.1 micrograms per liter (μg/L) to 22 μg/L. However, TCE was not detected in samples of stormwater discharging from the detention basin at that time. Boeing had no knowledge of prior TCE use in the PMG area nor was there a record of a TCE spill into the stormwater system. At this time, Ecology has not independently evaluated or confirmed the source and circumstances of this historical release. SW-PMG4 is located a short distance downstream of natural springs that discharge groundwater to provide the base flow in Powder Mill Creek. Sediment samples were collected at selected locations in Powder Mill Creek downstream of sampling location SW-PMG4 in 2001 and 2003 and analyzed for VOCs. TCE was detected in several sediment samples on Boeing property (SW-PMG6, SW-PMG17, SW-PMG18 and SW-PMG19) and one location (SW-PMG8) downstream of Seaway Boulevard on City of Everett property. The maximum concentration detected was 5.9 micrograms per kilogram (μg/kg) at SW-PMG6. There are currently no MTCA cleanup levels for freshwater sediments and the sediment sampling and analysis conducted as part of the RI is presented in a separate RI report originally issued in October 2001, revised in 2006, and that is anticipated to be revised again in 2011. An initial groundwater monitoring well (EGW075) was installed in March 2003 to assess whether TCE was in the Esperance Sand aquifer between the detention basin and SW-PMG4. TCE was detected at 2.6 μg/L and the phased investigation presented herein was initiated.

21.1 PURPOSE AND SCOPE

The purpose of the PMG investigation was to investigate and characterize the hydrogeology and groundwater and surface water quality of upper PMG in order to delineate the extent of TCE contamination and assess the potential TCE source area. Eighty-three (83) permanent groundwater monitoring wells consisting of 121 monitoring intervals, 12 piezometers, 43 temporary wells (i.e., direct-push borings), and 2 groundwater extraction wells were installed on and downgradient (north) of Boeing property to conduct this investigation. The 121 groundwater monitoring intervals consist of 83 single completion monitoring wells, three multi-level Continuous Multi-Channel Tubing (CMT) monitoring wells with multiple screen ports in one tube, and 11 nested monitoring wells. The locations of these explorations, as well as surface water and seep sampling locations, are presented on Figure 21-1. Since installation, these wells have been included in the ongoing groundwater monitoring program, with the exception of well EGW083 (damaged during installation) and wells EGW096 and EGW097 (on private property and decommissioned prior to property development). The scope of the investigation included the following major elements:

- Installed 46 single completion monitoring wells (EGW075-EGW088, EGW091-EGW110, EGW144-EGW148, EGW159, EGW160, and EGW162-EGW166) using track- and truck-mounted hollow-stem auger drilling rigs to depths ranging from 19 to 160 ft below ground surface (BGS).
- Installed 11 multiple-completion nested monitoring wells (EGW149 through EGW158 and EGW161) in the TCE source area (detention basin), which consisted of 38 sampling intervals. These wells were installed as part of the PMG Source Area Interim Action during 2006 and 2007, which implemented an Electric Resistance Heating (ERH) interim action to remediate the source area. (Note: Though this interim action was not conducted for the purposes of characterizing the hydrogeology, surface water, or groundwater quality of PMG under the remedial investigation, data obtained during this interim action was useful in making these

characterizations and are referred to throughout this document. A completion report documenting the PMG source area interim action is presented in Landau Associates 2010a).

- Installed 18 single completion monitoring wells (EGW127-EGW131, EGW134-EGW137, EGW143, and EGW167-EGW174) using a truck-mounted rotosonic drilling rig to depths ranging from 17.5 to 168.5 ft BGS.
- Installed one single completion monitoring well (EGW089) to a depth of 218 ft BGS using a truck-mounted, air-rotary drilling rig.
- Installed three CMT monitoring wells (EGW090, EGW132, and EGW133) to depths of 110, 122, and 127.5 ft BGS, respectively, using a truck-mounted, sonic drilling rig.
- Installed 12 piezometers (EGW138-EGW142, PMG-P1, PMG-P2, and PMG-P3 through PMG-P7).
- Installed two aquifer test extraction wells (EGW175 and EGW176) using a track-mounted rotosonic drill rig and conducted aquifer tests in both wells.
- Installed four vacuum monitoring piezometers (PMGPZ-B6, -C7, -C9, and -G1) in the detention basin for the source area interim action using a truck-mounted hollow-stem auger.
- Completed 43 temporary wells/borings using truck-mounted Geoprobe® and rotosonic drilling rigs to depths ranging from 9 to 62 ft BGS.
- Collected soil samples at prescribed depth intervals.
- Field-screened soil samples for organic vapors and conducted a soil vapor survey beneath the detention basin.
- Submitted selected soil samples for physical testing.
- Installed dedicated sampling pumps in selected monitoring wells.
- Installed 13 staff gauges within Powder Mill Creek.
- Collected groundwater samples from the monitoring wells on a quarterly to semi-annual basis.
- Collected surface water samples from 34 locations within Powder Mill Creek with 8 collected on a semi-annual basis.
- Collected groundwater seep samples from 26 identified seep locations with 8 collected on a semi-annual basis.
- Analyzed groundwater, seep, and surface water samples for VOCs and, for selected samples, 1,4-dioxane and/or polychlorinated biphenyls (PCBs).
- Surveyed the wells for elevation and horizontal location.
- Developed a LIDAR-generated contour map of upper PMG.
- Mapped the locations of seeps and springs where Esperance Sand groundwater appears to emerge and discharge to the creek.
- Performed detailed (1 inch = 300 ft) geologic mapping of PMG to assess the surface extent of subsurface hydrogeologic units identified in the area of the groundwater TCE plume.

There were no significant deviations from the approved scope of the various phases of the PMG groundwater investigation.

21.2 DOCUMENTATION OF DRILLING AND SAMPLING

As discussed above in Section 21.0, the investigation of PMG groundwater was initiated with the installation of EGW075 in May 2003. Following the initial detection of TCE at EGW075, a phased investigation was implemented in 2003-2005 by URS to assess the location of the source area and lateral and vertical extent of the TCE plume. After each investigative phase, a technical memorandum was prepared that documented the results of the prior phases and provided recommendations for the next phase of investigation. The eight project phases and associated plans and technical memoranda completed during the URS investigations are summarized below:

- May 2003: *Ground Water Sampling and Analysis Plan (Revision 1.0)*, EGW075
- November-December 2003: *Recommended Scope of Supplemental Remedial Investigation of Groundwater in Powder Mill Gulch, Boeing Everett Plant (Revision 1.0)*, EGW076- EGW084
- March 2004: *Results and Recommendations of Supplemental Remedial Investigation of Groundwater in Powder Mill Gulch, Boeing Everett Plant (Rev. 1.0)*, EGW085-EGW089
- May 2004: *Results and Recommendations of Supplemental Remedial Investigation of Groundwater in Powder Mill Gulch, Boeing Everett Plant (Rev. 2.0)*, EGW090
- July 2004: *Results and Recommendations of Supplemental Remedial Investigation of Groundwater in Powder Mill Gulch, Boeing Everett Plant (Rev. 3.0)*, EGW091-EGW097
- October 2004: *Results and Recommendations of Supplemental Remedial Investigation of Groundwater in Powder Mill Gulch, Boeing Everett Plant (Rev. 4.0)*, EGW098-EGW105
- December 2004: November 2004 data transmittal and meeting with Ecology, EGW106 and EGW107
- March 2005: *Results and Recommendations of Supplemental Remedial Investigation of Groundwater in Powder Mill Gulch, Boeing Everett Plant (Rev. 5.1)*, EGW108-EGW110.

The purpose of installing these wells was to characterize the nature and extent of TCE in PMG groundwater first detected at EGW075. Soil samples were retrieved at selected depth intervals (typically 5 ft) in the hollow-stem auger and air-rotary borings using a Dames & Moore U-type sampler fitted with stainless-steel rings or a Standard Penetration Test (SPT) sampler. Soil samples were not collected from certain depths below the groundwater in some of the deeper borings because the sampling-induced sand heave would affect well installation. Continuous samples were collected using the sonic rig. Drilling and well installation techniques and soil sampling procedures utilized were in general accordance with the sampling and analysis plan (SAP) presented in Appendix A of the RIWP, with the exception of sonic drilling, which only became available in the Pacific Northwest several years after completion of the RIWP. Monitoring well construction details are shown on the boring logs in Appendix X1 and summarized in Table 21-1.

Since September 2005, Landau Associates conducted 11 additional remedial investigation phases and 9 source area interim action phases within PMG. All data associated with the remedial investigation and interim action phases have been previously reported and the various phases and the month of field activities conducted for each phase are summarized below:

- September 2005: *PMG Source Area Characterization;* EGW111-EGW126 (Geoprobe® soil borings within detention basin)
- December 2005/January 2006: *Additional Source Area Characterization*; EGW127-EGW143 and ESB1500-ESB1506X
- February 2006: *PMG Supplemental RI Work Plan Addendum No. 1*; EGW144
- August 2006: *PMG Supplemental RI Work Plan Addendum No. 2*; EGW145 through EGW148, EGW159, EGW160, and EGW162
- May/June 2007: *PMG Supplemental RI Work Plan Addendum No. 3*; ESB1506 through 1513 and EGW163 through 167
- October 2007 and February 2008: *PMG Supplemental RI Work Plan Addendum No. 4*; ESB1514 and ESB1515; SW-PMG-82 through SW-PMG100
- February 2008: *PMG Supplemental RI Work Plan Addendum No. 5*; EGW168, EGW169, and EGW170; ESB1516 and ESB1517
- August/September 2008: *PMG Supplemental RI Work Plan Addendum No. 6;* EGW171, EGW172, and EGW173
- September 2009*: PMG Supplemental RI Work Plan Addendum No. 7;* EGW174
- May 2009: *PMG Supplemental RI Work Plan Addendum No. 8*; EGW175 and EGW176
- March 2010: *PMG Supplemental RI Work Plan Addendum No. 9;* PMG-P3 through PMG-P7 and SG2A, SG4A, SG4B, SG4C, SG6A, and SG6B.

Field work for each of these investigation phases was conducted in accordance with the November 3, 2005 Supplemental Remedial Investigation Work Plan (Landau Associates 2005a), which adopted procedures contained within pertinent sections of the quality assurance/quality compliance plan (QA/QC Plan) Revision 1.4 (URS 2005), the SAP for the RI (Dames & Moore 1997), and the specific addendum under which the work was conducted. Each of these investigation actions are summarized below in order of occurrence. Data obtained from these actions are summarized within this section (Section 21) of the RI and are used to construct the conceptual hydrogeologic and contaminant transport model presented later in this section; more detailed presentation of the data can be found in the reports referenced below for each investigation and interim action phase.

September 2005 – *Source Area Characterization Work Plan* (Landau Associates 2005b): The purpose of the September 2005 investigation was to locate and characterize the source of TCE detected in the groundwater plume downgradient of the detention basin. This investigation focused on the detention basin as the likely source area based on the absence of TCE in wells located upgradient and cross-gradient of the detention basin and the presence of TCE in wells located downgradient of the detention basin. The investigation consisted of drilling direct-push borings (EGW111 through EGW126) through the bottom of the detention basin and, therefore, required draining of the basin to allow access. Due to the expectation of the rainy season at the end of September, direct-push technology was utilized to maximize the number of groundwater samples collected in the available time. Soil samples could not be collected below the water table during drilling due to heaving sands. Both groundwater and soil vapor samples were collected; soil vapor sampling is discussed further in Section 21.7. A mobile analytical laboratory (operated by Libby Environmental) was used during the investigative activities to allow for the modification of the investigation as it progressed. These exploration locations are shown on Figures 21-1, 21-4, and 21-21. Results of this investigation activity are presented in Landau Associates 2005c.

December 2005 – *Supplemental RI Work Plan* (Landau Associates 2005a): The purpose of the December 2005 portion of this investigation was to further characterize the TCE plume source area at the detention basin and the plume between the detention basin and Seaway Boulevard (i.e., mid-plume area). The detention basin investigation included the installation of five monitoring wells (EGW127 through EGW131) downgradient (north-northeast) of the TCE source area. Two of these wells, EGW127 and EGW128, were installed on the sideslope of the detention basin embankment and were completed using stainless-steel casing to withstand elevated temperatures from a potential remedy (i.e., electrical resistive heating) that was under consideration for the source area at that time. Two continuous multichannel tubing (CMT) wells, EGW132 and EGW133, were installed by a truck-mounted rotosonic drill rig through the Esperance Sand to the Lawton Clay (Figure 21-1). In addition to this additional source area investigation in December, this work plan covered the January 2006 investigation of the downgradient extent of the TCE plume, which is discussed below.

January 2006 – *Supplemental RI Work Plan* (Landau Associates 2005a): The purpose of the January 2006 portion of this investigation was to investigate the downgradient extent of TCE north of Seaway Boulevard after finding TCE in seeps discharging to Powder Mill Creek at sampling locations SW-PMG61, SW-PMG62, and SW-PMG63 located approximately 1,200 ft north of Seaway Boulevard (Figure 21-1 and 21-28). These seeps were first sampled in July 2005.

This investigation phase was primarily focused on the installation of monitoring wells, piezometers, and direct-push borings (EGW134 through EGW143 and ESB1500 through 1506X) on the west side of Powder Mill Creek north of Seaway Boulevard (Figures 21-1 and 21-24). Wells and borings were completed by rotosonic and direct-push drill rigs. The mobile laboratory was also used during this phase of work.

February 2006 – *RI Work Plan Addendum No. 1* (Landau Associates 2006a): Monitoring well EGW144 was installed in February 2006 to further delineate the source area within the detention basin. This single-completion monitoring well is situated within the northeast end of the detention basin above the normal detention basin water level. Drilling was conducted using a track-mounted hollow-stem auger drill rig. EGW144 was installed between two clusters of existing borings with well-defined lithology and, therefore, the soil was not logged or sampled. This exploration location is shown on Figures 21-1 and 21-4.

August 2006 – *RI Work Plan Addendum No. 2* (Landau Associates 2006b): Single-completion monitoring wells EGW145 through EGW148, EGW159, EGW160, and EGW162 were installed in August 2006 to further evaluate the impact of the sanitary sewer alignment north of Seaway Boulevard on plume migration to the west. These single completion wells were installed using a truck-mounted hollow-stem auger drill rig. These exploration locations are shown on Figure 21-1.

May/June 2007 – *RI Work Plan Addendum No. 3* (Landau Associates 2007a): Temporary soil borings ESB1506 through ESB1513 and monitoring wells EGW163 through EGW167 were installed in May and June 2007 to evaluate the westerly extent of the TCE plume north of Seaway Boulevard. Temporary auger probe borings ESB1506 through ESB1513 were installed via a hollow-stem auger drill rig modified to drive the direct-push tooling to acquire 22 depth-discrete groundwater samples at depths unobtainable using standard direct-push drilling techniques. Single-completion groundwater monitoring wells EGW163 through EGW166 were installed above the silt interbed, while EGW167 was installed below the silt interbed. These exploration locations are shown on Figures 21-21 and 21-24. Results of this investigation activity are presented in Landau Associates 2008a.

October 2007 and February 2008 – *RI Work Plan Addendum No. 4* (Landau Associates 2007b): Groundwater from temporary auger probes ESB1514 and ESB1515 and one-time creek samples SW-

PMG82 through SW-PMG100 were collected in October 2007. The temporary auger probes were installed and sampled to determine the vertical thickness of the groundwater plume between monitoring well cluster EGW136/137/145 and dry boring ESB1506X located near the plume's leading edge. The intensive surface water sampling was conducted along the creek between the source area and the distal part of the TCE plume to assess which portions of the creek have the greatest influx of TCE. These exploration locations are shown on Figures 21-24 and 21-28. Results of this investigation activity are presented in Landau Associates 2008a.

February 2008 – *RI Work Plan Addendum No. 5* (Landau Associates 2007c): As a result of the RI Work Plan Addendum No. 3 investigation, single-completion monitoring wells EGW168, EGW169, and EGW170 were installed in February 2008 by a rotosonic drill rig to evaluate the westerly extent of the TCE plume north of Seaway Boulevard on the CRISTA and Intermec properties. In addition, two auger probes were installed between the created wetland and Powder Mill Creek to further characterize the plume in this area. These exploration locations are shown on Figures 21-1 and 21-24. Results of this investigation activity are presented in Landau Associates 2008a.

August/September 2008 – *RI Work Plan Addendum No. 6* (Landau Associates 2008e): As a result of the RI Work Plan Addendum No. 5 investigation, monitoring wells EGW171, EGW172, and EGW173 were installed by a rotosonic drill rig in August and September 2008 to evaluate the westerly extent of the TCE plume north of Seaway Boulevard on the CRISTA and Intermec properties. These exploration locations are shown on Figures 21-1 and 21-23. Results of this investigation activity are presented in Landau Associates 2008f.

September 2009 – *RI Work Plan Addendum No. 7* (Landau Associates 2009c): As a result of the RI Work Plan Addendum No. 6 investigation, monitoring well EGW174 was installed by a rotosonic drill rig in September 2009 to evaluate the northerly extent of the TCE plume north of Seaway Boulevard on the Intermec properties. This exploration location is shown on Figures 21-1 and 21-24. Results of this investigation activity are presented in Landau Associates 2009d.

May 2009 – *RI Work Plan Addendum No. 8* (Landau Associates 2009e): Aquifer test wells EGW175 and EGW176 were installed and tested in May 2009 to further characterize hydrogeologic conditions within Powder Mill Gulch in support of completing remedial investigation activities. The first aquifer test was conducted at EGW175, which is just south of Seaway Boulevard on Boeing property. The second aquifer test was conducted at EGW176, which is north of Seaway Boulevard on City of Everett-owned Lot 9 property. Both tests were run for a minimum 48-hour period and measured the water level response to this pumping in nearby monitoring wells in order to provide data for estimating a range of aquifer transmissivity, storativity, and potential hydraulic boundary conditions of the aquifer. These exploration locations are shown on Figures 21-1. Results of this investigative activity are presented in Landau Associates 2009f.

March 2010 – *RI Work Plan Addendum No. 9* (Landau Associates 2009a): RI Work Plan Addendum No. 9 was conducted in March 2010 to further evaluate hydraulic conditions related to the interaction of groundwater and surface water in Powder Mill Creek. As part of this investigation, piezometers PMG-P3 through PMG-P7 were installed by a direct-push drill rig along the western side of Powder Mill Creek in what has been termed the mid-creek area (the creek segment between the two culvert segments north of Seaway Boulevard). In addition, six new staff gauges (SG2A, SG4A, SG4B, SG4C, SG6A, and SG2B) were installed in Powder Mill Creek and nine creek discharge measurements were collected. These exploration locations are shown on Figures 21-1 and 21-24. Results of this investigation activity are presented in Landau Associates 2010b.

21.3 FIELD OBSERVATIONS

This section presents field observations of the surficial and subsurface soil encountered during completion of the above-listed investigation activities. A geologic map of the surficial geology within PMG is presented on Figure 21-2. Plan view Figures 21-3 and 21-4 show the location of cross sections that are presented on Figures 21-5 through 21-15. Geologic logs of the soil borings and well construction details are presented in Appendix X1. Staining or other visual indications of chemical constituents were not observed in collected soil samples.

Most of the area investigated is underlain by Esperance Sand. Alluvium (Qal on Figure 21-2) is locally present beneath and adjacent to the active creek channel. Terraces present above the creek elevation have been cut into the Esperance Sand and are capped with a relatively thin veneer of alluvium and/or colluvium. Artificial fill is present throughout the central portion of the site in relation to construction of sedimentation and detention basins, peat filters, constructed wetlands, Seaway Boulevard, and the sanitary sewer utility line and access road that parallels the western side of Powder Mill Creek north of Seaway Boulevard. Several wells were installed along Seaway Boulevard where a prism of artificial fill overlies the Esperance Sand (Figures 21-5, 21-9, and 21-15). The Esperance Sand (Qva on Figure 21-2) consists primarily of fine to medium brown/gray sand, with variable amounts and occasional lenses of silt and gravel.

A siltier zone of the Esperance Sand may be present in the area of the northern portion of the detention basin, which includes the TCE source area, as shown on Figures 21-5 through 21-8 based on field observations related to the source area interim measure. Based on the observed variations in soil lithology within the detention basin area and variable hydraulic conductivity, the extent of this siltier zone of the Esperance Sand is variable and uncertain. Additional testing for evaluating the existence, extent and reduced permeability of the saturated zone under the detention basin will be conducted as necessary in the feasibility study.

The Esperance Sand thickness varies significantly in upper PMG depending on the surface elevation. The Esperance Sand thickness ranges from greater than 140 ft (EGW076 and EGW091 on Figure 21-5) to non-existent near EGW135 where the creek intersects the underlying Lawton Clay (Figures 21-2 and 21-5). A distinct hard, 4- to 5-ft-thick, clay and silt bed (silt interbed) is interbedded within the Esperance Sand approximately 35 to 50 ft above the Lawton Clay over most of the PMG investigation area. The silt interbed outcrops within and along both sides of Powder Mill Creek north of Seaway Boulevard (Figures 21-2 and 21-5). The silt interbed was encountered in every boring where discrete (e.g., split-spoon) or continuous (e.g., continuous cores) soil sampling was conducted over the depth interval of the silt interbed, excluding well EGW174 and explorations north of well EGW137 where Powder Mill Creek has eroded below the interbed elevation. EGW174 was installed by rotosonic drilling methods and is located in the northwest corner of the site on the rim of PMG and approximately 400 ft west of the creek. A continuous rotosonic core was collected at this location, which spanned and extended well beyond the anticipated silt interbed elevation. Based on these observations, the silt interbed does not exist in this portion of the site and likely terminates between EGW173 and EGW174.

At some exploration locations where the silt interbed was not directly observed in soil cores due to sampling or drilling difficulties, the presence of the silt interbed was inferred based on significant (+4 to -17 ft) hydraulic gradients across adjacent wells screened above and below the predicted silt interbed elevation, as discussed in Section 21.5.2 and shown in Table 21-4. Based on the observed elevations of the silt interbed in borings and monitoring wells, as well as outcrops along Powder Mill Creek, the silt interbed is essentially flat across upper PMG and the top of the silt interbed is typically encountered at elevations ranging from 263 to 267 ft. Based on these observations, the expression of the silt interbed on the ground surface is shown on Figures 21-24 and 21-28.

The Esperance Sand is underlain by Lawton Clay. The Lawton Clay is a hard clayey silt of glaciolacustrine origin that is a regional aquitard (USGS 1997). The observations of the Lawton Clay in borings and outcrops within the creek channel suggest a paleotopography (erosional surface) that rises to the north-northwest (Figure 21-5). The Lawton Clay outcrops within the creek channel and valley slope approximately 2,200 ft downstream of Seaway Boulevard.

21.4 PHYSICAL PROPERTIES OF ESPERANCE SAND

Physical properties of the Esperance Sand in PMG, including the hard silt interbed, were assessed by the results of physical and hydraulic testing conducted during the RI including:

- Pre-RI Physical and Hydraulic Testing
- Initial RI Physical Testing
- Supplemental RI Physical Testing
- Aquifer Tests
- Injection Tests
- Total Organic Carbon Testing.

Each of these tests and their results are described below. A comparison of the hydraulic conductivity values obtained from these tests is also presented.

21.4.1 Pre RI Physical and Hydraulic Testing

As previously noted in Section 14.0, specific capacity data from 49 wells completed in the Esperance Sand within the site region were used by the U.S. Geological Survey (USGS; 1997) to estimate a median horizontal hydraulic conductivity value of 1.5×10^{-2} cm/s (42 ft/day). This median conductivity value is based on a range of 3.4 ft/day to 310 ft/day, which reflects the large variability of hydraulic conductivity in Esperance Sand soil. A laboratory-derived vertical hydraulic conductivity of 5.4×10^{-2} cm/s (154 ft/day) was previously obtained by fixed-wall permeameter methods for one Esperance Sand soil sample collected in PMG near the detention basin (Dames & Moore 1988), which consisted of fine to coarse sand and gravel collected at a depth of 13 ft BGS. The B-5 boring location from this 1988 investigation is shown on Figure 21-1 between the detention basin and sedimentation basin.

21.4.2 Initial RI Physical Testing

During the initial RI conducted by URS, a total of five samples of Esperance Sand were selected for physical testing at PTS Laboratories in Santa Fe Springs, California. Two samples were from above the silt interbed, two samples were from below the interbed, and one sample was from the silt interbed itself. Physical testing of these samples included grain size distributions, falling head permeability tests, and porosity. The test results are summarized in Table 21-2a and the physical testing laboratory reports are presented in Appendix S1. These results indicate that the typical fine sand samples of Esperance Sand have an effective porosity of 33.2% to 34.3%; a vertical hydraulic conductivity of 6.20×10^{-4} centimeters/second (cm/s) to 1.66×10^{-3} cm/s (1.75 ft/day to 4.7 ft/day); and a horizontal hydraulic conductivity of 1.92×10^{-3} cm/s to 2.58×10^{-3} cm/s (5.4 ft/day to 7.3 ft/day). These values are also consistent with those obtained from Esperance Sand samples collected from the upland area of the site reported in Section 14.0.

Significantly lower values of vertical hydraulic conductivity (4.93×10^{-5} cm/s or 0.14 ft/day); horizontal hydraulic conductivity (2.6×10^{-4} cm/s or 0.7 ft/day); and effective porosity (14.2%) were obtained for the coarse sand sample collected above the silt at EGW110. Although this sample has greater gravel and coarse sand content than the other sandy samples, it was more well-graded and resulted in lower estimates of hydraulic conductivity and porosity. Vertical hydraulic conductivity for the silt interbed samples is 2.86×10^{-8} cm/s (0.000008 ft/day), five orders of magnitude lower than the typical Esperance Sand vertical hydraulic conductivity.

21.4.3 Supplemental RI Physical Testing

During the supplemental RI phases conducted by Landau Associates in December 2005 and March 2010, a total of 20 Esperance Sand samples, one alluvial sample, and one sanitary sewer backfill sample were selected for grain size distribution determination. Seventeen Esperance Sand samples were collected from above the silt interbed and three Esperance Sand samples were collected from below the silt interbed. One or more soil samples were selected from EGW098, EGW109, EGW110, EGW127, EGW128, EGW130, EGW131, EGW132, EGW136, EGW143, EGW171, EGW172, EGW173, PMG-P3, PMG-P5, and PMG-P7. Grain size data was used to estimate the hydraulic conductivity of the samples using three separate test methods referenced in Table 21-2b. The average hydraulic conductivity of the Esperance Sand (geometric mean) using all three methods is 21 ft/day with a range of estimated horizontal hydraulic conductivities of 0.2 ft/day to 94 ft/day. The hydraulic conductivity of the alluvium and fill material was estimated based on a single soil sample of each soil type. The results are 449 ft/day for the alluvium and 108 ft/day for the fill material. The test results are summarized in Table 21-2b and the laboratory reports are presented in Appendix S1. It is noted that none of the samples used for grain size testing were collected from within the source area because the drilling method and site conditions did not allow sample collection. Based on field observations from the source area interim action, the hydraulic conductivities appear to be variable beneath the detention basin and additional testing would be needed to more fully assess hydraulic conductivity for remedial design purposes.

21.4.4 Aquifer Tests

Aquifer test wells EGW175 and EGW176 (Figure 21-1) were installed and tested in May 2009 to further characterize hydrogeologic conditions within PMG in support of completing remedial investigation activities. The first aquifer test was conducted at EGW175, which is located just south of Seaway Boulevard on Boeing property. The second aquifer test was conducted at EGW176, which is located north of Seaway Boulevard on City of Everett-owned Lot 9 property. The aquifer tests for EGW175 and EGW176 resulted in hydraulic conductivity value ranges from 9 to 14 ft/day and 4 to 5 ft/day, respectively

(Landau Associates 2009f). EGW175 and EGW176 produced a sustained yield of 50 gallons per minute (gpm) and 5 gpm, respectively.

21.4.6 Total Organic Carbon

Total organic carbon (TOC) was analyzed in several samples during both the initial RI and supplemental RI. During the initial RI, samples of the Esperance Sand were analyzed from borings EGW108, EGW109, and EGW110. Results ranged from 0.05% to 0.3% TOC. During the supplemental RI, samples of the Esperance Sand were analyzed from borings EGW127, EGW128, EGW130, EGW131, EGW132, EGW136, EGW143, and EGW174. Results ranged from 0.031% to 0.51 % (except the 145 to 147 ft sample at EGW174, which contained twig particles in the sample and the TOC was measured at 1.92%). In addition, two samples of the sanitary sewer trench backfill (EGW136 and EGW143) contained 0.194% and 3.84% TOC. These data may be used during the FS to estimate contaminant migration rates, which are dependent on organic carbon present in the aquifer solids. The laboratory reports, chain of custody, and data validation memorandum for these tests are presented in Appendices M2 and M3. The TOC analytical results are summarized in Table 21-3.

21.4.7 Comparison of Hydraulic Conductivity Estimates

Based on the above discussion regarding Esperance Sand physical properties, hydraulic conductivity appears to be moderately variable across the site in general, and may be lower in discontinuous areas beneath the detention basin as compared to the remainder of upper PMG. A summary of the hydraulic conductivity estimates presented above for the Esperance Sand aquifer in PMG (excluding the source area) is shown below:

- USGS specific capacity data: 3.4 to 310 ft/day; median 42 ft/day
- Initial RI physical testing data from grain size tests: 5.4 to 7.3 ft/day; median 5.7 ft/day
- Supplemental RI physical testing data from grain size tests: 0.2 to 94 ft/day; median 15 ft/day.
- The pump test hydraulic conductivity ranges at EGW175 and EGW176 were 9 to 38 ft/day and 4 to 7 ft/day, respectively.

Based on the above information, Ecology will decide on a reasonable set of conservative hydraulic conductivities, groundwater gradients, and groundwater velocities if it becomes necessary to do so under the feasibility study and final cleanup action design.

21.5 GROUNDWATER FLOW AND HYDRAULIC PROPERTIES

Groundwater within the upper PMG Esperance Sand is hydraulically separated by the silt interbed present throughout most of upper PMG and, therefore, this discussion of groundwater flow and hydraulic properties is divided into sections on groundwater flow above the silt interbed and groundwater flow below the silt interbed. The section on groundwater flow above the silt interbed also includes a discussion of groundwater flow within the area of the plume leading edge (i.e., toe of the plume) where the silt interbed does not exist. The primary focus of this section is on the groundwater flow and hydraulic properties above the silt interbed because the TCE plume is generally confined to this portion of the aquifer.

21.5.1 Groundwater Flow Above the Silt Interbed

Groundwater levels in the upper portion of the Esperance Sand aquifer occur at an elevation of 338 ft (182 ft BGS) at well EGW089 at the head of upper PMG to an elevation of 264 ft (3 ft BGS) at well EGW134 adjacent to Powder Mill Creek 1,200 ft north of Seaway Boulevard. Groundwater level elevations have been measured in the PMG Esperance Sand wells quarterly to semi-annually since well installation and the data are summarized in Table 21-5. Surface water level elevation have also been measured quarterly to semi-annually and the data are summarized in Table 21-6. Groundwater elevation data and contours of groundwater levels representative of the upper portion of the Esperance Sand aquifer (above the silt interbed) as measured across the entire site area in October 2008, April 2009, October 2009, and April 2010 are presented on Figures 21-16 through 21-19, respectively.

As stated earlier, regional groundwater flow beneath the Everett Plant and uppermost portion of PMG to the sedimentation basin is to the north-northwest (Figures 14-3 and 14-4). Beneath the detention basin, groundwater flow shifts to the northeast. One-time groundwater elevations were collected from the 50 electrodes and 11 groundwater monitoring well intervals installed within the source area system for the ERH system in February 2007 to develop a small-scale view of the groundwater flow pattern within the source area. As shown on Figure 21-20, groundwater elevation contours resulting from the February 2007 measurements (taken when the basin was drained) retain this northeasterly groundwater flow component. A similar northeasterly flow direction was obtained from water level data collected when the basin was at its normal water level.

From north of the sedimentation basin, groundwater flow is generally from the upper slopes on both sides of the gulch toward the floor of the gulch and Powder Mill Creek, as would be expected in a deeply incised valley aquifer with a perennial, gaining stream on the valley floor (Figures 21-16 through 21-19). Groundwater above the silt interbed discharges to Powder Mill Creek as springs within the creek bed that are visible beginning approximately 290 ft downstream from the detention basin outlet (at SW-PMG108 on Figures 21-1 and 21-28), and as springs and seeps[2] north of Seaway Boulevard along both sides of the creek (Figures 21-1 and 21-5). Groundwater from above the silt interbed likely discharges at other locations through the creek bed, but has not been directly observed.

This typical pattern of groundwater flow discharging to a gaining stream is not observed in three areas of upper PMG. These areas and the reason for this inconsistency are discussed below:

1. ***Upper 290 to 425 ft of Powder Mill Creek:*** Powder Mill Creek experiences seasonal, intermittent flow or standing water in the upper portion of the creek to at least 290 ft and up to 425 ft downstream of the detention basin spillway. Within this section, the water table is at or

[2] Seeps are defined herein as relatively minor groundwater discharges to land surface above the creek bed as opposed to springs, which discharge at a much higher rate.

slightly below the bed of the creek, as evidenced by intermittent flow or standing water along the creek bed during the wetter months of the year. These areas are likely an expression of the water table based on the presence of low levels of TCE in a water sample collected at the base of the spillway (SW-PMG3; Figures 21-1 and 21-28). Within this area and as shown on Figures 21-16 through 21-19, groundwater flows beneath the creek to the east away from the peat filters and created wetlands, likely as a result of recharge from these features. This flow pattern results in the TCE plume being primarily located on the east side of Powder Mill Creek between the detention pond and Seaway Boulevard. The entire reach of the Powder Mill Creek (PMC) receive either year around or seasonal discharge of groundwater. The determination of areas of seasonal or year around groundwater discharge is not considered critical to Ecology. The entire length of PMC from the spillway to Puget Sound is considered waters of the state for purposes of compliance with MTCA.

[***Note:*** Perennial flow within Powder Mill Creek begins between 290 and 425 ft downstream of the detention basin spillway. Based on observations in March 2010, an additional, previously unobserved, spring was discovered approximately 290 ft downstream of the detention basin spillway, as shown on Figures 21-1 and 21-28 as SW-PMG108. The discharge from this spring was significant when observed during the Spring of 2010 and, based on visual observation only, constituted approximately half of the total creek discharge volume.]

2. ***Culverted Section of Powder Mill Creek Beneath Seaway Boulevard:*** Groundwater cannot discharge to Powder Mill Creek within the 320 ft section of the creek that is contained within the culvert beneath Seaway Boulevard. Due to this restriction, the groundwater is no longer in hydraulic communication with the creek and groundwater crosses under and/or over the culvert toward the northwest under the influence of the regional northwesterly groundwater flow gradient toward Japanese Gulch and Port Gardener Bay. A secondary influence may be the buried alluvium from the former channel of Powder Mill Creek (Figure 21-1). This flow pattern results in the entire TCE plume crossing over to the west side of Powder Mill Creek.

3. ***West Side of Powder Mill Creek from Seaway Boulevard to the Southerly Limit of the Toe of the Plume (approximately 800 ft north of Seaway Boulevard):*** Once the TCE plume crosses under Seaway Boulevard and migrates to the west side of Powder Mill Creek, groundwater generally flows to the north and northwest in a direction parallel to Powder Mill Creek, as evidenced by the groundwater contours extending perpendicular to Powder Mill Creek along this stretch on Figures 21-16 through 21-19. One possible explanation for the limited influence of Powder Mill Creek on groundwater flow along this stretch is the artificial channeling (i.e., straightening) of the creek that was conducted during the 1979 construction of the 24-inch sanitary sewer line that runs parallel to the creek north of Seaway Boulevard. This work included relocating and rechanneling the stream through this stretch and left the stream bed slightly elevated relative to its natural elevation, as shown on a surveyed profile of the Powder Mill Creek stream bed on Figure 21-29. The portion of

the new streambed (i.e., from the northern end of the culvert under Seaway Boulevard to a point approximately 450 ft north) was also lined on the sides and bottom with riprap fill and geotextile fabric, which prevents the stream channel from eroding to its natural elevation. (Figure 21-5). In addition, Japanese Gulch to the west of Powder Mill Gulch is a deeper incised channel and likely influences the northwesterly gradient observed. Within this stretch, no seeps were observed along the west side of the creek.

North of this artificial channelized section, once the creek starts to incise its channel again, the hydraulic gradient between groundwater and Powder Mill Creek increases. At this point, discharge to Powder Mill Creek also appears as surface seeps. The first surface seeps are observed approximately 800 ft north of the Seaway Boulevard culvert. The seeps commonly take the form of wet/boggy soil and small channelized surface water flowing toward the creek. The incision of the creek channel relative to the groundwater surface is best illustrated by comparing the series of cross sections perpendicular to the creek starting with cross section E-E' through section I-I' (Figures 21-10 through 21-14, cross section locations are shown on Figure 21-3).

The 24-inch sanitary sewer line described above begins to act as a preferential flow pathway farther to the north near piezometers PMG-P6 and PMG-P7 (Figures 21-1 and 21-19). At these piezometers, the groundwater level in the sewer backfill is lower than the groundwater level between the sewer and the creek, indicating a preferential flow pathway; however, the sewer backfill does not completely control the migration of the TCE groundwater plume since TCE groundwater contamination is observed to the west (EGW169, EGW170, and EGW174) and near the west bank of PMC. In addition, as shown on Figure 21-5, the elevation of the sewer line is significantly below the Powder Mill Creek water surface elevation through this reach, which allows groundwater to flow along the sewer backfill. However, hydraulic and chemical data show that TCE-contaminated groundwater east of the sewer line does flow into PMC. Farther downstream near EGW143 where the surface water elevation drops below the elevation of the sewer line, the groundwater within the sewer line backfill discharges to the creek under an increased hydraulic gradient toward the creek.

At approximately 800 ft north of the Seaway Boulevard culvert, groundwater from above the silt interbed begins mixing with groundwater from below the silt interbed. The silt interbed was observed at the same elevation (266 ft) in all wells in this area. Analytical data from borings completed along the sanitary sewer alignment west of Powder Mill Creek indicate that groundwater within the Esperance Sand above the silt interbed begins to penetrate the silt and mix with the lower unit groundwater south (i.e., upgradient) of EGW142 and EGW143. This is evident by the presence of TCE within the lower groundwater unit at EGW142 and EGW143. During installation of manhole structures where the base of the structure is below the groundwater surface and soils are disturbed, it is not uncommon to over-excavate below the structure and place rock spalls to provide a suitably stable base for the manhole. Rock spalls were encountered at all instances where an air-knife was employed to clear utilities prior to drilling immediately adjacent to the manholes. Based on these observations, the silt interbed was likely penetrated during construction of the sanitary sewer manhole located directly upgradient (south) of EGW143. Cross section A-A''' on Figure 21-5 and cross section G-G' on Figure 21-12 show the relationship between the western portion of the plume on the CRISTA and Intermec properties, sanitary sewer, and silt layer in the vicinity of wells EGW142 and EGW143. Another possibility is that the silt bed is discontinuous in this northerly region of the TCE groundwater plume since Figure 21-5 shows that the manhole excavation is above the silt bed.

Further penetration of the silt interbed occurs to the north of EGW142 to the point where the silt interbed is no longer present along the creek bottom and separate hydrogeologic units no longer exist within the Esperance Sand aquifer (Figure 21-5). Farther to the north, the Esperance Sand aquifer pinches out as the contact between the Esperance Sand and Lawton Clay slopes upward to the north (Figure 21-5).

At boring ESB1506, as well as at borings ESB1501 and ESB1502 located just to the north of ESB1506, groundwater was not encountered in soils above the Lawton Clay. These borings coincide with the location of the high point in the Lawton Clay, which restricts further northern migration of groundwater perched on the Lawton Clay (Figure 21-5 and 21-14). By this point along PMG, the entire TCE plume has discharged to Powder Mill Creek either due to direct groundwater discharge to the creek itself or via numerous surface water seeps.

Groundwater was observed north of the dry borings at EGW135 on the north side of the high point; however, based on non-detect concentrations of TCE in samples from this well and the dry borings to the south, this well does not likely intercept groundwater from upgradient of ESB1506.

The horizontal hydraulic gradient is variable across the site. The gradient is 0.019 ft/ft (EGW103 to EGW078) beneath the detention basin and decreases to 0.0065 ft/ft between EGW078-EGW084 in an area of lower gradient in the mid-plume area. The gradient is at its steepest at 0.11 ft/ft between EGW083 and SG3 at the southern end of the culvert under Seaway Boulevard. The variation in hydraulic gradient coupled with the large range of hydraulic conductivity values results in a large range of estimated seepage velocities across the site within the upper portion of the Esperance Sand aquifer. Given the range in horizontal hydraulic gradient across the site (0.0065 ft/ft to 0.11 ft/ft), an assumed horizontal hydraulic conductivity range of 4 to 42 ft/day (see Section 21.4.6), and an effective porosity of 0.337 (mean of site sand samples), the seepage velocity is calculated to range between 0.077 ft/day and 14 ft/day using the equation:

$$V = \frac{k}{n} i$$

where:

V = seepage velocity

k = horizontal hydraulic conductivity

i = gradient

n = effective porosity

The calculations are as follows:

$$V_{\min} = \frac{4}{0.337} \times 0.0065 = 0.077 \text{ (ft/day)}$$

$$V_{\max} = \frac{42}{0.337} \times 0.11 = 14 \text{ (ft/day)}$$

The seepage velocity beneath the detention basin within the source area could be less than the range of values presented above based on field observations and pilot testing performed as part of the source area interim action measures.

21.5.2 Groundwater Flow Below the Silt Interbed

For most of the upper PMG area, groundwater below the silt interbed appears to be hydraulically separated from groundwater above the silt interbed due to the continuous and low-permeability nature of the silt interbed. The continuous nature of the silt interbed is discussed in Section 21.3. This hydraulic separation is evidenced by an appreciable vertical hydraulic gradient that exists across the silt interbed at all locations where wells were completed above and below the silt unit (i.e., well pairs). The direction of this vertical hydraulic gradient is not consistent throughout the site. Groundwater exhibits a downward vertical gradient across the silt unit in the southern portion of upper PMG between the sedimentation basin and the detention basin (represented by well pairs EGW105 and EGW093) and in three well pairs located along and north of Seaway Boulevard (EGW090-port 2/EGW090-port 3, EGW106/EGW107, and EGW094/EGW095). However, groundwater exhibits an upward vertical gradient across the silt interbed at the northeast end of the detention basin (EGW078/EGW091) and in the mid-plume area (EGW132-port 4/EGW132-port 5, EGW133-port 4/EGW133-port 5). Groundwater elevation data is presented in Table 21-5.

The presence of a 4-ft difference in groundwater elevation between wells EGW093 and EGW105 located at the southeast corner of the detention basin indicates that the silt interbed is likely present at this location, even though it was not directly observed during drilling. If present, the top of the silt interbed would have been encountered at approximately 110 ft BGS. It is likely that the silt interbed was not observed during lithologic logging of the EGW093 boring because logging of this boring was based on soil cuttings as opposed to logging of depth-discrete down-hole samples or continuous cores. The silt interbed was confirmed to exist in ESB1507x located near the center of the detention basin (see Figures 21-5 through 21-7, and 21-21).

The horizontal direction of groundwater flow below the silt interbed is less likely to be impacted by Powder Mill Creek over most of the investigation area because this unit is not in direct hydraulic communication with the creek. Available groundwater elevation data from wells screened below the silt interbed (Table 21-5) indicates a north to northwesterly flow direction, similar to that observed in the Esperance Sand aquifer beneath the main plant. Groundwater from below the silt interbed does discharge to Powder Mill Creek at and beyond the point where the creek begins to penetrate through the silt interbed near EGW137.

21.6 GROUNDWATER AND SURFACE WATER ANALYTICAL RESULTS

All groundwater samples collected from the monitoring wells and surface water samples collected for this portion of the RI were analyzed for VOCs. In addition, selected groundwater samples were analyzed for 1,4-dioxane (a common solvent stabilizer) and PCBs. Samples were selected for 1,4-dioxane analysis based on the locations where this constituent would most likely be detected if it were present (i.e., locations with relatively high TCE concentrations and downgradient of the TCE plume in groundwater). PCBs were analyzed for in selected wells due to their presence in the stormwater basin solids, created wetlands sediments, peat filter materials, and in sediment within Powder Mill Creek. In addition to the analytes discussed above, as part of source area treatment, selected wells were analyzed for dissolved gases (methane, ethene, ethane, acetylene); total and/or dissolved metals (arsenic, calcium, chromium, magnesium, and manganese); and conventional analytes (pH, chloride, nitrate, sulfate, sulfide, TOC, alkalinity, and TSS). Chain-of-custody forms, analytical laboratory reports, and data validation reports for most of the samples have been previously submitted to Ecology under separate cover in various technical, monitoring and status reports. Analytical reports and chain-of-custody forms for several sample sets not formally submitted to Ecology previously are presented in Appendix X2. Associated data validation reports are in Appendix X3.

Groundwater analytical results of samples collected from the permanent monitoring wells and piezometers from May 2003 through April 2010 are summarized in Table 21-7 and Table 21-8b. Groundwater analytical results of samples collected from temporary monitoring wells (e.g., direct-push probes) in September 2005 through March 2010 are summarized in Table 21-8a. Concentrations of TCE in groundwater from permanent and temporary monitoring wells from October 2009 through April 2010 are shown on Figures 21-21 through 21-24. TCE concentration trends over time for several wells in each of three impacted areas of the site (Downgradient Source Area, Mid-Plume, and Toe of the Plume) are shown on Figures 21-25 through 21-27. Wells with generally higher TCE concentrations and longer monitoring records were selected for this evaluation. Surface water and seep sample analytical results from October 1998 through October 2009 are summarized in Table 21-9 and October 2009 results for TCE in surface water and seeps are shown on Figure 21-28. Neither 1,4-dioxane or PCBs were detected in any groundwater samples from upper PMG (Table 21-7).

TCE is the dominant VOC and site contaminant in PMG and is discussed in greater detail in Section 21.6.1. In addition to TCE, vinyl chloride and/or cis-1,2-dichloroethene (cis-1,2-DCE) were detected in one or more samples from permanent monitoring wells EGW075, EGW078, EGW084, EGW085, EGW086, EGW088, EGW090, EGW127, EGW128, EGW129, EGW132, EGW133, EGW134, EGW137, EGW144, EGW146, EGW148, EGW149 through EGW153, EGW156, EGW161, and EGW169 (Table 21-7). Cis-1,2-DCE was detected in a majority of the temporary groundwater monitoring wells located within the detention basin (Table 21-8a). In addition, elevated concentrations of vinyl chloride and cis-1,2-DCE were detected in 11 temporary groundwater monitoring wells located north of Seaway Boulevard and two in the mid-plume area.

Including results following the source area treatment activities to date, 10 permanent groundwater monitoring wells have had detections of cis-1,2-DCE during the PMG RI at concentrations above the 2001 MTCA Method B groundwater cleanup level (i.e., project screening level) of 80 μg/L (Table 21-7). The highest concentration of cis-1,2-DCE measured outside of the source area and downgradient source area wells was at temporary monitoring well ESB1500 (56.6 μg/L) located north of Seaway Boulevard along the sanitary sewer alignment and EGW090-5 (62 μg/L) along Seaway Boulevard. ESB1500 was screened within fill that contained organic material, which likely caused reducing conditions to develop in the groundwater. TCE in the presence of reducing conditions will degrade to cis-1,2-DCE through natural reductive dechlorination processes. The cis-1,2-DCE detection at EGW090-5 was a temporary increase that was not repeated in the following 2 years of semi-annual sampling.

As previously indicated, vinyl chloride was detected at many of the same wells where TCE was found, especially at wells with high concentrations of TCE. Where detected, vinyl chloride frequently exceeded the 2001 MTCA Method B cleanup level (i.e., project screening level) of 0.0292 μg/L. The three highest concentrations of vinyl chloride measured at the site unrelated to source area treatment activities were at wells EGW120 (17.8 μg/L) located within the source area, EGW134 (21 μg/L) located 1,075 ft north of the culvert under Seaway Boulevard, and at ESB1500 (16.5 μg/L), which, as discussed above, was located in fill material that contained organic material. The vinyl chloride likely originated from the same natural reductive dechlorination processes similar to cis-1,2-DCE discussed above.

The remainder of this section focuses on the TCE analytical results in groundwater and VOC analytical results in seeps and surface water. Groundwater data is discussed first followed by seep and surface water data.

21.6.1 TCE Groundwater Analytical Results

The current TCE groundwater screening level for this project is 0.49 μg/L, the current MTCA Method B groundwater cleanup level as discussed in Section 1.0. Based on the most recent analytical results at a given location, the TCE screening level was exceeded at 61 out of the 121 permanent monitoring well intervals and piezometers located in Powder Mill Gulch (Table 21-7 and Table 21-8b). The concentration of TCE in groundwater samples collected from monitoring wells during semiannual groundwater sampling events conducted in October 2009 and April 2010 is shown on Figure 21-24.

The following discussion of TCE groundwater analytical results is divided into three sections, each corresponding to a different area of the site along the groundwater flow path through upper PMG. The three areas are the detention basin area, mid-plume area, and the Seaway Boulevard North area. The detention basin area extends from North Perimeter Road to the north end of the detention basin. The mid-plume area extends from north of the detention basin to Seaway Boulevard. Seaway Boulevard North area extends from Seaway Boulevard to the terminus of the TCE plume approximately 1,600 ft north of Seaway Boulevard.

21.6.1.1 Detention Basin Area

TCE was not detected in groundwater samples upgradient of the detention basin, with the exception of low concentrations in well EGW102 (0.3-0.6 μg/L). The highest concentrations of TCE in groundwater measured throughout upper PMG were detected in the northeastern portion of the detention basin, as shown on Figure 21-21, as part of the September 2005 source area investigation (Landau Associates 2005c). A summary of the groundwater analytical results from this investigation is presented in Table 21-8a. The maximum concentration of TCE was observed in the sample from direct-push boring location EGW111, at a concentration of 31,000 μg/L (at the 30 to 34 ft BGS depth interval). In addition, split samples collected from direct-push boring location EGW111 (at the 30 to 34 ft BGS depth interval) had detected TCE concentrations of 16,700 μg/L and 31,000 μg/L. Based on these results, this area was considered the source area for the TCE plume in PMG. The actual delineation of the source area boundaries is somewhat subjective because concentration-based criteria that define source area boundaries have not been established. However, for purposes of this discussion, the area included within the 3,000 μg/L delineation on Figure

21-21 (orange and red areas) was considered to be the approximate boundaries of the source area prior to source area treatment. Data from numerous wells and direct-push borings within and outside of the detention basin indicate that the source area is limited to the northeast end of the detention basin, as shown on Figure 21-21. The direct-push drilling equipment used during the September 2005 source area investigation was unable to drill beyond a depth of 44 ft below the bottom of the detention basin due to the overconsolidated glacial advance soils. At least two borings within the source area (EGW111 and EGW114) yielded TCE concentrations above 10,000 μg/L in the deepest groundwater samples collected at these locations.

Following the initial source area investigation in September 2005, additional monitoring wells (EGW149 through EGW158 and EGW161) were installed during the source area interim action to both determine the vertical extent of TCE contamination within the source area and to monitor ERH treatment progress (Landau Associates 2006c). Prior to ERH treatment, baseline sampling of all screened intervals within the detention basin was conducted (Table 21-7). The deepest screened intervals, located at or immediately above the silt interbed, had TCE detections that ranged from 0.2 μg/L to 4,800 μg/L, indicating that TCE contamination extended approximately 75 ft to the silt interbed over at least some of the source area. The ERH system was, therefore, designed to treat TCE down to the silt interbed.

21.6.1.2 Mid-Plume Area

From the source area, the TCE plume migrates with groundwater in a north-northeasterly direction (Figures 21-16 through 21-19). Graphs of TCE concentration versus time for wells located immediately downgradient of the detention basin (EGW078, EGW088, EGW129, EGW130, and EGW144; a.k.a. downgradient source area monitoring wells) (Figure 21-25) show a general decline in TCE concentrations as a result of remediation efforts within the detention basin. Source area treatment has had little if any observable impact on TCE concentrations within the mid-plume monitoring wells located farther downgradient (EGW085, EGW086, EGW090-2, EGW132-3, and EGW133-4) as shown on Figure 21-26. It is anticipated that TCE concentrations in these monitoring wells will begin to show a more significant decline with time due to the removal of TCE mass from the source area.

Maximum TCE concentrations detected within the mid-plume area were from samples collected in wells along the south side of Seaway Boulevard at wells EGW086 and EGW090-2. Concentrations at well EGW086 have fluctuated between 1,000 μg/L and 3,000 μg/L since the well was first sampled in March 2004. Between April 2009 and April 2010, TCE concentrations at EGW086 ranged between 1,100 μg/L and 1,300 μg/L. TCE concentrations at well EGW090-2 have fluctuated from 950 μg/L to 1,800 μg/L since the well was first installed in May 2004. Between April 2009 and April 2010, TCE concentrations at EGW090-2 ranged between 950 μg/L and 1,300 μg/L. Generally, somewhat lower TCE concentrations are found in CMT monitoring wells (EGW132 and EGW133) located within the middle of the mid-plume area, though EGW132-3 has had comparable TCE concentrations with a maximum TCE concentration of 1,700 μg/L measured in October 2009.

The TCE in the mid-plume area extends from the water table downward to the top of the silt interbed, as shown on Figure 21-5. TCE was not detected in samples collected from below the silt interbed at EGW132 above screening levels, but was detected below the silt interbed above screening levels at the two other wells completed below the silt interbed within the mid-plume area (EGW090 and EGW133). TCE concentrations at EGW090-3 have ranged from 6.8 μg/L to 40 μg/L since the well was first sampled in May 2004. TCE concentrations at EGW133-5 have ranged from 0.16 μg/L to 1.5 μg/L since the well was first sampled in January 2006 (Table 21-7). The TCE detections observed below the silt interbed at EGW133 and EGW090 could be interpreted to be a result of carry-down through the silt interbed during drilling activities, or could be the result of migration of TCE through the silt bed. The upward vertical gradient measured at EGW133 (as discussed in Section 21.5.2) supports the carry-down interpretation in that the upward gradient may prevent the plume from migrating across the silt interbed to the lower unit. Flow from above the silt interbed to below the silt interbed likely occurred during drilling when water was added to the drill casing in an attempt to control heaving soil. Heaving soil conditions make it extremely difficult to adequately seal the silt interbed during drilling and prevent carry-down of groundwater from above to below the silt interbed. Similar carry-down conditions may explain the presence of TCE below the silt interbed at EGW090 as well, where a strong downward vertical gradient exists and concentrations of TCE greater than 1,000 μg/L exist immediately above the silt interbed.

21.6.1.3 Seaway Boulevard North Area

From the northern end of the mid-plume area at Seaway Boulevard, the TCE plume migrates to the northwest under the culvert extending beneath Seaway Boulevard to the west side of Powder Mill Creek. Based on the finding of TCE in temporary monitoring well EGW139, a small portion of the plume extends just beyond the north end of the culvert and likely discharges to Powder Mill Creek from the east side of the creek (see Figure 21-23). With the exception of EGW139, TCE has not been detected to date in any of the monitoring wells located on the east side of Powder Mill Creek north of Seaway Boulevard. This includes wells completed both above and below the silt interbed.

From the west side of the culvert, the plume migrates to the north and west under properties owned by the City of Everett (i.e., Lot 9), CRISTA Ministries, and Intermec Corporation (property boundaries are shown on Figure 21-1) as discussed in Section 21.5.1.

TCE was detected north of Seaway Boulevard in at least one groundwater monitoring event at all wells west of the creek. As of April 2010, the maximum TCE concentration observed in wells north of Seaway Boulevard (1,100 µg/L) was at EGW164 and EGW165. TCE was measured in numerous other wells north of Seaway Boulevard and west of the creek at various concentrations indicating that TCE concentrations are variable along the flow path based on the well's location relative to the core of the plume. Concentrations trends in representative wells in this area are presented on Figure 21-27.

21.6.2 VOC Seep and Surface Water Analytical Data

Analytical results from seep samples located north of Seaway Boulevard indicate that TCE is present in seep samples from sample locations SW-PMG61, SW-PMG62, SW-PMG63, SW-PMG64, SW-PMG73, SW-PMG79, SW-PMG80, SW-PMG81, and spring sample location SW-PMG108 (Table 21-9 and Figure 21-28). TCE was not detected in any seeps north of SW-PMG61, excluding two detections below screening levels at SW-PMG79 (0.027 µg/L and 0.079 µg/L). The highest concentration of TCE detected to date in a seep is from sample location SW-PMG81 (530 µg/L). Where detected, TCE concentrations in groundwater seeps feeding the creek north of Seaway Boulevard are significantly higher than the measured surface water TCE concentrations.

North of Seaway Boulevard, all seep samples with detectable concentrations of TCE were observed on the western side of Powder Mill Creek, with the exception of trace concentrations in one sample from SW-PMG73 (1.9 µg/L). The 1.9 µg/L detect occurred immediately following a period of heavy rain when the water level in Powder Mill Creek rose approximately 2 ft above its normal level. The seep sample was collected after the water level in the creek had receded and is interpreted to consist of bank storage (i.e., creek water that infiltrated into the bank during the high water). To test this interpretation, SW-PMG73 was resampled 11 days after the first detection and an additional sample was collected of a seep directly above SW-PMG73 (SW-PMG78, Figure 21-28). TCE was not detected in either of these two samples.

During preparation activities for Supplemental RI Work Plan Addendum No. 9 (Landau Associates 2010a), a previously unobserved spring was discovered approximately 290 ft downstream of the detention basin spillway, as discussed in Section 21.5.1. This spring was observed on the eastern side of Powder Mill Creek where no previous springs or seeps had existed. Sampling of this spring (SW-PMG108) was added to the RI Work Plan Addendum No. 9 field event and resulted in TCE being detected at a concentration of 0.56 µg/L, which is below the MTCA Method B surface water screening level of 6.7 µg/L. Given that much higher concentrations of TCE are found in nearby mid-plume monitoring wells (i.e., EGW132 and EGW133), it is suspected that this spring may primarily be discharging shallow subsurface flow originating from wetland areas located immediately uphill from the spring location. This spring continued to discharge through summer 2010, indicating that this spring may persist year-round for the foreseeable future.

TCE was detected in Powder Mill Creek from sample location SW-PMG3 on Boeing property downstream to SW-PMG23 (Figure 21-28). Historically, the highest concentrations of TCE are typically measured at samples from SW-PMG19 (maximum 38 µg/L in July 2005) located on Boeing property just south of the culvert under Seaway Boulevard; at SW-PMG74 (maximum 26 ug/L in November 2007) located immediately north of the culvert under Seaway Boulevard; and SW-PMG8 (maximum 26 ug/L in June 2003) located approximately 950 ft downstream of Boeing property (see Figure 21-28 and Table 21-9). As previously noted, springs feed the surface water in the upper portion of the creek above SW-PMG4.

Concentrations detected in the surface water are of similar magnitude as groundwater samples from the shallowest wells in upper PMG.

Two separate monitoring events were conducted to estimate the reaches of Powder Mill Creek where discharge of TCE-contaminated groundwater to the creek is the most significant. The first event was conducted in October 2007 (RI Work Plan Addendum No. 4) and the second event was conducted in March and April 2010 as part of RI Work Plan Addendum No. 9. Both monitoring events relied on the measurement of TCE concentrations in surface water. The second monitoring event also evaluated groundwater flow gradients in the immediate vicinity of the creek. Based on these events, Boeing concluded (Landau Associates 2008a, 2010b) that the highest influx of TCE-contaminated groundwater to Powder Mill Creek occurs in the gaining portion of Powder Mill Creek south of the culvert under Seaway Boulevard. TCE influx also occurs at the plume leading edge between the northern culvert north of Seaway Boulevard and the toe of the plume near SW-PMG97 (Figure 21-28). Boeing also concluded that TCE influx to the creek between these two reaches (mid-creek area) is significantly reduced relative to the stretches to the north and south of this reach. Ecology disagreed with this conclusion (Ecology 2010) citing significant uncertainty in the data and available data on TCE concentrations and gradients adjacent to the creek. Ecology believes the amount of TCE in the mid-creek area relative to the other areas is uncertain and based on available information, Ecology requires inclusion of the mid-creek area in the PMG Phase 2 downgradient plume interim action and FS.

Surface water sample concentrations do not exceed the surface water screening level downgradient of location SW-PMG14. Sample location SW-PMG23 is the most northerly, regularly sampled, surface water sampling location. TCE concentrations at SW-PMG23 have ranged between non-detect to 0.8 µg/L, which are below the surface water screening level. Thus the downstream extent of contamination above the surface water screening level is between SW-PMG14 and SW-PMG23.

21.7 SOIL VAPOR SURVEY RESULTS

The use of soil vapor sampling within PMG during this RI was limited to the September 2005 source area investigation, as described below. Further evaluation of soil vapor and the vapor intrusion (VI) pathway for PMG is planned for the FS. Screening of the VI pathway was performed in this RI using Ecology's review draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated October 2009 (VI guidance). The VI guidance has a three-step approach for evaluating vapor intrusion concerns: a Preliminary Assessment, a Tier I Assessment, and a Tier II Assessment.

<u>Preliminary Assessment</u>:

Applying the Preliminary Assessment step of the VI guidance to PMG shows that chemicals present in soil and groundwater beneath PMG are sufficiently volatile to pose a potential VI problem. Currently, there are no existing or planned buildings located close enough to subsurface contamination to be affected by vapor intrusion. However, because future buildings could be constructed near subsurface contamination, vapor intrusion could potentially impact indoor air quality within those buildings and therefore further assessment (Tier I) must be considered. These future buildings would most likely be located on the CRISTA and Intermec properties because Boeing is unlikely to develop the area where the plume exists north of the detention basin and the Lot 9 (City of Everett) property is a designated open space.

<u>Tier I Assessment:</u>

VI-specific sampling (such as soil gas or soil sampling) was not required by Ecology in PMG under the RI, although such sampling may be necessary under the FS to further evaluate the VI pathway. Tier I VI Assessment under the VI guidance is therefore limited to comparing the most recent concentrations of volatile chemicals in groundwater beneath PMG to the groundwater screening levels provided in Table B-1 of the VI guidance. Seven groundwater monitoring wells have been installed since 2007 beneath the portion of PMG that is located on the Intermec Lot #2 and CRISTA properties (EGW168, EGW169, EGW170, EGW171, EGW172, EGW173, and EGW174). Measured concentrations of TCE in groundwater have been detected above the TCE MTCA Method C Table B-1 screening level of 4.2 µg/L for industrial use scenarios at four of the wells and measured concentrations have also been detected above the TCE MTCA Method B Table B-1 screening level of 0.42 µg/L for residential use scenarios at six of the wells. Therefore, further Tier I assessment (e.g. soil gas sampling) or Tier II assessment of the VI pathway at PMG is necessary in the FS on the basis of groundwater contamination.

21.7.1 September 2005 Source Area Soil Vapor Investigation

Soil vapor samples were collected from above the water table and analyzed in a mobile laboratory during the September 2005 source area investigation to assess whether or not the TCE source area contamination [i.e., TCE nonaqueous phase liquid (NAPL)] extended to the vadose zone. Vadose zone soil vapor samples were collected from eight direct-push borings between 4 and 12 ft BGS with a standard direct-push water sampler, consisting of a 4-ft-long stainless-steel screen within a protective sheath. Threaded connections between direct-push rods were sealed with Teflon tape. A surface seal of hydrated bentonite was used to create an air-tight connection between the ground surface and the drill rod to ensure a tight seal during sampling. The drill rods and protective sheath were then retracted to expose the 4-ft screen. A minimum of 10 casing volumes of soil vapor were purged from inside the drill rods using a large volume vapor purge pump prior to sample collection. A valve was attached to the top of the rod assembly to prevent atmospheric air from re-entering the rods and screen. Soil vapor samples were then collected in a Tedlar bag using a small volume hand pump and analyzed in an accredited onsite mobile laboratory. The soil vapor analytical results are presented on Figure 21-21.

As shown on Figure 21-21, TCE concentrations in soil vapor samples collected from beneath the detention basin ranged from less than 0.05 to 0.54 µg/L. The soil vapor data will be considered further in the feasibility study.

21.8 CONCEPTUAL HYDROGEOLOGIC MODEL AND CONTAMINANT TRANSPORT

A conceptual model describing the hydrogeology, surface water-groundwater interaction, TCE source area, and plume migration at upper PMG was developed based on evaluations of existing data. This model is intended to integrate data presented in the previous sections and provide a framework for future monitoring of surface water and groundwater during the completion of the Feasibility Study and Cleanup Action Plan and implementation of remedial actions following completion and approval of the RI report by Ecology.

21.8.1 Hydrogeology and Groundwater Flow

The uppermost aquifer within the upper PMG area is the Esperance Sand. This aquifer includes saturated alluvium along and beneath the active creek channel that is in direct hydraulic communication with the Esperance Sand. Within the floor of PMG, the vadose zone ranges in thickness from approximately 40 to 50 ft around the margins of the stormwater basins to approximately 3 to 4 ft adjacent to the creek north of Seaway Boulevard. The Esperance Sand is a regional aquifer and is underlain by the Lawton Clay, a regional aquitard. The Lawton Clay is inferred to be present throughout the PMG study area and to be a hydraulic barrier to downward groundwater flow. A 4- to 5-ft-thick, hard clayey silt interbed is also present within the Esperance Sand approximately 35 to 50 ft above the base of the aquifer. The silt interbed outcrops within Powder Mill Creek approximately 1,000 ft northeast of Seaway Boulevard (along the creek flowpath). The projected outcrop of the silt interbed is identified on Figures 21-24 and 21-28. The Lawton Clay outcrops within the creek bed and valley slopes farther downstream (Figures 21-2 and 21-5).

The Esperance Sand (and alluvial) groundwater is generally unconfined with semi-confined conditions existing everywhere beneath the silt interbed. Regional groundwater flow in the PMG vicinity is northwestward. Groundwater discharge to Powder Mill Creek results in perennial flow beginning about 290 ft downstream of the head of the creek (i.e., the outlet from the stormwater detention basin), as discussed in Section 21.5.1. The net effect is that the groundwater flow direction beneath upper PMG changes from the regional northwest direction and trends in a direction toward Powder Mill Creek from both sides of the creek. This local shift in groundwater flow reflects groundwater discharge to the gaining creek within PMG. The entire reach of the Powder Mill Creek (PMC) receives either year around or seasonal discharge of groundwater. The determination of areas of seasonal or year around groundwater discharge is not considered critical to Ecology. The entire length of PMC from the spillway to Puget Sound is considered waters of the state for purposes of compliance with MTCA.

Two important site features cause groundwater flow in the Esperance Sand aquifer to deviate from this typical flow pattern and not discharge directly to Powder Mill Creek. The first is the culvert beneath Seaway Boulevard, which allows groundwater and the accompanying TCE plume to cross under the culvert to the west side of Powder Mill Creek under the influence of the northwesterly regional groundwater flow. The second and less well-understood feature is the elevated streambed (caused by re-channeling of the stream in 1979) of Powder Mill Creek within the stretch of creek extending approximately 500 ft north of the north end of the culvert beneath Seaway Boulevard.

Beyond this channelized section, the creek begins to return to its natural elevation and seeps are observed along the west side of the creek beginning approximately 800 ft north of Seaway Boulevard. Beyond 1,600 ft from Seaway Boulevard, the Esperance Sand aquifer pinches out and saturated soil is no longer observed above the Lawton Clay.

The silt interbed acts as a localized aquitard within the Esperance Sand aquifer due to its lower permeability and continuous nature in upper PMG. The interbed effectively separates the aquifer into upper and lower hydrogeologic units until the creek erodes through the silt in the northern portion of the TCE plume, as discussed in Section 21.3. The silt interbed does not appear to be present over much of the northern portion of the plume (i.e., north of monitoring well EGW143).

21.8.2 Contaminant Source and Transport

The interpreted areal extent of the TCE plume is shown on Figures 21-24 and 21-28 as well as on Figures 21-16 through 21-19. A vertical profile of the plume along Powder Mill Creek is shown on Figure 21-5. Based on groundwater analytical data through April 2010, the TCE screening level is exceeded at 61 out of the 100 permanent monitoring wells and 3 out of the 43 temporary monitoring wells (Table 21-7 and Table 21-8a). Relatively low levels of other VOCs (relative to TCE), including cis-1,2-DCE and vinyl chloride, are also detected along with TCE in numerous groundwater samples. The groundwater screening level for vinyl chloride is exceeded at many of the same wells where the TCE screening level is exceeded. The screening level for cis-1,2-DCE is only exceeded in groundwater samples collected from within the source area below the detention basin.

The TCE source area was found to be located in the northeastern portion of the detention basin. From the source area, the TCE plume extends beneath the intermittent-flow portion of Powder Mill Creek to the eastern side of the creek. The plume trends with the direction of groundwater flow to the north-northeast. The plume's northeasterly flow direction in this area is likely influenced by groundwater recharge from the peat filter and wetland areas to the west (Figures 21-16 through 21-19). Groundwater and the accompanying TCE plume begin perennial discharge to Powder Mill Creek within about 290 feet downstream of the detention basin spillway. TCE was measured at concentrations above the 6.7 µg/L surface water screening level in samples from Powder Mill Creek beginning at sample SW-PMG4 to sample location SW-PMG14 located 2,700 ft north of Seaway Boulevard along the creek's flow path. TCE was not observed above the surface water screening level south of SW-PMG4 within the primarily intermittent flow portion of the creek immediately below the detention basin spillway.

The TCE plume continues to migrate in a northerly direction following the same pathway described for groundwater flow in Section 21.8.1. The plume crosses to the west side of Powder Mill Creek onto City of Everett property at the culvert beneath Seaway Boulevard and then flows north-northwest for about 800 ft. This flow pattern causes the plume to widen to the west onto property owned by CRISTA Ministries and the Intermec Corporation. Permeable backfill placed around the buried 24-inch sanitary sewer that runs parallel to the creek appears to act as a preferential flow pathway through much of this stretch; however it does not completely control the migration of the TCE groundwater plume. Farther to the north, the hydraulic influence of the creek is re-established as the creek incises its channel increasing the hydraulic gradient between groundwater (including groundwater within the sewer preferential pathway) and the creek causing discharge to Powder Mill Creek to resume in the form of direct discharge and surface seeps. The first surface seeps are observed approximately 800 ft north of the Seaway Boulevard culvert. The seeps commonly take the form of wet/boggy soil and small channelized surface water flowing toward the creek. The concentration of TCE in these seeps typically exceeds both the groundwater and surface water TCE screening levels.

Powder Mill Creek continues to incise its channel and penetration of the silt interbed occurs to the north of EGW142 to the point where the silt interbed is no longer present along the creek bottom and separate hydrogeologic units no longer exist within the Esperance Sand aquifer (Figure 21-5). Farther to the north, the Esperance Sand aquifer pinches out as the contact between the Esperance Sand and Lawton Clay slopes upward to the north (Figure 21-5). By this point along PMG, the entire TCE plume has discharged to Powder Mill Creek either due to direct groundwater discharge to the creek itself or via numerous surface water seeps.

The silt interbed (Section 21.8.1) within the upper PMG area is an aquitard that appears to inhibit vertical contaminant migration. The detection of TCE below the silt interbed at the two mid-plume wells (EGW133 and EGW090) are likely related to carry-down during drilling activities. With the exception of low TCE detections at these two mid-plume wells and at wells located north of Seaway Boulevard in areas where the silt interbed was likely disturbed by utility construction activities, TCE was not detected beneath the silt interbed; however, it may be possible that these detections represent vertical migration of overlying groundwater through the silt interbed or migration through localized areas where the silt interbed may not be present (i.e. eroded by a glacial melt-water channel).

At this time, no significant data gaps exist for the RI; however, Ecology may require additional work, as necessary, to support the FS. Similarly, the existing groundwater and surface water monitoring network is sufficient to adequately monitor the TCE groundwater plume during completion of the feasibility study, cleanup action plan, and remedy implementation phases of the project. The current groundwater and surface water monitoring well network for Powder Mill Gulch may not be appropriate for the final cleanup action plan (FCAP) development and implementation. Additional groundwater monitoring wells may be needed in the FCAP and remedy implementation phase.

21.9 CONCLUSIONS

TCE is present in groundwater at concentrations greater than the RI screening level of 0.49 μg/L from the northeast corner of the detention basin to beyond Boeing's property line at Seaway Boulevard (Figure 21-23). The maximum concentration of TCE was observed in direct-push borings EGW114 and EGW111 prior to implementation of the source area interim action, at concentrations of 20,200 μg/L and 31,000 μg/L, respectively. Both of these samples were collected from beneath the northeastern portion of the detention basin, which is interpreted to be the source area of the downgradient TCE plume. Sampling results also show that the highest TCE concentrations observed in permanent monitoring wells (1,800 to 3,200 μg/L, Table 21-7) have been detected in groundwater samples collected above the silt interbed identified in the Esperance Sand aquifer. TCE was not detected in groundwater upgradient of the detention basin except for low concentrations at well EGW102 (0.3 to 0.6 μg/L). 1,4-Dioxane and PCBs were not detected in any of the groundwater samples for which these constituents were analyzed.

Analytical results from seep samples located north of Seaway Boulevard indicate that TCE is present in seep samples from location SW-PMG80 on the south to sample location SW-PMG79 to the north. The highest concentration of TCE detected to date is from sample SW-PMG81 (530 μg/L).

The surface water sample analytical results indicate that TCE is typically present above the surface water screening level of 6.7 μg/L from sample location SW-PMG4 on Boeing property downstream to sample location SW-PMG14 located 2,700 ft north of Seaway Boulevard along the creek's flow path. The farthest downgradient surface water sample with detectable concentrations of TCE is from sample location SW-PMG23 (0.24 μg/L) located 4,500 ft north of Seaway Boulevard.

Based on the current data, PMG groundwater and surface water impacted by TCE will be included in the FS. The cleanup levels for compounds of concern detected in PMG groundwater and surface water samples will be finalized by Ecology during the FS approval and incorporated into the Ecology Cleanup Action Plan. The groundwater, surface water, and seeps will continue to be monitored for TCE and other VOCs per the Ecology-approved monitoring plan.

21.10 REFERENCES

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Table 21-1
Well Construction Details
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Installation Date	Drilling Method	Casing/Screen Material	Borehole Diameter (in) [a]	Casing Diameter (in)	Total Depth (ft)	Step-down Depth	Screened Interval(s) (ft) [b]	Sand Pack Interval (ft) [b]	Well Type	Monument Surface Completion
EGW075	3/21/2003	Hollow-stem Auger	PVC	8	2	35.0	N/A	18-33	16-35 [c]	Monitoring Well	Flush Mount
EGW076	11/18/2003	Hollow-stem Auger	PVC	9	2	145.0	N/A	128-143	124-145	Monitoring Well	Flush Mount
EGW077	11/17/2003	Hollow-stem Auger	PVC	9	2	50.0	N/A	34-49	32-50	Monitoring Well	Above Ground
EGW078	12/1/2003	Hollow-stem Auger	PVC	9	2	58.0	N/A	42-57	38-58	Monitoring Well	Above Ground
EGW079	11/20/2003	Hollow-stem Auger	PVC	9	2	44.0	N/A	27-42	23-44	Monitoring Well	Flush Mount
EGW080	11/19/2003	Hollow-stem Auger	PVC	9	2	45.0	N/A	27-42	24-45	Monitoring Well	Flush Mount
EGW081	11/21/2003	Hollow-stem Auger	PVC	9	2	45.5	N/A	30-45	28-45.5	Monitoring Well	Flush Mount
EGW082	11/17/2003	Hollow-stem Auger	PVC	9	2	35.0	N/A	19-34	16-35	Monitoring Well	Above Ground
EGW083	11/20/2003	Hollow-stem Auger	PVC	9	2	26.5	N/A	11-26	8-26.5	Monitoring Well	Above Ground
EGW084	11/20/2003	Hollow-stem Auger	PVC	9	2	35.0	N/A	6-21	4-35	Monitoring Well	Above Ground
EGW085	3/1/2004	Hollow-stem Auger	PVC	9	2	36.5	N/A	20-35	17-36.5	Monitoring Well	Flush Mount
EGW086	3/1/2004	Hollow-stem Auger	PVC	9	2	62.0	N/A	52-62	49-62	Monitoring Well	Flush Mount
EGW087 [d]	3/3/2004	Hollow-stem Auger	PVC	9	2	68.0	N/A	56-66	53-68	Monitoring Well	Flush Mount
EGW087	10/11/2004	Hollow-stem Auger	PVC	9	2	68.0	N/A	57-67	55-68	Monitoring Well	Flush Mount
EGW088	3/2/2004	Hollow-stem Auger	PVC	9	2	82.0	N/A	69-79	66-82	Monitoring Well	Above Ground
EGW089	3/1/2004	Air Rotary	PVC	8	4	218.0	N/A	178-213	176-218	Monitoring Well	Flush Mount
EGW090	5/17/2004	Roto-sonic	CMT	8	1.7	110.0	N/A	40, 60, 75, 90, 100 [e]	(f)	Monitoring Well	Flush Mount
EGW091	7/14/2004	Hollow-stem Auger	PVC	9	2	160.0	N/A	147-157 [g]	144-160	Monitoring Well	Above Ground
EGW092	7/9/2004	Hollow-stem Auger	PVC	9	2	75.0	N/A	63-73 [g]	60-75	Monitoring Well	Above Ground
EGW093	7/8/2004	Hollow-stem Auger	PVC	9	2	160.0	N/A	147-157 [g]	144-160	Monitoring Well	Above Ground
EGW094	7/12/2004	Hollow-stem Auger	PVC	9	2	23.0	N/A	13-23 [g]	10-23	Monitoring Well	Above Ground
EGW095	7/12/2004	Hollow-stem Auger	PVC	9	2	66.0	N/A	51-61 [g]	57-66	Monitoring Well	Above Ground
EGW096 [(l)]	7/13/2004	Hollow-stem Auger	PVC	9	2	58.5	N/A	47-57 [g]	44-58.5	Monitoring Well	Above Ground
EGW097 [(l)]	7/13/2004	Hollow-stem Auger	PVC	9	2	100.0	N/A	87-97 [g]	84-100	Monitoring Well	Above Ground
EGW098	10/12/2004	Hollow-stem Auger	PVC	9	2	38.5	N/A	28-38 [g]	26-38.5	Monitoring Well	Above Ground
EGW099	10/11/2004	Hollow-stem Auger	PVC	9	2	90.5	N/A	80-90	72-90.5	Monitoring Well	Flush Mount
EGW100	10/4/2004	Hollow-stem Auger	PVC	9	2	108.5	N/A	98-108 [g]	95-108.5	Monitoring Well	Above Ground
EGW101	10/4/2004	Hollow-stem Auger	PVC	9	2	125.0	N/A	99-109 [g]	95-110	Monitoring Well	Above Ground
EGW102	10/7/2004	Hollow-stem Auger	PVC	9	2	59.0	N/A	42-57 [g]	40-59	Monitoring Well	Flush Mount
EGW103	10/7/2004	Hollow-stem Auger	PVC	9	2	79.0	N/A	68-78 [g]	65-79	Monitoring Well	Flush Mount
EGW104	10/6/2004	Hollow-stem Auger	PVC	9	2	140.0	N/A	108-118 [g]	105-121	Monitoring Well	Flush Mount
EGW105	10/8/2004	Hollow-stem Auger	PVC	9	2	46.0	N/A	31-46 [g]	28-46	Monitoring Well	Flush Mount
EGW106	12/13/2004	Hollow-stem Auger	PVC	9	2	37.0	N/A	25-35 [g]	24-37	Monitoring Well	Above Ground
EGW107	12/13/2004	Hollow-stem Auger	PVC	9	2	51.0	N/A	40-50 [g]	39-51	Monitoring Well	Above Ground
EGW108	3/28/2005	Hollow-stem Auger	PVC	9	2	34.0	N/A	23-33 [g]	21-34	Monitoring Well	Above Ground
EGW109	3/28/2005	Hollow-stem Auger	PVC	9	2	50.0	N/A	39-49 [g]	37-50	Monitoring Well	Above Ground
EGW110	3/29/2005	Hollow-stem Auger	PVC	9	2	57.0	N/A	45-55 [g]	43-52	Monitoring Well	Flush Mount
EGW111	9/12/2005	Geoprobe	PVC	2	0.75	43.0	N/A	8-12, 16-20, 26-30 [h], 30-34, 39-43 [h]	No Sand Pack	Temporary	N/A
EGW112	9/12/2005	Geoprobe	PVC	2	0.75	44.0	N/A	8-12, 10-14, 20-24, 30-34, 40-44	No Sand Pack	Temporary	N/A
EGW113	9/13/2005	Geoprobe	PVC	2	0.75	44.0	N/A	8-12, 10-14, 20-24, 30-34, 40-44	No Sand Pack	Temporary	N/A
EGW114	9/13/2005	Geoprobe	PVC	2	0.75	44.0	N/A	8-12, 10-14 [h], 16-20, 26-30, 36-40, 40-44 [h]	No Sand Pack	Temporary	N/A
EGW115	9/13/2005	Geoprobe	PVC	2	0.75	44.0	N/A	8-12, 10-14, 20-24, 30-34, 40-44	No Sand Pack	Temporary	N/A
EGW116	9/14/2005	Geoprobe	PVC	2	0.75	40.0	N/A	10-14, 20-24, 30-34, 36-40 [h]	No Sand Pack	Temporary	N/A
EGW117	9/14/2005	Geoprobe	PVC	2	0.75	34.0	N/A	10-14 [h], 16-20, 25-29 [h], 30-34	No Sand Pack	Temporary	N/A
EGW118	9/14/2005	Geoprobe	PVC	2	0.75	40.0	N/A	8-12, 18-22, 28-32, 36-40	No Sand Pack	Temporary	N/A

Table 21-1
Well Construction Details
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Installation Date	Drilling Method	Casing/Screen Material	Borehole Diameter (in) [a]	Casing Diameter (in)	Total Depth (ft)	Step-down Depth	Screened Interval(s) (ft) [b]	Sand Pack Interval (ft) [b]	Well Type	Monument Surface Completion
EGW119	9/14/2005	Geoprobe	PVC	2	0.75	44.0	N/A	8-12, 12-16, 20-24, 30-34, 35-39, 40-44 [h]	No Sand Pack	Temporary	N/A
EGW120	9/15/2006	Geoprobe	PVC	2	0.75	44.0	N/A	10-14 [h], 16-20, 26-30, 40-44	No Sand Pack	Temporary	N/A
EGW121	9/15/2006	Geoprobe	PVC	2	0.75	42.0	N/A	10-14, 20-24, 28-32, 30-34 [h], 38-42	No Sand Pack	Temporary	N/A
EGW122	9/15/2006	Geoprobe	PVC	2	0.75	26.0	N/A	8-12, 12-16, 22-26	No Sand Pack	Temporary	N/A
EGW123	9/15/2006	Geoprobe	PVC	2	0.75	44.0	N/A	4-8, 8-12 [h], 16-20, 26-30, 40-44	No Sand Pack	Temporary	N/A
EGW124	9/15/2006	Geoprobe	PVC	2	0.75	26.0	N/A	12-16, 22-26	No Sand Pack	Temporary	N/A
EGW125	9/15/2006	Geoprobe	PVC	2	0.75	40.0	N/A	36-40	No Sand Pack	Temporary	N/A
EGW126	9/15/2006	Geoprobe	PVC	2	0.75	40.0	N/A	36-40	No Sand Pack	Temporary	N/A
EGW127	12/14/2005	Roto-sonic	Stainless steel	6	2.0	65.0	N/A	56-66	54-68	Monitoring Well	Above Ground
EGW128	12/9/2005	Roto-sonic	Stainless steel	6	2.0	65.0	N/A	54-64	52-65	Monitoring Well	Above Ground
EGW129	12/20/2005	Roto-sonic	Stainless steel	6	2.0	85.0	N/A	69-79	67-81	Monitoring Well	Flush Mount
EGW130	12/20/2005	Roto-sonic	Stainless steel	6	2.0	115.0	N/A	100-110	96-110	Monitoring Well	Flush Mount
EGW131	12/16/2005	Roto-sonic	PVC	6	2.0	55.0	N/A	45-55	43-55	Monitoring Well	Flush Mount
EGW132	12/15/2005	Roto-sonic	CMT	6	1.7	122.0	N/A	24, 37, 50, 62, 81, 97, 113 [e]	(f)	Monitoring Well	Above Ground
EGW133	12/5/2005	Roto-sonic	CMT	8	1.7	127.5	N/A	29, 42, 55, 68, 89, 113 [e]	(f)	Monitoring Well	Above Ground
EGW134	1/26/2006	Roto-sonic	PVC	6	2.0	17.5	N/A	4-14	3-14	Monitoring Well	Flush Mount
EGW135	1/26/2006	Roto-sonic	PVC	6	2.0	18.0	N/A	3-13	2-14	Monitoring Well	Flush Mount
EGW136	1/23/2006	Roto-sonic	PVC	8/6	2.0	57.5	12.5	35-45	33-46	Monitoring Well	Above Ground
EGW137	1/25/2006	Roto-sonic	PVC	6	2.0	20.0	N/A	4-9	3-10	Monitoring Well	Flush Mount
EGW138	1/4/2006	Geoprobe	PVC	2	0.75	21.0	N/A	11-15, 15-20 [g,i], 21-25, 28-32	13-20	Piezometer	Above Ground
EGW139	1/6/2006	Geoprobe	PVC	2	0.75	35.5	N/A	11-15, 15-20 [g, i], 21.5-25.5, 31.5, 35.5	13-20	Piezometer	Above Ground
EGW140	1/5/2006	Geoprobe	PVC	2	0.75	32.0	N/A	12-17[g]	10-17	Piezometer	Above Ground
EGW141	1/4/2006	Geoprobe	PVC	2	0.75	25.0	N/A	12-17[g]	10-17	Piezometer	Above Ground
EGW142	1/9/2006	Geoprobe	PVC	2	0.75	19.0	N/A	13-18[g]	11-18	Piezometer	Above Ground
EGW143	1/25/2006	Roto-sonic	PVC	6	2.0	33.0	N/A	22-32	20-33	Monitoring Well	Flush Mount
EGW144	2/21/2006	Hollow-stem Auger	PVC	6	2.0	72.0	N/A	61-71	58-72	Monitoring Well	Flush Mount
EGW145	8/31/2006	Hollow-stem Auger	PVC	8	2.0	24.0	N/A	18-22.5	17-24	Monitoring Well	Flush Mount
EGW146	8/31/2006	Hollow-stem Auger	PVC	8	2.0	19.0	N/A	12-17	11-18	Monitoring Well	Flush Mount
EGW147	8/31/2006	Hollow-stem Auger	PVC	8	2.0	34.0	N/A	28-33	26-34	Monitoring Well	Above Ground
EGW148	8/30/2006	Hollow-stem Auger	PVC	8	2.0	46.0	N/A	40-45	38-46	Monitoring Well	Above Ground
EGW149	7/11/2006	Hollow-stem Auger	Fiberglass	12	2.0	80.5	N/A	28.5-33.5, 43.5-48.5, 58.5-63.5, 73.5-78.5	26.5-34.5,41.5-49.5, 56.5-64.5, 71.5-80.5	Monitoring Well	Above Ground
EGW150	7/12/2006	Hollow-stem Auger	Fiberglass	12	2.0	78.0	N/A	26-31, 41-46, 56-61, 71-76	24-32, 39-47, 54-62, 69-78	Monitoring Well	Above Ground
EGW151 (1-3-4)	7/11/2006	Hollow-stem Auger	Fiberglass	12	2.0	78.0	N/A	28-33, 56-61, 71-76	13-52, 54-62.5, 69-78	Monitoring Well	Above Ground
EGW151 (2)	7/11/2006	Hollow-stem Auger	Fiberglass	9	2.0	47.0	N/A	41-46	39-47	Monitoring Well	Above Ground
EGW152 (1-3)	8/9/2006	Hollow-stem Auger	Fiberglass	12	2.0	70.5	N/A	23.5-28.5, 43.5-48.5, 63.5-68.5	21.5-30, 41.5-50, 61.5-70.5	Monitoring Well	Above Ground
EGW152 (4)	8/9/2006	Hollow-stem Auger	Fiberglass	9	2.0	83.5	N/A	76.5-81.5	74.5-83.5	Monitoring Well	Above Ground
EGW153	8/8/2006	Hollow-stem Auger	Fiberglass	12	2.0	75.0	N/A	28-33, 48-53, 68-73	26-34.5, 46-54.5, 66-75	Monitoring Well	Above Ground
EGW154	8/14/2006	Hollow-stem Auger	Fiberglass	12	2.0	75.5	N/A	28.5-33.5, 48.5-53.5, 68.5-73.5	26.5-35, 46.5-55, 66.5-75.5	Monitoring Well	Above Ground
EGW155	8/4/2006	Hollow-stem Auger	Fiberglass	12	2.0	72.0	N/A	25-30, 45-50, 65-70	23-31.5, 43-51.5, 63-72	Monitoring Well	Above Ground
EGW156	8/10/2006	Hollow-stem Auger	Fiberglass	12	2.0	73.5	N/A	26.5-31.5, 46.5-51.5, 66.5-71.5	24.6-33, 44.6-53, 64.6-73.5	Monitoring Well	Above Ground
EGW157	8/15/2006	Hollow-stem Auger	Fiberglass	12	2.0	67.5	N/A	20.5-25.5, 40.5-45.5, 60.5-65.5	18.5-27, 38.5-47, 58.5-67.5	Monitoring Well	Above Ground
EGW158	8/17/2006	Hollow-stem Auger	Fiberglass	12	2.0	64.0	N/A	17-22, 37-42, 57-62	15-23.4, 35-43.5, 55-64	Monitoring Well	Above Ground
EGW159	8/31/2006	Hollow-stem Auger	PVC	8	2.0	26.5	N/A	20.5-25.5	18.5-26.5	Monitoring Well	Above Ground
EGW160	8/30/2006	Hollow-stem Auger	PVC	8	2.0	39.0	N/A	32-37	30-38	Monitoring Well	Above Ground
EGW161 (1-2)	8/17/2006	Hollow-stem Auger	Fiberglass	12	2.0	43.0	N/A	16.5-21.5, 36.5-41.5	14.5-23, 34.5-43	Monitoring Well	Above Ground
EGW161 (3-4)	8/17/2006	Hollow-stem Auger	Fiberglass	12	2.0	76.5	N/A	56.5-61.5, 69.5-74.5	14.5-63, 67.5-76.5	Monitoring Well	Above Ground
EGW162	8/30/2006	Hollow-stem Auger	PVC	8	2.0	54.0	N/A	47-52	46-54	Monitoring Well	Above Ground
EGW163	5/25/2007	Hollow-Stem Auger	PVC	8.25	2.0	32.0	N/A	20.5-30.5	19.5-32	Monitoring Well	Flush Mount

Table 21-1
Well Construction Details
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Installation Date	Drilling Method	Casing/Screen Material	Borehole Diameter (in) [a]	Casing Diameter (in)	Total Depth (ft)	Step-down Depth	Screened Interval(s) (ft) [b]	Sand Pack Interval (ft) [b]	Well Type	Monument Surface Completion
EGW164	5/25/2007	Hollow-Stem Auger	PVC	8.25	2.0	58.5	N/A	47-57	46-58.5	Monitoring Well	Flush Mount
EGW165	6/4/2007	Hollow-Stem Auger	PVC	8.25	2.0	63.0	N/A	51.5-61.5	50-63	Monitoring Well	Flush Mount
EGW166	6/5/2007	Hollow-Stem Auger	PVC	8.25	2.0	75.5	N/A	64-74	63-75.5	Monitoring Well	Flush Mount
EGW167	10/19/2007	Roto-sonic	PVC	7/6	2.0	75.5	65	69.5-74.5	68.5-75.5	Monitoring Well	Flush Mount
EGW168	2/13/2008	Roto-sonic	PVC	6	2.0	168.5	N/A	153.5-163.5	152-164.5	Monitoring Well	Above Ground
EGW169	2/12/2008	Roto-sonic	PVC	6	2.0	142.0	N/A	128.5-138.5	127.5-140	Monitoring Well	Above Ground
EGW170	2/6/2008	Roto-sonic	PVC	6	2.0	147.0	N/A	131-141	130-142.25	Monitoring Well	Above Ground
EGW171	8/28/2008	Roto-sonic	PVC	6	2.0	156.0	N/A	143-153	142-154.3	Monitoring Well	Above Ground
EGW172	8/26/2008	Roto-sonic	PVC	6	2.0	156.5	N/A	141.7-151.7	140.5-153.3	Monitoring Well	Above Ground
EGW173	9/3/2008	Roto-sonic	PVC	6	2.0	152.1	N/A	136.5-146.5	135.5-148	Monitoring Well	Above Ground
EGW174	9/23/2009	Roto-sonic	PVC	7	2.0	155.0	N/A	118-128	115-130	Monitoring Well	Above Ground
EGW175	5/5/2009	Vibracorer	Stainless steel	10	6.0	50.0	N/A	33-48	29.5-49.4[c]	Extraction Well	Above Ground
EGW176	5/6/2009	Vibracorer	Stainless steel	10	6.0	60.0	N/A	46-56	43-58[c]	Extraction Well	Above Ground
EIW1	8/29/2008	Hollow-stem Auger	PVC	4	2.0	38.0	N/A	12-37	10-37.5	Injection Well	Flush Mount
EIW2	8/29/2008	Hollow-stem Auger	PVC	4	2.0	38.0	N/A	12-37	10-37.5	Injection Well	Flush Mount
EIW3	8/29/2008	Hollow-stem Auger	PVC	4	2.0	38.0	N/A	12-37	10-37.5	Injection Well	Flush Mount
EIW4	8/29/2008	Hollow-stem Auger	PVC	4	2.0	38.0	N/A	10-37	10-37.5	Injection Well	Flush Mount
ESB1500	1/6/2006	Geoprobe	N/A	2	N/A	17.0	N/A	8-12, 13-17	N/A	Temporary	N/A
ESB1501	1/6/2006	Geoprobe	N/A	2	N/A	10.0	N/A	Dry	No Sand Pack	Temporary	N/A
ESB1502	1/9/2006	Geoprobe	N/A	2	N/A	10.0	N/A	Dry	No Sand Pack	Temporary	N/A
ESB1503	1/9/2006	Geoprobe	N/A	2	N/A	9.0	N/A	5-9	No Sand Pack	Temporary	N/A
ESB1504	1/9/2006	Geoprobe	N/A	2	N/A	16.0	N/A	12-16	No Sand Pack	Temporary	N/A
ESB1505	1/9/2006	Geoprobe	N/A	2	N/A	18.5	N/A	8-12, 14-18	No Sand Pack	Temporary	N/A
ESB1506	5/21/2007	Hollow-stem Auger with Direct Push	N/A	4	N/A	29.5	N/A	25.5-29.5	No Sand Pack	Temporary	N/A
ESB1507	5/22/2007	Hollow-stem Auger with Direct Push	N/A	4	N/A	57.0	N/A	42-46, 53-57	No Sand Pack	Temporary	N/A
ESB1508	5/23/2007	Hollow-stem Auger with Direct Push	N/A	4	N/A	60.5	N/A	36.5-40.5, 46.5-50.5, 56.5-60.5	No Sand Pack	Temporary	N/A
ESB1509	5/24/2007	Hollow-stem Auger with Direct Push	N/A	4	N/A	45.5	N/A	20-24, 31.5-35.5, 41.5-45.5	No Sand Pack	Temporary	N/A
ESB1510	5/29/2007	Hollow-stem Auger with Direct Push	N/A	4	N/A	41.5	N/A	15-19, 27.5-31.5, 37.5-41.5	No Sand Pack	Temporary	N/A
ESB1511	5/30/2007	Hollow-stem Auger with Direct Push	N/A	4	N/A	38.0	N/A	14-18, 24-28, 34-38	No Sand Pack	Temporary	N/A
ESB1512	5/31/2007	Hollow-stem Auger with Direct Push	N/A	4	N/A	73.0	N/A	39-43, 49-53, 59-63, 69-73	No Sand Pack	Temporary	N/A
ESB1513	6/1/2007	Hollow-stem Auger with Direct Push	N/A	4	N/A	59.0	N/A	34.5-38.5, 45-49, 55-59	No Sand Pack	Temporary	N/A
ESB1514	2/5/2008	Hollow-stem Auger with Direct Push	N/A	4	N/A	42.0	N/A	9-12, 18-21, 26-29, 39-42	No Sand Pack	Temporary	N/A
ESB1515	2/4/2008	Hollow-stem Auger with Direct Push	N/A	4	N/A	36.0	N/A	18-21, 33-36	No Sand Pack	Temporary	N/A
ESB1516	2/7/2008	Hollow-stem Auger with Direct Push	N/A	4	N/A	62.0	N/A	21-24, 28-31, 39-42, 49-52	No Sand Pack	Temporary	N/A
ESB1517	2/6/2008	Hollow-stem Auger with Direct Push	N/A	4	N/A	62.0	N/A	19-22, 29-32, 39-42, 49-52, 59-62	No Sand Pack	Temporary	N/A
ESB1518	7/23/2008	Geoprobe	N/A	2	N/A	39.0	N/A	16-20, 26-30, 35-39	No Sand Pack	Temporary	N/A
ESB1519	7/24/2008	Geoprobe	N/A	2	N/A	39.0	N/A	16-20, 26-30, 35-39	No Sand Pack	Temporary	N/A
ESB1520	7/24/2008	Geoprobe	N/A	2	N/A	38.0	N/A	16-20, 26-30, 34-38	No Sand Pack	Temporary	N/A
ESB1521	7/23/2008	Geoprobe	N/A	2	N/A	36.0	N/A	16-20, 26-30, 32-36	No Sand Pack	Temporary	N/A
ESB1522	7/23/2008	Geoprobe	N/A	2	N/A	38.0	N/A	16-20, 26-30, 34-38	No Sand Pack	Temporary	N/A

Table 21-1
Well Construction Details
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Installation Date	Drilling Method	Casing/Screen Material	Borehole Diameter (in) [a]	Casing Diameter (in)	Total Depth (ft)	Step-down Depth	Screened Interval(s) (ft) [b]	Sand Pack Interval (ft) [b]	Well Type	Monument Surface Completion
ESB1523	7/27/2008	Geoprobe	N/A	2	N/A	37.0	N/A	16-20, 26-30, 33-37	No Sand Pack	Temporary	N/A
ESB1524	7/24/2008	Geoprobe	N/A	2	N/A	30.0	N/A	16-20, 26-30	No Sand Pack	Temporary	N/A
ESB1525	7/24/2008	Geoprobe	N/A	2	N/A	34.0	N/A	30-34	No Sand Pack	Temporary	N/A
PMGE-C3	7/18/2006	Hollow-stem Auger	Carbon Steel	12	2	67.0	N/A	11-16, 17-38, 41-62	7-67[k]	Electrical Resistance Heating	Flush Mount
PMGE-C4	7/19/2006	Hollow-stem Auger	Carbon Steel	12	2	71.0	N/A	15-20, 21-42, 45-66	10-71[k]	Electrical Resistance Heating	Flush Mount
PMGE-C5	7/20/2006	Hollow-stem Auger	Carbon Steel	12	2	75.0	N/A	19-24, 25-46, 49-70	14-75[k]	Electrical Resistance Heating	Flush Mount
PMGE-C6	7/21/2006	Hollow-stem Auger	Carbon Steel	12	2	78.5	N/A	22.5-27.5, 28.5-49.5, 52.5-73.5	18-78.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-C7	7/21/2006	Hollow-stem Auger	Carbon Steel	12	2	82.5	N/A	26.5-31.5, 32.5-53.5, 56.5-77.5	21-82.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-D2	7/25/2006	Hollow-stem Auger	Carbon Steel	12	2	64.0	N/A	8-13, 14-35, 38-59	4-64[k]	Electrical Resistance Heating	Flush Mount
PMGE-D3	7/26/2006	Hollow-stem Auger	Carbon Steel	12	2	66.0	N/A	10-15, 16-35, 40-61	6-66[k]	Electrical Resistance Heating	Flush Mount
PMGE-D4	7/27/2006	Hollow-stem Auger	Carbon Steel	12	2	69.0	N/A	13-18, 19-40, 43-64	8-69[k]	Electrical Resistance Heating	Flush Mount
PMGE-D5	7/28/2006	Hollow-stem Auger	Carbon Steel	12	2	73.0	N/A	17-22, 23-44, 47-68	12-73[k]	Electrical Resistance Heating	Flush Mount
PMGE-D6	7/31/2006	Hollow-stem Auger	Carbon Steel	12	2	76.0	N/A	20-25, 26-47, 50-71	15-76[k]	Electrical Resistance Heating	Flush Mount
PMGE-D7	7/19/2006	Hollow-stem Auger	Carbon Steel	12	2	80.0	N/A	24-29, 30-51, 54-75	19-80[k]	Electrical Resistance Heating	Flush Mount
PMGE-E2	8/2/2006	Hollow-stem Auger	Carbon Steel	12	2	64.0	N/A	8-13, 14-35, 38-59	4-64[k]	Electrical Resistance Heating	Flush Mount
PMGE-E3	8/3/2006	Hollow-stem Auger	Carbon Steel	12	2	65.0	N/A	9-14. 15-36, 39-60	5-65[k]	Electrical Resistance Heating	Flush Mount
PMGE-E4	7/19/2006	Hollow-stem Auger	Carbon Steel	12	2	67.5	N/A	10-15, 16-37, 40-61	5-67.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-E4-2	7/19/2006	Hollow-stem Auger	Carbon Steel	12	2	66.5	N/A	40.5-61.5	40.5-66.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-E5	7/20/2006	Hollow-stem Auger	Carbon Steel	12	2	70.5	N/A	12-17, 18-39, 42-63	7-70.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-E6	7/21/2006	Hollow-stem Auger	Carbon Steel	12	2	74.0	N/A	18-23, 24-45, 48-69	13-74[k]	Electrical Resistance Heating	Flush Mount
PMGE-E7	7/21/2006	Hollow-stem Auger	Carbon Steel	12	2	78.5	N/A	22.5-27.5, 28.5-49.5, 52.5-73.5	18-78.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-E8	7/25/2006	Hollow-stem Auger	Carbon Steel	12	2	83.5	N/A	27.5-32-5, 33.5-54.5, 57.5-78.5	22.5-83.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-F2	7/18/2006	Hollow-stem Auger	Carbon Steel	12	2	63.0	N/A	7-12, 13-34, 37-58	4.5-63[k]	Electrical Resistance Heating	Flush Mount
PMGE-F3	7/26/2006	Hollow-stem Auger	Carbon Steel	12	2	64.0	N/A	8-13, 14-35, 45-59	5-64[k]	Electrical Resistance Heating	Flush Mount
PMGE-F4	7/27/2006	Hollow-stem Auger	Carbon Steel	12	2	65.0	N/A	9-14, 15-36, 39-60	5-65[k]	Electrical Resistance Heating	Flush Mount
PMGE-F5	7/28/2006	Hollow-stem Auger	Carbon Steel	12	2	68.0	N/A	12-17, 18-39, 42-63	8-68[k]	Electrical Resistance Heating	Flush Mount
PMGE-F6	7/31/2006	Hollow-stem Auger	Carbon Steel	12	2	69.0	N/A	13-18, 19-40, 43-64	8-69[k]	Electrical Resistance Heating	Flush Mount
PMGE-F7	7/31/2006	Hollow-stem Auger	Carbon Steel	12	2	78.0	N/A	20-27, 28-49, 52-73	17-78[k]	Electrical Resistance Heating	Flush Mount
PMGE-F8	8/2/2006	Hollow-stem Auger	Carbon Steel	12	2	83.0	N/A	27-32, 33-54, 57-78	22-83[k]	Electrical Resistance Heating	Flush Mount
PMGE-G2	8/10/2006	Hollow-stem Auger	Carbon Steel	12	2	63.5	N/A	7.5-12.5, 13.5-34.5, 37.5-58.5	3.5-63.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-G3	8/8/2006	Hollow-stem Auger	Carbon Steel	12	2	63.0	N/A	7-12, 13-34, 37-58	3-63[k]	Electrical Resistance Heating	Flush Mount
PMGE-G4	8/9/2006	Hollow-stem Auger	Carbon Steel	12	2	64.0	N/A	8-13, 14-35, 38-59	4-64[k]	Electrical Resistance Heating	Flush Mount
PMGE-G5	8/15/2006	Hollow-stem Auger	Carbon Steel	12	2	79.5	N/A	10.5-15.5, 16.5-37.5, 40.5-61.5	6-79.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-G6	8/15/2006	Hollow-stem Auger	Carbon Steel	12	2	85.0	N/A	16-21, 22-43, 46-67, 70-80	11-85[k]	Electrical Resistance Heating	Flush Mount
PMGE-G7	8/11/2006	Hollow-stem Auger	Carbon Steel	12	2	78.0	N/A	22-27, 28-49, 52-73	17-78[k]	Electrical Resistance Heating	Flush Mount
PMGE-H2	8/21/2006	Hollow-stem Auger	Carbon Steel	12	2	76.0	N/A	7-12, 13-34, 37-58, 61-71	3-76[k]	Electrical Resistance Heating	Flush Mount
PMGE-H3	8/23/2006	Hollow-stem Auger	Carbon Steel	12	2	76.0	N/A	7-12, 13-34, 37-58, 61-71	3-76[k]	Electrical Resistance Heating	Flush Mount
PMGE-H4	8/22/2006	Hollow-stem Auger	Carbon Steel	12	2	76.5	N/A	7.5-12.5, 13.5-34.5, 37.5-58.5, 62.5-71.5	3.5-76.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-H5	8/25/2006	Hollow-stem Auger	Carbon Steel	12	2	80.0	N/A	11-16, 17-38, 41-62, 65-75	6-80[k]	Electrical Resistance Heating	Flush Mount
PMGE-H6	8/28/2006	Hollow-stem Auger	Carbon Steel	12	2	86.0	N/A	17-22, 23-44, 47-68, 71-81	13-86[k]	Electrical Resistance Heating	Flush Mount
PMGE-H7	8/29/2006	Hollow-stem Auger	Carbon Steel	12	2	79.0	N/A	23-28, 29-50, 53-74	18-79[k]	Electrical Resistance Heating	Flush Mount
PMGE-J2	9/1/2006	Hollow-stem Auger	Carbon Steel	12	2	76.0	N/A	7-12, 13-34, 37-58, 61-71	3-76[k]	Electrical Resistance Heating	Flush Mount
PMGE-J3	8/24/2006	Hollow-stem Auger	Carbon Steel	12	2	76.0	N/A	7-12, 13-34, 34-58, 61-71	3-76[k]	Electrical Resistance Heating	Flush Mount
PMGE-J4	9/1/2006	Hollow-stem Auger	Carbon Steel	12	2	77.5	N/A	8.5-13.5, 14.5-35.5, 38.5-59.5, 62.5-72.5	4.5-77.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-J5	8/29/2006	Hollow-stem Auger	Carbon Steel	12	2	81.5	N/A	12-5-17.5, 18.5-39.5, 42.5-63.5, 66.5-76.5	8.5-81.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-J6	8/18/2006	Hollow-stem Auger	Carbon Steel	12	2	87.0	N/A	18-23, 24-45, 48-69, 72-82	13-87[k]	Electrical Resistance Heating	Flush Mount
PMGE-J7	8/17/2010	Hollow-stem Auger	Carbon Steel	12	2	80.0	N/A	24-29, 30-51, 54-75	19-80[k]	Electrical Resistance Heating	Flush Mount
PMGE-K2	9/5/2006	Hollow-stem Auger	Carbon Steel	12	2	76.0	N/A	7-12, 13-34, 37-58, 61-71	3-76[k]	Electrical Resistance Heating	Flush Mount

Table 21-1
Well Construction Details
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Installation Date	Drilling Method	Casing/Screen Material	Borehole Diameter (in) [a]	Casing Diameter (in)	Total Depth (ft)	Step-down Depth	Screened Interval(s) (ft) [b]	Sand Pack Interval (ft) [b]	Well Type	Monument Surface Completion
PMGE-K3	8/21/2006	Hollow-stem Auger	Carbon Steel	12	2	77.0	N/A	8-13, 14-35, 38-59, 62-72	4-77[k]	Electrical Resistance Heating	Flush Mount
PMGE-K4	8/22/2006	Hollow-stem Auger	Carbon Steel	12	2	78.5	N/A	9.5-14.5, 15.5-36.5, 39.5-60.5, 63.5-73.5	5-78.5[k]	Electrical Resistance Heating	Flush Mount
PMGE-K5	8/15/2006	Hollow-stem Auger	Carbon Steel	12	2	83.0	N/A	14-19, 20-41, 44-65, 68-78	9-83[k]	Electrical Resistance Heating	Flush Mount
PMGE-K6	8/21/2006	Hollow-stem Auger	Carbon Steel	12	2	89.0	N/A	20-25, 26-47, 50-71, 74-84	15-89[k]	Electrical Resistance Heating	Flush Mount
PMGE-L2	8/29/2006	Hollow-stem Auger	Carbon Steel	12	2	77.0	N/A	8-13, 14-35, 38-59, 62-72	4-77[k]	Electrical Resistance Heating	Flush Mount
PMGE-L3	8/25/2006	Hollow-stem Auger	Carbon Steel	12	2	78.0	N/A	9-14, 15-36, 39-60, 63-73	5-78[k]	Electrical Resistance Heating	Flush Mount
PMG-P1[j]	-	-	-	-	-	-	-	-	-	Piezometer	Above Ground
PMG-P2[j]	-	-	-	-	-	-	-	-	-	Piezometer	Above Ground
PMG-P3	3/25/2010	Geoprobe	N/A	2	N/A	24.0	N/A	7-11, 17-21	No Sand Pack	Temporary	N/A
PMG-P3A	3/25/2010	Geoprobe	PVC	3	0.75	10.0	N/A	5-10[g]	3-10	Piezometer	Flush Mount
PMG-P4	3/23/2010	Vacuum Truck	PVC	4	0.75	11.0	N/A	6-11[g]	4-11	Piezometer	Flush Mount
PMG-P5	3/24/2010	Geoprobe	PVC	2	0.75	24.0	N/A	5-9, 5-10[g,i], 15-19, 20-24	3-10	Piezometer	Flush Mount
PMG-P6	3/23/2010	Vacuum Truck	PVC	4	0.75	10.0	N/A	4.5-9.5[g]	2.5-9.5	Piezometer	Flush Mount
PMG-P7	3/24/2010	Geoprobe	PVC	2	0.75	28.0	N/A	5-9, 5-10[g,i], 15-19, 24-28	3-10	Piezometer	Flush Mount
PMGPZ-B6	7/16/2006	Hollow-stem Auger	Fiberglass	4	2.00	43.0	N/A	29-33	28-43	Vacuum Monitoring Piezometer	Flush Mount
PMGPZ-C7	7/16/2006	Hollow-stem Auger	Fiberglass	4	2.00	40.0	N/A	24-28	23-40	Vacuum Monitoring Piezometer	Flush Mount
PMGPZ-C9	7/14/2006	Hollow-stem Auger	Fiberglass	4	2.00	42.0	N/A	25-34.5	25-42	Vacuum Monitoring Piezometer	Flush Mount
PMGPZ-G1	7/14/2006	Hollow-stem Auger	Fiberglass	4	2.00	13.0	N/A	5-9	4-10.5	Vacuum Monitoring Piezometer	Flush Mount

Notes:

N/A = Not Applicable.
PVC - Polyvinyl chloride
CMT - Continuous multi-channel tubing
[a] Borehole diameter includes two values for step-down wells. The first number corresponds to the interval above the silt layer, and the second number corresponds to the interval below the silt layer.
[b] All wells were constructed with 2/12 sand unless otherwise noted. Single-completion wells were installed with 0.020 slot screen unless otherwise noted. CMT wells were constructed with 0.010 slot mesh screen.
[c] Well constructed using 10/20 sand.
[d] Original EGW087 was damaged, decommissioned, and replaced with a monitoring well with the same name.
[e] CMT wells were constructed with a screen length of 1 foot.
[f] Sand pack for CMT wells was 5 feet long, centered on the screen interval.
[g] Well installed with 0.010 slot screen.
[h] Groundwater could not be sampled due to silty soil.
[i] Permanent screen installed at this interval following direct push groundwater sample collection.
[j] No data available for these wells
[k] Sand pack for Electrical Resistance Heating wells consisted of 20/40 sand pack, 8/12 sand pack, and steel shot/graphite backfill
[l] Well abandoned

Table 21-2a
Summary of Physical Soil Properties -URS 2005
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

METHODOLOGY				ASTM D2216 / API RP40	API RP40		API RP40		API RP40	ASTM D5084			API RP 40 / ASTM D 2937	ASTM D 425M	
										25.0 PSI CONFINING STRESS					
SAMPLE ID.	DEPTH, ft.	Mean Grain Size (USCS)	SAMPLE ORIENT. (1)	MOISTURE CONTENT (% wt)	DENSITY BULK (g/cc)	DENSITY GRAIN (g/cc)	POROSITY, %Vb (2) TOTAL	POROSITY, %Vb (2) AIR FILLED	TOTAL PORE FLUID SATURATIONS [% Pv (3)]	NATIVE STATE EFFECTIVE PERMEABILITY TO WATER (4,5) (millidarcy)	NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (4,5) (cm/s)	NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (4,5) (ft/day)	BULK DENSITY, (g/cc)	POROSITY TOTAL, % Vb	POROSITY EFFECTIVE, % Vb
EGW109-30	30	Fine sand (SM)	V	28.7	1.43	2.69	46.8	5.7	87.8	1698	1.66E-03	4.7	1.37	39.1	33.6
			H							1987	1.92E-03	5.4			
EGW109-40	40	Fine sand (SM)	V	24.3	1.44	2.72	47.1	12.1	74.4	1240	1.20E-03	3.4	1.49	39.7	34.3
			H							2658	2.58E-03	7.3			
EGW110-35	35	Coarse sand (SP)	V	8.2	2.01	2.73	26.2	9.7	63.0	50.7	4.93E-05	0.1	1.95	21.5	14.2
			H							270	2.60E-04	0.7			
EGW110-45	45	Fine sand (SM)	V	24.3	1.41	2.69	47.5	13.2	72.2	641	6.20E-04	1.75	1.45	38.6	33.2
			H							2074	2.00E-03	5.7			
EGW098-24	24	Silt (ML)	V	37.7	1.27	2.72	53.2	5.1	90.4	0.030	2.86E-08	0.00008	NA	NA	NA

Notes:

NA = Not Analyzed.
USCS = Unified Soil Classification System soil designation; Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detecte

(1) Sample Orientation: H = horizontal; V = vertical
(2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Water = 0.9986 g/cc; Hydrocarbon = 0.7500 g/cc
(4) Native State = As received with pore fluids in place
(5) Permeability to water and conductivity measured at saturated conditions

Table 21-2b
Summary of Physical Soil Properties - Landau Associates 2010
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

						Grain Size Parameters (1)				**Hydraulic Conductivity Estimates (ft/day)**			
Well	Sample Depth	Geologic Unit	Above/Below Silt Interbed	Soil Classification USCS	Estimated Hazen Coefficient C Value	D_{10}	D_{50}	D_{60}	CU [2]	Hazen [3]	Shepard [4,5]	Alyamini & Sen [6]	Average
EGW127	48	Esperance Sand	Above	ML		< 0.075	0.148	0.349	NC	NC	6	NC	6
EGW127	60	Esperance Sand	Above	SP-SM	60	0.096	0.317	0.347	4	15.7	18	9.1	14
EGW128	40	Esperance Sand	Above	SP-SM	80	0.07	0.791	1.477	21	11.1	70	36.3	39
EGW128	50	Esperance Sand	Above	SP-SM	80	0.156	0.757	1.238	8	55.2	66	1.8	41
EGW130	50	Esperance Sand	Above	SP-SM	80	0.071	0.867	1.621	23	11.4	81	49.8	47
EGW130	70	Esperance Sand	Above	SP-SM	80	0.159	0.958	1.658	10	57.3	94	1.8	51
EGW130	100	Esperance Sand	Above	SM	60	< 0.075	0.16	0.182	NC	NC	6	NC	6
EGW131	40	Esperance Sand	Above	SM	60	NA	0.808	1.683	NC	NC	73	NC	73
EGW131	50	Esperance Sand	Above	SP	80	0.083	0.358	0.421	5	15.6	21	1.9	13
EGW132	30	Esperance Sand	Above	SP-SM	80	0.06	0.754	1.459	24	8.2	65	39.4	38
EGW132	40	Esperance Sand	Above	SP-SM	80	0.044	0.577	0.804	18	4.4	44	24.6	24
EGW132	60	Esperance Sand	Above	SP-SM	100	0.05	0.301	0.338	7	7.1	17	0.2	8
EGW132	90	Esperance Sand	Below	SP-SM	80	0.093	0.273	0.302	3	19.6	14	11.8	15
EGW132	100	Esperance Sand	Below	SP	60	0.134	0.288	0.314	2	30.5	15	42.1	29
EGW136	15	Esperance Sand	Below	SM	60	< 0.075	0.125	0.147	NC	NC	4	NC	4
EGW171	147	Esperance Sand	Above	SP-SM	80	0.0735	0.192	0.214	3	12.3	8	9.4	10
EGW172	151	Esperance Sand	Above	SP-SM	80	<0.075	0.281	0.316	NC	NC	15	NC	15
EGW173	137	Esperance Sand	Above	SP-SM	80	0.0703	0.269	0.298	4	11.2	14	2.8	9
PMG-P3	7	Esperance Sand	Above	SP	100	0.157	0.293	0.76	5	69.9	NC	NC	70
PMG-P5	5	Esperance Sand	Above	SM	100	0.048	0.114	0.468	10	6.5	NC	NC	7
PMG-P7	5	Esperance Sand	Above	SP-SM	100	0.11	0.544	5.733	52	34.3	NC	NC	34.3
												Geometric Mean:	**21**
EGW136	8	Alluvium	Above	SP	80	0.256	1.363	2.667	10	148.6	750	NC	449
EGW143	5	Fill	Above	SM	80	< 0.075	0.421	0.666	NC	NC	108	NC	108

NC = Not calculated because D_{10} could not be satisfactorily determined or the method was not appropriate for this soil type.
GSAs were also collected at EGW171, EGW172, and EGW173; these values were not used in reporting.
Hydraulic properties were directly measured at EGW175 and EGW176; results are presented in the Landau Associates RI Addendum #8 Aquifer Test Data Report.

[1] Based on grain size data. For example, D_{10} equals the grain size that corresponds to a sieve size that passes 10 percent of a soil sample.

[2] CU = Coefficient of Uniformity = D

[3] Fetter, C.W. 1994. Applied Hydrogeology. 3rd Edition. Prentic-Hall, Inc., Englewood Cliffs, NJ. pp 98-102.

[4] Based on consolidated sediments/immature for all except EGW-136 (8) and EGW-143 (5) which were considered to be "Beach deposits". Site is overconsolidated so value might be an overestimate.

[5] Shepard, R.G. 1989. Correlations of Permeability and Grain Size, *Groundwater* , 27.5, 1989: 633-638.

[6] Alyamani, M.S. and Sen, Z. 1993. Determination of Hydraulic Conductivity from Complete Grain-Size Distribution Curves, *Groundwater,* 31.4: 551-555.

Table 21-3
Soil Total Organic Carbon Analytical Results
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Location	Geologic Unit	Sample Depth (feet bgs)	Lab ID	Date Collected	Total Organic Carbon (%) (Plumb, 1981)
EGW108		20	HX00D	3/28/2005	0.284
EGW108		30	HX00E	3/28/2005	0.048
EGW109		44	HX00F	3/28/2005	0.057
EGW110		31	HX00B	3/29/2005	0.100 J
EGW110		50	HX00C	3/29/2005	0.066
EGW127		48	IW69B	12/12/2005	0.031
EGW127		60	IW69C	12/12/2005	0.036
EGW128		40	IW80A	12/8/2005	0.106
EGW128		50	IW69A	12/8/2005	0.128
EGW130		50	IW69D	12/19/2005	0.089
EGW130		70	IW69E	12/19/2005	0.072
EGW130		100	IW69F	12/20/2005	0.091
EGW131		40	IW69G	12/16/2005	0.508
EGW131		50	IW69H	12/16/2005	0.041
EGW132	Esperance Sand	30	IW69I	12/13/2005	0.034
EGW132	Esperance Sand	40	IW69J	12/13/2005	0.164
EGW132	Esperance Sand	60	IW69K	12/13/2005	0.156
EGW132	Esperance Sand	90	IW69L	12/13/2005	0.079
EGW132	Esperance Sand	100	IW69M	12/14/2005	0.126
EGW136	Utility Line Backfill	8	JA43B	1/23/2006	0.194
EGW136	Esperance Sand	15	JA43C	1/23/2006	0.064
EGW143	Utility Line Backfill	5	JA43A	1/25/2006	3.84
EGW174	Esperance Sand	120-125	PR72A	10/6/2009	0.044
EGW174	Esperance Sand	135-140	PR72C	10/6/2009	0.056
EGW174	Esperance Sand [(a)]	145-147	PR72B	10/6/2009	1.92 [(a)]

Notes

(a) Twigs Observed in Sample Collected Immediately Above Lawton Clay

bgs - Below ground surface

J - Estimated value

Source: Plumb, R. II. Jr. 1981. Procedures for handling and chemical analyses of sediment and water samples. Tech. Rept. EPA ICE-81-1. Published by the U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Table 21-4
Pressure Head Differences (Selected Wells)
Powder Mill Gulch
Boeing Everett Remedial Investigation

Shallow Well (April 2010 GW elevation – in ft)	Deep Well (April 2010 GW elevation – in ft)	Difference in GW Elevation between Deep and Shallow (ft)
EGW105 (337.11)	EGW093 (333.65)	-3
EGW078, (325.20)	EGW091 (326.16)	+1
EGW132-port 4 (322.17)	EGW132-port 5 (326.76)	+5
EGW133-port 4 (321.60)	EGW133-port 5 (326.43)	+5
EGW090-port 2 (298.43)	EGW090-port 3 (281.74)	-17
EGW106 (292.83)	EGW107 (280.83)	-12
EGW094 (281.13)	EGW095 (275.67)	-5

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW075	5/14/2003	348.87	22.69	326.18
	7/23/2003	348.87	23.05	325.82
	11/3/2003	348.87	22.92	325.95
	1/20/2004	348.87	22.68	326.19
	4/13/2004	348.87	22.80	326.07
	7/20/2004	348.87	23.03	325.84
	10/11/2004	348.87	23.39	325.48
	1/7/2005	348.87	23.08	325.79
	4/4/2005	348.87	22.81	326.06
	7/15/2005	348.87	23.46	325.41
	10/6/2005	348.87	23.44	325.43
	1/3/2006	348.87	22.26	326.61
	1/9/2006	348.87	22.63	326.24
	4/4/2006	348.87	20.35	328.52
	7/12/2006	348.87	23.23	325.64
	10/3/2006	348.87	23.68	325.19
	10/23/2006	348.87	23.43	325.44
	1/17/2007	348.87	22.32	326.55
	4/5/2007	348.87	21.94	326.93
	4/26/2007	348.87	22.71	326.16
	6/19/2007	348.87	22.75	326.12
	10/30/2007	348.87	23.27	325.60
	10/30/2007	348.87	23.23	325.64
	1/8/2008	348.87	22.13	326.74
	3/10/2008	348.87	23.31	325.56
	10/1/2008	348.87	23.62	325.25
	4/10/2009	348.87	22.74	326.13
	10/26/2009	348.87	23.36	325.51
	4/12/2010	348.87	22.28	326.59
EGW076	12/3/2003	471.46	133.57	337.89
	1/20/2004	471.46	133.59	337.87
	4/13/2004	471.46	133.30	338.16
	7/20/2004	471.46	133.53	337.93
	10/11/2004	471.46	133.65	337.81
	1/6/2005	471.46	133.55	337.91
	4/4/2005	471.46	133.76	337.70
	7/12/05 - 7/13/05	471.46	133.80	337.66
	10/6/2005	471.46	133.77	337.69
	1/9/2006	471.46	133.74	337.72
	4/4/2006	471.46	133.55	337.91
	7/12/2006	471.46	133.55	337.91
	10/3/2006	471.46	133.78	337.68
	10/20/2006	471.46	133.92	337.54
	4/5/07 - 4/18/07	471.46	133.63	337.83
	4/26/2007	471.46	133.65	337.81
	6/19/2007	471.46	133.65	337.81
	10/29/2007	471.46	133.90	337.56
	10/30/2007	471.46	134.00	337.46
	3/10/2008	471.46	133.83	337.63
	10/1/2008	471.46	133.92	337.54
	4/10/2009	471.46	134.15	337.31

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	10/26/2009	471.46	134.20	337.26
	4/12/2010	471.46	133.75	337.71
EGW077	12/3/2003	378.93	43.10	335.83
	1/20/2004	378.93	43.13	335.80
	4/13/2004	378.93	42.87	336.06
	7/20/2004	378.93	43.15	335.78
	10/11/2004	378.93	43.29	335.64
	1/7/2005	378.93	43.03	335.90
	4/4/2005	378.93	43.34	335.59
	7/12/05 - 7/13/05	378.93	43.37	335.56
	10/6/2005	378.93	43.42	335.51
	1/9/2006	378.93	43.26	335.67
	4/4/2006	378.93	42.95	335.98
	7/12/2006	378.93	43.17	335.76
	10/3/2006	378.93	45.49	333.44
	4/5/07 - 4/18/07	378.93	43.18	335.75
	4/26/2007	378.93	43.27	335.66
	6/19/2007	378.93	47.20	331.73
	10/29/07 - 11/8/07	378.93	43.55	335.38
	10/30/2007	378.93	43.74	335.19
	3/10/2008	378.93	43.50	335.43
	10/1/2008	378.93	43.66	335.27
	4/10/2009	378.93	43.63	335.30
	10/26/2009	378.93	43.51	335.42
	4/12/2010	378.93	43.16	335.77
EGW078	12/3/2003	378.66	53.15	325.51
	1/20/2004	378.66	53.40	325.26
	4/12/2004	378.66	53.21	325.45
	7/20/2004	378.66	53.66	325.00
	10/12/2004	378.66	53.90	324.76
	1/6/2005	378.66	53.73	324.93
	4/6/2005	378.66	53.80	324.86
	7/15/2005	378.66	53.94	324.72
	10/6/2005	378.66	53.92	324.74
	1/3/2006	378.66	53.50	325.16
	1/9/2006	378.66	53.52	325.14
	4/4/2006	378.66	53.33	325.33
	7/12/2006	378.66	53.77	324.89
	10/3/2006	378.66	53.98	324.68
	11/14/2006	378.66	54.80	323.86
	1/17/2007	378.66	53.24	325.42
	3/15/2007	378.66	53.10	325.56
	4/5/2007	378.66	52.85	325.81
	4/26/2007	378.66	53.17	325.49
	6/19/2007	378.66	52.98	325.68
	10/30/2007	378.66	53.53	325.13
	10/30/2007	378.66	53.45	325.21
	1/7/2008	378.66	53.28	325.38
	3/10/2008	378.66	53.52	325.14
	10/1/2008	378.66	53.91	324.75

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	4/10/2009	378.66	53.91	324.75
	10/26/2009	378.66	53.38	325.28
	4/12/2010	378.66	53.46	325.20
EGW079	12/2/2003	343.05	31.72	311.33
	1/20/2004	343.05	31.65	311.40
	4/13/2004	343.05	31.55	311.50
	7/21/2004	343.05	31.81	311.24
	10/14/2004	343.05	31.85	311.20
	1/10/2005	343.05	31.65	311.40
	4/8/2005	343.05	31.42	311.63
	7/14/2005	343.05	31.68	311.37
	10/6/2005	343.05	31.75	311.30
	1/3/2006	343.05	31.10	311.95
	1/9/2006	343.05	31.11	311.94
	4/4/2006	343.05	31.12	311.93
	7/12/2006	343.05	31.60	311.45
	10/3/2006	343.05	31.75	311.30
	10/26/2006	343.05	31.70	311.35
	1/15/2007	343.05	31.07	311.98
	4/11/2007	343.05	31.00	312.05
	4/26/2007	343.05	31.12	311.93
	6/19/2007	343.05	31.15	311.90
	10/30/2007	343.05	31.47	311.58
	11/1/2007	343.05	31.42	311.63
	1/9/2008	343.05	31.12	311.93
	3/10/2008	343.05	31.21	311.84
	10/1/2008	343.05	31.20	311.85
	4/10/2009	343.05	30.97	312.08
	10/26/2009	343.05	30.70	312.35
	4/12/2010	343.05	30.35	312.70
EGW080	12/2/2003	331.47	32.04	299.43
	1/20/2004	331.47	31.90	299.57
	4/13/2004	331.47	31.90	299.57
	7/21/2004	331.47	32.15	299.32
	10/14/2004	331.47	32.21	299.26
	1/10/2005	331.47	31.95	299.52
	4/8/2005	331.47	31.85	299.62
	7/14/2005	331.47	32.16	299.31
	10/6/2005	331.47	32.36	299.11
	1/3/2006	331.47	31.77	299.70
	1/9/2006	331.47	31.78	299.69
	4/4/2006	331.47	31.78	299.69
	7/12/2006	331.47	32.15	299.32
	10/3/2006	331.47	32.31	299.16
	10/24/2006	331.47	32.33	299.14
	4/5/2007	331.47	31.75	299.72
	4/26/2007	331.47	31.84	299.63
	6/19/2007	331.47	31.45	300.02
	10/30/2007	331.47	32.20	299.27
	11/1/2007	331.47	32.17	299.30

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	1/9/2008	331.47	31.75	299.72
	3/10/2008	331.47	31.89	299.58
	10/1/2008	331.47	32.17	299.30
	4/10/2009	331.47	31.86	299.61
	10/26/2009	331.47	32.07	299.40
	4/12/2010	331.47	31.65	299.82
EGW081	12/2/2003	360.82	35.25	325.57
	1/20/2004	360.82	35.77	325.05
	4/13/2004	360.82	36.27	324.55
	7/21/2004	360.82	36.00	324.82
	10/14/2004	360.82	37.41	323.41
	1/7/2005	360.82	37.01	323.81
	4/7/2005	360.82	37.03	323.79
	7/12/05 - 7/13/05	360.82	37.34	323.48
	10/6/2005	360.82	37.31	323.51
	1/9/2006	360.82	36.50	324.32
	4/4/2006	360.82	35.15	325.67
	7/12/2006	360.82	34.94	325.88
	10/3/2006	360.82	34.91	325.91
	4/5/07 - 4/18/07	360.82	33.63	327.19
	4/26/2007	360.82	33.97	326.85
	6/19/2007	360.82	32.64	328.18
	10/29/07 - 11/8/07	360.82	33.25	327.57
	10/30/2007	360.82	33.07	327.75
	3/10/2008	360.82	31.50	329.32
	10/1/2008	360.82	33.46	327.36
	4/10/2009	360.82	33.48	327.34
	10/26/2009	360.82	33.80	327.02
	4/12/2010	360.82	33.00	327.82
EGW082	12/2/2003	357.11	37.28	319.83
	1/20/2004	357.11	29.51	327.60
	4/13/2004	357.11	29.52	327.59
	7/20/2004	357.11	29.90	327.21
	10/11/2004	357.11	30.34	326.77
	1/7/2005	357.11	29.89	327.22
	4/4/2005	357.11	29.84	327.27
	7/12/05 - 7/13/05	357.11	30.18	326.93
	10/6/2005	357.11	30.03	327.08
	1/9/2006	357.11	29.30	327.81
	4/4/2006	357.11	29.20	327.91
	7/12/2006	357.11	29.95	327.16
	10/3/2006	357.11	30.20	326.91
	4/5/07 - 4/18/07	357.11	29.61	327.50
	4/26/2007	357.11	29.70	327.41
	6/19/2007	357.11	29.71	327.40
	10/29/07 - 11/8/07	357.11	30.14	326.97
	10/30/2007	357.11	30.10	327.01
	3/10/2008	357.11	30.18	326.93
	10/1/2008	357.11	30.31	326.80
	4/10/2009	357.11	30.08	327.03

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	10/26/2009	357.11	28.28	328.83
	4/12/2010	357.11	29.09	328.02
EGW083	12/2/2003	333.52	12.56	320.96
	1/20/2004	333.52	11.97	321.55
	4/12/2004	333.52	12.26	321.26
	7/21/2004	333.52	13.20	320.32
	7/12/05 - 7/13/05	333.52	13.28	320.24
	10/6/2005	333.52	13.50	320.02
	1/9/2006	333.52	11.64	321.88
	4/4/2006	333.52	12.15	321.37
	7/12/2006	333.52	13.15	320.37
	10/3/2006	333.52	13.40	320.12
	4/5/07 - 4/18/07	333.52	12.26	321.26
	4/26/2007	333.52	12.43	321.09
	6/19/2007	333.52	12.94	320.58
	10/30/2007	333.52	13.18	320.34
	3/10/2008	333.52	12.80	320.72
	10/1/2008	333.52	13.47	320.05
	4/10/2009	333.52	12.20	321.32
	10/26/2009	333.52	12.92	320.60
	4/12/2010	333.52	12.34	321.18
EGW084	12/2/2003	335.92	13.84	322.08
	1/20/2004	335.92	13.86	322.06
	4/13/2004	335.92	13.81	322.11
	7/21/2004	335.92	14.20	321.72
	10/13/2004	335.92	14.48	321.44
	1/19/2005	335.92	14.18	321.74
	4/8/2005	335.92	14.17	321.75
	7/15/2005	335.92	14.48	321.44
	10/6/2005	335.92	14.49	321.43
	1/3/2006	335.92	13.85	322.07
	1/9/2006	335.92	13.85	322.07
	4/4/2006	335.92	13.72	322.20
	7/12/2006	335.92	14.31	321.61
	10/3/2006	335.92	14.53	321.39
	10/24/2006	335.92	14.42	321.50
	4/5/07 - 4/18/07	335.92	13.89	322.03
	4/26/2007	335.92	13.92	322.00
	6/19/2007	335.92	14.13	321.79
	10/30/2007	335.92	14.37	321.55
	11/2/2007	335.92	14.43	321.49
	3/10/2008	335.92	14.40	321.52
	10/1/2008	335.92	14.65	321.27
	4/10/2009	335.92	14.22	321.70
	10/26/2009	335.92	13.68	322.24
	4/12/2010	335.92	14.14	321.78
	4/13/2004	323.11	25.05	298.06
	7/21/2004	323.11	25.34	297.77
	10/14/2004	323.11	25.37	297.74
	1/10/2005	323.11	25.09	298.02

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW085	4/8/2005	323.11	24.97	298.14
	7/14/2005	323.11	25.35	297.76
	10/6/2005	323.11	25.58	297.53
	1/3/2006	323.11	24.95	298.16
	1/9/2006	323.11	24.95	298.16
	4/4/2006	323.11	24.95	298.16
	7/12/2006	323.11	25.39	297.72
	10/3/2006	323.11	25.60	297.51
	10/24/2006	323.11	25.61	297.50
	4/11/2007	323.11	24.97	298.14
	4/26/2007	323.11	25.03	298.08
	6/19/2007	323.11	25.20	297.91
	10/30/2007	323.11	25.44	297.67
	11/1/2007	323.11	25.41	297.70
	3/10/2008	323.11	25.11	298.00
	10/1/2008	323.11	25.46	297.65
	4/10/2009	323.11	25.14	297.97
	10/26/2009	323.11	25.54	297.57
	4/12/2010	323.11	25.14	297.97
EGW086	4/13/2004	331.12	32.67	298.45
	7/21/2004	331.12	32.98	298.14
	10/14/2004	331.12	33.01	298.11
	1/10/2005	331.12	32.72	298.40
	4/8/2005	331.12	32.55	298.57
	7/14/2005	331.12	32.96	298.16
	10/6/2005	331.12	33.18	297.94
	1/3/2006	331.12	32.51	298.61
	1/9/2006	331.12	32.53	298.59
	4/4/2006	331.12	32.59	298.53
	7/12/2006	331.12	33.70	297.42
	10/3/2006	331.12	33.21	297.91
	10/27/2006	331.12	33.20	297.92
	4/11/2007	331.12	32.58	298.54
	4/26/2007	331.12	32.66	298.46
	6/19/2007	331.12	32.80	298.32
	10/30/2007	331.12	33.05	298.07
	11/1/2007	331.12	33.02	298.10
	3/10/2008	331.12	32.72	298.40
	10/1/2008	331.12	33.03	298.09
	4/10/2009	331.12	32.73	298.39
	10/26/2009	331.12	32.93	298.19
	4/12/2010	331.12	32.65	298.47
	4/13/2004	351.57	29.85	321.72
	7/21/2004	351.57	30.07	321.50
	10/22/2004	352.77	31.25	321.52
	1/7/2005	352.77	30.98	321.79
	4/7/2005	352.77	30.98	321.79
	7/14/2005	352.77	31.17	321.60
	10/6/2005	352.77	31.14	321.63
	1/3/2006	352.77	30.61	322.16

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW087 (1)	1/9/2006	352.77	30.62	322.15
	4/4/2006	352.77	30.55	322.22
	7/12/2006	352.77	31.05	321.72
	10/3/2006	352.77	31.23	321.54
	10/26/2006	352.77	31.15	321.62
	1/15/2007	352.77	30.68	322.09
	4/11/2007	352.77	30.70	322.07
	4/26/2007	352.77	30.81	321.96
	6/19/2007	352.77	30.89	321.88
	10/30/2007	352.77	31.22	321.55
	11/1/2007	352.77	31.18	321.59
	1/9/2008	352.77	30.92	321.85
	3/10/2008	352.77	31.15	321.62
	10/1/2008	352.77	31.23	321.54
	4/10/2009	352.77	31.04	321.73
	10/26/2009	352.77	29.92	322.85
	4/12/2010	352.77	30.14	322.63
EGW088	4/12/2004	378.32	52.99	325.33
	7/20/2004	378.32	53.28	325.04
	10/12/2004	378.32	53.52	324.80
	1/6/2005	378.32	53.36	324.96
	4/6/2005	378.32	53.42	324.90
	7/15/2005	378.32	53.59	324.73
	10/6/2005	378.32	53.55	324.77
	1/3/2006	378.32	53.14	325.18
	1/9/2006	378.32	53.18	325.14
	4/4/2006	378.32	52.96	325.36
	7/12/2006	378.32	53.40	324.92
	10/3/2006	378.32	53.61	324.71
	11/14/2006	378.32	53.48	324.84
	1/17/2007	378.32	52.94	325.38
	3/15/2007	378.32	52.75	325.57
	4/16/2007	378.32	52.66	325.66
	4/26/2007	378.32	52.80	325.52
	6/19/2007	378.32	52.73	325.59
	10/30/2007	378.32	63.15	315.17
	1/7/2008	378.32	53.04	325.28
	3/10/2008	378.32	53.21	325.11
	10/1/2008	378.32	53.53	324.79
	4/10/2009	378.32	53.50	324.82
	10/26/2009	378.32	53.00	325.32
	4/12/2010	378.32	53.10	325.22
	4/12/2004	521.11	182.24	338.87
	7/20/2004	521.11	182.45	338.66
	10/11/2004	521.11	182.56	338.55
	1/5/2005	521.11	182.63	338.48
	4/6/2005	521.11	182.50	338.61
	7/12/05 - 7/13/05	521.11	182.71	338.40
	10/6/2005	521.11	182.64	338.47
	1/9/2006	521.11	182.55	338.56

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW089	4/4/2006	521.11	182.42	338.69
	7/12/2006	521.11	182.41	338.70
	10/3/2006	521.11	182.62	338.49
	10/20/2006	521.11	182.85	338.26
	4/5/07 - 4/18/07	521.11	182.52	338.59
	4/26/2007	521.11	182.55	338.56
	6/19/2007	521.11	182.52	338.59
	10/29/2007	521.11	182.76	338.35
	10/30/2007	521.11	182.96	338.15
	3/10/2008	521.11	182.70	338.41
	10/1/2008	521.11	182.78	338.33
	4/10/2009	521.11	183.01	338.10
	4/12/2010	521.11	182.71	338.40
EGW090-1 (40')	7/26/2004	331.90	32.34	299.56
	10/13/2004	331.90	32.35	299.55
	1/11/2005	331.90	32.17	299.73
	4/9/2005	331.90	32.04	299.86
	7/18/2005	331.90	32.31	299.59
	10/6/2005	331.90	32.43	299.47
	1/3/2006	331.90	31.92	299.98
	1/9/2006	331.90	29.38	302.52
	4/4/2006	331.90	31.99	299.91
	7/12/2006	331.90	32.29	299.61
	10/3/2006	331.90	32.49	299.41
	10/25/2006	331.90	32.46	299.44
	4/5/07 - 4/18/07	331.90	31.92	299.98
	4/26/2007	331.90	32.03	299.87
	6/19/2007	331.90	32.17	299.73
	10/29/07 - 11/8/07	331.90	32.33	299.57
	10/30/2007	331.90	32.30	299.60
	3/10/2008	331.90	32.11	299.79
	10/1/2008	331.90	32.34	299.56
	4/10/2009	331.90	31.95	299.95
	10/26/2009	331.90	32.45	299.45
	4/12/2010	331.90	33.34	298.56
EGW090-2 (60')	7/26/2004	331.90	33.54	298.36
	10/13/2004	331.90	33.56	298.34
	1/11/2005	331.90	33.28	298.62
	4/9/2005	331.90	33.14	298.76
	7/18/2005	331.90	33.52	298.38
	10/6/2005	331.90	33.69	298.21
	1/3/2006	331.90	33.05	298.85
	1/9/2006	331.90	30.52	301.38
	4/4/2006	331.90	33.16	298.74
	7/12/2006	331.90	33.55	298.35
	10/3/2006	331.90	33.81	298.09
	10/27/2006	331.90	33.72	298.18
	4/11/2007	331.90	33.11	298.79
	4/26/2007	331.90	33.24	298.66
	6/19/2007	331.90	33.42	298.48

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	10/30/2007	331.90	33.55	298.35
	11/1/2007	331.90	25.41	306.49
	3/10/2008	331.90	33.30	298.60
	10/1/2008	331.90	33.61	298.29
	4/10/2009	331.90	33.19	298.71
	10/26/2009	331.90	33.74	298.16
	4/12/2010	331.90	33.47	298.43
EGW090-3 (75')	7/26/2004	331.90	49.80	282.10
	10/13/2004	331.90	49.83	282.07
	1/11/2005	331.90	49.80	282.10
	4/9/2005	331.90	49.80	282.10
	7/18/2005	331.90	49.91	281.99
	10/6/2005	331.90	49.87	282.03
	1/3/2006	331.90	49.78	282.12
	1/9/2006	331.90	47.25	284.65
	4/4/2006	331.90	49.79	282.11
	7/12/2006	331.90	49.88	282.02
	10/25/2006	331.90	49.93	281.97
	4/11/2007	331.90	49.66	282.24
	4/26/2007	331.90	49.73	282.17
	6/19/2007	331.90	49.82	282.08
	10/30/2007	331.90	49.95	281.95
	11/1/2007	331.90	49.94	281.96
	3/10/2008	331.90	49.90	282.00
	10/1/2008	331.90	49.89	282.01
	4/10/2009	331.90	49.88	282.02
	10/26/2009	331.90	50.13	281.77
	4/12/2010	331.90	50.16	281.74
EGW090-4 (90')	7/26/2004	331.90	49.79	282.11
	10/13/2004	331.90	49.83	282.07
	1/11/2005	331.90	49.80	282.10
	4/9/2005	331.90	49.79	282.11
	7/18/2005	331.90	49.92	281.98
	10/6/2005	331.90	49.87	282.03
	1/3/2006	331.90	49.77	282.13
	1/9/2006	331.90	47.25	284.65
	4/4/2006	331.90	49.78	282.12
	7/12/2006	331.90	49.88	282.02
	10/3/2006	331.90	49.83	282.07
	10/25/2006	331.90	49.94	281.96
	4/11/2007	331.90	49.64	282.26
	4/26/2007	331.90	49.73	282.17
	6/19/2007	331.90	49.79	282.11
	10/30/2007	331.90	49.95	281.95
	11/1/2007	331.90	49.94	281.96
	3/10/2008	331.90	N/A	N/A
	10/1/2008	331.90	49.89	282.01
	4/10/2009	331.90	49.90	282.00
	10/26/2009	331.90	50.14	281.76
	4/12/2010	331.90	50.17	281.73

Table 21-5
Groundwater Level Elevations
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW090-5 (100')	7/26/2004	331.90	49.81	282.09
	10/13/2004	331.90	49.85	282.05
	1/11/2005	331.90	49.88	282.02
	4/9/2005	331.90	49.81	282.09
	7/18/2005	331.90	49.92	281.98
	10/6/2005	331.90	49.88	282.02
	1/3/2006	331.90	49.79	282.11
	1/9/2006	331.90	47.25	284.65
	4/4/2006	331.90	49.79	282.11
	7/12/2006	331.90	49.88	282.02
	10/25/2006	331.90	49.94	281.96
	4/11/2007	331.90	49.67	282.23
	4/26/2007	331.90	49.78	282.12
	6/19/2007	331.90	49.83	282.07
	10/30/2007	331.90	49.98	281.92
	11/1/2007	331.90	49.94	281.96
	3/10/2008	331.90	49.99	281.91
	10/1/2008	331.90	49.89	282.01
	4/10/2009	331.90	49.92	281.98
	10/26/2009	331.90	50.16	281.74
	4/12/2010	331.90	50.16	281.74
EGW091	7/22/2004	377.98	51.78	326.20
	10/12/2004	377.98	51.96	326.02
	1/6/2005	377.98	51.71	326.27
	4/6/2005	377.98	51.92	326.06
	7/15/2005	377.98	52.00	325.98
	10/6/2005	377.98	52.02	325.96
	1/3/2006	377.98	51.70	326.28
	1/9/2006	377.98	52.05	325.93
	4/4/2006	377.98	51.86	326.12
	7/12/2006	377.98	51.92	326.06
	10/3/2006	377.98	52.14	325.84
	10/23/2006	377.98	52.11	325.87
	4/17/2007	377.98	51.71	326.27
	4/26/2007	377.98	51.74	326.24
	6/19/2007	377.98	52.50	325.48
	10/30/2007	377.98	51.78	326.20
	10/30/2007	377.98	51.72	326.26
	1/7/08 - 1/14/08	377.98	51.56	326.42
	3/10/2008	377.98	51.55	326.43
	10/1/2008	377.98	51.80	326.18
	4/10/2009	377.98	51.96	326.02
	10/26/2009	377.98	52.71	325.27
	4/12/2010	377.98	51.82	326.16
	7/22/2004	377.40	40.12	337.28
	10/12/2004	377.40	40.32	337.08
	1/6/2005	376.36	39.18	337.18
	4/6/2005	376.36	39.30	337.06
	7/12/05 - 7/13/05	376.36	39.35	337.01
	10/6/2005	376.36	39.40	336.96

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW092 (2)	1/9/2006	376.36	39.35	337.01
	4/4/2006	376.36	39.10	337.26
	7/12/2006	376.36	39.19	337.17
	10/3/2006	376.36	39.48	336.88
	10/23/2006	376.36	39.53	336.83
	4/17/2007	376.36	39.24	337.12
	4/26/2007	376.36	39.25	337.11
	6/19/2007	376.36	39.30	337.06
	10/29/2007	376.36	39.56	336.80
	10/30/2007	376.36	39.69	336.67
	3/1/2008	376.36	39.49	336.87
	10/1/2008	376.36	39.71	336.65
	4/10/2009	376.36	39.64	336.72
	10/26/2009	376.36	39.70	336.66
	4/12/2010	376.36	39.23	337.13
EGW093 (2)	7/22/2004	377.39	43.55	333.84
	10/12/2004	377.39	43.77	333.62
	1/6/2005	375.42	41.53	333.89
	4/6/2005	375.42	41.73	333.69
	7/12/05 - 7/13/05	375.42	41.79	333.63
	10/6/2005	375.42	41.80	333.62
	1/9/2006	375.42	41.79	333.63
	4/4/2006	375.42	41.70	333.72
	7/12/2006	375.42	41.65	333.77
	10/3/2006	375.42	41.94	333.48
	10/23/2006	375.42	41.93	333.49
	4/17/2007	375.42	41.98	333.44
	4/26/2007	375.42	41.83	333.59
	6/19/2007	375.42	41.75	333.67
	10/29/2007	375.42	41.89	333.53
	10/30/2007	375.42	42.08	333.34
	3/10/2008	375.42	41.80	333.62
	10/1/2008	375.42	41.92	333.50
	4/10/2009	375.42	41.99	333.43
	10/26/2009	375.42	41.90	333.52
	4/12/2010	375.42	41.77	333.65
EGW094	7/22/2004	287.33	6.70	280.63
	10/15/2004	287.33	6.58	280.75
	1/10/2005	287.33	6.37	280.96
	4/5/2005	287.33	6.27	281.06
	7/13/2005	287.33	6.53	280.80
	10/6/2005	287.33	6.53	280.80
	1/3/2006	287.33	6.07	281.26
	1/9/2006	287.33	6.23	281.10
	4/4/2006	287.33	6.32	281.01
	7/12/2006	287.33	6.60	280.73
	10/3/2006	287.33	6.61	280.72
	10/26/2006	287.33	6.55	280.78
	4/5/07 - 4/18/07	287.33	6.33	281.00
	4/26/2007	287.33	6.39	280.94

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	6/19/2007	287.33	6.53	280.80
	10/30/2007	287.33	6.47	280.86
	11/5/2007	287.33	6.55	280.78
	3/10/2008	287.33	6.42	280.91
	8/27/2008	287.33	6.50	280.83
	10/1/2008	287.33	6.64	280.69
	4/10/2009	287.33	6.46	280.87
	10/26/2009	287.33	6.24	281.09
	4/12/2010	287.33	6.20	281.13
EGW095	7/22/2004	287.59	11.81	275.78
	10/15/2004	287.59	11.81	275.78
	1/10/2005	287.59	11.78	275.81
	4/5/2005	287.59	11.75	275.84
	7/13/2005	287.59	11.89	275.70
	10/6/2005	287.59	11.91	275.68
	1/3/2006	287.59	11.71	275.88
	1/9/2006	287.59	11.80	275.79
	4/4/2006	287.59	11.78	275.81
	7/12/2006	287.59	11.91	275.68
	10/3/2006	287.59	11.94	275.65
	10/26/2006	287.59	12.00	275.59
	4/5/07 - 4/18/07	287.59	11.77	275.82
	4/26/2007	287.59	11.74	275.85
	6/19/2007	287.59	11.80	275.79
	10/30/2007	287.59	11.84	275.75
	11/5/2007	287.59	11.87	275.72
	3/10/2008	287.59	11.91	275.68
	8/27/2008	287.59	11.98	275.61
	10/1/2008	287.59	12.01	275.58
	4/10/2009	287.59	11.94	275.65
	10/26/2009	287.59	11.83	275.76
	4/12/2010	287.59	11.92	275.67
EGW096	7/23/2004	323.31	29.78	293.53
	10/15/2004	323.31	29.79	293.52
	1/10/2005	323.31	29.43	293.88
	4/7/2005	323.31	29.47	293.84
	7/14/2005	323.31	29.74	293.57
	10/6/2005	323.31	29.99	293.32
	1/3/2006	323.31	29.37	293.94
	1/9/2006	323.31	29.36	293.95
	4/4/2006	323.31	29.45	293.86
	7/12/2006	323.31	29.81	293.50
	10/3/2006	323.31	30.08	293.23
	4/5/07 - 4/18/07	323.31	29.38	293.93
	4/26/2007	323.31	29.45	293.86
	7/23/2004	323.78	41.84	281.94
	10/15/2004	323.78	41.90	281.88
	1/10/2005	323.78	41.83	281.95
	4/7/2005	323.78	41.78	282.00
	7/14/2005	323.78	41.98	281.80

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW097	10/6/2005	323.78	42.02	281.76
	1/3/2006	323.78	41.81	281.97
	1/9/2006	323.78	41.92	281.86
	4/4/2006	323.78	41.88	281.90
	7/12/2006	323.78	41.48	282.30
	10/3/2006	323.78	42.05	281.73
	4/5/07 - 4/18/07	323.78	41.86	281.92
	4/26/2007	323.78	41.81	281.97
EGW098	10/22/2004	288.38	12.53	275.85
	1/10/2005	288.38	12.49	275.89
	4/5/2005	288.38	12.47	275.91
	7/13/2005	288.38	12.61	275.77
	10/6/2005	288.38	12.65	275.73
	1/3/2006	288.38	12.42	275.96
	1/9/2006	288.38	12.53	275.85
	4/4/2006	288.38	12.51	275.87
	7/12/2006	288.38	12.63	275.75
	10/3/2006	288.38	12.65	275.73
	10/26/2006	288.38	12.71	275.67
	4/5/07 - 4/18/07	288.38	12.48	275.90
	4/26/2007	288.38	12.46	275.92
	6/19/2007	288.38	12.51	275.87
	10/30/2007	288.38	12.68	275.70
	11/5/2007	288.38	12.59	275.79
	3/10/2008	288.38	12.60	275.78
	8/27/2008	288.38	12.61	275.77
	10/1/2008	288.38	12.80	275.58
	4/10/2009	288.38	12.63	275.75
	10/26/2009	288.38	12.63	275.75
	4/12/2010	288.38	12.61	275.77
EGW099	10/22/2004	351.74	29.84	321.90
	1/7/2005	351.74	29.63	322.11
	4/7/2005	351.74	29.75	321.99
	7/14/2005	351.74	29.85	321.89
	10/6/2005	351.74	29.81	321.93
	1/3/2006	351.74	29.32	322.42
	1/9/2006	351.74	29.30	322.44
	4/4/2006	351.74	29.19	322.55
	7/12/2006	351.74	29.67	322.07
	10/3/2006	351.74	29.87	321.87
	10/26/2006	351.74	29.77	321.97
	1/15/2007	351.74	29.34	322.40
	4/11/2007	351.74	29.46	322.28
	4/26/2007	351.74	29.49	322.25
	6/19/2007	351.74	29.49	322.25
	10/30/2007	351.74	29.81	321.93
	11/1/2007	351.74	29.83	321.91
	1/9/2008	351.74	29.60	322.14
	3/10/2008	351.74	29.84	321.90
	10/1/2008	351.74	30.00	321.74

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	4/10/2009	351.74	29.81	321.93
	10/26/2009	351.74	28.89	322.85
	4/12/2010	351.74	28.68	323.06
EGW100	10/20/2004	378.28	53.48	324.80
	1/7/2005	378.28	53.30	324.98
	4/6/2005	378.28	53.38	324.90
	7/15/2005	378.28	53.53	324.75
	10/6/2005	378.28	53.54	324.74
	1/3/2006	378.28	53.08	325.20
	1/9/2006	378.28	53.12	325.16
	4/4/2006	378.28	52.90	325.38
	7/12/2006	378.28	53.35	324.93
	10/3/2006	378.28	53.55	324.73
	11/14/2006	378.28	53.43	324.85
	1/17/2007	378.28	52.92	325.36
	3/15/2007	378.28	52.69	325.59
	4/17/2007	378.28	52.60	325.68
	4/26/2007	378.28	52.71	325.57
	6/19/2007	378.28	52.70	325.58
	10/30/2007	378.28	53.10	325.18
	1/7/2008	378.28	52.97	325.31
	3/10/2008	378.28	53.15	325.13
	10/1/2008	378.28	53.45	324.83
	4/10/2009	378.28	53.39	324.89
	10/26/2009	378.28	52.91	325.37
	4/12/2010	378.28	52.48	325.80
EGW101	10/20/2004	374.07	37.07	337.00
	1/7/2005	374.07	36.98	337.09
	4/6/2005	374.07	37.09	336.98
	7/12/05 - 7/13/05	374.07	37.15	336.92
	10/6/2005	374.07	37.21	336.86
	1/9/2006	374.07	37.15	336.92
	4/4/2006	374.07	36.92	337.15
	7/12/2006	374.07	36.99	337.08
	10/3/2006	374.07	37.25	336.82
	10/23/2006	374.07	37.35	336.72
	4/17/2007	374.07	37.04	337.03
	4/26/2007	374.07	37.03	337.04
	6/19/2007	374.07	37.10	336.97
	10/29/2007	374.07	37.37	336.70
	10/30/2007	374.07	37.49	336.58
	3/10/2008	374.07	37.28	336.79
	10/1/2008	374.07	37.43	336.64
	4/10/2009	374.07	37.48	336.59
	10/26/2009	374.07	37.44	336.63
	4/12/2010	374.07	37.00	337.07
	10/21/2004	382.77	46.18	336.59
	1/6/2005	382.77	46.12	336.65
	4/7/2005	382.77	46.09	336.68
	7/12/05 - 7/13/05	382.77	46.28	336.49

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW102	10/6/2005	382.77	46.32	336.45
	1/9/2006	382.77	46.22	336.55
	4/4/2006	382.77	46.00	336.77
	7/12/2006	382.77	46.08	336.69
	10/3/2006	382.77	46.40	336.37
	10/23/2006	382.77	46.40	336.37
	4/18/2007	382.77	46.13	336.64
	4/26/2007	382.77	46.15	336.62
	6/19/2007	382.77	46.22	336.55
	10/29/2007	382.77	46.50	336.27
	10/30/2007	382.77	46.58	336.19
	3/10/2008	382.77	46.39	336.38
	10/1/2008	382.77	46.68	336.09
	4/10/2009	382.77	46.67	336.10
	10/26/2009	382.77	46.64	336.13
	4/12/2010	382.77	46.14	336.63
EGW103	10/21/2004	383.34	46.77	336.57
	1/6/2005	383.34	46.70	336.64
	4/7/2005	383.34	46.67	336.67
	7/12/05 - 7/13/05	383.34	46.85	336.49
	10/6/2005	383.34	46.91	336.43
	1/9/2006	383.34	46.80	336.54
	4/4/2006	383.34	46.57	336.77
	7/12/2006	383.34	46.66	336.68
	10/3/2006	383.34	46.93	336.41
	10/23/2006	383.34	46.99	336.35
	4/18/2007	383.34	46.63	336.71
	4/26/2007	383.34	46.73	336.61
	6/19/2007	383.34	47.59	335.75
	10/29/2007	383.34	47.07	336.27
	10/30/2007	383.34	47.12	336.22
	3/10/2008	383.34	46.98	336.36
	10/1/2008	383.34	47.08	336.26
	4/10/2009	383.34	47.21	336.13
	10/26/2009	383.34	47.11	336.23
	4/12/2010	383.34	46.74	336.60
EGW104	10/21/2004	383.85	47.30	336.55
	1/7/2005	383.85	47.22	336.63
	4/7/2005	383.85	47.20	336.65
	7/12/05 - 7/13/05	383.85	47.38	336.47
	10/6/2005	383.85	47.48	336.37
	1/9/2006	383.85	47.34	336.51
	4/4/2006	383.85	47.11	336.74
	7/12/2006	383.85	47.21	336.64
	10/3/2006	383.85	47.50	336.35
	10/23/2006	383.85	47.54	336.31
	4/18/2007	383.85	47.27	336.58
	4/26/2007	383.85	47.27	336.58
	6/19/2007	383.85	47.35	336.50
	10/29/2007	383.85	47.58	336.27

Table 21-5
Groundwater Level Elevations
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	10/30/2007	383.85	47.70	336.15
	3/10/2008	383.85	47.50	336.35
	10/1/2008	383.85	47.63	336.22
	4/10/2009	383.85	47.70	336.15
	10/26/2009	383.85	47.60	336.25
	4/12/2010	383.85	47.20	336.65
EGW105	10/20/2004	373.85	36.73	337.12
	1/6/2005	373.85	36.70	337.15
	4/6/2005	373.85	36.80	337.05
	7/12/05 - 7/13/05	373.85	36.83	337.02
	10/6/2005	373.85	36.92	336.93
	1/9/2006	373.85	36.85	337.00
	4/4/2006	373.85	36.58	337.27
	7/12/2006	373.85	36.68	337.17
	10/3/2006	373.85	36.95	336.90
	10/23/2006	373.85	37.04	336.81
	4/17/2007	373.85	36.74	337.11
	4/26/2007	373.85	36.78	337.07
	6/19/2007	373.85	36.79	337.06
	10/29/2007	373.85	37.07	336.78
	10/30/2007	373.85	37.20	336.65
	3/10/2008	373.85	36.98	336.87
	10/1/2008	373.85	37.22	336.63
	4/10/2009	373.85	37.16	336.69
	10/26/2009	373.85	37.19	336.66
	4/12/2010	373.85	36.74	337.11
EGW106	12/20/2004	300.93	8.01	292.92
	1/10/2005	300.93	8.04	292.89
	4/5/2005	300.93	7.88	293.05
	7/13/2005	300.93	8.26	292.67
	10/6/2005	300.93	8.44	292.49
	1/3/2006	300.93	7.72	293.21
	1/9/2006	300.93	7.87	293.06
	4/4/2006	300.93	8.06	292.87
	7/12/2006	300.93	8.35	292.58
	10/3/2006	300.93	8.47	292.46
	10/26/2006	300.93	8.45	292.48
	1/9/2007	300.93	7.85	293.08
	4/10/2007	300.93	8.00	292.93
	4/26/2007	300.93	8.10	292.83
	6/19/2007	300.93	8.18	292.75
	10/30/2007	300.93	8.24	292.69
	11/5/2007	300.93	8.27	292.66
	1/10/2008	300.93	7.97	292.96
	3/10/2008	300.93	8.19	292.74
	8/27/2008	300.93	8.32	292.61
	10/1/2008	300.93	8.47	292.46
	4/10/2009	300.93	8.22	292.71
	10/26/2009	300.93	8.34	292.59
	4/12/2010	300.93	8.10	292.83

Table 21-5
Groundwater Level Elevations
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW107	12/20/2004	299.81	18.87	280.94
	1/10/2005	299.81	18.90	280.91
	4/5/2005	299.81	18.89	280.92
	7/13/2005	299.81	19.01	280.80
	10/6/2005	299.81	19.03	280.78
	1/3/2006	299.81	18.75	281.06
	1/9/2006	299.81	18.92	280.89
	4/4/2006	299.81	18.90	280.91
	7/12/2006	299.81	19.01	280.80
	10/3/2006	299.81	19.00	280.81
	10/26/2006	299.81	19.14	280.67
	1/9/2007	299.81	18.76	281.05
	4/10/2007	299.81	18.85	280.96
	4/26/2007	299.81	18.82	280.99
	6/19/2007	299.81	18.87	280.94
	10/30/2007	299.81	18.98	280.83
	11/5/2007	299.81	18.97	280.84
	1/10/2008	299.81	18.87	280.94
	3/10/2008	299.81	19.00	280.81
	8/27/2008	299.81	19.07	280.74
	10/1/2008	299.81	19.10	280.71
	4/10/2009	299.81	19.01	280.80
	10/26/2009	299.81	18.08	281.73
	4/12/2010	299.81	18.98	280.83
EGW108	4/5/2005	297.86	9.26	288.60
	7/13/2005	297.86	9.48	288.38
	10/6/2005	297.86	9.62	288.24
	1/3/2006	297.86	9.02	288.84
	1/9/2006	297.86	9.08	288.78
	4/4/2006	297.86	9.23	288.63
	7/12/2006	297.86	9.53	288.33
	10/3/2006	297.86	9.66	288.20
	4/5/07 - 4/18/07	297.86	9.15	288.71
	4/26/2007	297.86	9.19	288.67
	6/19/2007	297.86	9.37	288.49
	10/29/07 - 11/8/07	297.86	9.40	288.46
	10/30/2007	297.86	9.38	288.48
	3/10/2008	297.86	9.16	288.70
	8/27/2008	297.86	9.42	288.44
	10/1/2008	297.86	9.45	288.41
	4/10/2009	297.86	9.21	288.65
	10/26/2009	297.86	9.80	288.06
	4/12/2010	297.86	9.05	288.81
	4/5/2005	298.64	20.80	277.84
	7/13/2005	298.64	20.93	277.71
	10/6/2005	298.64	20.98	277.66
	1/3/2006	298.64	11.71	286.93
	1/9/2006	298.64	20.86	277.78
	4/4/2006	298.64	20.86	277.78
	7/12/2006	298.64	20.95	277.69

Table 21-5
Groundwater Level Elevations
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW109	10/3/2006	298.64	20.98	277.66
	4/5/07 - 4/18/07	298.64	20.80	277.84
	4/26/2007	298.64	20.79	277.85
	6/19/2007	298.64	20.82	277.82
	10/29/07 - 11/8/07	298.64	20.91	277.73
	10/30/2007	298.64	20.99	277.65
	3/10/2008	298.64	20.91	277.73
	8/27/2008	298.64	20.97	277.67
	10/1/2008	298.64	21.08	277.56
	4/10/2009	298.64	20.95	277.69
	10/26/2009	298.64	20.89	277.75
	4/12/2010	298.64	20.96	277.68
EGW110	4/5/2005	318.32	21.29	297.03
	7/14/2005	318.32	21.62	296.70
	10/6/2005	318.32	21.83	296.49
	1/3/2006	318.32	21.25	297.07
	1/9/2006	318.32	21.26	297.06
	4/4/2006	318.32	21.29	297.03
	7/12/2006	318.32	21.65	296.67
	10/3/2006	318.32	21.86	296.46
	10/21/2006	318.32	21.87	296.45
	1/15/2007	318.32	21.15	297.17
	4/11/2007	318.32	21.29	297.03
	4/26/2007	318.32	21.35	296.97
	6/19/2007	318.32	21.48	296.84
	10/30/2007	318.32	21.70	296.62
	11/1/2007	318.32	21.67	296.65
	1/9/2008	318.32	21.23	297.09
	3/10/2008	318.32	21.38	296.94
	10/1/2008	318.32	21.72	296.60
	4/10/2009	318.32	21.38	296.94
	10/26/2009	318.32	21.67	296.65
	4/12/2010	318.32	21.37	296.95
EGW127	1/3/2006	360.67	34.72	325.95
	1/9/2006	360.67	35.52	325.15
	4/4/2006	360.67	33.38	327.29
	7/12/2006	360.67	35.34	325.33
	10/3/2006	360.67	35.79	324.88
	11/13/2006	360.67	34.64	326.03
	1/25/2007	360.67	30.71	329.96
	4/16/2007	360.67	34.05	326.62
	10/30/2007	360.67	34.96	325.71
	1/7/2008	360.67	34.85	325.82
	3/10/2008	360.67	35.30	325.37
	10/1/2008	360.67	35.80	324.87
	4/10/2009	360.67	35.70	324.97
	10/26/2009	360.67	35.14	325.53
	4/12/2010	360.67	35.27	325.40
	1/3/2006	361.60	36.00	325.60
	1/9/2006	361.60	35.79	325.81

Table 21-5
Groundwater Level Elevations
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW128	4/4/2006	361.60	35.76	325.84
	7/12/2006	361.60	36.20	325.40
	10/3/2006	361.60	36.52	325.08
	11/13/2006	361.60	35.48	326.12
	1/25/2007	361.60	34.97	326.63
	4/16/2007	361.60	34.73	326.87
	10/30/2007	361.60	35.50	326.10
	1/7/2008	361.60	35.52	326.08
	3/10/2008	361.60	35.87	325.73
	10/1/2008	361.60	36.23	325.37
	4/10/2009	361.60	36.99	324.61
	10/26/2009	361.60	35.72	325.88
	4/12/2010	361.60	35.76	325.84
EGW129	1/3/2006	376.19	50.61	325.58
	1/9/2006	376.19	51.06	325.13
	4/4/2006	376.19	50.30	325.89
	7/12/2006	376.19	51.28	324.91
	10/3/2006	376.19	51.56	324.63
	11/13/2006	376.19	50.46	325.73
	1/18/2007	376.19	50.29	325.90
	3/15/2007	376.19	50.29	325.90
	4/16/2007	376.19	51.30	324.89
	4/26/2007	376.19	51.54	324.65
	6/19/2007	376.19	51.35	324.84
	10/30/2007	376.19	50.85	325.34
	1/7/2008	376.19	51.25	324.94
	3/10/2008	376.19	50.90	325.29
	10/1/2008	376.19	51.37	324.82
	4/10/2009	376.19	51.33	324.86
	10/26/2009	376.19	50.88	325.31
	4/12/2010	376.19	50.75	325.44
EGW130	1/3/2006	376.03	50.38	325.65
	1/9/2006	376.03	50.47	325.56
	4/4/2006	376.03	50.15	325.88
	7/12/2006	376.03	50.74	325.29
	10/3/2006	376.03	50.71	325.32
	11/13/2006	376.03	50.40	325.63
	1/18/2007	376.03	50.23	325.80
	3/15/2007	376.03	50.28	325.75
	4/16/2007	376.03	50.32	325.71
	4/26/2007	376.03	50.41	325.62
	6/19/2007	376.03	50.38	325.65
	10/30/2007	376.03	50.78	325.25
	1/7/2008	376.03	50.47	325.56
	3/10/2008	376.03	50.64	325.39
	10/1/2008	376.03	51.16	324.87
	4/10/2009	376.03	51.20	324.83
	10/26/2009	376.03	50.36	325.67
	4/12/2010	376.03	50.49	325.54
	1/3/2006	349.60	23.78	325.82

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW131	1/9/2006	349.60	23.71	325.89
	4/4/2006	349.60	23.58	326.02
	7/12/2006	349.60	24.23	325.37
	10/3/2006	349.60	24.42	325.18
	10/23/2006	349.60	24.18	325.42
	1/17/2007	349.60	23.73	325.87
	4/13/2007	349.60	23.73	325.87
	4/26/2007	349.60	23.90	325.70
	6/19/2007	349.60	23.95	325.65
	10/30/2007	349.60	24.30	325.30
	10/30/2007	349.60	24.29	325.31
	1/8/2008	349.60	24.10	325.50
	3/10/2008	349.60	24.41	325.19
	10/1/2008	349.60	24.52	325.08
	4/10/2009	349.60	24.39	325.21
	10/26/2009	349.60	22.29	327.31
	4/12/2010	349.60	23.86	325.74
EGW132-1 (24.5')	1/3/2006	338.55	16.44	322.11
	1/9/2006	338.55	16.42	322.13
	4/4/2006	338.55	16.24	322.31
	7/12/2006	338.55	16.76	321.79
	10/3/2006	338.55	16.95	321.60
	10/31/2006	338.55	16.83	321.72
	1/26/2007	338.55	16.27	322.28
	4/13/2007	338.55	16.40	322.15
	4/26/2007	338.55	16.45	322.10
	6/19/2007	338.55	16.77	321.78
	10/30/2007	338.55	17.00	321.55
	11/2/2007	338.55	16.88	321.67
	1/8/2008	338.55	16.62	321.93
	3/10/2008	338.55	16.95	321.60
	10/1/2008	338.55	17.06	321.49
	4/10/2009	338.55	16.80	321.75
	10/26/2009	338.55	16.10	322.45
	4/12/2010	338.55	16.56	321.99
EGW132-2 (37.5')	1/3/2006	338.55	16.27	322.28
	1/9/2006	338.55	16.23	322.32
	4/4/2006	338.55	16.07	322.48
	7/12/2006	338.55	16.58	321.97
	10/3/2006	338.55	16.72	321.83
	10/31/2006	338.55	16.62	321.93
	1/26/2007	338.55	16.16	322.39
	4/13/2007	338.55	16.27	322.28
	4/26/2007	338.55	16.32	322.23
	6/19/2007	338.55	16.57	321.98
	10/30/2007	338.55	16.70	321.85
	11/2/2007	338.55	16.67	321.88
	1/8/2008	338.55	16.49	322.06
	3/10/2008	338.55	16.78	321.77
	10/1/2008	338.55	16.85	321.70

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	4/10/2009	338.55	16.65	321.90
	10/26/2009	338.55	15.82	322.73
	4/12/2010	338.55	16.41	322.14
EGW132-3 (50.5')	1/3/2006	338.55	16.25	322.30
	1/9/2006	338.55	16.22	322.33
	4/4/2006	338.55	16.06	322.49
	7/12/2006	338.55	16.55	322.00
	10/3/2006	338.55	16.72	321.83
	10/31/2006	338.55	16.61	321.94
	1/26/2007	338.55	16.15	322.40
	4/13/2007	338.55	16.24	322.31
	4/26/2007	338.55	16.29	322.26
	6/19/2007	338.55	16.52	322.03
	10/30/2007	338.55	16.70	321.85
	11/2/2007	338.55	16.66	321.89
	1/8/2008	338.55	16.48	322.07
	3/10/2008	338.55	16.78	321.77
	10/1/2008	338.55	16.83	321.72
	4/10/2009	338.55	16.65	321.90
	10/26/2009	338.55	15.81	322.74
	4/12/2010	338.55	16.42	322.13
EGW132-4 (62.5')	1/3/2006	338.55	16.25	322.30
	1/9/2006	338.55	16.24	322.31
	4/4/2006	338.55	16.06	322.49
	7/12/2006	338.55	16.54	322.01
	10/3/2006	338.55	16.72	321.83
	10/24/2006	338.55	16.60	321.95
	1/26/2007	338.55	16.15	322.40
	4/13/2007	338.55	16.24	322.31
	4/26/2007	338.55	16.30	322.25
	6/19/2007	338.55	16.50	322.05
	10/30/2007	338.55	16.70	321.85
	11/2/2007	338.55	16.65	321.90
	1/8/2008	338.55	16.47	322.08
	3/10/2008	338.55	16.78	321.77
	10/1/2008	338.55	16.83	321.72
	4/10/2009	338.55	16.69	321.86
	10/26/2009	338.55	15.87	322.68
	4/12/2010	338.55	16.38	322.17
EGW132-5 (81.5')	1/3/2006	338.55	12.02	326.53
	1/9/2006	338.55	11.82	326.73
	4/4/2006	338.55	11.64	326.91
	7/12/2006	338.55	11.71	326.84
	10/3/2006	338.55	11.85	326.70
	10/24/2006	338.55	11.80	326.75
	4/13/2007	338.55	11.70	326.85
	4/26/2007	338.55	11.78	326.77
	6/19/2007	338.55	11.85	326.70
	10/30/2007	338.55	12.00	326.55
	11/2/2007	338.55	12.13	326.42

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	1/7/08 - 1/14/08	338.55	11.68	326.87
	3/10/2008	338.55	11.79	326.76
	10/1/2008	338.55	11.65	326.90
	4/10/2009	338.55	11.95	326.60
	10/26/2009	338.55	11.87	326.68
	4/12/2010	338.55	11.79	326.76
EGW132-6 (97.5')	1/3/2006	338.55	12.02	326.53
	1/9/2006	338.55	11.82	326.73
	4/4/2006	338.55	11.64	326.91
	7/12/2006	338.55	11.71	326.84
	10/3/2006	338.55	11.85	326.70
	10/24/2006	338.55	11.81	326.74
	4/13/2007	338.55	11.70	326.85
	4/26/2007	338.55	11.80	326.75
	6/19/2007	338.55	11.82	326.73
	10/30/2007	338.55	12.00	326.55
	11/2/2007	338.55	12.11	326.44
	1/7/08 - 1/14/08	338.55	11.69	326.86
	3/10/2008	338.55	11.82	326.73
	10/1/2008	338.55	11.67	326.88
	4/10/2009	338.55	11.97	326.58
	10/26/2009	338.55	11.89	326.66
	4/12/2010	338.55	11.81	326.74
EGW132-7 (112')	1/3/2006	338.55	12.02	326.53
	1/9/2006	338.55	11.82	326.73
	4/4/2006	338.55	11.65	326.90
	7/12/2006	338.55	11.72	326.83
	10/24/2006	338.55	11.80	326.75
	4/13/2007	338.55	11.70	326.85
	4/26/2007	338.55	11.80	326.75
	6/19/2007	338.55	11.85	326.70
	10/30/2007	338.55	12.00	326.55
	11/2/2007	338.55	12.11	326.44
	1/7/08 - 1/14/08	338.55	11.69	326.86
	3/10/2008	338.55	11.88	326.67
	10/1/2008	338.55	11.69	326.86
	4/10/2009	338.55	11.95	326.60
	10/26/2009	338.55	11.90	326.65
	4/12/2010	338.55	11.83	326.72
EGW133-1 (29')	1/3/2006	339.49	16.94	322.55
	1/9/2006	339.49	16.93	322.56
	4/4/2006	339.49	16.68	322.81
	7/12/2006	339.49	17.15	322.34
	10/31/2006	339.49	17.25	322.24
	1/26/2007	339.49	16.68	322.81
	6/19/2007	339.49	17.00	322.49
	10/30/2007	339.49	17.26	322.23
	11/2/2007	339.49	17.30	322.19
	1/9/2008	339.49	17.01	322.48
	3/10/2008	339.49	17.30	322.19

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	10/1/2008	339.49	17.41	322.08
	4/10/2009	339.49	17.18	322.31
	10/26/2009	339.49	16.80	322.69
	4/12/2010	339.49	17.94	321.55
EGW133-2 (42')	1/3/2006	339.49	16.81	322.68
	1/9/2006	339.49	16.82	322.67
	4/4/2006	339.49	16.55	322.94
	7/12/2006	339.49	17.01	322.48
	10/3/2006	339.49	17.25	322.24
	10/31/2006	339.49	17.10	322.39
	1/26/2007	339.49	16.57	322.92
	4/12/2007	339.49	16.68	322.81
	4/26/2007	339.49	16.77	322.72
	6/19/2007	339.49	16.87	322.62
	10/30/2007	339.49	17.11	322.38
	11/2/2007	339.49	17.13	322.36
	1/9/2008	339.49	16.88	322.61
	3/10/2008	339.49	17.15	322.34
	10/1/2008	339.49	17.24	322.25
	4/10/2009	339.49	17.01	322.48
	10/26/2009	339.49	16.60	322.89
	4/12/2010	339.49	17.76	321.73
EGW133-3 (55')	1/3/2006	339.49	16.88	322.61
	1/9/2006	339.49	16.88	322.61
	4/4/2006	339.49	16.63	322.86
	7/12/2006	339.49	17.08	322.41
	10/3/2006	339.49	17.28	322.21
	10/31/2006	339.49	17.18	322.31
	1/26/2007	339.49	16.64	322.85
	4/12/2007	339.49	16.76	322.73
	4/26/2007	339.49	16.83	322.66
	6/19/2007	339.49	17.00	322.49
	10/30/2007	339.49	17.16	322.33
	11/2/2007	339.49	17.21	322.28
	1/9/2008	339.49	16.94	322.55
	3/10/2008	339.49	17.23	322.26
	10/1/2008	339.49	17.36	322.13
	4/10/2009	339.49	17.15	322.34
	10/26/2009	339.49	16.75	322.74
	4/12/2010	339.49	17.90	321.59
EGW133-4 (68')	1/3/2006	339.49	16.91	322.58
	1/9/2006	339.49	16.90	322.59
	4/4/2006	339.49	16.67	322.82
	7/12/2006	339.49	17.12	322.37
	10/3/2006	339.49	17.33	322.16
	10/31/2006	339.49	17.22	322.27
	1/26/2007	339.49	16.67	322.82
	4/12/2007	339.49	16.80	322.69
	4/26/2007	339.49	16.84	322.65
	6/19/2007	339.49	16.96	322.53

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	10/30/2007	339.49	17.22	322.27
	11/2/2007	339.49	17.24	322.25
	1/9/2008	339.49	17.00	322.49
	3/10/2008	339.49	17.30	322.19
	10/1/2008	339.49	17.41	322.08
	4/10/2009	339.49	17.24	322.25
	10/26/2009	339.49	16.85	322.64
	4/12/2010	339.49	17.89	321.60
	1/3/2006	339.49	12.90	326.59
	1/9/2006	339.49	13.04	326.45
	4/4/2006	339.49	12.81	326.68
	7/12/2006	339.49	12.89	326.60
	10/3/2006	339.49	13.05	326.44
	10/24/2006	339.49	13.00	326.49
	4/12/2007	339.49	12.86	326.63
	4/26/2007	339.49	13.00	326.49
EGW133-5 (89')	6/19/2007	339.49	13.00	326.49
	10/30/2007	339.49	13.18	326.31
	11/2/2007	339.49	13.22	326.27
	1/7/08 - 1/14/08	339.49	12.87	326.62
	3/10/2008	339.49	13.05	326.44
	10/1/2008	339.49	12.82	326.67
	4/10/2009	339.49	13.12	326.37
	10/26/2009	339.49	13.00	326.49
	4/12/2010	339.49	13.06	326.43
	1/3/2006	339.49	12.89	326.60
	1/9/2006	339.49	13.01	326.48
	4/4/2006	339.49	12.80	326.69
	7/12/2006	339.49	12.88	326.61
	10/3/2006	339.49	13.04	326.45
	10/24/2006	339.49	13.00	326.49
	4/12/2007	339.49	12.86	326.63
	4/26/2007	339.49	12.99	326.50
EGW133-6 (101')	6/19/2007	339.49	12.92	326.57
	10/30/2007	339.49	13.20	326.29
	11/2/2007	339.49	13.22	326.27
	1/7/08 - 1/14/08	339.49	12.87	326.62
	3/10/2008	339.49	12.96	326.53
	10/1/2008	339.49	12.84	326.65
	4/10/2009	339.49	13.14	326.35
	10/26/2009	339.49	13.05	326.44
	4/12/2010	339.49	13.01	326.48
	1/3/2006	339.49	12.90	326.59
	1/9/2006	339.49	13.01	326.48
	4/4/2006	339.49	12.81	326.68
	7/12/2006	339.49	12.88	326.61
	10/24/2006	339.49	12.99	326.50
	4/12/2007	339.49	12.84	326.65
	4/26/2007	339.49	12.99	326.50
EGW133-7 (113')	6/19/2007	339.49	13.02	326.47

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW133-7 (113')	10/30/2007	339.49	13.20	326.29
	11/2/2007	339.49	13.23	326.26
	1/7/08 - 1/14/08	339.49	12.87	326.62
	3/10/2008	339.49	13.03	326.46
	10/1/2008	339.49	12.87	326.62
	4/10/2009	339.49	13.11	326.38
	10/26/2009	339.49	13.10	326.39
	4/12/2010	339.49	13.04	326.45
EGW134	1/31/2006	267.46	3.48	263.98
	4/4/2006	267.46	3.96	263.50
	7/12/2006	267.46	4.15	263.31
	10/3/2006	267.46	4.13	263.33
	4/5/07 - 4/18/07	267.46	3.95	263.51
	4/26/2007	267.46	4.14	263.32
	6/19/2007	267.46	4.09	263.37
	10/29/07 - 11/8/07	267.46	4.09	263.37
	10/30/2007	267.46	4.10	263.36
	3/10/2008	267.46	4.17	263.29
	8/27/2008	267.46	4.27	263.19
	10/1/2008	267.46	4.26	263.20
	4/10/2009	267.46	4.17	263.29
	10/26/2009	267.46	4.19	263.27
	4/12/2010	267.46	4.17	263.29
EGW135	1/31/2006	242.83	2.54	240.29
	4/4/2006	242.83	2.53	240.30
	7/12/2006	242.83	2.51	240.32
	10/3/2006	242.83	2.53	240.30
	10/26/2006	242.83	2.57	240.26
	1/10/2007	242.83	2.48	240.35
	4/9/2007	242.83	2.55	240.28
	4/26/2007	242.83	2.56	240.27
	6/19/2007	242.83	2.54	240.29
	10/30/2007	242.83	4.30	238.53
	11/8/2007	242.83	2.34	240.49
	1/14/2008	242.83	2.45	240.38
	3/10/2008	242.83	2.53	240.30
	8/27/2008	242.83	2.49	240.34
	10/1/2008	242.83	2.86	239.97
	4/10/2009	242.83	2.72	240.11
	10/26/2009	242.83	2.40	240.43
	4/12/2010	242.83	2.54	240.29
EGW136	1/31/2006	280.09	9.40	270.69
	4/4/2006	280.09	9.20	270.89
	7/12/2006	280.09	9.39	270.70
	10/3/2006	280.09	9.40	270.69
	4/5/07 - 4/18/07	280.09	9.24	270.85
	4/26/2007	280.09	9.27	270.82
	6/19/2007	280.09	9.28	270.81
	10/29/07 - 11/8/07	280.09	9.28	270.81
	10/30/2007	280.09	9.32	270.77
	3/10/2008	280.09	9.41	270.68
	8/27/2008	280.09	9.39	270.70

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	10/1/2008	280.09	9.54	270.55
	4/10/2009	280.09	9.45	270.64
	10/26/2009	280.09	9.21	270.88
	4/12/2010	280.09	9.57	270.52
EGW137	1/31/2006	279.22	6.52	272.70
	4/4/2006	279.22	7.18	272.04
	7/12/2006	279.22	7.18	272.04
	10/3/2006	279.22	7.30	271.92
	10/26/2006	279.22	7.22	272.00
	1/10/2007	279.22	6.90	272.32
	4/9/2007	279.22	6.97	272.25
	4/26/2007	279.22	7.00	272.22
	6/19/2007	279.22	6.93	272.29
	10/30/2007	279.22	7.12	272.10
	11/7/2007	279.22	7.11	272.11
	1/14/2008	279.22	7.23	271.99
	3/10/2008	279.22	7.23	271.99
	8/27/2008	279.22	7.20	272.02
	10/1/2008	279.22	7.52	271.70
	4/10/2009	279.22	7.21	272.01
	10/26/2009	279.22	6.98	272.24
	4/12/2010	279.22	7.39	271.83
EGW138	1/9/2006	302.74	8.27	294.47
	1/31/2006	302.74	8.27	294.47
	4/4/2006	302.74	8.45	294.29
	7/12/2006	302.74	8.87	293.87
	10/3/2006	302.74	9.05	293.69
	10/27/2006	302.74	9.02	293.72
	1/9/2007	302.74	8.05	294.69
	4/10/2007	302.74	8.20	294.54
	4/26/2007	302.74	8.32	294.42
	6/19/2007	302.74	8.49	294.25
	10/30/2007	302.74	8.67	294.07
	11/6/2007	302.74	8.66	294.08
	1/15/2008	302.74	8.09	294.65
	3/10/2008	302.74	8.23	294.51
	8/27/2008	302.74	8.49	294.25
	10/1/2008	302.74	8.80	293.94
	4/10/2009	302.74	8.14	294.60
	10/26/2009	302.74	8.30	294.44
	4/12/2010	302.74	8.18	294.56
EGW139	1/9/2006	305.57	9.16	296.41
	1/31/2006	305.57	9.16	296.41
	7/12/2006	305.57	9.72	295.85
	10/3/2006	305.57	9.90	295.67
	4/5/07 - 4/18/07	305.57	9.31	296.26
	4/26/2007	305.57	9.37	296.20
	6/19/2007	305.57	9.56	296.01
	10/29/07 - 11/8/07	305.57	9.72	295.85
	10/30/2007	305.57	9.70	295.87
	3/10/2008	305.57	9.43	296.14
	8/27/2008	305.57	9.60	295.97
	10/1/2008	305.57	9.80	295.77

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
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Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	4/10/2009	305.57	9.38	296.19
	10/26/2009	305.57	9.70	295.87
	4/12/2010	305.57	9.36	296.21
EGW140	1/9/2006	299.69	9.10	290.59
	1/31/2006	299.69	9.10	290.59
	7/12/2006	299.69	9.56	290.13
	10/3/2006	299.69	9.65	290.04
	4/5/07 - 4/18/07	299.69	9.31	290.38
	4/26/2007	299.69	9.38	290.31
	6/19/2007	299.69	9.45	290.24
	10/29/07 - 11/8/07	299.69	9.52	290.17
	10/30/2007	299.69	9.57	290.12
	3/10/2008	299.69	9.51	290.18
	8/27/2008	299.69	9.65	290.04
	10/1/2008	299.69	9.82	289.87
	4/10/2009	299.69	9.62	290.07
	10/26/2009	299.69	9.40	290.29
	4/12/2010	299.69	9.54	290.15
EGW141	1/9/2006	298.81	11.72	287.09
	1/31/2006	298.81	8.84	289.97
	4/4/2006	298.81	9.13	289.68
	7/12/2006	298.81	9.40	289.41
	10/3/2006	298.81	9.45	289.36
	10/27/2006	298.81	9.42	289.39
	1/9/2007	298.81	9.10	289.71
	4/10/2007	298.81	9.14	289.67
	4/26/2007	298.81	9.20	289.61
	6/19/2007	298.81	9.29	289.52
	10/30/2007	298.81	9.30	289.51
	11/6/2007	298.81	9.35	289.46
	3/10/2008	298.81	9.35	289.46
	8/27/2008	298.81	9.39	289.42
	10/1/2008	298.81	9.61	289.20
	4/10/2009	298.81	9.41	289.40
	10/26/2009	298.81	9.16	289.65
	4/12/2010	298.81	9.33	289.48
EGW142	1/9/2006	279.65	6.26	273.39
	1/31/2006	279.65	6.27	273.38
EGW143	1/31/2006	279.69	7.74	271.95
	4/4/2006	279.69	7.32	272.37
	7/12/2006	279.69	7.46	272.23
	10/3/2006	279.69	7.45	272.24
	10/27/2006	279.69	7.50	272.19
	1/10/2007	279.69	7.35	272.34
	4/9/2007	279.69	7.37	272.32
	4/26/2007	279.69	7.33	272.36
	6/19/2007	279.69	7.37	272.32
	10/30/2007	279.69	7.28	272.41
	11/7/2007	279.69	7.40	272.29
	1/15/2008	279.69	7.48	272.21
	3/10/2008	279.69	7.55	272.14
	8/27/2008	279.69	7.64	272.05

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	10/1/2008	279.69	7.70	271.99
	4/10/2009	279.69	7.63	272.06
	10/26/2009	279.69	7.49	272.20
	4/12/2010	279.69	7.76	271.93
EGW144	2/27/2006	370.80	45.05	325.75
	4/4/2006	370.80	45.17	325.63
	7/12/2006	370.80	45.60	325.20
	10/3/2006	370.80	45.76	325.04
	11/13/2006	370.80	45.20	325.60
	1/18/2007	370.80	44.94	325.86
	3/15/2007	370.80	44.32	326.48
	4/16/2007	370.80	43.87	326.93
	4/26/2007	370.80	44.13	326.67
	6/19/2007	370.80	43.63	327.17
	10/30/2007	370.80	45.38	325.42
	1/7/2008	370.80	45.07	325.73
	3/10/2008	370.80	45.31	325.49
	10/1/2008	370.80	45.86	324.94
	4/10/2009	370.80	46.62	324.18
	10/26/2009	370.80	45.23	325.57
	4/12/2010	370.80	45.30	325.50
EGW145	10/3/2006	276.01	5.78	270.23
	10/26/2006	276.01	5.82	270.19
	1/10/2007	276.01	5.62	270.39
	4/9/2007	276.01	5.60	270.41
	4/26/2007	276.01	5.60	270.41
	6/19/2007	276.01	5.68	270.33
	10/30/2007	276.01	5.70	270.31
	11/7/2007	276.01	5.65	270.36
	1/14/2008	276.01	5.71	270.30
	3/10/2008	276.01	5.82	270.19
	8/27/2008	276.01	5.82	270.19
	10/1/2008	276.01	5.91	270.10
	4/10/2009	276.01	5.93	270.08
	10/26/2009	276.01	5.52	270.49
	4/12/2010	276.01	5.75	270.26
EGW146	10/3/2006	266.01	3.83	262.18
	10/26/2006	266.01	3.86	262.15
	1/10/2007	266.01	3.70	262.31
	4/9/2007	266.01	3.60	262.41
	4/26/2007	266.01	3.67	262.34
	6/19/2007	266.01	3.70	262.31
	10/30/2007	266.01	3.73	262.28
	11/7/2007	266.01	3.73	262.28
	1/14/2008	266.01	3.92	262.09
	3/10/2008	266.01	3.93	262.08
	8/27/2008	266.01	3.95	262.06
	10/1/2008	266.01	4.14	261.87
	4/10/2009	266.01	3.96	262.05
	10/26/2009	266.01	3.75	262.26

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	4/12/2010	266.01	3.94	262.07
EGW147	10/3/2006	316.22	24.67	291.55
	10/28/2006	316.22	24.65	291.57
	1/9/2007	316.22	23.89	292.33
	4/10/2007	316.22	24.11	292.11
	4/26/2007	316.22	24.17	292.05
	6/19/2007	316.22	24.43	291.79
	10/30/2007	316.22	24.42	291.80
	11/5/2007	316.22	24.50	291.72
	1/10/2008	316.22	24.12	292.10
	3/10/2008	316.22	24.30	291.92
	8/27/2008	316.22	24.50	291.72
	10/1/2008	316.22	24.62	291.60
	4/10/2009	316.22	24.25	291.97
	10/26/2009	316.22	24.40	291.82
	4/12/2010	316.22	24.24	291.98
EGW148	10/3/2006	316.18	24.65	291.53
	10/28/2006	316.18	24.67	291.51
	1/9/2007	316.18	23.89	292.29
	4/10/2007	316.18	24.11	292.07
	4/26/2007	316.18	24.17	292.01
	6/19/2007	316.18	24.32	291.86
	10/30/2007	316.18	24.42	291.76
	11/5/2007	316.18	24.49	291.69
	1/10/2008	316.18	24.11	292.07
	3/10/2008	316.18	24.39	291.79
	8/27/2008	316.18	24.44	291.74
	10/1/2008	316.18	24.64	291.54
	4/10/2009	316.18	24.23	291.95
	10/26/2009	316.18	24.44	291.74
	4/12/2010	316.18	24.25	291.93
EGW149-1 (4)	10/3/2006	352.58	17.70	334.88
EGW149-2 (4)	10/3/2006	352.52	17.71	334.81
EGW149-3 (4)	10/3/2006	352.61	17.75	334.86
EGW149-4 (4)	10/3/2006	352.53	17.68	334.85
EGW150-1 (4)	10/3/2006	352.57	17.63	334.94
EGW150-2 (4)	10/3/2006	352.61	17.83	334.78
EGW150-3 (4)	10/3/2006	352.72	17.86	334.86
EGW150-4 (4)	10/3/2006	352.60	17.75	334.85
EGW151-1 (4)	10/3/2006	352.24	25.81	326.43
EGW151-2 (4)	10/3/2006	352.40	25.33	327.07
EGW151-3 (4)	10/3/2006	352.23	26.72	325.51
EGW151-4 (4)	10/3/2006	352.25	27.00	325.25
EGW152-1 (4)	10/3/2006	352.24	26.93	325.31
EGW152-2 (4)	10/3/2006	352.34	27.19	325.15

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW152-3 (4)	10/3/2006	352.29	27.20	325.09
EGW152-4 (4)	10/3/2006	352.22	27.18	325.04
EGW153-1 (4)	10/3/2006	356.26	31.05	325.21
EGW153-2 (4)	10/3/2006	356.22	31.15	325.07
EGW153-3 (4)	10/3/2006	356.25	31.25	325.00
EGW154-1 (4)	10/3/2006	356.50	31.26	325.24
EGW154-2 (4)	10/3/2006	356.50	31.44	325.06
EGW154-3 (4)	10/3/2006	356.48	31.37	325.11
EGW155-1 (4)	10/3/2006	352.38	27.24	325.14
EGW155-2 (4)	10/3/2006	352.42	27.28	325.14
EGW155-3 (4)	10/3/2006	352.39	27.20	325.19
EGW156-1 (4)	10/3/2006	354.51	28.50	326.01
EGW156-2 (4)	10/3/2006	354.52	28.57	325.95
EGW156-3 (4)	10/3/2006	354.48	29.30	325.18
EGW157-1 (4)	10/3/2006	352.58	18.17	334.41
EGW157-2 (4)	10/3/2006	352.56	18.05	334.51
EGW157-3 (4)	10/3/2006	352.56	17.88	334.68
EGW158-1 (4)	10/3/2006	352.58	17.66	334.92
EGW158-2 (4)	10/3/2006	352.58	17.64	334.94
EGW158-3 (4)	10/3/2006	352.71	17.78	334.93
EGW159	10/3/2006	303.44	16.45	286.99
	10/27/2006	303.44	16.44	287.00
	1/9/2007	303.44	15.99	287.45
	4/9/2007	303.44	16.05	287.39
	4/26/2007	303.44	16.15	287.29
	6/19/2007	303.44	16.20	287.24
	10/30/2007	303.44	16.34	287.10
	11/6/2007	303.44	16.30	287.14
	1/14/2008	303.44	16.09	287.35
	3/10/2008	303.44	16.22	287.22
	8/27/2008	303.44	16.33	287.11
	10/1/2008	303.44	16.44	287.00
	4/10/2009	303.44	16.19	287.25
	10/26/2009	303.44	16.25	287.19
	4/12/2010	303.44	16.15	287.29
EGW160	10/3/2006	303.24	16.24	287.00
	10/27/2006	303.24	16.18	287.06
	1/9/2007	303.24	15.82	287.42
	4/9/2007	303.24	15.87	287.37
	4/26/2007	303.24	15.91	287.33
	6/19/2007	303.24	16.01	287.23
	10/30/2007	303.24	16.12	287.12
	11/6/2007	303.24	16.10	287.14
	1/14/2008	303.24	15.92	287.32

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
	3/10/2008	303.24	16.00	287.24
	8/27/2008	303.24	16.15	287.09
	10/1/2008	303.24	16.27	286.97
	4/10/2009	303.24	15.99	287.25
	10/26/2009	303.24	16.00	287.24
	4/12/2010	303.24	16.06	287.18
EGW161-1 (4)	10/3/2006	352.26	17.96	334.30
EGW161-2 (4)	10/3/2006	352.24	17.46	334.78
EGW161-3 (4)	10/3/2006	352.32	17.81	334.51
EGW161-4 (4)	10/3/2006	352.28	17.30	334.98
EGW162	10/3/2006	316.70	25.24	291.46
	10/28/2006	316.70	25.29	291.41
	1/9/2007	316.70	24.45	292.25
	4/10/2007	316.70	24.66	292.04
	4/26/2007	316.70	24.73	291.97
	6/19/2007	316.70	24.85	291.85
	10/30/2007	316.70	25.02	291.68
	11/5/2007	316.70	25.06	291.64
	1/10/2008	316.70	24.67	292.03
	3/10/2008	316.70	25.04	291.66
	8/27/2008	316.70	25.07	291.63
	10/1/2008	316.70	25.62	291.08
	4/10/2009	316.70	24.84	291.86
	10/26/2009	316.70	24.99	291.71
	4/12/2010	316.70	24.90	291.80
EGW163	6/19/2007	299.58	21.78	277.80
	10/30/2007	299.58	21.95	277.63
	11/8/2007	299.58	22.00	277.58
	1/14/2008	299.58	21.78	277.80
	3/10/2008	299.58	21.84	277.74
	8/27/2008	299.58	22.08	277.50
	10/1/2008	299.58	22.23	277.35
	4/10/2009	299.58	21.89	277.69
	10/26/2009	299.58	22.13	277.45
	4/12/2010	299.58	21.76	277.82
EGW164	6/19/2007	323.60	36.61	286.99
	10/30/2007	323.60	36.76	286.84
	11/6/2007	323.60	36.75	286.85
	1/14/2008	323.60	36.52	287.08
	3/10/2008	323.60	36.63	286.97
	8/27/2008	323.60	36.77	286.83
	10/1/2008	323.60	35.99	287.61
	4/10/2009	323.60	36.69	286.91
	10/26/2009	323.60	36.79	286.81
	4/12/2010	323.60	36.54	287.06
	6/19/2007	326.30	34.45	291.85
	10/30/2007	326.30	34.57	291.73
	11/6/2007	326.30	34.61	291.69

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW165	1/10/2008	326.30	34.25	292.05
	3/10/2008	326.30	34.45	291.85
	8/27/2008	326.30	34.68	291.62
	10/1/2008	326.30	34.80	291.50
	4/10/2009	326.30	34.39	291.91
	10/26/2009	326.30	34.62	291.68
	4/12/2010	326.30	34.43	291.87
EGW166	6/19/2007	338.81	35.58	303.23
	10/30/2007	338.81	35.70	303.11
	11/6/2007	338.81	35.85	302.96
	1/10/2008	338.81	35.52	303.29
	3/10/2008	338.81	35.70	303.11
	8/27/2008	338.81	35.79	303.02
	10/1/2008	338.81	35.92	302.89
	4/10/2009	338.81	35.57	303.24
	10/26/2009	338.81	35.60	303.21
	4/12/2010	338.81	35.32	303.49
EGW167	10/30/2007	326.07	46.93	279.14
	1/10/2008	326.07	46.95	279.12
	3/10/2008	326.07	46.93	279.14
	8/27/2008	326.07	47.07	279.00
	10/1/2008	326.07	47.18	278.89
	4/10/2009	326.07	47.21	278.86
	10/26/2009	326.07	47.20	278.87
	4/12/2010	326.07	46.75	279.32
EGW168	3/10/2008		143.86	
	8/27/2008	433.94	144.12	289.82
	10/1/2008	433.94	144.13	289.81
	4/10/2009	433.94	144.05	289.89
	10/26/2009	433.94	144.22	289.72
	4/12/2010	433.94	143.86	290.08
EGW169	3/10/2008		122.72	
	8/27/2008	409.47	123.02	286.45
	10/1/2008	409.47	122.99	286.48
	4/10/2009	409.47	122.91	286.56
	10/26/2009	409.47	123.11	286.36
	4/12/2010	409.47	122.68	286.79
EGW170	3/10/2008		131.62	
	8/27/2008	410.87	131.91	278.96
	10/1/2008	410.87	131.86	279.01
	4/10/2009	410.87	131.83	279.04
	10/26/2009	410.87	131.85	279.02
	4/12/2010	410.87	131.59	279.28
EGW171	8/27/2008	417.05	132.15	284.90
	10/1/2008	419.80	135.27	284.53
	4/10/2009	419.80	135.05	284.75
	10/26/2009	419.80	135.09	284.71
	4/12/2010	419.80	134.80	285.00
	8/27/2008	417.28	142.59	274.69

Table 21-5
Groundwater Level Elevations
Powder Mill Gulch
Boeing Everett lant Remeidal Investigation

Well ID	Date	Measuring Point Elevation (ft, NGVD29)	Depth to Water (ft)	Water Level Elevation (ft. NGVD29)
EGW172	10/1/2008	419.76	145.02	274.74
	4/10/2009	419.76	145.19	274.57
	10/26/2009	419.76	145.14	274.62
	4/12/2010	419.76	144.96	274.80
EGW173	9/3/2008	397.99	130.15	267.84
	10/1/2008	398.29	130.50	267.79
	4/10/2009	398.29	130.64	267.65
	10/26/2009	398.29	130.50	267.79
	4/12/2010	398.29	130.42	267.87
EGW174	10/26/2009	382.78	117.90	264.88
	4/12/2010	382.78	117.72	265.06
EGW175	10/26/2009	314.82	15.54	299.28
	4/12/2010	314.82	15.07	299.75
EGW176	10/26/2009	328.22	41.49	286.73
	4/12/2010	328.22	41.23	286.99

(1) Well EGW087 was replaced and resurveyed in October 2004.
(2) Wells EWG092 and EGW093 were resurveyed after the stickup monuments were converted to flush-mount monuments in October 2004.
(3) Groundwater level elevation should be considered suspect.
(4) Baseline water levels were collected in the source area prior to ERH startup. Further water levels were not collected due to effect of ERH system on groundwater elevations.

Table 21-6
Surface Water Level Elevations
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Location	Date	Measuring Point Elevation (a) (ft, NGVD29)	Staff Gauge Reading (ft)	SW Elevation (ft, NGVD29)
SG-1	1/9/2006	323.42	0.33	323.75
	Apr 2006	323.42	NM	--
	10/1/2008	328.26	0.00	328.26
	4/10/2009	328.26	0.00	328.26
	10/26/2009	328.26		328.26
	4/12/2010	328.26	0.00	328.26
SG-2	1/9/2006	311.59	0.56	312.15
	Apr 2006	311.59	NM	--
	10/1/2008	315.01	0.60	315.61
	4/10/2009	315.01	1.29	316.30
	10/26/2009	315.01	0.46	315.47
	4/12/2010	315.01	0.45	315.46
SG-2A	4/12/2010	306.95	0.20	307.15
SG-3	1/9/2006	302.31	0.73	303.04
	Apr 2006	302.31	NM	--
	10/1/2008	302.31	0.30	302.61
	4/10/2009	302.31	0.08	302.39
	10/26/2009	302.31	0.11	302.42
	4/12/2010	302.31	0.00	302.31
SG-4A (Abandoned)	10/20/2005	290.45	0.35	290.80
SG-4A	4/12/2010	288.22	0.23	288.45
SG-4B	4/12/2010	283.72	0.18	283.90
SG-4C	4/12/2010	280.45	0.28	280.73
SG-4	1/9/2006	292.78	0.67	293.45
	Apr 2006	292.78	NM	--
	8/27/2008	292.78	0.78	293.56
	10/1/2008	292.78	0.50	293.28
	4/10/2009	292.78	0.00	292.78
	10/26/2009	292.78		292.78
	4/12/2010	292.78	0.00	292.78
SG-5	10/20/2005	281.38	0.51	281.89
	1/9/2006	281.38	0.68	282.06
	Apr 2006	281.38	NM	--
	8/27/2008	281.38	0.67	282.05
	10/1/2008	281.38	0.95	282.33
	4/10/2009	281.38	1.65	283.03
	10/26/2009	281.38	3.59	284.97
	4/12/2010	281.38	2.30	283.68
SG-6	10/20/2005	270.08	0.32	270.40
	1/9/2006	270.08	0.70	270.78
	Apr 2006	270.08	NM	--
	8/27/2008	270.08	0.65	270.73
	10/1/2008	273.90	0.40	274.30
	4/10/2009	273.90	0.00	273.90

Table 21-6
Surface Water Level Elevations
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Location	Date	Measuring Point Elevation (a) (ft, NGVD29)	Staff Gauge Reading (ft)	SW Elevation (ft, NGVD29)
	10/26/2009	273.90	0.00	273.90
	4/12/2010	273.90	3.62	277.52
SG-6A	4/12/2010	260.25	0.55	260.80
SG-6B	4/12/2010	252.42	0.41	252.83
SG-7	8/27/2008	252.07	0.56	251.51
	10/1/2008	250.95	0.45	251.40
	4/10/2009	250.95	0.40	251.35
	10/26/2009	250.95	0.38	251.33
	4/12/2010	250.95	0.42	251.37

Notes:
NM = Not Measured.
[a] Elevation at 0.00 ft level of staff gauge.
SG-4A abandoned in January 2006.
SG-4 reinstalled and resurveyed in January 2006.

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
EGW075	5/14/03	0.2 U	0.035	1.0 U	2.2 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.6**	**0.033**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.017 U
	7/23/03	0.2 U	0.045	1.0 U	1.0 U	0.2 U	0.2 U	0.7	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.4**	**0.051**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.017 UJ
	11/3/03	0.2 U	0.037	1.0 U	1.0 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.3**	**0.041**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.017 U
	1/20/04	0.2 U	0.033	1.0 UJ	1.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.2**	0.027	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.039	1.0 U	1.0 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.0**	**0.033**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/20/04	0.2 U	0.034	1.0 U	1.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.5**	0.025	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U
	10/11/04	0.2 U	0.034	1.0 U	1.6 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.8**	0.027	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.12 U
	1/7/05	0.2 U	0.030	1.0 U	1.6 *	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.7**	0.023	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/4/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.8**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/15/05	0.2 U	0.046	1.0 U	1.4 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.4**	**0.031**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/10/05	0.2 U	0.038	1.0 U	1.9 *	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.1**	0.023	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/11/06	0.2 U	0.020 U	1.0 U	1.8 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/5/06	0.2 U	0.020 U	1.0 U	1.9 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/10/06	0.2 U	0.030	1.4 *	2.3 *	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.9**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/06	0.2 U	0.025	1.0 U	3.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	**2.5**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.62**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/5/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.30	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	7/12/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	**1.60**	0.022 J	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	10/30/07	0.2 U	0.033	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.1**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	1/8/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.12	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.1**	0.020 U	0.2 U	0.2	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	7/10/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.9**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	10/22/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.1**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	1/14/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.072	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.012 UJ
	4/15/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.37	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	7/13/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.87**	0.020 U	0.2 U	0.5 UJ	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	10/30/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.11 J	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	1/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.19	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
EGW076	12/3/03	0.2 U	0.020 U	1.0 U	2.8 U	0.2 U	**1.3**	0.2 U	**0.6**	0.4 U	0.2 U	0.3	0.2 U	0.2 U	0.020 U	12 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/20/04	0.2 U	0.020 U	1.0 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	2.5	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.020 U	1.0 U	1.3 J	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.7	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/20/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/4/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/4/06	0.2 U	0.020 U	1.0 U	1.3 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/20/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.033	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/29/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.044	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.050	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/30/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.039	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW077	12/3/03	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.5 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/20/04	0.2 U	0.020 U	1.0 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/20/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/04	0.2 U	0.020 U	1.0 U	1.7 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/04 (DUP)	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05	0.2 U	0.020 U	1.0 U	1.4 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/4/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW078	12/3/03	0.2	0.46	2.6	9.4 U	0.2	0.2 U	22	0.2 U	0.4 U	**0.3**	0.2 U	0.7	**330**	**0.99**	1.1 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	12/3/03 (DUP)	0.3	0.48	2.9	12 U	0.2 U	0.2 U	22	0.2 U	0.4 U	**0.4**	0.2 U	1.0	**320**	**1.0**	1.0 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/20/04	4.0 U	0.80	20 U	20 U	4.0 U	4.0 U	29	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**340**	**1.3**	4.0 U	4.0 U	**14**	4.0 U	4.0 U	4.0 U	4.0 U		0.1 U
	1/20/04 (DUP)	4.0 U	0.74	20 U	20 U	4.0 U	4.0 U	30	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**340**	**1.2**	4.0 U	4.0 U	**16**	4.0 U	4.0 U	4.0 U	4.0 U		0.1 U
	3/11/04	0.3	0.82	1.0 U	1.5 J	0.2 U	0.2 U	20	0.2 U	0.4 U	**0.5**	0.2 U	0.5	**290**	**1.4**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/12/04	3.0 U	0.68	15 U	15 U	3.0 U	3.0 U	21	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**310**	**1.3**	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		0.1 U
	7/20/04	5.0 U	0.69	25 U	25 U	5.0 U	5.0 U	33	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**420**	**0.88**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	7/20/04 (DUP)	5.0 U	0.81	25 U	25 U	5.0 U	5.0 U	30	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**360**	**1.0**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	10/12/04	0.6 U	0.62	3.0 U	3.0 U	0.6 U	0.6 U	33	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**500**	**1.0**	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	1.0 UJ	
	1/6/05	5.0 U	0.68	25 U	25 U	5.0 U	5.0 U	34	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**520**	**1.5**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	
	4/6/05	5.0 U	0.53	25 U	29 J	5.0 U	5.0 U	29	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**350**	**1.1 J**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	
	7/15/05	3.0 U	0.95	15 U	15 U	3.0 U	3.0 U	33	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**390**	**1.6**	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	5.0 U	
	10/11/05	5.0 U	0.76	25 U	25 U	5.0 U	5.0 U	37	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**480**	**1.2**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.1 U
	1/11/06	5.0 U	0.74	25 U	25 U	5.0 U	5.0 U	31	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**520**	**0.81**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	4.0 U	
	4/4/06	5.0 U	0.38	25 U	25 U	5.0 U	5.0 U	15	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**300**	**0.26**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	4.0 U	
	7/10/06	5.0 U	0.22	25 U	25 U	5.0 U	5.0 U	12	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**300**	**0.18**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	2.0 U	
	11/14/06	10 U	0.29	50 U	50 U	10 U	10 U	11	10 U	10 U	**0.36**	10 U	10 U	**290**	**0.68**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		0.1 U
	12/13/06	NA	NA	NA	NA	NA	NA	12	NA	NA	NA	NA	NA	**270**	5.0 U	NA	NA	NA	NA	NA	NA	NA		
	1/17/07	5.0 U	0.72	25 U	25 U	5.0 U	5.0 U	26	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**280**	**1.40**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		0.1 U
	2/16/07	0.5	1.40	1.0 U	3.0 U	0.3	0.2 U	52 J	0.2 U	0.4 U	**8.4**	0.4	2.0	**3,800**	**0.40**	1.1	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	3/15/07	5.0 U	0.82	25 U	25 U	5.0 U	5.0 U	37	5.0 U	5.0 U	**7.7**	5.0 U	5.0 U	**4,100 D**	**0.25**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	4/5/07	25 U	1.70	120 U	120 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	**3,200**	**0.19**	25 U	25 U	50 U	25 U	25 U	25 U	25 U		0.010 U
	5/14/07	30 UJ	30 UJ	150 UJ	150 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	**2,900 J**	30 UJ	30 UJ	30 UJ	60 UJ	30 UJ	30 UJ	30 UJ	30 UJ		
	6/12/07	20 U	1.6	100 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**2,000**	**0.39**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	7/12/07	30 U	1.1	150 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	**1,000**	**0.076**	30 U	30 U	60 U	30 U	30 U	30 U	30 U		0.1 U
	8/21/07	5.0 U	0.14	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**450**	0.023	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	9/25/07	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**340**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	10/17/07	1.0 U	1.0 U	5.0 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	**95**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/30/07	1.0 U	0.12	5.0 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	**160**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		0.010 U
	11/19/07	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/7/08	3.0 U	0.59	15 U	15 U	3.0 U	3.0 U	3.4	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**220**	**0.061**	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		0.010 U
	2/5/08	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**200**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	3/7/08	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	2.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	3/7/08 (DUP)	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	2.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/2/08	0.2 U	0.5	2.5 U	3.0 U	0.2	0.2 U	2.5	0.2 U	0.4 U	**0.5**	0.2 U	0.3	**160 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/08	1.0 U	0.49	5.0 U	5.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**90**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		0.010 U
	5/1/08	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**87**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/9/08	1.0 U	0.61	5.0 U	5.0 U	1.0 U	1.0 U	3.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**71**	**0.092**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		0.010 U
	10/21/08	1.0 U	0.48	5.0 U	5.0 U	1.0 U	1.0 U	3.2	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**88**	**0.15**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		0.010 U
	1/13/09	1.0 U	0.42	5.0 U	5.0 U	1.0 U	1.0 U	4.5	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**70**	**0.20**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		0.010 U
	1/13/09 (DUP)	1.0 U	0.45	5.0 U	5.0 U	1.0 U	1.0 U	4.6	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**70**	**0.22**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/15/09	0.2 U	0.80	2.5 U	2.5 U	0.2 U	0.2 U	5.7	0.2 U	0.4 U	**0.2**	0.2 U	0.4	**170 D**	**0.36**	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	6/9/09	0.2 U	0.8	5.0 U	5.0 U	0.1 X	0.2 U	6.3	0.2 U	0.4 U	**0.2**	0.2 U	0.5	**160 D**	**0.4**	0.3	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	5.6	1.0 U	2.0 U	**0.15**	1.0 U	1.0 U	**150**	**0.33**	1.0 U	2.5 UJ	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		0.010 U
	7/30/09	0.2 U	0.7	5.0 U	5.0 U	0.2 U	0.2 U	4.8	0.2 U	0.4 U	0.2 U	0.2 U	0.4	**150 D**	**0.4**	0.2	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	8/27/09	1.0 U	1.2	25 U	25 U	1.0 U	1.0 U	4.4	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
	9/14/09	0.2 U	0.7	5.0 U	5.0 U	0.2 U	0.2 U	4.6	0.2 U	0.4 U	0.2 U	0.2 U	0.4	**140 D**	**0.3**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	4.0	1.0 U	2.0 U	**0.14**	1.0 U	1.0 U	**120**	**0.32**	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		0.010 U
	1/14/10	0.6 U	1.3	15 U	15 U	0.6 U	0.6 U	12	0.6 U	1.2 U	**0.098**	0.6 U	0.6	**110**	**0.24**	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		0.010 U
	4/12/10	0.6 U	1.1	15 U	15 UJ	0.6 U	0.6 U	8.3	0.6 U	1.2 U	**0.083 J**	0.6 U	0.6 U	**94**	**0.25 J**	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		0.010 U
EGW079	12/2/03	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/20/04	0.2 U	0.020 U	1.0 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/21/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/14/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/8/05	0.2 U	0.020 U	1.0 U	1.9	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/05	0.2 U	0.020 U	1.0 U	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/13/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/13/05 (DUP)	0.2 U	0.020 U	1.0 U	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/06	0.2 U	0.020 U	1.0 U	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/06	0.2 U	0.020 U	1.0 U	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/07 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/11/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/1/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/1/07 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/14/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/4/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW080	12/2/03	0.2 U	0.020 U	1.0 U	1.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/20/04	0.2 U	0.020 U	1.0 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**8.9**	0.020 U	0.2 U	0.2	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**6.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/21/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**5.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/14/04	0.2 U	0.020 U	1.0 U	1.2	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**4.5**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	
	1/10/05	0.2 U	0.020 U	1.0 U	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**5.3**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	4/8/05	0.2 U	0.020 U	1.0 U	2.1	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**4.1**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	7/14/05	0.2 U	0.020 U	1.0 U	1.0 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.8**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	10/13/05	0.2 U	0.020 U	1.0 U	2.4 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.8**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.1 U
	1/9/06	0.2 U	0.020 U	1.0 U	1.8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**4.4**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	
	1/9/06 (DUP)	0.2 U	0.020 U	1.0 U	1.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	
	4/10/06	0.2 U	0.020 U	1.0 U	2.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.4**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	0.1 U

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	7/13/06	0.2 U	0.020 U	1.0 *	1.8 J *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.8**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	
	7/13/06 (DUP)	0.2 U	0.020 U	1.0 U	3.3 J *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	
	10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	10/24/06 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/5/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	11/1/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	1/9/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**3.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	4/10/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.9**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	7/13/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.6**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/08 (DUP)	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.6**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/08	0.2 U	0.020 U	2.5 U	3.4	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.4**	0.020 U	0.2 U	0.2	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	4/20/09	0.2 U	0.2 U	2.5 U	3.3	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.0**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	10/30/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.8 J**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
	4/15/10	0.2 U	0.2 U	5.0 U	21	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.7**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		0.010 U
EGW081	12/2/03	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/20/04	0.2 U	0.020 U	1.0 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.020 U	1.0 U	1.3	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/21/04	0.2 U	0.020 U	1.0 U	1.3	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/14/04	0.2 U	0.020 U	1.0 U	3.4	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW082	12/2/03	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/20/04	0.2 U	0.020 U	1.0 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/20/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/4/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW083	12/2/03	0.2 U	0.020 U	1.0 U	1.7 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.3	0.2 U	**6.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
EGW084	12/2/03	0.2 U	0.020 U	1.0 U	610	0.2 U	0.2 U	0.7 J	0.2 U	0.4 U	0.2 U	0.2 J	0.2 U	**44**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	1/20/04	0.2 U	0.020 U	1.0 U	18	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**9.0**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 UJ		0.1 U
	4/13/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**4.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/21/04	1.0 U	0.020 U	5.0 U	16	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**22**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/13/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**22**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/19/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/8/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**6.9**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/05	0.2 U	0.020 U	1.0 U	1.9 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/05	0.6 U	0.020 U	3.0 U	3.0 U	0.6 U	0.6 U	0.9	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**24**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	1/9/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.3**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/06	0.2 U	0.020 U	1.0 U	1.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.7	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**28**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/2/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**12**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**9.7**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/4/09	0.2 U	0.2 U	5.0 U	5 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**16**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW085	3/10/04	0.2 U	0.044	1.0 U	1.0 U	0.2 U	0.2 U	1.1	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**17**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.034	1.0 U	1.0 U	0.2 U	0.2 U	0.9	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**16 J**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/21/04	0.4 U	0.024	2.0 U	2.0 U	0.4 U	0.4 U	0.8	0.4 U	0.8 U	0.4 U	0.4 U	0.4 U	**15**	0.020 U	0.4 U	0.4 U	2.1 U	0.4 U	0.4 U	0.4 U	0.4 U		
	10/14/04	0.4 U	0.020 U	2.0 U	2.0 U	0.4 U	0.4 U	0.6	0.4 U	0.8 U	0.4 U	0.4 U	0.4 U	**15**	0.020 U	0.4 U	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U		
	1/10/05	0.4 U	0.022	2.0 U	2.0 U	0.4 U	0.4 U	0.8	0.4 U	0.8 U	0.4 U	0.4 U	0.4 U	**19**	0.020 U	0.4 U	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U		
	4/8/05	0.2 U	0.022	1.0 U	1.0 U	0.2 U	0.2 U	0.7	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**21 D**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/05	1.0 U	0.030	5.0 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	**16**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/13/05	0.4 U	0.020 U	2.0 U	2.0 U	0.4 U	0.4 U	0.6	0.4 U	0.8 U	0.4 U	0.4 U	0.4 U	**18**	0.020 U	0.4 U	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U		
	1/9/06	0.4 U	0.033	2.0 U	2.0 U	0.4 U	0.4 U	0.9	0.4 U	0.8 U	0.4 U	0.4 U	0.4 U	**24**	0.020 U	0.4 U	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U		
	4/10/06	0.6 U	0.077	3.0 U	3.0 U	0.6 U	0.6 U	1.3	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**23**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	7/13/06	0.4 U	0.031	2.0 U	2.0 U	0.4 U	0.4 U	0.8	0.4 U	0.8 U	0.4 U	0.4 U	0.4 U	**20**	0.020 U	0.4 U	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U		
	10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**22**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/11/07	0.6 U	0.091	3.0 U	9.0 U	0.6 U	0.6 U	1.5	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**22**	**0.035**	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	11/1/07	0.2 U	0.020	1.0 U	3.0 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**14**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/08	0.6 U	0.095	7.5 U	9.0 U	0.6 U	0.6 U	1.9	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**22**	0.029	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	10/23/08	1.0 U	0.064	5.0 U	5.0 U	1.0 U	1.0 U	1.4	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**22**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/23/08 (DUP)	0.2 U	0.073	2.5 U	3.0 U	0.2 U	0.2 U	1.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**22**	0.020	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	1.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**21**	**0.042**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/4/09	0.2 U	0.2 U	5.0 U	5.3	0.2 U	0.2 U	1.3	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**19**	0.022	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	1.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**17**	**0.040**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW086	3/10/04	0.2 U	0.24	1.0 U	1.0 U	0.2 U	0.2 U	27 J	0.2 U	0.4 U	0.2 U	0.2 U	1.1	**2,200**	**0.050**	0.8 U	0.2 U	0.3 U	0.3	0.4	0.2 U	0.2 U		0.1 U
	4/13/04	20 U	0.24	100 U	100 U	20 U	20 U	26	20 U	20 U	20 U	20 U	20 U	**2,100**	**0.047**	20 U	20 UJ	40 U	20 U	**160**	20 U	20 U		0.1 U
	4/13/04 (DUP)	30 U	0.17	150 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	**2,200**	**0.038**	30 U	30 U	60 U	30 U	30 U	30 U	30 U		0.1 U
	7/21/04	100 U	0.22	500 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**2,300**	**0.040**	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
	10/14/04	20 U	0.20	100 U	100 U	20 U	20 U	41	20 U	20 U	20 U	20 U	20 U	**2,700**	**0.033**	20 U	20 U	40 U	20 U	20 U	20 U	20 U	1.0 U	
	1/10/05	20 U	0.15	100 U	100 U	20 U	20 U	35	20 U	20 U	20 U	20 U	20 U	**3,000**	**0.035**	20 U	20 U	40 U	20 U	20 U	20 U	20 U	5.0 U	

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	1/10/05 (DUP)	20 U	0.16	100 U	100 U	20 U	20 U	38	20 U	20 U	20 U	20 U	20 U	**2,500**	**0.036**	20 U	20 U	40 U	20 U	20 U	20 U	20 U	5.0 U	
	4/8/05	20 U	0.12	100 U	100 U	20 U	20 U	25 J	20 U	20 U	20 U	20 U	20 U	**1,300**	0.026	20 U	20 U	40 U	20 U	20 U	20 U	20 U	5.0 U	
	7/14/05	20 U	0.17	100 U	100 U	20 U	20 U	24	20 U	20 U	20 U	20 U	20 U	**1,500**	**0.030**	20 U	20 U	40 U	20 U	20 U	20 U	20 U	5.0 U	
	7/14/05 (DUP)	0.2 U	0.15	1.0 U	1.4 *	0.2 U	0.2 U	24 D	0.2 U	0.4 U	0.2 U	0.2 U	0.3	**1,500 D**	0.029	0.4 U	0.2 U	0.3 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	
	10/13/05	20 U	0.16	100 U	100 U	20 U	20 U	28	20 U	20 U	20 U	20 U	20 U	**2,000**	0.020	20 U	20 U	40 U	20 U	20 U	20 U	20 U	5.0 U	
	1/9/06	30 U	0.14	150 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	**1,500**	0.020 U	30 U	30 U	60 U	30 U	30 U	30 U	30 U	4.0 U	
	4/10/06	15 U	0.19	75 U	93	15 U	15 U	22	15 U	15 U	15 U	15 U	15 U	**1,300**	0.029	15 U	15 U	30 U	15 U	15 U	15 U	15 U	4.0 U	
	7/13/06	15 U	0.17	75 U	75 U	15 U	15 U	27	15 U	15 U	15 U	15 U	15 U	**1,900**	0.022	15 U	15 U	30 U	15 U	15 U	15 U	15 U	2.0 U	
	10/27/06	40 U	0.10	200 U	600 U	40 U	40 U	40 U	40 U	80 U	**0.097**	40 U	40 U	**1,900**	0.020 U	40 U	40 U	60 U	40 U	40 U	40 U	40 U		
	4/11/07	20 U	0.092	100 U	100 U	20 U	20 U	26	20 U	20 U	20 U	20 U	20 U	**1,700**	0.022 J	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	11/1/07	0.2 U	0.13	1.0 U	3.0 U	0.2 U	0.2 U	19 J	0.2 U	0.4 U	0.2 U	0.2 U	0.3	**1,400**	0.020 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/08	10 U	0.20 U	50 U	50 U	10 U	10 U	23	10 U	10 U	10 U	10 U	10 U	**1,500**	0.20 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	10/22/08	0.2 U	0.11	2.5 U	3.0 U	0.2 U	0.2 U	21	0.2	0.4 U	0.2 U	0.2 U	0.2	**1,600 D**	0.020 U	0.3	0.2 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U		
	4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	17	0.2 U	0.4 U	1.0 UJ	0.2 U	0.3	**1,300**	1.0 UJ	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/4/09	10 U	10 U	250 U	250 U	10 U	10 U	14	10 U	20 U	0.057	10 U	10 U	**1,100**	0.020 U	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
	4/15/10	10 U	10 U	250 U	250 U	10 U	10 U	15	10 U	20 U	0.20 UJ	10 U	10 U	**1,100 D**	0.20 UJ	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
	4/15/10 (DUP)	10 U	10 U	250 U	250 U	10 U	10 U	15	10 U	20 U	0.20 UJ	10 U	10 U	**1,100 D**	0.20 UJ	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
EGW087	3/10/04	0.2 U	0.020 U	1.0 U	1.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.1**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	4/13/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
	7/21/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05	0.2 U	0.020 U	1.0 U	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/05	0.2 U	0.020 U	1.0 U	1.9 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/13/05	0.2 U	0.020 U	1.0 U	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/06	0.2 U	0.020 U	1.0 U	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/11/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/11/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/1/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.16	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/14/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.3 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/2/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW088	3/10/04	0.3	0.81	1.0 U	1.0 U	0.2 U	0.2 U	53	0.2 U	0.4 U	**1.8**	0.2 U	0.4	**2,500**	**0.48**	0.9 U	0.2 U	0.3 U	0.4	0.4	0.2 U	0.2 U		0.1 U
	4/12/04	30 U	0.66	150 U	150 U	30 U	30 U	47	30 U	30 U	30 U	30 U	30 U	**2,200**	**0.45**	30 U	30 U	60 U	30 U	30 U	30 U	30 U		0.1 U
	7/20/04	20 U	0.57	100 U	100 U	20 U	20 U	36	20 U	20 U	20 U	20 U	20 U	**2,000**	**0.33**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	10/12/04	20 U	0.60	100 U	100 U	20 U	20 U	55	20 U	20 U	20 U	20 U	20 U	**2,200**	**0.44**	20 U	20 U	40 U	20 U	20 U	20 U	20 U	1.0 UJ	
	1/6/05	20 U	0.45	100 U	100 U	20 U	20 U	36	20 U	20 U	20 U	20 U	20 U	**1,900**	**0.29**	20 U	20 U	40 U	20 U	20 U	20 U	20 U	5.0 U	
	4/6/05	20 U	0.55	100 U	100 U	20 U	20 U	40	20 U	20 U	20 U	20 U	20 U	**1,400**	**0.42**	20 U	20 U	40 U	20 U	20 U	20 U	20 U	5.0 U	
	7/15/05	10 U	0.50	50 U	50 U	10 U	10 U	32	10 U	10 U	10 U	10 U	10 U	**1,400**	**0.31**	10 U	10 U	20 U	10 U	10 U	10 U	10 U	5.0 U	
	10/11/05	20 U	0.36	100 U	100 U	20 U	20 U	25	20 U	20 U	20 U	20 U	20 U	**1,600**	**0.20**	20 U	20 U	40 U	20 U	20 U	20 U	20 U	5.0 U	
	10/11/05 (DUP)	5.0 U	0.33	25 U	25 U	5.0 U	5.0 U	25	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**1,300 D**	**0.19**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5 U	5.0 U	
	1/11/06	5.0 U	0.24	25 U	25 U	5.0 U	5.0 U	11	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**850**	**0.059**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	4.0 U	
	4/4/06	10 U	0.16	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**720**	0.029	10 U	10 U	20 U	10 U	10 U	10 U	10 U	4.0 U	
	7/10/06	10 U	0.10	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**1,100**	0.023	10 U	10 U	20 U	10 U	10 U	10 U	10 U	2.0 U	
	11/14/06	20 U	0.13	100 U	100 U	20 U	20 U	20 U	20 U	20 U	**1.3**	20 U	20 U	**1,000**	**0.035**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	12/13/06	NA	NA	NA	NA	NA	NA	10	NA	NA	NA	NA	NA	**1,000**	10 U	NA	NA	NA	NA	NA	NA	NA		
	1/17/07	10 U	0.40	50 U	50 U	10 U	10 U	22	10 U	10 U	10 U	10 U	10 U	**1,200**	**0.53**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	2/20/07	0.2 U	1.90	1.0 U	3.0 U	0.4	0.2 U	**100**	0.2 U	0.4 U	**1.8**	0.2 U	1.9	**2,500**	**1.20**	0.4	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	3/15/07	20 U	2.1	100 U	100 U	20 U	20 U	50	20 U	20 U	20 U	20 U	20 U	**3,000**	**0.67**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	4/17/07	25 U	1.6	120 U	120 U	25 U	25 U	67	25 U	25 U	25 U	25 U	25 U	**2,200**	**0.83**	25 U	25 U	**120**	25 U	25 U	25 U	25 U		
	5/14/07	30 UJ	30 UJ	150 UJ	150 UJ	30 UJ	30 UJ	65 J	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	**2,200 J**	30 UJ	30 UJ	30 UJ	60 UJ	30 UJ	30 UJ	30 UJ	30 UJ		
	6/12/07	20 U	2.0	100 U	100 U	20 U	20 U	56	20 U	20 U	20 U	20 U	20 U	**1,600**	**1.2**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	7/12/07	15 U	1.6	75 U	75 U	15 U	15 U	47	15 U	15 U	15 U	15 U	15 U	**1,500**	**0.89**	15 U	15 U	30 U	15 U	15 U	15 U	15 U		
	8/21/07	20 U	1.6	100 U	100 U	20 U	20 U	43	20 U	20 U	20 U	20 U	20 U	**1,500**	**1.1**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	9/25/07	20 U	20 U	100 U	100 U	20 U	20 U	51	20 U	20 U	20 U	20 U	20 U	**1,700**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	10/17/07	20 U	20 U	100 U	100 U	20 U	20 U	29	20 U	20 U	20 U	20 U	20 U	**1,100**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	10/30/07	10 U	0.67	50 U	50 U	10 U	10 U	18	10 U	10 U	10 U	10 U	10 U	**890**	**0.34**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	11/19/07	10 U	10 U	50 U	50 U	10 U	10 U	14	10 U	10 U	10 U	10 U	10 U	**760**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	1/7/08	10 U	0.14	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**420**	0.02	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	2/5/08	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	4.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**480 D**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		3/7/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.2	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**480**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/2/08	0.2 U	0.2 U	2.5 U	3.0 U	0.2 U	0.2 U	4.8	0.2 U	0.4 U	**0.8**	0.2 U	0.2 U	**640 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/10/08	3.0 U	0.20 U	15 U	15 U	3.0 U	3.0 U	4.1	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**390**	0.20 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		4/29/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**410**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		7/9/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**280**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		10/21/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**250**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	0.025	5.0 U		
		1/13/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**140**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/15/09	0.6 U	0.6 U	7.5 U	7.5 U	0.6 U	0.6 U	0.8	0.6 U	1.2 U	**0.4 X**	0.6 U	0.6 U	**150**	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		6/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	**0.3**	0.2 U	0.2 U	**110 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/13/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	**0.18 J**	0.6 U	0.6 U	**91**	0.020 UJ	0.6 U	1.5 UJ	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		10/22/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	**0.19**	0.6 U	0.6 U	**68**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		1/14/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	**0.10**	0.2 U	0.2 U	**38**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/12/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	**0.085**	0.2 U	0.2 U	**30**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW089		3/22/04	0.2 U	0.020 U	1.0 U	2.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		0.1 U
		7/20/04	0.2 U	0.020 U	1.0 U	6.9	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2	0.2 U		
		10/11/04	0.2 U	0.020 U	1.0 U	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/4/06	0.2 U	0.020 U	1.0 U	2.0 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/20/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/29/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/30/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW090	**(100') (5)**	5/25/04	0.2 U	0.020 U	3.3	17	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.4	0.2 U	**0.7**	0.020 U	1.9	0.5 UJ	2.3	0.2 U	0.2 U	0.2 U	0.2 U		
		7/26/04	0.2 U	0.020 U	1.0 U	1.1 J	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/13/04	0.2 U	0.020 U	1.0 U	2.2 U	0.2 U	0.2 U	1.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.3**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/11/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	1.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**5.0**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/05	0.2 U	0.020 U	1.0 U	2.3	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.9**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/05	0.2 U	0.020 U	1.0 U	1.9 U	0.2 U	0.2 U	9.6	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.4**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/14/05	0.2 U	0.020 U	1.0 U	1.4 U	0.2 U	0.2 U	11	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.8**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	9.1	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/12/06	0.2 U	0.020 U	1.0 U	2.6 U	0.2 U	0.2 U	7.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/12/06	0.2 U	0.020	1.0 U	2.2 *	0.2 U	0.2 U	13	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**2.4**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/25/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	5.1	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.87**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U		
		4/11/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	9.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.56**	0.019	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/1/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	8.7	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.54**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/14/08	0.2 U	0.074	2.5 U	3.0 U	0.2 U	0.2 U	62 D	0.2 U	0.4 U	0.020 U	0.2 U	0.5	**1.5**	0.021	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/23/08	1.0 U	0.035	5.0 U	5.0 U	1.0 U	1.0 U	28	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	0.59 U	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/21/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	17	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.39	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U		
		11/4/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	14	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.1**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	13	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.27	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(90') (4)	5/25/04	0.2 U	0.020 U	1.2	4.0	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.4	0.2 U	**2.5**	0.020 U	3.1	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.2 U		
		7/26/04	0.2 U	0.020 U	1.0 U	1.4 J	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/13/04	0.2 U	0.020 U	1.0 U	2.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/11/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.5**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.0**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/05	0.2 U	0.020 U	1.0 U	1.9 U	0.2 U	0.2 U	4.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/14/05	0.2 U	0.020 U	1.0 U	1.6 U	0.2 U	0.2 U	14	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.1**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	6.8	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/12/06	0.2 U	0.020 U	1.0 U	1.3 U	0.2 U	0.2 U	3.8	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/12/06	0.2 U	0.039	1.0 U	1.0 U	0.2 U	0.2 U	24 D	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**6.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/25/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	3.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.71 J**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/11/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	4.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**3.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/1/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	2.9	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.59**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/14/08	0.2 U	0.028	2.5 U	3.0 U	0.2 U	0.2 U	18 D	0.2 U	0.4 U	0.020 U	0.2 U	0.2	**5.9 D**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/23/08	1.0 U	0.032	5.0 U	5.0 U	1.0 U	1.0 U	24	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**0.76**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/21/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	13	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.90**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/4/09	0.2 U	0.2 U	5.0 U	6.3	0.2 U	0.2 U	23	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.8**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	6.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.24	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(75') (3)	5/25/04	0.2 U	0.036	1.0 U	3.5	0.2 U	0.2 U	0.7	0.2 U	0.4 U	0.2 U	0.2	0.2 U	**16**	0.020 U	3.4	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.2 U		
		7/26/04	0.2 U	0.020 U	1.0 U	1.1 J	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.3	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/26/04 (DUP)	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**15**	0.020 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/13/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2	0.2 U	1.2	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/11/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**7.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/05	0.2 U	0.020 U	1.0 U	1.7 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**9.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/14/05	0.2 U	0.020 U	1.0 U	1.4 U	0.2 U	0.2 U	2.0	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**14**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/6/06	0.2 U	0.020 U	1.0 U	1.2 *	0.2 U	0.2 U	3.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**15**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/12/06	0.2 U	0.020 U	1.0 U	1.4 U	0.2 U	0.2 U	1.8	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**9.9**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/12/06	0.2 U	0.16	1.0 U	1.0 U	0.2 U	0.2 U	4.0	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**11**	**0.031**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		10/25/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	5.9	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**16**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/11/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	1.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**7.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/1/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	3.0	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**6.8**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/14/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	4.9	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**30 D**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/23/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	12	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**40**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/21/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	4.1	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**17**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/4/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	22	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**25**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	18	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**17**	0.020 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW090 (continued)	**(60') (2)**	5/25/04	2.0 U	0.24	10 U	10 U	2.0 U	2.0 U	24	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**1,200 D**	**0.039**	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		7/26/04	15 U	0.23	75 U	75 U	15 U	15 U	32	15 U	15 U	15 U	15 U	15 U	**1,700**	**0.046**	15 U	15 U	30 U	15 U	15 U	15 U	15 U		
		10/13/04	20 U	0.20	100 U	100 U	20 U	20 U	31	20 U	20 U	20 U	20 U	20 U	**1,500**	**0.040**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		1/11/05	20 U	0.14	100 U	100 U	20 U	20 U	28	20 U	20 U	20 U	20 U	20 U	**1,800**	**0.042**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		4/9/05	0.2 U	0.19	1.0 U	1.0 U	0.2 U	0.2 U	28 D	0.2 U	0.4 U	0.2 U	0.2 U	0.4	**1,600 D**	**0.052**	0.9	0.2 U	0.3 U	0.3	0.4	0.2 U	0.2 U		
		7/18/05	0.2 U	0.24	1.0 U	1.4 U	0.2 U	0.2 U	29 D	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1,400 D**	**0.038**	0.7	0.2 U	0.3 U	0.2	0.3	0.2 U	0.2 U		
		10/14/05	20 U	0.16	100 U	100 U	20 U	20 U	24	20 U	20 U	20 U	20 U	20 U	**1,500**	**0.037**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		1/6/06	10 U	0.17	50 U	50 U	10 U	10 U	21	10 U	10 U	10 U	10 U	10 U	**1,000**	0.029	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/12/06	10 U	0.21	50 U	50 U	10 U	10 U	22	10 U	10 U	10 U	10 U	10 U	**960**	0.027	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		7/12/06	10 U	0.020 U	50 U	50 U	10 U	10 U	27	10 U	10 U	10 U	10 U	10 U	**1,400**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		10/27/06	30 U	0.20	150 U	450 U	30 U	30 U	30	30 U	60 U	0.020 U	30 U	30 U	**1,500**	0.025	30 U	30 U	45 U	30 U	30 U	30 U	30 U		
		4/11/07	20 U	0.19	100 U	100 U	20 U	20 U	31	20 U	20 U	20 U	20 U	20 U	**1,400**	**0.031**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		11/1/07	20 U	0.22	100 U	100 U	20 U	20 U	22	20 U	20 U	20 U	20 U	20 U	**1,000**	0.023	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		4/14/08	10 U	0.20 U	50 U	50 U	10 U	10 U	25	10 U	10 U	10 U	10 U	10 U	**1,200**	0.20 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		10/23/08	10 U	0.20 U	50 U	50 U	10 U	10 U	26	10 U	20 U	10 U	10 U	10 U	**1,300**	0.20 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/21/09	0.2 U	0.2	2.5 U	2.5 U	0.2 U	0.2 U	24	0.2 U	0.4 U	0.2 UJ	0.2 U	0.2 U	**1,300 D**	0.2 UJ	0.5	0.2 U	0.5 U	0.2 J	0.2 U	0.2 U	0.2 U		
		11/4/09	10 U	10 U	250 U	250 U	10 U	10 U	23	10 U	20 U	0.020 U	10 U	10 U	**1,100**	0.020 U	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
		4/19/10	6.0 U	6.0 U	150 U	150 U	6.0 U	6.0 U	22	6.0 U	12 U	0.20 UJ	6.0 U	6.0 U	**950**	0.20 UJ	6.0 U	15 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
	(40') (1)	5/25/04	0.2 U	0.020 U	1.0	9.5	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**16 D**	0.020 U	1.5	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/26/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**15 D**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/13/04	0.4 U	0.020 U	2.0 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.8 U	0.4 U	0.4 U	0.4 U	**18**	0.020 U	0.4 U	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U		
		1/11/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**8.4**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**8.4**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/05	0.2 U	0.020 U	1.0 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/14/05	0.2 U	0.020 U	1.0 U	1.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**7.3**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**7.5**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/12/06	0.2 U	0.020 U	1.0 U	1.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/12/06	0.2 U	0.020 U	1.3 *	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**8.8**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW091		7/22/04	0.2 U	0.020 U	1.0 U	1.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	1.8 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/12/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/6/05	0.2 U	0.020 U	0.02 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/05	0.2 U	0.020 U	1.0 U	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/11/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/11/06	0.2 U	0.020 U	1.0 U	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/4/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/10/06	0.2 U	0.020 U	1.4 *	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**23 D**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/30/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.3**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/22/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.071 J	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/21/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.22	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/15/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.34	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/2/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.37 J	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/2/09 (DUP)	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.43 J	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/12/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.14	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW092		7/22/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/12/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/6/05 (DUP)	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/11/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/29/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.02 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/15/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/3/09	0.2 U	0.2 U	5.0 U	5.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW093		7/22/04	0.2 U	0.020 U	1.0 U	1.3 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.3 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/12/04	0.2 U	0.020 U	1.0 U	3.5	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	1/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/05	0.2 U	0.020 U	1.0 U	2.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/29/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/15/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/3/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW094	7/22/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 UJ		
	10/15/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	
	1/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	4/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	7/13/05	0.2 U	0.020 U	1.0 U	1.8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	10/13/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	1/10/06	0.2 U	0.020 U	1.0 U	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	
	4/13/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	
	7/13/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/5/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/28/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/5/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW095	7/22/04	0.2 U	0.020 U	1.0 U	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/15/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	
	1/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	4/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	7/13/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	10/13/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	
	1/10/06	0.2 U	0.020 U	1.0 U	1.4 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	
	4/13/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	
	7/13/06	0.2 U	0.020 U	1.0 *	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0 U	
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/5/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/28/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/5/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW096	7/23/04	0.2 U	0.020 U	1.0 U	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/15/04	0.2 U	0.020 U	1.0 U	2.2	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/15/04 (DUP)	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/05	0.2 U	0.020 U	1.0 U	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/14/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/06	0.2 U	0.020 U	1.0 U	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/06	0.2 U	0.020 U	1.0 U	1.9 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW097	7/23/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/15/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/05	0.2 U	0.020 U	1.0 U	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05 (DUP)	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/14/05	0.2 U	0.020 U	1.0 U	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/06	0.2 U	0.020 U	1.0 U	1.1 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW098	10/22/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/5/05 (DUP)	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/05	0.2 U	0.020 U	1.0 U	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/13/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/5/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/28/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/5/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
EGW099	10/22/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05 (DUP)	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/13/05	0.2 U	0.020 U	1.0 U	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/06	0.2 U	0.020 U	1.0 U	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/11/06	0.2 U	0.020 U	1.0 U	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/11/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/07 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/1/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/14/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/2/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW100	10/20/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.3**	0.020 U	0.3	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05	0.2 U	0.020 U	1.0 U	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/05	0.2 U	0.020 U	1.0 U	2.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/05	0.2 U	0.020 U	1.0 U	1.3 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/11/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/4/06	0.2 U	0.020 U	1.0 U	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/10/06	0.2 U	0.020 U	1.2 *	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/14/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	12/13/06	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	0.2 U	0.2 U	NA	NA	NA	NA	NA	NA	NA		
	1/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	0.025	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	2/20/07	0.2 U	0.20 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.20 U	0.2 U	0.2 U	0.20 U	0.20 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	3/15/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.055	0.2 U	0.2 U	**18**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**8.1**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	5/14/07	0.2 U	0.2 U	1.9	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	6/12/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.4 U	0.025	0.2 U	0.2 U	**16**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/12/07	0.6 U	0.020 U	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**5.6**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	8/21/07	0.2 U	0.020 U	1.0 U	3.4	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**3.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	9/25/07	0.2 U	0.2 U	2.4	4.2	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.6**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/17/07	0.2 U	0.2 U	1.2 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.8**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/30/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**3.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/19/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.038	0.2 U	0.2 U	**15**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**4.7**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.0**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/21/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.69**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/13/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.2**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/15/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.43	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	6/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.6**	0.020 U	0.2 U	0.5 UJ	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.64**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/14/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.21	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/12/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.074	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW101	10/20/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/05	0.2 U	0.020 U	1.0 U	2.3 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.7 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/29/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/8/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/3/09	0.2 U	0.2 U	5.0 U	5.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
EGW102	10/21/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.4		
	1/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/12/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.5**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.39	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/18/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.46	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/29/07	0.2 UJ	0.020 U	1.0 UJ	3.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.4 UJ	0.020 U	0.2 UJ	0.2 UJ	**0.52**	0.020 U	0.2 UJ	0.2 UJ	0.3 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ		
	4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.58**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.46	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/8/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.38	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/2/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.31 J	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.31	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW103	10/21/04	0.2 U	0.020 U	1.0 U	2.1	0.2 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.9		
	1/6/05	0.2 U	0.020 U	1.0 U	1.0 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	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/12/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/18/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/29/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/8/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/2/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW104	10/21/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/05	0.2 U	0.020 U	1.0 U	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/7/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/12/05	0.2 U	0.020 U	1.0 U	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/18/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/29/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/8/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/2/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW105	10/20/04	0.2 U	0.020 U	1.0 U	2.7 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/11/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/6/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/29/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/8/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/3/09	0.2 U	0.2 U	5.0 U	5.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW106	12/20/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/13/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/06	0.2 U	0.020 U	1.0 U	2.3 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/06	0.2 U	0.020 U	1.0 U	1.1 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/07 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.3 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/5/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/27/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	4/23/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.024	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/09	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
	11/6/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW107	12/20/04	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/05	0.2 U	0.020 U	1.0 U	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/13/05	0.2 U	0.020 U	1.0 U	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/06	0.2 U	0.020 U	1.0 U	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/06	0.2 U	0.020 U	1.0 U	1.8 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/5/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/08 (DUP)	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/27/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/23/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/09	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
	7/15/09 (DUP)	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	0.020 U	0.020 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
	11/6/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW108	4/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/05	0.2 U	0.020 U	1.0 U	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/14/05	0.2 U	0.020 U	1.0 U	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW109	4/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.5	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/05	0.2 U	0.020 U	1.0 U	1.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/14/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/13/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW110	4/5/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/13/05	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/06	0.2 U	0.020 U	1.0 U	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/11/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.029 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/18/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/1/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 UJ	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/9/08 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/23/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.10 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/14/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/4/09	0.2 U	0.2 U	5.0 U	6.4	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW127	1/5/06	30 U	0.89	150 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	**2,900**	**0.052**	30 U	30 U	60 U	30 U	30 U	30 U	30 U		
	4/5/06	20 U	0.40	100 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**1,900**	**0.45**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	7/11/06	10 U	0.14	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**790**	**0.12**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	11/13/06	100 U	0.27	500 U	500 U	100 U	100 U	100 U	100 U	100 U	**2.0**	100 U	1.5 U	**5,100**	**0.064**	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
	1/25/07	0.2 U	0.43	1.0 U	3.0 U	0.2 U	0.2 U	14	0.2 U	0.4 U	**4.7**	0.2 U	0.4	**2,300**	**0.14**	0.9	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/16/07	5.0 U	0.081	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**660**	0.027	5.0 U	5.0 U	**21**	5.0 U	5.0 U	5.0 U	5.0 U		
	6/14/07	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**540**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	7/23/07	1.0 U	1.0 U	5.0 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	**49**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/20/07	1.0 U	0.32	5.0 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	**36**	0.02 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/7/08	0.6 U	0.19	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**42**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	2/5/08	0.6 U	0.6 U	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**28**	0.6 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	4/2/08	0.2 U	0.2 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**12**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/22/08	0.2 UJ	0.035 J	2.5 UJ	3.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	**9.4 J**	0.020 UJ	0.2 UJ	0.2 UJ	0.5 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ		
	7/9/08	0.2 U	0.18	2.5 U	3.0 U	0.2 U	0.2 U	2.6	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**110 D**	**0.082**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/21/08	1.0 U	0.20	5.0 U	5.0 U	1.0 U	1.0 U	2.5	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**270 D**	**0.035**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/13/09	3.0 U	0.044	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	**300**	0.020 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	4/15/09	1.0 U	1.0 U	12 U	12 U	1.0 U	1.0 U	1.3	1.0 U	2.0 U	**0.53 J**	1.0 U	1.0 U	**480 D**	0.2 UJ	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
	6/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	1.3	0.2 U	0.4 U	**0.6**	0.2 U	0.2 U	**460 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/09	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	**0.46 J**	2.0 U	2.0 U	**460**	0.020 UJ	2.0 U	5.0 UJ	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	7/30/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	1.0	0.2 U	0.4 U	**0.6**	0.2 U	0.2 U	**450 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	8/27/09	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**450**	2.0 U	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	9/14/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	1.0	0.2 U	0.4 U	**0.6**	0.2 U	0.2 U	**430 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/09	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	2.3	2.0 U	4.0 U	**0.71**	2.0 U	2.0 U	**440**	0.020 U	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	1/14/10	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	17	2.0 U	4.0 U	**0.64**	2.0 U	2.0 U	**420**	**0.074**	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	4/12/10	2.0 U	2.0 U	50 U	50 UJ	2.0 U	2.0 U	5.8	2.0 U	4.0 U	**1.4 J**	2.0 U	2.0 U	**470**	**0.16 J**	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
EGW128	1/5/06	50 U	0.44	250 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**3,200**	**0.073**	50 U	50 U	100 U	50 U	50 U	50 U	50 U		
	4/5/06	20 U	0.16	100 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**2,700**	**0.045**	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	7/11/06	30 U	0.13	150 U	150 U	30 U	30 U	49	30 U	30 U	30 U	30 U	30 U	**3,000**	**0.034**	30 U	30 U	60 U	30 U	30 U	30 U	30 U		
	11/13/06	30 U	0.078	150 U	150 U	30 U	30 U	30 U	30 U	30 U	**2.0**	30 U	30 U	**680**	**0.15**	30 U	30 U	60 U	30 U	30 U	30 U	30 U		
	1/25/07	0.2 U	0.75	15	260	0.7	0.2 U	8.9	0.2 U	0.7	**4.4**	1.1	2.1	**6,200**	0.020	0.4	0.2 U	0.3 U	0.2 U	0.2 U	0.2	0.2 U		
	4/16/07	20 U	0.72	100 U	270	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**1,900**	**0.072**	20 U	20 U	**83**	20 U	20 U	20 U	20 U		
	6/14/07	10 U	10 U	50 U	160 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**730**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	7/16/07	10 U	10 U	50 U	150	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**330**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	9/25/07	5.0 U	5.0 U	25 U	110	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**210**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	12/5/07	0.2 U	0.2 U	3.8	35	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**4.0**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/7/08	0.2 U	0.35	4.9	150	0.4	0.2 U	1.8	0.2 U	0.4 U	0.2 U	0.2 U	1.0	**66**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	2/5/08	1.0 U	1.0 U	5.0 U	89	1.0 U	1.0 U	2.8	1.0 U	1.0 U	1.0 U	1.0 U	1.4	**84**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	2/5/08 (DUP)	1.0 U	1.0 U	5.0 U	89	1.0 U	1.0 U	2.7	1.0 U	1.0 U	1.0 U	1.0 U	1.2	**78**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/1/08	2.0 U	2.0 U	25 U	30 U	2.0 U	2.0 U	4.1	2.0 U	4.0 U	2.0 U	2.0 U	2.1	**110**	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	4/22/08	0.2 UJ	0.68 J	2.5 UJ	3.7 J	0.7 J	0.2 UJ	3.0 J	0.2 UJ	0.4 UJ	0.2 UJ	0.2 UJ	1.2 J	**88 JD**	0.20 UJ	0.2 UJ	0.2 UJ	0.5 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ		
	7/9/08	0.6 U	0.37	7.5 U	9.0 U	0.6 U	0.6 U	1.7	0.6 U	1.2 U	0.6 U	0.6 U	0.8	**37 D**	0.026	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	10/21/08	0.6 U	0.42	7.5 U	9.0 U	0.6 U	0.6 U	1.5	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**44**	**0.037**	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	10/21/08 (DUP)	0.6 U	0.42	7.5 U	9.0 U	0.6 U	0.6 U	1.4	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**44**	**0.034**	0.6 U	0.6 U	1.6 U	0.6 U	0.6 U	0.6 U	0.6 U		
	1/13/09	1.0 U	0.33	5.0 U	5.0 U	1.0 U	1.0 U	1.0	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**34**	0.025	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/15/09	0.2 U	0.3	2.5 U	2.5 U	0.2 U	0.2 U	0.8	0.2 U	0.4 U	0.020 U	0.2 U	0.2	**27**	0.023	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	6/8/09	0.2 U	0.2 X	5.0 U	5.0 U	0.2 X	0.2 U	0.7	0.2 U	0.4 U	0.2 U	0.2 U	0.2 X	**24**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/09	0.2 U	0.3	5.0 U	5.0 U	0.2 U	0.2 U	0.7	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**22**	0.020 UJ	0.2 U	0.5 UJ	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.020 U	0.2 U	0.2	**18**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/14/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**16**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/12/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**11**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW129	1/5/06	0.2 U	0.05	1.0 U	2.0	0.3	0.2 U	0.3	0.2 U	0.7	0.2 U	1.2	0.2 U	**33**	0.020 U	0.6	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/5/06	0.2 U	0.032	1.0 U	1.8 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**30**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/5/06 (DUP)	1.0 U	0.035	5.0 U	12 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**28 D**	0.020 U	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/11/06	0.6 U	0.020 U	3.0 U	3.0 U	0.6 U	0.6 U	0.6	0.6 U	1.3	0.6 U	0.6 U	0.6 U	**30**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	11/13/06	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.051	1.0 U	1.0 U	**42**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	12/13/06	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	**76**	1.0 U	NA	NA	NA	NA	NA	NA	NA		
	1/18/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	**0.12**	0.2 U	0.2 U	**100**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	2/16/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.8	0.2 U	0.4 U	0.20 U	0.2 U	0.2 U	**110**	0.20 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	3/15/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.15**	1.0 U	1.0 U	**110**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/16/07	1.0 U	0.027	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.14**	1.0 U	1.0 U	**130**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	5/14/07	1.0 UJ	1.0 UJ	5.0 UJ	5.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	**110 J**	1.0 UJ	1.0 UJ	1.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ		
	6/12/07	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	0.030	1.0 U	1.0 U	**0.15**	1.0 U	1.0 U	**98**	**0.034**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/12/07	1.0 U	0.067 J	5.0 U	5.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	**0.15 J**	1.0 U	1.0 U	**90**	0.026 J	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	8/21/07	1.0 U	0.037	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.12**	1.0 U	1.0 U	**94**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	9/25/07	1.0 U	1.0 U	5.8	9.6	1.0 U	1.0 U	2.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**110**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/17/07	1.0 U	1.0 U	5.0 U	5.2 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**80**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/30/07	1.0 U	0.039	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.10**	1.0 U	1.0 U	**80**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/20/07	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**74**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/7/08	1.0 U	0.2 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U	1.0 U	1.0 U	**95**	0.2 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/10/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.13**	1.0 U	1.0 U	**110**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/9/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**100**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/22/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.7	0.2 U	0.4 U	**0.13**	0.2 U	0.2 U	**130 D**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/13/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	**0.11**	1.0 U	1.0 U	**110**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	**0.11 J**	0.2 U	0.2 U	**120**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/09 (DUP)	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	**0.093 J**	0.2 U	0.2 U	**110**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	6/8/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	0.2 X	0.2 U	0.2 U	**110 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	**0.10 J**	0.6 U	0.6 U	**96**	0.020 UJ	0.6 U	1.5 UJ	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	7/13/09 (DUP)	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.6	0.6 U	1.2 U	**0.10 J**	0.6 U	0.6 U	**120**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (μg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		10/22/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	**0.11**	0.6 U	0.6 U	**83**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		1/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	**0.097**	0.2 U	0.2 U	**87 D**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/13/10	0.4 U	0.4 U	10 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	0.8 U	**0.090 J**	0.4 U	0.4 U	**69**	0.020 UJ	0.4 U	1.0 U	1.0 U	0.4 U	0.4 U	0.4 U	0.4 U		
		4/13/10 (DUP)	0.4 U	0.4 U	10 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	0.8 U	**0.092 J**	0.4 U	0.4 U	**67**	0.020 UJ	0.4 U	1.0 U	1.0 U	0.4 U	0.4 U	0.4 U	0.4 U		
EGW130		1/5/06	0.2 U	0.020 U	1.0 U	1.6	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.4	0.2 U	0.2 U	0.020 U	0.7	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/5/06	0.2 U	0.020 U	1.0 U	2.6 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/11/06	0.2 U	0.020 U	1.0 U	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/13/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	0.048	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		12/13/06	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	0.2 U	0.2 U	NA	NA	NA	NA	NA	NA	NA		
		12/13/06 (DUP)	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	0.2 U	0.2 U	NA	NA	NA	NA	NA	NA	NA		
		1/18/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		2/16/07	0.2 U	0.20 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.20 U	0.2 U	0.2 U	0.2 U	0.20 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		3/15/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/16/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.032	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/14/07	0.2 U	0.2 U	2.2 J	3.9	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/14/07 (DUP)	0.2 U	0.2 U	1.1 J	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/12/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.02 U	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	0.084	0.02 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/12/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.14	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		8/21/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.29	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		9/25/07	0.2 U	0.2 U	1.2	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.5**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/17/07	0.2 U	0.2 U	1.3 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.0**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/30/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.27	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/20/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.3**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/7/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.35	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/10/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.38	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.36	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/9/08 (DUP)	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.33	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/22/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.49**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/13/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.5**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.16	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/8/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/13/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.078	0.020 U	0.2 U	0.5 UJ	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/22/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.058	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.076	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.041	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW131		1/5/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**13**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/5/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/23/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.046	0.2 U	0.2 U	**8.8**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/17/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.053	0.2 U	0.2 U	**8.2**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/13/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.052	0.2 U	0.2 U	**7.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/13/07 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.064	0.2 U	0.2 U	**7.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/12/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.046	0.2 U	0.2 U	**9.0**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/12/07 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.055	0.2 U	0.2 U	**9.1**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/30/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.047	0.2 U	0.2 U	**7.5 J**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/30/07 (DUP)	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.030	0.2 U	0.2 U	**3.4 J**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/8/08	0.2 U	0.020 U	1.0 U	3.2	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.050	0.2 U	0.2 U	**8.1**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/8/08 (DUP)	0.2 U	0.020 U	1.0 U	4.8	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.044	0.2 U	0.2 U	**8.3**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.059	0.2 U	0.2 U	**8.8**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/08 (DUP)	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.055	0.2 U	0.2 U	**8.5**	0.020 U	0.2 U	0.2	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/10/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.051	0.2 U	0.2 U	**8.3**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/22/08	0.2 U	0.020 UJ	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.055	0.2 U	0.2 U	**7.2**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/14/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.039	0.2 U	0.2 U	**6.6**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/20/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.052	0.2 U	0.2 U	**7.0**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/13/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.041	0.2 U	0.2 U	**6.1**	0.020 U	0.2 U	0.5 UJ	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/30/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.038 J	0.2 U	0.2 U	**5.0**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.041	0.2 U	0.2 U	**4.8**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/13/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.037	0.2 U	0.2 U	**4.8**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW132	**(113') (7)**	1/4/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/11/06	0.2 U	0.020 U	1.0 U	2.0 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.099	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/2/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.083	0.020 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.2 U		
		4/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.030	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.078	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/26/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.054	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(97') (6)	1/4/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/11/06	0.2 U	0.020 U	1.0 U	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.11	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/2/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.15	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.25	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/08	0.2 U	0.020 U	2.5 U	3.2	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.23	0.020 U	0.2 U	0.4	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/26/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.12	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	(81') (5)	1/4/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/11/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.066	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/2/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.32	0.020 U	0.2 U	0.2	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.34	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.27	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/26/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.15	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(62') (4)	1/4/06	0.6 U	0.020 U	3.0 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**32**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		4/11/06	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**26**	0.020 U	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/11/06 (DUP)	1.0 U	0.023	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**27**	0.020 U	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/24/06	0.6 U	0.041	3.0 U	9.0 U	0.6 U	0.6 U	3.5	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**110**	0.020 U	0.6 U	0.6 U	1.6 U	0.6 U	0.6 U	0.6 U	0.6 U		
		1/26/07	1.0 U	0.045	5.0 U	5.0 U	1.0 U	1.0 U	2.3	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**76**	**0.033**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/13/07	1.0 U	0.048	5.0 U	5.0 U	1.0 U	1.0 U	3.4	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**92**	**0.083**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/18/07	1.0 U	0.077	5.0 U	5.0 U	1.0 U	1.0 U	2.5	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**61**	**0.061**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/2/07	1.0 U	0.11	5.0 U	5.0 U	1.0 U	1.0 U	3.7	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**110**	**0.067**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/8/08	1.0 U	0.076	5.0 U	5.0 U	1.0 U	1.0 U	3.2	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/15/08	0.8 U	0.20 U	10 U	12 U	0.8 U	0.8 U	1.5	0.8 U	1.6 U	0.20 U	0.8 U	0.8 U	**40**	0.20 U	0.8 U	0.8 U	2.0 U	0.8 U	0.8 U	0.8 U	0.8 U		
		7/10/08	0.6 U	0.20 U	7.5 U	9.0 U	0.6 U	0.6 U	2.6	0.6 U	1.2 U	0.20 U	0.6 U	0.6 U	**46 D**	0.20 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		10/24/08	1.0 U	0.028	5.0 U	5.0 U	1.0 U	1.0 U	2.2	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**28**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/18/09	1.0 U	0.025	5.0 U	7.1	1.0 U	1.0 U	2.3	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**25**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/21/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	3.2	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**74 D**	**0.031 J**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/14/09	1.0 U	1.0 U	5.0 U	10 U	1.0 U	1.0 U	4.0	1.0 U	2.0 U	0.020 UJ	1.0 U	1.0 U	**70**	**0.041 J**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/26/09	0.4 U	0.4 U	10 U	10 U	0.4 U	0.4 U	9.8	0.4 U	0.8 U	0.020 U	0.4 U	0.4 U	**170 D**	**0.038**	0.4 U	1.0 U	1.0 U	0.4 U	0.4 U	0.4 U	0.4 U		
		1/18/10	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	11	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**210**	0.027	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/18/10 (DUP)	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	12	2.0 U	4.0 U	0.020 U	2.0 U	2.0 U	**240**	0.029	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		4/14/10	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	11	1.0 U	2.0 U	0.020 UJ	1.0 U	1.0 U	**450 D**	0.020 UJ	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
EGW132 (continued)	**(50') (3)**	1/4/06	10 U	0.038	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**650**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/11/06	15 U	0.027	75 U	75 U	15 U	15 U	15 U	15 U	30 U	15 U	15 U	15 U	**610**	0.020 U	15 U	15 U	22 U	15 U	15 U	15 U	15 U		
		10/31/06	10 U	0.020	50 U	50 U	10 U	10 U	10 U	10 U	10 U	**0.18**	10 U	10 U	**480**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		1/26/07	10 U	0.020 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**370**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/13/07	5.0 U	0.020 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**480**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		7/18/07	3.0 U	0.020 UJ	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**400**	0.020 UJ	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		11/2/07	5.0 U	0.020 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**310**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/8/08	3.0 U	0.020 U	15 U	15 U	3.0 U	3.0 U	3.1	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**450**	0.020 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		4/15/08	3.0 U	0.20 U	15 U	15 U	3.0 U	3.0 U	3.4	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**480**	0.20 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		7/10/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**440**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		10/24/08	5.0 U	0.025	25 U	25	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**490**	0.024	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/18/09	5.0 U	0.030	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**360**	**0.044**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/21/09	0.2 U	0.400	2.5 U	2.5 U	0.2 U	0.2 U	5.9	0.2 U	0.4 U	**0.30**	0.2 U	0.2 U	**570 D**	**0.39 J**	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/14/09	5.0 U	5.0 U	25 U	50 U	5.0 U	5.0 U	20	5.0 U	10 U	**0.18 J**	5.0 U	5.0 U	**670**	**0.74 J**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		10/26/09	6.0 U	6.0 U	150 U	150 U	6.0 U	6.0 U	52	6.0 U	12 U	**0.50**	6.0 U	6.0 U	**1,700**	**0.56**	6.0 U	15 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
		1/18/10	10 U	10 U	250 U	250 U	10 U	10 U	33	10 U	20 U	**0.39**	10 U	10 U	**1,200**	**0.058**	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
		4/14/10	10 U	10 U	250 U	250 U	10 U	10 U	51	10 U	20 U	**0.29 J**	10 U	10 U	**1,000**	0.20 UJ	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
EGW132 (continued)	**(37') (2)**	1/4/06	10 U	0.031	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**640**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/11/06	5.0 U	0.024	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		10/31/06	10 U	0.020 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	**0.18**	10 U	10 U	**340**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		1/26/07	10 U	0.020 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**280**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/13/07	5.0 U	0.020 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**460**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		7/18/07	3.0 U	0.042	15 U	15 U	3.0 U	3.0 U	3.4	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**460**	0.020 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		11/2/07	5.0 U	0.020 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**280**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/8/08	3.0 U	0.031	15 U	15 U	3.0 U	3.0 U	4.4	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**510**	0.020 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		4/15/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	5.6	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**510**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		7/10/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	5.3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**420**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		10/24/08	5.0 U	0.22	25 U	25 U	5.0 U	5.0 U	8.1	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**660**	**0.089**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/18/09	5.0 U	1.3	25 U	25 U	5.0 U	5.0 U	10	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**520**	**0.15**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/21/09	0.2 U	5.3	2.5 U	2.5 U	0.4	0.2 U	35	0.2 U	0.4 U	**0.8**	0.2 U	0.8	**1,300**	**0.66 J**	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/14/09	10 U	10 U	50 U	100 U	10 U	10 U	31	10 U	20 U	**0.52 J**	10 U	10 U	**1,500**	**0.10 J**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		10/26/09	12 U	12 U	300 U	300 U	12 U	12 U	14	12 U	24 U	**0.57**	12 U	12 U	**1,100**	0.020 U	12 U	30 U	30 U	12 U	12 U	12 U	12 U		
		1/18/10	6.0 U	6.0 U	150 U	150 U	6.0 U	6.0 U	11	6.0 U	12 U	**0.44**	6.0 U	6.0 U	**750**	0.020 U	6.0 U	15 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
		4/14/10	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	9.4	4.0 U	8.0 U	**0.36 J**	4.0 U	4.0 U	**730**	0.20 UJ	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
	(24') (1)	1/4/06	3.0 U	0.096	15 U	15 U	3.0 U	3.0 U	12	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**190**	**0.066**	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		4/11/06	3.0 U	0.094	15 U	15 U	3.0 U	3.0 U	12	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**190**	**0.053**	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		10/31/06	5.0 U	0.068	25 U	25 U	5.0 U	5.0 U	10	5.0 U	5.0 U	0.033	5.0 U	5.0 U	**190**	0.028	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/26/07	3.0 U	0.059	15 U	15 U	3.0 U	3.0 U	9.2	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**180**	0.021	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		4/13/07	1.0 U	0.051	5.0 U	5.0 U	1.0 U	1.0 U	14	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**250**	**0.030**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/18/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	8.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**190**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/2/07	1.0 U	0.057	5.0 U	5.0 U	1.0 U	1.0 U	7.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/8/08	1.0 U	0.057	5.0 U	5.0 U	1.0 U	1.0 U	8.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**180**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/15/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	8.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**180**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/10/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	7.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		10/24/08	1.0 U	0.052	5.0 U	5.0 U	1.0 U	1.0 U	9.0	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**190**	0.029	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/18/09	1.0 U	0.038	5.0 U	5.0 U	1.0 U	1.0 U	6.6	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**150**	0.022	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/21/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	7.6	0.2 U	0.4 U	0.020 J	0.2 U	0.2 U	**190 D**	**0.040 J**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/14/09	1.0 U	1.0 U	5.0 U	10 U	1.0 U	1.0 U	7.6	1.0 U	2.0 U	0.021 J	1.0 U	1.0 U	**160 J**	**0.042 J**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/26/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	7.5	1.0 U	2.0 U	0.032	1.0 U	1.0 U	**160**	0.021	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/18/10	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	7.0	1.0 U	2.0 U	0.027	1.0 U	1.0 U	**130**	0.020 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/14/10	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	8.7	1.0 U	2.0 U	0.023 J	1.0 U	1.0 U	**140**	0.020 UJ	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
EGW133	**(112.5') (7)**	1/3/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/11/06	0.2 U	0.020 U	1.0 U	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.023	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/2/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.027	0.020 U	0.2 U	0.4	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.040	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.024	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/22/09	0.2 U	0.2 U	2.5 U	3.2	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.024	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/3/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.037	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(100.5') (6)	1/3/06	0.2 U	0.020 U	1.0 U	1.2	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/11/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/2/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.056	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.054	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.12	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/22/09	0.2 U	0.2 U	2.5 U	2.6	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.056	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/3/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.044	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW133 (continued)	**(88.5') (5)**	1/3/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.5**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/11/06	0.2 U	0.020 U	1.0 U	1.3 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.32	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/2/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.25	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.24	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.20	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/24/08 (DUP)	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.21	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/22/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.16	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/3/09	0.2 U	0.2 U	5.0 U	9.0 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.5**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(67.5') (4)	1/3/06	2.0 U	0.053 J	10 U	10 U	2.0 U	2.0 U	3.1	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**190**	0.023	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		4/11/06	3.0 U	0.038	15 U	15 U	3.0 U	3.0 U	3.6	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**250**	0.021	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		10/31/06	5.0 U	0.038	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.020 U	5.0 U	5.0 U	**220**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/26/07	5.0 U	0.055	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**160**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/12/07	0.2 U	0.050	1.0 U	3.0 U	0.2 U	0.2 U	4.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**150 D**	0.028	0.3	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/07	1.0 U	0.070	5.0 U	5.0 U	1.0 U	1.0 U	4.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	0.02	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/2/07	1.0 U	0.13	5.0 U	5.0 U	1.0 U	1.0 U	5.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/9/08	1.0 U	0.13	5.0 U	5.0 U	1.0 U	1.0 U	7.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/15/08	1.0 U	0.21	5.0 U	5.0 U	1.0 U	1.0 U	9.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/10/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	9.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/24/08	1.0 U	0.20	5.0 U	5.0 U	1.0 U	1.0 U	12	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**230 D**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/18/09	3.0 U	0.18	15 U	5.0 U	3.0 U	3.0 U	11	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	**180**	0.020 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	15 U	3.0 U		
		4/22/09	0.2 U	0.20	2.5 U	2.5 U	0.2 U	0.2 U	14	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**220 D**	0.020 UJ	0.6	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/14/09	2.0 U	2.0 U	10 U	20 U	2.0 U	2.0 U	14	2.0 U	4.0 U	0.020 UJ	2.0 U	2.0 U	**230**	0.020 UJ	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		11/3/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	13	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**320 D**	0.020 U	0.4	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/18/10	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	11	2.0 U	4.0 U	0.020 U	2.0 U	2.0 U	**270**	0.020 U	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		4/14/10	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	12	2.0 U	4.0 U	0.020 UJ	2.0 U	2.0 U	**290**	0.020 UJ	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	(54.5') (3)	1/3/06	1.0 U	0.025	5.0 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	**140**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/11/06	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/31/06	3.0 U	0.020 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.026	3.0 U	3.0 U	**140**	0.020 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		1/26/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.040	1.0 U	1.0 U	**130**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/12/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.9	0.2 U	0.4 U	0.039	0.2 U	0.2 U	**120 D**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.024	1.0 U	1.0 U	**120**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/2/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	**0.15**	1.0 U	1.0 U	**110**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/9/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	0.029	1.0 U	1.0 U	**110**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/15/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/10/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**97**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/24/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.5	1.0 U	2.0 U	0.20 U	1.0 U	1.0 U	**120**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/18/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.024	1.0 U	1.0 U	**100**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/22/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	1.2	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**110 D**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/22/09 (DUP)	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	1.2	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**110 D**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/14/09	1.0 U	1.0 U	5.0 U	10 U	1.0 U	1.0 U	1.2	1.0 U	2.0 U	0.020 UJ	1.0 U	1.0 U	**110**	0.020 UJ	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/3/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	1.1	0.2 U	0.4 U	0.031	0.2 U	0.2 U	**110 D**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/18/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.9	0.6 U	1.2 U	0.022	0.6 U	0.6 U	**94**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		4/14/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.6	0.6 U	1.2 U	0.021 J	0.6 U	0.6 U	**92**	0.020 UJ	0.6 U	1.5 U	1.9	0.6 U	0.6 U	0.6 U	0.6 U		
EGW133 (continued)	**(41.5') (2)**	1/3/06	1.0 U	0.044	5.0 U	5.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**81**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/11/06	1.0 U	0.022	5.0 U	5.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/31/06	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.052	1.0 U	1.0 U	**94**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	1/26/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.078	1.0 U	1.0 U	**91**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/12/07	0.2 U	0.024	1.0 U	3.0 U	0.2 U	0.2 U	1.0	0.2 U	0.4 U	0.080	0.2 U	0.2 U	**92 D**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/18/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.051	1.0 U	1.0 U	**83**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/2/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.064	1.0 U	1.0 U	**74**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/9/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.070	1.0 U	1.0 U	**80**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/15/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**84**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/10/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.058	1.0 U	1.0 U	**75**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/24/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.062	1.0 U	1.0 U	**90**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/18/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.055	1.0 U	1.0 U	**73**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/22/09	0.2 U	0.2 U	2.5 U	3.7	0.2 U	0.2 U	0.8	0.2 U	0.4 U	0.044 J	0.2 U	0.2 U	**85 D**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/09	1.0 U	1.0 U	5.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.043 J	1.0 U	1.0 U	**80**	0.020 UJ	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/3/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.7	0.2 U	0.4 U	0.065	0.2 U	0.2 U	**72 D**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/18/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.7	0.6 U	1.2 U	0.047	0.6 U	0.6 U	**63**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	4/14/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.7	0.6 U	1.2 U	0.044 J	0.6 U	0.6 U	**66**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
(28.5') **(1)**	1/3/06	1.0 U	0.03	5.0 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	**80**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/11/06	1.0 U	0.020 U	5.0 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	**90**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/31/06	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.074	1.0 U	1.0 U	**88**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/26/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.097**	1.0 U	1.0 U	**76**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/18/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.057	1.0 U	1.0 U	**72**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/2/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.14**	1.0 U	1.0 U	**67**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/9/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.065	1.0 U	1.0 U	**70**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/15/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**66**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/10/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**60**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/24/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.072	1.0 U	1.0 U	**78**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/18/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.060	1.0 U	1.0 U	**62**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/22/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	1.0	0.2 U	0.4 U	0.048 J	0.2 U	0.2 U	**71**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/09	1.0 U	1.0 U	5.0 U	10 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	**0.26 J**	1.0 U	1.0 U	**65**	0.020 UJ	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/3/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.9	0.2 U	0.4 U	0.080	0.2 U	0.2 U	**71 D**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/18/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.8	0.6 U	1.2 U	0.058	0.6 U	0.6 U	**61**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	4/14/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.9	0.2 U	0.4 U	0.047 J	0.2 U	0.2 U	**55**	0.020 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW134	2/1/06	0.2 U	0.023	1.2	14 *	0.2 U	0.2 U	6.2	0.2 U	0.3	0.2 U	0.7	1.6	**2.3**	**16**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/06	0.4 U	0.041	2.0 U	7.0 U	0.4 U	0.4 U	8.4	0.4 U	0.8 U	0.4 U	2.6	1.7	**1.6**	**21**	0.4 U	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U		
EGW135	2/1/06	0.2 U	0.020 U	1.0 U	1.3 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.3	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/06	0.2 U	0.020 U	1.0 U	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/17/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.02 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/9/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	**0.032 J**	0.2 U	0.2 J	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/8/07	0.2 U	0.020 UJ	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	0.020 UJ	0.020 UJ	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/14/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.033	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/21/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/28/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/22/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.12	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/09	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
	11/5/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW136	2/1/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW137	2/1/06	0.2 U	0.020 U	1.0 U	5.2 *	0.2 U	0.2 U	3.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/14/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	4.9	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.32	**0.36**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.0**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/9/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.061 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	1.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.1 J	**0.053 J**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/7/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.8	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.078 U	0.028	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/14/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.039	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/21/08	0.2 U	0.020 U	2.5 U	3.5	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.028	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.035	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/28/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	2.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.054	**0.11**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/15/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.022	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/23/09	0.2 U	0.2 U	2.5 U	4.4	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.027	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/09	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	4.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.047	**0.65**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
	11/5/09	0.2 U	0.2 U	5.0 U	9.8	0.2 U	0.2 U	1.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.18	**0.16**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.027	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.034	0.025	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW138	4/14/06	0.6 U	0.020 U	3.0 U	4.4 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**24**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		10/27/06	0.6 U	0.021	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**28**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		1/9/07	0.6 U	0.020 U	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**20**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		4/10/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**19 D**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/17/07	0.6 U	0.020 U	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**26**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		11/6/07	0.6 U	0.020 U	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**24**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		1/15/08	0.6 U	0.020 UJ	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**19**	0.020 UJ	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		4/21/08	0.6 U	0.020 UJ	7.5 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**19**	0.020 UJ	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		7/15/08	0.6 U	0.020 U	7.5 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**23**	0.020 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		10/27/08	0.6 U	0.020 U	7.5 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**20**	0.020 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		1/15/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**15 J**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/23/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**12**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/09	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**14**	0.020 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
		11/6/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**14**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**12**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/20/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**10**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW139	**(11-15')**	1/6/06	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**81**	0.5 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
	(15-20')	4/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	2.1	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**81 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(21.5-25.5')	1/6/06	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.5**	0.5 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
	(31.5-35.5')	1/6/06	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
EGW140	**(11-15')**	1/5/06	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**168**	0.5 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
	(12.25-17.25')	4/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	1.1	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**110 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(21-25')	1/5/06	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**78.2**	0.5 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
	(28-32')	1/5/06	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	4.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**118**	0.5 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
		1/5/06 (DUP)	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	4.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**112**	0.5 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
EGW141	**(11-15')**	1/4/06	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	2.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**124**	0.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
	(21-25')	1/4/06	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**38.6**	0.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U		
	(12.25-17.25	4/14/06	1.0 U	0.032	5.0 U	5.0 U	1.0 U	1.0 U	2.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	**0.047**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/27/06	4.0 U	0.020 U	20 U	60 U	4.0 U	4.0 U	4.0 U	4.0 U	8.0 U	0.020 U	4.0 U	4.0 U	**130**	0.020 U	4.0 U	4.0 U	6.0 U	4.0 U	4.0 U	4.0 U	4.0 U		
		10/27/06 (DUP)	3.0 U	0.020 U	15 U	45 U	3.0 U	3.0 U	3.0 U	3.0 U	6.0 U	0.020 U	3.0 U	3.0 U	**140**	0.020 U	3.0 U	3.0 U	4.5 U	3.0 U	3.0 U	3.0 U	3.0 U		
		1/9/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**120**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/10/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	2.2	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**140**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/17/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/6/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**87**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/15/08	0.2 U	0.020 UJ	1.0 U	3.0 U	0.2 U	0.2 U	1.3	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**130**	0.020 UJ	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/21/08	1.0 U	0.020 UJ	12 U	15 U	1.0 U	1.0 U	2.0	1.0 U	2.0 U	0.020 UJ	1.0 U	1.0 U	**110 D**	0.020 UJ	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/15/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/15/08 (DUP)	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/27/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.4	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**130**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/15/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/23/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	1.3	0.2 U	0.4 U	0.20 U	0.2 U	0.2 U	**120 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/09	0.6 U	0.6 UJ	15 U	15 U	0.6 U	0.6 U	1.1	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**95**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 UJ	0.6 U		
		11/6/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	1.0	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**93**	0.020 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/21/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.1	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**100**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		4/15/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	1.1	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**96 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/20/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.1	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**98**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
EGW143		2/1/06	0.2 U	0.020 U	1.0 U	1.4 *	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**9.7**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/14/06	0.2 U	0.020 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.5**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/27/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.130 U	0.020 U	0.2 U	0.2 U	0.6 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/10/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.63**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.25	0.035 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/16/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.18 J	0.020 U	0.2 U	0.3 J	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/7/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.13 U	0.020 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.2 U		
		1/15/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.14	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/21/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.15	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.16	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/28/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.086	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/28/08 (DUP)	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.092	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/15/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.070	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/15/09 (DUP)	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.063	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/23/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.090	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/09	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.065	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
		11/5/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.044	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.038	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/20/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.030	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW144		2/27/06	0.2 U	0.058	1.0 U	1.0 U	0.2 U	0.2 U	3.3	0.2 U	0.4 U	**1.1**	0.2 U	0.2 U	**630 D**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/4/06	5.0 U	0.066	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		7/11/06	5.0 U	0.077	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**540**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		11/13/06	5.0 U	0.32	25 U	25 U	5.0 U	5.0 U	10	5.0 U	5.0 U	**1.0**	5.0 U	5.0 U	**550**	**0.16**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		12/13/06	NA	NA	NA	NA	NA	NA	56	NA	NA	NA	NA	NA	**2,000**	5.0 U	NA	NA	NA	NA	NA	NA	NA		
		1/18/07	50 U	2.0	250 U	320	50 U	50 U	54	50 U	50 U	50 U	50 U	50 U	**1,500**	**0.76**	50 U	50 U	100 U	50 U	50 U	50 U	50 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
	2/16/07	0.2 U	1.2	1.0 U	3.0 U	0.2 U	0.2 U	50	0.2 U	0.4 U	**2.1**	0.2 U	0.7	**1,000**	**1.20**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	3/15/07	10 U	1.4	50 U	50 U	10 U	10 U	37	10 U	10 U	10 U	10 U	10 U	**760**	**1.40**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	4/16/07	10 U	1.4	50 U	50 U	10 U	10 U	38	10 U	10 U	10 U	10 U	10 U	**1,300**	**0.31**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	5/14/07	10 UJ	10 UJ	50 UJ	50 UJ	10 UJ	10 UJ	20 J	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**1,000 J**	10 UJ	10 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ		
	6/12/07	10 U	3.2	50 U	50 U	10 U	10 U	23	10 U	10 U	10 U	10 U	10 U	**860**	**0.38**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	7/12/07	10 U	2.5	50 U	50 U	10 U	10 U	19	10 U	10 U	10 U	10 U	10 U	**650**	**0.19**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	8/21/07	5.0 U	0.21	25 U	25 U	5.0 U	5.0 U	5.6	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**510**	0.022	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	9/25/07	5.0 U	5.0 U	25 U	26	5.0 U	5.0 U	5.3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**700**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	10/17/07	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**420**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	10/17/07 (DUP)	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**500**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	10/30/07	5.0 U	0.082	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**410**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	11/20/07	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**240**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	1/17/08	3.0 U	0.2 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**380**	0.2 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	2/5/08	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**490**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	3/7/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**440**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	4/2/08	0.2 U	0.2 U	2.5 U	3.0 U	0.2 U	0.2 U	2.8	0.2 U	0.4 U	**1.1**	0.2 U	0.2 U	**600 D**	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/10/08	3.0 U	0.20 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**390**	0.20 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	4/29/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	7/9/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**380**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	10/21/08	3.0 U	0.22	15 U	15 U	3.0 U	3.0 U	8.3	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	**620 D**	**0.058**	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	1/13/09	5.0 U	0.14	25 U	25 U	5.0 U	5.0 U	7.7	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**550**	**0.043**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	3/2/09	0.2 U	0.2	2.5 U	2.5 U	0.2 U	0.2 U	8.7	0.2 U	0.4 U	**0.9**	0.2 U	0.2 X	**570 D**	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/8/09	0.2 U	0.2	2.5 U	2.5 U	0.2 U	0.2 U	14	0.2 U	0.4 U	**1.0**	0.2 U	0.3	**710 D**	0.2 U	0.2 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	5/4/09	0.2 U	0.4	2.5 U	2.5 U	0.2 U	0.2 U	28	0.2 U	0.4 U	**1.1**	0.2 U	0.3	**1,000 D**	**0.2**	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	5/26/09	2.0 U	2.0 U	25 U	25 U	2.0 U	2.0 U	36	2.0 U	4.0 U	0.2 U	2.0 U	2.0 U	**1,100 D**	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	6/10/09	0.2 U	0.4	5.0 U	5.0 U	0.2 U	0.2 U	34	0.2 U	0.4 U	**1.2**	0.2 U	0.4	**1,200 D**	0.2 U	0.3	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/13/09	6.0 U	6.0 U	150 U	150 U	6.0 U	6.0 U	37	6.0 U	12 U	**0.76 J**	6.0 U	6.0 U	**1,300**	**0.22 J**	6.0 U	15 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
	8/27/09	6.0 U	6.0 U	150 U	150 U	6.0 U	6.0 U	30	6.0 U	12 U	6.0 U	6.0 U	6.0 U	**1,200**	6.0 U	6.0 U	15 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
	9/14/09	0.2 U	0.3	5.0 U	5.0 U	0.2 U	0.2 U	21	0.2 U	0.4 U	**0.9**	0.2 U	0.3	**940 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/22/09	6.0 U	6.0 U	150 U	150 U	6.0 U	6.0 U	34	6.0 U	12 U	**0.76**	6.0 U	6.0 U	**1,100**	**0.16**	6.0 U	15 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
	1/14/10	3.0 U	3.0 U	75 U	75 U	3.0 U	3.0 U	5.1	3.0 U	6.0 U	**0.42**	3.0 U	3.0 U	**420**	0.023	3.0 U	7.5 U	7.5 U	3.0 U	3.0 U	3.0 U	3.0 U		
	4/12/10	4.0 U	4.0 U	100 U	100 UJ	4.0 U	4.0 U	8.2	4.0 U	8.0 U	**0.34 J**	4.0 U	4.0 U	**460**	**0.056 J**	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
EGW145	10/26/06	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	2.9	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**250**	0.020 U	0.2 U	0.2 U	0.3.0 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/07	3.0 U	0.020 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**100**	0.020 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	4/9/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**90**	0.024 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/16/07	1.0 U	0.020 U	5.0 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	**23**	0.021 J	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/7/07	0.6 U	0.020 U	3.0 U	9.0 U	0.6 U	0.6 U	1.4	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**80**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	1/14/08	0.6 U	0.020 U	3.0 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**40**	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	4/21/08	1.0 U	0.020 U	12 U	15 U	1.0 U	1.0 U	1.7	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**120 D**	0.020 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/15/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**85**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/28/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.2	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**99**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/15/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**80**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/23/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	1.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**110 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/09	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	0.7	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**55**	0.020 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
	11/5/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.8	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**68**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	1/21/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.9	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**74**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	4/20/10	0.4 U	0.4 U	10 U	10 U	0.4 U	0.4 U	0.8	0.4 U	0.8 U	0.020 UJ	0.4 U	0.4 U	**67**	0.020 UJ	0.4 U	1.0 U	1.0 U	0.4 U	0.4 U	0.4 U	0.4 U		
EGW146	10/26/06	0.2 U	0.14	1.0 U	3.0 U	0.2 U	0.2 U	26	0.2 U	0.4 U	0.020 U	0.2 U	0.3	**1,000**	**0.21**	0.3	0.2 U	0.3.0 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/10/07	10 U	0.089	50 U	50 U	10 U	10 U	16	10 U	10 U	10 U	10 U	10 U	**680**	**0.65**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	4/9/07	10 U	0.10	50 U	50 U	10 U	10 U	22	10 U	10 U	10 U	10 U	10 U	**770**	**0.54**	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	7/16/07	3.0 U	0.048 J	15 U	15 U	3.0 U	3.0 U	8.8	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**390**	**0.087 J**	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	11/7/07	5.0 U	0.082	25 U	25 U	5.0 U	5.0 U	12	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	**0.16**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	1/14/08	5.0 U	0.2 U	25 U	25 U	5.0 U	5.0 U	7.4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**240**	0.2 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	4/21/08	1.0 U	0.20 U	12 U	15 U	1.0 U	1.0 U	15	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**560 D**	**0.38**	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/15/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	11	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**590**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	10/28/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	17	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**840**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	1/15/09	10 U	0.057	50 U	50 U	10 U	10 U	11	10 U	20 U	10 U	10 U	10 U	**590**	**0.13**	10 U	10 U	10 U	10 U	10 U	10 U	10 U		
	4/23/09	2.0 U	2.0 U	25 U	25 U	2.0 U	2.0 U	12	2.0 U	4.0 U	0.2 UJ	2.0 U	2.0 U	**670 D**	**0.24 J**	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	7/15/09	4.0 U	4.0 UJ	100 U	100 U	4.0 U	4.0 U	9.6	4.0 U	8.0 U	0.20 UJ	4.0 U	4.0 U	**480**	0.20 UJ	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 UJ	4.0 U		
	11/5/09	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	13	4.0 U	8.0 U	0.020 U	4.0 U	4.0 U	**710**	**0.086**	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
	1/21/10	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	11	4.0 U	8.0 U	0.020 U	4.0 U	4.0 U	**640**	**0.32**	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
	4/20/10	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	9.8	4.0 U	8.0 U	0.020 UJ	4.0 U	4.0 U	**570**	**0.17 J**	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
	4/20/10 (DUP)	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	9.4	4.0 U	8.0 U	0.020 UJ	4.0 U	4.0 U	**550**	**0.20 J**	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
EGW147	10/28/06	3.0 U	0.061	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.020 U	3.0 U	3.0 U	**96**	0.020 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
	1/9/07	1.0 U	0.030	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.02 U	1.0 U	1.0 U	**64**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/10/07	1.0 U	0.029	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**44**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/16/07	1.0 U	0.020	5.0 U	15 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**43**	0.021 J	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/5/07	1.0 U	0.058	5.0 U	5.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**88**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/10/08	1.0 U	0.2 U	5.0 U	5.0 U	1.0 U	1.0 U	2.5	1.0 U	1.0 U	0.2 U	1.0 U	1.0 U	**180**	0.2 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/17/08	1.0 U	0.021 J	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	**47**	0.020 UJ	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/17/08	0.6 U	0.020 U	7.5 U	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**40**	0.020 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		10/29/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**46**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/20/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**22**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/27/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**19**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/27/09 (DUP)	0.2 U	0.2 U	2.5 U	3.1	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**18**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/16/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**22**	0.020 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/9/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**13**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/22/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**36**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/22/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**10**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW148		10/28/06	10 U	0.032	50 U	50 U	10 U	10 U	10 U	10 U	10 U	0.020 U	10 U	10 U	**620**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		1/9/07	5.0 U	0.038	25 U	25 U	5.0 U	5.0 U	8.8	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**570**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/10/07	5.0 U	0.034	25 U	25 U	5.0 U	5.0 U	10	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**660**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		7/16/07	5.0 U	0.049 J	25 U	25 U	5.0 U	5.0 U	6.4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**480**	**0.029 J**	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		11/5/07	5.0 U	0.022	25 U	25 U	5.0 U	5.0 U	7.5	5.0 U	5.0 U	0.020 U	5.0 U	5.0 U	**480**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/10/08	5.0 U	0.2 U	25 U	25 U	5.0 U	5.0 U	6.8	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**420**	0.2 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/17/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	6.8	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**500**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		7/17/08	0.2 U	0.20 U	2.5 U	3.0 U	0.2 U	0.2 U	6.7	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**540 D**	0.20 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/29/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	6.4	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**550**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/20/09	5.0 U	0.020 U	25 U	25 U	5.0 U	5.0 U	5.2	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**430**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/27/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	5.6	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**470 D**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/16/09	5.0 U	5.0 U	25 U	50 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	0.020 UJ	5.0 U	5.0 U	**440**	0.020 UJ	5.0 U	5.0 U	10 UJ	5.0 U	5.0 U	5.0 U	5.0 U		
		11/9/09	3.0 U	3.0 U	75 U	75 U	3.0 U	3.0 U	4.5	3.0 U	6.0 U	0.020 U	3.0 U	3.0 U	**390**	0.020 U	3.0 U	7.5 U	7.5 U	3.0 U	3.0 U	3.0 U	3.0 U		
		1/22/10	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	4.1	2.0 U	4.0 U	0.023	2.0 U	2.0 U	**350**	0.020 U	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		4/22/10	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	4.0	2.0 U	4.0 U	0.020 UJ	2.0 U	2.0 U	**340**	0.020 UJ	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
EGW149	**(1)**	7/13/06	1.0 U	1.0 U	190	210	1.0 U	1.0 U	44	1.0 U	26.8	1.0 U	2.4	1.0 U	**660**	1.0 U	3.4	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	4.9		
		8/7/06	10 UJ	10 UJ	50 UJ	50 UJ	10 UJ	10 UJ	65 J	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**1,500 J**	10 UJ	10 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ		
		9/5/06	20 U	20 U	100 U	100 U	20 U	20 U	43	20 U	20 U	20 U	20 U	20 U	**2,100**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		7/24/07	3.0 U	3.0 U	15 U	92	**9.6**	3.0 U	4.3	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**300**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		9/24/07	0.2 U	0.2 U	4.7	53	**3.6**	0.2 U	0.2 U	0.2 U	0.4 U	**0.3**	0.4	0.2 U	**6.4**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/28/07	1.0 U	1.0 U	5.0 U	40	**75**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**13**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	(2)	7/13/06	1.0 U	1.0 U	140	140	1.0 U	1.0 U	12	1.0 U	14.3	1.0 U	1.5	1.0 U	**520**	1.0 U	2.4	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.9		
		8/7/06	10 UJ	10 UJ	50 UJ	53 J	10 UJ	10 UJ	**86 J**	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**1,300 J**	10 UJ	10 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ		
		9/5/06	20 U	20 U	100 U	100 U	20 U	20 U	**130**	20 U	20 U	20 U	20 U	20 U	**2,800**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		1/25/07	20 U	20 U	100 U	100 U	20 U	20 U	**86**	20 U	20 U	20 U	20 U	20 U	**2,600**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		4/17/07	20 U	20 U	190	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**2,000**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		7/24/07	3.0 U	3.0 U	15 U	70	**38**	3.0 U	4.2	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**290**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		9/24/07	1.0 U	1.0 U	6.9	49	**12**	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**60**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/24/07 (DUP)	1.0 U	1.0 U	5.0 U	47	**9.9**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**48**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/28/07	1.0 U	1.0 U	5.0 U	27	**54**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**14**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	(3)	7/13/06	1.0 U	1.0 U	260	190	1.0 U	1.0 U	10	1.0 U	21.5	1.0 U	1.3	1.0 U	**190**	1.0 U	2.6	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	4.1		
		8/7/06	1.0 UJ	1.0 UJ	6.7 J	6.1 J	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	**20 J**	1.0 UJ	1.0 UJ	1.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ		
		9/5/06	0.4 U	0.4 U	2.0 U	6.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**14**	0.4 U	0.4 U	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U		
		7/24/07	0.2 U	0.2 U	3.1	8.6	0.5	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**9.6**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/28/07	0.2 U	0.2 U	1.0 U	14	**1.1**	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.3**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(4)	7/13/06	1.0 U	1.0 U	80	80	1.0 U	1.0 U	15	1.0 U	8.8	1.0 U	1.1	1.0 U	**240**	1.0 U	1.4	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.9		
		8/7/06	1.0 U	1.0 U	5.0 U	6.9	1.0 U	1.0 U	5.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**110**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/5/06	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	7.9	1.0 U	1.0 U	1.0 U	1.6	1.0 U	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/24/07	0.2 U	0.2 U	1.4 J	7.5 J	0.4 J	0.2 U	4.2 J	0.2 U	2.1 J	**0.4 J**	0.2 U	0.2 U	**14 J**	**0.4 J**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.3 J		
		11/28/07	0.2 U	0.2 U	1.0 U	13	0.7	0.2 U	0.8	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**5.7**	**0.3**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW150	**(1)**	7/14/06	1.0 U	1.0 U	130	180	1.0 U	1.0 U	22	1.0 U	25.6	1.0 U	1.9	1.0 U	**530**	1.0 U	6.1	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	4.7		
		7/14/06 (DUP)	1.0 U	1.0 U	140	190	1.0 U	1.0 U	22	1.0 U	25.3	1.0 U	2.0	1.0 U	**520**	1.0 U	6.1	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	4.7		
		8/7/06	10 UJ	10 UJ	50 UJ	50 UJ	10 UJ	10 UJ	**94 J**	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**2,000**	10 UJ	10 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ		
		9/6/06	50 U	50 U	250 U	250 U	50 U	50 U	**220**	50 U	50 U	50 U	50 U	50 U	**5,100**	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U		
		9/11/06	100 U	100 U	500 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**12,000**	100 U	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
		4/18/07	50 U	50 U	250 U	**2,100**	**260**	50 U	**420**	50 U	50 U	50 U	50 U	50 U	**8,000**	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U		
		7/18/07	30 U	30 U	150 U	150 U	**120**	30 U	**130**	30 U	30 U	30 U	30 U	30 U	**1,900**	30 U	30 U	30 U	60 U	30 U	30 U	30 U	30 U		
		8/16/07	50 U	50 U	250 U	250 U	**90**	50 U	74	50 U	50 U	50 U	50 U	50 U	**960**	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U		
		9/24/07	1.0 U	1.0 U	19	96	**23**	1.0 U	37	1.0 U	1.0 U	1.0 U	1.9	1.6	**160**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/23/07	1.0 U	1.0 U	7.8 U	62	**28**	1.0 U	32	1.0 U	1.0 U	1.0 U	1.8	1.3	**190**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/27/07	1.0 U	1.0 U	5.0 U	5.3	**20**	1.0 U	18	1.0 U	1.0 U	1.0 U	1.2	1.8	**220**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		2/4/08	2.0 U	2.0 U	10 U	10 U	**15**	2.0 U	6.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**200**	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		3/7/08	1.0 U	1.0 U	5.0 U	5.0 U	**10**	1.0 U	5.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/2/08	0.2 U	0.2 U	2.5 U	3.9	**7.7**	0.2 U	6.1	0.2 U	0.2	**0.4**	0.7	0.6	**170 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/1/08	1.0 U	1.0 U	5.0 U	5.0 U	**4.6**	1.0 U	5.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		5/1/08 (DUP)	1.0 U	1.0 U	10	16	**4.6**	1.0 U	5.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/1/08	1.0 U	1.0 U	5.0 U	5.0 U	**7.5**	1.0 U	14	1.0 U	1.0 U	**1.0**	1.0	1.3	**450 D**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/15/08	0.2 U	0.2 U	2.5 U	3.0 U	**2.8**	0.2 U	6.4	0.2 U	0.4 U	**0.7**	0.3	0.6	**310 D**	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		1/14/09	0.2 U	0.2 U	2.5 U	4.1 U	0.3	0.2 U	0.9	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**38 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/8/09	0.2 U	0.2 U	2.5 U	2.8	0.2	0.2 U	0.6	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**27**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/8/09	0.2 U	0.1 X	5.0 U	5.0 U	0.4	0.2 U	1.2	0.2 U	0.4 U	**0.1 X**	0.2 U	0.2 U	**43**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/31/09	0.6 UJ	0.6 UJ	15 UJ	15 UJ	0.7 J	0.6 UJ	1.8 J	0.6 UJ	1.2 UJ	0.6 UJ	0.6 UJ	0.6 UJ	**83 J**	0.6 UJ	0.6 UJ	1.5 UJ	1.5 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		10/28/09	0.2 U	0.2 U	5.0 U	5.0 U	0.3	0.2 U	1.1	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**39**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/10	0.2 U	0.2 U	5.0 UJ	5.0 UJ	0.2 U	0.2 U	1.0	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**15**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW150 (continued)	(2)	7/14/06	1.0 U	1.0 U	140	150	1.0 U	1.0 U	6.4	1.0 U	15.7	1.0 U	1.0 U	1.0 U	**300**	1.0 U	4.7	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	3.2		
		8/7/06	5.0 UJ	5.0 UJ	55	52	5.0 UJ	5.0 UJ	10	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	**940**	5.0 UJ	5.0 UJ	5.0 UJ	10 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ		
		9/6/06	20 U	20 U	100 U	100 U	20 U	20 U	25	20 U	20 U	20 U	20 U	20 U	**2,200**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		9/12/06	20 U	20 U	100 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**1,300**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		7/23/07	5.0 U	5.0 U	25 U	25 U	**22**	5.0 U	14	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**360**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		9/26/07	2.0 U	2.0 U	26	120	**91**	2.0 U	51	2.0 U	2.0 U	2.0 U	3.7	4.0	**210**	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		11/27/07	3.0 U	3.0 U	15 U	54	**89**	3.0 U	20	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**180**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		2/4/08	1.0 U	1.0 U	5.0 U	25 U	**12**	1.0 U	2.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**57**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/2/08	0.2 U	0.2 U	2.7	34 D	**4.5**	0.2 U	1.6	0.2 U	0.4 U	**0.5**	0.4	0.3	**39 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		8/1/08	0.6 U	0.6 U	7.5 U	9.0 U	**1.3**	0.6 U	0.9	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**35**	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		10/15/08	0.2 U	0.2 U	2.5 U	3.0 U	**4.8**	0.2 U	7.4	0.2 U	0.4 U	**0.9**	0.4	0.8	**300 D**	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		1/14/09	0.2 U	0.2 U	2.5 U	9.8 U	0.7	0.2 U	1.3	0.2 U	0.4 U	**0.2**	0.2 U	0.2 U	**60 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/8/09	0.2 U	0.2 U	2.5 U	2.5 U	**1.2**	0.2 U	2.3	0.2 U	0.4 U	**0.4**	0.2 U	0.2	**99 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/8/09	0.2 U	0.2 U	5.0 U	5.0 U	**1.2**	0.2 U	3.0	0.2 U	0.4 U	**0.3**	0.2 U	0.3	**96 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/31/09	1.2 UJ	1.2 UJ	30 UJ	30 UJ	1.2 UJ	1.2 UJ	3.2 J	1.2 UJ	2.4 UJ	1.2 UJ	1.2 UJ	1.2 UJ	**140 J**	1.2 UJ	1.2 UJ	3.0 UJ	3.0 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ		
		10/28/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	1.8	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**68**	1.0 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/9/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**1.1**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(3)	7/14/06	1.0 U	1.0 U	69	92	1.0 U	1.0 U	3.8	1.0 U	8.1	1.0 U	1.0 U	1.0 U	**120**	1.0 U	2.7	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.7		
		8/7/06	1.0 U	1.0 U	25	33	1.0 U	1.0 U	3.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**94**	1.0 U	1.4	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/6/06	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	2.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**70**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/12/06	10 U	10 U	50 U	89 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**710**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		9/12/06 (DUP)	10 U	10 U	50 U	96 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**740**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		7/23/07	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.2	1.0 U	1.0 U	1.0 U	**36**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/27/07	0.2 U	0.2 U	1.5	14	**7.8**	0.2 U	13	0.2 U	1.4	0.2 U	0.7	1.2	**110**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(4)	7/14/06	1.0 U	1.0 U	23	74	1.0 U	1.0 U	1.0 U	1.0 U	9.1	1.0 U	1.0 U	1.0 U	**9.5**	1.0 U	3.6	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	2.1		
		8/7/06	1.0 U	1.0 U	96	66	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.2**	1.0 U	2.4	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/7/06 (DUP)	1.0 U	1.0 U	99	66	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	**4.3**	1.0 U	2.3	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/6/06	0.2 U	0.2 U	29	36	0.2 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	0.2 U	**1.9**	0.2 U	1.7	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.3		
		9/6/06 (DUP)	0.2 U	0.2 U	28	36	0.2 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	0.2 U	**2.0**	0.2 U	1.7	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.3		
		9/11/06	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**1,100**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		7/23/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.8 J	0.2 U	2.8 J	**0.2 J**	0.2 U	0.2 U	**33**	**0.9 J**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.4 J		
		11/27/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.3	0.2 U	0.7	0.2 U	0.2 U	0.2 U	**8.7**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW151	(1)	7/14/06	1.0 U	1.0 U	86	49	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**730**	1.0 U	4.1	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/7/06	10 UJ	10 UJ	50 UJ	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**6,200**	10 UJ	10 UJ	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ		
		9/11/06	100 U	100 U	500 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**12,000**	100 U	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
		1/26/07	100 U	100 U	500 U	**1,500**	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**5,200**	100 U	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
		4/19/07	25 U	25 U	120 U	**1,000**	25 U	25 U	50	25 U	25 U	25 U	25 U	25 U	**4,100**	25 U	25 U	25 U	50 U	25 U	25 U	25 U	25 U		
		7/16/07	50 U	50 U	250 U	530	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**2,100**	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U		
		8/16/07	50 U	50 U	250 U	390	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**2,400**	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U		
		9/24/07	25 U	25 U	120 U	660	**40**	25 U	66	25 U	25 U	25 U	25 U	40	**3,300**	25 U	25 U	25 U	50 U	25 U	25 U	25 U	25 U		
		10/23/07	25 U	25 U	120 U	450	**32**	25 U	42	25 U	25 U	25 U	25 U	26	**1,800**	25 U	25 U	25 U	50 U	25 U	25 U	25 U	25 U		
		11/27/07	20 U	20 U	100 U	640	20 U	20 U	37	20 U	20 U	20 U	20 U	27	**1,400**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		2/4/08	10 U	11	50 U	50 U	10 U	10 U	47	10 U	10 U	10 U	10 U	32	**1,800**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		3/7/08	20 U	20 U	100 U	100 U	20 U	20 U	60	20 U	20 U	20 U	20 U	35	**2,200**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		4/1/08	40 U	40 U	500 U	600 U	40 U	40 U	68	40 U	80 U	40 U	40 U	46	**2,600 D**	40 U	40 U	40 U	100 U	40 U	40 U	40 U	40 U		
		4/29/08	30 U	30 U	150 U	150 U	30 U	30 U	40	30 U	30 U	30 U	30 U	30 U	**1,900**	30 U	30 U	30 U	60 U	30 U	30 U	30 U	30 U		
		6/5/08	10 U	10 U	50 U	50 U	10 U	10 U	23	10 U	10 U	10 U	10 U	13	**1,100**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		6/5/08 (DUP)	20 U	20 U	100 U	100 U	20 U	20 U	21	20 U	22	20 U	20 U	20 U	**1,000**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		7/31/08	10 U	10 U	50 U	50 U	**26**	10 U	12	10 U	10 U	10 U	10 U	10 U	**620**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		8/22/08	10 U	10 U	120 U	150 U	10 U	10 U	14	10 U	20 U	10 U	10 U	11	**830 D**	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U		
		9/25/08	10 U	10 U	50 U	50 U	10 U	10 U	18	10 U	10 U	10 U	10 U	10	**860**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		9/25/08 (DUP)	10 U	10 U	50 U	50 U	10 U	10 U	18	10 U	10 U	10 U	10 U	11	**890**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		10/14/08	0.2 U	3.8	2.5 U	3.0 U	**1.0**	0.2 U	17 D	0.2 U	0.4 U	**0.7**	0.2 U	8.9	**830 D**	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		11/5/08	10 U	10 U	50 U	50 U	10 U	10 U	13	10 U	20 U	10 U	10 U	10 U	**690**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		12/4/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	14	5.0 U	10 U	5.0 U	5.0 U	6.6	**620**	5.0 U	5.0 U	5.0 U	**15**	5.0 U	5.0 U	5.0 U	5.0 U		
		12/4/08 (DUP)	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	13	5.0 U	10 U	5.0 U	5.0 U	6.8	**620**	5.0 U	5.0 U	5.0 U	**12**	5.0 U	5.0 U	5.0 U	5.0 U		
		1/13/09	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	11	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**580**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		1/13/09 (DUP)	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	10	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**560**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		2/5/09	0.2 U	2.6	2.5 U	5.4 U	0.5	0.2 U	11	0.2 U	0.4 U	**0.6**	0.2 U	5.2	**600**	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		2/5/09 (DUP)	0.2 U	2.5	2.5 U	5.5 U	0.5	0.2 U	11	0.2 U	0.4 U	**0.5**	0.2 U	5.4	**610**	0.2 U	0.2 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		3/2/09	0.2 U	3.0	2.5 U	2.5 U	0.5	0.2 U	12	0.2 U	0.4 U	**0.6**	0.2 U	5.9	**620 D**	0.2 U	0.2 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		3/2/09 (DUP)	0.2 U	3.0	2.5 U	2.5 U	0.5	0.2 U	12	0.2 U	0.4 U	**0.5**	0.2 U	5.9	**600 D**	0.2 U	0.2 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/7/09	0.2 U	3.0	2.5 U	2.5 U	0.5	0.2 U	12	0.2 U	0.4 U	**0.5**	0.2 U	5.7	**570 D**	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/7/09 (DUP)	0.2 U	3.1	2.5 U	2.5 U	0.5	0.2 U	13	0.2 U	0.4 U	**0.6**	0.2 U	5.9	**670 D**	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/4/09	0.2 U	3.0	2.5 U	2.5 U	0.6	0.2 U	13	0.2 U	0.4 U	**0.6**	0.2 U	6.1	**850 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/4/09 (DUP)	0.2 U	3.0	2.5 U	2.5 U	0.6	0.2 U	13	0.2 U	0.4 U	**0.6**	0.2 U	6.2	**860 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/26/09	2.0 U	3.2	25 U	25 U	2.0 U	2.0 U	14	2.0 U	4.0 U	2.0 U	2.0 U	6.2	**700 D**	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		5/26/09 (DUP)	2.0 U	3.0	25 U	25 U	2.0 U	2.0 U	13	2.0 U	4.0 U	2.0 U	2.0 U	6.1	**680 D**	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		6/11/09	0.2 U	3.4	5.0 U	5.0 U	0.5	0.2 U	15	0.2 U	0.4 U	**0.5**	0.2 U	6.8	**770 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		6/11/09 (DUP)	0.2 U	3.5	5.0 U	5.0 U	0.5	0.2 U	14	0.2 U	0.4 U	**0.6**	0.2 U	6.7	**760 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/31/09	10 UJ	10 UJ	250 UJ	250 UJ	10 UJ	10 UJ	14 J	10 UJ	20 UJ	10 UJ	10 UJ	10 UJ	**730 J**	10 UJ	10 UJ	25 UJ	25 UJ	10 UJ	10 UJ	10 UJ	10 UJ		
		7/31/09 (DUP)	12 UJ	12 UJ	300 UJ	300 UJ	12 UJ	12 UJ	14 J	12 UJ	24 UJ	12 UJ	12 UJ	12 UJ	**800 J**	12 UJ	12 UJ	30 UJ	30 UJ	12 UJ	12 UJ	12 UJ	12 UJ		
		8/27/09	4.0 U	4.2	100 U	100 U	4.0 U	4.0 U	12	4.0 U	8.0 U	4.0 U	4.0 U	7.4	**640**	4.0 U	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
		9/15/09	0.2 U	3.2	5.0 U	5.0 U	0.5	0.2 U	14	0.2 U	0.4 U	**0.5**	0.2 U	6.8	**680 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		9/15/09 (DUP)	0.2 U	3.5	5.0 U	5.0 U	0.5	0.2 U	14	0.2 U	0.4 U	**0.5**	0.2 U	7.2	**850 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/28/09	4.0 U	4.4	100 U	100 U	4.0 U	4.0 U	30	4.0 U	8.0 U	4.0 U	4.0 U	7.2	**730**	4.0 U	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
		10/28/09 (DUP)	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	31	4.0 U	8.0 U	4.0 U	4.0 U	6.8	**720**	4.0 U	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
		1/27/10	0.2 U	2.2	5.0 U	5.0 UJ	0.4	0.2 U	**200**	0.2 U	0.4 U	**0.2**	0.2 U	5.5	**420 D**	**16**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/27/10 (DUP)	0.2 U	2.2	5.0 U	5.0 UJ	0.4	0.2 U	**230**	0.2 U	0.4 U	**0.3**	0.2 U	5.9	**460 D**	**16**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/7/10	3.0 U	3.0 U	75 U	75 UJ	3.0 U	3.0 U	**180**	3.0 U	6.0 U	3.0 U	3.0 U	5.4	**450**	**12**	3.0 U	7.5 UJ	7.5 U	3.0 U	3.0 U	3.0 U	3.0 U		
EGW151 (continued)	(2)	7/14/06	1.0 U	1.0 U	5.0 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	**1,200**	1.0 U	2.2	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/7/06	20 UJ	20 UJ	100 UJ	100 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	**1,400 J**	20 UJ	20 UJ	20 UJ	40 UJ	20 UJ	20 UJ	20 UJ	20 UJ		
		9/12/06	20 U	20 U	100 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**1,300**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		7/16/07	15 U	15 U	75 U	130	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	**1,100**	15 U	15 U	15 U	30 U	15 U	15 U	15 U	15 U		
		8/16/07	15 U	15 U	75 U	120	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	**880**	15 U	15 U	15 U	30 U	15 U	15 U	15 U	15 U		
		9/24/07	10 U	10 U	50 U	250	**38**	10 U	21	10 U	10 U	10 U	10 U	24	**1,600**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		10/23/07	20 U	20 U	100 U	440	**65**	20 U	30	20 U	20 U	20 U	20 U	29	**1,400**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		11/28/07	20 U	20 U	100 U	170	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**360**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		2/5/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**470**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/1/08	6.0 U	6.0 U	75 U	90 U	6.0 U	6.0 U	6.0 U	6.0 U	12 U	6.0 U	6.0 U	6.0 U	**460 D**	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
		7/31/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**250**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		10/14/08	0.2 U	0.6	2.5 U	3.0 U	0.2 U	0.2 U	0.8	0.2 U	0.4 U	**0.2**	0.2 U	0.3	**190 D**	0.2 U	0.2	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		1/13/09	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**130**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/7/09	0.2 U	0.2 X	2.5 U	2.5 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	**0.2 X**	0.2 U	0.1 X	**120 D**	0.2 U	0.2 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/11/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**120**	0.6 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		7/31/09	1.0 UJ	1.0 UJ	25 UJ	25 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	**110 J**	1.0 UJ	1.0 UJ	2.5 UJ	2.5 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ		
		8/26/09	0.2 U	0.3 J	8.7	5.0 U	0.2 U	0.2 U	6.6	0.2 U	0.4 U	**2.3**	0.2	0.4	**430 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U		
		9/15/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**96 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/28/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.0	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**86**	0.6 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		1/27/10	0.6 U	0.6 U	15 U	15 UJ	0.6 U	0.6 U	1.6	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**82**	0.6 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		4/14/10	0.6 UJ	0.6 UJ	15 UJ	15 UJ	0.6 UJ	0.6 UJ	1.5 J	0.6 UJ	1.2 UJ	0.6 UJ	0.6 UJ	0.6 UJ	**84 J**	0.6 UJ	0.6 UJ	1.5 UJ	1.5 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ		
	(3)	7/14/06	1.0 U	1.0 U	45	24	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**92**	1.0 U	3.0	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/7/06	1.0 U	1.0 U	16	8.2	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2,700**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/12/06	10 U	10 U	50 U	89 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**710**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		9/12/06 (DUP)	10 U	10 U	50 U	96 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**740**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		7/16/07	10 U	10 U	66	260	**75**	10 U	11	10 U	13	10 U	10 U	10 U	**420**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		9/26/07	4.0 U	4.0 U	91	430	**94**	4.0 U	9.2	4.0 U	15.4	4.0 U	4.0 U	4.6	**310**	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U		
		11/28/07	3.0 U	3.0 U	24	190	**63**	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**100**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		2/5/08	1.0 U	5.1	5.0 U	21	**13**	1.0 U	15	1.0 U	1.0 U	1.0 U	1.0 U	8.6	**570 D**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		3/7/08	5.0 U	5.8	25 U	25 U	**6.4**	5.0 U	17	5.0 U	5.0 U	5.0 U	5.0 U	8.5	**650**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		4/1/08	10 U	10 U	120 U	150 U	10 U	10 U	19	10 U	20 U	10 U	10 U	10 U	**810 D**	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U		
		4/1/08 (DUP)	20 U	20 U	250 U	300 U	20 U	20 U	20 U	20 U	40 U	20 U	20 U	20 U	**1,000**	20 U	20 U	20 U	50 U	20 U	20 U	20 U	20 U		
		4/29/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	10	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**540**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		6/5/08	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	7.1	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**340**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		7/31/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**260**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		8/22/08	10 U	10 U	120 U	150 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U	**310**	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U		
		9/25/08	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	4.0	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**240**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		10/14/08	0.2 U	0.7	2.5 U	3.0 U	0.7	0.2 U	3.6	0.2 U	0.4 U	**0.4**	0.2 U	0.8	**240 D**	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		11/5/08	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	**170**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		12/4/08	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	2.5	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U	1.0 U	3.1	1.0 U	1.0 U	1.0 U	1.0 U		
		1/13/09	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	2.2	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		2/5/09	0.2 U	0.4	2.5 U	6.2 U	0.4	0.2 U	2.4	0.2 U	0.4 U	**0.3**	0.2 U	0.5	**150**	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		3/2/09	0.2 U	0.5	2.5 U	2.5 U	0.4	0.2 U	2.9	0.2 U	0.4 U	**0.4**	0.2 U	0.7	**180 D**	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/7/09	0.2 U	0.4	2.5 U	2.5 U	0.3	0.2 U	2.6	0.2 U	0.4 U	**0.5**	0.2 U	0.4	**190 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/4/09	0.2 U	0.4	2.5 U	2.5 U	0.3	0.2 U	3.1	0.2 U	0.4 U	**0.5**	0.2 U	0.4	**260 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/26/09	0.6 U	0.6 U	7.5 U	7.5 U	0.6 U	0.6 U	3.2	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**230 D**	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		6/11/09	0.2 U	0.5	5.0 U	5.0 U	0.2	0.2 U	3.9	0.2 U	0.4 U	**0.6**	0.2 U	0.5	**270 D**	**0.2**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/31/09	3.0 UJ	3.0 UJ	75 UJ	75 UJ	3.0 UJ	3.0 UJ	3.9 J	3.0 UJ	6.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	**360 J**	3.0 UJ	3.0 UJ	7.5 UJ	7.5 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ		
		8/27/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	4.4	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**400 D**	1.0 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/27/09 (DUP)	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	4.6	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**400**	2.0 U	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		9/15/09	0.2 U	0.7	5.0 U	5.0 U	0.2	0.2 U	**87 D**	0.2 U	0.4 U	**0.6**	0.2 U	0.6	**290 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/28/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	**190**	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**34**	1.0 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/27/10	2.0 U	2.0 U	50 U	50 UJ	2.0 U	2.0 U	25	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**230**	**13**	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		4/7/10	2.0 U	2.0 U	50 U	50 UJ	2.0 U	2.0 U	30	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**69**	**5.5**	2.0 U	5.0 UJ	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	(4)	7/14/06	1.0 U	1.0 U	50	29	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**33**	1.0 U	**11**	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/7/06	1.0 U	1.0 U	40	20	1.0 U	1.0 U	1.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**690**	1.0 U	1.3	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/11/06	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**1,100**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		1/26/07	10 U	10 U	50 U	120	**20**	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**400**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/19/07	10 U	10 U	50 U	50 U	**60**	10 U	21	10 U	10 U	10 U	10 U	10 U	**1,000**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/19/07 (DUP)	1.0 U	4.1	14	64	**57**	1.0 U	20	1.0 U	1.0 U	**1.6**	2.3	6.4	**1,100**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		7/17/07	10 U	10 U	50 U	180	**37**	10 U	13	10 U	13	10 U	10 U	10 U	**570**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		8/16/07	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**99**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		8/16/07 (DUP)	50 U	50 U	250 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**100**	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U		
		11/28/07	1.0 U	1.2	38	42	**23**	1.0 U	6.1	1.0 U	1.9	1.0 U	1.0 U	2.4	**120**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
EGW152	**(1)**	9/11/06	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	16	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**84**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		6/11/07	0.2 U	0.2 U	2.0	51	0.3	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**9.0**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/19/07	0.2 U	0.4	6.8	120	0.6	0.2 U	6.8	0.2 U	0.4 U	0.2 U	0.2 U	0.8	**60**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/29/07	1.0 U	1.0 U	5.0 U	28	1.0 U	1.0 U	11	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**130**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/29/07 (DUP)	0.2 U	1.0	1.6	29	0.5	0.2 U	16	0.2 U	0.4 U	**0.3**	0.2 U	1.2	**150 D**	**0.2**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		2/6/08	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	8.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**87**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/3/08	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	7.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**68**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/29/08	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	3.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**44**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/14/08	0.2 U	0.3	2.5 U	3.0 U	0.2 U	0.2 U	5.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**60 D**	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		1/12/09	0.2 U	0.2	2.5 U	3.0 U	0.2 U	0.2 U	4.5	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**49 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/09	0.2 U	0.2 X	2.5 U	2.5 U	0.2 U	0.2 U	3.0	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**59**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	3.0	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**62 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/30/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	3.7	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**74 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		8/27/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	4.0	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**87**	0.6 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		9/14/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	7.7	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**70 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/27/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	14	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**64**	0.6 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		1/27/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	8.1	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**67 D**	**3.8**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/14/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	5.5	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**86**	**2.3**	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	(2)	9/11/06	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**1,300**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/19/07	1.0 U	1.0 U	39	500	**45**	1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.6	1.0 U	**180**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		6/11/07	0.2 U	1.3	4.4	86 J	**58**	0.2 U	12	0.2 U	1.0	**1.4**	3.3	2.8	**400 D**	**0.2**	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2	0.2 U		
		7/19/07	1.0 U	1.0 U	16	310	**51**	1.0 U	3.9	1.0 U	1.0 U	1.0 U	1.6	1.8	**110**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/25/07	1.0 U	1.0 U	10	130	**20**	1.0 U	2.4	1.0 U	1.0 U	1.0 U	2.4	1.3	**52**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/29/07	0.2 U	0.6	10	130 D	**16**	0.2 U	2.3	0.2 U	0.4 U	0.2 U	2.8	1.1	**26 D**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(3)	9/11/06	1.0 U	1.0 U	5.0 U	9.1 J	1.0 U	1.0 U	7.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**110**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		6/11/07	0.2 U	0.2 U	2.6 J	44 J	**1.2 J**	0.2 U	1.5 J	0.2 U	7.0 J	0.2 U	0.3 J	0.2 U	**41 D**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.9 J		
		7/19/07	0.3 U	0.3 U	1.5 U	12	0.3 U	0.3 U	0.4	0.3 U	0.6 U	0.3 U	0.3 U	0.3 U	**14**	0.3 U	0.3 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U	0.3 U		
		11/29/07	0.2 U	0.2 U	2.1	21	**0.8**	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2	0.2 U	**9.3**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(4)	9/11/06	4.0 U	4.0 U	20 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**280**	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U		
		6/11/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.6 J	0.2 U	7.8 J	0.2 U	0.2 U	0.2 U	**4.8 J**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	1.2 J		
		7/19/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.3 J	0.2 U	3.0 J	0.2 U	0.2 U	0.2 U	**4.3 J**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.5 J		
		11/29/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.5	0.2 U	0.2 U	0.2 U	**3.1**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2		
EGW153	**(1)**	9/8/06	1.0 U	1.0 U	5.0 U	5.5	1.0 U	1.0 U	19	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**55**	**1.9**	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		6/12/07	0.2 U	0.2 U	3.1	50	0.6	0.2 U	0.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**5.4**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/07	0.2 U	0.2 U	7.3	130	**5.4**	0.2 U	4.1	0.2 U	0.4 U	0.2 U	0.3	0.7	**46**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(2)	9/8/06	20 U	20 U	100 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**1,800**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		6/12/07	0.2 U	0.2 U	1.6	36	**9.3**	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.3	0.2 U	**13**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/07	0.2 U	0.2	9.0	72	**30**	0.2 U	2.1	0.2 U	0.4 U	0.2 U	0.3	0.7	**69**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/20/07	1.0 U	1.0 U	5.0 U	45	**1.1**	1.0 U	4.3	1.0 U	1.0 U	1.0 U	1.0 U	1.1	**120**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/20/07 (DUP)	1.0 U	1.0 U	5.0 U	47	**1.2**	1.0 U	4.1	1.0 U	1.0 U	1.0 U	1.0 U	1.1	**110**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		2/4/08	1.0 U	1.0 U	5.0 U	12 U	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**24**	1.0 U	1.0 U	1.0 UJ	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/2/08	0.2 U	0.2	2.5 U	3.0 U	**1.0**	0.2 U	1.8	0.2 U	0.4 U	0.2 U	0.2	0.2	**18 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/29/08	0.6 U	0.6 U	7.5 U	9.0 U	**1.8**	0.6 U	4.3	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**350 D**	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		10/14/08	0.2 U	0.4	2.5 U	3.0 U	0.2 U	0.2 U	5.3	0.2 U	0.4 U	**0.3**	0.2 U	0.2	**240 D**	**0.2**	0.2 U	0.2 U	0.5 UJ	0.2 U	2.5 U	0.2 U	0.2 U		
		10/14/08 (DUP)	0.2 U	0.4	2.5 U	3.0 U	0.2 U	0.2 U	5.3	0.2 U	0.4 U	**0.3**	0.2 U	0.2	**260 D**	**0.2**	0.2 U	0.2 U	0.5 UJ	0.2 U	2.5 U	0.2 U	0.2 U		
		1/12/09	0.2 U	0.3	2.5 U	3.0 U	0.2 U	0.2 U	5.3	0.2 U	0.4 U	**0.2**	0.2 U	0.2	**130 D**	0.2 U	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/09	0.2 U	0.2	2.5 U	2.5 U	0.2 U	0.2 U	3.6	0.2 U	0.4 U	**0.3**	0.2 U	0.2 U	**130 D**	**0.1 X**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/9/09	0.2 U	0.2	5.0 U	5.0 U	0.2 U	0.2 U	3.3	0.2 U	0.4 U	**0.3**	0.2 U	0.2	**120 D**	0.2 U	0.2 X	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/29/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	2.4	0.2 U	0.4 U	**0.3**	0.2 U	0.2 U	**98 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/27/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	**140**	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**4.8**	**30**	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/27/10	0.2 U	0.2	5.0 U	5.0 UJ	0.2 U	0.2 U	28	0.2 U	0.4 U	0.2 U	0.2 U	0.8	**28**	**38**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/10	0.2 U	0.2 U	5.0 UJ	5.0 UJ	0.2 U	0.2 U	5.4	0.2 U	0.4 U	0.2 U	0.2 U	0.5	**20**	**2.8**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(3)	9/8/06	1.0 U	1.0 U	5.0 U	5.5	1.0 U	1.0 U	6.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**430**	1.0 U	1.5	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		6/12/07	0.2 U	0.2 U	1.0 U	3.8	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**34 D**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/18/07	1.0 U	1.0 U	5.0 U	15 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**41**	1.0 U	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/20/07	1.0 U	1.0 U	5.0 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	**39**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
EGW154	**(1)**	9/7/06	0.2 U	0.2 U	1.0 U	4.2	0.2 U	0.2 U	1.6	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**14**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/13/07	0.2 U	0.2 U	1.2	22	**2.5**	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.2	0.2 U	**8.8**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/17/07	0.2 U	0.2 U	5.1 U	120	0.4	0.2 U	0.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**7.4**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/17/07 (DUP)	0.6 U	0.6 U	4.7 U	110	0.6 U	0.6 U	0.6 U	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**5.7**	0.6 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		10/23/07	0.2 U	0.2 U	5.4 U	99 D	0.6	0.2 U	0.3	0.2 U	0.4 U	0.2 U	0.3	0.2 U	**15**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/19/07	0.6 U	0.6 U	3.8	130	**1.1**	0.6 U	0.6 U	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**4.2**	0.6 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	(2)	9/7/06	20 U	20 U	100 U	100 U	20 U	20 U	59	20 U	20 U	20 U	20 U	20 U	**3,400**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		6/13/07	0.2 U	0.2 U	2.5 J	40 J	**2.7 J**	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.3 J	0.2 U	**5.8 J**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/17/07	0.2 U	0.6	6.8 U	140	**15**	0.2 U	4.2	0.2 U	0.4 U	0.2 U	0.3	1.8	**210**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		9/25/07	10 U	10 U	50 U	370	**13**	10 U	26	10 U	10 U	10 U	10 U	11	**1,300**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		10/23/07	10 U	10 U	50 U	150	**12**	10 U	10	10 U	10 U	10 U	10 U	10 U	**610**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		10/23/07 (DUP)	10 U	10 U	50 U	160	**11**	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**600**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		11/19/07	3.0 U	3.0 U	15 U	100	**6.7**	3.0 U	4.8	3.0 U	3.0 U	3.0 U	3.0 U	3.2	**180**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		2/4/08	5.0 U	5.0 U	25 U	140	5.0 U	5.0 U	6.2	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**230**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		3/7/08	3.0 U	3.0 U	24	110	**4.8**	3.0 U	10	3.0 U	3.0 U	3.0 U	3.0 U	5.6	**250**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		4/1/08	4.0 U	4.0 U	50 U	60 U	**5.8**	4.0 U	12	4.0 U	8.0 U	4.0 U	4.0 U	7.4	**300**	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
		5/1/08	5.0 U	5.0 U	25 U	25 U	**6.0**	5.0 U	8.6	5.0 U	5.0 U	5.0 U	5.0 U	5.7	**240**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		7/29/08	1.0 U	3.2	5.0 U	5.0 U	**3.3**	1.0 U	8.9	1.0 U	1.0 U	1.0 U	1.0 U	4.4	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/13/08	0.2 U	4.0	2.5 U	3.0 U	**2.7**	0.2 U	9.3	0.2 U	0.4 U	0.2 U	0.3	4.3	**160 D**	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		1/12/09	1.0 U	1.8	5.0 U	5.0 U	**1.8**	1.0 U	4.1	1.0 U	2.0 U	1.0 U	1.0 U	2.0	**76**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/9/09	0.2 U	1.6	2.5 U	2.5 U	**1.0**	0.2 U	2.1	0.2 U	0.4 U	0.2 U	0.2 U	1.1	**48**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/9/09	0.2 U	0.9	5.0 U	5.0 U	**0.7**	0.2 U	1.4	0.2 U	0.4 U	0.2 U	0.2 U	0.8	**40**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/30/09	0.2 U	0.4	5.0 U	5.0 U	0.5	0.2 U	0.8	0.2 U	0.4 U	0.2 U	0.2 U	0.4	**26**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/27/09	0.2 U	0.2	5.0 U	5.0 U	0.3	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2	**17**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/10	0.2 U	0.3	5.0 UJ	5.0 UJ	0.3	0.2 U	0.7	0.2 U	0.4 U	0.2 U	0.2 U	0.2	**12**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(3)	9/7/06	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**580**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		6/13/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.3 J	0.2 U	1.4 J	0.2 U	0.2 U	0.2 U	**21 D**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/17/07	0.6 U	0.6 U	3.0 U	9.0 U	0.6 U	0.6 U	0.9	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**26**	0.6 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		10/23/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**3.1**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/19/07	0.2 U	0.2 U	1.0 U	4.2	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**11**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW155	**(1)**	9/7/06	10 U	10 U	50 U	50 U	10 U	10 U	24	10 U	10 U	10 U	10 U	10 U	**990**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		1/25/07	10 U	10 U	50 U	440	10 U	10 U	16	10 U	10 U	10 U	10 U	10 U	**920**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/17/07	1.0 U	1.0 U	25	320	**7.8**	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U	**35**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		6/13/07	1.0 U	1.0 U	5.0 U	45 J	**3.1**	1.0 U	2.2	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**49**	1.0 U	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/18/07	1.0 U	1.0 U	5.0 U	15 U	1.0 U	1.0 U	1.2	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**38**	1.0 U	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/30/07	0.6 U	0.6 U	3.0 U	9.0 U	0.6	0.6 U	0.7	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**26**	0.6 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	(2)	9/7/06	200 U	200 U	1,000 U	**1,100**	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	**7,700**	200 U	200 U	200 U	400 U	200 U	200 U	200 U	200 U		
		1/25/07	200 U	200 U	1,000 U	1,000 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	**1,100**	200 U	200 U	200 U	400 U	200 U	200 U	200 U	200 U		
		4/17/07	1.0 U	1.0 U	10	180	**140**	1.0 U	3.3	1.0 U	1.0 U	1.0 U	5.8	1.0 U	**140**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		6/13/07	2.0 U	2.0 U	10 U	56 J	**17**	2.0 U	4.7	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**110**	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		7/18/07	1.0 U	1.0 U	5.0 U	11 U	**10**	1.0 U	3.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**78**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/30/07	0.2 U	0.2 U	1.0 U	6.5	**34 D**	0.2 U	0.8	0.2 U	0.4 U	0.2 U	0.3	0.2 U	**31 D**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(3)	9/7/06	1.0 U	1.0 U	5.0 U	7.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**28**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/18/07	0.2 U	0.2 U	5.1	80	**28**	0.2 U	1.0	0.2 U	0.7	0.2 U	0.6	0.2 U	**20**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/30/07	0.6 U	0.6 U	22	420 D	**86 D**	0.6 U	5.3	0.6 U	1.2 U	0.6 U	0.9	0.6 U	**23**	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	0.6 U	0.6 U		
EGW156	**(1)**	9/7/06	20 U	20 U	100 U	100 U	20 U	20 U	**160**	20 U	20 U	20 U	20 U	20 U	**2,500**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		4/19/07	3.0 U	3.0 U	20	330	**6.9**	3.0 U	7.7	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**260**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		6/14/07	1.0 U	1.0 U	30	460 J	**22**	1.0 U	8.9	1.0 U	1.0 U	1.0 U	1.8	1.0 U	**120**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/16/07	1.0 U	1.0 U	7.9	170	1.0 U	1.0 U	2.1	1.0 U	1.0 U	1.0 U	2.8	1.0 U	**30**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/29/07	0.6 U	0.6 U	5.2	200 D	**75 D**	0.6 U	1.6	0.6 U	1.2 U	0.6 U	1.6	1.1	**28**	0.6 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
	(2)	9/7/06	100 U	100 U	500 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**9,200**	100 U	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
		1/26/07	100 U	100 U	500 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**1,400**	100 U	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
		1/26/07 (DUP)	100 U	100 U	500 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**1,300**	100 U	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
		4/16/07	10 U	10 U	50 U	370	**33**	10 U	27	10 U	10 U	10 U	10 U	10 U	**1,600**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		6/14/07	100 U	100 U	500 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**2,000**	100 U	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
		7/17/07	20 U	20 U	100 U	190	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**600**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		8/16/07	20 U	20 U	100 U	130	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**66**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		9/25/07	1.0 U	1.0 U	6.0	120	**8.1**	1.0 U	1.0	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**27**	1.0 U	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/29/07	0.6 U	1.0	7.0	330 D	**360 D**	0.6 U	2.9	0.6 U	1.2 U	0.6 U	2.6	2.0	**44**	0.6 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U		
		11/29/07 (DUP)	0.6 U	1.0	3.0 U	340 D	**360 D**	0.6 U	2.9	0.6 U	1.2 U	0.6 U	2.5	2.0	**42**	0.6 U	0.6 U	0.6 U	1.2	0.6 U	0.6 U	0.6 U	0.6 U		
		2/4/08	4.0 U	5.0	20 U	340	**340**	4.0 U	17	4.0 U	4.0 U	4.0 U	4.0 U	11	**220**	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U		
		4/1/08	3.0 U	5.0	38 U	290	**240 D**	3.0 U	23	3.0 U	6.0 U	3.0 U	3.0 U	12	**250 D**	3.0 U	3.0 U	3.0 U	7.5 U	3.0 U	3.0 U	3.0 U	3.0 U		
		7/29/08	1.0 U	2.2	5.0 U	76	**26**	1.0 U	12	1.0 U	1.0 U	1.0 U	1.0 U	4.3	**110**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/13/08	0.2 U	2.2	2.5 U	3.1	**8.6**	0.2 U	8.9	0.2 U	0.4 U	0.2 U	0.3	4.5	**110 D**	**0.2**	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		1/12/09	0.2 U	2.8	2.5 U	3.0 U	**2.7**	0.2 U	6.9	0.2 U	0.4 U	0.2 U	0.2 U	3.2	**53 D**	**0.2**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/8/09	0.2 U	2.1	2.5 U	2.5 U	**1.0**	0.2 U	4.8	0.2 U	0.4 U	0.2 U	0.2 U	2.4	**43**	**0.2 X**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/9/09	0.2 U	2.1	5.0 U	5.0 U	**0.8**	0.2 U	4.7	0.2 U	0.4 U	0.2 U	0.2 U	2.4	**40**	**0.2 X**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/30/09	0.2 U	1.6	5.0 U	5.0 U	0.6	0.2 U	3.8	0.2 U	0.4 U	0.2 U	0.2 U	1.7	**33**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/27/09	0.2 U	1.0	5.0 U	5.0 U	0.4	0.2 U	2.6	0.2 U	0.4 U	0.2 U	0.2 U	1.0	**19**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/9/10	0.2 U	0.2 U	5.0 UJ	5.0 UJ	0.2	0.2 U	1.9	0.2 U	0.4 U	0.2 U	0.2 U	0.9	**16**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(3)	9/7/06	100 U	100 U	500 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**4,800**	100 U	100 U	100 U	200 U	100 U	100 U	100 U	100 U		
		7/17/07	2.0 U	2.0 U	11 U	220	**6.0**	2.0 U	6.7	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**250**	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		11/29/07	0.2 U	0.2 U	3.2	140 D	**23 D**	0.2 U	0.6	0.2 U	0.5	0.2 U	1.2	0.4	**16 D**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		2/4/08	1.0 U	1.8	14	380	**67**	1.0 U	7.4	1.0 U	1.0 U	1.0 U	1.0 U	4.3	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/1/08	2.0 U	2.7	25 U	340	**33**	2.0 U	11	2.0 U	4.0 U	2.0 U	2.0 U	7.6	**190 D**	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		7/29/08	1.0 U	1.0 U	5.0 U	16	**3.8**	1.0 U	5.0	1.0 U	1.0 U	1.0 U	1.0 U	2.7	**43**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/13/08	0.2 U	1.7	2.5 U	3.6	**3.8**	0.2 U	10	0.2 U	2.4	0.2 U	2.3	4.6	**44 D**	**0.2**	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.4		
		1/12/09	0.2 U	2.6	2.5 U	3.0 U	**6.6**	0.2 U	11	0.2 U	0.4 U	0.2 U	0.2	3.9	**60 D**	**0.3**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/8/09	0.2 U	1.4	2.5 U	2.5 U	**2.1**	0.2 U	8.2	0.2 U	2.2	0.2 U	1.6	2.0	**26**	**0.2 X**	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		6/9/09	0.2 U	1.6	5.0 U	5.0 U	**1.6**	0.2 U	7.7	0.2 U	1.7	0.2 U	1.5	1.0	**27**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3		
		6/9/09 (DUP)	0.2 U	1.6	5.0 U	5.0 U	**1.6**	0.2 U	8.1	0.2 U	1.7	0.2 U	1.4	1.1	**28**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2		
		7/30/09	0.2 U	1.2	5.0 U	5.0 U	**1.2**	0.2 U	5.3	0.2 U	2.2	0.2 U	1.9	0.8	**25**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3		
		10/27/09	0.2 U	1.0	5.0 U	5.0 U	**1.1**	0.2 U	4.9	0.2 U	1.8	0.2 U	0.9	1.1	**29**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3		
		4/9/10	0.2 U	0.8	5.0 UJ	5.0 UJ	**0.9**	0.2 U	4.5	0.2 U	0.4 U	0.2 U	0.2 U	0.8	**16**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW157	**(1)**	9/6/06	20 U	20 U	100 U	100 U	20 U	20 U	**150**	20 U	20 U	20 U	20 U	20 U	**2,300**	20 U	20 U	20 U	**56**	20 U	20 U	20 U	20 U		
		7/23/07	20 U	20 U	100 U	150	**120**	20 U	**300**	20 U	20 U	20 U	20 U	20 U	**3,200**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		7/23/07 (DUP)	20 U	20 U	100 U	160	**120**	20 U	**320**	20 U	20 U	20 U	20 U	20 U	**3,400**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		8/16/07	20 U	20 U	100 U	160	**130**	20 U	**650**	20 U	20 U	20 U	20 U	56	**4,500 D**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		9/24/07	5.0 U	5.0 U	130	**2,200**	**76**	5.0 U	76	5.0 U	5.0 U	5.0 U	5.0 U	5.6	**450**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		10/23/07	1.0 U	1.0 U	15	370	**25**	1.0 U	12	1.0 U	1.0 U	**2.4**	1.8	1.0 U	**97**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/30/07	1.0 U	1.0 U	5.0 U	34	**100**	1.0 U	4.7	1.0 U	1.0 U	1.0 U	1.3	1.0 U	**55**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		2/4/08	1.0 U	1.0 U	5.0 U	12 U	**72**	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**26**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/3/08	1.0 U	1.0 U	5.0 U	10	**38**	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**22**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/1/08	0.6 U	0.6 U	7.5 U	9.0 U	**12**	0.6 U	1.8	0.6 U	1.2 U	0.6 U	0.6 U	0.6 U	**42**	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		8/1/08 (DUP)	1.0 U	1.0 U	5.0 U	5.0 U	**9.7**	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**34**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/15/08	0.2 U	0.2 U	2.5 U	3.0 U	**2.6**	0.2 U	1.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2	**31 D**	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		1/14/09	0.2 U	0.2 U	2.5 U	3.5 U	**0.8**	0.2 U	1.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**15**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/8/09	0.2 U	0.2 U	2.5 U	2.5 U	**0.7**	0.2 U	1.4	0.2 U	0.4 U	**0.1 X**	0.2 U	0.2 X	**18**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/8/09	0.2 U	0.2 U	5.0 U	5.0 U	0.1 X	0.2 U	1.9	0.2 U	0.4 U	**0.2 X**	0.2 U	0.2	**26**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/30/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	2.0	0.2 U	0.4 U	0.2 U	0.2 U	0.3	**39**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/28/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2	0.2 U	3.3	0.2 U	0.4 U	**0.2**	0.2 U	0.3	**77 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/14/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	1.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**19**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW157 (continued)	**(2)**	9/6/06	20 U	20 U	100 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**2,400**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		4/18/07	3.0 U	3.0 U	15 U	30	**120**	3.0 U	36	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**300**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		7/23/07	1.0 U	1.0 U	5.0 U	10 U	**110**	1.0 U	11	1.0 U	3.2	1.0 U	1.1	1.9	**190**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		9/26/07	1.0 U	1.0 U	20	260	**120**	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.2	**50**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/30/07	1.0 U	1.0 U	5.0 U	7.2	**140**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**11**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	(3)	9/6/06	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**5.6**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/23/07	0.2 U	0.3	1.0 U	10 U	**12**	0.2 U	12	0.2 U	0.4	0.2 U	0.4	0.7	**96**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2	0.4		
		11/30/07	0.2 U	0.2 U	1.0 U	7.4	**26 D**	0.2 U	0.3 D	0.2 U	0.4 U	0.2 U	0.2	0.2 U	**3**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW158	**(1)**	9/5/06	10 U	10 U	50 U	50 U	10 U	10 U	38	10 U	10 U	10 U	10 U	10 U	**880**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/18/07	10 U	10 U	50 U	120	**12**	10 U	**160**	10 U	10 U	10 U	10 U	17	**5,700**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		7/23/07	1.0 U	1.0 U	6.8 U	210	**2.7**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**27**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/27/07	1.0 U	1.0 U	5.0 U	78	**68**	1.0 U	3.4	1.0 U	1.0 U	**1.2**	3.8	1.0 U	**97**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		2/4/08	1.0 U	1.0 U	5.0 U	28 U	**22**	1.0 U	2.2	1.0 U	1.0 U	1.0 U	1.3	1.0 U	**97**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/1/08	2.0 U	2.0 U	25 U	30 U	**20**	2.0 U	2.8	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**140**	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		8/1/08	5.0 U	5.0 U	25 U	25 U	**12**	5.0 U	6.0	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**300**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		10/14/08	0.2 U	0.2	2.5 U	3.0 U	**6.0**	0.2 U	7.8	0.2 U	0.4 U	**5.0**	0.4	1.1	**520 D**	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		11/5/08	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**310**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		12/4/08	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	3.1	2.0 U	4.0 U	**2.6**	2.0 U	2.0 U	**220**	2.0 U	2.0 U	2.0 U	**5.4**	2.0 U	2.0 U	2.0 U	2.0 U		
		1/14/09	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.9	1.0 U	2.0 U	**1.6**	1.0 U	1.0 U	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/8/09	0.2 U	0.1 X	2.5 U	2.5 U	**1.0**	0.2 U	1.8	0.2 U	0.4 U	**1.6**	0.2 U	0.3	**110 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/8/09	0.2 U	0.2 X	5.0 U	5.0 U	**2.0**	0.2 U	3.0	0.2 U	0.4 U	**1.8**	0.2 U	0.5	**150 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/31/09	2.0 UJ	2.0 UJ	50 UJ	50 UJ	**4.0 J**	2.0 UJ	4.3 J	2.0 UJ	4.0 UJ	**3.0 J**	2.0 UJ	2.0 UJ	**250 J**	2.0 UJ	2.0 UJ	5.0 UJ	5.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ		
		10/28/09	0.6 U	0.6 U	15 U	15 U	**0.8**	0.6 U	2.0	0.6 U	1.2 U	**1.0**	0.6 U	0.6 U	**72**	0.6 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		4/14/10	0.2 U	0.2 U	5.0 U	5.0 U	0.3	0.2 U	1.3	0.2 U	0.4 U	**0.8**	0.2 U	0.2 U	**50**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	(2)	9/5/06	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.9	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**280**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		7/23/07	3.0 U	3.0 U	15 U	43 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**10**	3.0 U	3.0 U	**500**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		9/24/07	3.0 U	3.0 U	15 U	64	**25**	3.0 U	3.0 U	3.0 U	3.0 U	**3.7**	3.0 U	3.0 U	**190**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		11/26/07	1.0 U	1.0 U	5.0 U	14	**5.5**	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**49**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	(3)	9/5/06	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	6.8	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**190**	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		7/24/07	0.2 U	0.2 U	1.0 U	6.3 J	0.2 U	0.2 U	0.2 J	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**17**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/24/07 (DUP)	0.2 U	0.2 U	1.0 U	7.2 J	0.2 U	0.2 U	0.2 J	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**17**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
		11/26/07	0.2 U	0.2 U	1.0 U	8.0	**1.1**	0.2 U	0.2 U	0.2 U	0.9	**0.3**	0.2 U	0.2 U	**13**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW159		10/27/06	3.0 U	0.020 U	15 U	45 U	3.0 U	3.0 U	3.0 U	3.0 U	6.0 U	0.020 U	3.0 U	3.0 U	**150**	0.020 U	3.0 U	3.0 U	4.5 U	3.0 U	3.0 U	3.0 U	3.0 U		
		1/9/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/9/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.7	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**140**	0.043 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/17/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/6/07	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/14/08	1.0 U	0.020 UJ	5.0 U	5.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	**88**	0.020 UJ	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/16/08	0.2 U	0.20 U	2.5 U	3.0 U	0.2 U	0.2 U	1.4	0.2 U	0.4 U	0.20 U	0.2 U	0.2 U	**110 D**	0.20 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/27/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.4	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**130**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/20/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.2	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**120**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/23/09	0.2 U	0.2 U	2.5 U	2.7	0.2 U	0.2 U	1.4	0.2 U	0.4 U	0.2 UJ	0.2 U	0.2 U	**120 D**	0.2 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/09	0.6 U	0.6 UJ	15 U	15 U	0.6 U	0.6 U	1.1	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**89**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 UJ	0.6 U		
		11/6/09	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	1.3	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/19/10	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	1.1	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**93**	0.020 U	1.0 U	2.5 U	3.2	1.0 U	1.0 U	1.0 U	1.0 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
		4/19/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.3	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**100**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
EGW160		10/27/06	2.0 U	0.028	10 U	30 U	2.0 U	2.0 U	3.3	2.0 U	4.0 U	0.020 U	2.0 U	2.0 U	**100**	0.020 U	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		1/9/07	1.0 U	0.034	5.0 U	5.0 U	1.0 U	1.0 U	3.1	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**83**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/9/07	1.0 U	0.032	5.0 U	5.0 U	1.0 U	1.0 U	4.1	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/17/07	1.0 U	0.036	5.0 U	5.0 U	1.0 U	1.0 U	2.8	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**83**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/6/07	1.0 U	0.048	5.0 U	5.0 U	1.0 U	1.0 U	2.4	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**78**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/14/08	1.0 U	0.020 UJ	5.0 U	5.0 U	1.0 U	1.0 U	2.8	1.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	**67**	0.020 UJ	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/14/08 (DUP)	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	2.7	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**66**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/16/08	0.2 U	0.20 U	2.5 U	3.0 U	0.2 U	0.2 U	3.5	0.2 U	0.4 U	0.20 U	0.2 U	0.2 U	**92 D**	0.20 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	2.6	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**86**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/27/08	1.0 U	0.028	5.0 U	5.0 U	1.0 U	1.0 U	2.9	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/20/09	1.0 U	0.022	5.0 U	5.0 U	1.0 U	1.0 U	2.4	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**91**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/23/09	0.2 U	0.2 U	2.5 U	2.8	0.2 U	0.2 U	2.2	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**100 D**	0.20 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/15/09	0.6 U	0.6 UJ	15 U	15 U	0.6 U	0.6 U	1.8	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**73**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 UJ	0.6 U		
		11/6/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.9	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**88**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		11/6/09 (DUP)	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	1.9	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**87**	0.020 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		1/19/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.8	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**83**	0.020 U	0.6 U	1.5 U	1.7	0.6 U	0.6 U	0.6 U	0.6 U		
		4/19/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.4	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**84**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
EGW161	**(1)**	9/12/06	1.0 U	1.0 U	5.0 U	5.0 J	1.0 U	1.0 U	2.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**50**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/17/07	1.0 U	4.2	5.0 U	15 U	1.0 U	1.0 U	77	1.0 U	2.0 U	**4.8**	1.0 U	4.4	**1,500**	**1.4**	1.0 U	1.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
		8/16/07	15 U	15 U	75 U	75 U	15 U	15 U	65	15 U	15 U	15 U	15 U	15 U	**1,800**	15 U	15 U	15 U	30 U	15 U	15 U	15 U	15 U		
		9/24/07	20 U	20 U	100 U	100 U	20 U	20 U	46	20 U	20 U	20 U	20 U	20 U	**1,600**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		10/23/07	10 U	10 U	50 U	50 U	10 U	10 U	17	10 U	10 U	10 U	10 U	10 U	**750**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		11/27/07	10 U	10 U	50 U	50 U	10 U	10 U	22	10 U	10 U	10 U	10 U	10 U	**1,100**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		2/5/08	10 U	10 U	50 U	50 U	10 U	10 U	28	10 U	10 U	10 U	10 U	10 U	**1,600**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		3/7/08	20 U	20 U	100 U	100 U	20 U	20 U	31	20 U	20 U	20 U	20 U	20 U	**1,700**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		4/2/08	10 U	10 U	50 U	50 U	10 U	10 U	24	10 U	10 U	10 U	10 U	10 U	**1,500**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		4/29/08	10 U	10 U	50 U	50 U	10 U	10 U	22	10 U	10 U	10 U	10 U	10 U	**1,900**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		6/5/08	20 U	20 U	100 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**1,300**	20 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
		7/31/08	10 U	10 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**750**	10 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
		8/22/08	10 U	10 U	120 U	150 U	10 U	10 U	12	10 U	20 U	10 U	10 U	10 U	**660**	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U		
		8/22/08 (DUP)	10 U	10 U	120 U	150 U	10 U	10 U	10	10 U	20 U	10 U	10 U	10 U	**660**	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U		
		9/25/08	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	5.4	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**330**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		10/15/08	0.2 U	0.2 U	2.5 U	3.0 U	0.2 U	0.2 U	4.0	0.2 U	0.4 U	**1.0**	0.3	0.2 U	**270 D**	0.2 U	1.4	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		11/5/08	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.9	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	**270**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		11/5/08 (DUP)	5.0 U	5.0 U	25 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**290**	5.0 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
		12/4/08	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	3.7	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	**240**	2.0 U	2.0 U	2.0 U	**5.7**	2.0 U	2.0 U	2.0 U	2.0 U		
		1/13/09	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	**180**	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U		
		2/5/09	0.2 U	0.1 X	2.5 U	3.6 U	0.2 U	0.2 U	2.5	0.2 U	0.2 X	**0.8**	0.2 U	0.2 U	**160**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		3/2/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	2.6	0.2 U	0.4 U	**0.7**	0.2 X	0.2 U	**160 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/7/09	0.2 U	0.2 X	2.5 U	2.5 U	0.2 U	0.2 U	2.9	0.2 U	0.4 U	**0.8**	0.2 U	0.2 U	**130 D**	0.20 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/4/09	0.2 U	0.2	2.5 U	2.5 U	0.2 U	0.2 U	5.0	0.2 U	0.4 U	**1.1**	0.2 U	0.2 U	**260 D**	0.2 U	0.2 U	0.2 UJ	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		5/26/09	0.6 U	0.6 U	7.5 U	7.5 U	0.6 U	0.6 U	4.6	0.6 U	1.2 U	**1.1**	0.6 U	0.6 U	**230 D**	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
		6/10/09	0.2 U	0.2	5.0 U	5.0 U	0.2 U	0.2 U	5.1	0.2 U	0.4 U	**1.2**	0.2 U	0.2 U	**270 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/31/09	6.0 UJ	6.0 UJ	150 UJ	150 UJ	6.0 UJ	6.0 UJ	9.3 J	6.0 UJ	12 UJ	6.0 UJ	6.0 UJ	6.0 UJ	**630 J**	6.0 UJ	6.0 UJ	15 UJ	15 UJ	6.0 UJ	6.0 UJ	6.0 UJ	6.0 UJ		
		8/26/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**92 D**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		9/15/09	0.2 U	0.6	11	5.5	0.2 U	0.2 U	19	0.2 U	0.4 U	**1.9**	0.2 U	0.5	**670 D**	**0.4**	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2	0.2 U		
		10/28/09	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	**440**	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	**130**	4.0 U	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
		1/26/10	2.0 U	2.0 U	50 U	50 U	2.0 U	2.0 U	**560**	2.0 U	4.0 U	2.0 U	2.0 U	2.7	**5.6**	2.0 U	2.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
		4/7/10	3.0 U	3.0 U	75 U	75 UJ	3.0 U	3.0 U	**470**	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	**5.3**	3.0 U	3.0 U	7.5 UJ	7.5 U	3.0 U	3.0 U	4.0	3.0 U		
		4/7/10 (DUP)	3.0 U	3.0 U	75 U	75 UJ	3.0 U	3.0 U	**480**	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	**5.0**	3.0 U	3.0 U	7.5 UJ	7.5 U	3.0 U	3.0 U	4.2	3.0 U		
	(2)	9/12/06	1.0 U	1.0 U	5.0 U	5.2 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**26**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/17/07	0.6 U	0.6 U	3.0 U	9.0 U	0.6 U	0.6 U	1.3	0.6 U	1.2 U	**1.7**	0.6 U	0.6 U	**150**	0.6 U	0.6 U	0.6 U	0.9 U	0.6 U	0.6 U	1.4	0.6 U		
		9/26/07	1.0 U	1.0 U	5.1	9.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.5**	1.0 U	1.0 U	**150**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		11/27/07	1.0 U	1.0 U	5.0 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	**61**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		2/5/08	1.0 U	1.0 U	5.0 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	**52**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		4/2/08	0.2 U	0.2 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	**0.5**	0.2 U	0.2 U	**61 D**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/31/08	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**48**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		10/15/08	0.2 U	0.2 U	2.5 U	3.0 U	0.2 U	0.2 U	1.1	0.2 U	0.4 U	**0.5**	0.2 U	0.2 U	**54 D**	0.2 U	1.0	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U		
		1/13/09	0.2 U	0.2 U	2.5 U	3.0 U	1.0 U	0.2 U	0.2 U	1.0 U	2.0 U	1.0 U	1.0 U	0.2 U	**44**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	1.0 U	0.2 U	1.0 U		
		4/7/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U	**0.6**	0.2 U	0.2 U	**48**	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		6/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U	**0.6**	0.2 U	0.2 U	**55**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		7/31/09	0.4 UJ	0.4 UJ	10 UJ	10 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.8 UJ	**0.9 J**	0.4 UJ	0.4 UJ	**61 J**	0.4 UJ	0.4 UJ	1.0 UJ	1.0 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ		
		8/26/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U	**0.6**	0.2 U	0.2 U	**48**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2	0.2 U		
		9/15/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	**0.5**	0.2 U	0.2 U	**42**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		10/28/09	0.2 U	0.2 U	5.0 U	6.3	0.2 U	0.2 U	9.8	0.2 U	0.4 U	**0.3**	0.2 U	0.2 U	**27**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		1/26/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	20	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**20**	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
		4/7/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	19	0.2 U	0.4 U	**0.2**	0.2 U	0.2 U	**19**	0.2 U	0.2 U	0.5 UJ	0.5 U	0.2 U	0.2 U	0.3	0.2 U		
	(3)	9/12/06	1.0 U	1.0 U	5.0 U	6.5 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
		7/17/07	1.0 U	1.0 U	5.0 U	11 U	1.0 U	1.0 U	1.0 U	1.0 U	63	1.0 U	1.0 U	1.0 U	**13**	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	8.0		
		11/28/07	0.2 U	0.2 U	1.0 U	3.0 U	0.6 J	0.2 U	0.5 J	0.2 U	105 D	0.2 U	0.5 J	0.2 U	**5.2 J**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.3 J	13 D		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs)[a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
(4)	9/12/06	0.2 U	0.2 U	1.6	11	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.4	0.2 U		
	7/18/07	0.2 U	0.2 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	3.0	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	1.2		
	11/28/07	0.2 U	0.2 U	1.0 U	5.8	0.2 U	0.2 U	0.2 U	0.2 U	7.1	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	1.0		
EGW162	10/28/06	30 U	0.083	150 U	150 U	30 U	30 U	30 U	30 U	30 U	0.022	30 U	30 U	**1,000**	0.020 U	30 U	30 U	60 U	30 U	30 U	30 U	30 U		
	1/9/07	10 U	0.057	50 U	50 U	10 U	10 U	14	10 U	10 U	10 U	10 U	10 U	**940**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	4/10/07	10 U	0.062	50 U	50 U	10 U	10 U	20	10 U	10 U	10 U	10 U	10 U	**1,200**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	7/16/07	5.0 U	0.070 J	25 U	25 U	5.0 U	5.0 U	11	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**840**	0.020 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	11/5/07	10 U	0.042	50 U	50 U	10 U	10 U	12	10 U	10 U	10 U	10 U	10 U	**880**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	11/5/07 (DUP)	10 U	0.052	50 U	50 U	10 U	10 U	10	10 U	10 U	10 U	10 U	10 U	**850**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	1/10/08	10 U	0.079	50 U	50 U	10 U	10 U	11	10 U	10 U	10 U	10 U	10 U	**880**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	4/17/08	10 U	0.20 U	50 U	50 U	10 U	10 U	11	10 U	10 U	10 U	10 U	10 U	**810**	0.20 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	7/17/08	10 U	0.20 U	50 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**800**	0.20 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	10/29/08	5.0 U	0.20 U	25 U	25 U	5.0 U	5.0 U	10	5.0 U	10 U	5.0 U	5.0 U	5.0 U	**960**	0.20 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U		
	1/20/09	10 U	0.034	50 U	50 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	10 U	**760**	0.020 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		
	4/27/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	8.8	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**780 D**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/09	10 U	10 U	50 U	100 U	10 U	10 U	10 U	10 U	20 U	0.20 UJ	10 U	10 U	**810**	0.20 UJ	10 U	10 U	20 UJ	10 U	10 U	10 U	10 U		
	11/9/09	6.0 U	6.0 U	150 U	150 U	6.0 U	6.0 U	7.2	6.0 U	12 U	0.026	6.0 U	6.0 U	**680**	0.020 U	6.0 U	15 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
	1/22/10	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	4.0	4.0 U	8.0 U	0.043	4.0 U	4.0 U	**460**	0.020 U	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
	4/22/10	4.0 U	4.0 U	100 U	100 U	4.0 U	4.0 U	6.4	4.0 U	8.0 U	0.020 UJ	4.0 U	4.0 U	**550**	0.020 UJ	4.0 U	10 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U		
EGW163	6/20/07	1.0 U	0.2 U	5.0 U	5.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U	0.2 U	1.0 U	1.0 U	**180**	0.2 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/8/07	1.0 U	0.020 UJ	5.0 U	5.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	**150**	0.020 UJ	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/14/08	1.0 U	0.020 UJ	5.0 U	5.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	**140**	0.020 UJ	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/17/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	**120**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/17/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	10/29/08	1.0 U	0.10 U	5.0 U	5.0 U	1.0 U	1.0 U	1.3	1.0 U	2.0 U	0.10 U	1.0 U	1.0 U	**130**	0.10 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/20/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.1	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/20/09 (DUP)	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.1	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**120**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/27/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	1.1	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**110**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.1	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**110**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	11/9/09	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	0.9	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**90**	0.020 U	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	1/22/10	0.2 UJ	0.2 UJ	5.0 UJ	5.0 UJ	0.2 UJ	0.2 UJ	0.8 J	0.2 UJ	0.4 UJ	0.020 U	0.2 UJ	0.2 UJ	**87 JD**	0.020 U	0.2 UJ	0.5 UJ	0.5 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ		
	1/22/10 (DUP)	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**15 J**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/22/10	0.6 U	0.6 U	15 U	15 U	0.6 U	0.6 U	1.2	0.6 U	1.2 U	0.020 UJ	0.6 U	0.6 U	**100**	0.020 UJ	0.6 U	1.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
EGW164	6/20/07	1.0 U	0.21	5.0 U	5.0 U	1.0 U	1.0 U	18	1.0 U	1.0 U	0.2 U	1.0 U	1.0 U	**990**	0.2 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	11/6/07	10 U	0.14	50 U	50 U	10 U	10 U	17	10 U	10 U	0.020 U	10 U	10 U	**850**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	1/14/08	10 U	0.2 UJ	50 U	50 U	10 U	10 U	13	10 U	10 U	0.2 UJ	10 U	10 U	**800**	0.2 UJ	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	4/17/08	10 U	0.20 UJ	50 U	50 U	10 U	10 U	22	10 U	10 U	0.20 UJ	10 U	10 U	**970**	0.20 UJ	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	4/17/08 (DUP)	10 U	0.20 UJ	50 U	50 U	10 U	10 U	22	10 U	10 U	0.20 UJ	10 U	10 U	**990**	0.20 UJ	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	7/17/08	10 U	0.20 J	50 U	50 U	10 U	10 U	23	10 U	10 U	0.20 UJ	10 U	10 U	**1,100**	0.20 UJ	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	10/29/08	10 U	1.0 U	50 U	50 U	10 U	10 U	26	10 U	20 U	1.0 U	10 U	10 U	**1,400**	1.0 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	1/20/09	10 U	0.15	50 U	50 U	10 U	10 U	22	10 U	20 U	0.024	10 U	10 U	**1,200**	0.020 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	4/27/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	21	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**1,200 D**	0.020 UJ	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/09	10 U	10 U	50 U	100 U	10 U	10 U	20	10 U	20 U	0.20 UJ	10 U	10 U	**1,300**	0.20 UJ	10 U	10 U	20 UJ	10 U	10 U	10 U	10 U		
	11/9/09	10 U	10 U	250 U	250 U	10 U	10 U	20	10 U	20 U	0.020	10 U	10 U	**1,100**	0.020 U	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
	1/22/10	6.0 U	6.0 U	150 U	150 U	6.0 U	6.0 U	9.6	6.0 U	12 U	0.020 U	6.0 U	6.0 U	**870**	0.020 U	6.0 U	15 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U		
	4/22/10	10 U	10 U	250 U	250 U	10 U	10 U	20	10 U	20 U	0.20 UJ	10 U	10 U	**1,000**	0.20 UJ	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
EGW165	6/20/07	20 U	0.2 U	100 U	100 U	20 U	20 U	22	20 U	20 U	0.2 U	20 U	20 U	**1,900**	0.2 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	11/6/07	20 U	0.12	100 U	100 U	20 U	20 U	20 U	20 U	20 U	0.06	20 U	20 U	**1,700**	0.020 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	1/10/08	20 U	0.2 UJ	100 U	100 U	20 U	20 U	20 U	20 U	20 U	0.2 UJ	20 U	20 U	**1,100**	0.2 UJ	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	4/17/08	10 U	0.20 UJ	50 U	50 U	10 U	10 U	19	10 U	10 U	0.20 UJ	10 U	10 U	**1,500**	0.20 UJ	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	7/17/08	15 U	0.20 UJ	75 U	75 U	15 U	15 U	16	15 U	15 U	0.20 UJ	15 U	15 U	**1,400**	0.20 UJ	15 U	15 U	30 U	15 U	15 U	15 U	15 U		
	10/29/08	10 U	1.0 U	50 U	50 U	10 U	10 U	15	10 U	20 U	1.0 U	10 U	10 U	**1,700**	1.0 U	10 U	10 U	20 U	10 U	10 U	10 U	10 U		
	1/20/09	20 U	0.051	100 U	100 U	20 U	20 U	20 U	20 U	40 U	0.054	20 U	20 U	**1,400**	0.020 U	20 U	20 U	40 U	20 U	20 U	20 U	20 U		
	4/27/09	0.2 U	0.2 U	2.5 U	2.8	0.2 U	0.2 U	14	0.2 U	0.4 U	0.034 J	0.2 U	0.2	**1,400 D**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/09	20 U	20 U	100 U	200 U	20 U	20 U	20 U	20 U	40 U	0.20 UJ	20 U	20 U	**1,600**	0.20 UJ	20 U	20 U	40 UJ	20 U	20 U	20 U	20 U		
	11/9/09	10 U	10 U	250 U	250 U	10 U	10 U	10	10 U	20 U	0.048	10 U	10 U	**1,200**	0.020 U	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
	1/22/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	9.4	0.2 U	0.4 U	0.020	0.2 U	0.2 U	**1,200 D**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/22/10	10 U	10 U	250 U	250 U	10 U	10 U	10 U	10 U	20 U	0.20 UJ	10 U	10 U	**1,000**	0.20 UJ	10 U	25 U	25 U	10 U	10 U	10 U	10 U		
EGW166	6/20/07	0.2 U	0.2 U	1.0	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/6/07	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	5.1	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.6		
	1/10/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/16/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/27/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/20/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/23/09	0.2 U	0.2 U	2.5 U	2.6	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/15/09	0.2 U	0.2 UJ	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U		
	11/5/09	0.2 U	0.2 U	5.0 U	6.7	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/19/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
EGW167	12/5/07	0.2 U	0.2 U	1.0 U	3.0 U	0.4	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	**0.80**	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	1.4	0.2 U		
	1/10/08	0.2 U	0.020 U	1.0 U	3.0 U	0.2	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.86**	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	12	0.2 U		
	4/17/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.36	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.8	0.2 U		
	7/17/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.39	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.3	0.2 U		
	10/29/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.27	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U		
	1/20/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2	0.2 U	0.30	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/27/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.22	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.25	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/9/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.28	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/22/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.8	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**37**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/22/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2	0.2 U	0.25	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW168	3/17/08	0.2 U	0.020 U	1.0 U	3.7	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.59**	0.020 U	0.7	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	3/17/08 (DUP)	0.2 U	0.020 U	1.0 U	2.6	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.56**	0.020 U	0.8	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/21/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.40	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/14/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.088	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/29/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.15	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/22/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.034	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/25/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.054	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.052	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/25/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**14**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW169	3/17/08	0.2 U	0.42	1.9	2.5	0.2 U	0.2 U	21	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**680 D**	**0.048**	1.4	0.2 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U		
	4/22/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	4.6	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	**150**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/14/08	10 U	0.20 U	120 U	150 U	10 U	10 U	14	10 U	20 U	0.20 U	10 U	10 U	**610**	0.20 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U		
	10/29/08	1.0 U	0.20 U	5.0 U	5.0 U	1.0 U	1.0 U	1.6	1.0 U	2.0 U	0.20 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/22/09	2.0 U	0.046	10 U	10 U	2.0 U	2.0 U	5.4	2.0 U	4.0 U	0.020 U	2.0 U	2.0 U	**220**	0.020 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U		
	4/28/09	1.0 U	1.0 U	12 U	12 U	1.0 U	1.0 U	3.6	1.0 U	2.0 U	0.020 UJ	1.0 U	1.0 U	**210**	0.020 UJ	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
	7/16/09	2.0 U	2.0 U	10 U	20 U	2.0 U	2.0 U	4.4	2.0 U	4.0 U	0.020 UJ	2.0 U	2.0 U	**270**	0.020 UJ	2.0 U	2.0 U	4.0 UJ	2.0 U	2.0 U	2.0 U	2.0 U		
	11/10/09	0.2 U	0.2 U	5.0 U	9.3 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**57**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/25/10	1.0 U	1.0 U	25 U	25 U	1.0 U	1.0 U	3.2	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**290**	0.020 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/21/10	0.4 U	0.4 U	10 U	10 U	0.4 U	0.4 U	0.6	0.4 U	0.8 U	0.020 UJ	0.4 U	0.4 U	**67**	0.020 UJ	0.4 U	1.0 U	1.0 U	0.4 U	0.4 U	0.4 U	0.4 U		
EGW170	3/17/08	0.2 U	0.020 U	1.9	7.6	0.2 U	0.2 U	1.0	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**20**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/22/08	0.8 U	0.020	10 U	12 U	0.8 U	0.8 U	1.2	0.8 U	1.6 U	0.020 U	0.8 U	0.8 U	**29**	0.020 U	0.8 U	0.8 U	2.0 U	0.8 U	0.8 U	0.8 U	0.8 U		
	7/14/08	0.6 U	0.020 U	7.5 U	9.0 U	0.6 U	0.6 U	1.1	0.6 U	1.2 U	0.020 U	0.6 U	0.6 U	**36**	0.020 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U		
	10/29/08	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.6	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**44**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	1/22/09	1.0 U	0.020 U	5.0 U	5.0 U	1.0 U	1.0 U	1.4	1.0 U	2.0 U	0.020 U	1.0 U	1.0 U	**44**	0.020 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U		
	4/28/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	1.2	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**51**	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/16/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.9	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**29**	0.020 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.8	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**23**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/25/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.3**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/20/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.6	0.2 U	0.4 U	0.020 UJ	0.2 U	0.2 U	**26**	0.020 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW171	9/12/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.4	0.2 U	0.020 U	0.020 U	0.3	0.3	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/30/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/22/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/28/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/20/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/25/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW172	8/28/08	0.2 U	0.20 U	2.5 U	5.6	0.2 U	0.4	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	**10**	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	9/12/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.4	0.2 U	0.020 U	0.020 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/30/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/22/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/28/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.023	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/20/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/10/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/25/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.5**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.02 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
EGW173	9/12/08	0.2 U	0.2 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.3 J	0.2 U	0.4 J	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	9/12/08 (DUP)	0.2 U	0.2 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.3 J	0.2 U	0.4 J	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/30/08	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/22/09	0.2 U	0.020 U	2.5 U	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.40	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/28/09	0.2 U	0.2 U	2.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.85**	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	7/20/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/10/09	0.2 U	0.2 U	5.0 U	5.7 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	11/10/09 (DUP)	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/25/10	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.4	0.2 U	**1.5**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/25/10 (DUP)	0.2 U	0.2 U	5.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**1.6**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	0.020 U	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		

Table 21-7
Summary of Groundwater Analytical Results - Detected Constituents (Permanent Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	1,1-DCA	1,1-DCE	MEK	Acetone	Benzene	BDCM	cis-1,2-DCE	DBCM	Xylenes	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	Chloroform	Chloromethane	Methylene Chloride	1,1,1-TCA	1,1,2-TCA	Carbon Disulfide	Ethylbenzene	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (µg/L)
MTCA Method A or B Groundwater Screening Level		1,600 (B)	400 (B)	4,800 (B)	800 (B)	5 (A) 0.795 (B)	0.706 (B)	80 (B)	0.521 (B)	1,000 (A) 1,600 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	7.17 (B)	3.37 (B)	5 (A) 5.83 (B)	200 (A) 16,000 (B)	0.768 (B)	800 (B)	700 (A) 800 (B)		
EGW174	10/15/09	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.9**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	10/15/09 (DUP)	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**0.9**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	1/25/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**2.5**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		
	4/21/10	0.2 U	0.2 U	5.0 U	5.0 U	0.2 U	0.2 U	0.3	0.2 U	0.4 U	0.020 U	0.2 U	0.2 U	**5.2**	0.020 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U		

Notes:

Values in **bold** font indicate that the result reported exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website
CLARC tables downloaded September 2009. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
(DUP) - Field duplicate
D - Dilution required to quantitate analyte within linear range of detector.
J - Estimated value
X - Estimated value; analyte concentration detected between the method detection limit and reporting limit
N - Result is between the method detection limit and the reporting limit; refer to the laboratory report for the numerical value.
NA - Not analyzed
ND - Compounds analyzed for were not detected above the specific compound reporting limits
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.

* Suspected laboratory contamination
1,1-DCA = 1,1-Dichloroethane
1,1-DCE = 1,1-Dichloroethene
BDCM = Bromodichloromethane
cis-1,2-DCE = cis-1,2-Dichloroethene
DBCM = Dibromochloromethane
PCE = Tetrachloroethene
trans-1,2-DCE = trans-1,2-Dichloroethene

TCE = Trichloroethene
1,1,1-TCA = 1,1,1-Trichloroethane
1,1,2-TCA = 1,1,2-Trichloroethane
MEK = 2-Butanone
MIBK = 4-Methyl-2-Pentanone

Table 21-8a
Summary of Groundwater Analytical Results - Detected Constituents (Temporary Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (ug/L)									
			1,1-DCA	**1,1-DCE**	**cis-1,2-DCE**	**PCE**	**Toluene**	**trans-1,2-DCE**	**TCE**	**Vinyl Chloride**	**1,1,1-TCA**	**1,1,2-TCA**
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	80 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	200 (A) 16,000 (B)	0.768 (B)
EGW111	**(16 - 20)**	9/12/05	1.0 U	1.0 U	6.4	1.0 U	1.0	1.0 U	**115**	0.5 U	1.0 U	1.0 U
	(30 - 34)	9/12/05	1.0 U	1.0 U	4.3	**3.6**	1.4	1.0 U	**16,700**	0.5 U	1.0 U	**2.4**
	(30 - 34)*	9/12/05	300 U	300 U	300 U	300 U	300 U	300 U	**31,000**	300 U	300 U	300 U
EGW112	**(10 - 14)**	9/12/05	1.0 U	1.0 U	2.1	1.0 U	1.1	1.0 U	**2.8**	0.5 U	1.0 U	1.0 U
	(20 - 24)	9/12/05	1.0 U	1.0 U	6.6	1.0 U	1.0 U	1.8	**2.7**	**5.0**	1.0 U	1.0 U
	(30 - 34)	9/12/05	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	**28.8**	0.5 U	1.0 U	1.0 U
	(40 - 44)	9/12/05	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	**2.3**	0.5 U	1.0 U	1.0 U
EGW113	**(10 - 14)**	9/13/05	1.0 U	1.0 U	4.8	1.0 U	1.3 U	1.0 U	**107**	0.5 U	1.0 U	1.0 U
	(20 - 24)	9/13/05	1.0 U	1.0 U	1.0 U	1.0 U	1.3 U	1.0 U	**78**	0.5 U	1.0 U	1.0 U
	(30 - 34)	9/13/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**21.4**	0.5 U	1.0 U	1.0 U
	(40 - 44)	9/13/05	1.0 U	1.0 U	1.0 U	1.0 U	1.3 U	1.0 U	**1.9**	0.5 U	1.0 U	1.0 U
EGW114	**(16 - 20)**	9/13/05	1.0 U	1.1	**117**	1.0 U	1.2 U	1.0 U	**1,300**	**4.5**	1.0 U	1.0 U
	(16 - 20)*	9/13/05	10 U	10 U	**91**	10 U	10 U	10 U	**970**	10 U	10 U	10 U
	(26 - 30)	9/13/05	1.0 U	1.0 U	27.9	**2.1**	1.5 U	1.0 U	**2,170**	0.5 U	1.0 U	1.0 U
	(36 - 40)	9/13/05	1.0 U	3.2	**144**	**7.5**	2.2 U	1.0 U	**20,200**	**0.56**	1.0 U	1.0 U
EGW115	**(10 - 14)**	9/13/05	1.0 U	1.0 U	3.3	1.0 U	1.6 U	1.0 U	**14**	0.5 U	1.0 U	1.0 U
	(20 - 24)	9/13/05	1.0 U	1.0 U	1.0 U	1.0 U	1.3 U	1.0 U	**16**	0.5 U	1.0 U	1.0 U
	(30 - 34)	9/14/05 9/14/05 (DUP)	1.0 U 1.0 U	1.0 U 1.0 U	1.0 U 1.0 U	1.0 U 1.0 U	1.4 1.0 U	1.0 U 1.0 U	0.5 U 0.5 U	0.5 U 0.5 U	1.0 U 1.0 U	1.0 U 1.0 U
	(30 - 34)*	9/14/05	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.7**	0.2 U	0.2 U	0.2 U
	(40 - 44)	9/14/05	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	0.5 U	0.5 U	1.0 U	1.0 U
EGW116	**(10 - 14)**	9/14/05	1.0 U	1.0 U	21.2	1.0 U	1.1 U	1.0 U	**126**	0.5 U	1.0 U	1.0 U
	(20 - 24)	9/14/05	1.0 U	1.0 U	1.0 U	1.0 U	1.3 U	1.0 U	**30.2**	0.5 U	1.0 U	1.0 U
	(30 - 34)	9/14/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**3.7**	0.5 U	1.0 U	1.0 U
	(36 - 40)	9/14/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.4**	0.5 U	1.0 U	1.0 U
	(36 - 40)*	9/14/05	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.7**	0.2 U	0.2 U	0.2 U
EGW117	**(16 - 20)**	9/14/05	1.0 U	1.0 U	**110**	1.0 U	1.0 U	1.0 U	**581**	**0.73**	1.0 U	1.0 U
	(30 - 34)	9/14/05	1.0 U	1.0 U	35.8	1.0 U	1.0 U	1.0 U	**1,450**	0.5 U	1.0 U	1.0 U
EGW118	**(8 - 12)**	9/14/05	1.0 U	1.0 U	3.2	1.0 U	1.0 U	1.0 U	**67.3**	0.5 U	1.0 U	1.0 U
	(18 - 22)	9/14/05	1.0 U	1.0 U	3.3	1.0 U	1.0 U	1.0 U	**38.4**	0.5 U	1.0 U	1.0 U

Table 21-8a
Summary of Groundwater Analytical Results - Detected Constituents (Temporary Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (ug/L)									
			1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	1,1,1-TCA	1,1,2-TCA
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	80 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	200 (A) 16,000 (B)	0.768 (B)
EGW118B	**(28 - 32)**	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**26.9**	0.5 U	1.0 U	1.0 U
	(36 - 40)	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**30.2**	0.5 U	1.0 U	1.0 U
EGW119	**(12 - 16)**	9/14/05	1.0 U	1.0 U	13.4	1.0 U	1.0 U	1.0 U	**65.1**	**0.69**	1.0 U	1.0 U
	(20 - 24)	9/14/05	1.0 U	1.0 U	5.3	1.0 U	1.0 U	1.0 U	**130**	0.5 U	1.0 U	1.0 U
	(30 - 34)	9/14/05	1.0 U	1.0 U	1.0 U	**1.5**	1.0 U	1.0 U	**172**	0.5 U	1.0 U	1.0 U
	(35 - 39)	9/15/05	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	**18.5**	1.25 U	2.5 U	2.5 U
EGW120	**(16 - 20)**	9/15/05	1.0 U	1.0 U	19.9	1.0 U	1.0 U	1.0 U	**418**	0.5 U	1.0 U	1.0 U
	(26 - 30)	9/15/05	1.7	3.0	**727**	1.0 U	1.0 U	1.4	**6,660**	**17.8**	1.9	1.0 U
	(40 - 44)	9/15/05	1.0 U	1.0 U	6.1	1.0 U	1.0 U	1.0 U	**169**	0.5 U	1.0 U	1.0 U
EGW121	**(10 - 14)**	9/15/05	1.0 U	1.0 U	11.7	1.0 U	1.0 U	1.0 U	**15.5**	0.5 U	1.0 U	1.0 U
	(20 - 24)	9/15/05	1.0 U	1.0 U	11.2	1.0 U	1.0 U	1.0 U	**65.4**	0.5 U	1.0 U	1.0 U
	(28 - 32)	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.6**	0.5 U	1.0 U	1.0 U
	(38 - 42)	9/15/05	1.0 U	1.0 U	2.5	1.0 U	1.0 U	1.0 U	**1,130**	0.5 U	1.0 U	1.0 U
EGW122	**(12 - 16)**	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	1.0 U	1.0 U
	(22 - 26)	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.2**	0.5 U	1.0 U	1.0 U
EGW123	**(16 - 20)**	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**28**	0.5 U	1.0 U	1.0 U
	(26 - 30)	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**75**	0.5 U	1.0 U	1.0 U
	(40 - 44)	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**3.5**	0.5 U	1.0 U	1.0 U
EGW124	**(12 - 16)**	9/15/05	1.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U	**73**	0.5 U	1.0 U	1.0 U
	(22 - 26)	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**9.6**	0.5 U	1.0 U	1.0 U
EGW125	**(36 - 40)**	9/15/05	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1,100**	0.5 U	1.0 U	1.0 U
EGW126	**(36 - 40)**	9/15/05	1.0 U	1.0 U	1.0 U	**1.2**	1.0 U	1.0 U	**145**	0.5 U	1.0 U	1.0 U
EGW138	**(11 - 15)**	1/4/06	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.7**	0.5 U	1.0 U	1.0 U
	(21 - 25)	1/4/06	1.0 U	1.0 U	2.9	1.0 U	1.0 U	1.0 U	**175**	0.5 U	1.0 U	1.0 U
	(28 - 32)	1/4/06	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**158**	0.5 U	1.0 U	1.0 U
EGW142	**(11 - 15)**	1/9/06	1.0 U	1.0 U	13.9	1.0 U	1.0 U	1.0 U	**1,120**	0.5 U	1.0 U	1.0 U
	(15 - 19)	1/9/06	1.0 U	1.0 U	10.8	1.0 U	1.0 U	1.0 U	**840**	0.5 U	1.0 U	1.0 U
ESB1500	**(8 - 12)**	1/6/06	1.0 U	1.0 U	56.6	1.0 U	1.0 U	1.0 U	**72.6**	**16.5**	1.0 U	1.0 U
	(13 - 17)	1/6/06	1.0 U	1.0 U	17.7	1.0 U	1.0 U	1.0 U	**860**	**0.99**	1.0 U	1.0 U

Table 21-8a
Summary of Groundwater Analytical Results - Detected Constituents (Temporary Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (ug/L)									
			1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	1,1,1-TCA	1,1,2-TCA
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	80 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	200 (A) 16,000 (B)	0.768 (B)
ESB1503	(5 - 9)	1/9/06	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.6**	**1.1**	1.0 U	1.0 U
ESB1504	(12 - 16)	1/9/06	1.0 U	1.0 U	28	1.0 U	1.0 U	1.0 U	**81.8**	**1.4**	1.0 U	1.0 U
ESB1505	(8 - 12)	1/9/06	1.0 U	1.0 U	1.3	1.0 U	1.0 U	1.0 U	**71.4**	0.5 U	1.0 U	1.0 U
	(14 - 18)	1/9/06	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**103**	0.5 U	1.0 U	1.0 U
ESB1506	(25.5 - 29.5)	5/21/07	2 U	2 U	5	2 U	2 U	2 U	**430 D**	0.2 U	2 U	2 U
ESB1507	(42 - 46)	5/22/07	2 U	2 U	3	2 U	2 U	2 U	**260 D**	0.2 U	2 U	2 U
	(53 - 57)	5/22/07	2 U	2 U	14	2 U	2 U	2 U	**850 D**	0.2 U	2 U	2 U
ESB1508	(36.5 - 40.5)	5/23/07	2 U	2 U	2 U	2 U	2 U	2 U	**23**	0.2 U	2 U	2 U
	(46.5 - 50.5)	5/23/07	2 U	2 U	5	2 U	2 U	2 U	**430 D**	0.2 U	2 U	2 U
	(56.5 - 60.5)	5/23/07	2 U	2 U	17	2 U	2 U	2 U	**1,000 D**	0.2 U	2 U	2 U
ESB1509	(20 - 24)	5/24/07	2 U	0.02 U	2 U	0.02 U	2 U	2 U	**0.25**	0.02 U	2 U	2 U
	(31.5 - 35.5)	5/24/07	2 U	2 U	2 U	2 U	2 U	2 U	**6**	0.2 U	2 U	2 U
	(41.5 - 45.5)	5/24/07	2 U	2 U	17	2 U	2 U	2 U	**920 D**	0.2 U	2 U	2 U
ESB1510	(15 - 19)	5/29/07	2 U	0.02 U	2 U	0.02	2 U	2 U	0.02 U	0.02 U	2 U	2 U
	(27.5 - 31.5)	5/29/07	2 U	2 U	2	2 U	2 U	2 U	**180 D**	0.2 U	2 U	2 U
	(37.5 - 41.5)	5/29/07	2 U	2 U	13	2 U	2 U	2 U	**830 D**	0.2 U	2 U	2 U
	(39 - 43)	5/31/07	2 U	0.02 U	2 U	0.02 U	2 U	2 U	0.04	0.02 U	2 U	2 U
ESB1511	(14 - 18)	5/30/07	2 U	2 U	2 U	2 U	2 U	2 U	**40 D**	0.2 U	2 U	2 U
	(24 - 28)	5/30/07	2 U	2 U	2	2 U	2 U	2 U	**120 D**	0.2 U	2 U	2 U
	(34 - 38)	5/30/07	2 U	2 U	16	2 U	2 U	2 U	**680 D**	0.2 U	2 U	2 U
ESB1512	(39 - 43)	5/31/07	2 U	0.02 U	2 U	0.02 U	2 U	2 U	0.04	0.02 U	2 U	2 U
	(49 - 53)	5/31/07	2 U	0.02 U	2 U	0.02 U	2 U	2 U	0.02 U	0.02 U	2 U	2 U
	(59 - 63)	5/31/07	2 U	0.02 U	2 U	0.02 U	2 U	2 U	0.03	0.02 U	2 U	2 U
	(69 - 73)	5/31/07	2 U	0.02 U	2 U	0.02 U	2 U	2 U	0.02 U	0.02 U	2 U	2 U
ESB1513	(34.5 - 38.5)	6/1/07	2 U	0.02 U	2 U	0.02 U	2 U	2 U	0.02 U	0.02 U	2 U	2 U
	(45 - 49)	6/1/07	2 U	0.02 U	2 U	0.02 U	2 U	2 U	0.02 U	0.02 U	2 U	2 U
	(55 - 59)	6/1/07	2 U	2 U	9	2 U	2 U	2 U	**500 D**	0.2 U	2 U	2 U
ESB1514	(9 - 12)	2/5/08	0.2 U	0.02 U	0.2 U	0.020 U	0.2	0.2 U	0.053	**0.044**	0.2 U	0.2 U
	(18 - 21)	2/5/08	0.2 U	0.2 U	11	0.2 U	0.2 U	0.3	**890 D**	0.2 U	0.2 U	0.2 U
	(26 - 29)	2/5/08	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.9**	0.2 U	0.2 U	0.2 U

Table 21-8a
Summary of Groundwater Analytical Results - Detected Constituents (Temporary Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (ug/L)									
			1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	1,1,1-TCA	1,1,2-TCA
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	80 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	200 (A) 16,000 (B)	0.768 (B)
	(39 - 42)	2/5/08	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.7**	0.2 U	0.2 U	0.2 U
ESB1515	**(18 - 21)**	2/4/08	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**12**	0.2 U	0.2 U	0.2 U
	(33 - 36)	2/4/08	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	**1.5**	0.2 U	0.2 U	0.2 U
ESB1516	**(21 - 24)**	2/7/08	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U
	(28 - 31)	2/7/08	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2	0.2 U	0.2 U	0.2 U
	(39 - 42)	2/7/08	0.2 U	0.020 U	0.2 U	0.020 U	0.2	0.2 U	0.11	0.020 U	0.2 U	0.2 U
	(49 - 52)	2/7/08	0.2 U	0.020 U	0.2 U	0.020 U	0.2 U	0.2 U	0.069	0.020 U	0.4	0.2 U
	(59 - 62)	2/8/08	0.2 U	0.020 U	0.2 U	0.020 U	0.2 U	0.2 U	0.045	0.020 U	0.2 U	0.2 U
ESB1517	**(19 - 22)**	2/6/08	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	**2.6**	0.2 U	0.2 U	0.2 U
	(29 - 32)	2/6/08	0.2 U	0.020 U	0.2 U	0.020 U	0.2 U	0.2 U	0.089	0.020 U	0.2 U	0.2 U
	(39 - 42)	2/6/08	0.2 U	0.020 U	0.2 U	0.020 U	0.2 U	0.2 U	0.027	0.020 U	0.2 U	0.2 U
	(49 - 52)	2/6/08	0.2 U	0.020 U	0.2 U	0.020 U	0.2 U	0.2 U	0.074	0.020 U	0.2 U	0.2 U
	(59 - 62)	2/6/08	0.2 U	0.020 U	0.2 U	0.020 U	0.2 U	0.2 U	0.060	0.020 U	0.2 U	0.2 U
ESB1518	**(16 - 20)**	7/23/08	1.0 U	2.0 U	10.2	1.0 U	1.0 U	1.0 U	**437**	0.2 U	1.0 U	1.0 U
	(26 - 30)	7/23/08	1.0 U	2.0 U	1.7	1.0 U	1.0 U	1.0 U	**17.5**	0.2 U	1.0 U	1.0 U
	(35 - 39)	7/23/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**9.5**	0.2 U	1.0 U	1.0 U
ESB1519	**(16 - 20)**	7/24/08	1.0 U	2.0 U	4.6	1.0 U	1.0 U	1.0 U	**213**	0.2 U	1.0 U	1.0 U
	(26 - 30)	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**33.6**	0.2 U	1.0 U	1.0 U
	(35 - 39)	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**40.5**	0.2 U	1.0 U	1.0 U
ESB1520	**(16 - 20)**	7/24/08	1.0 U	2.0 U	11.7	1.0 U	1.0 U	1.0 U	**605**	0.2 U	1.0 U	1.0 U
	(26 - 30)	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**23.0**	0.2 U	1.0 U	1.0 U
	(34 - 38)	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**139**	0.2 U	1.0 U	1.0 U
ESB1521	**(16 - 20)**	7/23/08	1.0 U	2.0 U	3.0	1.0 U	1.0 U	1.0 U	**55.6**	**1.9**	1.0 U	1.0 U
	(26 - 30)	7/23/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**34.2**	0.2 U	1.0 U	1.0 U
	(32 - 36)	7/23/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**23.9**	0.2 U	1.0 U	1.0 U
ESB1522	**(16 - 20)**	7/23/08	1.0 U	2.0 U	5.9	1.0 U	1.0 U	1.0 U	**41.1**	0.2 U	1.0 U	1.0 U
	(26 - 30)	7/23/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**96.3**	0.2 U	1.0 U	1.0 U
	(34 - 38)	7/23/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**16.7**	0.2 U	1.0 U	1.0 U
ESB1523	**(16 - 20)**	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**15.6**	0.2 U	1.0 U	1.0 U
	(26 - 30)	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.6**	0.2 U	1.0 U	1.0 U

Table 21-8a
Summary of Groundwater Analytical Results - Detected Constituents (Temporary Monitoring Wells)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID	Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (ug/L)									
			1,1-DCA	1,1-DCE	cis-1,2-DCE	PCE	Toluene	trans-1,2-DCE	TCE	Vinyl Chloride	1,1,1-TCA	1,1,2-TCA
MTCA Method A or B Groundwater Screening Level			1,600 (B)	400 (B)	80 (B)	5 (A) 0.081 (B)	1,000 (A) 640 (B)	160 (B)	5 (A) 0.49 (B)	0.2 (A) 0.0292 (B)	200 (A) 16,000 (B)	0.768 (B)
	(33 - 37)	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.4**	0.2 U	1.0 U	1.0 U
ESB1524	(16 - 20)	7/24/08	1.0 U	2.0 U	3.4	1.0 U	1.0 U	1.0 U	**31.1**	0.2 U	1.0 U	1.0 U
	(26 - 30)	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.0**	0.2 U	1.0 U	1.0 U
ESB1525	(30 - 34)	7/24/08	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U	1.0 U	1.0 U

Notes:
Values in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded as of March 2009. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
bgs - Below ground surface
D - Dilution required to quantitate analyte within linear range of detector.
(DUP) - Field duplicate
J - Estimated value
NA - Not analyzed
ND - Compounds analyzed for were not detected above the specific compound reporting limits
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
(*) Split sample.

1,1-DCA = 1,1-Dichloroethane
1,1-DCE = 1,1-Dichloroethene
cis-1,2-DCE = cis-1,2-Dichloroethene
PCE = Tetrachloroethene
trans-1,2-DCE = trans-1,2-Dichloroethene
TCE = Trichloroethene
1,1,1-TCA = 1,1,1-Trichloroethane
1,1,2-TCA = 1,1,2-Trichloroethane
MEK = 2-Butanone

Table 21-8b
Summary of Groundwater Analytical Results - Detected Constituents (Piezometers)
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Well ID		Sample Date	Vinyl Chloride	Acetone	Carbon Disulfide	cis-1,2-DCE	TCE	Benzene	Toluene	Ethylbenzene	Xylenes	Polychlorinated Biphenyls (PCBs) [a] (ug/L)
MTCA Method A or B Groundwater Screening Level			0.2 (A) 0.0292 (B)	800 (B)	800 (B)	80 (B)	5 (A) 0.49 (B)	5 (A) 0.795 (B)	1,000 (A) 640 (B)	700 (A) 800 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.044 (Total) (B) 0.32 (Aroclor 1254) (B)
PMG-P1		5/14/03	0.020 U	2.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.017 U
		7/23/03	0.020 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.017 UJ
PMG-P2		5/14/03	0.020 U	3.7 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.017 U
		7/23/03	0.020 U	2.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U	0.017 UJ
PMG-P3	**(5-10')**	4/15/10	0.2 U	5.0 U	0.2 U	0.4	**32**	0.2 U	0.2 U	0.2 U	0.4 U	NA
	(7-11')	3/25/10	0.2 U	5.0 U	0.2 U	0.4	**27**	0.2 U	0.3	0.2 U	0.4 U	NA
	(17-21')	3/25/10	0.2 UJ	5.0 UJ	0.2 UJ	0.4 J	**34 J**	0.2 UJ	0.2 UJ	0.2 UJ	0.4 UJ	NA
PMG-P4	**(6-11')**	4/15/10	**0.3**	5.0 U	0.2 U	5.2	**22**	0.2 U	0.2 U	0.2 U	0.4 U	NA
PMG-P5	**(5-9')**	3/24/10	0.2 U	8.5	0.2 U	0.3	**12**	0.3	1.9	0.4	2.6	NA
	(5-10')	4/15/10	0.2 U	5.0 U	0.2 U	0.7	**46**	0.2 U	0.2 U	0.2 U	0.4 U	NA
	(15-19')	3/24/10	0.2 U	5.0 U	0.2 U	0.2 U	**8.9**	0.2 U	0.8	0.2 U	0.4	NA
	(20-24')	3/24/10	0.2 U	5.0 U	0.2 U	0.2 U	**0.6**	0.2 U	0.2 U	0.2 U	0.4 U	NA
PMG-P6	**(4.5-9.5')**	4/15/10	**1.2**	5.0 U	0.2 U	16	**4.4**	0.2 U	0.2 U	0.2 U	0.4 U	NA
PMG-P7	**(5-10')**	4/15/10	0.2 U	5.0 U	0.2 U	0.3	**27**	0.2 U	0.2 U	0.2 U	0.4 U	NA
	(5-9')	3/24/10	0.2 U	5.0 U	0.2 U	0.5	**19**	0.7	5.1	0.7	4.0	NA
		3/24/10 (DUP)	0.2 U	5.0 U	0.2 U	0.4	**20**	0.7	4.9	0.7	3.8	NA
	(15-19')	3/24/10	0.2 U	5.0 U	0.2	1.2	**59**	0.3	1.9	0.3	1.1	NA
	(24-28')	3/24/10	0.2 UJ	5.0 UJ	0.3 J	0.2 UJ	**1.8 J**	0.5 J	4.2 J	0.6 J	3.4 J	NA

Notes:
Values in **bold** font indicate that the result reported exceeds the most current MTCA levels based on the Ecology website
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website
CLARC tables downloaded June 2010. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
bgs - Below ground surface
(DUP) - Field duplicate
D - Dilution required to quantitate analyte within linear range of detector.
J - Estimated value
NA - Not applicable or not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
[a] PCB reporting limits are for all Aroclors except Aroclor 1221 which ranges from 0.010 ug/L to 0.2 ug/L.

Table 21-9
Summary of Seep and Surface Water Analytical Results - Detected Constituents
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Acetone	TCE	Methylene Chloride	2-Butanone (MEK)	cis-1,2-Dichloroethene	Vinyl Chloride	1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
MTCA Method B Surface Water Level		NE	6.7	960	NE	NE	3.69	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only[1]		NE/NE	2.5 / 30	4.6 / 590	NE/NE	NE/NE	0.25 / 2.4	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG3 (Surface Water)	4/5/2005	1.0 U	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	7/21/2005	3.2*	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	1/4/2006	NA	5.8	1.0 U	NA	1.0 U	0.020 U	NA	NA
	4/24/2007	3.0 U	0.13	0.3 U	2.2	0.2 U	0.020 U	NA	NA
	4/25/2008	3.0 U	0.027	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	3.0 U	0.020 U	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.5 U	0.020 U	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/28/2009	5.0 U	0.08	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA
SW-PMG4 (Surface Water)	10/7/1998	14 U	**18**	2.0 U	85 U	1.0 U	0.010 U	NA	ND
	11/11/1998	5.0 U	**22**	2.0 U	5.0 U	1.0 U	0.010 U	NA	ND
	1/26/1999	5.0 U	3.1	2.0 U	5.0 U	1.0 U	0.010 U	NA	ND
	4/29/1999	5.0 U	**18**	2.0 U	5.0 U	1.0 U	0.020 U	NA	ND
	04/29/1999 (DUP)	5.0 U	**18**	2.0 U	5.0 U	1.0 U	0.020 U	NA	ND
	3/18/2003	1.1 U	3.3	0.3 U	1.6	0.2 U	0.020 U	NA	NA
	3/18/2003 (DUP)	1.9 U	3.8	0.3 U	1.6	0.2 U	0.020 U	NA	NA
	12/26/2003	1.0 U	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	1/20/2004	1.0 U	2.7	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	3/12/2004	1.6 U	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/5/2005	1.7*	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	7/21/2005	1.4*	**7.4**	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	1/4/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.020 U	NA	NA
	7/11/2006	1.0 U	5.7	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	10/25/2006	3.0 U	3.6	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/24/2007	3.0 U	4.6	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	10/26/2007	3.0 U	2.9	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
	11/6/2007	3.0 U	5.0	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/25/2008	3.0 U	4.9	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	4.8	0.61	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.5 U	**20**	0.5 U	2.5 U	0.7	0.20 U	NA	NA

Table 21-9
Summary of Seep and Surface Water Analytical Results - Detected Constituents
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Acetone	TCE	Methylene Chloride	2-Butanone (MEK)	cis-1,2-Dichloroethene	Vinyl Chloride	1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
	10/28/2009	5.0 U	**6.9**	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA
	10/28/2009 (DUP)	5.0 U	**7.4**	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA
SW-PMG8 (Surface Water)	6/9/2003	1.5 U	**26**	0.3 U	1.0 U	0.4	0.020 U	NA	NA
	6/9/2003 (DUP)	1.7 U	**25**	0.3 U	1.0 U	0.5	0.020 U	NA	NA
	4/5/2005	1.9*	4.4	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	7/21/2005	1.6*	**9.6**	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	1/4/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
	1/11/2006	1.3 J	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	7/11/2006	1.0 U	**7.3**	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	10/25/2006	3.0 U	3.3	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/24/2007	3.0 U	0.086	0.3 U	2.3	0.2 U	0.020 U	NA	NA
	4/24/07 (DUP)	3.0 U	0.077	0.3 U	3.4	0.2 U	0.020 U	NA	NA
	10/26/2007	3.0 U	**7.5**	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
	11/6/2007	5.0	**10**	0.3 U	2.6	0.2 U	0.020 U	NA	NA
	4/25/2008	3.0 U	5.2	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/25/08 (DUP)	3.0 U	5.0	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	16	1.3	0.9	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.5 U	**9.0**	0.5 U	2.5 U	0.2	0.20 U	NA	NA
	10/28/2009	5.0 U	**9.1**	0.6 U	5.0 U	0.2 U	0.020 U	NA	NA
SW-PMG11 (Surface Water)	6/9/2003	1.9 U	6.5	0.3 U	1.0 U	0.2	0.020 U	NA	NA
	4/5/2005	1.6*	4.8	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	7/21/2005	2.4*	5.8	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	1/4/2006	NA	**7.4**	1.0 U	NA	1.0 U	0.020 U	NA	NA
	7/11/2006	1.0 U	**7.2**	0.3 U	1.0 U	0.2	0.020 U	NA	NA
	10/25/2006	3.0 U	4.8	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/24/2007	3.0 U	5.2	0.3 U	3.2	0.2 U	0.020 U	NA	NA
	10/26/2007	3.0 U	5.0	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
	11/6/2007	5.2	5.7	0.3 U	2.8	0.2 U	0.020 U	NA	NA
	4/25/2008	3.0 U	5.4	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	3.2	4.3	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.5 U	**6.3**	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/28/2009	5.0 U	**4.7**	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA
SW-PMG14 (Surface Water)	6/9/2003	1.4 *	2.1	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/5/2005	1.0 U	2.3	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	7/21/2005	2.0*	1.9	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	1/4/2006	NA	4.8	1.0 U	NA	1.0 U	0.020 U	NA	NA
	7/11/2006	1.0 U	2.3	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA

Table 21-9
Summary of Seep and Surface Water Analytical Results - Detected Constituents
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Acetone	TCE	Methylene Chloride	2-Butanone (MEK)	cis-1,2-Dichloroethene	Vinyl Chloride	1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
	10/25/2006	3.0 U	1.5	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/24/2007	4.8	2.0	0.3 U	6.8	0.2 U	0.020 U	NA	NA
	11/6/2007	3.0 U	1.9	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/25/2008	3.0 U	2.2	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	3.0 U	2.0	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.5 U	1.8	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/28/2009	5.0 U	1.7	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA
SW-PMG19 (Surface Water)	3/18/2003	3.1 U	**37**	1.1 *	3.0 U	0.9 U	0.020 U	NA	NA
	12/26/2003	1.0 U	5.5	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	1/20/2004	1.0 U	**25**	0.3 U	1.0 U	0.4	0.020 U	NA	NA
	3/12/2004	3.0 U	**28**	0.9 U	3.0 U	0.6 U	0.020 U	NA	NA
	10/14/2004	NA	NA	NA	NA	NA	NA	1.0 U	NA
	4/5/2005	1.0 U	**8.6**	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	7/21/2005	1.5*	**38**	0.3 U	1.0 U	0.6	0.020 U	NA	NA
	1/4/2006	NA	**11.4**	1.0 U	NA	1.0 U	0.020 U	NA	NA
	1/9/2006	NA	5.2	1.0 U	NA	1.0 U	0.5 U	NA	NA
	7/11/2006	1.0 U	**32**	0.3 U	1.0 U	0.6	0.020 U	NA	NA
	10/25/2006	9.0 U	**22**	0.9 U	3.0 U	0.6 U	0.020 U	NA	NA
	4/24/2007	3.0 U	**24**	0.3 U	1.7	0.4	0.020 U	NA	NA
	10/26/2007	3.0 U	**14**	0.3 U	1.0 U	0.2	0.2 U	NA	NA
	11/6/2007	5.3	**25**	0.3 U	2.9	0.4	0.020 U	NA	NA
	4/25/2008	3.0 U	6.2	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	5.1	1.2	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.6	**21**	0.5 U	2.5 U	0.4	0.020 U	NA	NA
	10/28/2009	5.0 U	**19**	0.5 U	5.0 U	0.4	0.020 U	NA	NA
SW-PMG20 (Surface Water)	3/18/2003	4 .0 U	0.2 U	0.3 U	2.9	0.2 U	0.020 U	NA	NA
SW-PMG23 (Surface Water)	6/9/2003	1.4 U	0.2	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	7/21/2005	1.6*	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	1/4/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.020 U	NA	NA
	7/11/2006	1.0 U	0.3	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	10/25/2006	3.0 U	0.18	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/24/2007	5.4	0.23	0.3 U	5.2	0.2 U	0.020 U	NA	NA
	11/6/2007	3.0 U	0.18	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/25/2008	3.0 U	0.5	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	3.0 U	0.8	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	3.0	0.25	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/28/2009	5.0 U	0.24	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA

Table 21-9
Summary of Seep and Surface Water Analytical Results - Detected Constituents
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Acetone	TCE	Methylene Chloride	2-Butanone (MEK)	cis-1,2-Dichloroethene	Vinyl Chloride	1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
SW-PMG43 (Surface Water)	6/9/2003	1.0 U	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
SW-PMG44 (Seep)	6/9/2003	1.6 U	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
SW-PMG46 (Seep)	7/22/2004	1.0 U	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
SW-PMG47 (Seep)	7/22/2004	1.0 U	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
SW-PMG48 (Surface Water)	7/22/2004	1.0 U	**14**	0.3 U	1.0 U	0.4	0.020 U	NA	NA
	10/26/2007	3.0 U	**8.1**	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG49 (Surface Water)	7/22/2004	1.0 U	0.2	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	10/26/2007	3.0 U	0.2 U	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG61 (Seep)	7/21/2005	2.2*	2.8	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	8/17/2005	1.2 U	3.6	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	01/04/2006	NA	5.5	1.0 U	NA	1.0 U	0.5 U	NA	NA
	01/11/2006	1.0 U	5.7	0.3 U	1.0 U	0.2	0.020 U	NA	NA
	7/11/2006	1.0 U	**12**	0.3 U	1.0 U	0.4	0.020 U	NA	NA
	10/25/2006	3.0 U	**16**	0.3 U	1.0 U	0.5	0.020 U	NA	NA
	4/24/2007	3.0 U	**21**	0.3 U	2.7	0.7	0.020 U	NA	NA
	11/6/2007	9.0 U	**34**	0.9 U	3.0 U	0.9	0.020 U	NA	NA
	4/25/2008	3.0 U	**6.8**	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	4.0	0.080	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.5 U	0.23	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/28/2009	5.3	0.089	0.5 U	5.0 U	1.0	0.020 U	NA	NA
SW-PMG62 (Seep)	7/21/2005	2.4*	**57**	0.3 U	1.0 U	2.6	0.028	NA	NA
	8/17/2005	1.8 U	**52**	0.3 U	1.0 U	3.2	0.034	NA	NA
	1/4/2006	NA	**50.3**	1.0 U	NA	2.7	0.5 U	NA	NA
	1/11/2006	5.0 U	**53**	2.0 U	5.0 U	2.4	0.027	NA	NA
	7/11/2006	5.0 U	**51**	2.0 U	5.0 U	2.6	0.02 U	NA	NA
	10/25/2006	15 U	**57**	1.5 U	5.0 U	2.6	0.020 U	NA	NA
	4/24/2007	5.0 U	**49**	2.0 U	5.0 U	1.8	0.024	NA	NA
	11/6/2007	5.0 U	**39**	2.0 U	5.0 U	2.2	0.022	NA	NA
	4/25/2008	5.0 U	**61**	2.0 U	5.0 U	2.2	0.020 U	NA	NA
	10/31/2008	9.0 U	**64 D**	1.5 U	7.5 U	3.6	0.20 U	NA	NA
	4/16/2009	2.5 U	**60 D**	0.5 U	2.5 U	2.1	0.028	NA	NA
	10/28/2009	10 U	**56**	1.0 U	10 U	2.5	0.026	NA	NA
SW-PMG63 (Seep)	8/17/2005	1.2 U	**36**	0.3 U	1.0 U	3.7	0.043	NA	NA
	1/4/2006	NA	**27.4**	1.0 U	NA	1.0 U	0.5 U	NA	NA
	1/11/2006	5.0 U	**30**	2.0 U	5.0 U	2.1	0.024	NA	NA
	7/11/2006	5.0 U	**30**	2.0 U	5.0 U	2.7	0.025	NA	NA

Table 21-9
Summary of Seep and Surface Water Analytical Results - Detected Constituents
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Acetone	TCE	Methylene Chloride	2-Butanone (MEK)	cis-1,2-Dichloroethene	Vinyl Chloride	1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
	10/25/2006	9.0 U	**35**	0.9 U	3.0 U	3.1	0.031	NA	NA
	4/24/2007	9.0 U	**44**	0.9 U	7.0	2.8	0.036	NA	NA
	11/6/2007	7.2	**29**	2.0 U	5.0 U	2.8	0.038	NA	NA
	4/25/2008	9.0 U	**45**	1.5 U	7.5 U	3.1	0.031	NA	NA
	10/31/2008	9.0 U	**47 D**	1.5 U	7.5 U	5.0	0.050	NA	NA
	4/16/2009	2.5 U	**47**	0.5 U	2.5 U	2.6	0.042 J	NA	NA
	10/28/2009	5.0 U	**37**	0.5 U	5.0 U	3.2	0.037	NA	NA
SW-PMG64 (Seep)	1/6/2006	NA	**37.8**	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG65 (Seep)	1/9/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG66 (Seep)	1/6/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG67 (Seep)	1/6/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG68 (Seep)	1/6/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG69 (Seep)	1/6/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG70 (Seep)	1/6/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG71 (Seep)	1/9/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG72 (Seep)	1/9/2006	NA	0.61	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG73 (Seep)	1/9/2006	NA	1.9	1.0 U	NA	1.0 U	0.5 U	NA	NA
	1/20/2006	1.3 J	0.2 U	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG74 (Surface Water)	1/9/2006	NA	5.7	1.0 U	NA	1.0 U	0.5 U	NA	NA
	10/25/2006	6.0 U	**24**	0.6 U	2.0 U	0.4 U	0.020 U	NA	NA
	4/24/2007	9.0 U	**23**	0.9 U	6.3	0.6 U	0.020 U	NA	NA
	10/26/2007	3.0 U	**14**	0.3 U	1.0 U	0.2	0.2 U	NA	NA
	11/6/2007	9.0 U	**26**	0.9 U	3.0 U	0.6 U	0.020 U	NA	NA
	4/25/2008	3.0 U	**7.3**	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	7.0	1.0	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.5 U	**20**	0.5 U	2.5 U	0.4	0.020 U	NA	NA
	10/28/2009	5.0 U	**18**	0.5 U	5.0 U	0.3	0.020 U	NA	NA
SW-PMG75 (Surface Water)	1/9/2006	NA	**7.9**	1.0 U	NA	1.0 U	0.5 U	NA	NA
	10/25/2006	3.0 U	**21**	0.3 U	1.0 U	0.3	0.020 U	NA	NA
	4/24/2007	6.0 U	**18**	0.6 U	4.2	0.4 U	0.020 U	NA	NA
	10/26/2007	3.0 U	**13**	0.3 U	1.0 U	0.2	0.2 U	NA	NA
	11/6/2007	8.4	**21**	0.3 U	4.9	0.3	0.020 UJ	NA	NA
	4/25/2008	3.0 U	**9.3**	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	8.0	0.9	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	2.5 U	**16**	0.5 U	2.5 U	0.3	0.020 U	NA	NA

Table 21-9
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Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

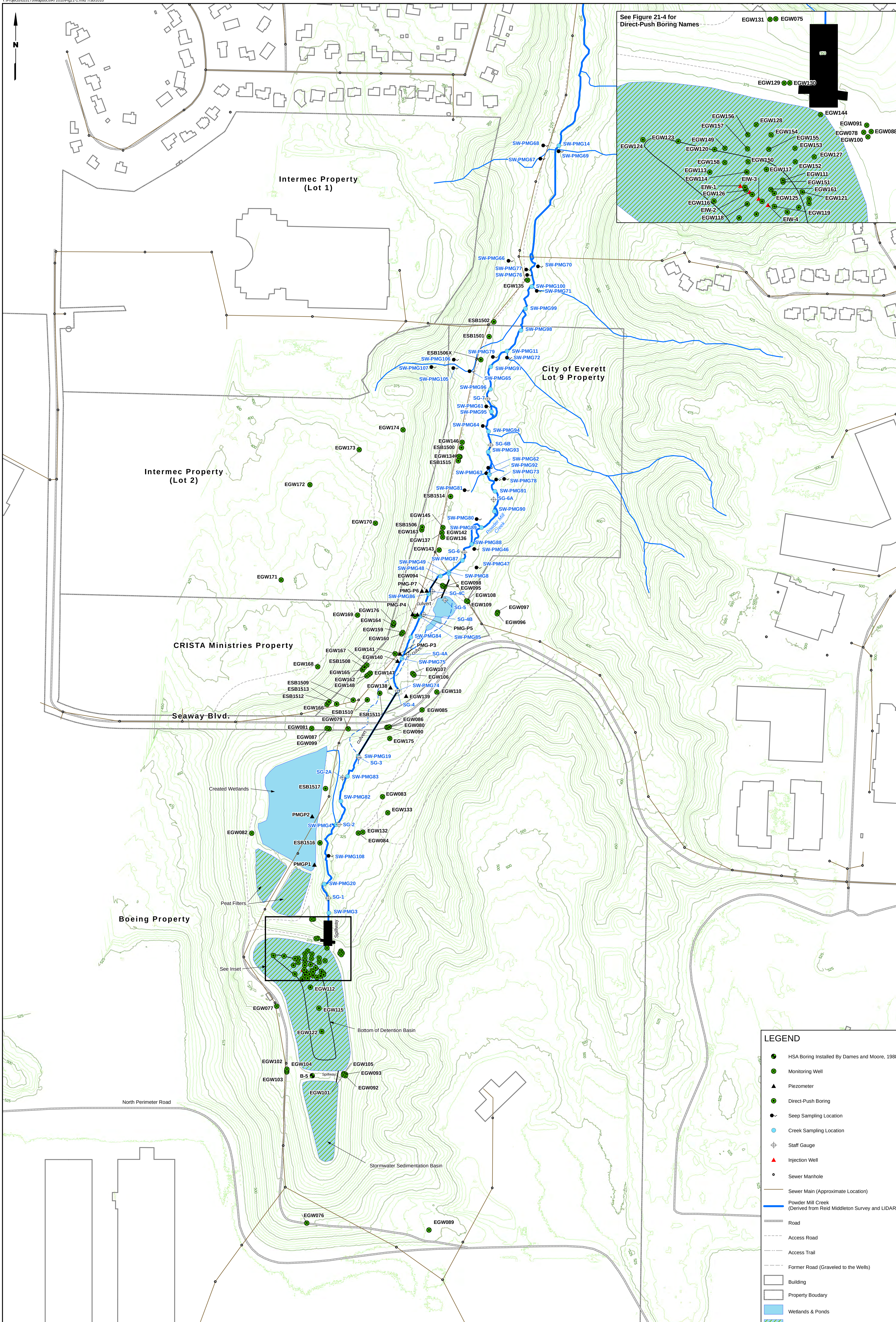
Sample ID/Date		Acetone	TCE	Methylene Chloride	2-Butanone (MEK)	cis-1,2-Dichloroethene	Vinyl Chloride	1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
	10/28/2009	5.0 U	**14**	0.5 U	5.0 U	0.3	0.020 U	NA	NA
SW-PMG76 (Seep)	1/9/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG77 (Seep)	1/9/2006	NA	0.5 U	1.0 U	NA	1.0 U	0.5 U	NA	NA
SW-PMG78 (Seep)	1/20/2006	5.5	0.2 U	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG79 (Seep)	1/20/2006	10	0.2 U	0.3 U	2.5	0.2 U	0.2 U	NA	NA
	7/11/2006	1.1*	0.2 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	10/25/2006	3.0 U	0.020 U	0.3 U	1.0 U	0.2 U	0.020 U	NA	NA
	4/24/2007	3.6	0.020 U	0.3 U	4.3	0.2 U	0.020 U	NA	NA
	11/6/2007	3.8	0.027 J	0.3 U	1.0 U	0.2 U	0.020 UJ	NA	NA
	4/25/2008	5.5	0.020 U	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/31/2008	4.6	0.079	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	4/16/2009	6.4	0.020 U	0.5 U	2.5 U	0.2 U	0.020 U	NA	NA
	10/28/2009	5.0 U	0.020 U	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA
SW-PMG80 (Seep)	1/24/2006	2.0 U	**18**	0.6 U	2.0 U	3.3	0.4 U	NA	NA
SW-PMG81 (Seep)	1/24/2006	10 U	**390**	3.0 U	10 U	27	2.0 U	NA	NA
	7/11/2006	25 U	**530**	10 U	25 U	38	0.69	NA	NA
	10/25/2006	150 U	**430**	15 U	50 U	75	0.88	NA	NA
	4/24/2007	25 U	**290**	10 U	25 U	61	0.68	NA	NA
	11/6/2007	3.0 U	**230**	0.3 U	1.0 U	67	3.0	NA	NA
	11/6/2007 (DUP)	3.0 U	**220**	0.3 U	1.0 U	77	3.1	NA	NA
	4/25/2008	5.0 U	**38**	2.0 U	5.0 U	82	**9.1**	NA	NA
	10/31/2008	45 U	**210**	7.5 U	38 U	63	**6.6**	NA	NA
	10/31/08 (DUP)	45 U	**220**	7.5 U	38 U	71	**6.5**	NA	NA
	4/16/2009	25 U	**110**	5.0 U	25 U	59	**6.9**	NA	NA
	4/16/09 (DUP)	25 U	**130**	5.0 U	25 U	59	**6.2 J**	NA	NA
	10/28/2009	15 U	**140**	1.5 U	15 U	26	**2.1**	NA	NA
SW-PMG82 (Surface Water)	10/26/2007	3.0 U	**22**	0.3 U	1.0 U	0.2	0.2 U	NA	NA
SW-PMG83 (Surface Water)	10/26/2007	3.0 U	**16**	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG84 (Surface Water)	10/26/2007	3.0 U	**11**	0.3 U	1.0 U	0.2	0.2 U	NA	NA
SW-PMG85 (Surface Water)	10/26/2007	3.0 U	**9.1**	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG86 (Surface Water)	10/26/2007	3.0 U	**8.6**	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG87 (Surface Water)	10/26/2007	3.0 U	6.0	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG88 (Surface Water)	10/26/2007	3.0 U	5.2	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG89 (Surface Water)	10/26/2007	3.0 U	4.3	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA

Table 21-9
Summary of Seep and Surface Water Analytical Results - Detected Constituents
Powder Mill Gulch
Boeing Everett Plant Remedial Investigation

Sample ID/Date		Acetone	TCE	Methylene Chloride	2-Butanone (MEK)	cis-1,2-Dichloroethene	Vinyl Chloride	1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
SW-PMG90 (Surface Water)	10/26/2007	3.0 U	3.6	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG91 (Surface Water)	10/26/2007	3.0 U	3.2	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG92 (Surface Water)	10/26/2007	3.0 U	2.2	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG93 (Surface Water)	10/26/2007	3.0 U	4.4	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG94 (Surface Water)	10/26/2007	3.0 U	5.8	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG95 (Surface Water)	10/26/2007	3.0 U	6.2	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG96 (Surface Water)	10/26/2007	3.0 U	**8.4**	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG97 (Surface Water)	10/26/2007	3.0 U	5.6	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG98 (Surface Water)	10/26/2007	3.0 U	4.3	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG99 (Surface Water)	10/26/2007	3.0 U	3.8	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG100 (Surface Water)	10/26/2007	3.0 U	3.1	0.3 U	1.0 U	0.2 U	0.2 U	NA	NA
SW-PMG105 (Seep)	8/21/2008	3.0 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	NA	NA
SW-PMG105 (Seep)	8/21/2008	3.0 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	NA	NA
SW-PMG105 (Seep)	8/21/2008	3.0 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	NA	NA
SW-PMG108 (Seep)	4/16/2010	5.0 U	0.56	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA
SW-PMG108N (Surface Water)	4/16/2010	5.0 U	6.3	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA
SW-PMG108S (Surface Water)	4/16/2010	5.0 U	15	0.5 U	5.0 U	0.2 U	0.020 U	NA	NA

Notes:

Values in **bold** font indicate that the result reported exceeds a MTCA level or water quality standard.
Model Toxics Control Act (MTCA) Method B value from Ecology website CLARC tables downloaded June 2009 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(DUP) Field duplicate
NA - Not analyzed
ND - Compounds analyzed for were not detected above the specific compound reporting limits
NE - Not established
TCE - Trichloroethene
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for, but not detected above the reporting limit shown. The reporting limit is an estimated value.
J - Estimated concentration
* Suspected laboratory contaminant
[1] Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A, Updated November 20, 2006. The human health criteria is from the National Recommended Water Quality Critera, 20



Note

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

0 200 400

Scale in Feet

Base map sources: URS 2005; City of Everett 2005
LIDAR data source: URS 2005 (Data collected November 2005)

Remedial Investigation Report Boeing Commercial Airplanes Everett Plant	**Area Plan**	Figure 21-1

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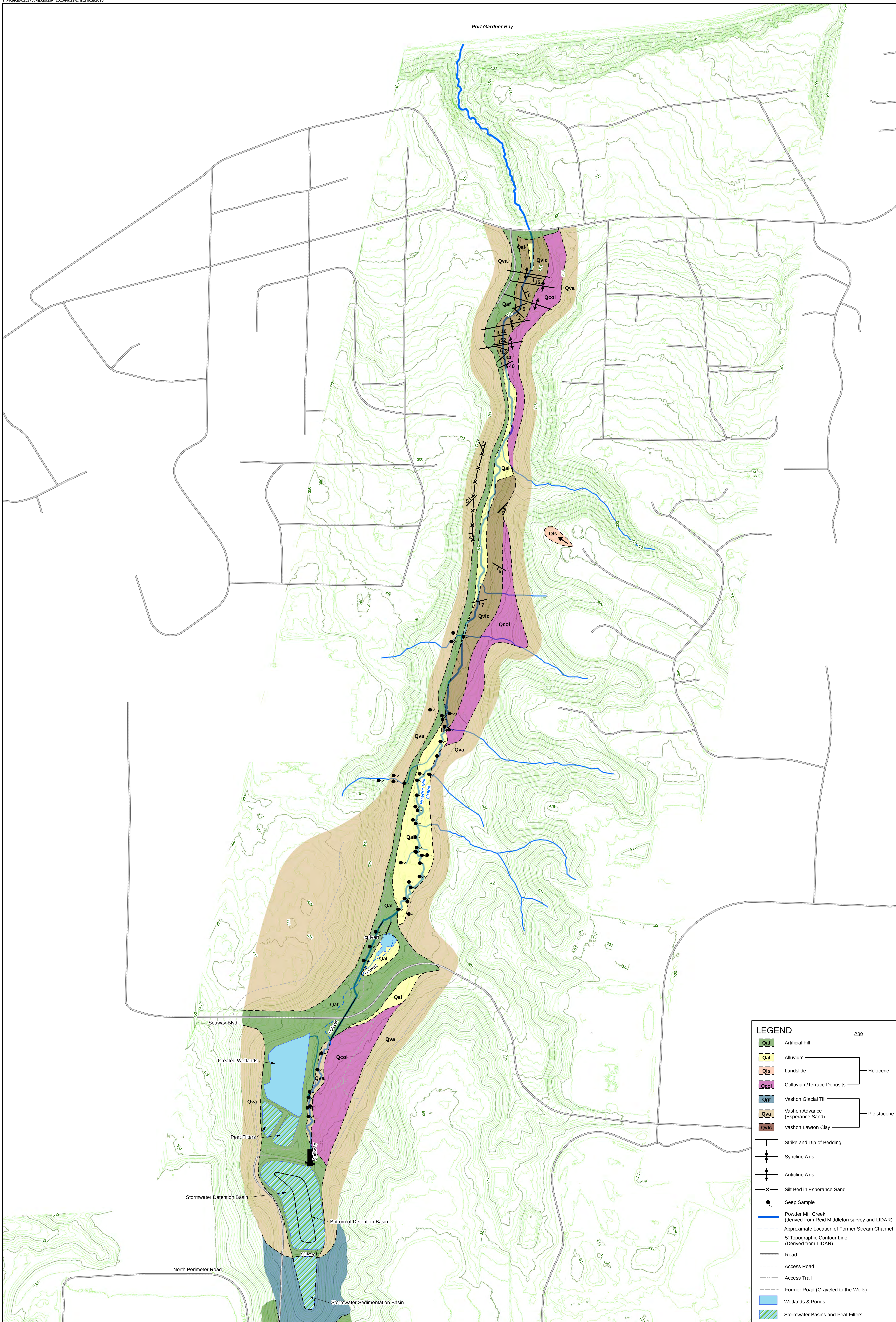
Y:\Projects\025175\Mapdocs\RI 2010\Fig21-2.mxd 6/18/2010



Note

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

0 300 600

Scale in Feet

N

Base map sources: URS 2005; City of Everett 2005
LIDAR data source: URS 2005 (Data collected November 2005)

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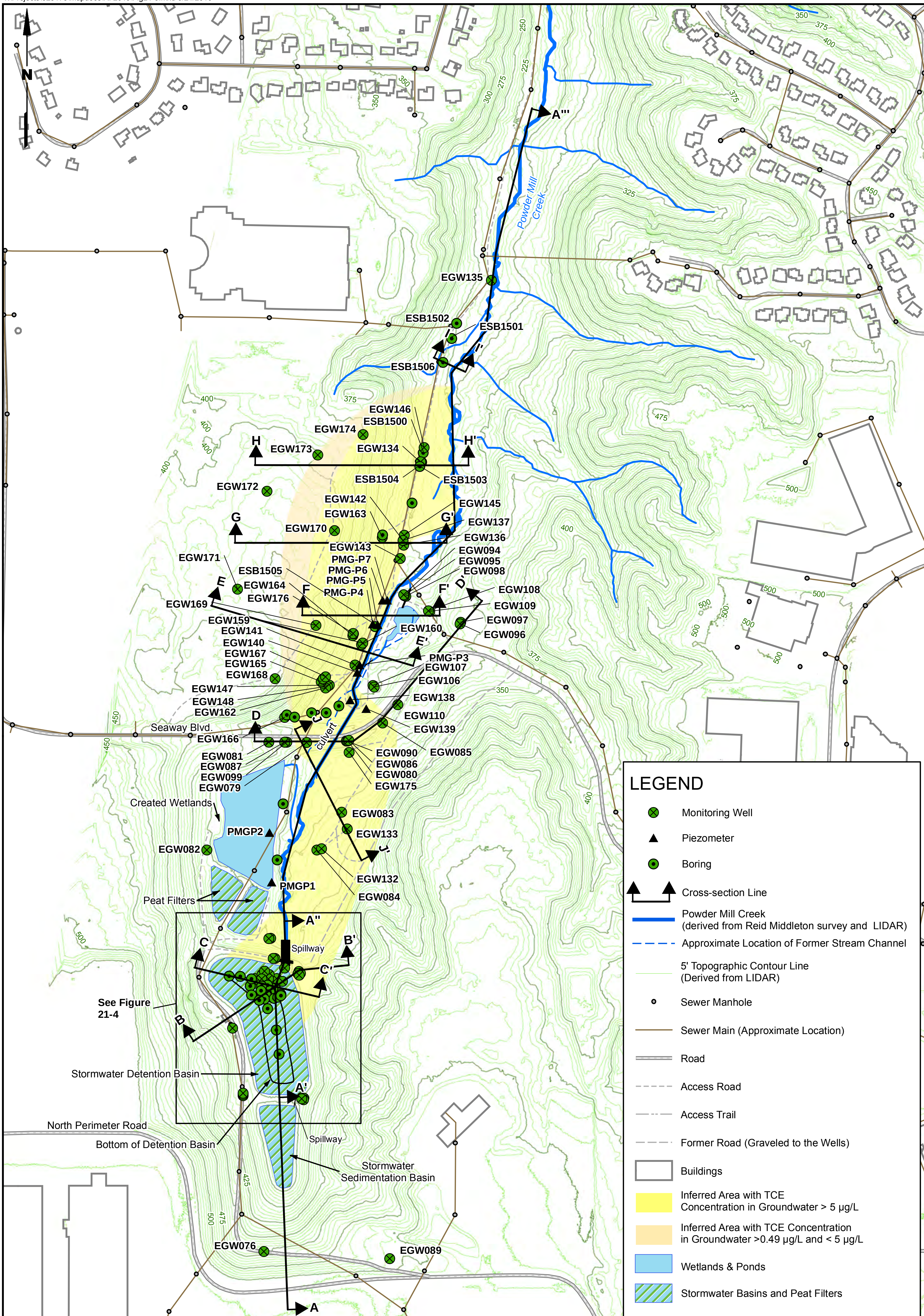
Remedial Investigation Report Boeing Commercial Airplanes Everett Plant	**Geologic Map**	Figure 21-2

Y:\Projects\025175\Mapdocs\RI 2010\Fig21-3.mxd 6/24/2010



Note

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

0 400 800

Scale in Feet

Base map sources: URS 2005; City of Everett 2005
LIDAR data source: URS 2005 (Data collected November 2005)

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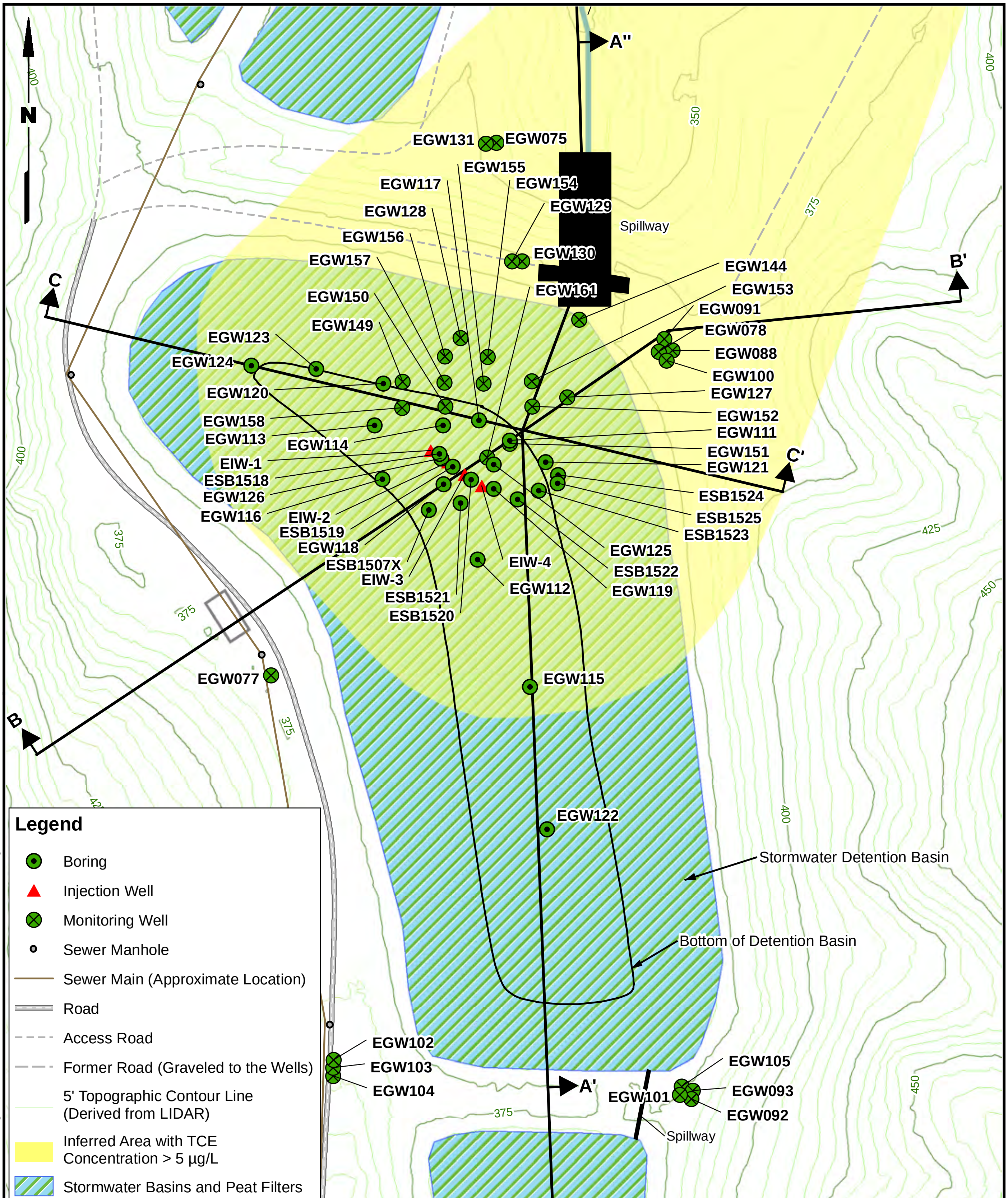
Remedial Investigation Report Boeing Commercial Airplanes Everett Plant	**Cross-Section Locations**	Figure 21-3



Note

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

Data Source: URS 2005

Y:\Projects\025175\Mapdocs\RI 2010\Fig21-4.mxd 6/24/2010 NAD 1983 StatePlane Washington North FIPS 4601 Feet

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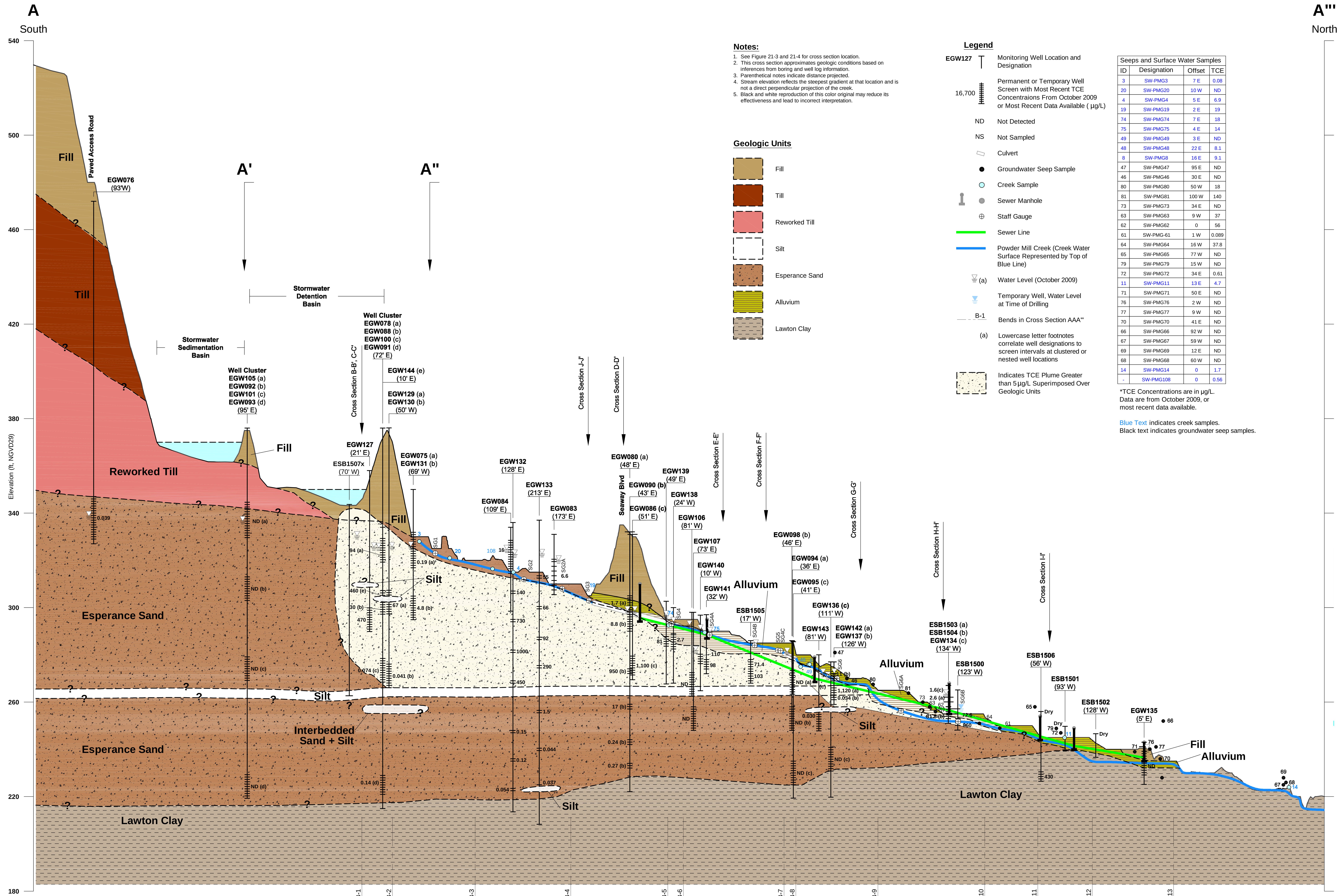
Everett Plant

Source Area
Cross Section Locations

Figure
21-4



Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes indicate distance projected.
4. Stream elevation reflects the steepest gradient at that location and is not a direct perpendicular projection of the creek.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Geologic Units

- Fill
- Till
- Reworked Till
- Silt
- Esperance Sand
- Alluvium
- Lawton Clay

Legend

- EGW127 — Monitoring Well Location and Designation
- 16,700 — Permanent or Temporary Well Screen with Most Recent TCE Concentrains From October 2009 or Most Recent Data Available (µg/L)
- ND — Not Detected
- NS — Not Sampled
- Culvert
- Groundwater Seep Sample
- Creek Sample
- Sewer Manhole
- Staff Gauge
- Sewer Line
- Powder Mill Creek (Creek Water Surface Represented by Top of Blue Line)
- (a) — Water Level (October 2009)
- Temporary Well, Water Level at Time of Drilling
- B-1 — Bends in Cross Section AAA'''
- (a) — Lowercase letter footnotes correlate well designations to screen intervals at clustered or nested well locations
- Indicates TCE Plume Greater than 5 µg/L Superimposed Over Geologic Units

Seeps and Surface Water Samples			
ID	Designation	Offset	TCE
3	SW-PMG3	7 E	0.08
20	SW-PMG20	10 W	ND
4	SW-PMG4	5 E	6.9
19	SW-PMG19	2 E	19
74	SW-PMG74	7 E	18
75	SW-PMG75	4 E	14
49	SW-PMG49	3 E	ND
48	SW-PMG48	22 E	8.1
8	SW-PMG8	16 E	9.1
47	SW-PMG47	95 E	ND
46	SW-PMG46	30 E	ND
80	SW-PMG80	50 W	18
81	SW-PMG81	100 W	140
73	SW-PMG73	34 E	ND
63	SW-PMG63	9 W	37
62	SW-PMG62	0	56
61	SW-PMG-61	1 W	0.089
64	SW-PMG64	16 W	37.8
65	SW-PMG65	77 W	ND
79	SW-PMG79	15 W	ND
72	SW-PMG72	34 E	0.61
11	SW-PMG11	13 E	4.7
71	SW-PMG71	50 E	ND
76	SW-PMG76	2 W	ND
77	SW-PMG77	9 W	ND
70	SW-PMG70	41 E	ND
66	SW-PMG66	92 W	ND
67	SW-PMG67	59 W	ND
69	SW-PMG69	12 E	ND
68	SW-PMG68	60 W	ND
14	SW-PMG14	0	1.7
-	SW-PMG108	0	0.56

*TCE Concentrations are in µg/L. Data are from October 2009, or most recent data available.

Blue Text indicates creek samples.
Black text indicates groundwater seep samples.

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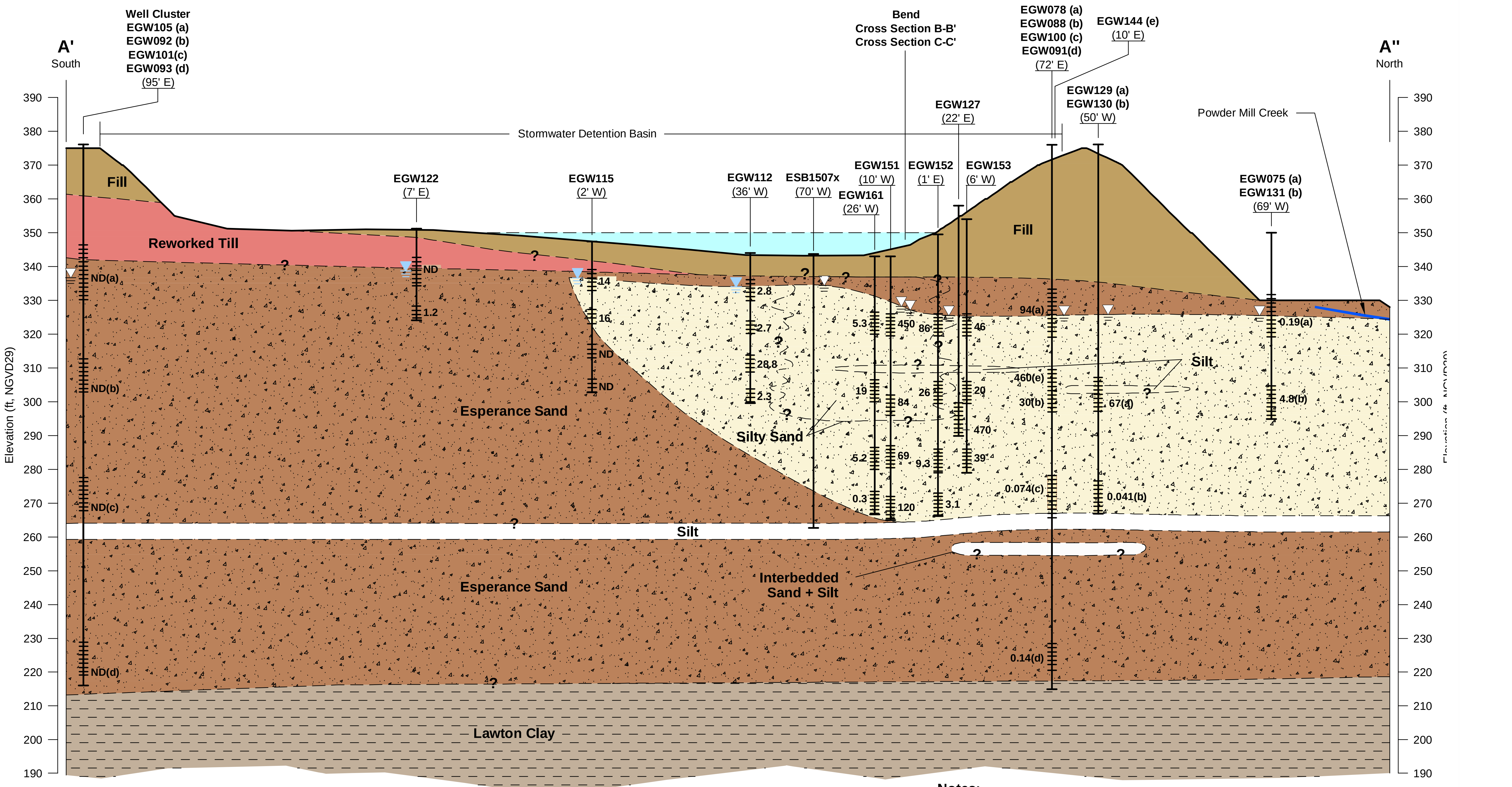
Cross Section A-A'''

Figure 21-5



Legend

EGW127	Monitoring Well Location and Designation
2.8	Permanent or Temporary Well Screen with Most Recent TCE Concentrations From October 2009 or Most Recent Data Available (µg/L)
ND	Non-Detect
	Powder Mill Creek
	Water Level
	Temporary Well, Water Level Measured On Day of Drilling
	Indicates TCE Plume Greater than 5 µg/L Superimposed Over Geologic Units

0 60 120

Horizontal Scale = 1" = 60'
Vertical Scale = 1" = 30'

Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes for wells and borings indicate distance projected.
4. Letter following well name corresponds with analytical results.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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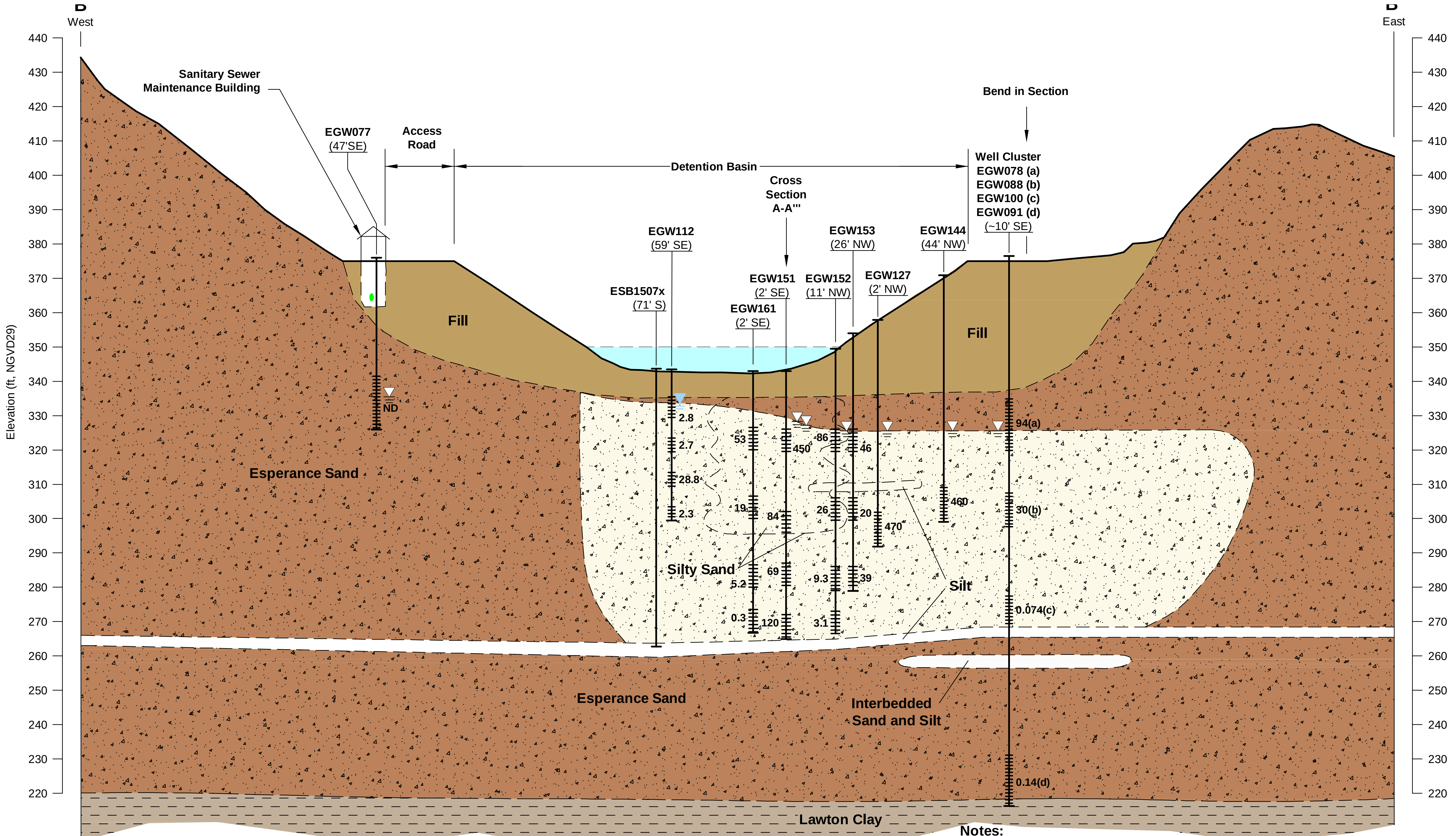
Cross Section A'-A''

Figure 21-6

Boeing Everett | V:\025\175\014\2010 PMG Sections 11-12-2010\Fig21-6.dwg (A) "Figure 21-6" 12/1/2010



Legend

EGW127	Monitoring Well Location and Designation
2.8	Permanent or Temporary Well Screen with Most Recent TCE Concentrations From October 2009 or Most Recent Data Available (µg/L)
ND	Non-Detect
	2' DIA Sanitary Sewer Line
	Water Level (October 2009)
	Temporary Well, Water Level Measured On Day of Drilling
	Indicates TCE Plume Greater than 5 µg/L Superimposed Over Geologic Units

0 60 120

Horizontal Scale = 1" = 60'
Vertical Scale = 1" = 30'

Notes:
1. See Figures 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes for wells and borings indicate distance projected.
4. Letter following well name corresponds with analytical results.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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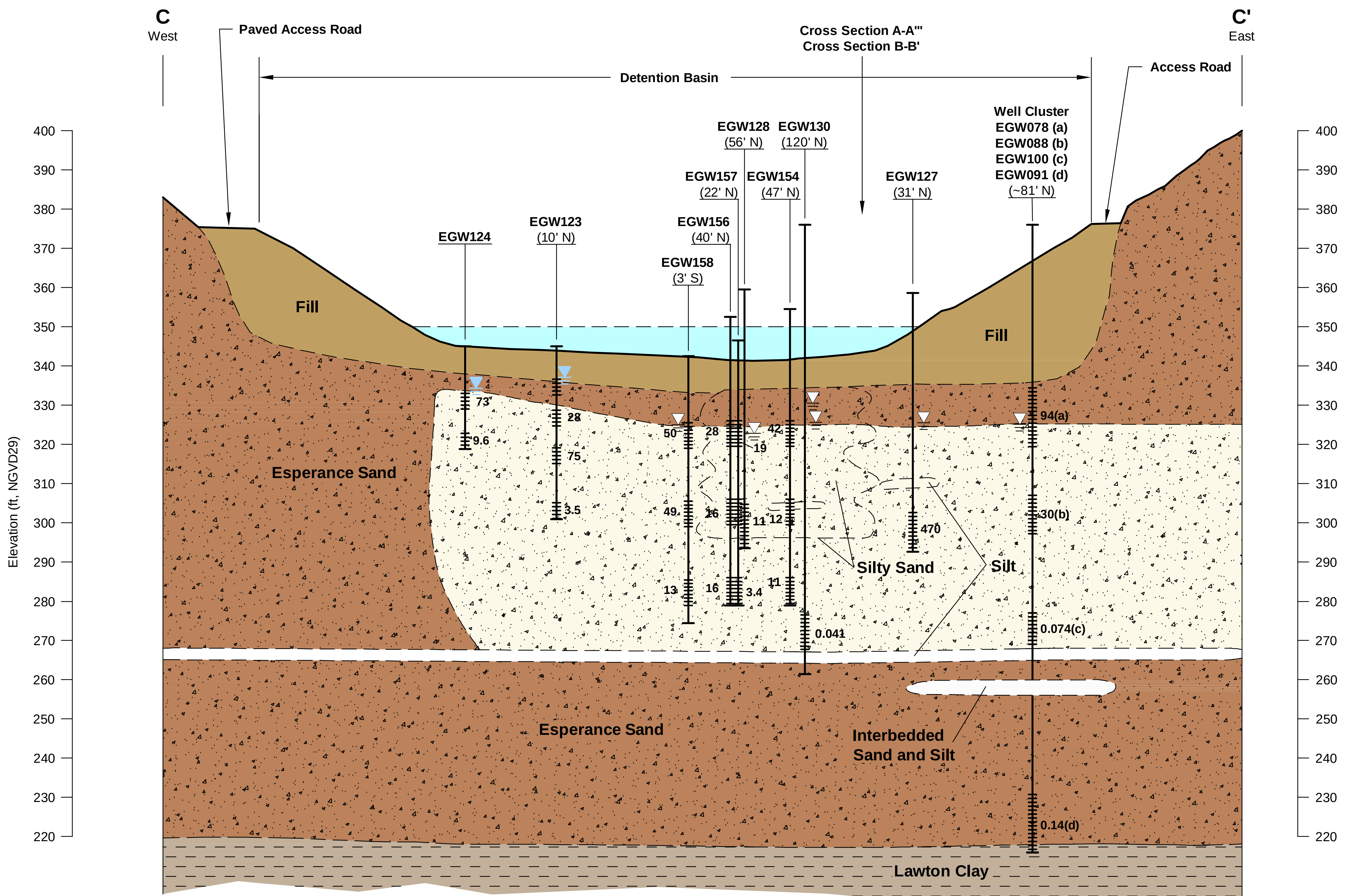
Cross Section B-B'

Figure 21-7

Boeing Everett | V:\025\175\014\2010 PMG Sections 11-12-2010\Fig21-7_21-8_21-9.dwg (A) "Figure 21-7" 12/1/2010



Legend

EGW127	Monitoring Well Location and Designation
2.8	Permanent or Temporary Well Screen with Most Recent TCE Concentrations From October 2009 or Most Recent Data Available (µg/L)
ND	Non-Detect
	Water Level (October 2009)
	Temporary Well, Water Level Measured On Day of Drilling
	Indicates TCE Plume Greater than 5 µg/L Superimposed Over Geologic Units

0 60 120

Horizontal Scale = 1" = 60'
Vertical Scale = 1" = 30'

Notes:

1. See Figures 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes for wells and borings indicate distance projected.
4. Letter following well name corresponds with analytical results.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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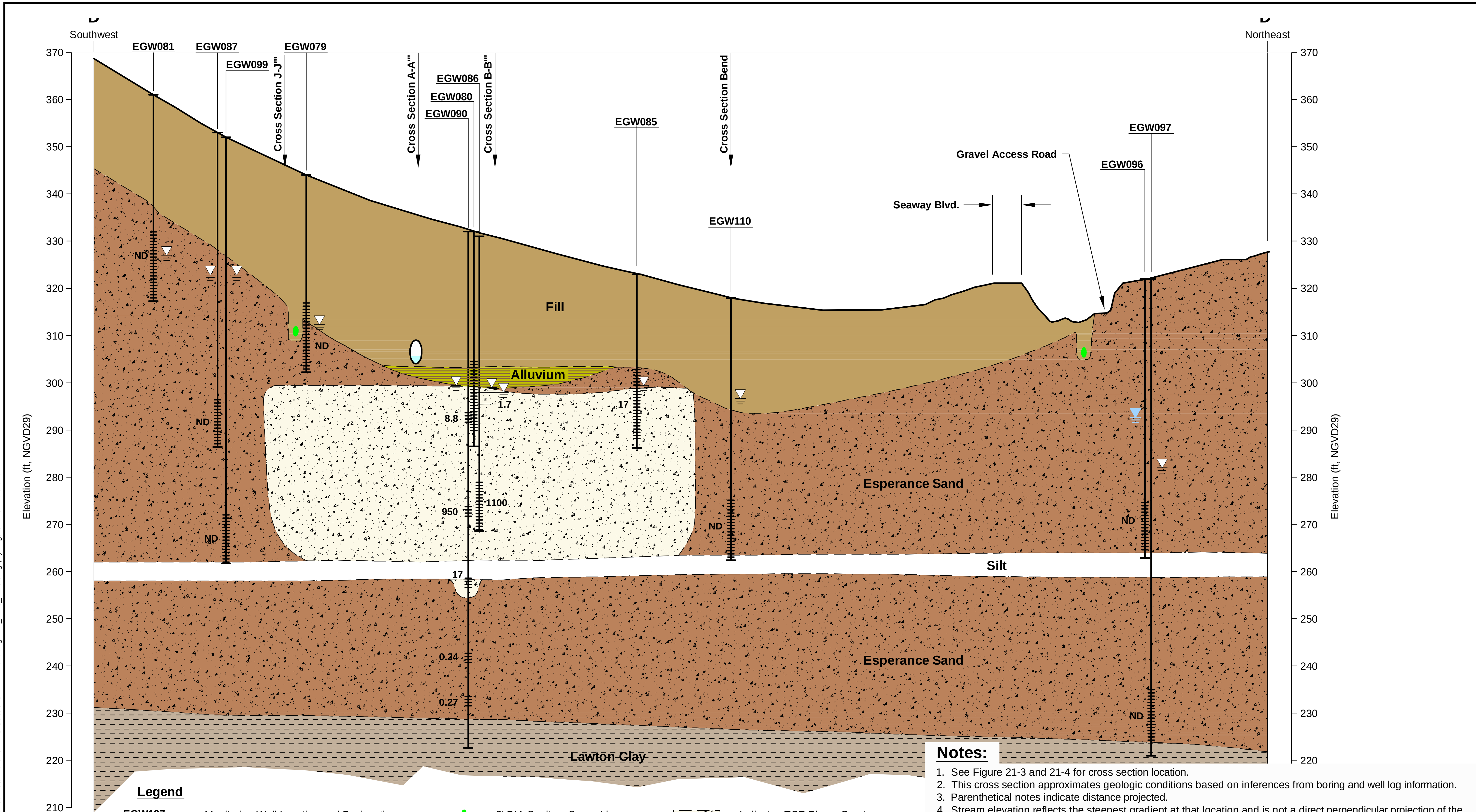
Everett Plant

Cross Section C-C'

Figure
21-8

Boeing Everett | V:\025\175\014\2010 PMG Sections 11-12-2010\Fig21-7_21-8_21-9.dwg (A) "Figure 21-8" 12/1/2010



Boeing Everett | V:\025\175\014\2010 PMG Sections 11-12-2010\Fig21-7_21-8_21-9.dwg (A) "Figure 21-9" 12/1/2010

Legend

EGW127	Monitoring Well Location and Designation
2.8	Permanent or Temporary Well Screen with Most Recent TCE Concentrations From October 2009 or Most Recent Data Available (µg/L)
ND	Non-Detect
	2' DIA Sanitary Sewer Line
	Water Level (October 2009)
	Temporary Well, Water Level at Time of Drilling
	Powder Mill Creek Culvert
	Indicates TCE Plume Greater than 5 µg/L Superimposed Over Geologic Units

0 100 200

Horizontal Scale = 1" = 100'
Vertical Scale = 1" = 20'

Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes indicate distance projected.
4. Stream elevation reflects the steepest gradient at that location and is not a direct perpendicular projection of the creek.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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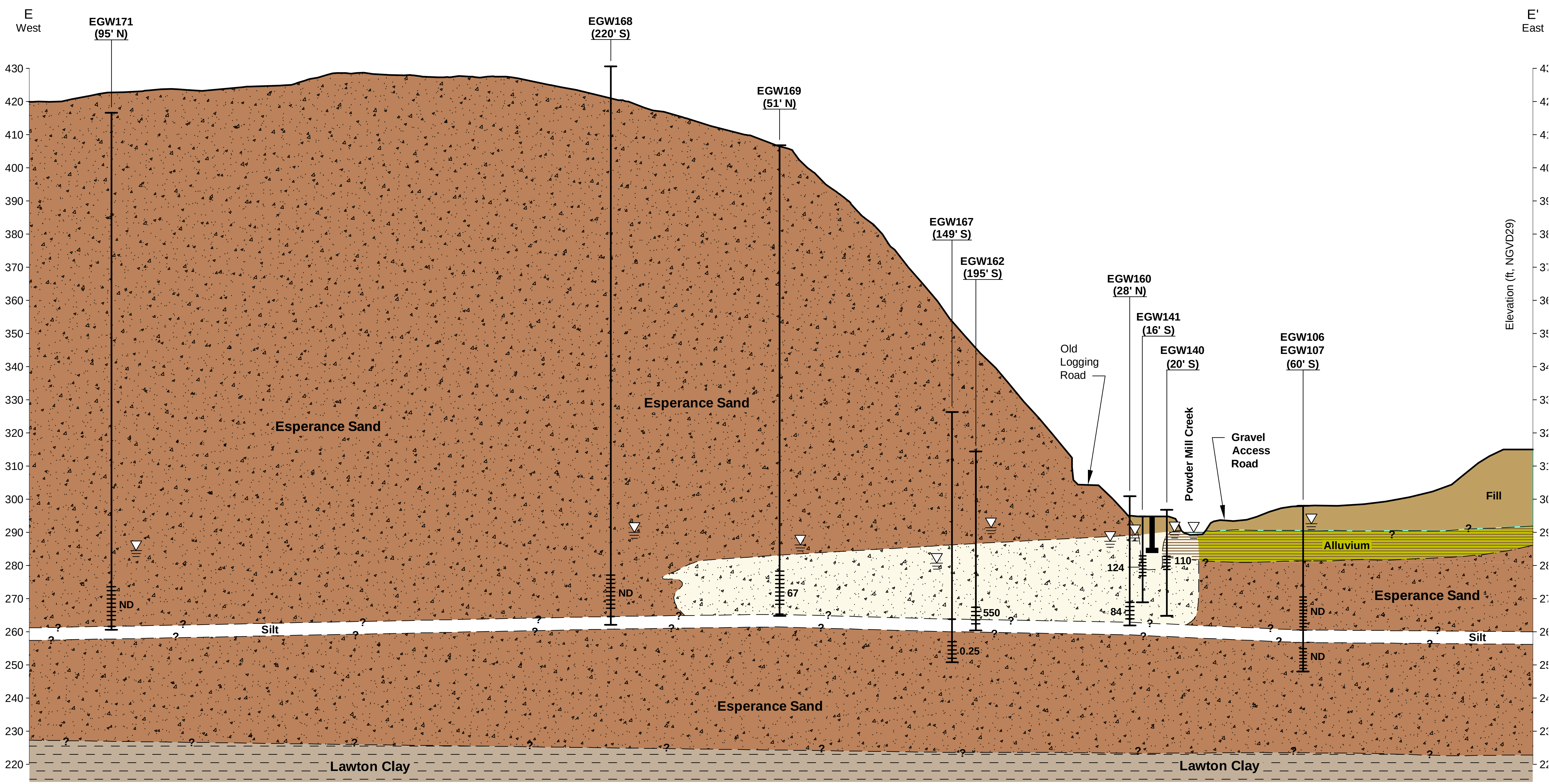
Cross Section D-D'

Figure
21-9



Legend

EGW127 — Monitoring Well Location and Designation

103 — Permanent or Temporary Well Screen with Most Recent TCE Concentrations From October 2009 or Most Recent Data Available (µg/L)

Indicates TCE Plume Greater than 5 µg/L Superimposed Over Geologic Units

2' DIA Sanitary Sewer Line

Powder Mill Creek

Water Level (October 2009)

Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information. Parenthetical notes indicate distance projected.
3. Stream elevation reflects the steepest gradient at that location and is not a direct perpendicular projection of the
4. creek.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 60 120

Horizontal Scale = 1" = 60'
Vertical Scale = 1" = 30'

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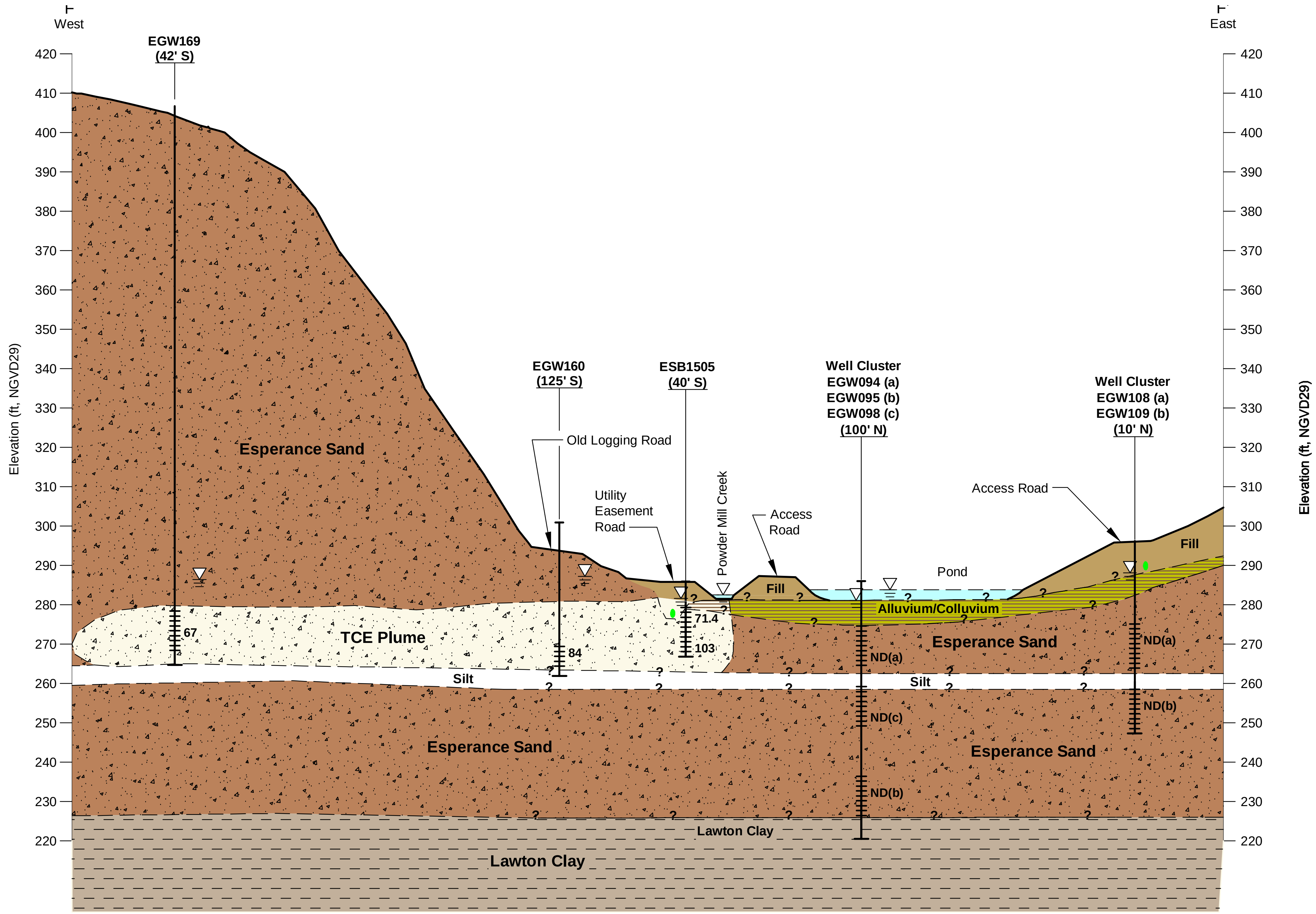
Everett Plant

Cross Section E-E'

Figure
21-10



Legend

EGW127	Monitoring Well Location and Designation
103	Permanent or Temporary Well Screen with Most Recent TCE Concentrations From October 2009 or Most Recent Data Available (µg/L)
	2' DIA Sanitary Sewer Line
	Powder Mill Creek
	Water Level (October 2009)
	Temporary Well, Water Level Measured On Day of Drilling
	Indicates TCE Plume Greater than 5 µg/L Superimposed Over Geologic Units

Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes indicate distance projected.
4. Stream elevation reflects the steepest gradient at that location and is not a direct perpendicular projection of the creek.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 60 120

Horizontal Scale = 1" = 60'
Vertical Scale = 1" = 30'

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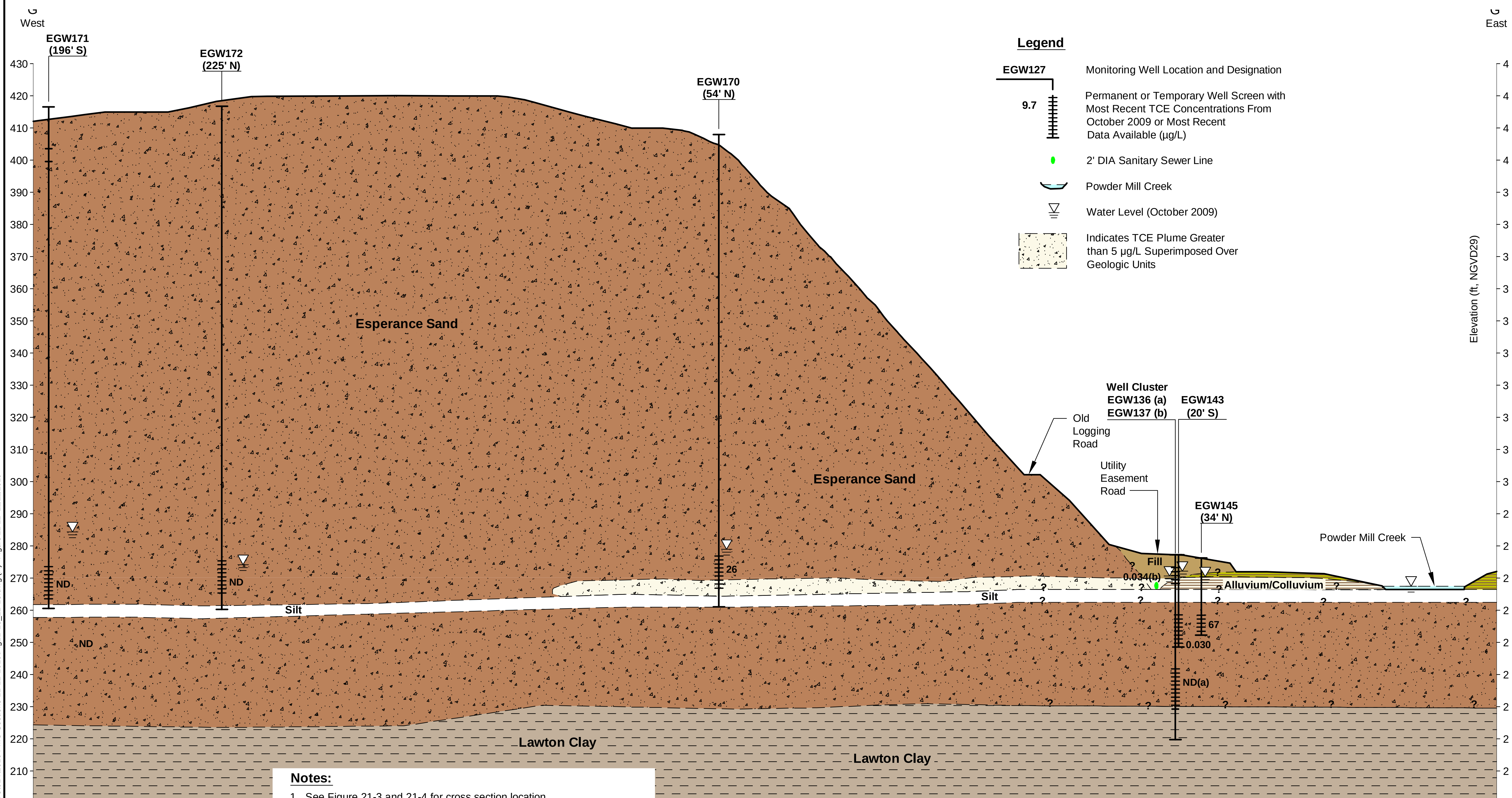
Everett Plant

Cross Section F-F'

Figure 21-11



Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes indicate distance projected.
4. Stream elevation reflects the steepest gradient at that location and is not a direct perpendicular projection of the creek.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Boeing Everett | V:\025\175\014\2010 PMG Sections 11-12-2010\Fig21-10_21-15.dwg (A) "Figure 21-12" 11/12/2010

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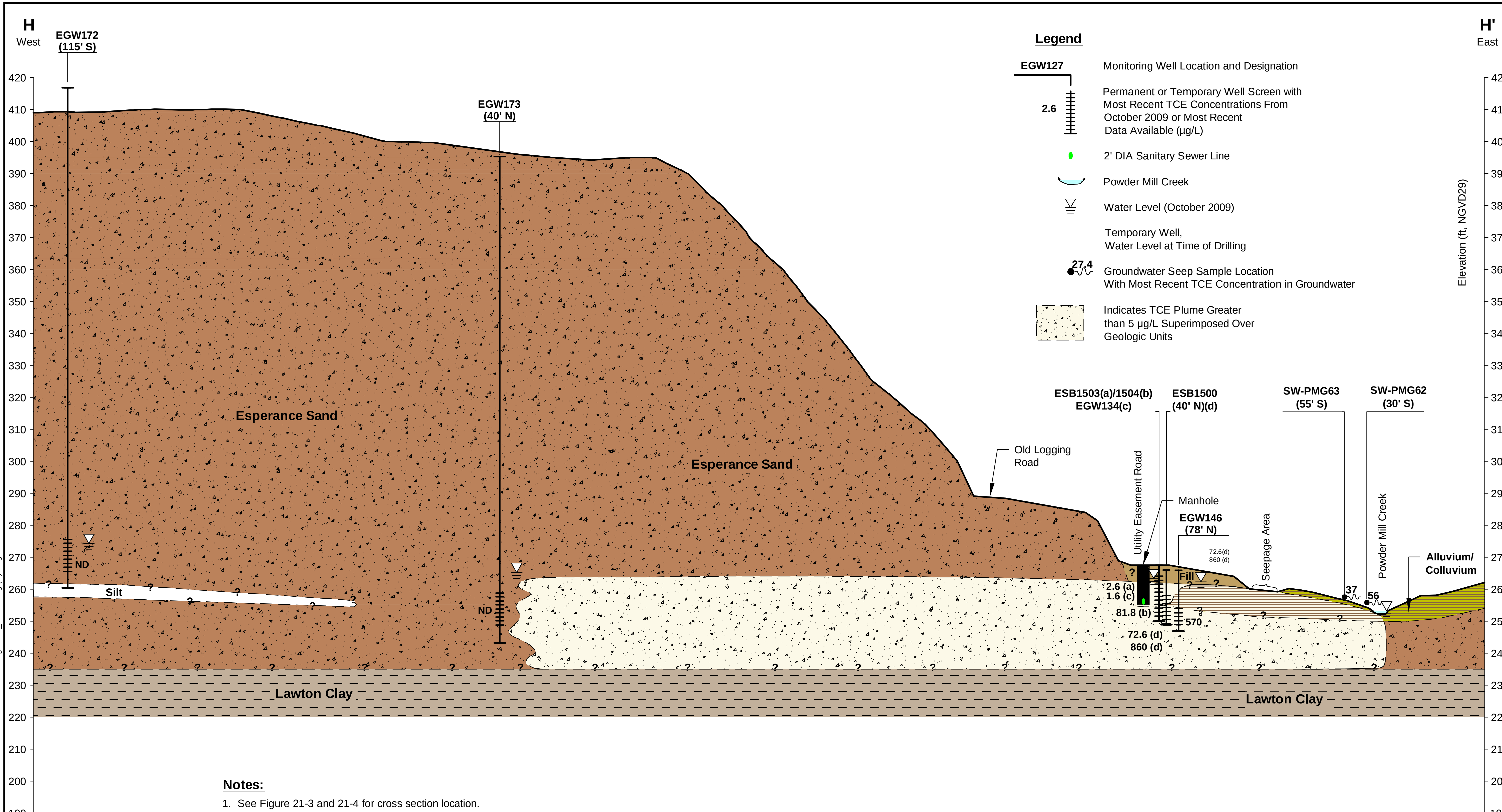
Everett Plant

Cross Section G-G'

Figure
21-12



Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes indicate distance projected.
4. Stream elevation reflects the steepest gradient at that location and is not a direct perpendicular projection of the creek.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 60 120

Horizontal Scale = 1" = 60'
Vertical Scale = 1" = 30'

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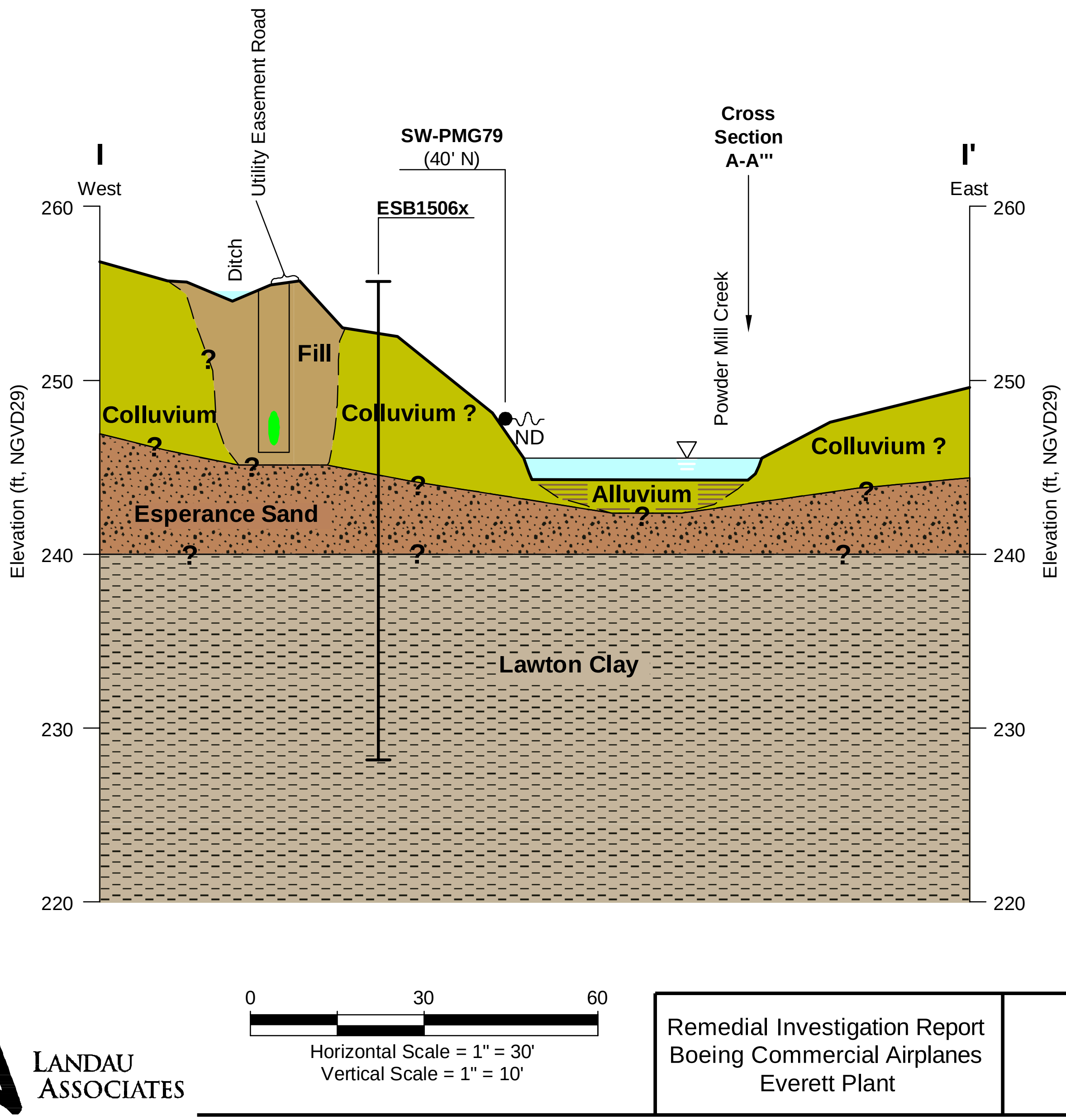
Remedial Investigation Report Boeing Commercial Airplanes Everett Plant	Cross Section H-H'	Figure 21-13



Legend

EGW127 — Monitoring Well Location and Designation

1.0 — Permanent or Temporary Well Screen with Most Recent TCE Concentrations From October 2009 or Most Recent Data Available (µg/L)

2' DIA Sanitary Sewer Line

Powder Mill Creek

Water Level

Groundwater Seep Sample Location with Most Recent TCE Concentration (ppb)

ND — Non Detect

Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes indicate distance projected.
4. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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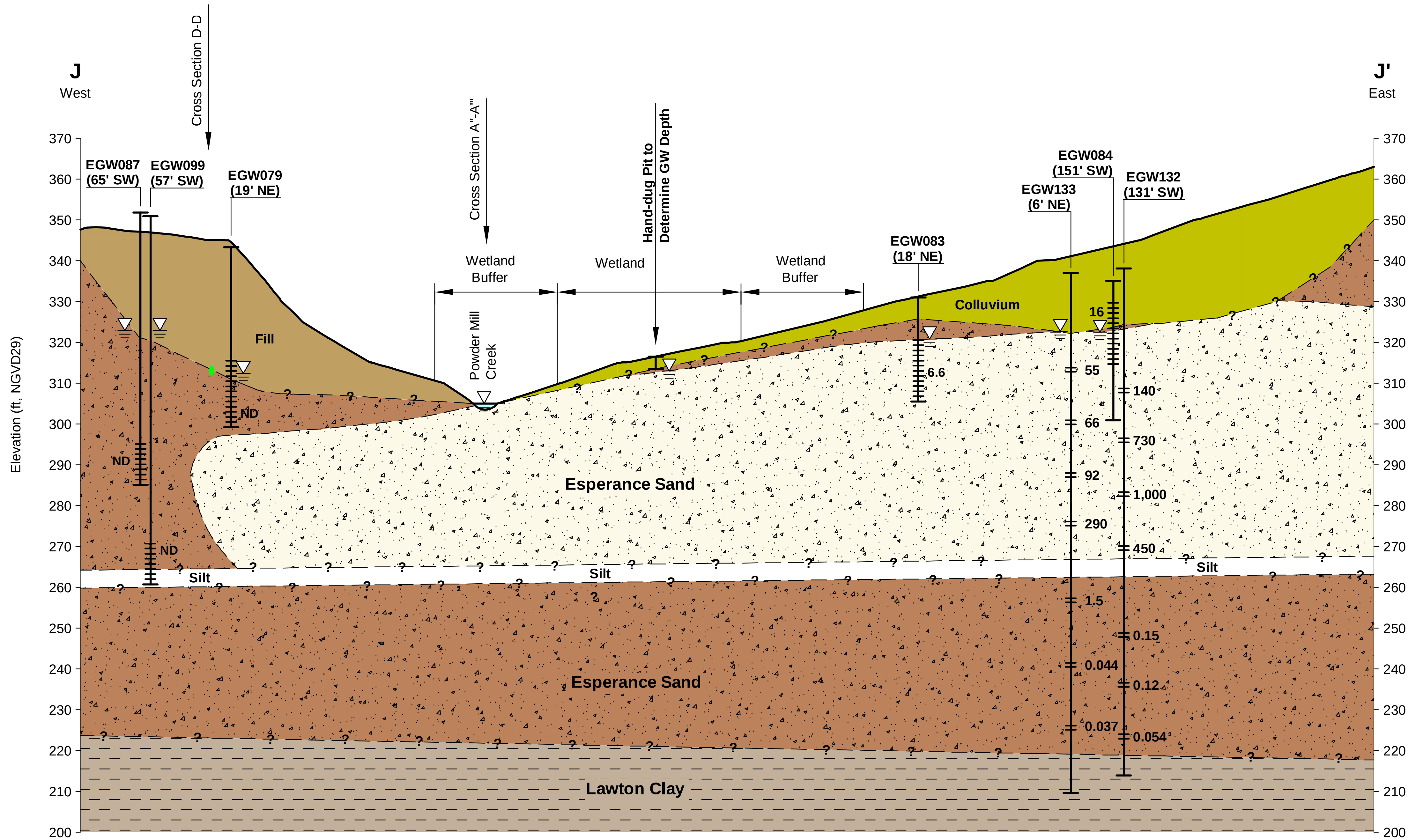
Everett Plant

Cross Section I-I'

Figure
21-14



Legend

EGW127 — Monitoring Well Location and Designation

2.6 — Permanent or Temporary Well Screen with Most Recent TCE Concentrations From October 2009 or Most Recent Data Available (µg/L)

2' DIA Sanitary Sewer Line

Powder Mill Creek

Water Level (October 2009)

Indicates TCE Plume Greater than 5 µg/L Superimposed Over Geologic Units

Notes:

1. See Figure 21-3 and 21-4 for cross section location.
2. This cross section approximates geologic conditions based on inferences from boring and well log information.
3. Parenthetical notes indicate distance projected.
4. Stream elevation reflects the steepest gradient at that location and is not a direct perpendicular projection of the creek.
5. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 60 120

Horizontal Scale = 1" = 60'
Vertical Scale = 1" = 30'

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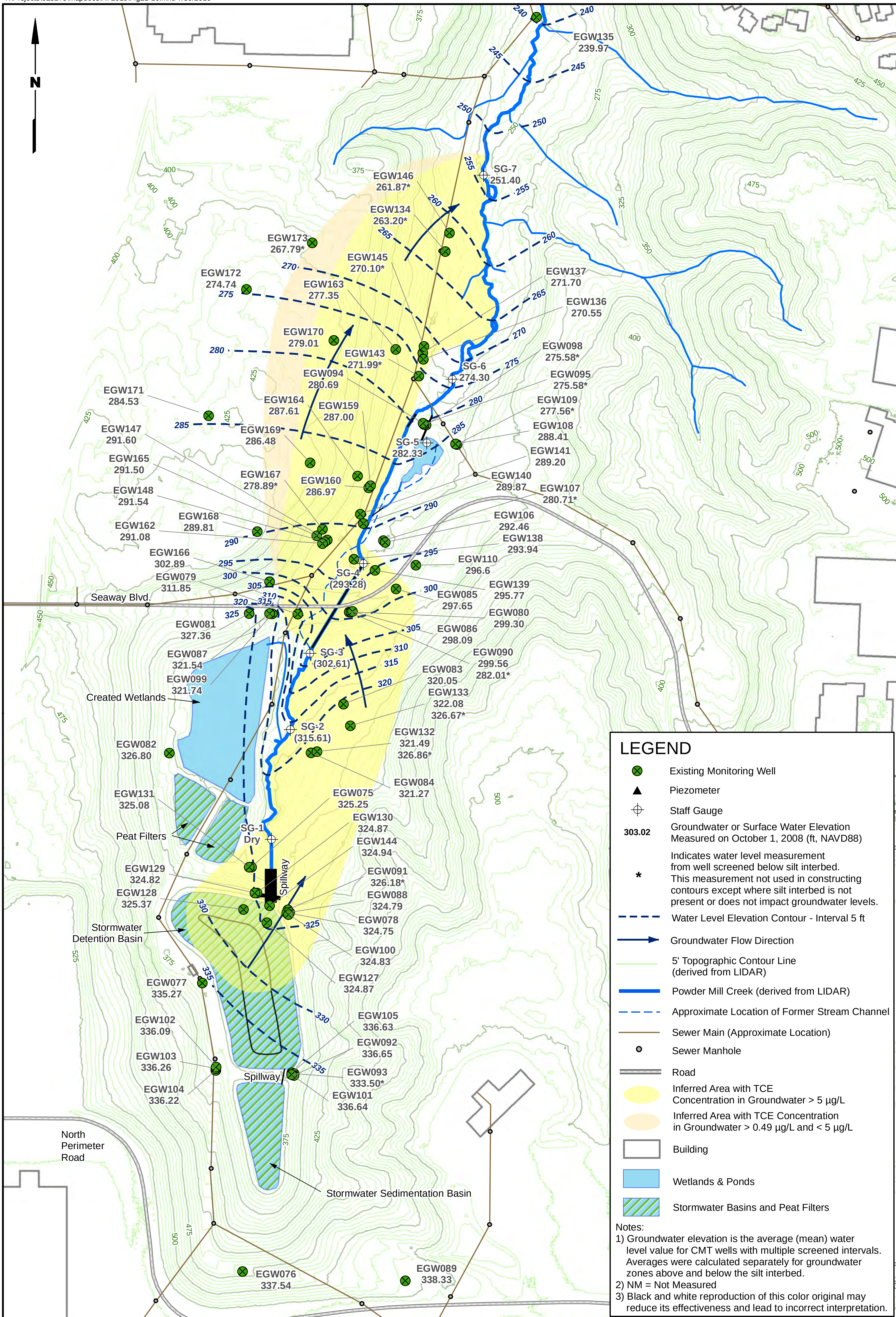
Everett Plant

Cross Section J-J'

Figure 21-15



0 300 600

Scale in Feet

Base map sources: URS 2005; City of Everett 2005
LIDAR data source: URS 2005 (Data collected November 2005)

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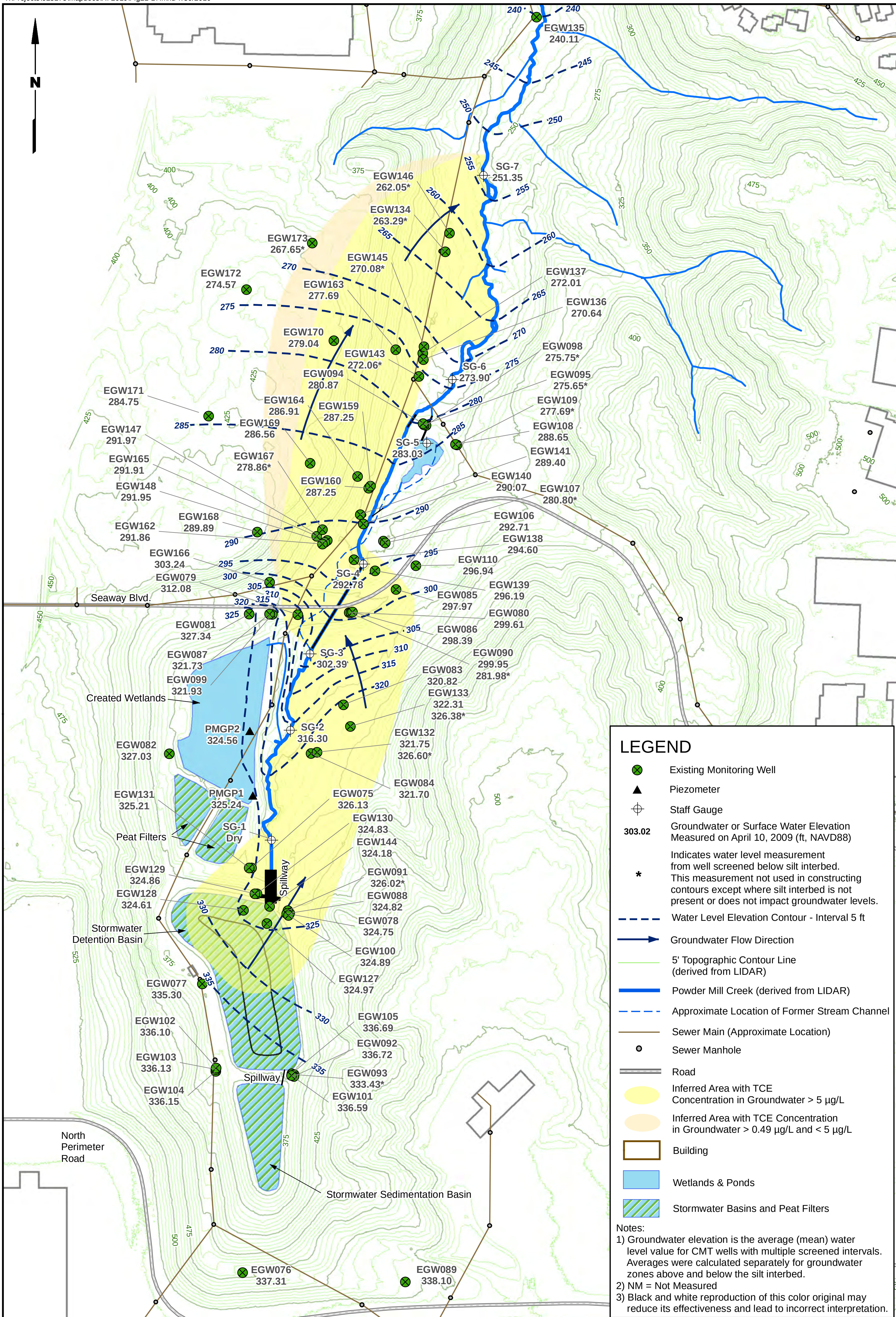
Everett Plant

Groundwater Elevation Contour Map October 2008

Figure
21-16

Y:\Projects\025175\Mapdocs\RI 2010\Fig21-17.mxd 7/30/2010



0 300 600

Scale in Feet

Base map sources: URS 2005; City of Everett 2005
LIDAR data source: URS 2005 (Data collected November 2005)

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Boeing Commercial Airplanes
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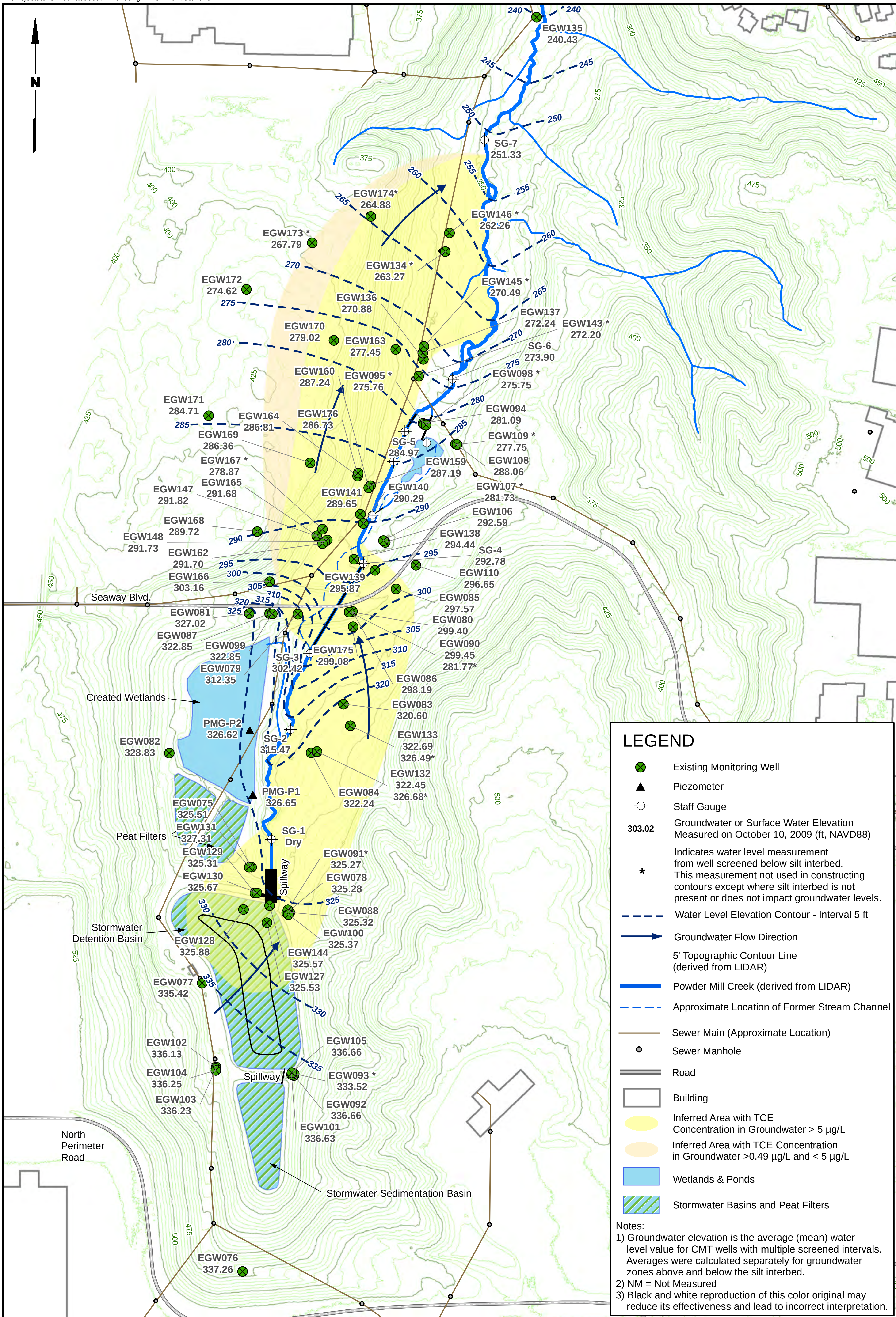
Groundwater Elevation Contour Map April 2009

Figure
21-17



Base map sources: URS 2005; City of Everett 2005
LIDAR data source: URS 2005 (Data collected November 2005)

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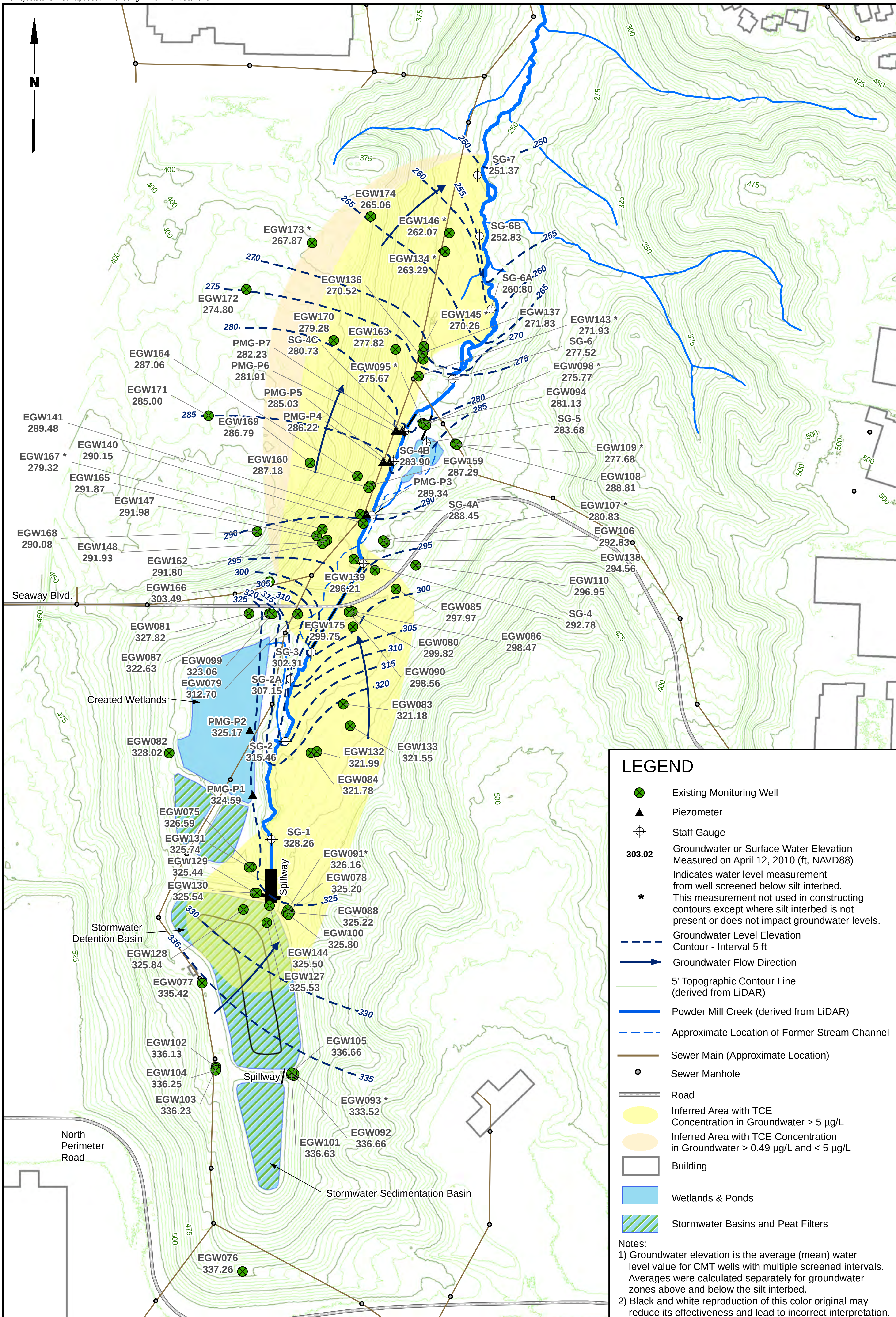
Groundwater Elevation Contour Map October 2009

Figure 21-18



0 300 600

Scale in Feet

Base map sources: URS 2005; City of Everett 2005
LiDAR data source: URS 2005 (Data collected November 2005)

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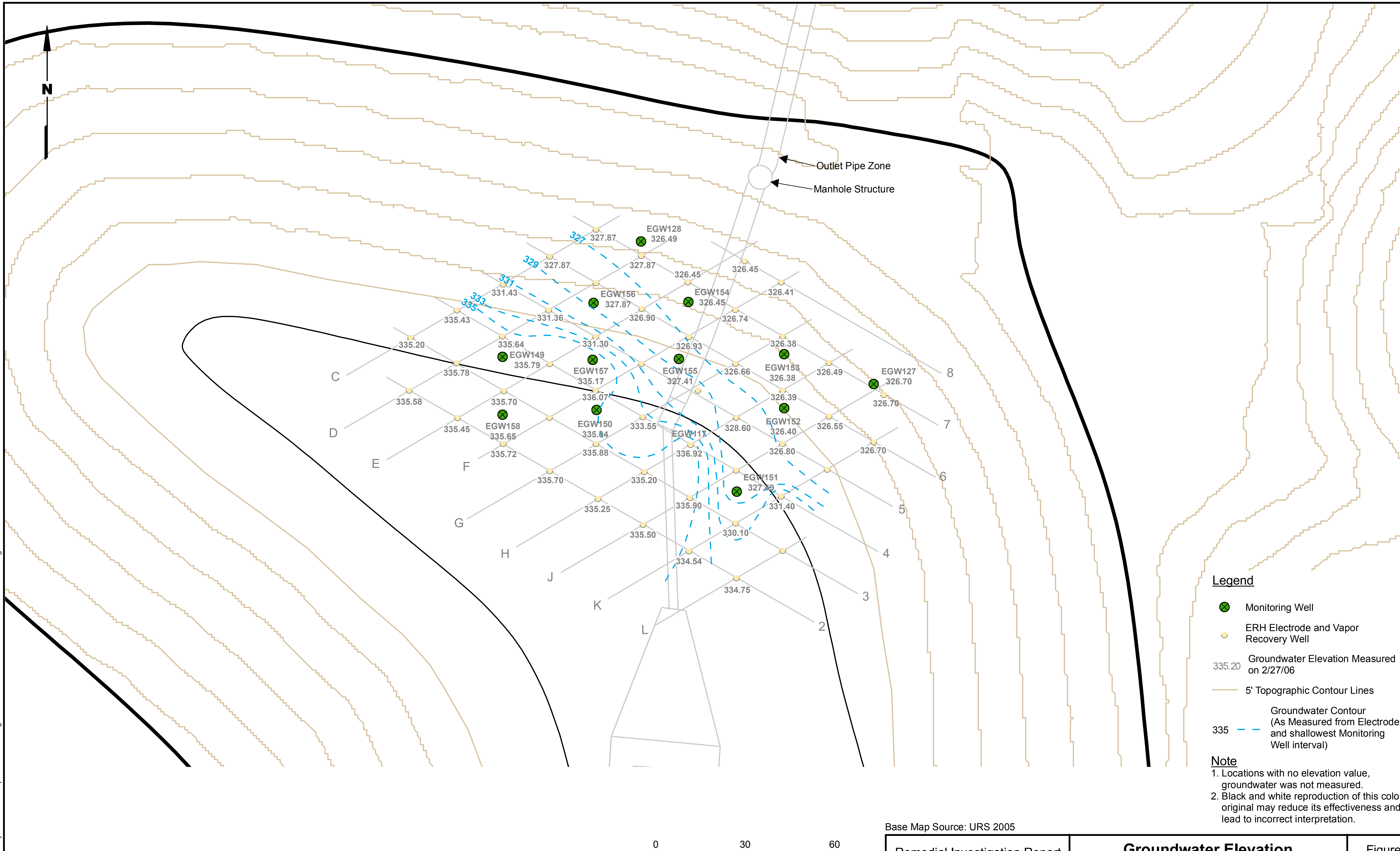
Groundwater Elevation Contour Map April 2010

Figure 21-19



Legend

- Monitoring Well
- ERH Electrode and Vapor Recovery Well
- 335.20 Groundwater Elevation Measured on 2/27/06
- 5' Topographic Contour Lines
- 335 Groundwater Contour (As Measured from Electrodes and shallowest Monitoring Well interval)

Note

1. Locations with no elevation value, groundwater was not measured.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Base Map Source: URS 2005

0 30 60
Scale in Feet

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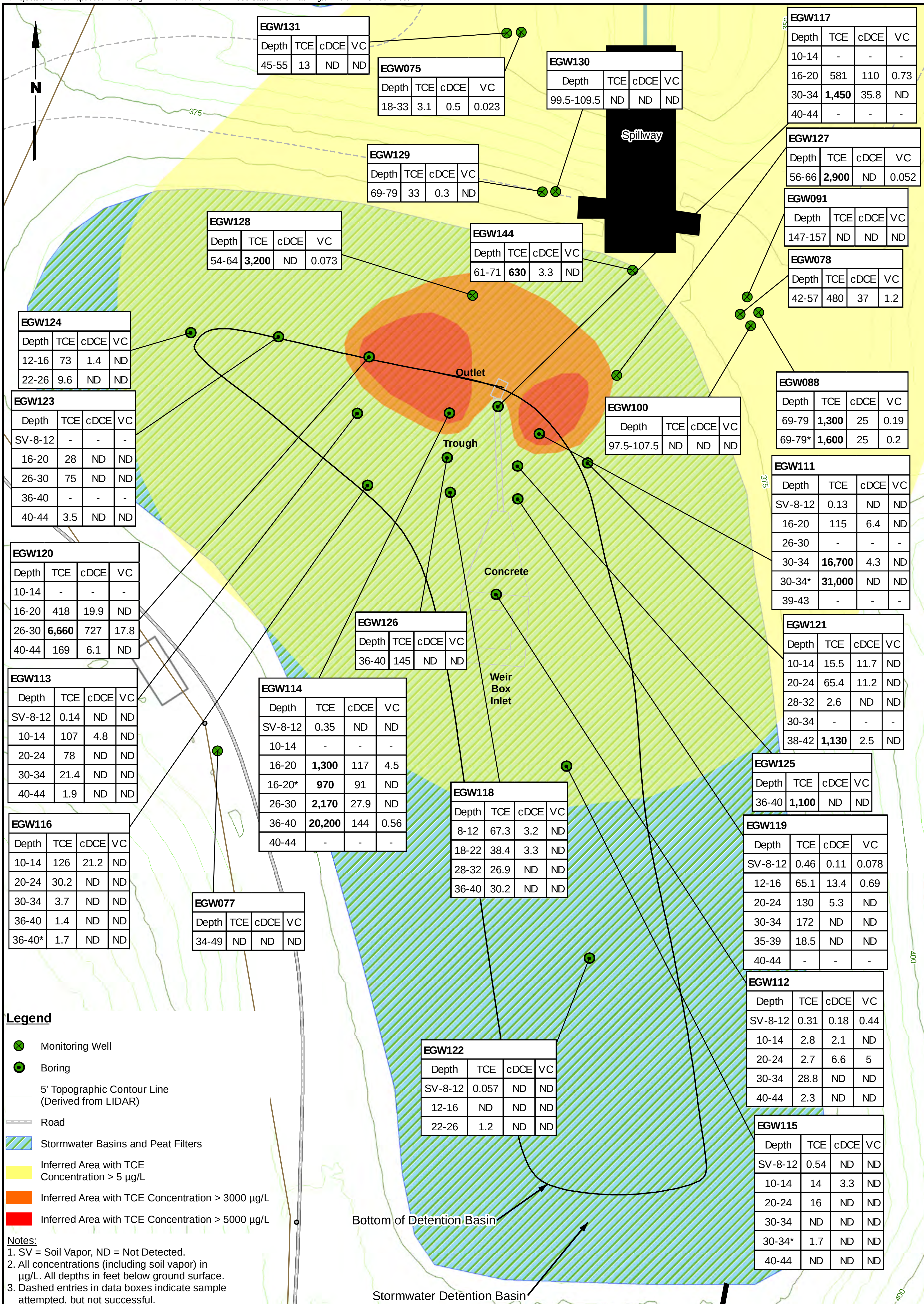
Groundwater Elevation Contour Map (Source Area) February 2007

Figure 21-20

Y:\Projects\025175\Mapdocs\RI 2010\Fig21-21.mxd 7/2/2010 NAD 1983 StatePlane Washington North FIPS 4601 Feet



EGW131

Depth	TCE	cDCE	VC
45-55	13	ND	ND

EGW075

Depth	TCE	cDCE	VC
18-33	3.1	0.5	0.023

EGW130

Depth	TCE	cDCE	VC
99.5-109.5	ND	ND	ND

EGW117

Depth	TCE	cDCE	VC
10-14	-	-	-
16-20	581	110	0.73
30-34	**1,450**	35.8	ND
40-44	-	-	-

EGW127

Depth	TCE	cDCE	VC
56-66	**2,900**	ND	0.052

EGW129

Depth	TCE	cDCE	VC
69-79	33	0.3	ND

EGW091

Depth	TCE	cDCE	VC
147-157	ND	ND	ND

EGW128

Depth	TCE	cDCE	VC
54-64	**3,200**	ND	0.073

EGW144

Depth	TCE	cDCE	VC
61-71	**630**	3.3	ND

EGW078

Depth	TCE	cDCE	VC
42-57	480	37	1.2

EGW124

Depth	TCE	cDCE	VC
12-16	73	1.4	ND
22-26	9.6	ND	ND

EGW088

Depth	TCE	cDCE	VC
69-79	**1,300**	25	0.19
69-79*	**1,600**	25	0.2

EGW123

Depth	TCE	cDCE	VC
SV-8-12	-	-	-
16-20	28	ND	ND
26-30	75	ND	ND
36-40	-	-	-
40-44	3.5	ND	ND

EGW100

Depth	TCE	cDCE	VC
97.5-107.5	ND	ND	ND

EGW111

Depth	TCE	cDCE	VC
SV-8-12	0.13	ND	ND
16-20	115	6.4	ND
26-30	-	-	-
30-34	**16,700**	4.3	ND
30-34*	**31,000**	ND	ND
39-43	-	-	-

EGW120

Depth	TCE	cDCE	VC
10-14	-	-	-
16-20	418	19.9	ND
26-30	**6,660**	727	17.8
40-44	169	6.1	ND

EGW126

Depth	TCE	cDCE	VC
36-40	145	ND	ND

EGW121

Depth	TCE	cDCE	VC
10-14	15.5	11.7	ND
20-24	65.4	11.2	ND
28-32	2.6	ND	ND
30-34	-	-	-
38-42	**1,130**	2.5	ND

EGW113

Depth	TCE	cDCE	VC
SV-8-12	0.14	ND	ND
10-14	107	4.8	ND
20-24	78	ND	ND
30-34	21.4	ND	ND
40-44	1.9	ND	ND

EGW114

Depth	TCE	cDCE	VC
SV-8-12	0.35	ND	ND
10-14	-	-	-
16-20	**1,300**	117	4.5
16-20*	**970**	91	ND
26-30	**2,170**	27.9	ND
36-40	**20,200**	144	0.56
40-44	-	-	-

EGW125

Depth	TCE	cDCE	VC
36-40	**1,100**	ND	ND

EGW118

Depth	TCE	cDCE	VC
8-12	67.3	3.2	ND
18-22	38.4	3.3	ND
28-32	26.9	ND	ND
36-40	30.2	ND	ND

EGW116

Depth	TCE	cDCE	VC
10-14	126	21.2	ND
20-24	30.2	ND	ND
30-34	3.7	ND	ND
36-40	1.4	ND	ND
36-40*	1.7	ND	ND

EGW119

Depth	TCE	cDCE	VC
SV-8-12	0.46	0.11	0.078
12-16	65.1	13.4	0.69
20-24	130	5.3	ND
30-34	172	ND	ND
35-39	18.5	ND	ND
40-44	-	-	-

EGW077

Depth	TCE	cDCE	VC
34-49	ND	ND	ND

EGW112

Depth	TCE	cDCE	VC
SV-8-12	0.31	0.18	0.44
10-14	2.8	2.1	ND
20-24	2.7	6.6	5
30-34	28.8	ND	ND
40-44	2.3	ND	ND

EGW122

Depth	TCE	cDCE	VC
SV-8-12	0.057	ND	ND
12-16	ND	ND	ND
22-26	1.2	ND	ND

EGW115

Depth	TCE	cDCE	VC
SV-8-12	0.54	ND	ND
10-14	14	3.3	ND
20-24	16	ND	ND
30-34	ND	ND	ND
30-34*	1.7	ND	ND
40-44	ND	ND	ND

Legend

- Monitoring Well
- Boring
- 5' Topographic Contour Line (Derived from LIDAR)
- Road
- Stormwater Basins and Peat Filters
- Inferred Area with TCE Concentration > 5 µg/L
- Inferred Area with TCE Concentration > 3000 µg/L
- Inferred Area with TCE Concentration > 5000 µg/L

Notes:
1. SV = Soil Vapor, ND = Not Detected.
2. All concentrations (including soil vapor) in µg/L. All depths in feet below ground surface.
3. Dashed entries in data boxes indicate sample attempted, but not successful.
4. Direct-push borings and detention basin features surveyed with map-grade GPS.
5. TCE concentrations are from October 2005 and January 2006 except concentrations for borings located inside the detention basin (September 2005).
6. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.
7. * Indicates spit sample or duplicate result.

0 50 100

Scale in Feet

Base Map Source: URS 2005

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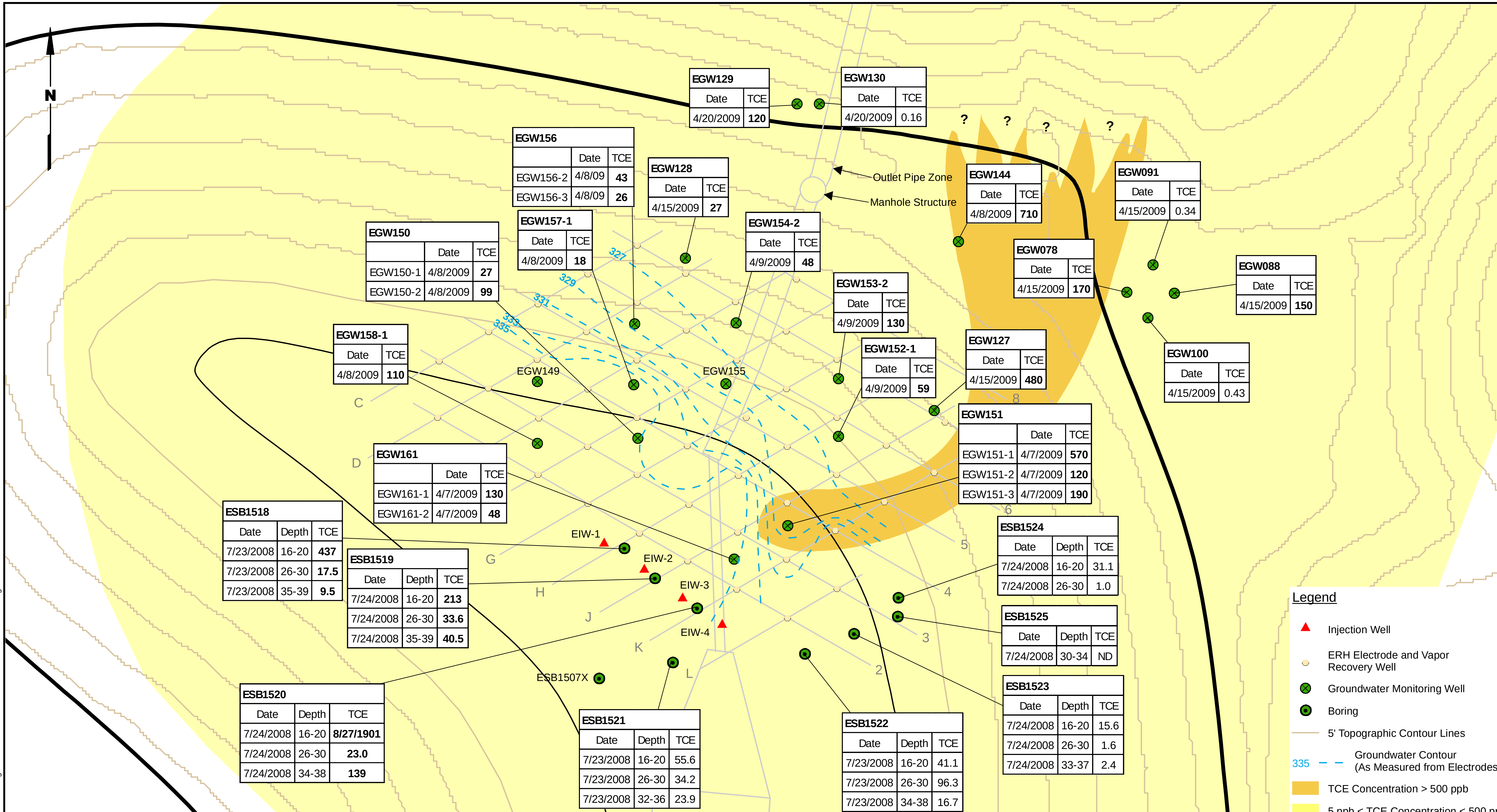
Source Area VOC Concentrations in Groundwater and Soil Vapor (Pre-ERH Treatment January 2006)

Figure 21-21



Base Map Source: URS 2005

0 30 60
Scale in Feet

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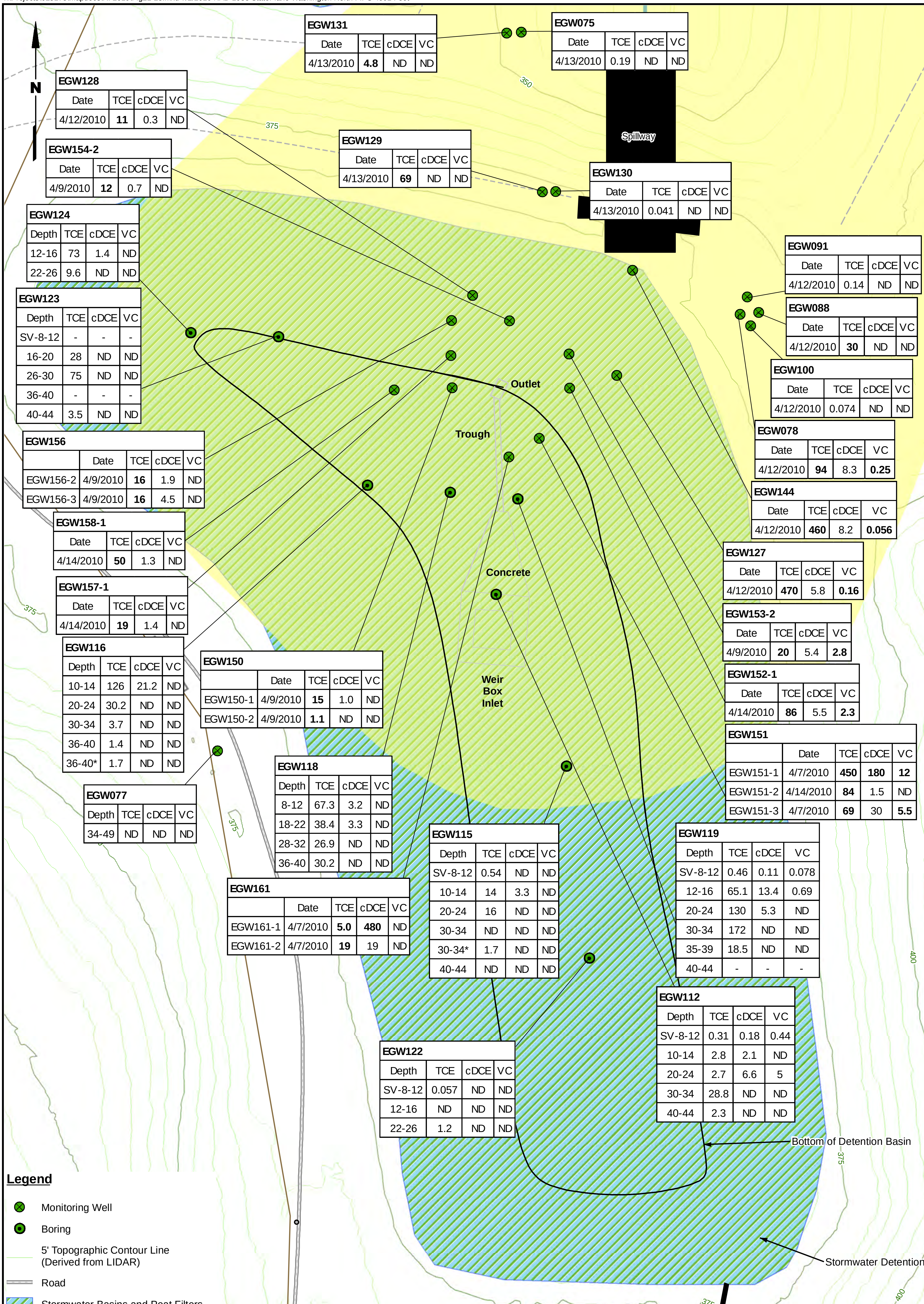
Source Area VOC Concentrations in Groundwater (Post-ERH Treatment, April 2009)

Figure 21-22

Y:\Projects\025175\Mapdocs\RI 2010\Fig21-23.mxd 7/2/2010 NAD 1983 StatePlane Washington North FIPS 4601 Feet



EGW131

Date	TCE	cDCE	VC
4/13/2010	**4.8**	ND	ND

EGW075

Date	TCE	cDCE	VC
4/13/2010	0.19	ND	ND

EGW128

Date	TCE	cDCE	VC
4/12/2010	**11**	0.3	ND

EGW154-2

Date	TCE	cDCE	VC
4/9/2010	**12**	0.7	ND

EGW129

Date	TCE	cDCE	VC
4/13/2010	**69**	ND	ND

EGW130

Date	TCE	cDCE	VC
4/13/2010	0.041	ND	ND

EGW124

Depth	TCE	cDCE	VC
12-16	73	1.4	ND
22-26	9.6	ND	ND

EGW123

Depth	TCE	cDCE	VC
SV-8-12	-	-	-
16-20	28	ND	ND
26-30	75	ND	ND
36-40	-	-	-
40-44	3.5	ND	ND

EGW091

Date	TCE	cDCE	VC
4/12/2010	0.14	ND	ND

EGW088

Date	TCE	cDCE	VC
4/12/2010	**30**	ND	ND

EGW100

Date	TCE	cDCE	VC
4/12/2010	0.074	ND	ND

EGW078

Date	TCE	cDCE	VC
4/12/2010	**94**	8.3	**0.25**

EGW156

	Date	TCE	cDCE	VC
EGW156-2	4/9/2010	**16**	1.9	ND
EGW156-3	4/9/2010	**16**	4.5	ND

EGW144

Date	TCE	cDCE	VC
4/12/2010	**460**	8.2	**0.056**

EGW158-1

Date	TCE	cDCE	VC
4/14/2010	**50**	1.3	ND

EGW127

Date	TCE	cDCE	VC
4/12/2010	**470**	5.8	**0.16**

EGW157-1

Date	TCE	cDCE	VC
4/14/2010	**19**	1.4	ND

EGW153-2

Date	TCE	cDCE	VC
4/9/2010	**20**	5.4	**2.8**

EGW116

Depth	TCE	cDCE	VC
10-14	126	21.2	ND
20-24	30.2	ND	ND
30-34	3.7	ND	ND
36-40	1.4	ND	ND
36-40*	1.7	ND	ND

EGW150

	Date	TCE	cDCE	VC
EGW150-1	4/9/2010	**15**	1.0	ND
EGW150-2	4/9/2010	**1.1**	ND	ND

EGW152-1

Date	TCE	cDCE	VC
4/14/2010	**86**	5.5	**2.3**

EGW151

	Date	TCE	cDCE	VC
EGW151-1	4/7/2010	**450**	**180**	**12**
EGW151-2	4/14/2010	**84**	1.5	ND
EGW151-3	4/7/2010	**69**	30	**5.5**

EGW118

Depth	TCE	cDCE	VC
8-12	67.3	3.2	ND
18-22	38.4	3.3	ND
28-32	26.9	ND	ND
36-40	30.2	ND	ND

EGW077

Depth	TCE	cDCE	VC
34-49	ND	ND	ND

EGW115

Depth	TCE	cDCE	VC
SV-8-12	0.54	ND	ND
10-14	14	3.3	ND
20-24	16	ND	ND
30-34	ND	ND	ND
30-34*	1.7	ND	ND
40-44	ND	ND	ND

EGW119

Depth	TCE	cDCE	VC
SV-8-12	0.46	0.11	0.078
12-16	65.1	13.4	0.69
20-24	130	5.3	ND
30-34	172	ND	ND
35-39	18.5	ND	ND
40-44	-	-	-

EGW161

	Date	TCE	cDCE	VC
EGW161-1	4/7/2010	**5.0**	**480**	ND
EGW161-2	4/7/2010	**19**	19	ND

EGW112

Depth	TCE	cDCE	VC
SV-8-12	0.31	0.18	0.44
10-14	2.8	2.1	ND
20-24	2.7	6.6	5
30-34	28.8	ND	ND
40-44	2.3	ND	ND

EGW122

Depth	TCE	cDCE	VC
SV-8-12	0.057	ND	ND
12-16	ND	ND	ND
22-26	1.2	ND	ND

Legend

- Monitoring Well
- Boring
- 5' Topographic Contour Line (Derived from LIDAR)
- Road
- Stormwater Basins and Peat Filters
- 5 ppb < TCE Concentration < 500 ppb

Notes:
1. ND = Not Detected.
2. All concentrations in µg/L. All depths in feet below ground surface.
3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 50 100

Scale in Feet

Base Map Source: URS 2005

Landau Associates

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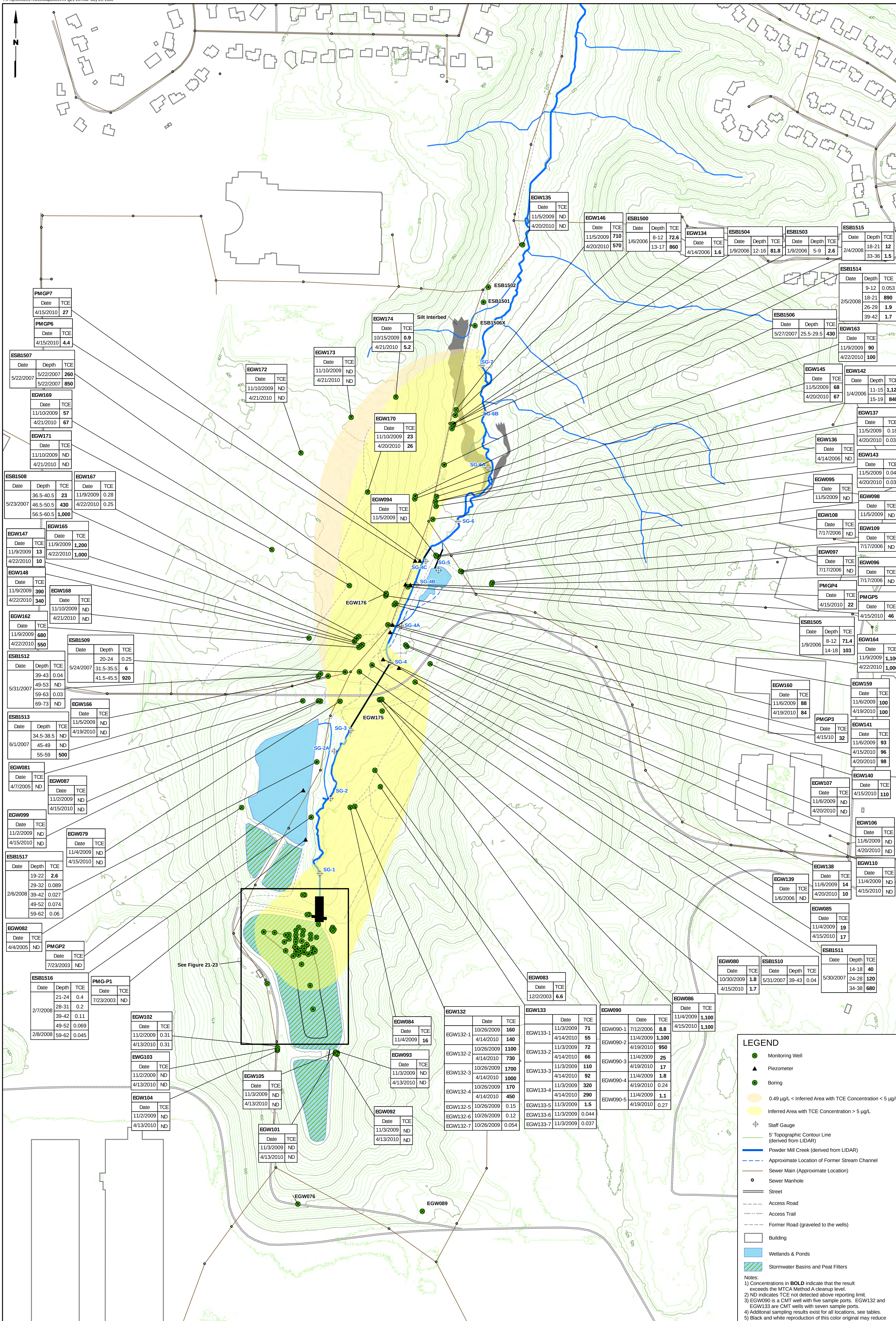
Source Area VOC Concentrations in Groundwater (Post-Initial Bioremediation, April 2010)

Figure 21-23

Y:\Projects\025175\010\MapDocs\RI\Fig21-20.mxd July 25, 2006



0 200 400
Scale in Feet

Base map sources: URS 2005; City of Everett 2005
LIDAR data source: URS 2005 (Data collected November 2005)

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Remedial Investigation Report Boeing Commercial Airplanes Everett Plant	**TCE in Groundwater October 2009 - April 2010**	Figure 21-24

Figure 21-25
TCE Concentration Versus Time
Downgradient Source Area Wells

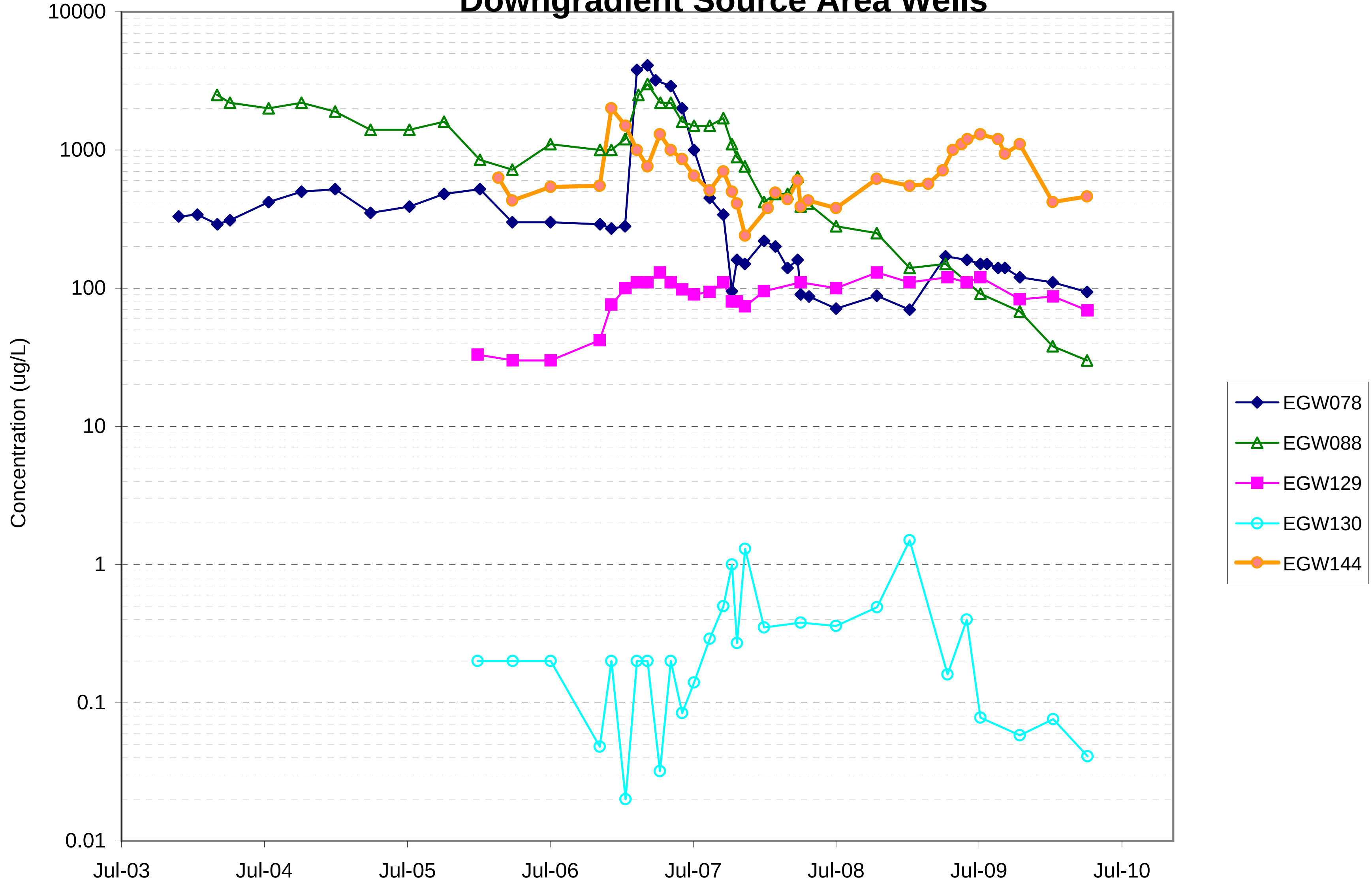


Figure 21-26
TCE Concentration Versus Time
Mid-Plume Wells

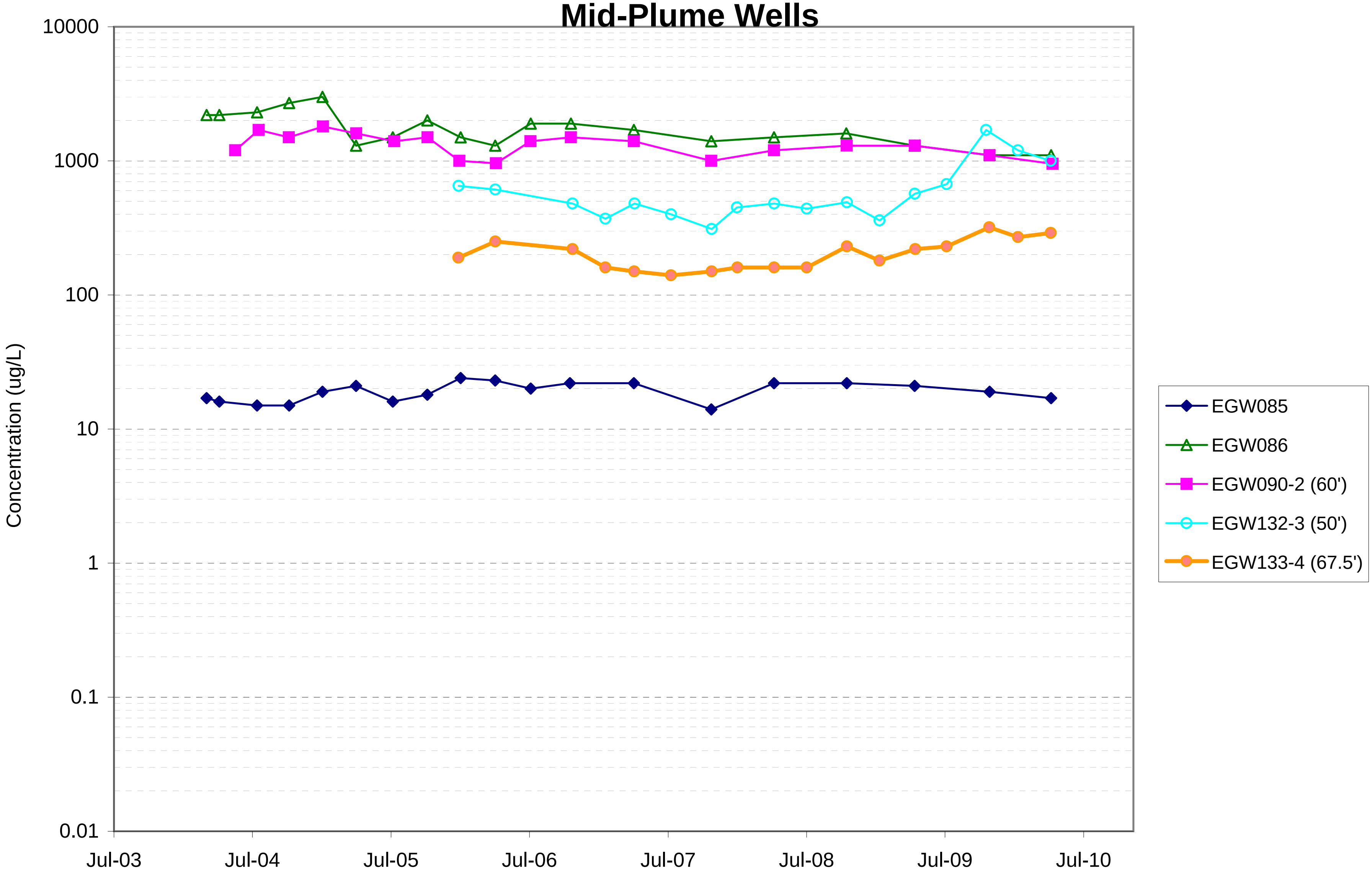
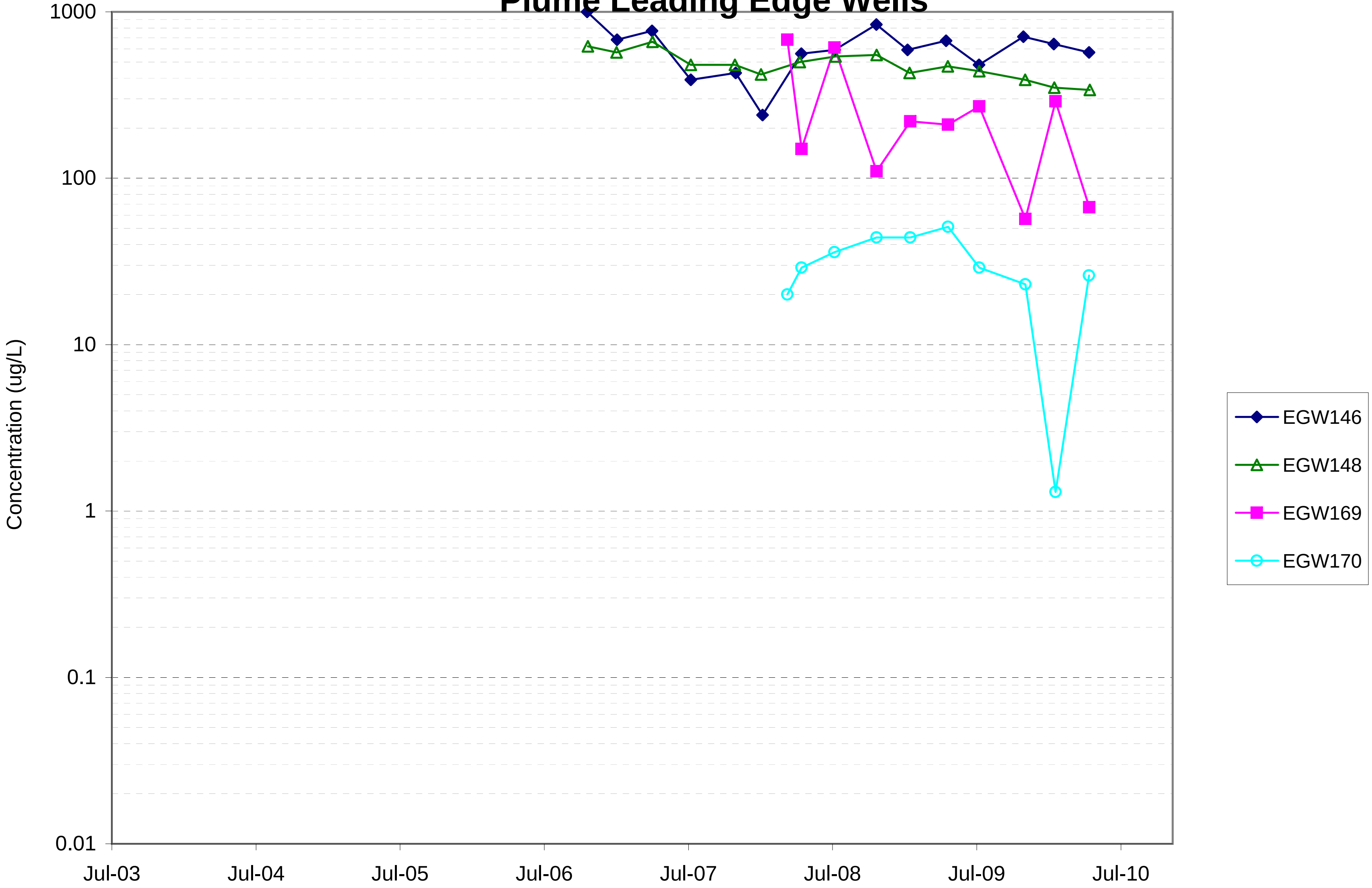


Figure 21-27
TCE Concentration Versus Time
Plume Leading Edge Wells



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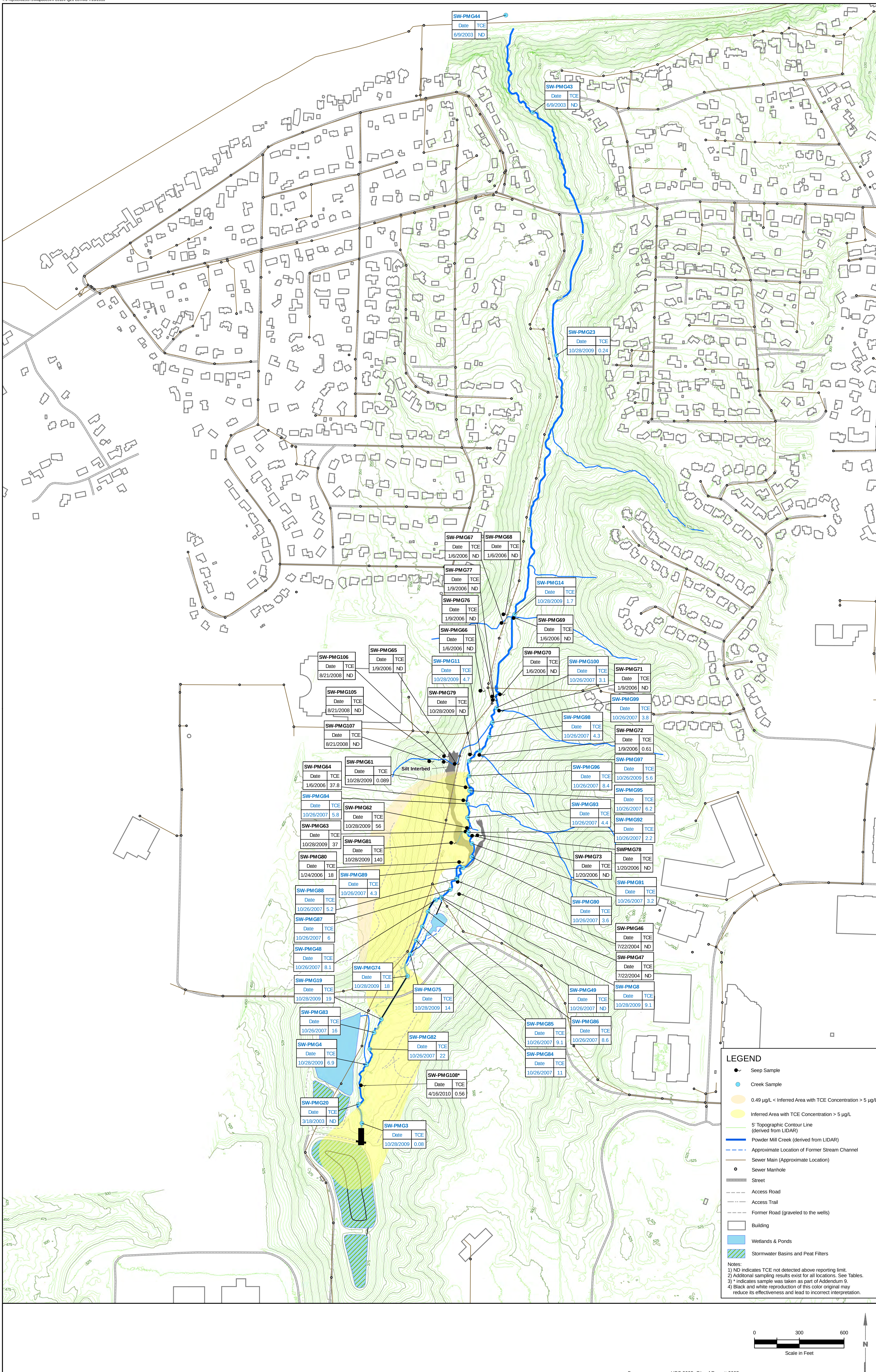

Base map sources: URS 2005; City of Everett 2005
LIDAR data source: URS 2005 (Data collected November 2005)

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TCE in Surface Water and Seeps - October 2009

Figure
21-28

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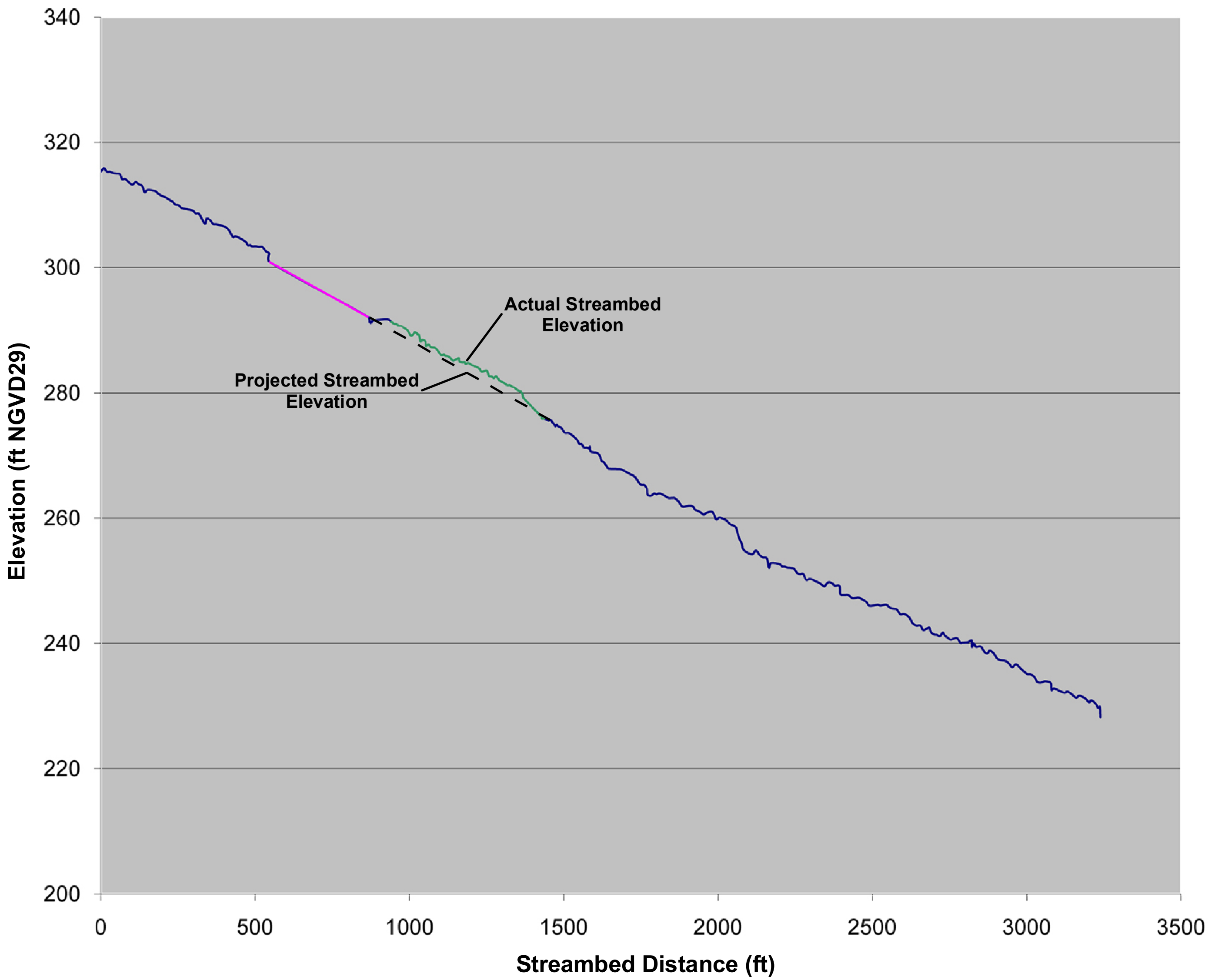

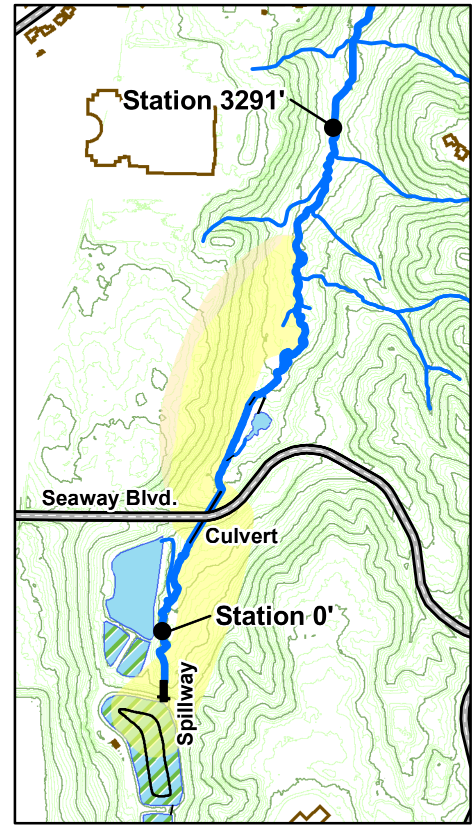

Streambed Elevation
Culvert Invert Elevation
Altered Reach Streambed Elevation
Projected Streambed Elevation

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Remedial Investigation Report Boeing Commercial Airplanes Everett Plant	**Powder Mill Gulch Streambed Profile**	Figure 21-29

22.0 FORMER PISTOL RANGE

Presented in this section are the results of the investigation of soils performed at the former pistol range located in upper Powder Mill Gulch at the Everett Plant (Figure 22-1). The former pistol range was situated near the sewage meter station (Building 40-09) on the west side of the stormwater detention pond (Figure 22-2). This AOC was identified by Boeing subsequent to the original Agreed Order and RI. The investigation was initiated based on a verbal request from Ecology in a meeting with Boeing and URS on July 24, 2003, and was performed as Additional Work initiated by Boeing per the Agreed Order (Section VII.6) between Boeing and Ecology. In addition, an IA soil cleanup was conducted in this area by Landau (2006) in conjunction with the site preparation for installation of the in-situ thermal treatment equipment for the Powder Mill Gulch source area IA (Section 21.0)

22.1 BACKGROUND

There is limited information on the use of the pistol range by Boeing security staff. It was reportedly constructed in 1973-74 and was closed prior to the upgrades in the stormwater system in 1991-92. The range was 150 feet long and 20 feet wide and the hillside at the northwest end of the range acted as the primary impact berm (Figure 22-2). Since the stormwater system upgrade, the former range floor area has been periodically (until 2003) used to temporarily store accumulated solids from the stormwater ponds prior to solids disposal offsite. In addition to metals (antimony, arsenic, copper, lead, tin, and zinc) typically associated with the pistol range ammunition (Interstate Technology and Regulatory Council, 2003), polychlorinated biphenyls (PCBs) may have been present due to the prior temporary stockpiling of accumulated solids.

There were no previous subsurface investigations in the former pistol range area. Based on the available data, the area is likely underlain by fill and/or colluvial soils overlying the Esperance Sand and groundwater is expected to occur at a depth of approximately 50 feet bgs.

22.2 PURPOSE AND SCOPE

The purpose of the supplemental investigation is to assess whether operation of the former pistol range impacted soil quality with elevated concentrations of metals or PCBs. The scope of the initial investigation was in general accordance with URS' SAP dated November 11, 2003, which was subsequently approved by Ecology and included the following:

- Completion of six 1-foot deep soil borings on the northern portion of the range floor and eight horizontal borings a minimum of 3-feet into the slope/impact berm
- Collection of soil samples at 6-inch intervals on the range floor and 1-foot intervals on the primary impact berm
- Collection of three grab-samples from colluvium deposited at the slope toe
- Analysis of selected samples for metal constituents typically used for bullets and PCBs

Based on the results from the initial investigation, a supplemental investigation was conducted that included the following scope:

- Three hand auger borings were completed to depths of up to 5½ feet bgs. Two were adjacent to prior borings (ESB1148 and ESB1155) and were extended to a greater depth and one new boring (ESB1158) was completed.
- Supplemental soil samples were analyzed for antimony, arsenic, and lead.

22.3 DOCUMENTATION OF BORING AND SAMPLING ACTIVITIES

On November 20 and 21, 2003, URS completed fourteen hand auger soil borings (ESB1144 through ESB1157) and three surface grab samples (ESS1, ESS2, and ESS3) shown on Figure 22-3. The borings were completed to a depth of between 2 to 4 feet bgs. Borings ESB1148 and ESB1155 were extended to depths of 5½ and 5 feet bgs, respectively, and boring ESB1158 was completed to a depth of 3 feet bgs on March 24, 2004. Samples were retrieved using the hand auger. Drilling techniques and sampling procedures utilized were in general accordance with the SAP. The analytical data was previously submitted to Ecology in 2004 (URS, 2004).

22.4 FIELD OBSERVATIONS AND RESULTS OF SAMPLE ANALYSIS

Presented in this section are the field observations and sample results associated with RI soil borings ESB1144 through ESB1158 and surface samples ESS1 through ESS3. The chain of custody forms, analytical laboratory reports, and data validation reports are provided in Appendix V. The field observations and laboratory analytical results are summarized in Tables 22-1 and 22-2, respectively.

22.4.1 Field Observations

The soils consist of silty sand and sand, locally with some gravel. Hand auger drilling refusal was encountered at boring location ESB1156 and ESB1157 at depths of 2 and 2½ feet bgs. Wet soil or perched groundwater was not encountered in the borings. Staining or other visual indications of dangerous constituents were not observed except for bullet fragments in the uppermost ½ foot of borings ESB1150 through ESB1152 and ESB1154.

22.4.2 Soil Sample Analytical Results

Selected soil samples were submitted for analysis per the sample selection criteria specified in the SAP. Soil samples from depths ranging from ½ to 5½ feet bgs were submitted for analysis.

Table 22-2 summarizes the analytical data for metals and PCBs in soil samples. This table also lists the appropriate 2001 MTCA Method A and B cleanup levels. The analytical results indicate copper, tin and zinc were either not detected above the method reporting limits or detected at concentrations less than the MTCA cleanup levels. Antimony, arsenic and/or lead concentrations exceed the applicable 2001 MTCA Method A and/or B soil cleanup levels in several samples. Selected analytical results of constituents detected above the applicable MTCA soil cleanup level are shown on Figure 22-3.

Lead was detected at or above the MTCA Method A unrestricted soil cleanup level of 250 mg/kg in one or two samples each from borings ESB1147, ESB1148, ESB1150, ESB1151, ESB1153 and ESB1155. Antimony was detected above the MTCA Method B soil cleanup level (32 mg/kg) in one sample each from borings ESB1148 and ESB1151. Arsenic was detected above the 20 mg/kg soil cleanup level in one sample each from ESB1151 and ESB1155, and above the Ecology Puget Sound background level (7.3 mg/kg) in one sample from boring ESB1148. All other arsenic results were below the Puget Sound background concentration.

22.5 INTERIM ACTION

As part of the site preparation activities for installation of the PMG Source Area IA equipment installation, a soil removal IA was completed in 2006 by Landau (2006). Prior to initiating soil excavation, the following was performed:

- prior to the commencement of excavation activities, all previous sampling locations by URS were located and surveyed with a mapping grade global positioning system (GPS)
- samples of the most impacted soil, based on previous sampling, were collected with a hand auger prior to excavation activities to characterize the soil for disposal
- the entire staging area was then stripped of vegetation, with special care being taken to not disturb the surficial soil in the shooting range area
- the planned excavation area was staked and painted on the ground surface based on previous sampling information (gray line on Figure 22-4).

The results of toxicity **c**haracteristic leaching procedure (TCLP) testing of the characterization samples for lead determined that the soil designates as a dangerous waste. All of the soil removed was disposed at the Waste Management permitted hazardous waste facility in Arlington, Oregon.

Soil removal occurred during three different excavation phases between May 22 and May 26, 2006. The lateral and vertical limits of the phased and final excavation are shown on Figures 22-4 and 22-5. After excavation, the soils in the bottom and sidewalls were field-screened to determine whether bullet fragments remained within the base or sidewalls of the excavation. Field screening consisted of hand screening portions of the soil through a #4 sieve and examining the retained soil fraction for visible bullet fragments. Field screening indicated the presence of lead bullets and/or bullet fragments at a few locations and additional soil was removed from these areas. The depth of the excavation ranged between 1.0 and 4.0 feet, as expected based on previous sampling. The total amount of soil removed from the excavation area was 136 tons, or a volume of approximately 85 yd^3 (measured loose).

22.5.1 Soil Sample Analytical Results

Composite post-excavation soil samples were collected from the sidewalls and bottom of the excavation after each of the three excavation phases to document metals concentrations in remaining soil. The samples were collected using stainless-steel bowls and spoons and composited in the field. The samples were analyzed by ARI for antimony, arsenic, and lead by U.S. EPA Methods 7041, 7060A, and 7421, respectively. Three samples from the 3rd excavation phase were analyzed for lead by U.S. EPA Method 6010B.

Samples depths and locations are shown on Figures 22-4 and 22-5. Post-excavation soil sample analytical results are presented in Table 22-3. Concentrations of the target analytes (antimony, arsenic, and lead) were below applicable MTCA Method A and/or B soil cleanup levels in samples collected from the bottom and northwest and southeast sidewalls of the initial excavation area (red-lined area, Figure 22-

4). The samples along the southwest and northeast sidewalls (ESB1508 and ESB1510) had lead concentration of 280 mg/kg and 690 mg/kg, respectively, which is above the MTCA Method A soil cleanup level of 250 mg/kg. After completion of the 2nd and 3rd round of soil excavation and sampling (green and purple-lined area, Figure 22-4), the composite samples from the southwest and northeast sidewalls (ESB1514 and ESB1516) had lead concentrations below the 250 mg/kg MTCA Method A soil cleanup level (Figure 22-4).

22.6 CONCLUSIONS AND RECOMMENDATIONS

The analytical results of the initial investigation delineated the lateral extent of soils with metals above applicable MTCA cleanup levels except on the west side adjacent to borings ESB1150 and ESB1153. The vertical extent was delineated except at borings ESB1148 and ESB1155. The combined results of the prior and supplementary investigation delineate the lateral extent of the area of soils with bullet fragments and/or metals concentrations above applicable MTCA cleanup levels (Figure 22-3). The analytical results for subsequent deeper samples collected from borings ESB1148 and ESB1155, as well as initial samples from the other borings, delineate the vertical extent of affected soils to depths of 4 feet or less within this area.

Based on the combined results of the initial and supplementary investigation discussed in section 22.4.2, the lateral and vertical extent of metals-impacted soils in the former pistol range area were sufficiently delineated during the RI. The subsequent IA soil excavation and disposal removed the soils with bullet fragments and metals concentrations above applicable MTCA Method A (arsenic and lead) or B (antimony) soil cleanup levels and Puget Sound regional background levels. These soil cleanup levels are protective of direct soil contact and groundwater; therefore this area is not recommended for inclusion in the FS based on the presence of elevated metals.

22.7 REFERENCES

Interstate Technology and Regulatory Council, 2003, Technical/Regulatory Guidelines, Characterization and Remediation of Soils at Closed Small Arms Firing Ranges, prepared by the Small Arms Firing Range Team, January 2003.

Landau, 2006, Construction of Equipment Staging Area in the Powder Mill Gulch Pistol Range Area, Boeing Everett Facility, Everett, Washington, October 9, 2006.

URS Corporation, 2003, Sampling and Analysis Plan, Former Pistol Range, Powder Mill Gulch, November 11, 2003 BCAG Everett Plant, Everett Washington

URS Corporation, 2004, Results of Supplemental Remedial Investigation of Former Pistol Range in Powder Mill Gulch, Boeing Everett Plant, Technical Memorandum dated April 23, 2004.

Table 22-1
Summary of Pistol Range Soil Borings
Former Pistol Range
Boeing Everett Plant Remedial Investigation

Soil Boring Number	Date Completed	Boring Location	Boring Depth[1] (feet bgs)	Soil Description[2]	Bullet Fragments Observed?	Odor	Visual
ESB1144	11/20/2003	Range Floor	3	SP/SM	No	No	No
ESB1145	11/20/2003	Range Floor	3	SP/SM	No	No	No
ESB1146	11/20/2003	Range Floor	3	SP/SM	No	No	No
ESB1147	11/20/2003	Range Floor	4	SP/SM	No	No	No
ESB1148	11/20/03 and 03/04/04	Range Floor	4 [5.5]	SP/SM	No	No	No
ESB1149	11/20/2003	Range Floor	3.5	SP/SM	No	No	No
ESB1150	11/20/2003	Hillside	3	SM	Yes, <6"	No	No
ESB1151	11/20/2003	Hillside	3	SM	Yes, <6"	No	No
ESB1152	11/21/2003	Soil Berm	3	SP	Yes, <6"	No	No
ESB1153	11/20/2003	Hillside	3	SM	No	No	No
ESB1154	11/20/2003	Hillside	3	SM	No	No	No
ESB1155	11/21/03 and 03/04/04	Hillside	3 [5]	SP/GP	Yes, <6"	No	No
ESB1156	11/20/2003	Hillside	2 (refusal)	SM	No	No	No
ESB1157	11/20/2003	Hillside	2.5 (refusal)	SM	No	No	No
ESB1158	3/4/2004	Hillside	3	SM	No	No	No
ESS-1-031121	11/21/2003	Colluvium	0.5	SP	No	No	No
ESS-2-031121	11/21/2003	Colluvium	0.5	SP	No	No	No
ESS-3-031121	11/21/2003	Colluvium	0.5	SP	No	No	No

Notes:
bgs = below ground surface
[ ] = Extended depth of 03/04/04 boring
[1] Range floor boring depth measured from existing ground surface; hillside and berm borings were completed horizontally.
[2] Soil description using Unified Soil Classification System

Table 22-2
Summary of Soil Analytical Results for Selected Metals and PCBs
Former Pistol Range
Boeing Everett Plant Remedial Investigation

Boring Number	Sample Date	Sample Depth (feet bgs)	Metals (mg/kg)						PCBs[1] (ug/kg)
			Antimony	Arsenic	Copper	Lead	Tin	Zinc	(Aroclor 1254)
2001 MTCA Method A or B Soil Cleanup Level			32 (B)	20 (A) 0.667 (B)	2,960 (B)	250 (A) 1,000 (AI)	48,000 (B)	24,000 (B)	1,000 (A) Total PCBs 10,000 (AI) Total PCBs 1,600 (B) Aroclor 1254
MTCA Method A or B Protection of Groundwater			5.8 (B)	20 (A) 0.03 (B)	263 (B)	250 (A)	38.4 (B)	5,971 (B)	618 (A) / 271 (B) 1.3 (B) Aroclor 1254
WA Department of Ecology - Puget Sound Background Regional Concentration[2]			NE	7.3	36	24	NE	85	NE
ESB1144-1.5	11/20/2003	1.5	5 UJ	**1.7**	23.1	52	3 U	50.5	36 U
ESB1144-2	11/20/2003	2.0	5 UJ	**1.7**	18.4	133	3 U	42	36 U
ESB1145-1.5	11/20/2003	1.5	5 UJ	**1.0**	18.0	4	3 U	40.6	36 U
ESB1145-2	11/20/2003	2.0	10 UJ	**1.1**	20.4	11	3 U	57	36 U
ESB1146-2	11/20/2003	2.0	5 UJ	**1.1**	20.5	5	3 U	56.9	37 U
ESB1146-2.5	11/20/2003	2.5	5 UJ	**0.8**	16.8	7	3 U	51.1	37 U
ESB1147-2	11/20/2003	2.0	5 UJ	**5.3**	21.7	**816**	4 U	64.3	38 U
ESB1147-2.5	11/20/2003	2.5	5 UJ	**1.1**	16.4	22	3 U	42.9	37 U
ESB1148-3	11/20/2003	3.0	5 UJ	**1.3**	19.9	35	3 U	42.8	36 U
ESB1148-3.5	11/20/2003	3.5	**55 J**	**18**	36.6	**9,760**	62	70.4	43 U
ESB1148-4.5	3/24/2004	4.5	6 UJ	**1.9**	NA	9	NA	NA	NA
ESB1148-5.5	3/24/2004	5.5	5 UJ	**1.5**	NA	5	NA	NA	NA
ESB1149-3	11/20/2003	3.0	6 UJ	**1.3**	18.7	15 J	3 U	45.5	38 U
ESB1149-3 (DUP)	11/20/2003	3.0	5 UJ	**1.2**	15.8	4 J	2 U	40.1	37 U
ESB1149-3.5	11/20/2003	3.5	5 UJ	**1.3**	21.4	44	3 U	71.9	38 U
ESB1150-1	11/20/2003	1.0	10 UJ	**1.8**	21.9	**250**	3 U	47	NA
ESB1150-2	11/20/2003	2.0	NA	NA	NA	NA	NA	NA	NA
ESB1150-3	11/20/2003	3.0	10 UJ	**1.1**	27.7	6	3 U	53	NA
ESB1150-3 (DUP)	11/20/2003	3.0	5 UJ	**1.5**	24.8	5	2 U	43.1	37 U
ESB1151-1	11/20/2003	1.0	**193 J**	**23**	39.1	**15,100**	146 J	55.2	NA
ESB1151-2	11/20/2003	2.0	NA	NA	NA	NA	NA	NA	NA
ESB1151-3	11/20/2003	3.0	5 UJ	**1.3**	21.2	26	2 UJ	40.7	NA
ESB1152-1	11/21/2003	1.0	5 UJ	**0.9**	19.3	29	2 UJ	41.8	NA
ESB1152-2	11/21/2003	2.0	NA	NA	NA	NA	NA	NA	NA
ESB1152-3	11/21/2003	3.0	10 UJ	**0.9**	25.9	6	2 UJ	50	NA
ESB1153-1	11/20/2003	1.0	10 UJ	**2.0**	24.2	**288**	3 U	49	NA
ESB1153-2	11/20/2003	2.0	NA	NA	NA	NA	NA	NA	NA
ESB1153-3	11/20/2003	3.0	10 UJ	**1.2**	24.3	5	3 U	45	NA
ESB1154-1	11/20/2003	1.0	10 UJ	**1.6**	22.2	249	4 UJ	42	NA
ESB1154-2	11/20/2003	2.0	NA	NA	NA	NA	NA	NA	NA
ESB1154-3	11/20/2003	3.0	5 UJ	0.5	20.8	10	1 UJ	38.8	NA

Table 22-2
Summary of Soil Analytical Results for Selected Metals and PCBs
Former Pistol Range
Boeing Everett Plant Remedial Investigation

Boring Number	Sample Date	Sample Depth (feet bgs)	Metals (mg/kg)						PCBs[1] (ug/kg)
			Antimony	Arsenic	Copper	Lead	Tin	Zinc	(Aroclor 1254)
2001 MTCA Method A or B Soil Cleanup Level			32 (B)	20 (A) 0.667 (B)	2,960 (B)	250 (A) 1,000 (AI)	48,000 (B)	24,000 (B)	1,000 (A) Total PCBs 10,000 (AI) Total PCBs 1,600 (B) Aroclor 1254
MTCA Method A or B Protection of Groundwater			5.8 (B)	20 (A) 0.03 (B)	263 (B)	250 (A)	38.4 (B)	5,971 (B)	618 (A) / 271 (B) 1.3 (B) Aroclor 1254
WA Department of Ecology - Puget Sound Background Regional Concentration[2]			NE	7.3	36	24	NE	85	NE
ESB1155-1	11/21/2003	1.0	20 J	**480**	28.3	**4,010**	7 UJ	44	NA
ESB1155-2	11/21/2003	2.0	NA	NA	NA	NA	NA	NA	NA
ESB1155-3	11/21/2003	3.0	6 UJ	**1.5**	22.8	**267**	2 UJ	46.2	NA
ESB1155-4	3/24/2004	4.0	NA	NA	NA	21	NA	NA	NA
ESB1155-5	3/24/2004	5.0	NA	NA	NA	150	NA	NA	NA
ESB1156-1	11/20/2003	1.0	5 UJ	**1.7**	21.0	14	2 UJ	38.4	NA
ESB1156-2	11/20/2003	2.0	5 UJ	**0.9**	19.9	6	1 UJ	44.8	NA
ESB1157-1	11/20/2003	1.0	10 UJ	**1.5**	24.3	66	2 UJ	44	NA
ESB1157-2	11/20/2003	2.0	10 UJ	**1.0**	19.3	80	2 UJ	40	NA
ESB1158-1	3/24/2004	1.0	NA	NA	NA	3	NA	NA	NA
ESB1158-2	3/24/2004	2.0	NA	NA	NA	3	NA	NA	NA
ESB1158-3	3/24/2004	3.0	NA	NA	NA	NA	NA	NA	NA
ESS-1	11/21/2003	0.5	5 UJ	**0.7**	11.8	8	2 UJ	49.4	NA
ESS-2	11/21/2003	0.5	5 UJ	**0.9**	16.8	8	1 UJ	50.2	NA
ESS-3	11/21/2003	0.5	5 UJ	0.6	15.4	4	1 UJ	45.7	NA

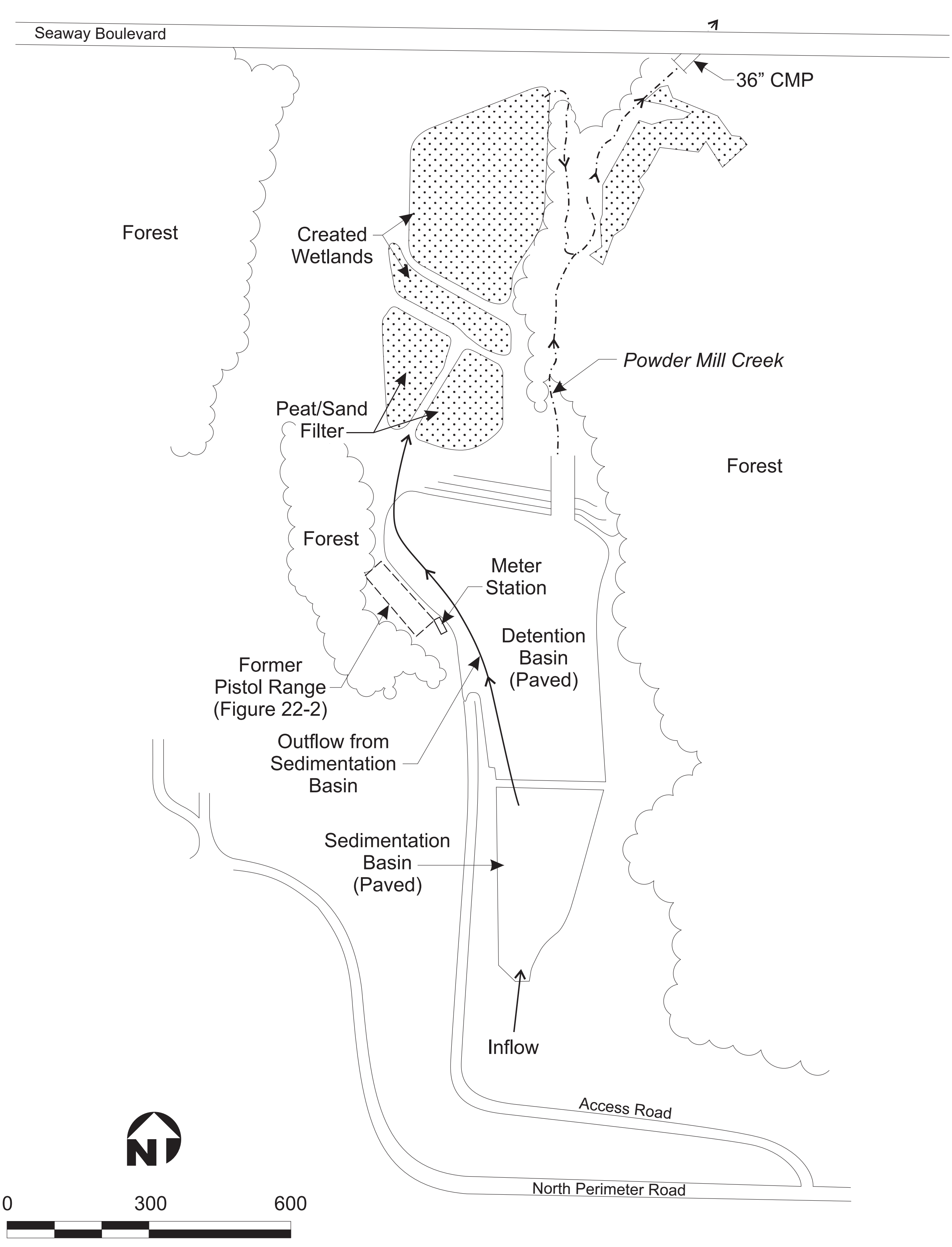
Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
bgs - below ground surface
(DUP) - Field duplicate
J - Estimated value
NA - Not analyzed
NE - Not established
PCBs - Polychlorinated Biphenyls
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
[1] Other Aroclor compounds were analyzed for but not detected.
[2] *Natural Background Soil Metals Concentrations in Washington State* , October 1994
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed the preliminary soil cleanup levels protective of groundwater, but do not exceed the soil cleanup level protective of direct contact.

Table 22-3
Summary of Interim Action Soil Analytical Results for Selected Metals
Former Pistol Range
Boeing Everett Plant Remedial Investigation

Sample Number	Sample Date	Sample Depth (feet bgs)	Antimony mg/kg	Arsenic mg/kg	Lead [1] mg/kg	Lead [2] mg/kg
ESB1507	5/22/2006	1.0	0.5 J	2.4	16	NA
ESB1508	5/22/2006	2.0	0.9 J	2.8	**280**	NA
ESB1509	5/22/2006	3.5	0.9 J	2.4	150	NA
ESB1510	5/22/2006	1.0	2.5 J	3.8	**690**	NA
ESB1511	5/22/2006	1.5	0.3 J	3.1	20	NA
ESB1512	5/22/2006	2.5	1.1 J	2.6	74	NA
ESB1513	5/22/2006	4.0	1.0 J	2.8	140	NA
ESB1514	5/26/2006	2.0	NA	NA	NA	3
ESB1515	5/26/2006	1.0	NA	NA	NA	**371**
ESB1516	5/26/2006	1.0	NA	NA	NA	7
2001 MTCA Method A or B Soil Cleanup Level			32 (B)	20 (A) 0.667 (B)	250 (A) 1,000 (AI)	250 (A) 1,000 (AI)
MTCA A or B Protectionof Groundwater			5.8 (B)	20 (A) 0.03 (B)	250 (A)	250 (A)
Washington State Department of Ecology - Puget Sound Background Regional Concentration [3]			NE	7.3	24	24

Source: Landau, 2006

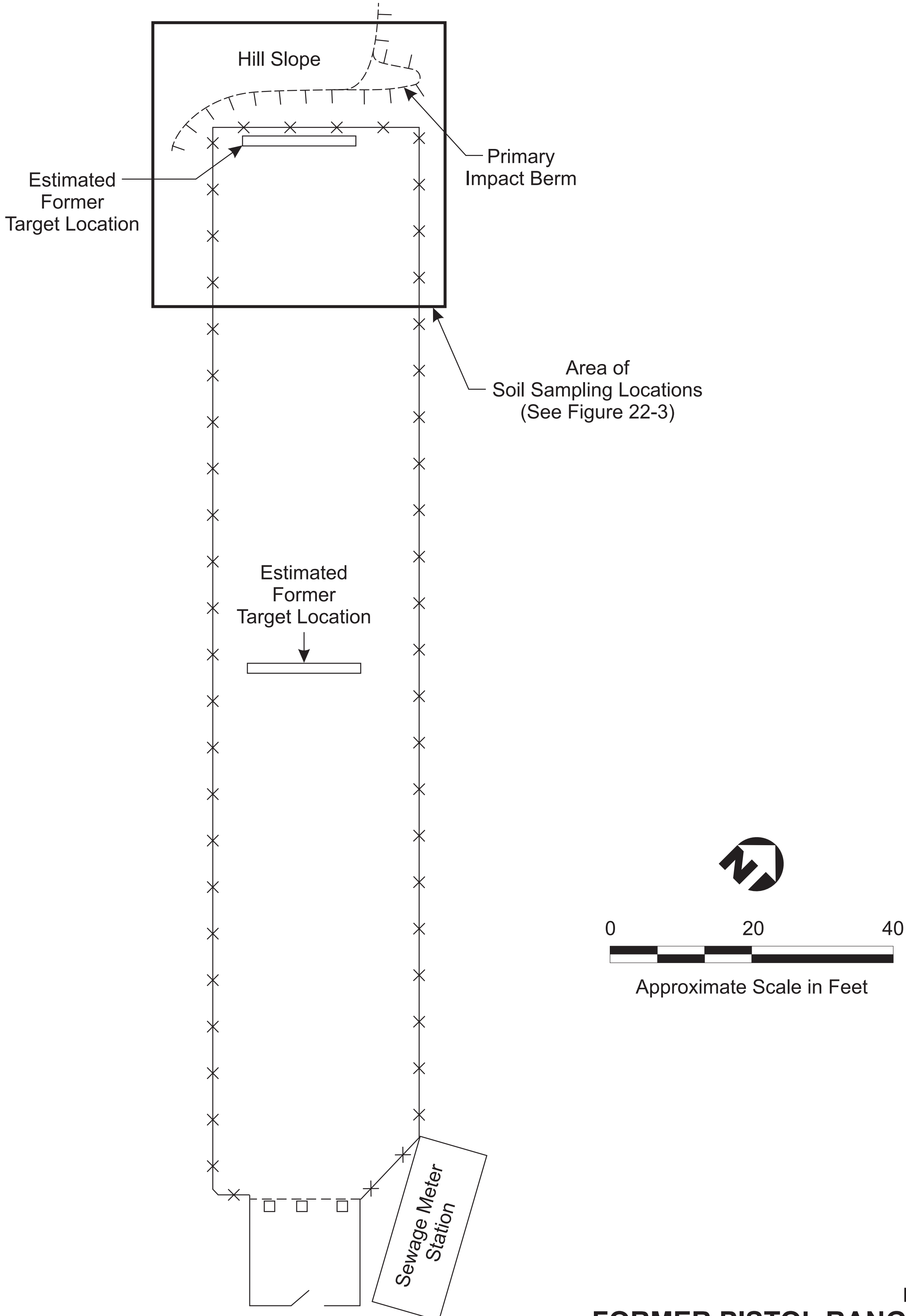
Notes:
MTCA - Model Toxics Control Act
(A) - MTCA Method A soil cleanup level for unrestricted land use
(AI) - MTCA Method A soil cleanup level for industrial property
(B) - MTCA Method B soil cleanup level
2001 - Indicates MTCA version 3.1 soil cleanup levels, published 2001.
bgs - below ground surface
(DUP) - Field duplicate
J - Estimated value
NA - Not analyzed
NE - Not established
[1] Method 7421
[2] Method 6010B
[3] *Natural Background Soil Metals Concentrations in Washington State*, October 1994
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.
Numbers in grey shading indicate results that exceed a MTCA protection of groundwater level, but do not exceed the current lowest MTCA soil cleanup level protective of direct contact.



Job No. 33761927

Figure 22-1
UPPER POWDER MILL GULCH PLAN

33761927_30.cdr



Job No. 33761927

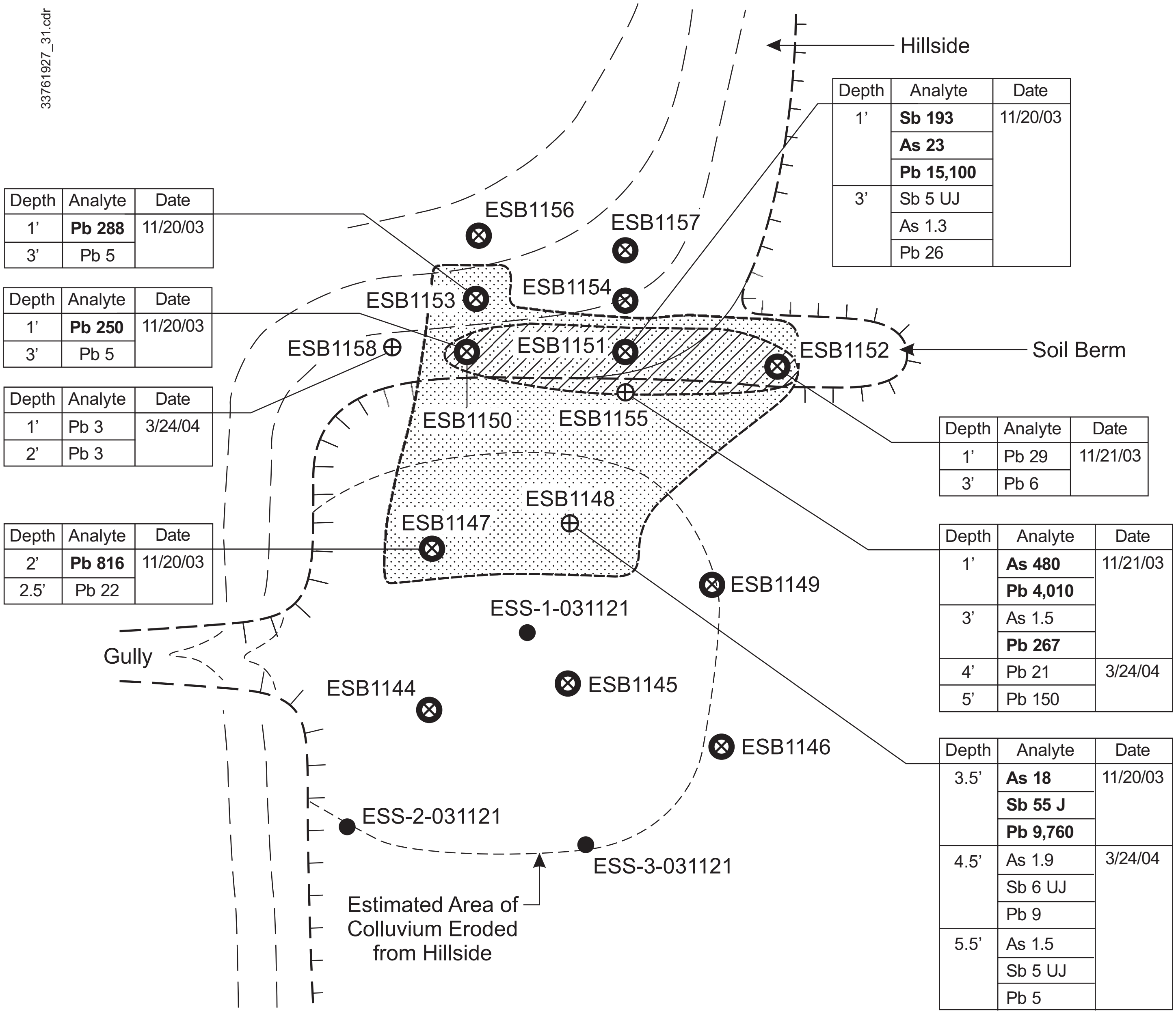
Figure 22-2

FORMER PISTOL RANGE PLAN

URS

Boeing Commercial Airplanes, Everett Plant
Remedial Investigation Report

33761927_31.cdr



Depth	Analyte	Date
1'	**Pb 288**	11/20/03
3'	Pb 5	

Depth	Analyte	Date
1'	**Pb 250**	11/20/03
3'	Pb 5	

Depth	Analyte	Date
1'	Pb 3	3/24/04
2'	Pb 3	

Depth	Analyte	Date
2'	**Pb 816**	11/20/03
2.5'	Pb 22	

Depth	Analyte	Date
1'	**Sb 193**	11/20/03
	As 23	
	Pb 15,100	
3'	Sb 5 UJ	
	As 1.3	
	Pb 26	

Depth	Analyte	Date
1'	Pb 29	11/21/03
3'	Pb 6	

Depth	Analyte	Date
1'	**As 480**	11/21/03
	Pb 4,010	
3'	As 1.5	
	Pb 267	
4'	Pb 21	3/24/04
5'	Pb 150	

Depth	Analyte	Date
3.5'	**As 18**	11/20/03
	Sb 55 J	
	Pb 9,760	
4.5'	As 1.9	3/24/04
	Sb 6 UJ	
	Pb 9	
5.5'	As 1.5	
	Sb 5 UJ	
	Pb 5	

LEGEND

- Hand auger boring (11/03)
- Supplemental or deepened hand auger boring (3/04)
- Colluvium sample
- Estimated area of bullet fragments
- Estimated area of metals impacted soils
- Schematic topography
- UJ Not detected at estimated reporting limit

Not to Scale

Depth	Analyte
Feet (bgs)	Sb = Antimony
	Pb = Lead
	As = Arsenic

Concentrations shown are mg/kg.

Exceedences of MTCA A/ MTCA B soil cleanup levels, and/or Puget Sound background for arsenic are bold.

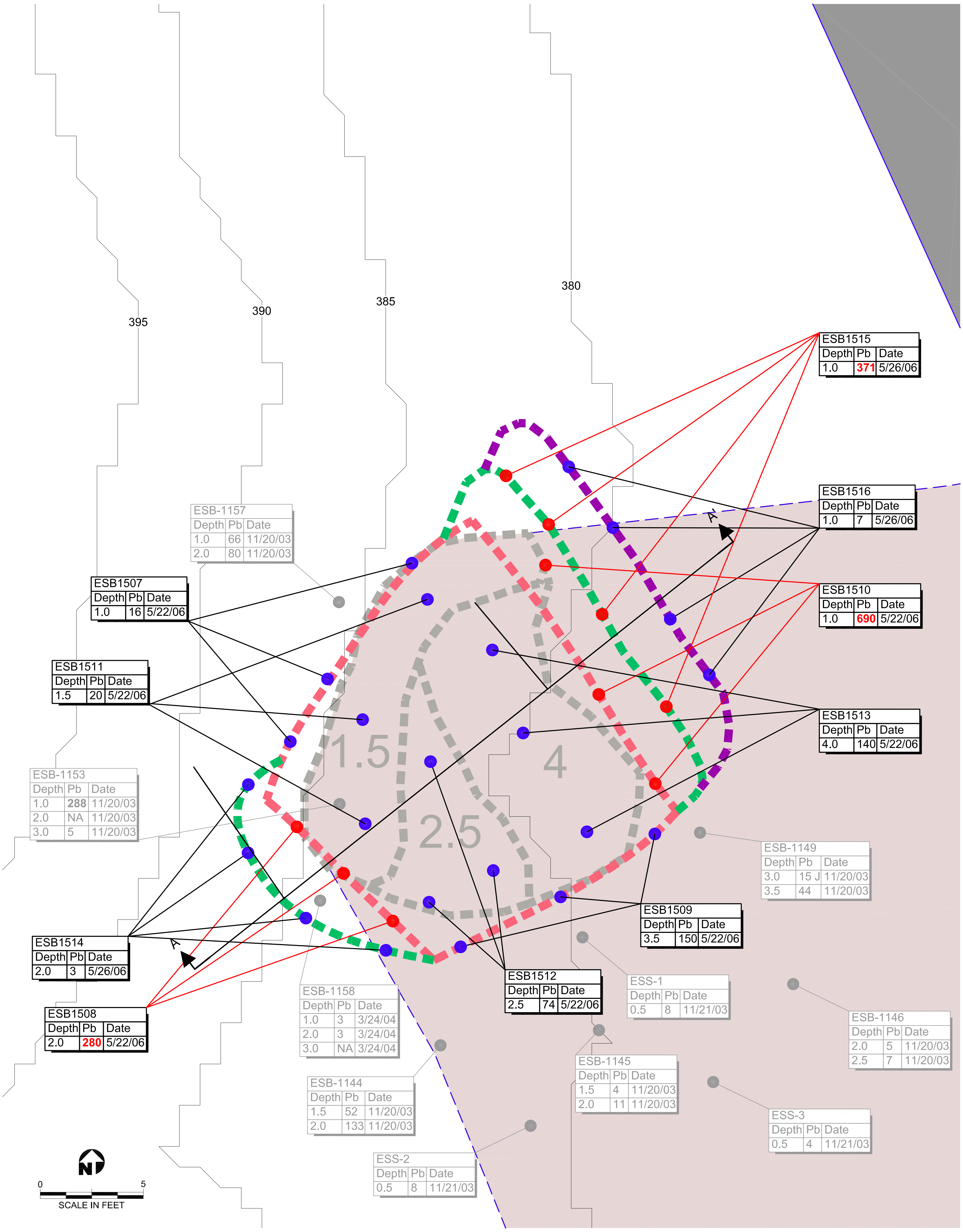
Figure 22-3

Former Pistol Range Plan
Sample Locations and Selected Analytical Results

Job No. 33761927

URS

Boeing Commercial Airplanes, Everett Plant
Remedial Investigation Report



Legend

- Estimated Extent of Contaminated Soil and Minimum Excavation Depth (ft) (1.5)
- Area for Grading and Staging Area
- Exceedance of Screening Level
- 1st Excavation Phase 5/22/06
- 2nd Excavation Phase 5/26/06
- 3rd Excavation Phase 5/26/06
- A A' Cross Section (See Figure 22-5 for Cross Section)
- 390 Topographic Contour

Notes:

1. Lead screening level = 250 mg/kg.
2. All values in red exceed the lead screening level.
3. J = Estimated value.
4. Greyed data = historical data.
5. All concentrations in mg/kg.

Job No. 33761927

Figure 22-4

Former Pistol Range Grading and Excavation Map

Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

URS LANDAU ASSOCIATES

Q:\geo\Boeing\Everett\RI\2010\Fig 22-4 (Pistol Range Grading).dwg
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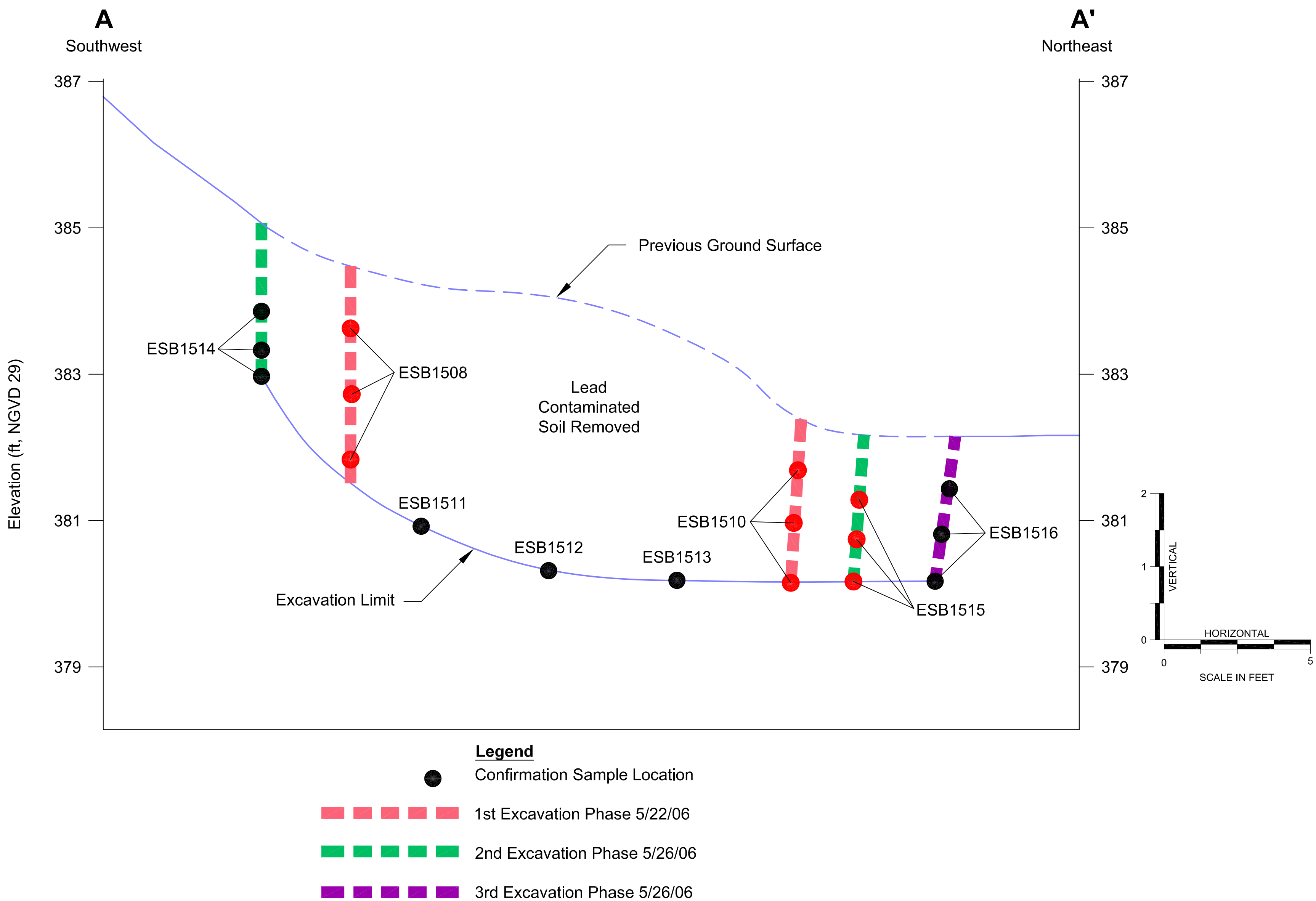

Job No. 33761927

Figure 22-5

Former Pistol Range Section A-A'

URS LANDAU ASSOCIATES

Q:\geo\Boeing\Everett\RI\2010\Fig 22-5 (Pistol Range Section A).dwg
Mod: 11/15/2010, 15:08 | Plotted: 11/16/2010, 14:24 | john_knobbs

Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

23.0 BUILDING 45-52 FUEL FARM USTS EV-26 THROUGH EV-29 (SWMU/AOC NO. 165)

The Fuel Farm is located on the northern portion of the South Complex (Figure 1-2), near Building 45-52. Four USTs were present at the Fuel Farm until these were removed as part of an upgrade of the fueling storage and piping system in 2007-2008. The USTs and associated piping were used to store and distribute Jet-A fuel to the nearby fueling positions (F-1, F-2 and F-3) as shown on Figure 23-1. The fueling positions are used for testing of fueling systems of newly constructed airplanes at the facility. The four USTs were 60,000 gallon single-walled steel tanks.

During the original UST installation in 1968, an excavation was made into the glacial till, concrete tie-down footings were poured, and the USTs were placed in the excavation and anchored to the tie-down footings. Sand and gravel backfill was used around the USTs. The Fuel Farm was upgraded during a two-phase program between February 2007 and November 2008 that resulted in the removal of the four USTs, which were replaced by above-ground storage tanks at the same area.

Several accidental spills of Jet-A fuel were known to have occurred in the area prior to the RI. Approximately 800 cubic yards of affected soil were removed, principally associated with construction projects, prior to initiation of the major upgrade in February 2007. Historical investigations indicated that backfill around the USTs and perched groundwater within the permeable UST basin backfill contained diesel and/or Jet-A range TPH at concentrations above MTCA Method A cleanup levels. Native glacial till soils surrounding the backfill did not contain significant TPH concentrations or groundwater (Golder Associates, 1995). An extraction well (EGW045) and a granular activated charcoal treatment system were installed and operated between 1995 and November 2008. Groundwater samples were collected from the recovery well (EGW045) and one monitoring well (EGW001) and analyzed on a quarterly or semiannual basis between 1995 and 2008 when the wells were removed as part of the system upgrade.

The USTs removed between February 2007 and November 2008 were identified as follows:

Ecology UST ID	Boeing UST ID	UST Size and Type
Tank 1 or north tank	EV-26	60,000 gallons, Jet Fuel-A
Tank 2 or middle-north tank	EV-27	60,000 gallons, Jet Fuel-A
Tank 3 or middle-south tank	EV-28	60,000 gallons, Jet Fuel-A
Tank 4 or south tank	EV-29	60,000 gallons, Jet Fuel-A

During the first phase of the Fuel Farm upgrade, UST EV-29 was removed in February 2007 in advance of the other three to allow continuous operation of the fueling system while the new above-ground storage tanks were constructed. A UST Site Assessment Report (URS 2007b) was submitted to the Department of Ecology NWRO Toxics Clean-up Program documenting removal of EV-29. The 2007 report also documented the abandonment in-place or removal of over 1,900 feet of underground piping running between the Fuel Farm and airplane fueling positions F-1, F-2, and F-3 where new underground piping was installed (Figure 23-1).

During the second phase of the Fuel Farm upgrade, USTs EV-26 through EV-28 and associated underground utilities were removed in November 2008 and post-removal soil samples were collected and analyzed (Figure 23-2). The UST basin was backfilled with controlled-density fill (CDF) and clean imported sandy fill (Figure 23-3). Concurrent with decommissioning of the three USTs, additional Fuel Farm infrastructure was decommissioned, including:

- Approximately 270 feet of underground fuel piping trench aligned between the Fuel Farm and fueling position F-3
- The former fuel filtration system
- The former truck fill stand.

Both the recovery well (EGW045) and the monitoring well (EGW001) were also decommissioned during removal of USTs EV-26 through EV-28. The November 2008 decommissioning work was documented in a second UST Site Assessment Report (URS 2009), which was submitted to the Department of Ecology NWRO Toxics Clean-up Program.

23.1 PURPOSE AND SCOPE

The purpose of the UST site assessments conducted in February 2007 and November 2008 was to assess whether petroleum hydrocarbon constituents were present in the soils around the removed USTs and around the fuel piping and support structures at concentrations greater than applicable MTCA soil cleanup levels.

During removal of the USTs and removal or abandonment of associated fuel piping and support infrastructure, the following scope of work was performed:

- Ten site visits between February 26, 2007 and April 5, 2007 to observe removal activities and collect soil samples
- Three site visits between February 11, 2008 and February 18, 2008 to observe utility trenching and collect soil samples north and east of the USTs
- Seventeen site visits between November 5, 2008 and November 25, 2008 to observe removal activities and collect soil samples
- Submitted soil samples for laboratory analysis
- Validated, tabulated, and interpreted laboratory results of soil samples
- Completed UST Site Assessment Checklist and reported the results to the Ecology UST program

23.2 DOCUMENTATION OF FIELD ACTIVITIES AND SAMPLING

This section describes the UST site assessment activities performed during UST removal and fuel piping and fueling infrastructure removal or abandonment in place. The field exploration, sampling, and laboratory analyses were performed in general conformance to the work plan (URS, 2007a), with the applicable sections of the Sampling and Analysis Plan (SAP) presented in Appendix A of the Remedial Investigation

Work Plan (RIWP) (Dames & Moore, 1997), and with the latest revision of the Ecology-approved Quality Assurance Project Plan (QAPP) (URS, 2005, 2008), unless otherwise specified.

23.2.1 2007 UST Assessment Activities

URS personnel were on site to observe decommissioning activities for UST EV-29 beginning on February 27, 2007. On this date, UST EV-29 and the adjacent UST EV-28 were both vented and inerted and initial excavation around EV-29 was performed. UST EV-28 was inerted for safety then returned to service until November 2008. Soil samples were collected from the UST excavation and along the removed and abandoned piping periodically from February 28 through April 5, 2007. Sample locations are shown on Figure 23-1.

Excavation on February 28, 2007 exposed the east end of the tank and the eastern excavation wall. All the fill material could not be removed from the east wall because of the proximity to the roadway, which could be undermined by further excavation to the east. Soils exposed on the east wall were sampled at depths of 11 and 18 feet below ground surface (bgs). The sample from 11 feet bgs was collected from remaining gravel fill material, while the sample from 18 feet bgs was collected from native glacial till soils (glacial till). Subsequent to this initial excavation effort, the contractor installed a controlled density fill (CDF) wall along the east sidewall and shoring to the north of EV-29 (Figure 23-3) to protect the road integrity and remaining USTs while EV-29 was removed.

Excavation around EV-29 continued on March 19, 2007. The UST was removed from the excavation, and four excavation wall samples were collected from glacial till exposed in the south wall at depths of 8 and 12 feet bgs. Accumulated rain water was pumped from the excavation on March 20, 2007, and excavation of some of the remaining fill material was performed near the eastern side of the excavation. Additional water did not return via seepage from the excavation walls. Concrete hold-down footings were present in the floor of the excavation and were not removed. An excavation floor sample was collected from beside the easternmost footing in glacial till, at a depth of approximately 1.5 feet below the top of the footing (18 feet bgs).

Following additional shoring and stabilization of the excavation, the remaining fill was removed on March 23, 2007. Two excavation floor samples were collected adjacent to the remaining concrete footings, in glacial till, at 18 feet bgs. Two excavation wall samples were collected from the west wall of the excavation, in glacial till, at depths of 8 and 12 feet bgs. The excavation north wall consisted of a concrete wall (Figure 23-3) so the remaining fill soil adjacent to UST EV-28 was not exposed and a north wall sample could not be collected. Following UST removal the excavation was backfilled with CDF and clean fill. Figure 23-3 shows a schematic cross-section of the UST excavation after placement of the backfill.

Most soil samples collected for UST assessment were screened in the field by sampling the headspace above a soil sub-sample in a sealed jar. Headspace analysis was performed using a hand-held photoionization detector (PID).

Soil sub-samples for analysis of volatile organic compounds (VOCs) were collected using EPA SW 846 Method 5035A. All soil samples were submitted to ARI, for analysis in accordance with Ecology methods NWTPH-Gx for gasoline-range and NWTPH-Dx for diesel-range petroleum hydrocarbons, and EPA method 8021B for benzene, toluene, ethylbenzene and total xylenes (e.g., BTEX).

23.2.2 2007 Fuel Piping Assessment Activities

URS personnel observed fuel piping removal, abandonment in place, and replacement activities on February 26, 2007; March 5, 7, and 30, 2007; and April 5, 2007. Approximately 1,900 feet of underground fuel piping running between the UST area and airplane fueling positions F-1, F-2, and F-3 was decommissioned and replaced with a new system in a different alignment. Some of the existing piping was removed, with the majority rinsed and abandoned in place. Where piping sections were removed, or were made accessible by construction activities, soil samples were collected at approximately 50-foot intervals along the piping alignment and submitted for chemical analysis.

A total of 16 soil samples were collected along the fuel piping alignment located within fueling positions F-2 and F-3 and along the piping connecting the Fuel Farm to fueling position F-3 (Figure 23-1). Soil samples were not collected beneath piping located within fueling position F-1 because soils were not exposed at or beneath the base of piping as part of the construction project. All soil samples were generally collected at or near the contact between piping backfill and glacial till, with most samples consisting of a mix of these materials.

Most soil samples collected for piping assessment were screened in the field by sampling the headspace above a soil sub-sample in a sealed jar. Headspace analysis was performed using a hand-held PID.

Soil sub-samples for analysis of VOCs were collected using SW 846 Method 5035A. All soil samples were submitted to ARI for analysis for gasoline-range and diesel-range petroleum hydrocarbons by the methods specified in Section 23.2.1.

23.2.3 2008 UST Assessment Activities

URS personnel were on site to observe decommissioning activities for USTs EV-26, EV-27, and EV-28 beginning on November 5, 2008. All three USTs were removed between November 5, 2008 and November 7, 2008. To allow removal of EV-26, the construction contractor abandoned wells EGW001 and EGW045 on November 7, 2008 under the supervision of a Washington-licensed well driller provided by Cascade Drilling of Woodinville, Washington. The abandonment of these wells was approved by Ecology in a letter to Boeing dated November 3, 2008.

Soil samples were collected from the UST excavation in accordance with the Ecology-approved work plan (URS 2007a), and at a frequency meeting Ecology's requirements for sampling of UST excavations. Sample locations are shown on Figure 23-2. Concrete hold-down footings were present in the floor of the excavation and were not removed. Nine excavation floor samples were collected next to the concrete footings in glacial till, at a depths ranging from 19 to 22 feet (Locations 33, 34, 37, 38, 43, 44, 47, 50, and 53). Eighteen excavation wall samples were collected (Locations 29, 30, 31, 32, 35, 36, 39, 40, 41, 42, 45, 46, 48, 49, 51, 52, 54, and 55). Wall samples were collected at 17 feet below ground surface (bgs) (approximately 0.5 foot below the bottom of each tank) or at 10 feet bgs (at the approximate middle elevation of the tank).

Soil samples collected for UST assessment were screened in the field by sampling the headspace of a sub-sample in a ziplock bag. Headspace analysis was performed using a calibrated hand-held photoionization detector (PID).

Soil sub-samples for analysis of volatile organic compounds (VOCs) were collected using EPA Method 5035A. All UST assessment soil samples were submitted for analysis to Libby Environmental Laboratory (Libby) in Olympia, Washington or Libby's on-site mobile laboratory (both laboratories are Ecology-accredited), in accordance with Ecology methods NWTPH-Gx for gasoline-range and NWTPH-Dx extended for diesel and motor oil range petroleum hydrocarbons, and EPA method 8021B for benzene, toluene, ethylbenzene and total xylenes (e.g., BTEX).

Following receipt of validated results, the excavation was backfilled from bottom to top with CDF (Figure 23-3).

23.2.4 2008 Fuel Piping Assessment Activities

URS personnel were on site to observe fuel piping removal and abandonment activities beginning November 13, 2008. These activities occurred at the same general time as excavation of the support areas (Section 23.2.5).

Decommissioning included:

- Approximately 270 feet of underground fuel piping trench aligned between the Fuel Farm and fueling position F-3
- The former fuel filtration system
- The former truck fill stand

The majority of the existing piping was removed, with a small section abandoned in place because of the presence of active utilities (Figure 23-2). Where piping sections were removed, soil samples were collected at approximately 30 to 50-foot intervals along the piping alignment, which meets Ecology's requirements for the frequency of piping alignment samples.

A total of 14 soil samples were collected at locations in close proximity to the piping system (Figure 23-2). Seven of the sample locations were collected from glacial till under the fuel pipelines (Locations 60, 61, 62, 68, 70, 73, and 78) and an additional sample was collected from a sidewall of a piping trench (Location 74). Six of the sample locations are from import material surrounding active utilities where excavation could not be performed (Locations 65, 72, 75, 76, 77, and 80).

Soil samples collected for piping assessment were screened in the field by sampling the headspace of a sub-sample in a ziplock bag. Headspace analysis was performed using a calibrated hand-held PID.

Soil sub-samples for analysis of VOCs were collected using EPA Method 5035A. Most piping assessment soil samples were submitted for analysis to Libby, in accordance with Ecology methods NWTPH-Gx and NWTPH-Dx extended, and EPA method 8021B for BTEX. Selected soil samples were submitted for analysis to ARI for the above mentioned analyses and for methods NW-VPH for volatile petroleum hydrocarbons (VPH) analysis and NW-EPH for extractable petroleum hydrocarbon (EPH) analysis.

Following receipt of validated results the excavation was backfilled from bottom to top with CDF.

23.2.5 2008 Fueling Support Infrastructure Assessment Activities

URS personnel were on site to observe support area excavation activities beginning November 13, 2008. These activities occurred at the same general time as the fuel pipe decommissioning.

During excavation of the fuel pipelines, petroleum contamination resulting from historical filtering and truck fill stand activities was observed and excavated. Soil samples were collected at various intervals depending on proximity to adjacent fuel pipeline sample locations, subsurface utilities discovered while excavating, and general sample coverage within the area.

A total of 25 excavation floor and sidewall samples were collected (Figure 23-2) to document post-excavation conditions associated with these areas (Locations 56, 57, 58, 59, 63, 64, 66, 67, 69, 71, 79, and 81 through 94). All samples were collected from glacial till material except at three locations where import material surrounding utilities in sidewalls was observed (Locations 57, 84, and 93).

Four additional samples were collected in February 2008 during the installation of new utilities in support of the Fuel Farm upgrade. Three of the samples were collected east of the project area (Locations 95, 96, and 98) and one was collected in close proximity to the truck fill stand (Location 97) (Figure 23-2).

All soil samples collected for the assessment (except those collected in February 2008) were screened in the field by sampling the headspace of a soil sub-sample in a ziplock bag. Headspace analysis was performed using a calibrated hand-held photoionization detector (PID). Soil sub-samples were collected and analyzed consistent with the methods described in Section 23.2.4. Following receipt of validated results, the excavation was backfilled from bottom to top with CDF.

23.3 FIELD OBSERVATIONS AND SAMPLE ANALYSIS RESULTS

23.3.1 Field Observations

Soil types observed during the UST site assessment activities included gravel backfill material around the USTs and piping and as base course beneath pavement, and fill soil and native glacial till soil consisting of very dense silty sand in the sidewalls. The fill overlies the glacial till, varies in thickness up to 4 feet, and consists of reworked glacial till. During the original UST installation, an excavation was made into the glacial till, concrete tie-down footings were poured, and the USTs were placed in the excavation and anchored to the tie-down footings. Gravel backfill was used around the USTs.

As a result of the construction methodology, the UST basin acted as a "bathtub" between 1968 and 2008, accumulating rainwater that is likely to have infiltrated only slowly into the surrounding glacial till. A 24-inch diameter well and drain system was installed in 1989 to recover fuel using a skimmer. This well (EGW045) was later retrofitted in 1995 to control this accumulation of water in the UST backfill soils. The objective of the system was to maintain the perched water level at 9 feet bgs and hydraulically contain TPH-impacted groundwater. The recovery and treatment system consisted of a pneumatic groundwater pump and carbon adsorption units. The pump assembly was located completely within recovery well EGW045 and automatically sensed when the water level rose in the extraction well and pumped it through buried piping to the carbon adsorption units housed in a shed located to the northeast of the fuel farm. The water pumped from the well passed through a particulate filter and two carbon absorption units, before discharge to a buried sanitary sewer line. A chlorine injection unit was used to control biological fouling in the system. Prior to initiating excavation for UST decommissioning, the UST area was dewatered by pumping from recovery well EGW045. The water recovery and treatment system was then decommissioned during the UST removals.

A minimal amount of water was pumped from the excavation during soil removal. A heavy sheen and degraded product was evident in some of the water, notably when UST EV-26 was removed. Water without a sheen or product was pumped from the excavation and discharged at the on-site wastewater treatment plant. Water exhibiting a sheen or product was pumped to a storage tank and transferred to a tanker truck by Philip Environmental Services for processing and disposal at their Kent, Washington facility.

Soil types observed during the fuel piping and support area excavations also included shallow reworked glacial till over undisturbed glacial till with limited areas of new Type 17 fill (a bank-run gravel fill used widely in the region) placed by the construction contractor during recent backfilling around new utilities. The abandoned fuel pipeline trenches had been backfilled with similar sand and gravel backfill as observed in the UST basin. Several other utility trenches, including water lines and drain lines, were excavated during decommissioning activities. These previously unmapped utility corridors were located east of the filter area and had been backfilled with import material consisting of permeable sand, gravel, or sand and gravel mixtures. Field indications of petroleum hydrocarbons were observed in these utility corridors, except near the new (2007) electrical duct bank corridor located north of the former dispenser and truck fill stand (Figure 23-2). Free product was observed in the fuel pipeline trench leading to fueling position F-3 west and southwest of the electrical substation. Much of this free product was removed during excavation. Some soil with evidence of free product could not be removed, however, because it was located beneath active electrical utility ducts. This soil that was not removed is bounded to the north, south, and at the surface by CDF or concrete. Glacial till underlies the pipeline trench.

The contractor at the site reported that a recently completed utility system upgrade including electrical, communications, water, stormwater, and fuel line required significant excavation of soils in the areas immediately west, north, northwest and east of the excavation limits. Soil from this previous excavation was disposed of off site at a permitted facility. This information from the contractor was supported by the observation of new fill Type 17 pit-run backfill at the excavation limits in these areas.

23.3.2 Soil Sample Analytical Results

A copy of nearly all of the data validation reports, laboratory analytical reports, and chain-of-custody documents generated during the UST assessment work in 2007 and 2008 are provided in the UST assessment reports (URS, 2007a and 2009). Laboratory analytical reports and chain-of-custody documents not provided in those documents are provided in Appendix X1 and associated data validation reports are in Appendix X2 of this RI report. The soil sample analytical results are summarized in Tables 23-1 through 23-3. Sample locations are shown on Figures 23-1 and 23-2.

The laboratory reporting limit for benzene in all soil samples exceeded the most conservative preliminary soil cleanup level for protection of groundwater, but was less than the MTCA Method A soil cleanup level (30 µg/kg) protective of both direct contact and groundwater for all samples (except one) that did not have another constituent detected above a MTCA Method A soil cleanup level. The benzene reporting limit ranged from 14 µg/kg to 750 µg/kg for these samples.

23.3.3 UST Excavation Analytical Results

The analytical results of soil samples collected from glacial till from the floor, south wall, west wall, north wall, and northern portion of the east wall of the UST excavation (Locations 16 through 24 and 29 through 55) indicate that gasoline, diesel and oil range TPH, and BTEX were not detected, or were detected at concentrations below MTCA Method A soil cleanup levels.

A portion of the east wall adjacent to EV-29 could not be excavated further to the east without undermining the adjacent access road which was required to remain open and accessible for the ongoing construction. Two soil samples collected from this portion of the east wall (Locations 14 and 15) exhibited visual evidence of petroleum hydrocarbon staining and the analytical results for these samples are described below.

The soil sample collected from gravel fill at 11 feet bgs (Sample 14 on Figure 23-2) contained gasoline-range TPH (TPH-G) at 6,600 mg/kg, diesel-range TPH at 2,800 mg/kg, and ethylbenzene at 9,500 µg/kg. These concentrations exceed the MTCA Method A soil cleanup levels for these petroleum constituents of 30 mg/kg, 2,000 mg/kg, and 6,000 µg/kg, respectively. This sample also contained detectable motor oil-range TPH, toluene, and total xylenes at concentrations less than the MTCA Method A soil cleanup levels. Benzene was not detected in this sample at a reporting limit of 14 µg/kg.

The soil sample collected from glacial till at 18 feet bgs (Sample 15 on Figure 23-2) contained TPH-G at 66 mg/kg, which exceeds the MTCA Method A soil cleanup level of 30 mg/kg. This sample also contained detectable TPH-D, motor oil-range TPH, benzene, toluene, and ethylbenzene at concentrations less than the MTCA Method A soil cleanup levels. Total xylenes were not detected in this sample above the reporting limit of 35 µg/kg.

23.3.4 Fuel Piping Analytical Results

Soil samples 26, 27, and 28 (Figure 23-2), collected from beneath the piping connecting the Fuel Farm to fueling position F-3, contained petroleum constituents below MTCA Method A soil cleanup levels or laboratory reporting limits.

All but one sample (number 9) of the six soil samples collected from piping at fueling position F-3 (samples 9 through 13 and 25 on Figure 23-2) contained TPH-G concentrations exceeding the MTCA Method A soil cleanup level of 30 mg/kg. TPH-G concentrations in these five samples ranged from 2,300 mg/kg to 14,000 mg/kg. Three of these samples (samples 12, 13, and 25) also contained TPH-D concentrations exceeding the MTCA Method A soil cleanup level of 2,000 mg/kg (with results ranging from 2,000 mg/kg to 5,500 mg/kg). One sample (25) contained ethylbenzene at a concentration (7,200 mg/kg) that exceeds the MTCA Method A soil cleanup level of 6,000 mg/kg. One sample (12) contained total xylenes at a concentration (9,500 mg/kg) that exceeds the MTCA Method A soil cleanup level of 9,000 mg/kg.

Of the seven soil samples (and one field duplicate – sample number 3) collected from soil near piping at fueling position F-2 (samples 1 through 8 on Figure 23-2), four samples (5 through 8) contained TPH-G concentrations that exceed the MTCA Method A soil cleanup level of 30 mg/kg. TPH-G concentrations in these four soil samples ranged from 43 mg/kg to 3,000 mg/kg. Concentrations of all other petroleum constituents in these four samples were below the MTCA Method A soil cleanup levels or laboratory reporting limits.

The analytical results of soil samples collected in 2008 from glacial till beneath the abandoned piping (Locations 60, 61, 62, 68, 70, 73, and 78) (Figure 23-2) or from the piping trench sidewall (Location 74) indicate that gasoline, diesel and oil range TPH, and BTEX were not detected, or were detected at concentrations below MTCA Method A soil cleanup levels.

The analytical results of a soil sample collected from import fill material near active utilities north of the former truck fill stand (Location 65 on Figure 23-2) indicate that gasoline, diesel and oil range TPH, and BTEX were not detected, or were detected at concentrations below MTCA Method A soil cleanup levels.

The analytical results of soil samples collected from import fill near the active electrical duct banks immediately west of the substation (Locations 72, 75, 76, 77, and 80 on Figure 23-2), indicate that all of the soil samples from soil remaining in this area contain gasoline-range TPH concentrations above the MTCA Method A soil cleanup level of 30 mg/kg. Concentrations of gasoline-range TPH in these five samples ranged from 1,400 mg/kg to 14,000 mg/kg. Four of these samples (Locations 72, 75, 76, and 77) also contained diesel-range TPH concentrations above the MTCA Method A soil cleanup level of 2,000 mg/kg with results ranging from 3,300 mg/kg to 50,700 mg/kg. One sample (Location 72) contained benzene at a concentration of 790 µg/kg that exceeds the MTCA Method A soil cleanup level of 30 µg/kg. Benzene was reported as non-detect at four locations (Locations 75, 76, 77, and 80), where the reporting limit was above the MTCA Method A soil cleanup level. Three samples (Locations 72, 75, and 77) contained ethylbenzene at concentrations that exceeds the MTCA Method A soil cleanup level of 6,000 µg /kg. Ethylbenzene concentrations in these three samples ranged from 6,800 to 24,000 µg/kg. One sample (Location 77) contained total xylenes at a concentration (12,000 µg/kg) that exceeds the MTCA Method A soil cleanup level of 9,000 µg/kg.

Select soil samples (Locations 76, 77, and 80) were analyzed for NW-VPH and NW-EPH. The purpose of these analyses is to support the Feasibility Study. The analytical data, presented in Table 23-3, indicate that concentrations of both VPH and EPH constituents are present at each of the sample locations. VPH constituent concentrations ranged from not detected to 3,900 mg/kg. EPH constituent concentrations ranged from not detected to 6,300 mg/kg. VPH and EPH values are not directly comparable to MTCA criteria. Instead, these values are used to calculate cleanup levels under certain MTCA methods.

23.3.5 Support Area Analytical Results

The analytical results of soil samples collected from glacial till in the excavation floor and sidewalls in the support areas (Locations 56, 58, 59, 63, 64, 66, 67, 69, 71, 79, 81 through 83, 85 through 92, and 94) indicate that gasoline, diesel and oil range TPH, and BTEX were not detected, or were detected at concentrations below MTCA Method A soil cleanup levels.

The analytical results of soil samples collected from glacial till during February 2008 utility installation areas (Locations 95 through 98) indicate that gasoline, diesel and oil range TPH, and BTEX were not detected, or were detected at concentrations below MTCA Method A soil cleanup levels. However, because gasoline was detected in sample 96 at a concentration (97 mg/kg) just below the MTCA Method A soil cleanup level of 100 mg/kg (no benzene reported), Boeing elected to overexcavate the area and collect a confirmation sample (Location 98).

The analytical results of soil samples collected from import fill next to existing utilities (Locations 57, 84, and 93) (Figure 23-2), indicate that chemicals of concern were detected above their respective MTCA Method A soil cleanup levels at Locations 57 and 93. At Location 93, TPH-G was detected at a concentration of 600 mg/kg above the MTCA Method A soil cleanup level of 30 mg/kg. At location 57, TPH-D was detected at a concentration of 8,920 mg/kg, above the MTCA Method A soil cleanup level of 2,000 mg/kg. Benzene was also detected at locations 57 and 93 at concentrations of 56 µg/kg and 150 µg/kg respectively, above the MTCA Method A soil cleanup level of 30 µg/kg. Further excavation was not performed along the utility corridors in these areas because the utility corridors extended beyond the work area for the Fuel Farm upgrade. Evaluation of petroleum constituents remaining in soil along utility corridors in the support area are recommended for the FS.

23.3.6 Groundwater Sample Analytical Results

Groundwater samples collected from the recovery well (EGW045) and one monitoring well (EGW001) between 1995 and 2008 were analyzed for total petroleum hydrocarbons and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Groundwater sample analytical results are summarized on Tables 23-4 and 23-5.

The groundwater samples from the final sampling event (July 2008) prior to decommissioning of the wells exhibited total petroleum hydrocarbons in the Jet-A and diesel range at concentrations ranging from 0.84 mg/L to 4.3 mg/L, exceeding the groundwater screening level of 0.5 mg/L. BTEX compounds were not detected in the July 2008 sample from monitoring well EGW001, and ethylbenzene was not detected in the July 2008 sample from EGW045. Benzene, toluene, and total xylenes were detected in the July 2008 sample from EGW045 at concentrations ranging from 0.0047 to 0.0074 mg/L, below the groundwater screening level.

Groundwater was removed from the UST basin during decommissioning of the USTs, and did not re-enter the excavation. Following UST decommissioning the UST basin was completely backfilled with CDF, which effectively precludes the accumulation of perched groundwater previously present with the permeable UST basin backfill. Therefore groundwater for the former Fuel Farm USTs SWMU/AOC has been cleaned up as part of the IA and will not be evaluated in the FS.

23.4 CONCLUSIONS AND RECOMMENDATIONS

Petroleum constituents were not detected in post-excavation soil samples at concentrations above MTCA Method A soil cleanup levels in the floor or walls of the excavation for the former Fuel Farm USTs (EV-26, EV-27, EV-28, and EV-29) except for the east wall of the excavation in the vicinity of former UST EV-29. The detection limit for benzene in the samples exceeded the most conservative preliminary soil cleanup level for protection of groundwater, but was less than the MTCA Method A soil cleanup level (30 µg/kg) protective of both direct contact and groundwater except in samples with elevated benzene reporting limits. All but one (EV29-WEST) of the samples with elevated benzene reporting limits greater than 30 µg/kg had one or more other petroleum constituents detected at concentrations above the applicable MTCA Method A soil cleanup levels.

Multiple petroleum constituents are present in soil at concentrations above MTCA Method A soil cleanup levels along the east wall of the UST excavation in the area of removed UST EV-29. Additional soil removal in this area was not performed because of the proximity to the roadway, which would be undermined by further excavation to the east

Multiple petroleum constituents were detected in soil samples at concentrations above MTCA Method A soil cleanup levels at the following locations in the support and fueling positions area:

- Iin the vicinity of the electrical duct bank west and southwest of the substation
- Iin imported backfill of two abandoned utilities, and adjacent to portions of the former fuel piping at fueling stations F-2 and F-3.

Additional soil removal in this area was not performed during the IA because of the presence of active utilities and/or it would have significantly disrupted Boeing operations.

Groundwater was not present within the UST excavation during the 2008 removal activities. Regional groundwater occurs in the Esperance Sand aquifer at approximately 200 feet bgs (see Section 1.0). Rainwater historically collected within the permeable backfill of the UST basin and was controlled by the groundwater extraction and treatment system and the presence of very dense (low permeability) glacial till surrounding the UST basin. The lack of groundwater in the glacial till surrounding the UST basin is demonstrated by the lack of groundwater seeping into the excavation from the glacial till after pumping of rainwater from the excavation. Following decommissioning activities the excavation was filled from bottom to top with low permeability CDF.

Low-permeability CDF was placed within the former USTs excavation footprint and low permeability glacial till surrounds the former excavation. This area is also capped by concrete, CDF or asphalt. This significantly limits the potential opportunity for rain water to collect in the shallow subsurface in this area except within remaining utility trench backfill. For this reason, and because no groundwater was observed in the glacial till or utility trenches during excavation, there was no need to replace monitoring well EGW001 or recovery well EGW045. The original purpose of these wells was to monitor and control levels of perched groundwater within the permeable UST basin backfill.

Based on the results of the RI and IA, residual petroleum contamination in soil near SWMU/AOC 165 is recommended for evaluation in the FS for four locations: (1) in the east wall of the former UST EV29 excavation, (2) beneath the electrical duct bank and substation, and (3) in the backfill of abandoned utilities in the area of the fuel farm, and (4) adjacent to former fuel piping at fueling stations F-2 and F-3. The direct soil contact and potential soil to groundwater pathways are recommended for evaluation in the FS. In addition, the potential vapor intrusion pathway into nearby buildings 45-56 and 45-242 (Building 45-52 was removed during the 2008 Fuel Farm upgrade) should be included in the FS evaluation because the petroleum constituents detected at the site are sufficiently volatile to be a potential VI source.

23.5 REFRENCES

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Table 23-1
Summary of 2007 Soil Analytical Results
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Sample Area	Sample ID	Sample Location[3]	Sample Date	Sample Depth (feet bgs)	PID (ppm)	TPH (mg/kg)			VOCs (ug/kg)			
						Gasoline-Range	Diesel-Range	Motor Oil-Range	Benzene	Toluene	Ethylbenzene	Total Xylenes
F-2	F2-1	1	2/26/07	4	220	9.2 **	9.9*	11 U	15 U	15 U	15 U	30 U
	F2-2	2	2/26/07	4	--	11**	6.4 U	13 U	13 U	13 U	13 U	26 U
		3	2/26/07 (DUP)	4	--	19**	7.2 U	14 U	23 U	23 U	23 U	47 U
	F2-3	4	2/26/07	4	--	13**	10*	14*	13 U	13 U	13 U	26 U
	F2-1	5	3/5/07	4	75.9	**900****	560**	110 U	150 U	150 U	150	190
	F2-2	6	3/5/07	4	136	**1,600****	350**	110 U	300 U	300 U	370	600 U
	F2-1	7	3/7/07	4	--	43**	15**	11 U	13 U	13	54	70
	F2-2	8	3/7/07	4	--	**3,000****	770**	100 U	680 U	680 U	1,000	790
F-3	F3-1	9	2/26/07	4	--	22**	20*	16*	12 U	12 U	12 U	24 U
	F3-2	10	2/26/07	4	2.9	**4,300****	1,400*	65*	120 U	120 U	4,800	4,360
	F3-3	11	2/26/07	4	--	**3,100****	1,500*	52**	16 U	74	3,700	2,840
	F3-1	12	3/7/07	4	523	**5,800****	**3,100****	210 U	750 U	750 U	3,500	**9,500**
	F3-2	13	3/7/07	4	--	**2,300****	**2,000****	220 U	630 U	630 U	780	1,200 U
	F3-1	25	3/30/07	4	200	**14,000****	**5,500****	170**	76 U	120	**7,200**	5,260
	F3-2	26	3/30/07	4	0	12**	28**	22**	15 U	15 U	15 U	29 U
	F3-3	27	3/30/07	4	0.5	6.7**	9.5**	63*	13 U	13 U	13 U	26 U
	F3-1	28	4/5/07	4	0	10 J**	250**	170**	14 UJ	14 UJ	18 J	28 UJ
UST - EV29	EV29-EAST	14	2/28/07	11	442	**6,600****	**2,800****	29**	14 U	95	**9,500**	5,430
	EV29-EAST	15	2/28/07	18	172	**66****	110**	340*	17	24	270	35 U
	EV29-SOUTHE	16	3/19/07	8	44.1	5.7**	5.6**	11 U	12 U	12 U	12 U	24 U
	EV29-SOUTHE	17	3/19/07	12	1.1	12**	5.5 U	11 U	18 U	18 U	37	35 U
	EV29-SOUTHC	18	3/19/07	8	0.0	4.7 U	5.4 U	11 U	12 U	12 U	12 U	24 U
	EV29-SOUTHC	19	3/19/07	12	0.0	6.3 U	5.7 U	12 U	16 U	16 U	16 U	32 U
	EV29-FLOOR1	20	3/20/07	18	3.2	9.6 J**	19**	11 U	15 UJ	15 UJ	15 UJ	30 UJ
	EV29-FLOOR2	21	3/23/07	18	0.3	5.7 U	5.5 U	11 U	14 U	14 U	14 U	28 U
		21	3/23/07 (DUP)	18	0.3	5.7 U	13*	11 U	14 U	14 U	14 U	28 U
	EV29-FLOOR3	22	3/23/07	18	0.5	5.3 U	5.4*	11 U	13 U	13 U	13 U	26 U
	EV29-WEST	23	3/23/07	8	--	32**	98*	33*	67 U	67 U	67 U	130 U
	EV29-WEST	24	3/23/07	12	0.5	5.7 U	5.4 U	11 U	14 U	73 J	21	106 J
	EV29-CONF[2]	--	3/23/07	4	--	**150****	160*	110*	13 U	13 U	78	55
2006 MTCA Method A or B Soil Cleanup Levels						30 / 100 (A)[1]	2,000 (A)	2,000 (A)	30 (A) 18,200 (B)	7,000 (A) 6,400,000 (B)	6,000 (A) 8,000,000 (B)	9,000 (A) 160,000,000 (B)
MTCA Method A or B Protection of Groundwater						30 / 100 (A)[1]	NC	NC	30 (A) 4.5 (B)	7,000 (A) 4,654 (B)	6,000 (A) 6,912 (B)	9,000 (A) 14,630 (B)

Notes:
bgs - below ground surface
(DUP) - Field duplicate
J - Estimated value
J** - Estimated value. Chromatographic profile does not match the laboratory standard chromatogram.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A soil cleanup level
(B) MTCA Method B soil cleanup level
NC - Not calculated
PID - Photoionization detector
ppm - parts per million
TPH - Total petroleum hydrocarbons
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Parameter was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
UST - Underground storage tank
VOCs - Volatile organic compounds
[1] The cleanup level for gasoline is 100 mg/kg if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 30 mg/kg.
[2] Composite sample of excavated soils
[3] Sample number shown on sample location figure.
* Chromatographic profile matches the laboratory standard chromatogram.
** Chromatographic profile does not match the laboratory standard chromatogram.
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level.
Numbers in grey shading indicate results or reporting limit that exceed a MTCA protection of groundwater level. Results do not exceed but reporting limts may exceed the current lowest MTCA soil cleanup level protective of direct contact.
-- Not applicable or not available

Table 23-2
Summary of 2008 Soil Analytical Results - TPH & VOCs
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Sample Area	Sample ID	Sample Location[3]	Sample Date	Sample Depth (feet bgs)	PID (ppm)	TPH (mg/kg)			VOCs (ug/kg)			
						Gasoline-Range	Diesel-Range	Motor Oil-Range	Benzene	Toluene	Ethylbenzene	Total Xylenes
Underground Storage Tank Excavation												
EV26	EV26-East10	36	11/8/08	10	0.6	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-East17	35	11/8/08	17	0.3	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-Floor1	37	11/8/08	19	1.3	10 U	25 U	40 U	20 U	100 U	80	60
	EV26-Floor2	38	11/8/08	20	0.9	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-Floor3	53	11/11/08	19	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-NE10	40	11/8/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-NE17	39	11/8/08	17	1.6	18	25 U	40 U	20 U	100 U	110	150 U
	EV26-North17	41	11/8/08	17	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-North10	42	11/8/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-NW10	46	11/10/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-NW17	45	11/10/08	17	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
		45 (DUP)				10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-West17	54	11/11/08	17	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV26-West10	55	11/11/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
EV27	EV27-East10	32	11/8/08	10	0.2	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV27-East17	31	11/8/08	17	0.7	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV27-Floor1	34	11/8/08	22	6.9	22	25 U	40 U	20 U	100 U	50 U	150 U
	EV27-Floor2	44	11/10/08	19	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV27-Floor3	50	11/10/08	19	0.4	10 U	40 U	40 U	20 U	100 U	50 U	150 U
	EV27-West10	52	11/10/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV27-West17	51	11/10/08	17	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
EV28	EV28-East17	29	11/8/08	17	0	21	25 U	40 U	27	100 U	70	150 U
		29 (DUP)				10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV28-East10	30	11/8/08	10	0.6	12	25 U	40 U	25	100 U	100	150 U
	EV28-Floor1	33	11/8/08	19	0	21	25 U	40 U	20 U	100 U	50 U	150 U
	EV28-Floor2	43	11/10/08	19	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV28-Floor3	47	11/10/08	19	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV28-West10	49	11/10/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	EV28-West17	48	11/10/08	17	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
2008 MTCA Method A or B Soil Cleanup Levels						30 / 100 (A)[1]	2,000 (A)	2,000 (A)	30 (A) 18,200 (B)	7,000 (A) 6,400,000 (B)	6,000 (A) 8,000,000 (B)	9,000 (A) 160,000,000 (B)
MTCA Method A or B Protection of Groundwater						30 / 100 (A)[1]	NC	NC	30 (A) 4.5 (B)	7,000 (A) 4,654 (B)	6,000 (A) 6,912 (B)	9,000 (A) 14,630 (B)

Table 23-2
Summary of 2008 Soil Analytical Results - TPH & VOCs
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Sample Area	Sample ID	Sample Location[3]	Sample Date	Sample Depth (feet bgs)	PID (ppm)	TPH (mg/kg)			VOCs (ug/kg)			
						Gasoline-Range	Diesel-Range	Motor Oil-Range	Benzene	Toluene	Ethylbenzene	Total Xylenes
Fuel Piping Excavation												
Fill Stand	Fillstand-Piping1	60	11/15/08	6	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Fillstand-Piping2	61	11/15/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Fillstand-Ductbank	65	11/17/08	8	22.3	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Fillstand-Piping3	68	11/17/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Fillstand-Piping4	70	11/18/08	10	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
F-3	F3-Ductbank	72	11/18/08	8	823	**4,230**	**50,700**	40 U	**790**	2,500	**6,800**	150 U
	F3-Piping1	73	11/19/08	9.5	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	F3-East8	74	11/19/08	8	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	F3-Storm	75	11/19/08	8	>700	**7,000 J**	**7,400**	540 U	91 UJ	91 UJ	**10,000 J**	8,300 J
	F3-Northduct	76	11/19/08	8	>700	**4,000**	**3,300**	210 U	69 U	69 U	5,700 *	3,300
	F3-Southduct	77	11/19/08	8	>500	**14,000**	**11,000**	550 U	99 U	99 U	**24,000 J ***	**12,000 J ***
		77 (DUP)				NA	**9,500**	600 U	NA	NA	NA	NA
	F3-Piping2	78	11/19/08	11	14.7	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	F3-Southduct2	80	11/20/2008	8	>500	**2,400 J**	1,000 J	96 J	R	R	1,300 J	R
		80 (DUP)				**1,400 J**	1,200 J	99 J	R	R	400 J	R
Support Area Excavation												
Fuel Filter	Filter-Floor1	56	11/13/08	8	2.3	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-North[4]	57	11/13/08	4	398	10 U	**8,920**	80 U	**56**	710	1,030	290
	Filter-Floor2	58	11/14/08	6.5	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Floor3	59	11/14/08	6	0.2	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Piping1	62	11/15/08	9	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Floor4	63	11/15/08	8	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Floor5	66	11/17/08	7	66	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Floor5	81	11/21/08	11	1.0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Floor6	82	11/21/08	4	0.9	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Floor7	83	11/21/08	9	8.0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-SW6	84	11/21/08	6	98.0	10 U	70	40 U	20 U	100 U	50 U	150 U
	Filter-SW4.5	85	11/21/08	4.5	0.5	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Strip5	86	11/22/08	5	0.0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-1West7	87	11/24/08	7	0	11	32	40 U	20 U	100 U	50 U	150 U
	Filter-Floor8	88	11/24/08	9	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-2West7	89	11/24/08	7	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Floor9	90	11/24/08	9	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-Floor10	91	11/25/08	9	0	11	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-NW	92	11/25/08	7	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Filter-1North5	93	11/25/08	5	186	**600**	750	40 U	**150**	100 U	50 U	150 U
	Filter-2North7	94	11/25/08	7	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
2008 MTCA Method A or B Soil Cleanup Levels						30 / 100 (A)[1]	2,000 (A)	2,000 (A)	30 (A) 18,200 (B)	7,000 (A) 6,400,000 (B)	6,000 (A) 8,000,000 (B)	9,000 (A) 160,000,000 (B)
MTCA Method A or B Protection of Groundwater						30 / 100 (A)[1]	NC	NC	30 (A) 4.5 (B)	7,000 (A) 4,654 (B)	6,000 (A) 6,912 (B)	9,000 (A) 14,630 (B)

Table 23-2
Summary of 2008 Soil Analytical Results - TPH & VOCs
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Sample Area	Sample ID	Sample Location[3]	Sample Date	Sample Depth (feet bgs)	PID (ppm)	TPH (mg/kg)			VOCs (ug/kg)			
						Gasoline-Range	Diesel-Range	Motor Oil-Range	Benzene	Toluene	Ethylbenzene	Total Xylenes
Support Area Excavation (continued)												
Fill Stand	Fillstand-East8	64	11/17/08	8	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Fillstand-North8	67	11/17/08	8	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Fillstand-Blacksand	69	11/17/08	12	11.6	10 U	25 U	40 U	20 U	100 U	50 U	150 U
		69 (DUP)				10 U	25 U	40 U	20 U	100 U	50 U	150 U
	Fillstand-2North8	71	11/18/08	8	0.0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	F3-SW8	79	11/19/08	8	0	10 U	25 U	40 U	20 U	100 U	50 U	150 U
	FF3	97	2/13/08	6	--	4.8 U	6.2 U	12 U	12 U	14	12 U	24 U
East Area	FF1	95	2/11/08	9	--	4.4 U	5.4 U	11 U	11 U	11 U	11 U	22 U
	FF2	96	2/13/08	9	--	97	16	11 U	14 U	14 U	33	26
	FF4	98	2/18/08	11.5	--	5.7 U	5.4 U	11 U	14 U	14 U	14 U	29 U
2008 MTCA Method A or B Soil Cleanup Levels						30 / 100 (A)[1]	2,000 (A)	2,000 (A)	30 (A) 18,200 (B)	7,000 (A) 6,400,000 (B)	6,000 (A) 8,000,000 (B)	9,000 (A) 160,000,000 (B)
MTCA Method A or B Protection of Groundwater						30 / 100 (A)[1]	NC	NC	30 (A) 4.5 (B)	7,000 (A) 4,654 (B)	6,000 (A) 6,912 (B)	9,000 (A) 14,630 (B)

Notes:
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level.
Numbers in grey shading indicate results or reporting limit that exceed a MTCA protection of groundwater level. Results do not exceed but reporting limts may exceed the current lowest MTCA soil cleanup level protective of direct contact.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2010 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A soil cleanup level
(B) MTCA Method B soil cleanup level
(DUP) - Field duplicate
bgs - below ground surface
J - Estimated value
NC - Not calculated
PID - Photoionization detector
ppm - parts per million
R - Rejected
TPH - Total petroleum hydrocarbons
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
UST - Underground storage tank
VOCs - Volatile organic compounds
-- Not applicable or not available
* Sample result reported from TPH-VPH analysis.
[1] The cleanup level for gasoline is 100 mg/kg if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 30 mg/kg.
[2] Composite sample of excavated soils
[3] Sample number shown on sample location figure.
[4] Sample location mislabeled in field, sample location is along the south wall

Table 23-3
Summary of 2008 Soil Analytical Results - Extractable & Volatile Petroleum Hydrocarbons
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Sample Area:	**F3**			
Sample ID:	**F3-Northduct**	**F3-Southduct**	**F3-Southduct2**	
Sample Date:	11/19/2008	11/19/2008	11/20/2008	
Sample Depth (feet bgs):	8	8	8	
PID (ppm):	>700	>500	>500	
Sample Location*:	76	77	80	80 (DUP)
VPH (ug/kg)				
Methyl tert-Butyl Ether	2,500 U	4,200 UJ	R	R
n-Pentane	2,500 U	4,200 UJ	R	R
n-Hexane	2,500 U	4,200 UJ	R	R
n-Octane	8,000	24,000 J	R	R
n-Decane	14,000	45,000 J	R	R
n-Dodecane	58,000 J	200,000	15,000 J	R
C8-C10 Aromatics	430,000	1,600,000 J	39,000 J	R
C10-C12 Aromatics	1,300,000	3,900,000	260,000 J	75,000 J
C12-C13 Aromatics	680,000	2,300,000	170,000 J	56,000 J
C5-C6 Aliphatics	25,000 U	42,000 UJ	R	R
C6-C8 Aliphatics	25,000 U	52,000 J	R	R
C8-C10 Aliphatics	25,000 U	42,000 UJ	R	R
C10-C12 Aliphatics	86,000	290,000 J	R	R
EPH (ug/kg)				
C8-C10 Aliphatics	250,000	1,000,000	220,000 J	140,000 J
C10-C12 Aliphatics	1,300,000	4,700,000	1,000,000 J	520,000 J
C12-C16 Aliphatics	1,900,000	6,300,000	1,200,000 J	590,000 J
C16-C21 Aliphatics	73,000	230,000	81,000 J	39,000 J
C21-C34 Aliphatics	11,000 U	24,000 U	98,000 J	51,000 J
C8-C10 Aromatics	4,800	24,000 U	R	R
C10-C12 Aromatics	240,000	570,000	81,000 J	51,000 J
C12-C16 Aromatics	730,000	1,800,000	340,000 J	180,000 J
C16-C21 Aromatics	190,000	570,000	69,000 J	35,000 J
C21-C34 Aromatics	68,000	240,000	12,000 J	6,800 J

Notes:
(DUP) - Field duplicate
bgs - below ground surface
J - Estimated value
PID - Photoionization detector
ppm - parts per million
R - Rejected
TPH - Total petroleum hydrocarbons
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
* Sample number shown on sample location figure.
VPH - Volatile Petroleum Hydrocarbons
EPH - Extractable Petroleum Hydrocarbons

Table 23-4
Summary of Groundwater Analytical Results for Volatile Aromatic Compounds, (mg/L)
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
EGW001	03/06/97	0.001 U	0.001 U	0.001 U	0.001 U
	03/06/97 (DUP)	0.001 U	0.0011	0.001 U	0.001 U
	05/21/97	0.001 U	0.0036	0.001 U	0.001 U
	08/13/97	**0.0021**	0.031	0.001 U	0.001 U
	11/18/97	0.001 U	0.0073	0.001 U	0.001
	03/11/98	0.001 U	0.001 U	0.001 U	0.001 U
	05/14/98	0.001 U	0.020	0.001 U	0.001 U
	05/14/98 (DUP)	0.001 U	0.021	0.001 U	0.001 U
	08/13/98	**0.0016**	0.046	0.001 U	0.001 U
	08/13/98 (DUP)	**0.0016**	0.046	0.001 U	0.001 U
	11/11/98	0.001 U	0.001 U	0.001 U	0.001 U
	11/11/98 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	02/04/99	0.001 U	0.001 U	0.001 U	0.001 U
	02/04/99 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/12/99	0.001 U	0.001 U	0.001 U	0.001 U
	5/12/99 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	08/04/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/11/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/11/99 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/00	0.001 U	0.001 U	0.001 U	0.001 U
	02/03/00 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/03/00	0.001 U	0.0054	0.001 U	0.0013
	08/01/00	0.0014	0.033	0.001 U	0.0023
	11/15/00	0.001 U	0.001 U	0.001 U	0.001 U
	02/06/01	0.001 U	0.001 U	0.001 U	0.001 U
	05/04/01	0.001 U	0.0068	0.001 U	0.001 U
	05/04/01 (DUP)	0.001 U	0.0070	0.001 U	0.001 U
	08/07/01	0.001 U	0.001 U	0.001 U	0.001 U
	08/07/01 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	11/15/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/07/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/02	0.001 U	0.001 U	0.001 U	0.001 U
	11/17/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	11/05/03	0.001 U	0.001 U	0.001 U	0.001 U
	04/21/04	0.001 U	0.001 U	0.001 U	0.001 U
	10/05/04	0.001 U	0.001 U	0.001 U	0.001 U
	03/28/05	0.001 U	0.001 U	0.001 U	0.001 U
	10/19/05	0.001 U	0.0021	0.001 U	0.001 U
	01/17/06	0.001 U	0.001 U	0.001 U	0.001 U
	07/07/06	0.001 U	0.0022	0.001 U	0.001 U
	01/08/07	0.001 U	0.001 U	0.001 U	0.001 U
	07/02/07	0.001 U	0.001 U	0.001 U	0.001 U
	10/26/07	0.001 U	0.001 U	0.001 U	0.001 U
	01/04/08	0.001 U	0.001 U	0.001 U	0.001 U
	07/08/08	0.001 U	0.001 U	0.001 U	0.001 U
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0008 (B)	0.7 (A) 0.8 (B)	1 (A) 0.64 (B)	1 (A) 1.6 (B)

Table 23-4
Summary of Groundwater Analytical Results for Volatile Aromatic Compounds, (mg/L)
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Benzene	Ethylbenzene	Toluene	Total Xylenes
EGW045	03/06/97	**0.018**	0.067	0.001 U	0.032
	05/27/97	**0.014**	0.068	0.001 U	0.0039
	05/27/97 (DUP)	**0.012**	0.059	0.001 U	0.0032
	08/13/97	**0.016**	0.059	0.001 U	0.0016
	08/13/97 (DUP)	**0.015**	0.059	0.001 U	0.0014
	11/25/97	**0.009**	0.051	0.001 U	0.0015
	11/25/97 (DUP)	**0.0093**	0.053	0.001 U	0.0028
	03/11/98	**0.020**	0.083	0.0012	0.0111
	03/11/98 (DUP)	**0.020**	0.085	0.0011	0.0112
	05/14/98	**0.019**	0.001 U	0.001 U	0.069
	08/13/98	**0.013**	0.026	0.001 U	0.001 U
	11/11/1998	**0.012**	0.039	0.001 U	0.0023
	02/04/99	**0.025**	0.100	0.001 U	0.011
	05/12/99	0.001 U	0.097	0.001 U	0.0012
	08/04/99	**0.014**	0.037	0.001 U	0.001 U
	08/04/99 (DUP)	**0.014**	0.038	0.001 U	0.001 U
	11/11/99	**0.0052**	0.0077	0.001 U	0.001 U
	02/03/00	**0.013**	0.050	0.001 U	0.0013
	05/03/00	**0.018**	0.071	0.001 U	0.0031
	08/01/00	**0.0082**	0.016	0.001 U	0.0035
	11/15/00	**0.0088**	0.011	0.001 U	0.001 U
	02/06/01	**0.0097**	0.046	0.001 U	0.0033
	05/04/01	**0.014**	0.034	0.001 U	0.0021
	08/07/01	**0.001**	0.001 U	0.001 U	0.001 U
	11/15/01	**0.016**	0.04	0.001	0.0049
	02/07/02	**0.020**	0.098 D	0.0013	0.0098
	05/08/02	**0.013**	0.026	0.001 U	0.002
	11/17/02	0.001 U	0.0018	0.001 U	0.0013
	05/06/03	**0.013**	0.091	0.0022	0.0087
	11/05/03	**0.012**	0.039	0.0036	0.0185
	04/21/04	**0.0021**	0.018	0.001 U	0.0023
	10/05/04	**0.0091**	0.041	0.001 U	0.004
	03/28/05	**0.0089**	0.065	0.001 U	0.0041
	10/19/05	**0.0084**	0.029	0.001 U	0.0039
	01/17/06	**0.0088**	0.11	0.0016	0.0089
	07/07/06	**0.0075**	0.03	0.001 U	0.0025
	01/08/07	**0.0077**	0.047	0.001 U	0.0037
	07/02/07	0.001 U	0.001 U	0.001 U	0.001 U
	10/26/07	**0.0081**	0.0013	0.03	0.037
	01/04/08	0.001 U	0.001 U	0.001 U	0.001 U
	07/08/08	0.0051	0.0074	0.001 U	0.0047
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0008 (B)	0.7 (A) 0.8 (B)	1 (A) 0.64 (B)	1 (A) 1.6 (B)

Notes:
Values in **bold** font indicate that the result reported exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded as of June 2010. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
D - Dilution required to quantitate analyte within linear range of detector. This flag was not used prior to August, 2001.
(DUP) - Field duplicate
U - Compound was analyzed for but not detected above the reporting limit shown.

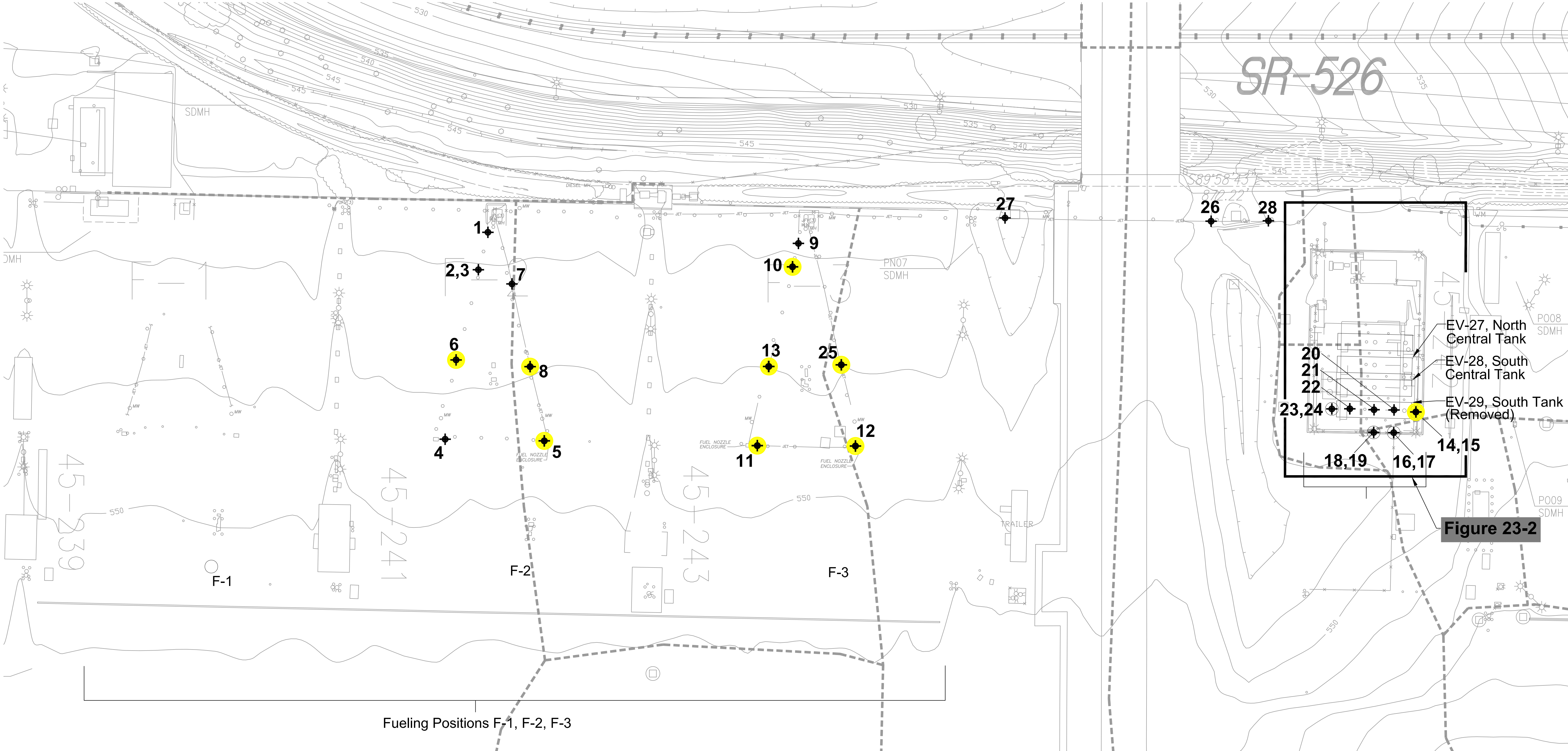
Table 23-5
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Diesel-Range	Jet A-Range	Motor Oil-Range	Gasoline-Range
EGW001	02/17/95	**8.4**	NA	NA	NA
	04/20/95	**8.2**	**7.9**	NA	NA
	08/04/95	**9.8**	**11**	NA	NA
	11/13-16/95	**9.4**	**9.3**	NA	NA
	02/29/96	**5.6**	**5.2**	NA	NA
	06/04/96	**6.2**	**5.0**	NA	NA
	08/22/96	**6.6**	**5.7**	NA	NA
	11/26/96	**10**	**8.2**	NA	NA
	03/06/97	**5.1**	**3.0**	NA	NA
	03/06/97 (DUP)	**5.2**	**3.1**	NA	NA
	05/21/97	**7.0**	**6.0**	NA	NA
	08/13/97	**5.9**	**5.3**	NA	NA
	11/18/97	**4.9**	**4.8**	NA	NA
	03/11/98	**3.1**	**3.0**	NA	NA
	05/14/98	**6.2**	**5.0**	NA	NA
	05/14/98 (DUP)	**5.9****	**4.7****	NA	NA
	08/13/98	**6.3*****	**5.4**	NA	NA
	08/13/98 (DUP)	**5.8*****	**4.9**	NA	NA
	11/11/1998	**3.6****	**2.2****	NA	NA
	11/11/98 (DUP)	**3.2****	**2.0****	NA	NA
	02/04/99	**1.0 ****	**0.5****	NA	NA
	02/04/99 (DUP)	**1.1****	**0.53****	NA	NA
	5/12/1999	**0.93****	**0.58****	NA	NA
	5/12/99 (DUP)	**0.97****	**0.60****	NA	NA
	8/4/1999	**1.4****	**0.98****	NA	NA
	11/11/1999	**1.5****	**0.94****	0.5 U	NA
	11/11/99 (DUP)	**1.6****	**1.0****	0.5 U	NA
	02/03/00	**1.0****	**0.72****	NA	NA
	02/03/00 (DUP)	**1.0****	**0.74****	NA	NA
	05/03/00	**1.1**	**0.77**[a]	NA	NA
	08/01/00	**3.0**	**1.7** [a]	NA	NA
	11/15/00	**4.4**	**3.6**[a]	NA	NA
	02/06/01	**2.3 ****	**1.5 ****	NA	NA
	05/04/01	**3.4**	**2.9**[a]	NA	NA
	05/04/01 (DUP)	**3.8**	**3.4**[a]	NA	NA
	08/07/01	**1.2 ****	**0.71 ****	NA	NA
	08/07/01 (DUP)	**1.4 ****	**0.82 ****	NA	NA
	11/15/01	**1.1 ****	**0.54 ****	NA	NA
	02/07/02	**0.85 ****	**0.55 ****	NA	NA
	05/08/02	**0.87 ****	**0.50 ****	NA	NA
	11/17/02	**4.2 ****	**3.0 ****	NA	NA
	05/06/03	**0.72 ****	0.50 U	NA	NA
	11/05/03	**1.2 ****	**0.79 ****	NA	NA
	04/21/04	**1.6 ****	**1.2 ****	NA	NA
	10/05/04	**4.2 ****	**3.4 ****	NA	NA
	03/28/05	**0.56****	0.25 U	NA	NA
	10/19/05	**2.2**	**2.3****	NA	NA
	01/17/06	0.39	0.25 U	NA	NA
	07/07/06	**2.1**	**2.2**[a]	NA	NA
	01/08/07	0.30**	0.25 U	NA	NA
	07/02/07	**0.50****	0.36**	NA	NA
	10/26/07	0.25 U	0.25 U	0.50 U	NA
	01/04/08	0.25 U	0.25 U	0.50 U	NA
	07/08/08	**0.95**	**0.84****	0.50 U	NA
MTCA Method A Groundwater Screening Level		0.5	0.5	0.5	0.8 / 1.0 [b]

Table 23-5
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
SWMU/AOC 165 - Fuel Farm
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Diesel-Range	Jet A-Range	Motor Oil-Range	Gasoline-Range
EGW045	02/17/95	**7.1***	NA	NA	NA
	04/20/95	NA	NA	NA	NA
	08/04/95	NA	NA	NA	NA
	11/13-16/95	**11**	**12**	NA	NA
	02/29/96	**6.8**	**8.2**	NA	NA
	02/29/96 (DUP)	**6.1**	**7.4**	NA	NA
	06/04/96	**6.6**	**6.4**	NA	NA
	08/22/96	**6.1**	**5.8**	NA	NA
	11/26/96	**11**	**9.4**	NA	NA
	03/06/97	**5.7**	**4.2**	NA	NA
	05/27/97	**7.1**	**7.4**	NA	NA
	05/27/97 (DUP)	**7.1**	**7.4**	NA	NA
	08/13/97	**5.7**	**6.2**	NA	NA
	08/13/97 (DUP)	**6.0**	**6.4**	NA	NA
	11/25/97	**8.1**	**8.6**	NA	NA
	11/25/97 (DUP)	**7.8**	**8.2**	NA	NA
	03/11/98	**5.2**	**6.7**	NA	NA
	03/11/98 (DUP)	**5.5**	**6.9**	NA	NA
	05/14/98	**6.6****	**6.6****	NA	NA
	08/13/98	**5.0*****	**4.7**	NA	NA
	11/11/98	**6.2****	**6.5****	NA	NA
	02/04/99	**5.0****	**5.5****	NA	NA
	05/12/99	**4.8**	**6.7** [a]	NA	NA
	08/04/99	**4.4****	**5.2****	NA	NA
	08/04/99(DUP)	**4.5****	**5.5****	NA	NA
	11/11/99	**4.4****	**5.2****	0.5 U	NA
	02/03/00	**5.1**	**6.0**[a]	NA	NA
	05/03/00	**4.4**	**4.4**[a]	NA	NA
	08/01/00	**4.5**	**2.6** [a]	NA	NA
	11/15/00	**11**	**10**[a]	NA	NA
	02/06/01	**14 ****	**14 ****	NA	NA
	05/04/01	**9.7**	**9.6**[a]	NA	NA
	08/07/01	**4.3 ****	**3.8 ****	NA	NA
	11/15/01	**6.8**	**5.9** [a]	NA	NA
	02/07/02	**7.9 ****	**9.4 ****	NA	NA
	05/08/02	**7.4 ****	**7.7 ****	NA	NA
	11/17/02	**6.7 ****	**6.5 ****	NA	NA
	05/06/03	**11 ****	**11 ****	NA	NA
	11/05/03	**12 ****	**12 ****	NA	NA
	04/21/04	**4.8 ****	**4.4 ****	NA	NA
	10/05/04	**11 ****	**10 ****	NA	NA
	03/28/05	**9.2****	**10****	NA	NA
	10/19/05	**6.8**	**7.8**[a]	NA	NA
	01/17/06	**7.5**	**8.7**[a]	NA	NA
	07/07/06	**9.2**	**9.2**[a]	NA	NA
	01/08/07	**8.0**	**8.2**[a]	NA	NA
	7/2/2007 [c]	**29****	**4.9****	**130**	NA
	10/26/07	**6.8**	**6.5**[a]	**2.7**	NA
	01/04/08	**0.55****	**0.26****	0.50 U	NA
	07/08/08	**4.3**	**4.3****	0.50 U	NA
MTCA Method A Groundwater Screening Level		0.5	0.5	0.5	0.8 / 1.0 [b]

Notes:
Values in **bold** font indicate that the result reported exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A values are from Ecology
website CLARC tables downloaded as of June 2010. (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
(DUP) - Field duplicate
NA - Not analyzed
TPH - Total petroleum hydrocarbons; Diesel-range fractions were quantitated using NWTPH-Dx and oil-range fractions were quantitated using NWTPH-Dx extended.
U - Compound was analyzed for but not detected above the reporting limit shown.
[a] Pattern profile matches diesel range fuel.
[b] The groundwater screening level is 1.0 mg/L if benzene is not present and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture.
The screening level for all other gasoline mixtures is 0.8 mg/L.
[c] Laboratory indicated that motor oil-range petroluem hydrocarbons were detected at 130 mg/L in this sample.
EGW045 is a sample from the inlet, EGW045A is a sample in between the first and second activated carbon canisters, and EGW045B is a sample from the outlet.
* Sample collected directly from well EGW045.
** Pattern profile in sample does not match typical diesel and Jet-A fuel patterns.
*** Pattern profile matches Jet A fuel.



Note:
Yellow-highlighted samples have petroleum constituent concentrations in soil exceeding MTCA Method A or B Soil Cleanup Levels.

Legend:
Areas of Pavement Removal
Soil Sample Locations
Two Depth Discrete Soil Samples
4 Sample Number (See Table 23-1)
F-1 Fueling Position

Figure 23-1
Former Fuel Farm UST System
Soil Sample Locations, Fuel Farm

Job No. 33761927

URS
Q:\geo\Boeing\Everett\RI\2010\FIG 23-1 SOIL SAMPS.dwg
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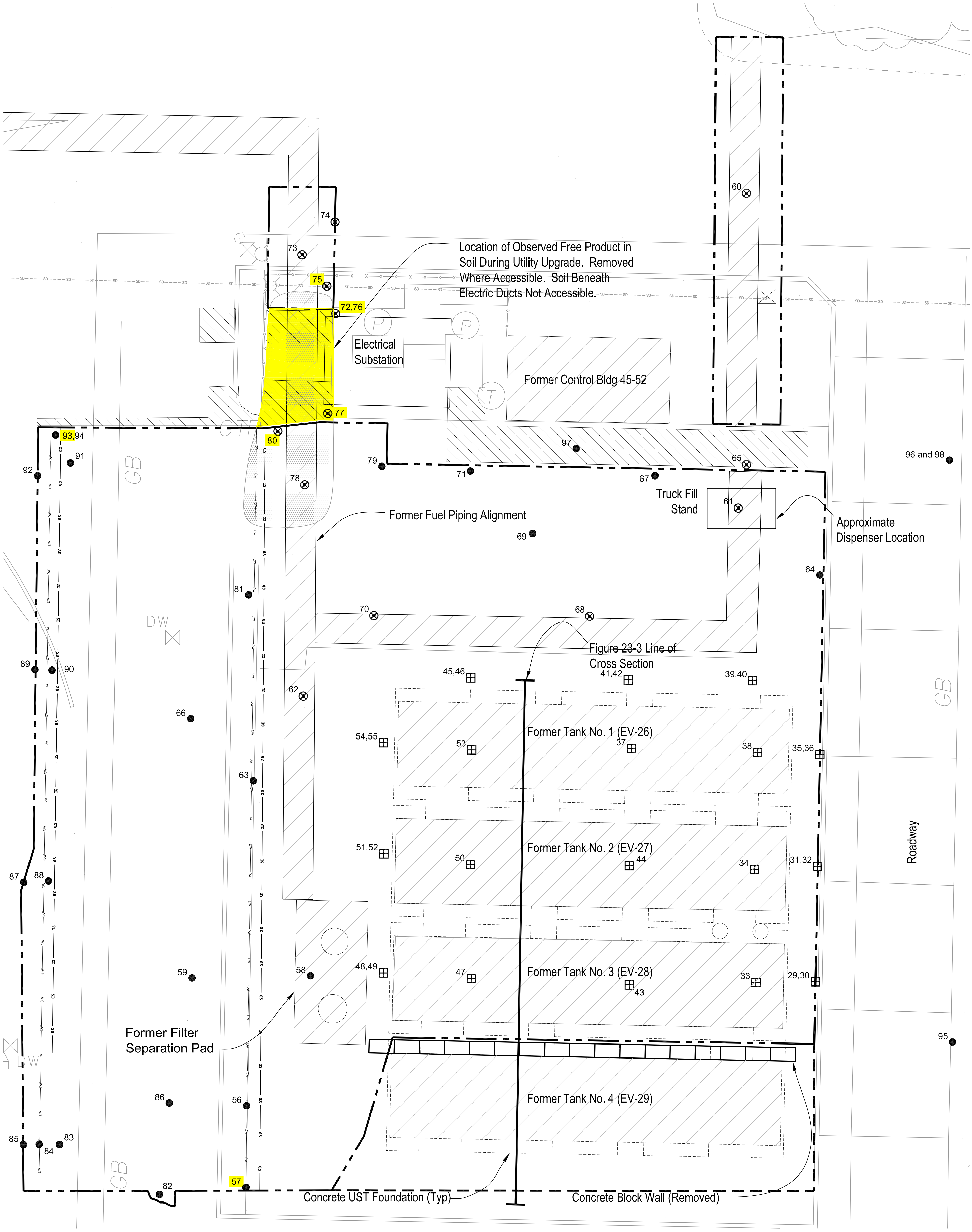
Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT



LEGEND

2008 Excavation Outline	UST Excavation Sample Location*
2007 Excavation Outline	Fuel Pipeline Sample Location*
Electrical Duct	Fuel Filltration, Truck Fill Stand, and East Area Sample Location*
Water Line	* See Table 23-2
Storm Drain Line	

NOTES:

1. Tank No. 1, 2 & 3 removed November 2008. Tank No. 4 removed February 2007.
2. Concrete UST foundations were left in place during UST removals.
3. Yellow-highlighted areas and samples have petroleum constituent concentrations in soil exceeding MTCA Method A or B Soil Cleanup Levels.

0 15 SCALE IN FEET

Figure 23-2
Former Fuel Farm UST System
2008 Sample Locations

Job No. 33761927

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Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

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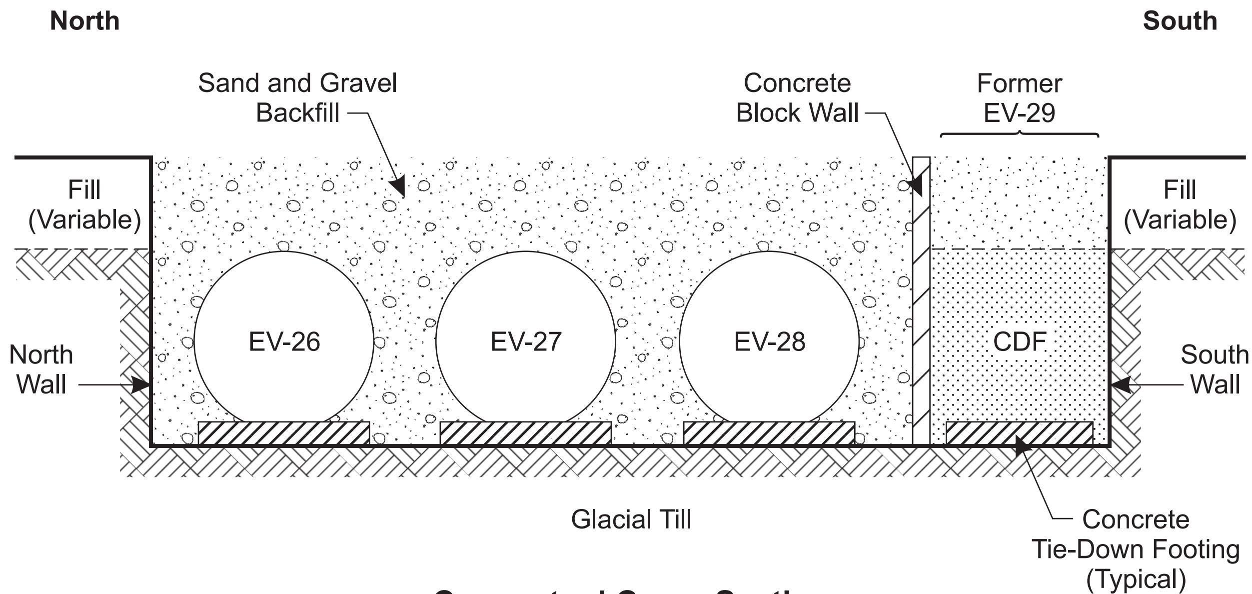
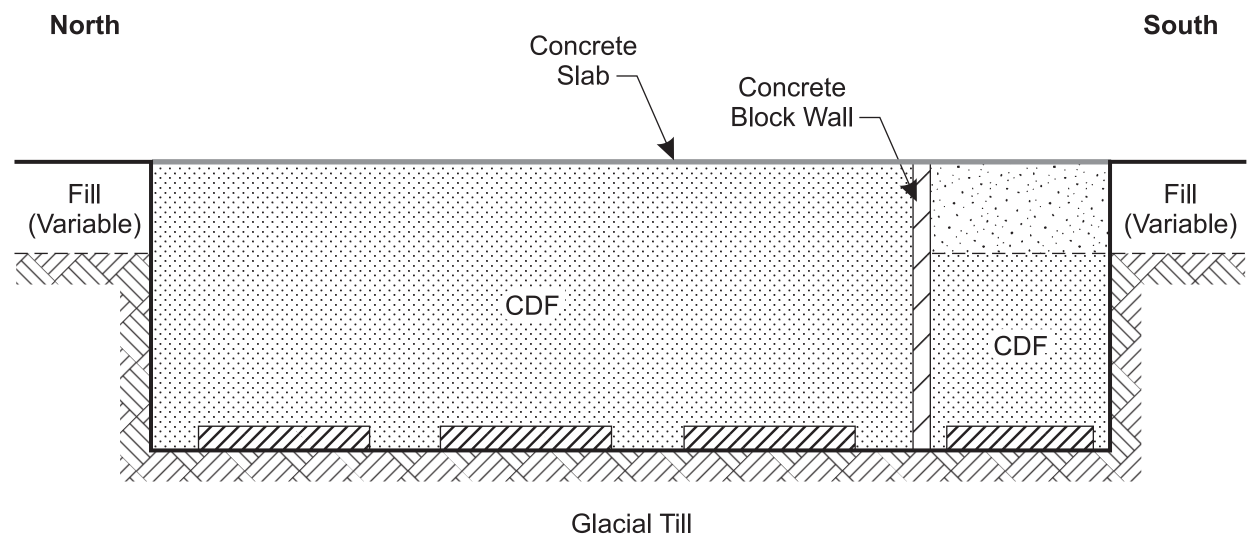


Conceptual Cross Section
Post EV-29 Removal (April 2007)

Not to Scale



Conceptual Cross Section
Post EV-26, EV-27, and EV-28 Removal (2008)

Not to Scale

LEGEND

Controlled Density Fill (CDF)	Clean Sand Fill
Concrete Foundation	Native Soil

Note: Cross section view is to the east.

Figure 23-3
FORMER FUEL FARM UST SYSTEM CONCEPTUAL CROSS SECTIONS

Job No. 33761927

24.0 AIR, LAND USE, NATURAL RESOURCES, AND ECOLOGY

As specified in WAC 173-340-350, an evaluation of air quality impacts, land use information associated with contaminated or potentially contaminated areas, and the natural resources and ecology of the site was conducted. The purpose of this evaluation was to assess the transport of dangerous constituents released to the environment, air quality effects, and identify potential receptors that could be impacted. The scope of the assessment was completed in accordance with Section 17.0 of the RIWP and the information obtained to satisfy the requirements of MTCA is discussed in this section. In 1991, a Draft Environmental Impact Statement (EIS) for the BCAG Everett Plant was performed in preparation for proposed expansion of the facility (CH2M Hill, 1991). This document provides baseline information on air, land use, and natural resources and ecology of the Everett Plant and vicinity. Where appropriate, information from the EIS was used and updated with more recent information provided in this section.

24.1 AIR

Presented in this section is a summary of pertinent climatological data and a discussion of organic vapor levels detected during the RI.

24.1.1 Scope

Climatological data was obtained from information published on the Internet and from the National Climatic Data Center (NCDC) for the two meteorological stations located near the BCA Everett Plant. The two stations are the Paine Field meteorological station and Everett Community College Station (referred to by NCDC by its former name, Everett Junior College). The Paine Field station is located adjacent to the south of the plant and the Everett Junior College Station is located approximately four miles north and three miles east of the plant.

As described by the NCDC, the data from Paine Field has been collected primarily for the airport; however, it is not a comprehensive weather station. The limitation of this station is that data is only available for hours of airport operation. Data from other hours of the day may not always be recorded. Therefore, data such as daily low temperatures that typically occur during nighttime hours when the airport may be closed or in limited operation may not be available. The data from Everett Community College meteorological station represents 24-hour periods. This station is referred to as a “Co-op” station and collects temperature and precipitation data, but not wind velocities or directions.

Based on the individual limitations, the temperature and precipitation data provided in the following sections were obtained from the Everett Community College station and the wind velocity and direction data was obtained from Paine Field (as tabulated and summarized by the NCDC). Evapotranspiration rates were obtained from a water resources investigations report for Snohomish County by the U.S. Geological Survey (USGS, 1997).

During drilling and sampling, a hand-held organic vapor monitor equipped with a photoionization detector (PID) was used to measure organic vapor concentrations in the drilling and field personnel's breathing space and emissions from subsurface soil samples. The levels recorded by the PID were used to qualitatively assess the potential air quality impacts from dangerous constituents detected in the soil and shallow perched groundwater.

24.1.2 Summary of Climatological Data

24.1.2.1 Precipitation

The site region is characterized by mild, wet winters and moderately warm, drier summers. The annual precipitation average was 36.61 inches between 1948 and 2005. Precipitation occurs predominately (75% or more) from October through March when the mean monthly rainfall ranges from 3.45 inches in October to 5.06 inches in December. Mean season rainfall totals for the period between 1948 and 2005 range from 4.70 inches in the summer to 13.03 inches in the winter (Table 24-1). A “50-year storm” for this area, as defined by the National Weather Bureau, is a storm where greater than or equal to 4 inches of rain accumulates during a 24-hour period. Daily rainfalls totaling greater than 4 inches were not identified during the period of record (1948-2005). The highest total identified during this period was 3.62 inches on November 25, 1990. Approximately thirty 24-hour rainfalls totaling greater than or equal to 1.5 inches occurred during this period. The mean snowfall is 5.0 inches per year.

24.1.2.2 Temperature

Mean seasonal temperatures range from 40.4 degrees Fahrenheit (º F) in the winter to 62.1º F in the summer (Table 24-2).

24.1.2.3 Wind

The prevailing wind direction for the Paine Field area is from the south and southeast with variances from the south-southwest and northerly directions (Figure 23-1a and 23-1b). Northerly winds are more prevalent (>20%) during the late spring (May) through early fall (October). Mean monthly wind velocity ranges from 5 to 8 miles per hour (NCDC, 1998, 2003).

24.1.2.4 Evapotranspiration

Estimated evapotranspiration rates for Western Snohomish County range from 19 inches per year to 24 inches per year (USGS, 1997). Estimated transpiration rates are highest during the drier, hotter summer period and decrease to almost zero during the colder, wetter winter months. A plot of evapotranspiration rates for western Snohomish County is included as Figure 23-1c.

24.1.2.5 Organic Vapors

Periodic measurements of organic vapor emissions during drilling and sampling activities did not detect organic vapors in the breathing space of the drilling and field personnel at concentrations greater than 15 ppmv (the level at which, if sustained for up to one minute, respirators would be required per the project Health and Safety Plan in Appendix D of the RIWP). Elevated PID readings for soil samples were only detected at a few locations where VOCs are present in subsurface soils (e.g., Building 40-56, Building 40-51 Former AST, Building 45-01 former USTs, Building 40-02, etc.). The ground surfaces in these areas are all paved with either asphalt or concrete. Consequently, the VOCs in subsurface soils and shallow perched groundwater do not have a potential to impact outdoors air quality under current site conditions. The potential for vapor intrusion into onsite buildings near or overlying the subsurface soils with elevated VOC concentrations have been addressed in the appropriate sections of this RI and will be further assessed during the FS where warranted.

24.1.2.6 Potential Particulate Transport of Dangerous Constituents

Surficial soils in portions of the former Gun Club area contain elevated concentrations of lead, arsenic, and carcinogenic polynuclear aromatic hydrocarbons (PAHs) as described in Section 17. Surficial soils in the former Pistol Range (Section 22) contain elevated concentrations of lead, arsenic, and antimony. These are the only identified unpaved, surficial soils containing elevated concentrations of dangerous constituents at the Everett Plant. It is Boeing's opinion that there is a low potential for transport of soil particulates with adhered dangerous constituents from the Gun Club or the Pistol Range to other areas of the Everett Plant or offsite for the following reasons:

- The affected soils are vegetated and there is not obvious erosion from surface water runoff occurring.

- The period when wind velocities are typically greatest is within the rainy season when the soil moisture and vegetation minimize the potential for wind transport.

- The affected areas are within posted Boeing property boundaries, and are not usually accessed by Boeing personnel performing routine operations at the facility.

- The area is routinely patrolled by Boeing security personnel to minimize potential access by non-Boeing personnel.

24.2 LAND USE

Land use information for the site area was previously summarized in the 1991 Draft EIS (CH2M Hill, 1991). Land use information was updated by reviewing more recent EIS reports (City of Everett, 1996; Snohomish County and Mukilteo, 1995) current zoning maps, contacting local planning departments, and the review of aerial photographs. In addition, a drive-by visual reconnaissance was conducted to verify current land uses in the area. Presented in the following sections is a description of the additional information obtained from these sources of data.

24.2.1 Local Planning Departments

Local planning departments including Everett, Snohomish County (Paine Field), and Mukilteo were contacted to obtain information on currently proposed land uses in the area. Ms. Jackie Cooper of Snohomish County Public Works, Planning and Development Services, Mr. Steve Englesby of the City of Everett, and Mr. Moshe Quinn, Assistant Planner for the City of Mukilteo reported that there are currently no active applications filed for planned development adjoining the Everett BCA Plant property.

24.2.2 Zoning

Zoning maps were obtained and reviewed for the surrounding properties within a one-mile radius of the plant. Properties assessed included those in the vicinity of Powder Mill, Japanese, and Edgewater Gulches.

Current zoning within one mile of the subject property is under the jurisdiction of Snohomish County and the cities of Everett and Mukilteo. An illustration depicting the various zoning jurisdictions and designations within one mile of the Everett Plant is provided as Figure 23-2. The zoning includes various single and multiple family residential zoning designations, businesses, business parks, and light industrial park districts. Zoning designations in the Everett jurisdiction within one mile of the subject property also included public park areas east of the property and neighborhood shopping and general commercial zones. The City of Everett has designated portions of Powder Mill Gulch owned by the City as "park/public open space" in their comprehensive land use plan for the City. The City has long term plans to develop some of Powder Mill Gulch as a park; however, no funding source or schedule for development is currently available. Therefore, there are no current "developed" uses of Powder Mill Gulch and no immediate plans for development.

Areas within the Mukilteo jurisdiction, generally located west of the subject property, also included waterfront mixed use, downtown business district, parks and open space, public/semi-public district, community business, and heavy industrial areas. Figure 23-3 depicts current tenants of specific properties adjacent to the Everett Plant.

24.2.3 Aerial Photographs and Drive-By Visual Reconnaissance

Aerial photographs dated 1991 and 1997 that cover the subject property and vicinity were obtained from Snohomish County Department of Public Works. The aerial photographs were compared to verify current land uses in the area and assess changes in development since 1991. Development identified on the two photograph sets reviewed was limited to commercial or industrial scale operations. Single- or multiple-family residential development is not present directly adjacent to the site. The closest residential development is west of Japanese Gulch (Figure 23-3). Upon completion of the aerial photograph review, a drive-by reconnaissance of properties adjacent to the perimeter and downgradient (north) of the Everett Plant was performed to document existing land use and further confirm businesses occupying parcels that were recently developed (Figure 23-3). The reconnaissance confirmed that development identified since 1991 has been commercial and industrial in nature.

24.3 NATURAL RESOURCES AND ECOLOGY

Information concerning the natural resources and ecology of the Everett plant prior to initiation of the RI was obtained through review of the 1991 Draft EIS (CH2M Hill, 1991), subsequent wetlands monitoring reports by Jones and Stokes and J.S. Jones & Associates, Inc., and contact with local (cities of Mukilteo and Everett) and regional (Snohomish County) agencies. EIS reports from the City of Everett (1996) and United States Department of Transportation (U.S. DOT) and Washington State DOT (1995) were reviewed for information concerning potential sensitive offsite receptors. The natural resources and ecology (i.e., sensitive receptors) on the Everett Plant consist of surface water, groundwater, plants, animals, and wetlands. Groundwater in the regional aquifer unit underlying the Everett Plant, the Esperance Sand, is discussed in Sections 14 and 21 of this RI report. Surface water and sediment quality in Boeing Lake, Powder Mill Gulch, and Japanese Gulch was previously presented in a separate RI report issued in October 2001 that was updated in 2007 and will be updated again in 2011. Following is a discussion of plants, animals, and wetlands at the Everett Plant and in the surrounding area.

Approximately 380 acres of the 1,000-acre Everett Plant are undeveloped. Of the 380 acres, 200 acres are forested, 80 acres are covered primarily by seeded grasses, and the remaining 100 acres are cleared and graded for construction. There are 23 individual wetlands on the plant comprising approximately 21 acres. Nineteen of the wetlands are located on or adjacent to the North Complex, the remaining four are located on or adjacent to the South Complex (CH2M Hill, 1991).

24.3.1 Plants

Forested areas on the site are primarily dominated by deciduous trees, but also contain localized areas of coniferous trees. Deciduous forest occupies approximately 64 acres, while the coniferous areas comprise approximately 32 acres. Young alder stands occupy approximately 105 acres at the site. Deciduous species are primarily: red alder, big leaf maple, black cottonwood, Scouler willow, and occasionally Sitka willow. Coniferous species are comprised primarily of Douglas fir, western hemlock, and red cedar. Locally, Pacific yew are present as understory trees. The Pacific yew groves west of the Fluke Company (north of the Everett Plant) were identified as a Significant Biological Area by the City of Everett in 1981. It was identified as such because it was the only known location in the City with a large concentration of the yews. Dominant species of the forest understory were listed as: salmonberry, red elderberry, red huckleberry, sword fern salal, stinging nettle, trailing blackberry, and miner's lettuce. Other common species noted were; thimbleberry, Oregon grape, bleeding heart, bedstraw, trillium, Pacific yew, ocean spray, and false lily of the valley (CH2M Hill, 1991). No threatened or endangered plant species were identified as part of the forest community.

Herbaceous areas occupy approximately 80 acres at the site, and consist primarily of seeded grass mixes and weedy species. A few areas also contain shrubby species such as Scotch Broom and Himalayan Blackberry. Most herbaceous areas have low habitat value. Woolgrass, a species with State monitor status, has been identified on the site (CH2M Hill, 1991). No threatened or endangered plant species were identified in the herbaceous area.

24.3.2 Wetlands

As part of the EIS mitigation measures, a peat filter, created wetlands and a sedimentation basin were constructed in Powder Mill Gulch, and drainage and wetlands enhancement were implemented southeast of Boeing Lake. In addition, a wetland monitoring plan was implemented between 1992 and 1996 (Jones & Stokes, 1992a, 1992b; J.S. Jones & Associates 1993a,b,c, 1994, 1995, 1996, 1997) to measure the effects of the impact mitigation measures. Areas monitored in the North Complex included wetlands A, B, and C, Powder Mill Creek, and Powder Mill Gulch Uplands. Areas monitored as part of the South Complex were Boeing Lake and Japanese Gulch. Components monitored included: hydrology, water quality, sediment/vegetation quality, vegetation, wildlife, and stream habitat. Water quality parameters analyzed for include selected metals, oil and grease, pH, fecal and total coliform, and various other inorganic general water quality parameters. Samples from Powder Mill Gulch were also analyzed for petroleum hydrocarbons, PCBs, PAHs, volatile and semi-volatile organics, and total phenols as part of this monitoring and during this RI. A summary of the general monitoring results are provided below. The analytical data and conclusions from the monitoring reports were not included at Ecology's request. Ecology did not approve the J.S. Jones and Associates, and Jones and Stokes Associates work plans and reports under the MTCA agree order. Ecology does not agree with the sampling approaches adopted in the work plans and does not agree with the conclusions of those reports.

24.3.2.1 Boeing Lake and Japanese Gulch (South Complex Wetlands)

1991 – Monitoring results for 1991 indicated that water quality was variable during this initial year of monitoring. The water quality did not appear to be affecting vegetation (Jones & Stokes, 1992a).

1992 – Monitoring results for 1992 indicated water quality was generally similar to or better than 1991 except for increased sediments discharged to the lake at one location where the filter fabric fence capacity was exceeded (Jones & Stokes, 1992b).

1993 - Monitoring results for 1993 indicate the overall water quality of Boeing Lake and Japanese Gulch improved from 1992 and vegetation continued to thrive. No mention of wildlife was made (J.S. Jones & Associates, Inc. 1993).

1994 - The plant community of Boeing Lake is stable and growth was vigorous, native species dominated. The planned wildlife habitat community components (emergent wetland, scrub/shrub wetland, snag zones for cavity nesters, and wetland forest) are present and met the goals and objectives of the EIS mitigation plan (J.S. Jones & Associates, Inc. 1994).

1995 - Three classes of vegetation (aquatic, emergent, and scrub/shrub) have been established at Boeing Lake. The goal of creating 1.75 acres of wetland and riparian habitat in Japanese Gulch was satisfied. Vegetative cover provided excellent nesting conditions for waterfowl at Boeing Lake. The detention basin and bioswale area of Japanese Gulch provided important habitat for several species of shore birds and passerines (J.S. Jones & Associates, Inc. 1995). Ecology did not approve the J.S. Jones and Associates, and Jones and Stokes Associates work plans and reports under the MTCA agree order. Ecology does not agree with the sampling approaches taken from the work plans and does not agree with the conclusions drawn in those reports.

24.3.2.2 Powder Mill Gulch (PMG), Wetland A, Powder Mill Creek, and Wetlands B and C (North Site Wetlands)

Annual monitoring of water quality was initiated in 1992 for Wetlands B and C and 1993 for Wetland A. Surface water monitoring and solids analytical results since 1993 are summarized below:

1993 – The monitoring results for 1993 indicate the overall water quality was good and the majority of the parameters were below state surface water quality criteria. The primary exception is total and fecal coliforms.

1994 - Hydrologic conditions in 1994 for all the wetlands areas were sufficient to support hydrophytic plant communities. The hydrology of Wetlands B and C were similar to pre-construction activities. The goal of establishment of planted shrub and tree species by the end of the second growing season has been met for upland areas. Sixty percent total cover had been met by the end of 1994. There has been no apparent impact on wildlife use of Wetlands A, B, and C since the construction of buildings adjacent to the wetlands (J.S. Jones & Associates, Inc. 1994).

1995 - The hydrologic conditions in all the wetlands continue to be sufficient for the development of hydrophytic plant communities. Vegetation in the upland, wetland, and creek areas was healthy and developing. The goal of aquatic mammal use of the wetlands was satisfied with the observation of muskrats and long tailed weasel at the upper wetland (J.S. Jones & Associates, Inc. 1995).

1996 - Hydrologic conditions at the wetlands are similar to 1995 and are adequate. Plant communities continue to thrive in all monitored areas. The wetlands are providing habitat for waterfowl, shorebirds, reptiles, amphibians, and mammals (J.S. Jones & Associates, Inc. 1996). Ecology did not approve the J.S. Jones and Associates, and Jones and Stokes Associates work plans and reports under the MTCA agree order. Ecology does not agree with the sampling approaches taken from the work plans and does not agree with the conclusions drawn in those reports.

24.3.3 Animals

Animal species observed on the site include: Great Blue Heron, Canada Goose, Mallard, Bufflehead, Red-Tailed Hawk, American Crow, Black-capped Chickadee, Red Breasted Nuthatch, Bewick's Wren, Golden Crowned Ringlet, Dark-Eyed Junco, Mountain Beaver, Douglas's Squirrel, Raccoon, Striped Skunk, Black Tailed Deer. Many more animal species have the potential to occur on the site. No fish have been identified in Powder Mill Creek, the only perennial stream on the site, above Seaway Boulevard. Historically fish have been observed in the lower reaches of Powder Mill Creek below Seaway Boulevard. Mosquito fish are the only known fish in Boeing Lake and are not present in other areas of the site (CH2M Hill, 1991). The Priority Habitats and Species Data Compilations and Maps of the State of Washington Department of Fish and Wildlife (WDFW) had no records of special status wildlife species (such as threatened, endangered, sensitive, and nongame priority species) in the vicinity of the Everett Plant facility at the time the report was written (Snohomish County and Mukilteo, Washington, 1995). No known federal or state threatened or endangered species of birds, mammals, reptiles or amphibians were listed as present on or in the vicinity of the site in any of the other reports reviewed.

24.3.4 Wildlife Corridors

Two wildlife corridors, designated by the City of Everett as Environmentally Sensitive Areas, exist at the Everett Plant. These consist of: (1) a 60-foot-wide corridor adjacent to the Fluke property and also between wetlands located on the northeast perimeter of Boeing and (2) a 200-foot-wide open space strip immediately south of Seaway Boulevard at 36th Avenue along with a 60-foot-wide corridor linking the Japanese Gulch open space to the Powder Mill Gulch open space (City of Everett, 1996).

24.4 CONCLUSIONS

Based on review of documents for the site and vicinity, no threatened or endangered plant or animal species were identified. Boeing believes no impacts have occurred to the sensitive receptors identified to be present on the site due to site activities. This conclusion is supported by the monitoring work conducted by J.S. Jones & Associates between 1992 and 1996, which did not identify impacts to the sensitive receptors identified to be present on the site due to site activities. However, Ecology did not approve the J.S. Jones and Associates, and Jones and Stokes Associates work plans and reports under the MTCA agree order. Ecology does not agree with the sampling approaches taken from the work plans and does not agree with the conclusions drawn in those reports.

A more complete and acceptable analysis of impacts to actual and potential receptors will be performed during the FS with the results incorporated in the selection of final cleanup action levels.

24.5 REFRENCES

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URS, 2007b, Draft Remedial Investigation Report for Sediments, Surface Water (Revision 2.0), BCA Everett Plant, Everett, Washington, March 1, 2007.

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TABLE 24-1
SEASONAL AND ANNUAL PRECIPITATION (INCHES)

Season	Mean	High	Year	Low	Year
Winter	13.03	20.32	1956	5.87	1977
Spring	8.58	12.81	1977	4.70	1965
Summer	4.70	10.94	1954	1.04	2003
Fall	10.30	15.09	1975	2.01	1952
Annual	36.61	50.13	1954	22.22	1952

Note: Rainfall data provided was collected at Everett Junior (Community) College between 1948 and 2005.

TABLE 24-2
SEASONAL TEMPERATURE DATA
(º F)

Season	Mean	High	Year	Low	Year
Winter	40.4	74	1986	1	1950
Spring	49.6	88	1953	10	1955
Summer	62.1	98	1955	37	1952
Fall	51.3	89	1986	0	1993

Note: Temperature data collected at Everett Junior (Community) College between 1948 and 2005.

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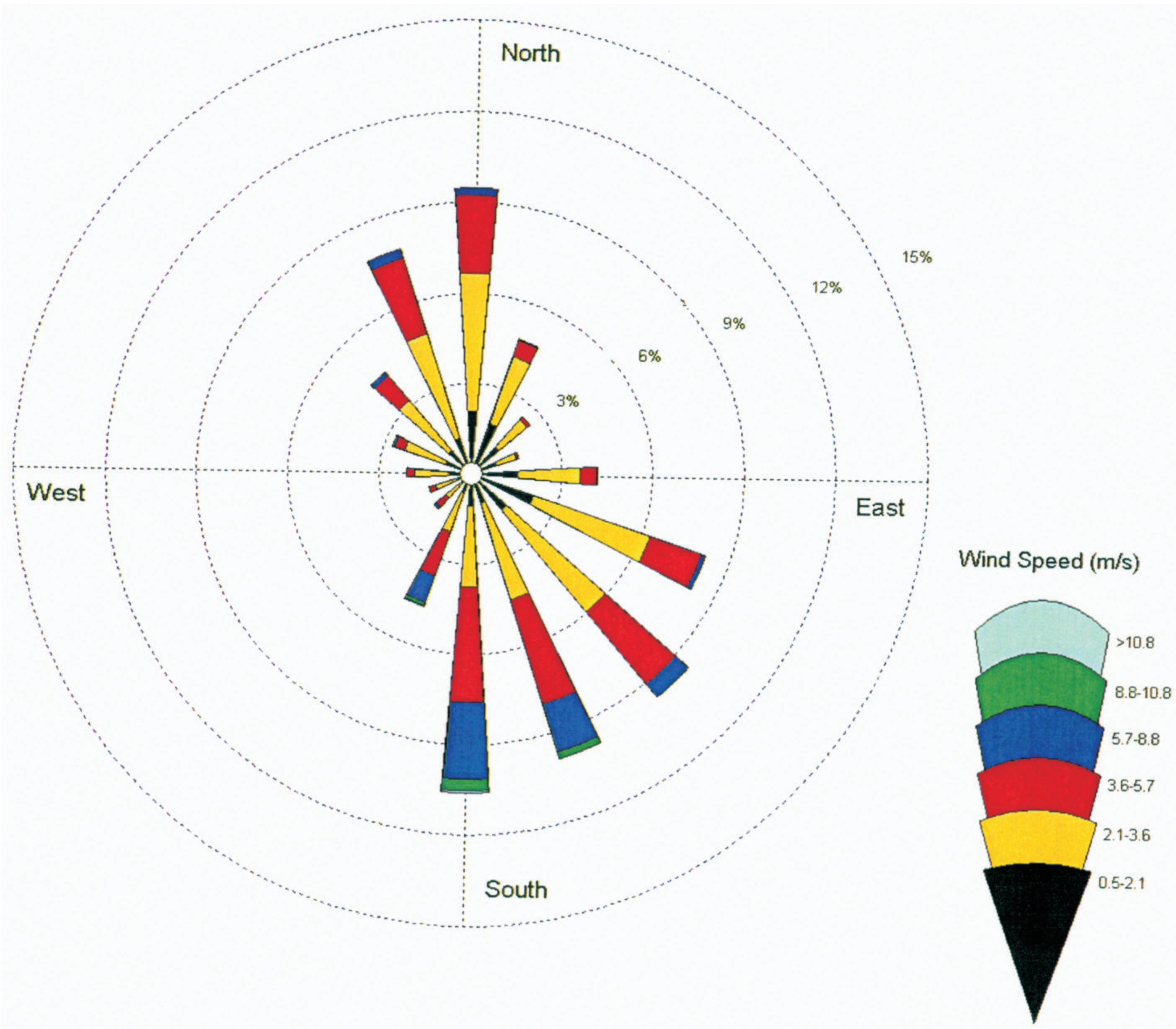


Figure 24-1a

Wind Direction and Velocity
North End of Paine Field - 1961 to 1965

Job No. 33761927

URS

Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

33761927_32.cdr

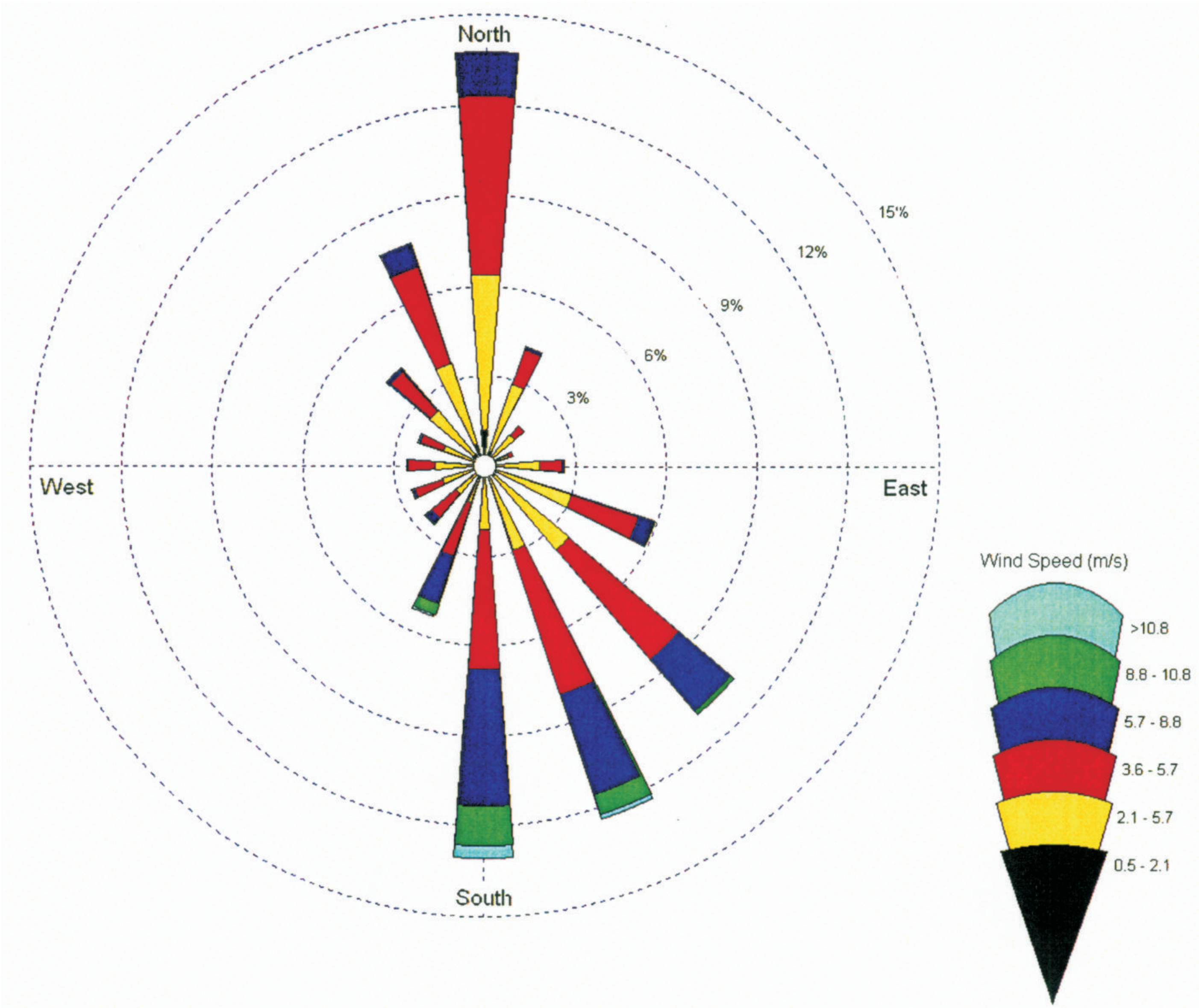


Figure 24-1b

Wind Direction and Velocity
South End of Paine Field - 1993 to 2002

Job No. 33761927

URS

Boeing Commercial Airplanes, Everett Plant
Remedial Investigation Report

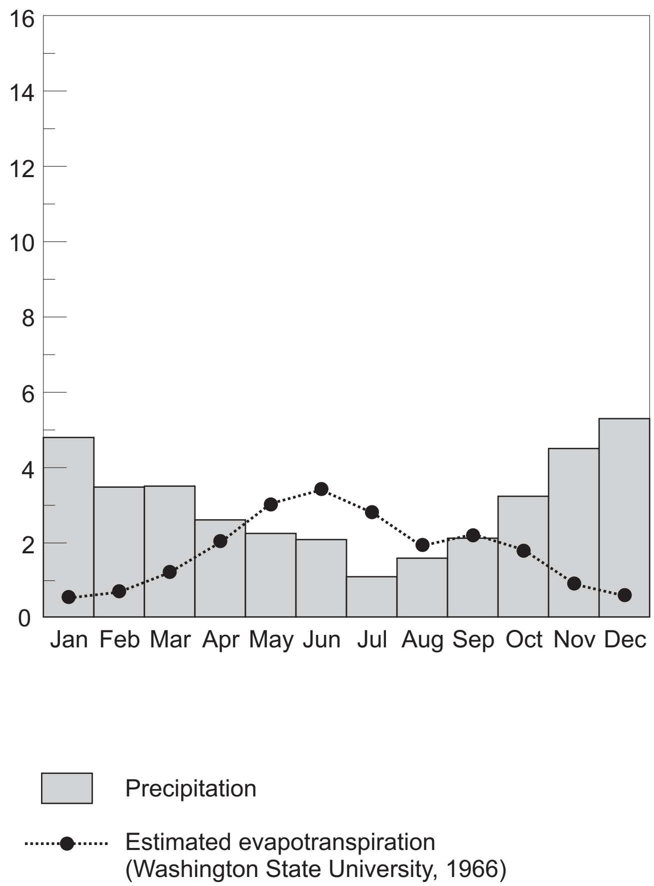
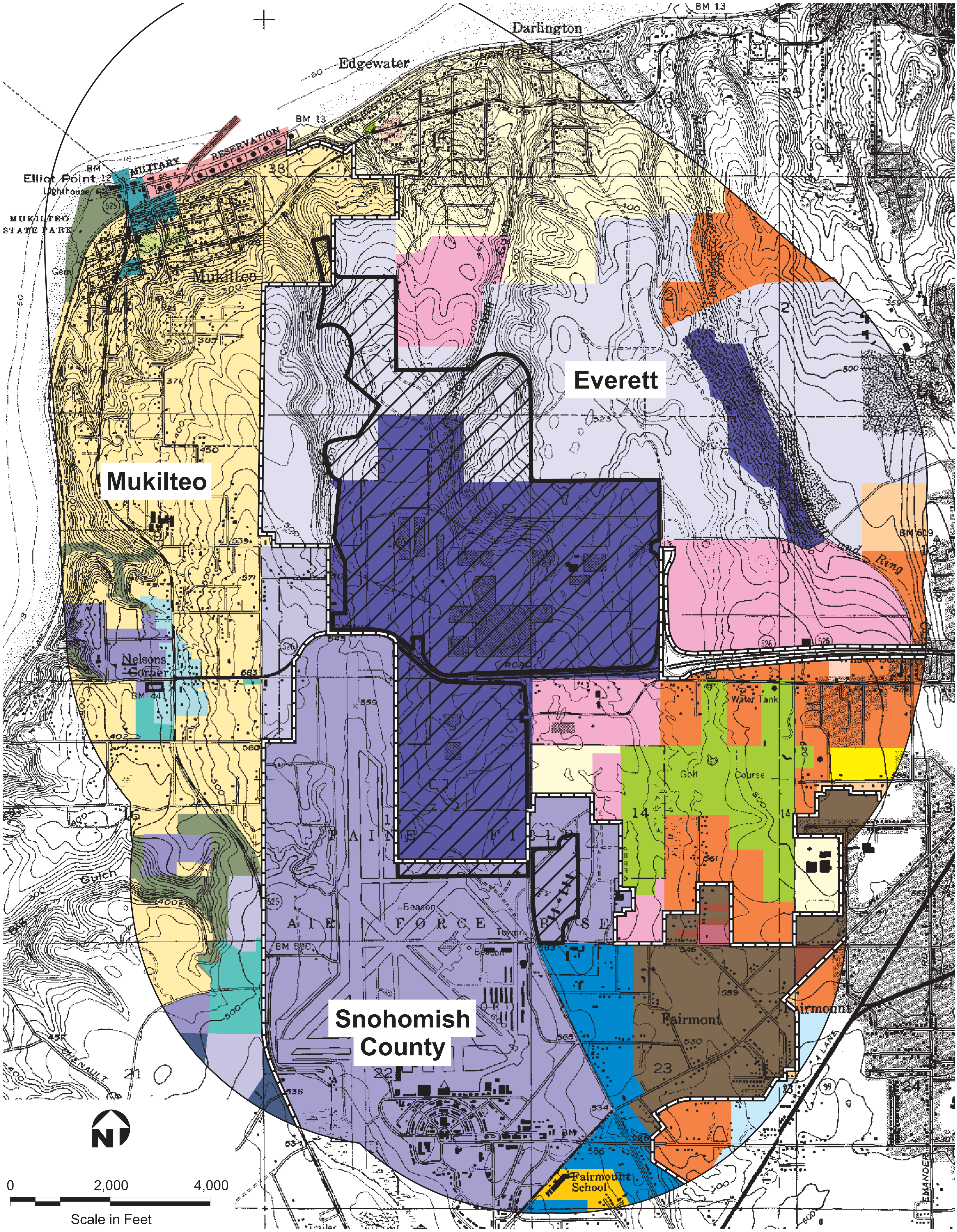


Figure 24-1c

Average Monthly Precipitation and Evapotranspiration Everett, Washington

Job No. 33761927



LEGEND

BCA Everett plant

City/county boundary

Snohomish County Zoning:
- Light industrial, LI
- Business park. BP
- Residential 9,600, R-9, 600
- Residential 7,200, R-7,200
- Multiple residential, MR
- Low density multi. residential, LDMR

Everett Zoning
- Office and industrial park, M-1
- Heavy manufacturing, M-2
- Suburban residential, R-S
- Public park zone, P
- Neighborhood shopping, B-1
- Multiple family, R-3L, R3
- Business park, M-M
- Single family, low density, R-1, R-1A
- Single family, medium density, R-2, R-2A
- General commercial/regional commercial/office, C-1, C-1R
- Heavy commercial/light industrial, C-2

Mukilteo Zoning
- Residential
- Waterfront mixed use
- Downtown business district
- Parks and open space
- Public/semi-public district
- Planned industrial district and industrial park
- Planned community business district
- MFR district
- Heavy industrial and light industrial district
- Community business

NOTE: Original figure is in color and information may not be visible on a non-color reproduction.

SOURCE: Zoning maps for Everett (1995), Snohomish County (1998), and Mukilteo (1998)

Job No. 33761927

Figure 24-2
Zoning within 1 Mile of Everett Plant

Boeing Commercial Airplanes, Everett Plant
REMEDIAL INVESTIGATION REPORT

URS

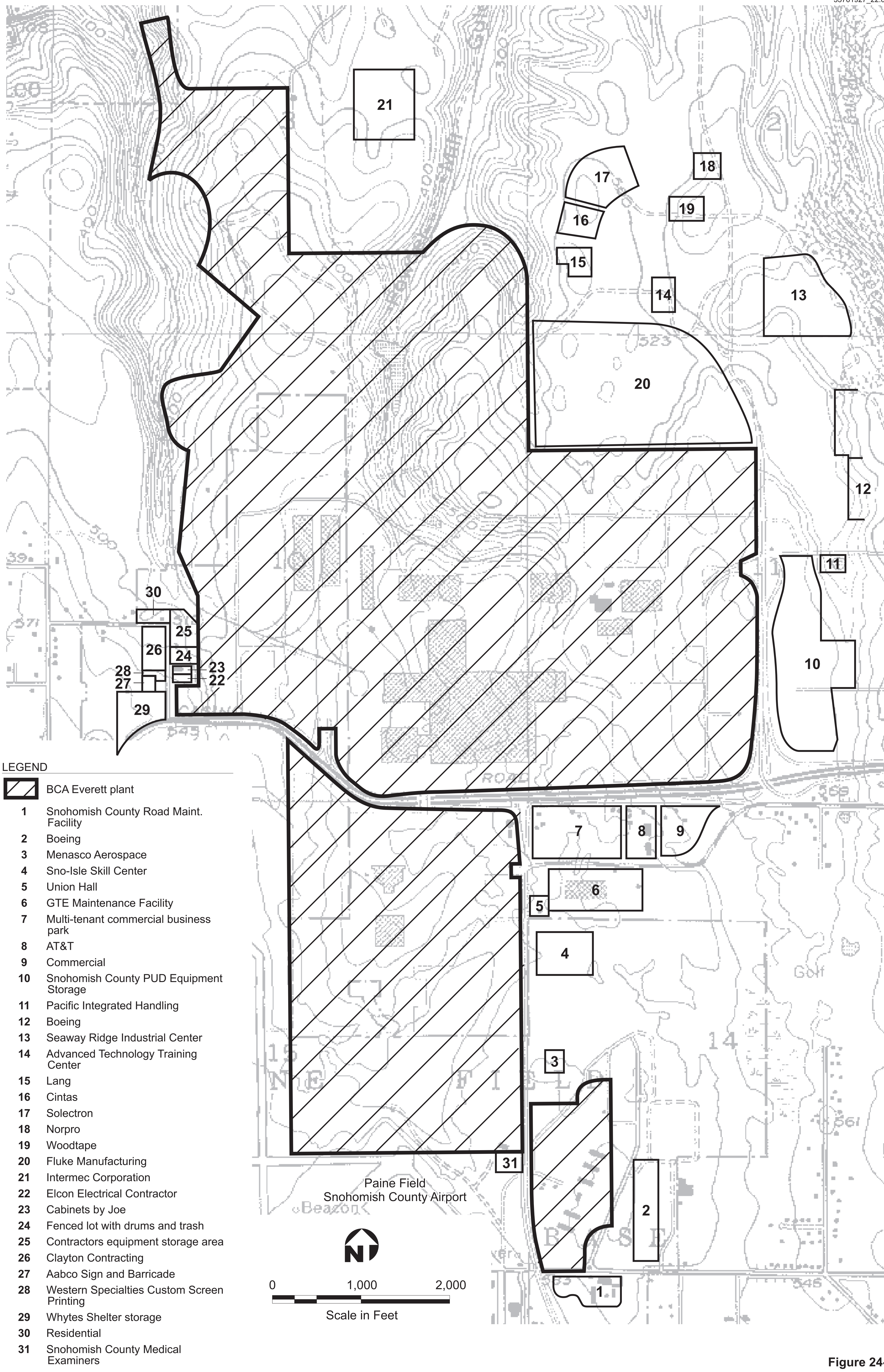


Figure 24-3
Everett Plant - Major Adjoining Properties

25.0 ADDITIONAL AREAS EVALUATED FOR POTENTIAL INCLUSION IN THE FEASIBILITY STUDY

Presented in this section is a summary description of four areas that were previously investigated and did not warrant further investigation during the RI. These areas were initially specified by Ecology to be evaluated during the Feasibility Study (FS) to be performed following completion of the RI. The following sections also include a recommendation regarding whether or not each area should be included in the FS based on the current data and applicable MTCA cleanup levels.

25.1 AREAS RECOMMENDED FOR INCLUSION IN FEASIBILITY STUDY

25.1.1 Building 40-53 Mock Degreaser SWMU/AOC No. 98

The original vapor degreaser system was located in the west-central portion of Building 40-53 (Figure 1-2) and was in operation from 1968 until 1991 when it was decommissioned. The former degreaser was located in a subgrade concrete pit which was lined with stainless steel in 1987. TCE and TCA were used as degreaser solvents in the unit. GeoEngineers (1992) performed a subsurface investigation that consisted of 11 soil borings (Figure 25-1). Analytical results for soil samples from the borings indicated TCE concentrations up to 3,900 µg/kg. Boeing (1993) removed the collection sump and condensate sumps (Figure 25-1), and soil to a depth of approximately 4 feet bgs in the two areas where soil TCE concentrations were greater than 500 µg /kg (i.e. 1991 MTCA Method A soil cleanup level). Soil samples were collected from the excavation base and sidewalls after removal of the sumps and soil. Analytical results for these samples indicated that residual concentrations of TCE ranged from 97 µg /kg to 560 µg /kg in the soils. These concentrations are above the MTCA Method A and B soil cleanup level protective of groundwater, therefore this area is recommended for inclusion in the FS for assessment of the direct contact, potential groundwater contamination and the VI pathway.

25.1.2 North of Building 45-07, Former South Fire Pit (SWMU/AOC No. 068)

The South Fire Pit was a concrete basin that was 50 feet wide and 100 feet long located north of Building 45-07 (Figure 1-2). The pit was demolished in 1979 and paved over. It currently is situated beneath an asphalt-paved road and parking lot. A multi-phased subsurface investigation and excavation of petroleum contaminated soil was performed in 1993-94 (Converse Consultants, 1994, 1995). The post-excavation subsurface investigation delineated an approximately 3,000 square foot area of subsurface soils containing diesel and oil range TPH at concentrations (up to 13,000 mg/kg) greater than the 2,000 mg/kg MTCA Method A unrestricted soil cleanup level (Figure 25-2). The soils containing TPH are limited to the depths of between ½ foot to 3¾ feet bgs. Based on these results, the petroleum contaminated soils in this area are recommended for evaluation in the FS, including assessment of the VI pathway.

Evaluation of the vapor intrusion (VI) pathway for this SWMU/AOC is not planned for the FS. Screening of the VI pathway was performed in this RI using Ecology's review draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated October 2009 (VI guidance). Some of the TPH-D concentrations in soil are above the VI screening level for this compound (10,000 mg/kg, WAC 173-340-740[3][iii][C][II]) and this soil is sufficiently close to Building 45-07 so that the VI pathway is recommended for evaluation in the FS. Ecology requires inclusion of this soil to groundwater pathway in the FS.

25.1.3 Flightline Stall 104, Former UST EV-15 (SWMU/AOC No. 083)

The former UST EV-15 was located on the west side of the Flightline near Stall 104 (Figure 1-2) and used to store diesel fuel. During its removal in 1994 (O'Sullivan Omega Inc., 1994), soil containing diesel fuel that leaked from a fitting was encountered. As much of the petroleum contaminated soil as practicable was removed as practicable. Due to the presence of underground utilities, soil containing diesel TPH at concentrations of 2,100 mg/kg and 2,800 mg/kg remain in place on the east and south excavation sidewalls (Figure 25-3). These concentrations are greater than the MTCA Method A soil cleanup level of 2000 mg/kg. Subsequent hand auger borings indicate that the affected soils are limited to only 1 to 2 feet horizontally from the former excavation wall. The excavation area is currently paved. Based on these results, the petroleum contaminated soils in this area are recommended for evaluation in the FS.

Evaluation of the vapor intrusion (VI) pathway for this SWMU/AOC is not planned for the FS. Screening of the VI pathway was performed in this RI using Ecology's review draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated October 2009 (VI guidance). The TPH-D concentrations in soil are well below the VI screening level for this compound (10,000 mg/kg, WAC 173-340-740[3][iii][C][II]). Ecology requires inclusion of this soil to groundwater pathway in the FS.

25.2 AREAS NOT RECOMMENDED FOR INCLUSION IN THE FEASIBILITY STUDY

25.2.1 Former UST EV-12 (SWMU/AOC No. 087) and Oil/Water Separator EV-13 (SWMU/AOC No. 107)

Former UST EV-12 and former oil/water separator EV-13 were located on the South Complex northwest of the fueling positions (Figure 1-2). Former UST EV-12 was used to store waste jet fuel, possibly containing VOCs and phosphate-based hydraulic fluid, recovered from the nearby oil/water separator EV-13. Subsequent to removal of the UST and backfilling of the excavation in 1986, subsurface investigations were conducted in the excavation area in 1994 and 1995. Soil containing oil and diesel-range TPH was detected at concentrations greater than 200 mg/kg in one soil boring completed in 1994: however, TPH was not detected in soil or perched groundwater within the excavation backfill during a subsequent investigation in 1995. A monitoring well (EGW041) installed in 1995 was used to collect groundwater samples for analysis on a quarterly basis through 1998. Detected concentrations of TPH, VOCs, and phosphate-based hydraulic fluid in the groundwater samples did not exceed the applicable MTCA cleanup levels (Tables 25-1 and 25-2). Consequently, Ecology approved terminating the quarterly monitoring of this well. The well was decommissioned in June 2000. Based on these results, we do not recommend that the former EV-12 area be included in the FS.

Oil/water separator EV-13 handles surface water runoff from a large portion of the South Complex including the airplane fueling area. A subsurface investigation was conducted in this area in 1995. Perched groundwater containing oil, Jet-A, and diesel-range TPH was detected at one boring location and one monitoring well (EGW042) was installed to collect groundwater samples for analysis on a quarterly basis. Diesel and Jet-A range TPH and two phosphate-based compounds in the hydraulic fluid have been detected in the groundwater from this well (Tables 25-3 and 25-4); however, concentrations of TPH and phosphate-based compounds detected in quarterly groundwater samples from 1998 through May 2002 were below the applicable MTCA cleanup levels. Laboratory analytical reports have been submitted to Ecology separate from this report. Monitoring was discontinued after May 2002. The well was decommissioned in March 2003. Based on these results, we do not recommend that the former EV-13 area be included in the FS.

25.3 REFERENCES

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Table 25-1
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
Former UST EV-12
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range[1]	Jet A-Range[1]	Oil-Range
1996 MTCA Method A Groundwater Cleanup Level		1.0	1.0	1.0
2001 MTCA Method A Groundwater Cleanup Level		0.5	0.5	0.5
EGW041	03/02/95 [2]	**0.88**	0.25 U	1.0 U
	04/18/95 [2]	**0.75**	**0.76**	0.5 U
	08/9/95 [3]	10 U	10 U	25 U
	11/14/95 [3]	10 U	10 U	25 U
	02/28/96 [3]	10 U	10 U	25 U
	05/28/96	0.25 U	0.50 U	NA
	08/21/96	0.25 U	0.50 U	NA
	12/02/96	0.25 U	0.50 U	NA
	03/04/97	0.25 U	0.50 U	NA
	05/27/97	0.25 U	0.50 U	NA
	08/13/97	0.25 U	0.50 U	NA
	11/18/97	0.25 U	0.50 U	NA
	03/11/98	0.25 U	0.5 U	NA
	05/11/98	0.25 U	NA	NA
	08/11/98	0.25 U	0.50 U	NA
	11/11/98	0.25 U	0.50 U	NA

Notes:
[1] 1995 Jet A concentrations per method WTPH-G modified.
1996 Jet A and Diesel concentrations per Method WTPH-D.
[2] March and April, 1995 sample data reported from ESE, 1995.
[3] Samples analyzed by method WTPH-HCID.
J - Estimated Value
NA - Not analyzed
U - Sample was analyzed for, but not detected above the reporting limit shown.
MTCA - Model Toxics Control Act.
Method A values shown are reported with the same concentration units as the sample results.
* Pattern profile is not indicative of diesel or Jet A fuel.
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup level.

Table 25-2
Summary of Groundwater Analytical Results for Phosphate Compounds, (mg/L)
Former UST EV-12 and Oil/Water Separator EV-13
Boeing Everett Plant

Well ID	Sample Date	Dibutyl Phenyl Phosphate	Tributyl Phosphate
MTCA Method B Groundwater Cleanup Level		5.16*	4.80*
EGW041	03/02/95 [1]	NA	NA
	04/18/95 [1]	NA	NA
	08/09/95	0.002 U	0.001 U
	11/14/95	0.002 U	0.001 U
	02/28/96	0.002 U	0.001 U
	05/28/96	0.002 U	0.001 U
	08/21/96	0.002 U	0.001 U
	12/02/96	0.002 U	0.001 U
	03/04/97	0.002 U	0.001 U
	05/27/97	0.002 U	0.001 U
	08/13/97	0.002 U	0.001 U
	11/18/97	NA	NA
	03/11/98	NA	NA
	05/11/98	NA	NA
	08/11/98	0.002 U	0.001 U

Notes:
[1] March and April, 1995 sample data reported from ESE, 1995
J - Estimated Value
U - Sample was analyzed for, but not detected above the reporting limit shown.
MTCA - Model Toxics Control Act.
Method B values shown are reported with the same concentration units as the sample results.
NA - Not analyzed
* Value calculated by Boeing consistent with MTCA Method B methodology.
Numbers in **bold** font indicate that the result reported exceeds a MTCA cleanup leve

Table 25-3
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
Oil/Water Separator EV-13
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Diesel-Range[1]	Jet A-Range[1]	Oil-Range
1996 MTCA Method A Groundwater Cleanup Level		1.0	1.0	1.0
2001 MTCA Method A Groundwater Cleanup Level		0.5	0.5	0.5
EGW042	03/02/95 [2]	**0.63**	0.25 U	**1.2**
	04/18/95 [2]	**0.75**	**0.72**	0.5 U
	08/9/95 [3]	10 U	10 U	25 U
	11/14/95 [3]	10 U	10 U	25 U
	02/28/96 [3]	10 U	10 U	25 U
	05/28/96	**0.84**	**0.60**	NA
	08/21/96	**0.97**	**0.68**	NA
	12/02/96	**0.74**	**0.63**	NA
	03/04/97	0.40	0.50 U	NA
	05/27/97	**0.76**	**0.72**	NA
	08/13/97	**0.71 J**	**0.62**	NA
	11/18/97	0.32	0.50 U	NA
	11/18/97	0.32	0.50 U	NA
	03/11/98	0.25 U	0.5 U	NA
	05/11/98	0.25 U	NA	NA
	08/11/98	0.34*	0.50 U	NA
	11/11/98	0.39*	0.50 U	NA
	02/04/99	0.25 U	0.50 U	NA
	05/13/99	0.25 U	0.50 U	NA
	08/03/99	0.25 U	0.50 U	NA
	11/09/99	0.34 *	0.50 U	0.50 U
	02/10/00	0.25 U	0.50 U	NA
	05/03/00	0.25 U	0.50 U	NA
	08/01/00	0.25 U	0.50 U	NA
	11/14/00	0.42 *	0.50 U	NA
	02/06/01	0.25 U	0.50 U	NA
	05/04/01	0.25 U	0.50 U	NA
	08/08/01	0.27 *	0.50 U	NA
	11/14/01	0.44	0.50 U	NA
	02/07/02	0.025 U	0.050 U	NA
	05/07/02	0.025 U	0.050 U	NA

Notes:
MTCA - Model Toxics Control Act
(A) MTCA Method A groundwater cleanup level
1996 - Indicates MTCA groundwater cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 groundwater cleanup levels, published 2001.
J - Estimated value
NA - Not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
[1] 1995 Jet A concentrations per method WTPH-G modified. 1996 Jet A and Diesel concentrations per Method WTPH-D
[2] March and April, 1995 sample data reported from ESE, 1995.
[3] Samples analyzed by method WTPH-HCID.
[4] Monitoring terminated per Ecology's approval.
* Pattern profile is not indicative of diesel or Jet A fuel.
Numbers in **bold** font indicate that the result reported exceeds the most current MTCA cleanup level as of June 2010.

Table 25-4
Summary of Groundwater Analytical Results for Phosphate Compounds, (mg/L)
Oil/Water Separator EV-13
Boeing Everett Plant Remedial Investigation

Well ID	Sample Date	Butyl Diphenyl Phosphate	Dibutyl Phenyl Phosphate	Tributyl Phosphate	BHT
MTCA Method B Groundwater Cleanup Level*		5.52	5.16	4.80	NE
EGW042	03/02/95 [1]		0.0022	0.170	NA
	04/18/95 [1]		0.0022	0.180	NA
	08/09/95		0.0024	0.300	NA
	11/14/95		0.0020	0.24	NA
	02/28/96		0.002 U	0.110	NA
	05/28/96		0.0024	0.260	NA
	08/21/96		0.0025	0.280	NA
	12/02/96		0.002 U	0.160	NA
	03/04/97		0.002 U	0.074	NA
	05/27/97		0.002 U	0.074	NA
	08/13/97		0.002 U	0.150	NA
	11/18/97		0.002 U	0.091	NA
	11/18/97		0.002 U	0.091	NA
	03/11/98		0.002 U	0.020	NA
	05/11/98		0.002 U	0.036	NA
	08/11/98		0.002 U	0.056	NA
	11/11/98		0.002 U	0.066	NA
	02/04/99		0.002 U	0.018	NA
	05/13/99		0.025	0.091	NA
	08/03/99	0.0023 J	0.0077 J	0.035 J	NA
	11/09/99	0.005 U	0.002 U	0.052	NA
	02/01/00	0.005 U	0.002 U	0.017	NA
	05/03/00	0.005 U	0.002 U	0.012	NA
	08/01/00	0.036	0.11	0.23	NA
	11/14/00	0.005 U	0.002 U	0.042	NA
	02/06/01	0.005 U	0.002 U	0.0098	NA
	05/04/01	0.005 U	0.014	0.13	0.00046
	08/08/01	0.001 U	0.0006	0.049 D	0.001
	11/14/01	0.001 U	0.001	0.04 D	0.0012 J
	02/07/02	0.0011 U	0.00056 U	0.0019	0.00090
	05/07/02	0.001 U	0.00052 U	0.004	0.00027

Notes:
MTCA - Model Toxics Control Act
(B) - MTCA Method B groundwater cleanup level
1996 - Indicates MTCA groundwater cleanup levels, published 1996.
2001 - Indicates MTCA version 3.1 groundwater cleanup levels, published 2001.
BHT- Butylated hydroxytluene.
D - Dilution required to quantitate analyte within linear range of detector. This flag was not used prior to August 2001.
J - Estimated value
NA - Not analyzed
ND - Compound was analyzed for but not detected during prior sampling events.
NE - Not established
U - Compound was analyzed for, but not detected above the reporting limit shown.
[1] March and April, 1995 sample data reported from ESE, 1995
*Values calculated by Boeing consistent with 1996 MTCA Method B methodology.

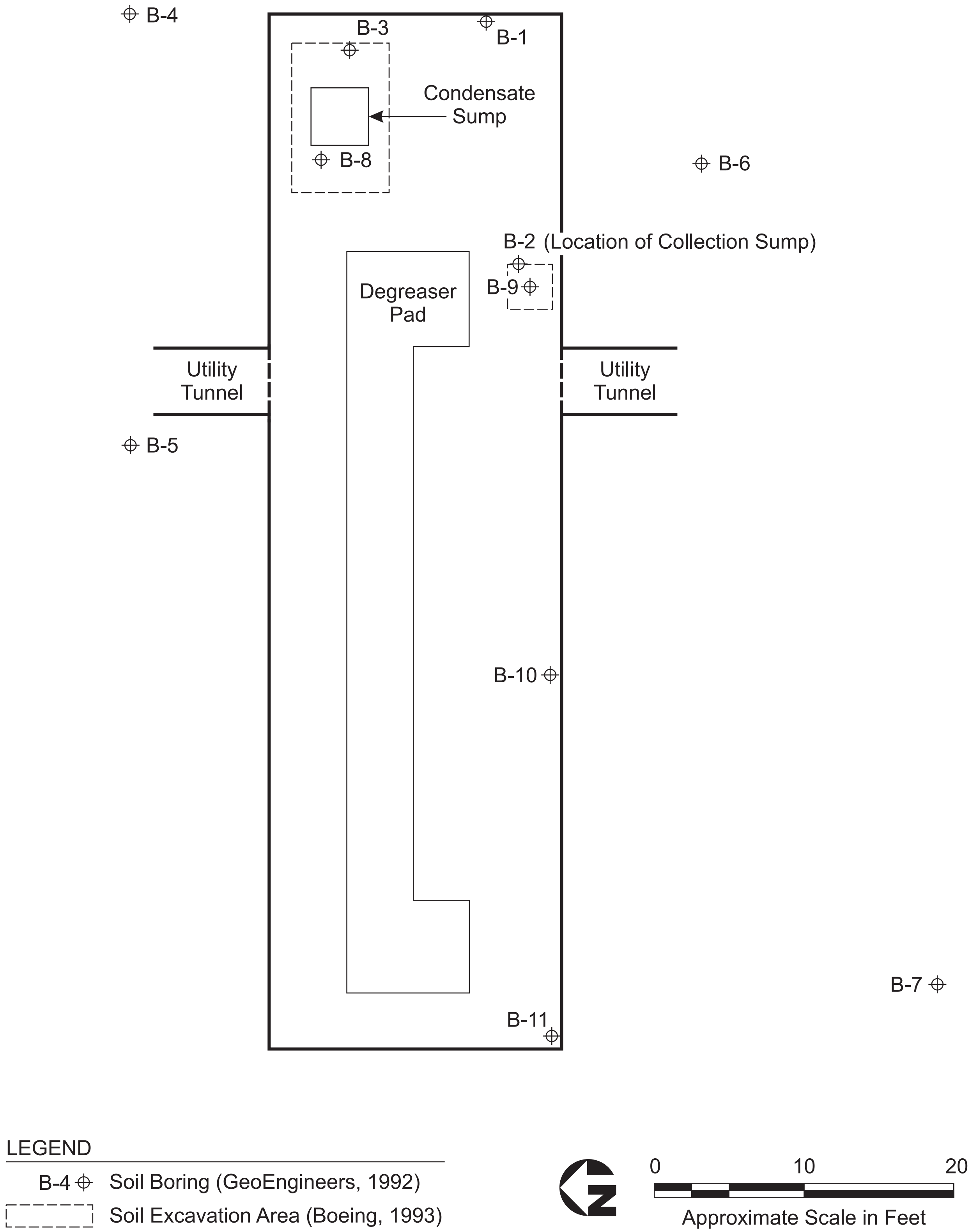


Figure 25-1

BUILDING 40-53 MOCK DEGREASER EXCAVATION AND SOIL BORING LOCATIONS

Job No. 33761927

URS

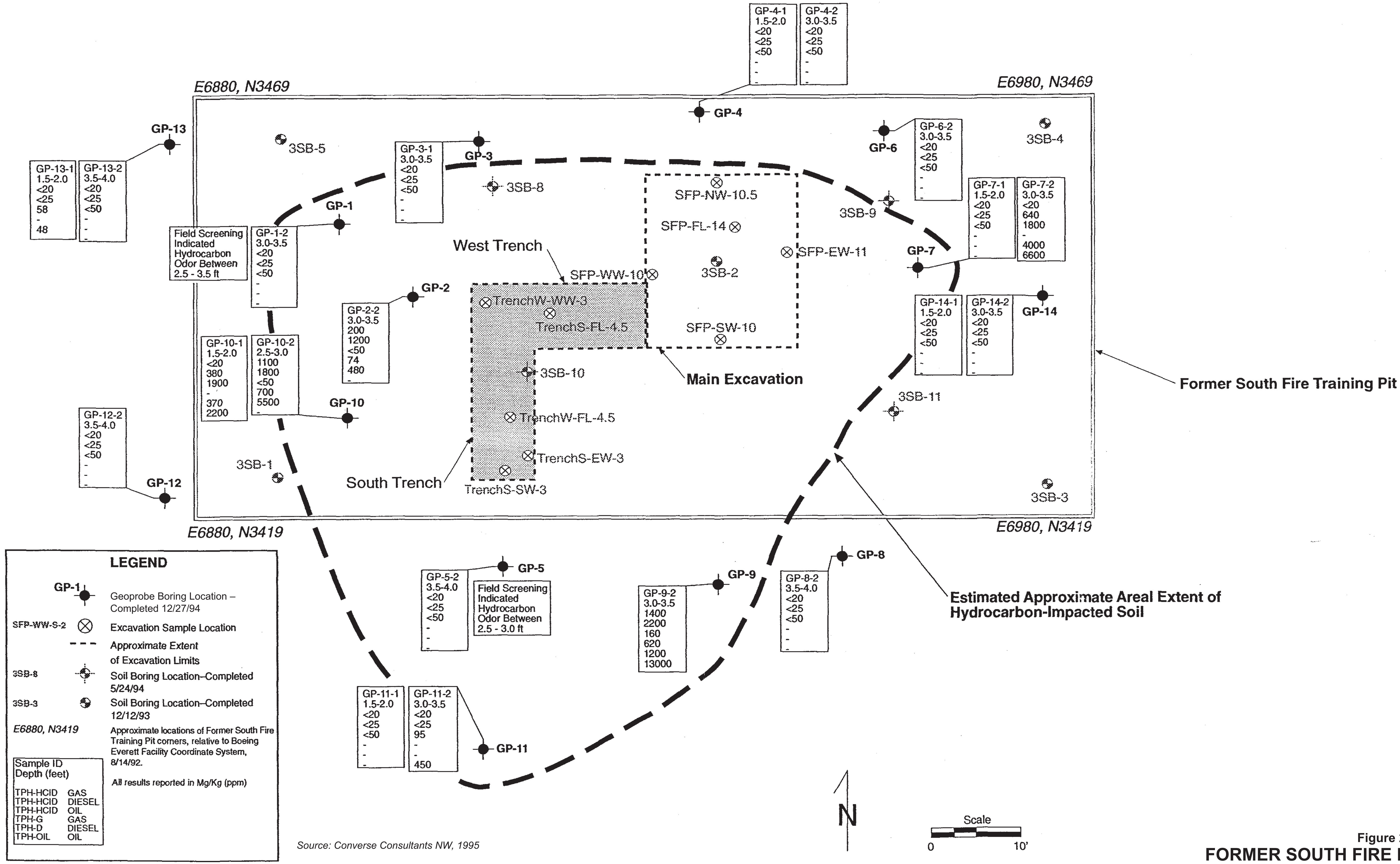
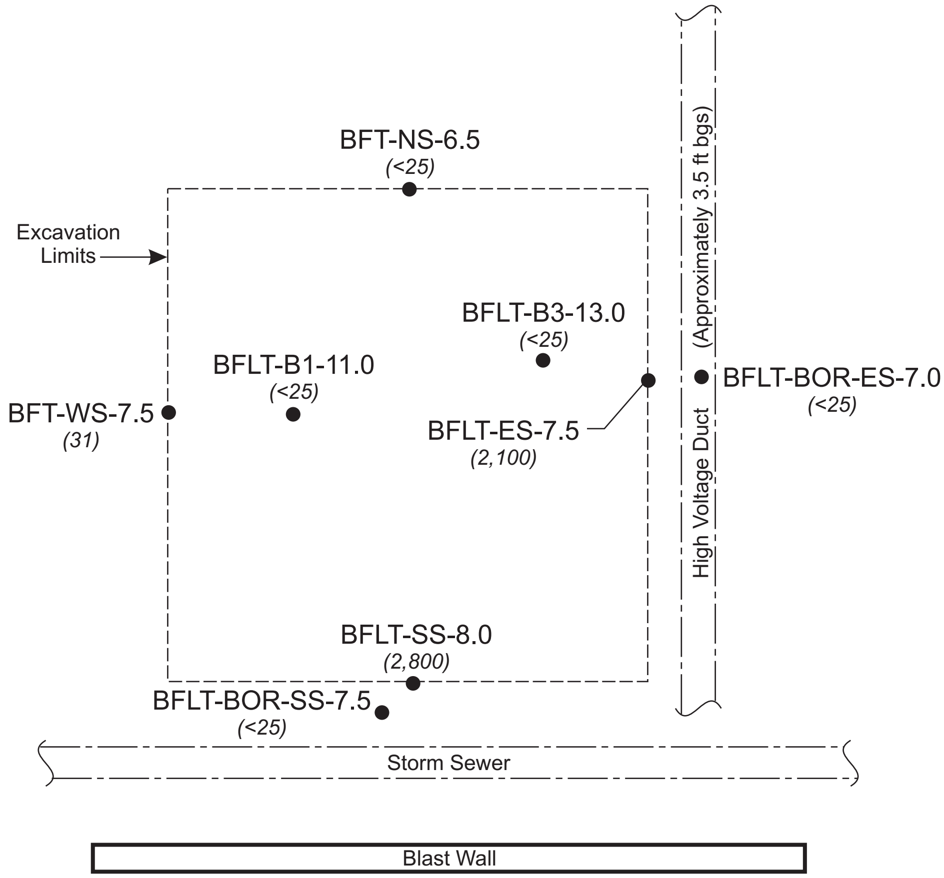


Figure 25-2
FORMER SOUTH FIRE PIT
EXTENT OF RESIDUAL HYDROCARBONS IN SOIL

33761927_41.cdr



LEGEND

BFLT-B1-11.0 ●	Soil Sample Location and Depth (1994)
(2100)	Diesel-Range TPH in mg/kg
<25	Not Detected Above Reporting Limit

SOURCE: O'Sullivan Omega, Inc. (1994)

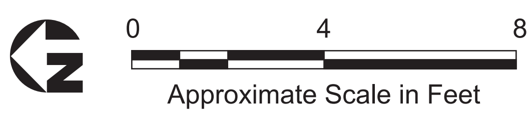


Figure 25-3

Job No. 33761927

FORMER UST EV-15 SOIL SAMPLE LOCATIONS AND RESULTS

URS

Boeing Commercial Airplanes, Everett Plant
Remedial Investigation Report

26.0 SUMMARY AND CONCLUSIONS

This section provides a summary of the results and conclusions for the RI of SWMUs/AOCs within the Boeing Everett Plant. Sixteen of the 18 SWMUs/AOCs listed in Attachment 5 of the Agreed Order No. DE 96HS-N274 between Boeing and Ecology are addressed herein. This RI report also addresses 10 SWMUs/AOCs listed in Attachment 6, five SWMUs/AOCs listed in Attachment 7 of the Agreed Order, two SWMUs/AOCs not specifically listed in the order, and a new SWMU/AOC No. 180 for TCE in the Esperance Sand aquifer groundwater and Powder Mill Creek that was amended to the order in 2004. A total of 39 SWMUs/AOCs were investigated for the soil and groundwater RI, associated interim actions, and UST assessments. Groundwater monitoring only was performed at five SWMUs/AOCs.

The RI results for the two Attachment 5 SWMUs/AOCs (SWMU/AOC No. 103 Japanese Gulch Ponds, Japanese Creek, and Boeing Lake and SWMU/AOC No. 135 Powder Mill Gulch Pond) not discussed in this report were previously presented in a separate RI report ("Sediment and Surface Water RI Report") issued in October 2001 that was revised in 2007 and will be revised again in 2011. The Agreed Order amendment in 2004 also included an additional SWMU/AOC (No. 181) for PCBs in joint compound on the Flightline, within the storm water system, and Powder Mill Creek and associated wetlands, sediments and surface water. The results from the associated investigation of PCBs will be included in the additional Sediment and Surface Water RI Report.

26.1 SITE GEOLOGY AND GROUNDWATER HYDROLOGY

The interpretation of site geology and groundwater hydrology at the Everett Plant is based on previous geotechnical and environmental subsurface investigations, published reports, and the results of the RI reported herein.

26.1.1 Site Geology

The geologic units that directly underlie the plant are a combination of natural and fill soils. In general, the fill at the Everett Plant is less than 15 feet thick, except in the areas of the filled upper reaches of Powder Mill Gulch where fill thickness ranges to greater than 120 feet. The uppermost natural soils are dense glacial deposits of the Vashon till (glacial till). The till predominately consists of silty, fine to medium sand with varying amounts of gravel, coarse sand, and clay. The glacial till is underlain by advance glacial deposits commonly referred to as the Esperance Sand. The Esperance Sand is underlain by the Lawton Clay of glaciolacustrine origin. These conditions were encountered during the RI.

Most previous geologic/environmental borings and the RI borings at the plant were drilled to 60 feet or less in depth and completed in the glacial till. In the deepest previous boring on the plant (EGW040 completed in the north-central portion near Building 40-56, Dames & Moore, 1994), the till extends to a depth of approximately 85 feet bgs. Deep geotechnical borings in other areas of the north portion of the plant (e.g., Building 40-22) encountered till to depths of 90 feet bgs. At the location of RI well borings EGW060 (west of Boeing Lake) and EGW061 (east of Building 40-37), the glacial till extends to depths of approximately 147 feet bgs and 128 feet bgs, respectively. It is thinner (approximately 75 to 120 feet bgs) to the north northwest beneath Building 40-02 and at the head of Powder Mill Gulch. A test well drilled in 1938 at Paine Field (28N/04E-22B1), located south of the plant, encountered approximately 180 feet of till

(Newcomb, 1952). These depth data indicate that the till increases in thickness to the south and southeast in the plant vicinity.

In the upland portion of the Everett Plant, the Esperance Sand was encountered in existing monitoring well boring EGW040 at Building 40-56, several geotechnical borings previously completed on the north portion of the plant, and RI well borings EGW060, EGW061, EGW089, EGW177 and EGW178 as well as borings and monitoring wells installed in Powder Mill Gulch north of the plant. The Esperance Sand extends to a depth of at least 219 to 234 feet bgs based on the total depth of these well borings. Esperance Sand underlies the portion of Powder Mill Gulch on Boeing property and is exposed locally on the slopes of the gulch and along the banks of Powder Mill Creek. The Esperance Sand consists primarily of fine to medium sand, with occasional lenses of silt and gravel. The Lawton Clay occurs at a depth of approximately 80 feet bgs beneath the floor of Powder Mill Gulch at the northern property boundary, and is exposed in the creek channel approximately 2,200 feet to the north of the property boundary.

26.1.2 Groundwater Hydrology

The presence and flow of groundwater at the Everett Plant are based on previous geotechnical and environmental subsurface investigations and the results of the RI field program. Groundwater occurs beneath the plant in three ways: (1) as discontinuous zones of perched water within fill soil and weathered glacial till overlying dense glacial till, (2) discontinuous perched zones within the till, and (3) unconfined groundwater within the Esperance Sand. The conclusions associated with groundwater are as follows:

- The perched groundwater level within the fill and weathered till on the upland portion of the Everett Plant is generally between 10 feet and 20 feet bgs. The flow direction of water through the fill/weathered till is primarily controlled by gravity and typically follows the local topography and/or the slope on the top of the buried surface of the glacial till. However, local variations in the stratigraphic conditions and man-made features such as cut-and-fill areas, recovery wells, or utility trenches may influence perched groundwater flow.

- The various perched groundwater zones detected at the site are hydraulically isolated from each other and predominately occur in backfill soil in former UST excavations and along utility corridors. However, there is a possibility that contamination will migrate through the soil vadose zone to the underlying Esperance Sand Aquifer. The perched zones are also hydraulically isolated from the deeper, regional groundwater occurring within the Esperance Sand by the thick sequence of dense glacial till which is present beneath the plant. Soil samples of glacial till collected beneath perched groundwater zones are not saturated and dangerous constituents present in perched groundwater are either at low concentrations or not detected in the underlying glacial till.

- The glacial till has relatively low permeability (typical hydraulic conductivity values from laboratory tests on soil samples collected during the RI are 10^{-4} to 10^{-6} cm/s, one soil sample tested had a value of 2.26 x 10^{-4} cm/s and previous data indicate values as low as 10^{-7} cm/s) and generally does not contain groundwater. Discontinuous thin lenses of sand and gravel within the till encountered in a few RI and previous geotechnical borings contained perched groundwater.

  Groundwater within the Esperance Sand is unconfined, with the upper portion of the sand typically unsaturated. Unconfined groundwater within the Esperance Sand occurs at a depth of approximately 200 feet bgs to 215 feet bgs beneath the upland portion of the plant based on water levels measured in wells EGW040, EGW060, and EGW061 and is approximately 195 feet bgs in wells EGW177 and EGW178 located in the northwest portion of the plant. Groundwater was encountered at a similar elevation in the Paine Field test well (Newcomb, 1952).

- In upper Powder Mill Gulch, the Esperance Sand (and local alluvial) groundwater is generally unconfined with semi-confined conditions beneath a silt interbed in the Esperance Sand that underlies a portion of this area. Groundwater perennially discharges to Powder Mill Creek approximately 290 feet downstream of the head of the creek (i.e., the outlet from the stormwater detention basin) causing the groundwater flow direction beneath upper Powder Mill Gulch to change from the regional northwest direction toward Powder Mill Creek from both sides of the creek. Seasonally during periods of elevated groundwater levels, groundwater discharge to the creek may occur 200 feet or less downstream from the head of the creek. Two man-made features downstream of Boeing property: the creek culvert beneath Seaway Boulevard and a 24-inch sanitary sewer west of and parallel to Powder Mill Creek downstream (north) of Seaway Boulevard, cause preferential pathways for shallow groundwater flow in the Esperance Sand aquifer. Groundwater migrating along these pathways eventually discharges to Powder Mill Creek, primarily as seeps at SW PMG108 and further north.

  The entire reach of the Powder Mill Creek (PMC) receives either year around or seasonal discharge of groundwater. The determination of areas of seasonal or year around groundwater discharge is not considered critical to Ecology. The entire length of PMC from the spillway to Puget Sound is considered waters of the state for purposes of compliance with MTCA.

- The Esperance Sand groundwater flow direction beneath the Everett Plant is toward the north-northwest, which is consistent with previous interpretations of the regional groundwater flow in the plant vicinity. At the head of Powder Mill Gulch, local groundwater flow changes and is inward towards and more northerly along Powder Mill Creek.

- Regional data indicate the hydraulic conductivity of the Esperance Sand is typically on the order of 10^{-2} to 10^{-1} cm/sec (28 to 285 ft/day). Aquifer performance testing conducted in Powder Mill Gulch as part of this RI indicates that the horizontal hydraulic conductivity of the Esperance Sand in the Powder Mill Gulch area is 4 to 38 ft/day.

- The groundwater gradient of the Esperance Sand aquifer across the Everett Plant is approximately 12.5 ft/mile, and increases to between 106 ft/mile and 153 ft/mile within upper Powder Mill Gulch.

26.1.3 RI Groundwater Results – Perched Groundwater

Eight areas of perched groundwater previously known to have been impacted by dangerous constituents were further investigated and/or monitored during the RI. One of these areas, Building 45-52 Fuel Farm, was monitored until the perched groundwater was removed as a result of an interim action in 2008. and at SWMU/AOC Northwest of F-1, No. 107, EV-13 Oil/Water Separator applicable MTCA cleanup levels were achieved through natural attenuation. One new area of perched groundwater (Building 40-51, No. 151 Sump EV-12) was identified during the RI. The following areas with perched groundwater are recommended for inclusion in the FS and are also listed in Table 26-1:

Location	SWMU/AOC	Perched Groundwater Compounds of Concern
Building 40-51	#090 Former UST EV-11	TCE, vinyl chloride, 1,1-DCE
Building 40-51	#151 Sump EV-112	Arsenic, TCE, 1,1-DCE
Building 45-53	#166 Former UST EV-110	Jet-A fuel, BTEX
Building 40-24	#168 Utility Sump and Trenches	Phosphate-based hydraulic oil, BHT, phenol, bis(2-ethylhexyl) phthalate, arsenic, toluene, ethyl benzene, xylene
Building 40-11	#112 Oil/Water Separator	TPH, VOCs
Building 40-56	#086 EV-41, Former waste acid UST #089 EV-42, Former silkscreen UST #094 EV-43, Former silkscreen product UST	VOCs (ethylbenzene, xylenes, toluene, benzene, TCE, PCE, styrene, and vinyl chloride), 1,1-DCE, cis/trans 1,2-DCE
Former Gun Club	#100 Former Paine Field Gun Club Area A – west of the K-line Area A – east of the K-line Area B Area C	CPAHs, lead, arsenic

The rationale for the inclusion of each area in the FS is summarized below.

- **Building 40-51, No. 090 Former UST EV-11:** TCE, vinyl chloride, and/or 1,1-dichloroethene were detected above the applicable MTCA groundwater cleanup levels in groundwater samples collected from three borings (ESB1320, ESB1321, and ESB1322) and monitoring wells EGW030, EGW031, EGW032, EGW065, and EGW066 located adjacent to and north of former UST EV-11 (SWMU/AOC No. 090). Concentrations in these wells have remained relatively consistent during sampling conducted from 1995 through April 2006. It is recommended that the existing monitoring wells continue to be monitored semiannually until a remedial action is completed, or approval is obtained from Ecology to terminate these actions.

- **Building 40-51, No. 151 Sump EV-112:** Dissolved and total arsenic concentrations in groundwater samples from wells EGW057 and EGW058 are above the applicable MTCA groundwater cleanup levels. TCE has been detected above the applicable MTCA Method B groundwater cleanup level in groundwater samples collected from well EGW057 and occasionally from well EGW058. It is recommended that the existing monitoring wells (EGW057 and EGW058) continue to be monitored semiannually until a remedial action is completed, or approval is obtained from Ecology to terminate these actions.

  Building 45-53, No. 166 Former UST EV-110: Perched groundwater in this area is recommended for inclusion in the FS because of concentrations of TPH-D and BTEX in the groundwater. No further investigation is recommended in this area. Continued monitoring of groundwater in the existing monitoring wells on a semiannual basis is recommended as an interim action until such time that a final remedial action is implemented or approval is obtained from Ecology to terminate these actions.

- **Building 40-24, No. 168 Utility Sump and Trenches:** Perched groundwater in this area is recommended for inclusion in the FS because of concentrations of phosphate-based hydraulic oil and arsenic in the groundwater. The water is very limited in extent and occurs only within backfill soil surrounding Vault E at the south end of the trench system and below the adjacent portion of the utility tunnel. No further investigation is recommended in this area. Continued monitoring of groundwater in the existing monitoring wells on a semiannual basis is recommended as an interim action until such time that a final remedial action is implemented or approval is obtained from Ecology to terminate these actions.
- **Building 40-11, No. 112 Oil/Water Separator:** Perched groundwater (only) in this area is recommended for inclusion in the FS because of concentrations of TPH and VOCs in the groundwater. The water is very limited in extent and occurs only within backfill soil surrounding the oil/water separator. No further investigation is recommended in this area. Continued extraction of perched groundwater within the fill soils adjacent to the oil/water separator, and monitoring of groundwater in the existing dewatering well (EGW046) and monitoring well (EGW054) on a semiannual basis are recommended. These interim actions should continue until such time that a final remedial action is implemented or approval is obtained from Ecology to terminate these actions.
- **Building 40-56, No. 086 EV-41 Former waste acid UST, No. 089 EV-42 Former silkscreen UST, No. 094 EV-43 Former silkscreen product UST:** Perched groundwater in this area contains various VOCs (e.g., ethylbenzene, xylenes, toluene, vinyl chloride, benzene) at concentrations above the applicable MTCA groundwater cleanup levels. MIBK, MEK, TCE, styrene, and chloroform were detected intermittently above MTCA groundwater cleanup levels. The lateral extent of affected perched groundwater, including areas with detected or suspected LNAPL, has been sufficiently delineated for the purpose of the RI. Existing recovery wells (EGW043 and EGW044) control the groundwater flow in the former UST source area but do not have hydraulic control over the VOC groundwater plume east of EGW05l and west of EGW005. The FS will include further evaluation of the extent of perched groundwater containing VOCs and assessment of the extent and effectiveness of the current hydraulic control system. Continued operation of the recovery wells and continued groundwater monitoring on a periodic basis (semiannual and/or quarterly) are recommended.
- **Former Gun Club, No. 100 Former Paine Field Gun Club:** Concentrations of total arsenic and lead above MTCA cleanup levels have been detected in perched groundwater in this area. Dissolved arsenic and lead concentrations are typically below cleanup levels, except for arsenic in wells EGW018, EGW024, EGW047, EGW048, EGW056, EGW064, and EGW067. This area is recommended in the FS primarily due to the arsenic, lead and PAHs in soil and the potential for future migration of these constituents into the groundwater. Continued monitoring of perched water in the existing wells in the Former

Gun Club is recommended until a soil remedial action is completed, or approval is obtained from Ecology to terminate this interim action.

One area with dangerous constituents in groundwater investigated prior to the RI, Northwest of F-1, No. 107 EV-13 Oil/Water Separator, did not require further investigation during the RI other than periodic monitoring. The Northwest of F-1, No. 107 EV-13 Oil/Water Separator is not recommended for inclusion in the FS because the groundwater analytical results obtained from 1998 through May 2002 were not above applicable cleanup levels and Ecology has previously approved discontinuing groundwater monitoring and monitoring well decommissioning for this area.

Perched groundwater at the Building 45-52 No. 165 Former Fuel Farm USTs had concentrations of TPH as Jet-A fuel, benzene, and xylenes have been detected in groundwater above the applicable MTCA Method A and/or B groundwater cleanup levels during periodic groundwater monitoring from 1995 to 2008. The USTs and surrounding granular backfill soils containing the perched groundwater were removed in 2008 interim action and the excavation was backfilled with control density fill. Therefore this SWMU/AOC is not recommended for the FS for perched groundwater.

26.1.4 RI Groundwater Results – Esperance Sand Aquifer

The results of the RI of the Esperance Sand aquifer at the site beneath the upland area of the plant indicate:

- Analytical results for groundwater samples from the three wells (EGW040, EGW060, and EGW061) completed in the Esperance Sand indicate Esperance Sand groundwater did not contain concentrations of VOCs, TPH, PAHs, or PCBs above the method reporting limits or if detected, concentrations were below the most current MTCA Method A and/or B groundwater cleanup levels. TOC was reported as not detected when analyzed for in collected samples.
- TDS concentrations also meet the state and federal drinking water standards and are consistent with regional concentrations.
- Total and dissolved RCRA metals were either not detected above method reporting limits or were detected at concentrations equal to or below applicable MTCA groundwater cleanup levels in samples from wells EGW040, EGW060 and EGW061, except for arsenic and an occasional chromium concentration in samples collected between 1998 and 2002.
- Total and dissolved arsenic concentrations detected in all groundwater samples from well EGW061 are similar (0.007 mg/L to 0.012 mg/L) and are above the MTCA Method A groundwater cleanup level of 0.005 mg/L. Total and dissolved arsenic concentrations in groundwater samples from wells EGW040 and EGW060 range from 0.002 mg/L to 0.005 mg/L and are equal to or below the 2001 MTCA Method A groundwater cleanup level (0.005mg/L). Arsenic concentrations detected are consistently greater in groundwater from well EGW061 relative to wells EGW040 and EGW060 and are interpreted to be representative of regional background based on: (1) the location of these wells relative to SWMUs/AOCs investigated and (2) the available soil and shallow, perched groundwater analytical data from this RI and prior investigations at the site. Soils and shallow groundwater with elevated arsenic or chromium detected are limited in occurrence and do

not extend below a depth of approximately 30 feet bgs. Consequently, there is at least 170 feet of soil, much of it lower permeability glacial till, separating the Esperance Sand groundwater from soil and perched groundwater containing elevated arsenic concentrations on the facility. However, it is currently uncertain whether the arsenic concentrations in well EGW061 are representative of background concentrations and this issue will be evaluated further in the FS.

- Esperance Sand monitoring well EGW060 is upgradient from the main portion of the Everett Plant, well EGW061 is cross-gradient of the plant, and well EGW040 is downgradient of much of the plant. The three deep wells were primarily intended to provide groundwater quality data and assess site-specific groundwater flow direction and gradient within the Esperance Sand. The potential for vertical migration of dangerous constituents detected in shallow soil and/or perched groundwater at selected locations of the Everett Plant will be evaluated as part of the FS. The need for installation of additional deep wells and long-term monitoring of the Esperance Sand aquifer will be determined by Ecology based on: (1) the needs and results of the FS evaluation including current and potential exposure pathways; (2) future subsurface soil and groundwater monitoring data obtained during completion of the RI/FS process; and (3) the nature and effectiveness of remedial actions implemented per the Ecology Cleanup Action Plan.
- It is recommended that the five wells (EGW040, EGW060, EGW061, EGW177 and EGW178) be monitored on a semiannual basis per the Ecology approved Groundwater Monitoring Work Plan to evaluate chemical constituent concentration trends over time. The EGW040, EGW060, and EGW061 well samples will be analyzed for VOCs, PAHs, PCBs, total and dissolved arsenic and lead, phosphate-based hydraulic fluid and BHT, and TPH. Samples from EGW177 and EGW178 will be analyzed for VOCs. As part of the sampling, groundwater elevations should be recorded for the purpose of monitoring flow direction and gradient in the vicinity of the Everett Plant, and to observe seasonal and other variations in groundwater flow regime in the area.

The results of the RI of the Esperance Sand aquifer beneath upper Powder Mill Gulch indicate:

- TCE is present in groundwater at concentrations greater than the current MTCA Method B groundwater cleanup level (0.49 μg/L) from the northeast corner of the stormwater detention basin at the head of Powder Mill Gulch to approximately 1,600 feet north of Boeing's property line at Seaway Boulevard. The maximum concentration of TCE was detected groundwater samples from direct-push borings EGW114 and EGW111 (20,200 μg/L and 31,000 μg/L, respectively) prior to implementation of the source area interim action. Both of these samples were collected from beneath the northeastern portion of the detention basin, which is interpreted to be the source area of the downgradient TCE plume. Sampling results also show that the highest TCE concentrations (1,800 μg/L to 3,200 μg/L) detected in permanent monitoring wells have been in groundwater samples collected above the silt interbed identified in the Esperance Sand aquifer.

- TCE was not detected in groundwater upgradient of the detention basin except for low concentrations (0.3 - 0.6 µg/L) at well EGW102 which are slightly above the RI screening level. TCE has also not been detected to date in any of the monitoring wells located to the east of Powder Mill Creek, north of Seaway Boulevard. TCE is present in groundwater west of the creek, the adjacent slope, and a portion of the upland north of Seaway Boulevard.

- 1,4-Dioxane and PCBs were not detected in any of the groundwater samples for which these constituents were analyzed.

- TCE was detected at concentrations above the MTCA Method B surface water cleanup level (6.7 µg/L) in samples from Powder Mill Creek beginning at sample SW-PMG4 on Boeing property to sample location SW-PMG14 located 2,700 ft north of Seaway Boulevard along the creek's flow path. TCE was detected above the reporting limit but below the Method B surface water cleanup level (used as the RI screening level) (a) south of SW-PMG4 within the primarily intermittent flow portion of the creek immediately below the detention basin spillway and (b) north of Seaway Blvd at SW-PMG-23.

- TCE was detected in seep samples located north of Seaway Boulevard location SW-PMG80 on the south to sample location SW-PMG79 to the north. The highest concentration of TCE detected to date is from sample SW-PMG81 (530 µg/L). TCE was also detected in groundwater seep samples to the south at PMG-SW-108 at 0.56 µg/L (2010).

Based on the current data, PMG groundwater and surface water impacted by TCE and associated constituents above the applicable MTCA cleanup levels will be included in the FS. The groundwater, surface water, and seeps will continue to be monitored for TCE and other VOCs per the Ecology-approved monitoring plan.

26.2 SOIL SAMPLING RESULTS

Subsurface soil samples were collected using drilling and manual sampling techniques at 31 SWMUs/AOCs located at Building 40-31, Building 40-51, Building 45-01, Building 40-11, Building 40-02, Building 40-33, Building 40-37, Building 45-03, Building 45-06, Building 40-23, Building 40-22, Concrete Slurry Pit, Building 40-24, Building 40-56, Building 45-53, BOMARC Building 45-70, and the Former Gun Club. The samples were submitted for organic and inorganic chemical analyses that were tailored to evaluate the presence or absence of dangerous constituents known to have been used at each individual SWMU/AOC location. The RI site soil data were evaluated as follows:

- Organic constituents detected in site soil samples were compared to the applicable MTCA Method A or B soil cleanup levels based on direct contact to assess whether a current or potential future risk to human health and the environment exists.

- Dangerous constituents detected in site soils were compared to preliminary soil cleanup levels protective of groundwater, to assess whether risks to groundwater exist in the absence of risks from direct contact.

- Current and potential future vapor intrusion risks from volatile constituents were screened using Ecology's draft *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action,* dated October 2009.

- The 90th percentile natural Puget Sound background levels for metals published by Ecology and the MTCA Method A (unrestricted) and B cleanup levels were used as screening levels for comparison to site soil data.
- The Puget Sound background concentrations for arsenic and chromium in soil are higher than the updated MTCA Method B cleanup level for arsenic and the MTCA Method A cleanup level for hexavalent chromium. Therefore, the Puget Sound background concentrations for these two metals were used as the screening level.
- A current or potential risk warranting either further investigation and/or inclusion in the FS was assumed to be present if: (1) a detected constituent concentration was above the appropriate cleanup level; and (2) a potential or current exposure pathway to risk receptors and a transport pathway exists under current site use, or potential future site use which is inconsistent with present site use.
- Based on the analysis of RI site soil data, the findings for the SWMUs/AOCs were divided into two categories: (1) No Further Action and (2) SWMUs/AOCs Recommended for Inclusion in the Feasibility Study. The rationale for these categories and the assignment of SWMUs/AOCs in each category are described in the following sections.

26.2.1 SWMUs/AOCs Recommended for No Further Action

The RI soil analytical results indicate that potentially dangerous waste constituents are either not present or are not present at concentrations above Puget Sound background concentrations and/or applicable MTCA A or B cleanup levels in the following areas and specific SWMUs/AOCs listed below:

Area	SWMU/AOC
Building 40-31	#051 Bluestreak containment trench #070 Former clarifier (EV-153) #134 Former plating waste storage containers #150 Zyglo penetrant concrete sump #156 Bluestreak sumps (EV-115, EV-116, EV-117)
Building 40-51	#069 East traveling paint booth sump (EV-119) #151 Fuselage area southern air scrubber trenches Southern air scrubber sumps (EV-112 and EV-119) Wing area southern air scrubber trenches Northern air scrubber trenches and sump (EV-113) Cure Area
Building 45-01	#142 Paint hanger wastewater flumes and sumps
Building 40-11	#097 Former vapor degreaser #112 Oil/Water Separator
Building 40-02	#121 Hydraulic jack test stand unit #003, 005, 149 Tankline Pits, Sumps and Tanks
Building 40-33	#145 CST&P Cell
Building 40-37	#154 777 CST&P and CIC Cell
Building 45-03	#157 Paint Hangar wastewater flume and sumps
Building 45-06	#167 Three concrete wastewater USTs (EV-21, EV-22, and EV-23)
Building 40-23	#144 747 Wing Stub CST&P Cell
Building 40-22	#143 747 Wing Stub CST & P Cell
North Complex	#172 Concrete slurry pit
Building 45-53	#166 Former UST EV-110
Building 40-25 and 40-26	#177 and #178 Utility Vaults
Former Pistol Range	NA
BOMARC	#100 Former Paine Field Gun Club , Bomarc NW parking lot

No further investigation or inclusion in the FS is recommended for these SWMUs/AOCs for the following reasons:

- VOCs, non-halogenated SVOCs, SVOCs, tributyl phosphate compounds, phenol, TPH-D, TPH-O and/or TPH-G, were either not detected above analytical method reporting limits or were detected at concentrations below the applicable MTCA Method A or B soil cleanup levels.
- Metal and cyanide concentrations were either: (1) not detected at concentrations above the reporting limits (2) detected at concentrations below background metal levels as described in WAC 173-340-740(7)(d), (e), and (f) or (3) detected at concentrations below the applicable 2001 MTCA Method A or B soil cleanup levels.
- Chemical constituents in soil associated with these SWMUs/AOCs have been adequately delineated and characterized.
- The RI results indicate that constituents in subsurface soil in these areas do not pose a risk to human health and the environment.

Areas where dangerous constituents were detected above applicable MTCA soil cleanup levels that are not recommended for evaluation in the FS are:

- **Building 40-31, No. 051-Bluestreak Containment Trench, No. 134-Former Plating Waste Storage Containers, and No. 156-Bluestreak Area:** Total chromium concentrations detected are below the Puget Sound background concentration of 48.2

mg/kg except for only three of the 100 soil samples analyzed from borings adjacent to these SWMUs/AOCs. These exceptions are below the applicable MTCA Method A and B cleanup levels for trivalent chromium and the Method B level for hexavalent chromium, but above the MTCA Method A soil cleanup level for hexavalent chromium. Based on the lack of elevated concentrations of other metals and constituents analyzed for in these samples, these chromium concentrations are not considered indicative of a release.

- **Building 40-51, No. 151 Fuselage Area Southern Air Scrubber Trenches, Southern Air Scrubber Sumps, Northern Air Scrubber Trenches and Sump EV-113:** Total chromium concentrations are below the Puget Sound background concentration of 48.2 mg/kg except for seven of 115 samples analyzed from borings adjacent to these SWMUs/AOCs. The exceptions are below the applicable MTCA Method A and B cleanup levels for trivalent chromium and the Method B level for hexavalent chromium, but above the MTCA Method A soil cleanup level for hexavalent chromium. Based on the lack of elevated concentrations of other metals and constituents analyzed for in these and other samples from the borings, these chromium concentrations are not considered indicative of a release and these areas are not recommended for inclusion in the FS.
- **Building 40-51, No. 151 Cure Area, Wing Area Southern Air Scrubber Trenches:** Methylene chloride was detected at concentrations above the MTCA Method A soil cleanup level (20 μg/kg) but below the MTCA Method B level of 133,000 μg/kg. Concentrations ranged from 21 μg/kg to 32 μg/kg in four borings. In the Wing Area, arsenic was above the Puget Sound background concentration at one location (ESB1262) and chromium was above background at one location (ESB1206). These detections are not considered indicative of a release.
- **Building 45-01, No. 142-Paint Hangar Wastewater Flumes and Sumps:** Metals detected are below the applicable MTCA Method A and B soil cleanup levels or Puget Sound background levels with the exception of arsenic at one location and chromium at two locations. These values appear anomalous because no other metals or other compounds analyzed for were elevated in these samples in this area. Based on the lack of elevated concentrations of other metals or constituents analyzed for in these and shallower soil samples in this boring, these concentrations are not considered indicative of a release.
- **Building 40-37, No. 154 777 CST&P and CIC Cell Paint Hangar Wastewater Flumes and Sumps:** Chromium was detected at concentrations above the Puget Sound background concentration in one sample in each of five borings. These chromium concentrations ranged from 48.9 mg/kg to 54 mg/kg, and are slightly above the Puget Sound background concentration of 48.2 mg/kg. However, elevated concentrations of other metals or dangerous constituents were not detected in these or other samples from these borings. Therefore, these concentrations are not considered to be indicative of a release. Several water saturated soil samples from directly below the concrete slab contained alkaline pH measurements that are likely the result of leaching from the alkaline concrete.
- **Building 45-03, No. 157 Paint Hangar Wastewater Flume and Sumps:** Chromium was detected at a concentration above the applicable MTCA Method A soil cleanup level for hexavalent chromium, but below MTCA Method A and B soil cleanup levels for trivalent

chromium and MTCA Method B soil cleanup level for hexavalent chromium. The samples were collected at depths of 5 feet bgs and 7½ feet bgs in two separate borings. Elevated metals were not detected in samples from similar or deeper depths in other nearby borings, nor were other dangerous constituents detected that would likely be present in the event of leakage from the sumps. Shallow perched groundwater is not present beneath this unit and the soil is completely capped by the basement concrete floor.

- **Pistol Range:** Antimony, arsenic and/or lead concentrations were present in soil above the applicable MTCA Method A and/or B soil cleanup levels in several samples. An interim action in this area in 2006 removed the impacted soils and the concentrations in post-excavation soil samples are below the applicable MTCA soil cleanup levels.
- **BOMARC, No. 100 NW Parking Lot:** Carcinogenic PAHs, arsenic and/or lead concentrations above the applicable MTCA Method A and/or B soil cleanup levels were present in soil beneath a portion of the northwest parking lot. An interim action in this area in 2008 removed the impacted soils and the concentrations in post-excavation soil samples are below the applicable MTCA soil cleanup levels.

26.2.2 SWMUs/AOCs Recommended for the Feasibility Study

Based on the results of the RI, the chemical constituents in soil associated with the SWMUs/AOCs in seven areas listed below are recommended for evaluation in the FS:

Location	SWMU/AOC	Soil Compound of Concern
Building 40-51	#065 Former Paint Stripping Tank Line #054 Former Wastewater AST	Cadmium, chromium, and lead, TCE, methylene chloride
Building 40-24	#168 Utility sumps and trenches and Vault E #055 Former central hydraulic system waste tanks (EV75 and EV-76)	Phosphate-based hydraulic fluid
Building 40-56	#086 EV-41, Former waste acid UST #089 EV-42, Former silkscreen UST #094 EV-43, Former silkscreen product UST	ethylbenzene, toluene, and xylenes
Building 45-01	#093 Four former solvent USTS (EV-18, EV-19, EV-20 and EV-54)	MEK
Former Gun Club	#100 Former Paine Field Gun Club Area A – Pond D Area B Area C	CPAHs, arsenic, lead
BOMARC Building 45-70	#100 Former Paine Field Gun Club, South parking lot and southern portion of the building	CPAHs, cadmium
Building 45-52	#165 Former Fuel Farm USTs and associated fueling positions	TPH (Jet A) and BTEX

The basis for this recommendation is summarized below.

- **Building 40-51, No. 065 Former Paint Stripping Tank Line:** Several metals were detected at concentrations above the applicable MTCA soil cleanup levels in one soil sample collected at a depth of 5 feet bgs in backfill soil within a subgrade, concrete containment structure. Soil samples collected below the containment at 6 feet and 10 feet bgs did not contain elevated concentrations of metals and shallow perched groundwater is not present beneath this unit. The backfill soil is completely contained within and capped by concrete. Under the current site conditions, the metals detected do not pose a threat to groundwater, human health or the environment; however, this SWMU/AOC will be included in the FS per Ecology's request.

- **Building 40-51, No. 054 Former Wastewater AST:** TCE was detected in soil at concentrations above the 2001 MTCA Method A soil cleanup level (30 µg/kg) at two locations near the piping associated with the former wastewater AST. TCE was detected at 1 foot bgs in one and between 3 feet and 9 feet bgs at the second location. TCE concentrations ranged from 140 to 1,200 µg/kg and decreased with depth: 3 feet (1,200 µg/kg) and 9 feet bgs (510 µg/kg). Methylene chloride was also detected in this boring at concentrations ranging from 23 to 41 µg/kg, above the 2001 MTCA Method A soil cleanup level. Perched groundwater was not detected in this area and the area is currently paved. The TCE and/or methylene chloride did not exceed the applicable 2001 MTCA cleanup levels at the time the RI was completed. However, due to the recent decrease in MTCA cleanup levels for these compounds this area is recommended for inclusion in the FS.

- **Building 40-24, No. 168 Utility Sumps and Trenches:** Phosphate-based hydraulic fluid components are present at concentrations below the applicable Boeing proposed MTCA Method B soil cleanup levels based on ingestion in several subsurface soil samples collected from directly below the utility trench and Vault E; however, the discontinuous presence of NAPL in monitoring wells beneath Vault E indicate soil concentrations locally exceed the MTCA Method B soil cleanup level criteria per WAC I73-340-747(3)(g). Although the affected soil is of limited extent and fully capped by concrete, this SWMU/AOC is recommended for inclusion in the FS because there are discontinuous zones of perched groundwater nearby, there is a potential for future downward migration of the detected components, and this was a regulated Dangerous Waste Management Unit that will require post-closure monitoring if clean closure is not achieved. The potential for the detected dangerous constituents to migrate vertically to the Esperance Sand groundwater should be evaluated as part of the FS.

- **Building 40-56, No. 086 EV-41 Former waste acid UST, No. 089 EV-42 Former silkscreen UST, No. 094 EV-43 Former silkscreen product UST:** Ethylbenzene, toluene, and xylenes in soil are present at concentrations below the applicable MTCA Method B soil cleanup levels but above the MTCA Method A unrestricted soil cleanup levels for direct contact. Discontinuous LNAPL has been detected in several monitoring wells in this area, and was detected or is suspected at three other well/boring locations. The VOC concentrations in glacial till soil samples decrease in depth relative to VOC concentrations in overlying fill soil and/or perched groundwater in fill. These data, in addition to analytical results from prior investigations of the area, indicate that there has been limited vertical migration of VOCs into the glacial till at concentrations greater than the applicable MTCA Method A and B soil cleanup levels.

  This area is also recommended for evaluation in the FS because there is a potential vapor intrusion pathway and VOCs are also present in perched groundwater and fill soil at concentrations above the MTCA Method A or B cleanup levels. The potential for the detected dangerous constituents to migrate vertically to the Esperance Sand groundwater and potential exposure pathways should be evaluated as part of the FS.

- **Building 45-01, No. 093 Four former solvent USTS (EV-18, EV-19, EV-20 and EV-54).** MEK concentrations in soil may not be protective of groundwater and may represent a potential VI problem.
- **Former Gun Club¸ No. 100 Former Paine Field Gun Club:** Carcinogenic PAHs, arsenic and lead are present in surficial soil near Pond D and within Areas B and C at concentrations above the MTCA Method A or B soil cleanup levels; therefore, these Former Gun Club areas are recommended for inclusion in the FS.
- **BOMARC, No. 100 Former Paine Field Gun Club:** Carcinogenic PAHs and cadmium are present in soil at concentrations above the applicable MTCA Method A or B soil cleanup levels beneath the southern parking lot and southern portion of the building, respectively.. Because BOMARC is geographically separate from the rest of the facility and Boeing intends to sell Building 45-70 and transfer the land lease for this property before the corrective action process will be complete for the rest of the Everett facility, a separate FS focused solely on BOMARC is recommended.
- **Building 45-52, No. 165 Former Fuel Farm USTs (EV-26, EV-27, EV28 and EV-29):** Residual petroleum hydrocarbons and BTEX in soil near SWMU/AOC 165 at concentrations above the applicable MTCA Method A or B soil cleanup levels is recommended for evaluation in the FS for the direct soil contact and potential soil to groundwater pathways, and potential vapor intrusion pathway into nearby buildings 45-56 and 45-242 (Building 45-52 was removed during the 2008 Fuel Farm upgrade).

26.3 CONCLUSIONS

A summary of the areas, environmental media or current and potential exposure pathway, and chemical constituents recommended for further evaluation in the FS are summarized in Table 26-1. This summary is based on the soil and groundwater results of the RI and associated interim actions, detection of chemical constituents in soil samples collected and analyzed in association with facility modifications or new releases. In addition, three areas are included based on the results of investigations conducted prior to the RI areas (Section 25.0).

In addition to the continued monitoring of perched groundwater quality in existing wells associated with these SWMUs/AOCs and five Esperance Sand wells (EGW040, EGW060, EGW061, EGW177, and EGW178) located in the upland area of the plant, periodic monitoring of selected groundwater monitoring wells and surface water locations in Powder Mill Gulch is recommended until completion of the FS.

Table 26-1
Summary of SWMUs/AOCs Recommended for Feasibility Study
Boeing Everett Plant Remedial Investigation

SWMU/AOC Location	SWMU/AOC Name	SWMU/AOC Number	Antimony		Arsenic		Cadmium (Cd) and/or Chromium (Cr)		Lead		Phosphate Compounds		TPH		BTEX			CPAHs	
			Soil	Groundwater	Soil	Groundwater	Soil	Groundwater	Soil	Groundwater	Soil	Groundwater	Soil	Groundwater	Soil	Groundwater	Vapor Intrusion	Soil	Groundwater
Building 40-31	Former Bluestreak Vapor Degreas	No. 171																	
Building 40-51	Former Paint Stripping Tankline	No. 65					Cd & Cr		X										
Building 40-51	Former Wastewater AST	No. 54																	
Building 40-51	Sumps EV-112 and EV-119	No. 151				X													
Building 40-51	Former UST EV-11	No. 90				X													
Building 45-01	Former Solvent USTs	No. 93																	
Building 40-11	Oil/Water Separator	No. 112				X													
Building 40-11	UST-EV48-1	NA											X	X (potential)	X	X (potential)	X		
Building 40-11	Former Vapor Degreaser	No. 097																	
Building 40-02	Small Vapor Degreaser	No. 169																	
Building 40-02	Large Vapor Degreaser	No. 170																	
Building 40-02	Paint Crib	NA																	
South Complex	Esperance Sand Well EGW-061	NA				X													
Building 40-24	Utility Trenches and Sumps	No. 168				X					X	X			X	X	X		
Building 40-56	Former USTs	Nos. 86, 89, 94													X	X	X		
Building 40-56	Former Recycling Unit and UST	Nos. 67, 71													X	X (potential)	X		
South Complex	Former Gun Club	No. 100	X	X	X	X			X	X								X	X
Building 45-53	Former UST EV-110	No 166												X		X (B)			
Building 45-70	BOMARC	NA					Cd	X (potential)										X	X (potential)
North Complex	Esperance Sand, Powder Mill Gulch	NA																	
Building 45-52	Former Fuel Farm USTs	No. 165											X		X		X		
Building 40-53	Mock Degreaser	No. 98																	
South Complex	South Fire Pit	No. 68											X	X (potential)					
Flightline	Former UST EV-15	No. 83											X	X (potential)					

SWMU/AOC Location	SWMU/AOC Name	SWMU/AOC Number	Chloroform			Freon 112			Methyl Ethyl Ketone			N-Butyl Alcohol	Styrene	Tetrachlorethene (PCE)			Trichloroethene (TCE)			Vinyl Chloride, 1,1 DCE and 1,2 DCEs		
			Soil	Groundwater	Vapor Intrusion	Soil	Groundwater	Vapor Intrusion	Soil	Groundwater	Vapor Intrusion	Soil	Groundwater	Soil	Groundwater	Vapor Intrusion	Soil	Groundwater	Vapor Intrusion	Soil	Groundwater	Vapor Intrusion
Building 40-31	Former Bluestreak Vapor Degreas	No. 171															X	X (potential)	X	X	X (potential)	X
Building 40-51	Former Paint Stripping Tankline	No. 65																				
Building 40-51	Former Wastewater AST	No. 54															X	X (potential)	X			
Building 40-51	Sumps EV-112 and EV-119	No. 151															X	X	X	X	X	X
Building 40-51	Former UST EV-11	No. 90													X	X		X	X		X	X
Building 45-01	Former Solvent USTs	No. 93							X	X (potential)	X											
Building 40-11	Oil/Water Separator	No. 112																X	X		X	
Building 40-11	UST-EV48-1	NA																				
Building 40-11	Former Vapor Degreaser	No. 097															X	X (potential)	X	X	X (potential)	X
Building 40-02	Small Vapor Degreaser	No. 169			X			X											X	X		X
Building 40-02	Large Vapor Degreaser	No. 170			X			X									X	X (potential)	X	X	X (potential)	X
Building 40-02	Paint Crib	NA			X			X											X			
South Complex	Esperance Sand Well EGW-061	NA																				
Building 40-24	Utility Trenches and Sumps	No. 168										X										
Building 40-56	Former USTs	Nos. 86, 89, 94		X									X		X	X		X	X		X	X
Building 40-56	Former Recycling Unit and UST	Nos. 67, 71																				
South Complex	Former Gun Club	No. 100																				
Building 45-53	Former UST EV-110	No 166																X	X			
Building 45-70	BOMARC	NA																				
North Complex	Esperance Sand, Powder Mill Gulch	NA															X (source area)	X	X (future use)	X (source area)	X	X (future use)
Building 45-52	Former Fuel Farm USTs	No. 165																				
Building 40-53	Mock Degreaser	No. 98												X	X (potential)	X	X	X (potential)	X	X	X (potential)	X
South Complex	South Fire Pit	No. 68																				
Flightline	Former UST EV-15	No. 83																				

Notes:
BTEX = One or more of the compounds benzene, ethylbenzene, toluene, and xylenes exceed an applicable MTCA cleanup level
NA = Not applicable
Potential = Evaluation of potential migration of constituent via soil to groundwater pathway
(B) = Monitor for benzene in groundwater using SIM analytical method to achieve reporting limit equal to or less than MTCA Method B cleanup level