Feasibility Study for Upland Areas and Powder Mill Gulch

BCA Everett Plant
Everett, Washington

Prepared for

Boeing Environment, Health, and Safety Remediation on behalf of Boeing Commercial Airplanes

November 16, 2015

AECOM

Landau Associates

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Prepared by
AECOM
and
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November 16, 2015

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ABBREVIATIONS AND ACRONYMS

AO	Agreed Order
AOC	area of concern
ARAR	applicable or relevant and appropriate requirement
AST	aboveground storage tank
BCA	Boeing Commercial Airplane
bgs	below ground surface
BHT	butylated hydroxytoluene
Boeing	The Boeing Company
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	Cleanup Action Plan
CDF	controlled density fill
CFR	Code of Federal Regulations
City	City of Everett
CLARC	Cleanup Level and Risk Calculation (database)
COC	chemical of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CSM	conceptual site model
CUL	cleanup level
CY	cubic yard
DCA	disproportionate cost analysis
DCE	dichloroethene
DEQ	Department of Environmental Quality
DNAPL	dense nonaqueous-phase liquid
DPE	dual-phase extraction
DPP	di-n-butyl phenyl phosphate
Ecology	Washington State Department of Ecology
EHC®	an in situ chemical reduction reagent
EHS	environmental health and safety
EISB	enhanced in situ bioremediation
EPA	U.S. Environmental Protection Agency
EPM	exposure pathway model
Freon 12	dichlorodifluoromethane
FS	feasibility study
FSWP	Feasibility Study Work Plan
ft^2	square foot
GET	groundwater extraction and treatment
gpm	gallons per minute
HBU	highest beneficial use
IA	interim cleanup action

ABBREVIATIONS AND ACRONYMS (Continued)

ISCO	in situ chemical oxidation
ISCR	in situ chemical reduction
Landau	Landau Associates
L/m^3	liter per cubic meter
LNAPL	light nonaqueous-phase liquid
m^3	cubic meter
MCL	maximum contaminant level
MEK	methyl ethyl ketone
$\mu g/m^3$	microgram per cubic meter
µg/kg	microgram per kilogram
µg/L	microgram per liter
µmol/L	micromole per liter
mg/kg	milligram per kilogram
mg/L	milligram per liter
MIBK	4-methyl-2-pentanone
msl	mean sea level
MTCA	Model Toxics Control Act
NAPL	nonaqueous-phase liquid
O&M	operation and maintenance
ORC-A®	Oxygen Release Compound Advanced
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
PCE	tetrachloroethene
PEL	permissible exposure limit
PMC	Powder Mill Creek
PMG	Powder Mill Gulch
POTW	publicly owned treatment works
PSMFC	Pacific States Marine Fisheries Commission
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
REL	remediation level
RI	remedial investigation
RME	reasonable maximum exposure
ROI	radius of influence
SMS	Sediment Management Standard
SVE	soil vapor extraction
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TBP	tributyl phosphate

ABBREVIATIONS AND ACRONYMS (Continued)

TCA	trichloroethane
TCE	trichloroethene
TEX	toluene, ethylbenzene, and xylenes
TOC	total organic carbon
TPH-D	total petroleum hydrocarbon as diesel
TPH-G	total petroleum hydrocarbon as gasoline
TPH-Jet A	total petroleum hydrocarbon as Jet A
TPH-O	total petroleum hydrocarbon as motor oil
URS	URS Corporation
USC	United States Code
UST	underground storage tank
VOC	volatile organic compound
WAC	Washington Administrative Code
WDFW	Washington State Department of Fish and Wildlife

1.0 INTRODUCTION

This feasibility study (FS) covers soil and groundwater in the Upland and Powder Mill Gulch (PMG) areas at the Boeing Commercial Airplane (BCA) Everett Plant located in Everett, Snohomish County, Washington (Figure 1-1). The objective of this FS is to meet the FS requirements enumerated in Agreed Order (AO) No. DE 96HS-N274, as amended, between The Boeing Company (Boeing) and the Washington State Department of Ecology (Ecology), effective February 12, 1997, for the solid waste management units (SWMUs) and areas of concern (AOCs) listed in the final, Ecology-approved remedial investigation (RI) (URS 2011a and 2011b) as requiring evaluation under the FS. The scope and procedures for this FS were established in the Ecology-approved FS Work Plan (FSWP) for upland areas and PMG (URS and Landau 2012).

This FS report documents the extensive evaluation of cleanup alternatives performed for each SWMU/AOC in accordance with the requirements of the AO and the Washington State Model Toxics Control Act (MTCA), Washington Administrative Code (WAC) 173-340-360, as revised November 2007. Where the AO cites a specific section of an earlier version of MTCA for the requirements of this FS, Ecology provided revised citations in an e-mail dated November 16, 2011.

The site background and description were summarized in the FSWP and are not repeated in this FS report. Site description information provided in the FSWP includes a summary of the geology and hydrogeology of the site.

1.1 SWMUS/AOCS INCLUDED IN THIS FEASIBILITY STUDY

This FS evaluates cleanup alternatives individually for each of the upland SWMUs/AOCs selected for further evaluation in the Upland RI report (URS 2011b), as identified in the FSWP for upland areas and PMG (URS and Landau 2012). During the FS evaluation, it became clear that the evaluation results were very similar or identical for individual SWMUs/AOCs with similar characteristics. Therefore, to make the presentation within this FS report more concise, SWMUs/AOCs with similar characteristics and similar FS evaluation results are discussed together in groups in Sections 3, 6, 7, 8, and 9 of this FS.

A separate FSWP was prepared to describe the FS for the sediment, stormwater, surface water, and accumulated solids in PMG, Japanese Gulch (including Alpha Pond), and Boeing Lake (URS 2012b), and a separate FS report will be prepared for those areas. A separate FS report has also been prepared for BOMARC Building 45-70 (URS 2014f). This is a Boeing-owned building situated on land leased from Snohomish County east of Airport Road from the Everett Plant property (Figure 1-2). The building is currently leased to several tenants, and Boeing intends to sell the building in the near future. Consequently, a supplemental RI (URS 2012a)

was completed, and a separate FS is being conducted for this property to facilitate a more timely completion of the FS and Cleanup Action Plan (CAP) for the BOMARC property.

The SWMUs/AOCs included in this FS report are listed in Table 1-1 and shown on Figure 1-2. For the Upland RI report, the SWMUs/AOCs investigated were organized based on their locations within the plant. In most cases, SWMUs/AOCs have been referenced by the nearest Boeing building number. Some of these buildings are free-standing structures, while others are sections of the final assembly building (Figure 1-2). Buildings located in the North Complex are identified by a building number starting with 40 (e.g., Building 40-56), whereas buildings in the South Complex start with number 45 (e.g., Building 45-01).

1.2 OBJECTIVE AND PURPOSE

The objective of this FS report is to develop and evaluate alternatives to enable cleanup actions to be selected for the site as required by the AO Section VI(7)(B) and WAC 173-340-350(8) and (9) and -360 and those described in the AO for the SWMUs/AOCs identified as requiring an FS evaluation per the final, Ecology-approved RI for the upland areas and PMG (URS 2011b).

In order to meet the FS objectives, the following information is presented in this report:

- An update since completion of the RI regarding the current conditions and conceptual site model (CSM), including the exposure pathways, at the SWMUs/AOCs included in the FS
- Proposed cleanup levels for each SWMU/AOC
- Development and evaluation of proposed cleanup alternatives for each SWMU/AOC
- Recommended preferred cleanup action alternatives for each SWMU/AOC

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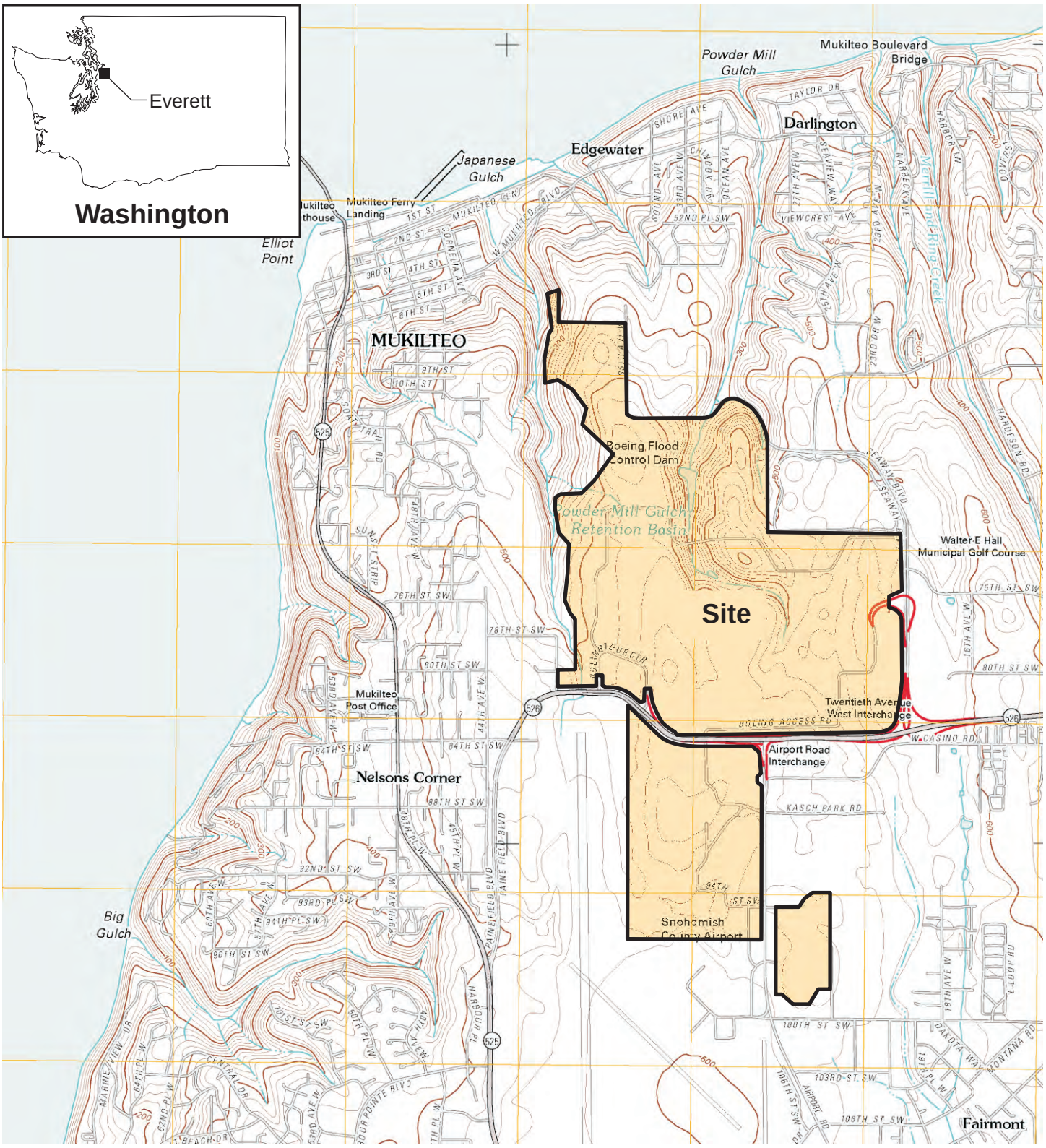


Source: USGS 7.5-minute topographic quadrangle, Mukilteo, Washington, 2011

0 0.5 1.0

Scale in Miles

Figure 1-1

Site Vicinity Map

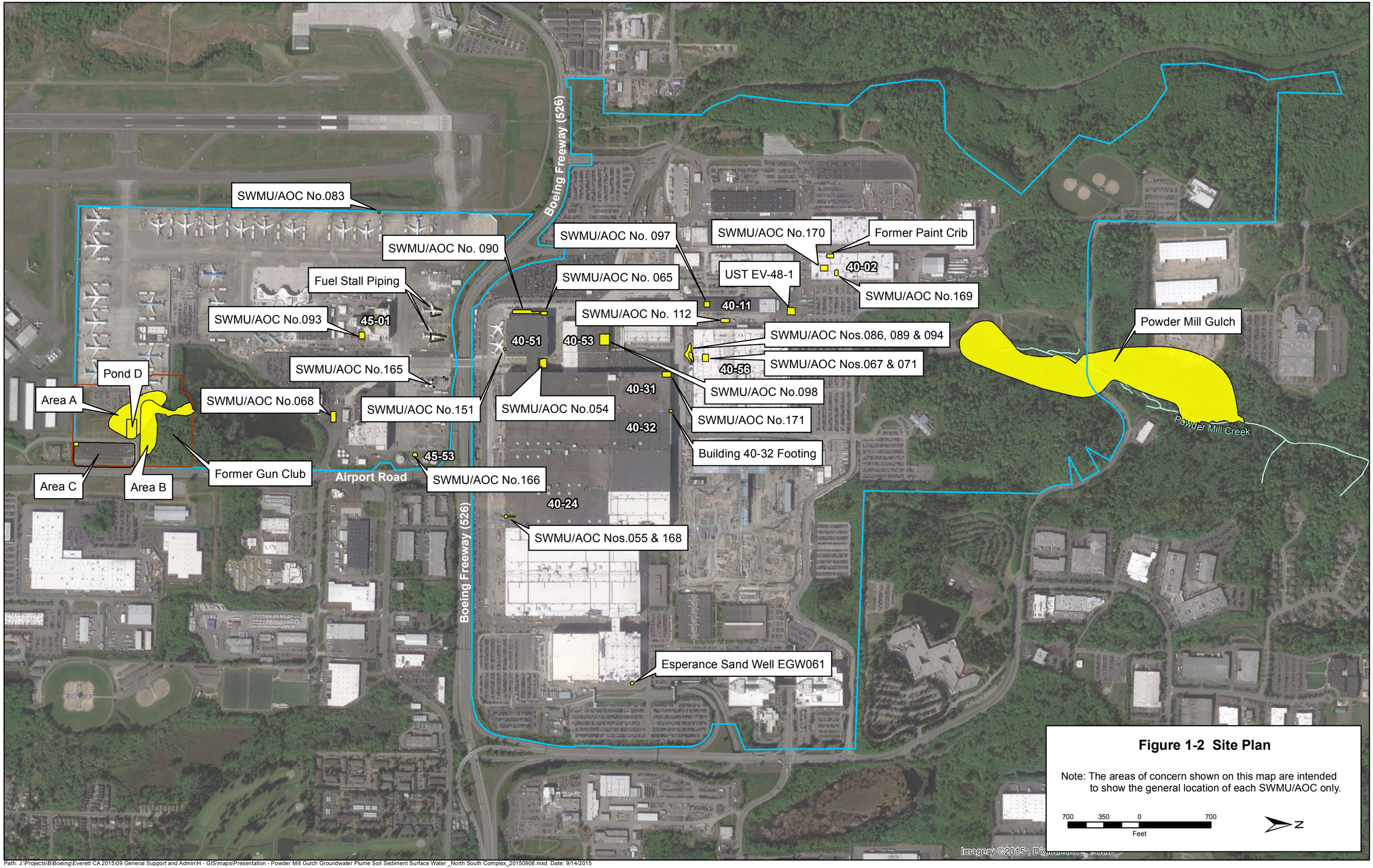


Figure 1-2 Site Plan

Note: The areas of concern shown on this map are intended to show the general location of each SWMU/AOC only.

Path: J:\Projects\B\Boeing\Everett CA 2015\09 General Support and Admin\H - GIS\maps\Presentation - Powder Mill Gulch Groundwater Plume Soil Sediment Surface Water _North South Complex_20150908.mxd Date: 9/14/2015

Table 1-1
Summary of SWMUs/AOCs for the Feasibility Study

SWMU/AOC Location	SWMU/AOC Name	SWMU/AOC Number	FS Section
Building 40-31	Former Bluestreak Vapor Degreaser	171	2.1
Building 40-51	Former Paint Stripping Tankline	065	2.2
	Former Wastewater AST	054	2.3
	Sumps EV-112 and EV-119	151	2.4
	Former UST EV-11	090	2.5
Building 45-01	Former Solvent USTs	093	2.6
Building 40-11	Oil/Water Separator	112	2.7
	UST EV-48-1	NA	2.8
	Former Vapor Degreaser	097	2.9
Building 40-02	Small Vapor Degreaser	169	2.10
	Large Vapor Degreaser	170	2.11
	Paint Shop Chemical Crib	NA	2.12
South Complex	Esperance Sand Well EGW061	NA	2.13
Building 40-24	Utility Trenches and Sumps	168, 055	2.14
Building 40-56	Former USTs	086, 089, 094	2.15
	Former Recycling Unit and UST EV-153	067, 071	2.16
South Complex	Former Gun Club	100	2.17
Building 45-53	Former UST EV-110-1	166	2.18
North Complex	Esperance Sand, Powder Mill Gulch	NA	2.19
Building 45-52	Former Fuel Farm USTs and Fueling Positions	165	2.20
Building 40-53	Mock-Up Degreaser	098	2.21
South Complex	South Fire Pit	068	2.22
Flightline	Former UST EV-15	083	2.23
Building 40-32	Footing Excavation	NA	2.24

Notes:
AOC - area of concern
FS - feasibility study
SWMU - solid waste management unit
NA - not applicable

2.0 CURRENT CONDITIONS

This section summarizes the current conditions at the Everett plant in accordance with the AO Section VI(7)(A). In accordance with the FSWP, the FS includes the following additional investigations to update the current conditions:

- Vertical and/or lateral extent of dangerous chemical constituents in soil at the following two categories of SWMUs/AOCs:
  - Those investigated prior to the RI that warranted further delineation
  - Those investigated during the RI, but warranting additional investigation relative to the soil to groundwater pathway and vapor intrusion pathway
- Sampling and analysis of sub-slab vapor (beneath building floor slabs) and soil gas (beneath pavement outside of buildings) directly above volatile organic compound (VOC) source areas (when possible)
- Off-site sampling of deep soil gas in PMG, north of Boeing's property
- Soil physical parameters collected as needed for the following:
  - Modeling potential future vertical migration of contaminants in vadose zone soil to groundwater in accordance with MTCA 173-340-747
  - Johnson and Ettinger modeling for vapor intrusion assessment, if warranted
- Future evaluation of reduction/oxidation changes as part of remedy implementation. Adding arsenic, manganese, and chromium (consistent with current groundwater monitoring in the PMG trichloroethene [TCE] plume source area). These chemicals of concern (COCs) were added to the constituent list for ongoing groundwater monitoring at selected SWMUs/AOCs where chlorinated VOCs are present in perched groundwater. The purpose of these additions is to establish current concentrations and provide a basis for evaluating changes in concentrations that may be associated reduction/oxidation changes from future reductive dechlorination of chlorinated VOCs.
- Results of pilot tests conducted at selected SWMUs/AOCs

The specific scope and details of the proposed pilot tests and vapor intrusion sampling that were performed were provided in addendum work plans submitted to Ecology for review and approval.

A summary of the work performed to update current conditions is included in Appendix A and is organized by SWMU/AOC. Appendix A also documents submittal to Ecology of the data collected under this FS, and presents tabulated groundwater monitoring data. Modeling performed based on the data collected is described in Appendix B. The data obtained are combined with the RI data to describe the current conditions at each SWMU/AOC in this section. Based on these current conditions, Sections 3, 5, and 6.1 present CSMs, proposed cleanup standards, and media requiring cleanup, respectively.

2.1 SWMU/AOC NO. 171, BUILDING 40-31, FORMER BLUESTREAK VAPOR DEGREASER

Building 40-31 is part of the final assembly building and is located in the north-central portion of the plant (Figure 1-2). SWMU/AOC No. 171, located in this building, was identified for further evaluation as part of the FS (Figure 2-1a) and is discussed in this section.

The geology in the northern portion of Building 40-31 consists of 3 to 4 feet of fill, underlain by 3 to 5 feet of moderately dense, slightly weathered glacial till, underlain by approximately 45 feet of very dense glacial till (Dames & Moore 1997a and URS 2011b). Wet soils and/or perched groundwater were not encountered during the drilling of geotechnical borings to a depth of at least 60 feet below the finished building grade prior to construction of the building. The closest known perched groundwater occurrence is approximately 160 feet northwest of Building 40-31.

2.1.1 Summary Description of SWMU/AOC No. 171

The Former Bluestreak Vapor Degreaser was in operation from 1968 until 1994, when it was decommissioned and replaced with a new, smaller vapor degreaser requiring a smaller pit. The pit was located south of the Bluestreak area and is shown on Figure 2-1a, with a cross section shown on Figure 2-1b. The former degreaser was located in a subgrade concrete pit, which was lined with stainless steel in the late 1980s. TCE and 1,1,1-trichloroethane (TCA) were used as degreaser solvents in the unit. Soil samples were collected in 1994 from the base and sidewalls after removal of the concrete pit and construction of a new concrete pit for the new, smaller degreaser, as discussed in Section 2.1.2. The degreaser installed in 1994 was subsequently removed in 1997 and the pit filled with controlled density fill (CDF) and capped with a concrete floor. The concrete floor and sidewalls from the second degreaser pit are still in place at 10 feet below ground surface (bgs). Native glacial till is present outside of the former degreaser pit area. The former degreaser area currently contains large racks for carpet storage, and a large open floor plan for storage, loading, and unloading.

2.1.2 Summary of Pre-RI Findings Regarding SWMU/AOC No. 171

Soil samples were collected from the excavation base and sidewalls in 1994 after removal of the concrete pit and excavation for the new, smaller degreaser. Samples were analyzed for TCE and TCA. Based on the results of this historical investigation (SECOR 1995), additional investigation was performed under the FS to assess chlorinated solvent concentrations in soil and the potential leaching to the groundwater and vapor intrusion pathways.

2.1.3 SWMU/AOC No. 171 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from four additional soil borings and four sub-slab vapor samples to assess vertical extent of soil contamination, obtain soil physical characteristics data for use in leaching modeling, and characterize soil vapor concentrations.

Soil Conditions

The combined historical and FS data for soil remaining on site following historical cleanup activities and sub-slab vapor are presented in Tables 2-1a and 2-1b. Sampling locations are presented with selected analytical results on Figure 2-1a, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameters and total organic carbon (TOC) data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

TCE, 1,1-dichloroethene (DCE), and cis-1,2-DCE are present in soil beneath and in the immediate vicinity of the former vapor degreasers. Of these compounds, only the TCE and cis-1,2-DCE concentrations exceed the MTCA Method B soil cleanup levels for protection of groundwater (25 and 78 µg/kg, respectively), which are proposed as the cleanup levels for soil at this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in the soil is 11,000 µg/kg (estimated) at approximately 14 feet bgs. The maximum cis-1,2-DCE concentration in the soil is 160 µg/kg (estimated) at approximately 19 feet bgs. Exceedances of cis-1,2-DCE are located within the area of exceedances of TCE. The extent of contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 2,000 ft^2 that extends to a maximum depth of approximately 26 feet bgs in the east and approximately 18 feet bgs in the west (940 CY). A utility tunnel is present along the eastern sidewall of the former degreaser, which limits access to this area.

The conservative vadose zone transport model (Appendix B) indicates that, with a concrete surface cover (floor) in place to prevent rainfall runoff/infiltration (i.e. recharge) to mobilize and transport the residual TCE present in soil at this SWMU, it will not leach to Esperance Sand groundwater for 999 years. The presence of the existing building above the surface cover would provide additional protection against the potential for TCE to migrate to Esperance Sand

groundwater. Without a surface cover in place, the model predicts that the TCE in soil could leach to Esperance Sand groundwater at concentrations greater than the state and federal maximum contaminant level (MCL) for TCE of 5 µg/L within 25 years, but the model over-predicts the potential migration due to conservative assumptions inherent in the model. Soils data for this SWMU demonstrates the conservative nature of the model results, indicating that the TCE in soil has only migrated a maximum of about 15 feet below the former vapor degreaser in the approximately 20 years since the former degreaser was removed.

Sub-Slab Vapor Conditions

Tetrachloroethene (PCE), TCE, 1,1-DCE, cis-1,2-DCE, and vinyl chloride were detected above the laboratory reporting limit in sub-slab vapor during the FS sampling. The TCE and vinyl chloride concentrations in sub-slab vapor exceed the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 and 93 µg/m^3, respectively) (USEPA 2015a). The MTCA Method C air cleanup levels are presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE and vinyl chloride concentrations in the sub-slab vapor are 48,000 and 150 µg/m^3, respectively. Johnson and Ettinger modeling of the vapor intrusion pathway at this SWMU/AOC (Appendix C) indicates that the chlorinated solvent concentrations detected in sub-slab vapor could result in an exceedance of the MTCA Method C cleanup level for indoor air.

Upon review of the sub-slab vapor data that exceeded the industrial MTCA screening levels for TCE and because similar chemicals are used in the manufacturing processes, Boeing industrial hygienists were requested to assess indoor air to evaluate potential worker exposures. PCE, TCE, and their degradation products were not detected. Based on this assessment, the concentrations in sub-slab vapor are not a risk to workers via indoor air at this SWMU/AOC. No further investigation is necessary for this SWMU/AOC in compliance with the Washington State Airborne Contaminants Standard, Chapter 296-841 WAC.

2.2 SWMU/AOC NO. 065, BUILDING 40-51, FORMER PAINT STRIPPING TANKLINE

Building 40-51 is located in the west-central portion of the facility (Figure 1-2). Four SWMUs/AOCs located within or adjacent to this building (SWMU/AOC Nos. 065, 054, 151, and 090) were identified for further evaluation in the FS (Figure 2-2a) and are discussed in Sections 2.2, 2.3, 2.4, and 2.5, respectively.

Most of Building 40-51 is underlain by dense to very dense glacial till to at least 50 feet below the finished floor (Dames & Moore 1997a and URS 2011b). The glacial till consists of very dense gray silty fine sand, with occasional thin layers of coarse sand and gravel. Fill soils overlie the glacial till beneath a portion of the east side of the building. Fill is also present along

the west side of the building in the former excavations for underground storage tanks (USTs) EV-9 and EV-11 and along the fire water system pipeline corridor.

2.2.1 Summary Description of SWMU/AOC No. 065

The paint stripping tankline was formerly located in the northwest portion of Building 40-51 (Figure 2-2a). The tankline was installed in 1970 and operated until 1975 when the system was closed. Chemicals contained within the tanks in SWMU/AOC No. 065 included an alkaline cleaner, chromic acid, nitric acid, methylene chloride, phenol, methyl ethyl ketone (MEK), 4-methyl-2-pentanone (MIBK), and lime. The tankline consisted of seven tanks, a drip pan, a lime pit, and a sump within a subgrade concrete containment structure and an emergency dump UST below the containment floor. The containment structure extended 3 to 6.5 feet below the finished floor elevation and was constructed of 9-inch-thick concrete. When the tankline was decommissioned, the dump tank, lime pit, and sump were abandoned in place by backfilling with compacted sand and capping with a 7-inch-thick concrete slab. Glacial till was encountered beneath this slab in boring ESB1102, and fill consisting of fine to medium sand was encountered below this slab to a depth of 10 feet bgs in boring ESB1103. Glacial till was encountered below the fill soil to the maximum depth explored of 18½ feet bgs. This area is currently covered by a building with a printing operation.

2.2.2 Summary of RI Findings Regarding SWMU/AOC No. 065

There was no investigation of the former paint stripping tankline prior to the RI. The RI for SWMU/AOC No. 65 included soil sampling from five borings (ESB1101 through ESB1105) and analysis for Resource Conservation and Recovery Act (RCRA) metals, pH, and VOCs to assess whether chemicals in liquids contained in the former paint stripping tankline were present in the underlying fill and glacial till soil. Soil boring locations are shown on Figure 2-2a, and a cross section of this SWMU/AOC can be referenced on Figure 3-3 of the RI (URS 2011a and 2011b). The investigation included collection and analysis of 12 soil samples at depths ranging from 5 to 18 feet bgs. Perched groundwater was not encountered beneath this SWMU/AOC to a depth of 18 feet bgs.

VOCs and metals in soil were either not detected or were detected at concentrations below the RI screening levels, with the exception of benzene, cadmium, total chromium, and lead in one soil sample of fill soil from 5 feet bgs in boring ESB1102. This sample consisted of backfill soil completely contained within the filled, subgrade concrete containment structure. Benzene was not detected, and metals concentrations were below the RI screening levels in the two deeper native soil samples (6 and 10 feet bgs) from this boring. The RI recommended evaluation of the direct contact pathway for cadmium, total chromium, and lead in the backfill soil contained within this SWMU/AOC.

2.2.3 SWMU/AOC No. 065 Current Conditions

The FSWP concluded that the RI data were sufficient to conduct the FS for this SWMU/AOC, and no further investigation or pilot testing was conducted during the FS. The historical FS data for soil remaining on site following historical cleanup activities are presented in Table 2-2a. Sampling locations are presented with selected analytical results on Figure 2-2b and data interpretations are discussed further in Sections 3, 5, and 6.1.

The RI data indicate that the affected soils are contained within the closed-in-place concrete containment structure, and chemical constituents have not migrated outside the subgrade concrete containment structure capped by the concrete floor slab. Cadmium concentrations in soil within this structure exceed the Puget Sound background concentration (1 mg/kg). Lead concentrations in soil exceed the MTCA Method A soil cleanup level (250 mg/kg), and chromium concentrations in soil exceed the Puget Sound regional background concentration (48 mg/kg). These cleanup levels are proposed as the cleanup levels for soil at this SWMU/AOC in Section 5 of this FS. The maximum concentrations for these constituents occur in one boring location at 5 feet bgs in the backfilled former paint stripping tankline. These maximum concentrations at this location and depth were cadmium at 43.6 mg/kg, total chromium at 1,840 mg/kg, and lead at 912 mg/kg.

All detected metals concentrations in native soils are below the MTCA A and/or B soil cleanup levels for protection of groundwater and direct contact and/or regional background concentrations, except for two total chromium concentrations (0.9 mg/kg above the proposed 48 mg/kg CUL) of 48.9 mg/kg at 5 feet bgs at boring ESB1101 located to the east of the former paint stripping tankline and 48.2 mg/kg at 6 feet bgs at boring ESB1102 directly below the floor of the tankline pit. Based on the results of soil samples surrounding ESB1102 and the concentration of total chromium in the duplicate sample from borings ESB1101 (38.3 mg/kg), the higher concentrations are attributed to natural variation in regional background concentrations and not considered evidence of a release to native soils requiring action.

In the event that active cleanup is selected for this SWMU/AOC (see Sections 6-9) and post-cleanup confirmation samples exhibit total chromium concentrations exceeding the Puget Sound Background concentration, soil samples will be additionally analyzed for speciated chromium and the results compared to the MTCA Method B cleanup levels protective of groundwater for trivalent and hexavalent chromium.

The extent of contaminated soil at this SWMU/AOC is estimated as an area of 1,100 ft^2 that extends to a maximum depth of 5 feet bgs (200 CY).

2.3 SWMU/AOC NO. 054, BUILDING 40-51, FORMER WASTEWATER AST

Former SWMU/AOC 054 was located approximately 60 feet east of the northeast corner of Building 40-51 (Figure 2-2a). A summary of subsurface conditions in the vicinity of SWMU/AOC No. 054 and Building 40-51 is provided in Section 2.2.

2.3.1 Summary Description of SWMU/AOC No. 054

SWMU/AOC No. 054 consists of a former 25,000-gallon aboveground storage tank (AST) that was used to contain wastewater from the Building 40-51 air scrubber and wastewater sumps from 1969 to 1988. The wastewater was discharged to the sanitary sewer via buried piping. The former wastewater AST was constructed of steel. The dimensions of this tank were 43 feet long by 9 feet in diameter. The tank was situated above a concrete slab with spill containment walls around it. A blind sump was located in the northeast corner of the containment area. The tank received wastewater from the Building 40-51 sumps. There is no specific information on the depth of buried piping, but it is assumed to have been at least 2 feet below grade. The operation of the tank was discontinued in 1988 when it was cleaned and removed from the area.

Chemical constituents that may have been present within the wastewater within the AST include metals, nonhalogenated semivolatile organic compounds (SVOCs), phenol, total petroleum hydrocarbons (TPH) as gasoline (TPH-G), TPH as diesel (TPH-D), and VOCs associated with products used in the cleaning, sealing, priming, and painting processes.

A wide, approximately 10-foot-deep utilidor bisects this SWMU/AOC from north to south, effectively dividing it into two regions, with shallow soil exhibiting detectable chemical constituents (Figure 2-2c). Based on the observed contaminant distribution, it is likely that chemical constituents are present in soil beneath the utilidor.

2.3.2 Summary of RI Findings Regarding SWMU/AOC No. 054

There was no investigation of the former wastewater AST prior to the RI. The RI for SWMU/AOC No. 054 included soil sampling from three borings and analysis for VOCs, nonhalogenated SVOCs, phenol, TPH-G, TPH-D, and RCRA metals to assess whether chemical constituents in liquids contained in the former wastewater AST were present in the underlying fill and glacial till soil. Soil boring locations are shown on Figure 2-2c. The 1998 investigation included collection and analysis of six soil samples at depths ranging from 1 to 9 feet bgs. Minor perched water was encountered in fill soil in sand layers at depths of 7½ to 9 feet bgs.

Nonhalogenated SVOCs, TPH-D, TPH-G, and phenol were not detected. VOCs and metals were either not detected or detected at concentrations below the RI screening levels, with the exception of TCE, methylene chloride, arsenic, chromium, and strontium. Metals detected were within the typical range detected in native soils at the Boeing Everett site and below the

applicable MTCA Method A and/or B soil cleanup levels for direct contact and/or regional background concentrations.

The RI recommended evaluation of the vapor intrusion, soil to groundwater, and direct contact pathways for TCE in soil near this SWMU/AOC.

2.3.3 SWMU/AOC No. 054 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from six additional soil borings and two soil gas samples to assess vertical extent of soil contamination, obtain soil physical characteristics data for use in leaching modeling, and characterize soil gas concentrations.

The combined RI and FS data for soil remaining on site following historical cleanup activities and FS data for sub-slab vapor are presented in Tables 2-3a and 2-3b. Sampling locations are presented with selected analytical results on Figure 2-2c, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameters and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

TCE, trans-1,2-DCE, and cis-1,2-DCE are present in soil beneath the former AST location and between the former AST location and Building 40-51 to the west. Of these compounds, only the TCE concentrations exceed the MTCA Method B soil cleanup level for protection of groundwater (25 µg/kg), which is proposed as the cleanup level for soil at this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in soil is 8,500 µg/kg (estimated) at 10.5 feet bgs. The extent of contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 4,400 ft^2 that extends to a maximum depth of 18 feet bgs in the west and 13 feet bgs in the central and eastern portions (total 2,100 CY). Subsurface work is limited by a utilidor and stormwater pipe present in the central area of the SWMU/AOC.

The conservative vadose zone transport model (Appendix B) indicated that, with a concrete surface cover (pavement) in place to prevent recharge, TCE present in soil at this SWMU will not leach to Esperance Sand groundwater for at least 999 years; even assuming the maximum soil concentration of 8,500 µg/kg. Without a surface cover in place, the model simulation predicts that the TCE present in soil could leach to Esperance Sand groundwater at concentrations greater than the MCL for TCE of 5 µg /L within 50 years. However, soils data indicate that substantive concentrations of TCE have migrated to depths of less than 20 feet below the former WW AST in the approximately 27 years since it was removed.

Soil Gas Conditions

TCE and cis-1,2-DCE were detected in soil gas during the FS sampling at locations outside of but near Building 40-51 and near the former AST. TCE concentrations in soil gas exceed the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 µg/m^3) (USEPA 2015a). The MTCA Method C air cleanup level is presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in soil gas is 10,000 µg/m^3.

2.4 SWMU/AOC NO. 151, BUILDING 40-51, SUMPS EV-112 AND EV-119

SWMU/AOC No. 151 consists of several large subgrade trench and sump systems located throughout Building 40-51 (Figure 2-2a). The southern air scrubber system includes six fuselage area trenches, six wing area trenches, four cure area trenches, and two sumps (EV-112 and EV-119). The northern air scrubber system includes additional trenches and a sump (EV-113). Following the RI, the portion of SWMU/AOC 151 passed to the FS for evaluation was the area around sump EV-112 (Figure 2-2d). A summary of subsurface conditions in the vicinity of sump EV-112 at SWMU/AOC No. 151 and Building 40-51 overall is provided in Section 2.2.

2.4.1 Summary Description of SWMU/AOC No. 151

Sumps EV-112 and EV-119 are constructed of 6- to 10-inch-thick concrete and extend to depths of 10 to 15 feet bgs. During the RI (URS 2011b), fill soil consisting of fine to medium sand and silty sand was observed surrounding sump EV-112 to a depth of 11 to 14 feet bgs. FS borings located south of Building 40-51 indicate fill to depths ranging from 8 to 13 feet bgs. Glacial till soil was encountered below the fill to the maximum depth explored (40.5 feet bgs). Perched groundwater was encountered at borings ESB1267 and ESB1268 during the RI at depths from 7 feet to 12.5 feet bgs. These borings were developed into wells EGW057 and EGW058, respectively. Perched groundwater was encountered in fill at boring ESB1970 at a depth of approximately 7 feet bgs.

In general, the trench and sump systems serve painting, cleaning, testing, and sealing operations for the 747 and 767 fuselage sections and wings. Liquids discharged to the majority of these trenches/sumps were formerly recirculated through wet air scrubbers. Periodically, these liquids were discharged to the facility on-site industrial wastewater treatment plant via subgrade piping. The sludge pits in the sumps were pumped and cleaned semiannually to annually, and transported for off-site disposal/treatment at a permitted facility. The air scrubbers were converted to a dry system after completion of the RI of this SWMU/AOC, and water is no longer circulated through the trenches and sumps. Wastewater is conveyed through the trenches and transferred through pipes to the on-site industrial wastewater treatment plant. A small sump within EV-112 (southern air scrubber sump) was coated and converted to an equalization tank in 2011. An equalization tank is a process tank typically used to equalize flow or pressure.

Chemical constituents that were present within the wastewater circulated through and discharged from the trenches, sumps, and air scrubbers include VOCs, nonhalogenated SVOCs, RCRA metals, strontium, phenol, and TPH associated with products currently used in the cleaning, sealing, testing, priming, and painting processes in Building 40-51.

2.4.2 Summary of RI Findings Regarding SWMU/AOC No. 151

There was no investigation of SWMU/AOC No. 151 prior to the RI. The RI for SWMU/AOC No. 151 was performed in 1998 and included soil and perched groundwater sampling as summarized below:

- **Fuselage area southern air scrubber trenches.** Nineteen soil samples were collected and analyzed at depths ranging from 2.5 to 10 feet bgs from nine borings.

- **Southern air scrubber sumps EV-112 and EV-119:**
  - Twenty-one soil samples were collected and analyzed at depths ranging from 1 to 25 feet bgs from eight borings.
  - Soil borings near the southern air scrubber sumps were completed as monitoring wells EGW057, EGW058, and EGW059.
  - Perched groundwater samples were collected and analyzed from boring ESB1212 and monitoring wells EGW057 and EGW058.

- **Cure area trenches.** Nine soil samples were collected and analyzed at depths ranging from 5 to 20 feet bgs from three borings.

- **Wing area southern air scrubber trenches.** Sixteen soil samples were collected and analyzed at depths ranging from 2.5 to 9 feet bgs from eight borings.

- **Northern air scrubber trenches and sump EV-113.** Twenty-six soil samples were collected and analyzed at depths ranging from 2.5 to 25 feet bgs from nine borings.

Figures showing the location of all RI sample locations are included in the RI and FSWP (URS 2011b and URS 2012b).

During the RI (URS 2011b), perched groundwater was not encountered beneath SWMU/AOC No. 151 to boring depths ranging from 13 to 30 feet bgs, except near sumps EV-112 and EV-119, where perched groundwater was encountered in fill soils at depths ranging from 7 to 10½ feet bgs.

Based on concentrations detected in perched groundwater, the RI recommended evaluation in the FS for arsenic, TCE, 1,2-DCE, and vinyl chloride in perched groundwater, soil, and the vapor intrusion pathway in the area of southern air scrubber sumps EV-112 and EV-119.

2.4.3 SWMU/AOC No. 151 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from three additional soil borings, one sub-slab vapor sample, and one soil gas sample to assess vertical extent of soil contamination, obtain soil physical characteristics data for use in leaching modeling, and characterize soil vapor/gas concentrations.

The combined historical and FS data for soil remaining on site following historical cleanup activities and the FS data for sub-slab vapor, are presented in Tables 2-4a and 2-4b. Trend graphs of recent perched groundwater sample results for TCE and total arsenic are provided on Figure 2-2d. Complete perched groundwater sampling results are provided in Appendix A. Sampling locations relevant to FS decisions are presented with selected analytical results on Figure 2-2d, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

TCE and cis-1,2-DCE are present in soil at location ESB1121 outside of Building 40-51. TCE and cis-1,2-DCE concentrations in soil do not exceed the current MTCA Method B protection of groundwater cleanup levels (25 and 78 µg/kg, respectively), which are proposed as the cleanup levels for soil in Section 5 of this FS.

The conservative vadose zone transport model (Appendix B) indicates that either with or without a concrete surface cover (pavement) to prevent recharge, TCE present in soil at this SWMU will not leach to Esperance Sand groundwater at concentrations greater than the MCL for TCE of 5 µg/L for at least 999 years. Therefore, the model results demonstrate that TCE concentrations in soil at SWMU/AOC No. 151 area are protective of Esperance Sand groundwater per MTCA criteria.

Perched Groundwater Conditions

TCE has been consistently detected in wells EGW057 and EGW058. TCE concentrations in perched groundwater at SWMU 151 do not exceed the risk-based cleanup level for nonpotable perched groundwater (0.011 mg/L) proposed in Section 5 of this FS.

A step-drawdown test was completed during the FS at this SWMU/AOC to further evaluate perched groundwater site conditions relevant to the feasibility of potential cleanup alternatives (perched groundwater extraction). The results of the step-drawdown test performed in well EGW057 (Figure 2-2d) indicates that the sustainable flow rate from this resource protection well is approximately 0.6 gallon per minute (gpm). Well EGW057 meets the standards for a resource protection well, but does not meet the well construction standards for a drinking water well. As discussed in Section 5, a well constructed to drinking water standards at this SWMU/AOC would produce less than 0.5 gpm, and the perched groundwater is therefore concluded to be nonpotable. No noticeable drawdown was detected in observation well EGW058 (Figure 2-2d) during the step-drawdown test. No significant changes in chemical concentrations in perched groundwater samples were observed associated with the step-drawdown testing.

Sub-Slab Vapor and Soil Gas Conditions

TCE was detected in soil gas and sub-slab vapor during the FS sampling, at one location outside Building 40-51 (ESG15) and at one location inside the building (ESSV1). TCE concentrations at both locations do not exceed the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 $\mu g/m^3$) (USEPA 2015a). The MTCA Method C air cleanup level is presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in sub-slab vapor and soil gas is 17 $\mu g/m^3$.

This SWMU/AOC will be evaluated for an institutional control alternative based on the use of the MTCA Method C air cleanup level to require the site use to remain industrial. Refer to Section 6 for further information regarding proposed alternatives.

2.5 SWMU/AOC NO. 090, BUILDING 40-51, FORMER UST EV-11

The former waste MEK UST (SWMU/AOC No. 090) is located outside the southeast corner of Building 40-51 (Figure 2-2a) and was formerly used to contain waste MEK and other solvents (i.e., spill containment for an adjacent hazardous materials and waste storage room). A summary of subsurface conditions in the vicinity of SWMU/AOC No. 090 and Building 40-51 is provided in Section 2.2. During the RI (URS 2011b), fill soil consisting of sand and silty sand with gravel (granular backfill) was encountered at SWMU/AOC No. 090 to depths ranging from 1½ to 7 feet bgs and glacial till soil consisting of very dense silty sand was encountered beneath the fill to the maximum depth explored (15 feet bgs). A 1-foot layer of sand was encountered below fill at 5 feet bgs in monitoring well EGW030. Perched groundwater was encountered in the fill at a depth of approximately 2.4 to 3.75 feet bgs.

2.5.1 Summary Description of SWMU/AOC No. 090

The UST was removed in 1986. Chemical constituents that were present in the UST include VOCs. The results of investigations indicate that residual VOCs are present in a limited amount of soil and perched groundwater in fill in the former tank excavation and along subsurface utilities adjacent to former UST EV-11.

2.5.2 Summary of RI Findings Regarding SWMU/AOC No. 090

Pre-RI Findings

Prior to the AO and RI, independent (not approved by Ecology) proactive environmental investigations were conducted at the location of former UST EV-11 several years after the UST removal to assess the presence or absence of VOCs, SVOCs, and priority pollutant metals (Converse Consultants 1994a and 1994b). Several VOCs were detected in soil borings around the former UST and its vent pipe at concentrations exceeding the MTCA Methods A and/or B cleanup levels. SVOCs and metals were not detected or were detected at concentrations less than the MTCA cleanup levels. Three monitoring wells (EGW030, EGW031, and EGW032 shown on Figure 2-2e) were installed around the former tank location, and perched groundwater samples have been collected from these wells since 1995. TCE was detected in perched groundwater from each of the wells at concentrations exceeding the MTCA Methods A and B groundwater cleanup levels (Dames & Moore 1997b).

RI Findings

The RI for SWMU/AOC No. 090 included soil and perched groundwater sampling to assess whether VOCs previously detected in soil and perched groundwater near former UST EV-11 had migrated to the north along the utility backfill soil. Samples were collected from three borings in utility backfill soil north of former UST EV-11 in 1998 and six borings farther north in 2000. Two perched groundwater monitoring wells (EGW065 and EGW066) were installed to 10 feet bgs along the utility corridor in 2000. Soil samples were screened in the field for VOCs, but were not submitted for laboratory analysis. Boring and well locations are shown on Figure 2-2e.

The RI recommended evaluation in the FS for TCE, cis-1,2-DCE, PCE, vinyl chloride, and potential arsenic mobilization in perched groundwater because of reducing conditions caused by chlorinated VOC biodegradation, as well as evaluation of the vapor intrusion pathway.

2.5.3 SWMU/AOC No. 090 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of three soil gas samples to characterize soil gas concentrations. Injection pilot testing was also completed in the vicinity of the former UST.

The FS data for sub-slab vapor are presented in Table 2-5. Trend graphs of recent perched groundwater sample results for TCE and vinyl chloride are provided on Figure 2-2e. Complete perched groundwater sampling results are provided in Appendix A. Sampling locations relevant to FS decisions are presented with selected analytical results on Figure 2-2e, and data interpretations are discussed further in Sections 3, 5, and 6.1.

Perched Groundwater Conditions

TCE and/or vinyl chloride have been frequently detected in wells EGW030, EGW031, EGW032, and EGW066 at concentrations exceeding the RI screening levels. Only TCE in well EGW031 has exceeded the risk-based cleanup level for nonpotable perched groundwater (0.011 mg/L) proposed in Section 5 of this FS. The maximum TCE concentration in perched groundwater at well EGW031 in the last 5 years is 0.018 mg/L. Perched groundwater concentrations observed in grab perched groundwater samples collected from the RI soil borings are not included in these ranges because they are representative of historical conditions and therefore not as accurate as concentrations collected over time from monitoring wells. The grab perched groundwater data are shown on Figure 2-2e to illustrate the perched groundwater conditions present at the time of the RI.

Concentrations of TCE have remained relatively stable over time in well EGW065. In wells EGW030, EGW032, and EGW066, decreasing concentrations of TCE and concurrent increasing concentrations of vinyl chloride imply ongoing reductive dechlorination in the vicinity of these wells. The increasing concentrations of both TCE and vinyl chloride in well EGW031 prior to the injection pilot tests in 2014 could imply a northward migration of these constituents from the area of the former UST EV-11 area. This interpretation is consistent with the overall spatial distribution of TCE and vinyl chloride, with concentrations highest in monitoring wells in the southwestern corner of Building 40-51 and decreasing in wells to the north. Perched groundwater samples from probe borings sampled during the RI and spatial concentration trends in perched groundwater samples from monitoring wells suggest that perched groundwater containing TCE and vinyl chloride has migrated north from the location of former UST EV-11 along the coarse fill soils backfilled along the subgrade utility pipes. The observed decrease in TCE and vinyl chloride concentrations in well EGW031 in 2014 and 2015 are likely attributed to mobilization as a result of the FS injection pilot test described below. TCE and vinyl chloride concentrations remain below risk-based cleanup levels for nonpotable perched groundwater in all wells except EGW031.

The extent of contaminated perched groundwater at this SWMU/AOC is estimated as an area of perched groundwater of approximately 610 ft^2 that extends to a maximum depth of 7 feet bgs within the fill around a firewater line (6,400 gallons).

Pilot tests were completed during the FS at this SWMU/AOC to further evaluate perched groundwater site conditions, and assess the potential effectiveness of injection cleanup

technologies. These pilot tests included a step-drawdown test (perched groundwater extraction) and an injection pilot test. The results of these tests for this SWMU/AOC are summarized below.

The step-drawdown test at this SWMU/AOC (performed in well EGW030 on Figure 2-2e) indicates that the sustainable flow rate is less than 0.25 gpm. No noticeable drawdown was detected in any of the observation wells (EGW031, EGW032, or EGW066 on Figure 2-2e).

Boeing's conclusions from the EHC injection pilot test were as follows:

- Injections are feasible at this test site from approximately 5 to 6 to 9 feet bgs. There is an insufficient surface seal thickness to accommodate injections above about 5 to 6 feet bgs to prevent daylighting of reagents through the surface seal. Injections below 9 feet bgs were not feasible because of low permeability soil conditions.

- The EHC injections created methanogenic conditions that are favorable overall for reductive dechlorination.

- Perched groundwater analytical data indicate increased concentrations of PCE breakdown products, including TCE, cis-1,2-DCE, and vinyl chloride, following the injections. Concentrations of a number of breakdown products, most notably vinyl chloride, remain elevated compared to baseline conditions.

- Perched groundwater analytical data indicate increased concentrations of ethane, ethene, and methane. The increases in ethene and ethane concentrations suggest complete dechlorination of chlorinated VOCs (including vinyl chloride).

- A cleanup action alternative involving further injections of EHC or other in situ chemical reduction (ISCR) reagents is not recommended at this SWMU/AOC or similar SWMUs/AOCs at the BCA Everett Plant because of concerns over potential damage to utilities from the injected chemical substrates, as well as limited treatment performance results from this pilot test.

Ecology's conclusion regarding injection technologies at SWMU/AOC No. 90 and 112 was that "Ecology agrees that there were some challenges revealed with implementing the various injection technologies at these SWMUs, but Ecology believes design modified in situ biological and in situ chemical treatment technologies have the potential to be effective at these SWMUs as single remedial technologies or part of a train of remedial technologies" (Yasuda 2015). Ecology required that injection technologies be retained for this SWMU/AOC for further evaluation in this FS.

Soil Gas Conditions

PCE, TCE, 1,1-DCE, cis-1,2-DCE, and vinyl chloride were detected in soil gas during the FS sampling at locations outside Building 40-51. The TCE concentrations in soil gas exceed the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 µg/m^3) (USEPA 2015a). The MTCA Method C air cleanup level is presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in the soil gas is 75 µg/m^3.

2.6 SWMU/AOC NO. 093, BUILDING 45-01, FORMER SOLVENT USTS

Building 45-01 is located in the south-central portion of the facility (Figure 1-2). One SWMU/AOC located near this building (SWMU/AOC No. 093) was identified for further evaluation in the FS and is discussed in this section.

Building 45-01 is underlain by dense glacial till that is expected to have a relatively low permeability to at least 35 feet below the finished floor elevation. Perched groundwater is present between 6 to 8 feet bgs in fill soils near former USTs EV-18 and EV-54 (SWMU/AOC No. 093) (Norton Corrosion 1985). Perched water was not noted in the fill surrounding USTs EV-19 and EV-20 (located within 50 feet of USTs EV-18 and EV-54), suggesting that the lateral extent of this perched water is limited.

2.6.1 Summary Description of SWMU/AOC No. 093

SWMU/AOC No. 093 consists of former USTs EV-18, EV-19, EV-20, and EV-54 located beneath a paved area adjacent to a current paint storage and cleaning room on the southeast side of Building 45-01 (Figure 2-3). These steel USTs were installed in 1968, had cathodic protection installed in 1986, and were removed in 1988. EV-18 (4,000-gallon UST) and EV-54 (7,000-gallon UST) were located side by side and 50 feet from EV-19 and EV-20 (500-gallon USTs) (Figure 2-3). All four USTs were connected with common piping. The top of tanks EV-18 and EV-54 were positioned approximately 3 feet below the paved surface, resulting in the base of EV-18 and EV-54 at 9 and 11 feet below grade, respectively. It is unknown if concrete tie-down slabs were installed with these USTs. EV-19 and EV-20 were attached to concrete tie-down slabs. Assuming EV-19 and EV-20 were buried at depths similar to EV-18 and EV-54 (3 feet below grade), the base of these USTs was at approximately 9 feet below grade. The USTs were used to store MEK and toluene.

2.6.2 Summary of RI Findings Regarding SWMU/AOC No. 093

In 1985, prior to the AO and RI, an independent (not Ecology approved) proactive investigation was conducted prior to UST removal included collection and analysis of eight soil samples (two per UST) from soil borings in SWMU/AOC No. 093. Samples indicated that MEK and toluene

were not detected (Norton Corrosion 1985). Water was encountered in borings adjacent to USTs EV-18 and EV-54 at a depth of 6 to 8 feet. However, the water was not sampled and analyzed.

The RI for SWMU/AOC No. 093 included soil sampling from 16 borings and analysis for VOCs to assess whether MEK or toluene was present in subsurface soil located in the vicinity of the former USTs and associated piping. Soil boring locations are shown on Figure 2-3. The investigations were performed in 1998 and 2000 and included collection of soil samples at depths ranging from 2.5 to 27.5 feet bgs. Perched groundwater was encountered in some of the borings in the excavation fill. The perched groundwater was discontinuous and typically occurred at the till/fill interface. The glacial till was moist to dry to the maximum depth (32 feet bgs) investigated.

Based on the concentrations detected in soil, the RI recommended evaluation in the FS for MEK with respect to the soil to groundwater and vapor intrusion pathways.

2.6.3 SWMU/AOC No. 093 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from two additional soil borings and three soil gas samples to assess vertical extent of soil contamination and characterize soil gas concentrations.

The combined historical and FS data for soil remaining on site following historical cleanup activities and the FS data for sub-slab vapor are presented in Tables 2-6a and 2-6b. Sampling locations relevant to FS decisions are presented with selected analytical results on Figure 2-3, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B, with the conclusions summarized in this section.

Soil Conditions

MEK is present in soil at locations ESB1140 and ESB1386 outside of Building 45-01 at concentrations greater than the MTCA Method B soil cleanup level for protection of groundwater (20,000 µg/kg), which is proposed as the cleanup level for soil at this SWMU/AOC in Section 5 of this FS. The maximum concentration of MEK is 140,000 µg/kg at 17.5 feet bgs. The extent of contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 110 ft^2 that extends to a maximum depth of 20 feet bgs (40 CY).

The conservative vadose zone transport model (Appendix B) indicates that, with a concrete surface cover (pavement) in place to prevent recharge, residual MEK present in soil at this SWMU will not leach to Esperance Sand groundwater for at least 999 years. Without a surface cover in place, the model predicts that MEK present in soil could leach to Esperance Sand groundwater at concentrations greater than the MEK Method B groundwater cleanup level of

4,800 µg/L within about 100 years. However, the model over-predicts the potential migration due to conservative assumptions inherent in the model. Soils data indicate that in the approximately 30 years since the USTs were removed, the residual MEK has migrated less than about 10 to 15 feet below the base of the former USTs.

Soil Gas Conditions

MEK was detected in soil gas during the FS sampling at three locations outside Building 45-01 at concentrations below the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (170,000 µg/m^3) (USEPA 2015a). The MTCA Method C air cleanup level is presented for this SWMU/AOC in Section 5 of this FS. The maximum concentration of MEK in soil gas is 240 µg/m^3.

2.7 SWMU/AOC NO. 112, BUILDING 40-11, OIL/WATER SEPARATOR

Building 40-11 is located in the northwest portion of the facility (Figure 1-2). Three SWMUs/AOCs located in or near this building (SWMU/AOC No. 112, UST EV-48-1, and SWMU/AOC No. 097) were identified for further evaluation in the FS and are discussed in Sections 2.7, 2.8, and 2.9, respectively.

Most of Building 40-11 is underlain by dense to very dense glacial till to at least 33 feet bgs (Dames & Moore 1997a and 1997b). Fill soils overlie the glacial till beneath the northeast corner of the building. Perched groundwater was encountered in fill materials on the east side of the building near the oil/water separator SWMU/AOC No. 112 during pre-RI and RI activities (Herrera 1992 and URS 2011b). Perched groundwater was not detected in native glacial till soils outside the oil/water separator excavation.

2.7.1 Summary Description of SWMU/AOC No. 112

A 12,000-gallon, double-walled, steel oil/water separator (EV-118-1) is located approximately 50 feet east of Building 40-11 (Figure 2-4) and approximately 300 feet north of the southeastern corner of Building 40-11. The original oil/water separator EV-51 was removed and replaced with EV-118-1 in 1988. The oil/water separator receives wastewater from an automotive and motive equipment maintenance shop located in Building 40-11. The water is then pumped to the on-site industrial wastewater treatment plant. A dewatering well (EGW046) constructed of 12-inch-diameter polyvinyl chloride pipe was installed in 1988 in the backfill around the oil/water separator. The operation of this well was intended to maintain perched groundwater at a low level within the backfill. The current interim action (IA) for this area consists of dewatering the backfill and semiannual perched groundwater monitoring in the recovery well (EGW046) and monitoring well EGW054. Prior perched groundwater analyses indicate the presence of TPH and VOCs in the perched groundwater within the backfill (URS 2011b). Extracted perched groundwater is pumped to the inlet of the oil/water separator.

Contaminated groundwater beneath this SWMU/AOC occurs as perched water within granular backfill around the oil/water separator. Perched groundwater was not found to occur in the native till beneath and adjacent to the oil/water separator backfill. Considering the dimensions of the oil/water separator backfill limits, the displacement of the oil/water separator itself, and a porosity of granular backfill of 30 percent, the static perched water capacity in this area is approximately 15,700 gallons. Based on the average perched groundwater depth in recovery and monitoring wells, it is estimated that the average volume of perched groundwater is approximately 2,300 gallons. An ongoing dewatering pump operates in well EGW046, installed within the backfill of the oil/water separator, and does not dewater the backfill. This ongoing pumping indicates a source of recharge (most likely from stormwater infiltrating through the pavement or from buried stormwater piping). The perched groundwater recovery data collected from EGW046 was evaluated to examine the average pumping rates during the wet and dry seasons. The wet season was assumed to be from October 1 to April 30 and the dry season from May 1 to September 30. Considering data from 1999 through early 2015, the average pumping rate in the recovery well EGW046 is approximately 2,100 and 1,200 gallons per month during the wet and dry seasons, respectively.

2.7.2 Summary of RI Findings Regarding SWMU/AOC No. 112

In 1992, prior to the AO and RI, the Auto Shop Steam Clean Area oil/water separator EV-118-1 (SWMU/AOC No. 112) was proactively and independently investigated (not Ecology approved) to evaluate the extent of impacted soil and water from a release of wastewater from the unit (Herrera 1992). Analytical results indicate that TPH, cyclohexanone, acetone, methylene chloride, ethylbenzene, and xylene were present in soils, though typically not at concentrations above MTCA Method A or B cleanup levels. Historical data imply that TCE may be present in native glacial till soils as much as 10 feet from the oil/water separator excavation limits. The concentrations of VOCs in perched groundwater were above MTCA Method A or B groundwater cleanup levels.

The RI for SWMU/AOC No. 112 included installation of a monitoring well adjacent to the oil/water separator to allow future monitoring of perched groundwater quality and soil sampling from the well boring (EGW054). The well location is shown on Figure 2-4. The well was installed in 1998 in the fill material adjacent to the oil/water separator. The fill soil consisted of medium to coarse sand and pea gravel to a depth of 15 feet, and perched water was encountered in the fill at a depth of 12½ feet bgs. The underlying till was dry to damp at the bottom of the boring at 19 feet bgs. The fill soil is underlain by very dense silty sand with gravel (native glacial till).

The RI recommended evaluation of TCE, vinyl chloride, and TPH in perched groundwater, as well as evaluation of the vapor intrusion pathway. Ecology also specified that the FS evaluate potential mobilization of arsenic and metals in perched groundwater because of potential redox

changes in perched groundwater at SWMU/AOC No. 112 during use of injection cleanup technologies.

2.7.3 SWMU/AOC No. 112 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of two soil gas samples to characterize soil gas concentrations. Injection pilot tests were also completed in the vicinity of the oil/water separator.

The FS data for sub-slab vapor are presented in Table 2-7. Trend graphs of recent perched groundwater sample results for TCE and vinyl chloride are provided on Figure 2-4. Complete perched groundwater sampling results are provided in Appendix A. Sampling locations relevant to FS decisions are presented with selected analytical results on Figure 2-4, and data interpretations are discussed further in Sections 3, 5, and 6.1.

Perched Groundwater Conditions

TCE, vinyl chloride, TPH-D, and TPH as motor oil (TPH-O) are frequently detected in wells EGW046 and EGW054. Of these compounds, only TPH-D and TPH-O concentrations have exceeded the risk-based cleanup levels for nonpotable perched groundwater (0.5 mg/L) proposed in Section 5 of this FS. The maximum concentrations in perched groundwater for these constituents in these last 5 years are as follows:

- TPH-D: 21 mg/L
- TPH-O: 10 mg/L

The extent of contaminated perched groundwater at this SWMU/AOC is estimated as an area of perched groundwater of approximately 580 ft^2 that extends to a maximum depth of 16 feet bgs (2,300 gallons).

An injection pilot test was completed during the FS at this SWMU/AOC to further evaluate perched groundwater site conditions relevant to the feasibility of potential cleanup alternatives (injection). Boeing's conclusions from the injection pilot test were as follows:

- Injection of treatment reagents are feasible over the target interval from 8 to 18 feet bgs as demonstrated by relatively low injection pressures and high flow rates, with no observed daylighting or refusal of injected reagents.

- TPH concentrations increased significantly following the injections in wells EGW046 and EGW054. Review of chromatographs suggests that the TPH may be associated with gasoline-range hydrocarbons. TPH-G was not a COC at the site prior to the pilot test. It is unknown if the increased concentrations of petroleum hydrocarbons were associated with the injection event.

- ISCR and enhanced reductive dechlorination are not effective technologies for treating petroleum hydrocarbons. A cleanup action alternative involving further injections of ISCR and/or enhanced reductive dechlorination reagents is not recommended at this SWMU/AOC, because these reagents will not be effective at treating petroleum constituents.

Ecology's conclusion regarding injection technologies at SWMU/AOC 90 and SWMU/AOC 112 was that "Ecology agrees that there were some challenges revealed with implementing the various injection technologies at these SWMUs, but Ecology believes design modified in situ biological and in situ chemical treatment technologies have the potential to be effective at these SWMUs as single remedial technologies or part of a train of remedial technologies" (Yasuda 2015). Ecology required that injection technologies be retained for this SWMU/AOC for further evaluation in this FS.

Concentrations of TPH, TCE, and vinyl chloride in perched groundwater have been stable over the last 5 years in wells EGW046 and EGW054 prior to the FS injection pilot test completed in 2014 when TPH concentrations in both wells increased by approximately an order of magnitude. TPH concentrations in EGW054 decreased in subsequent 2014 and 2015 sampling events. In addition to this change in TPH concentrations, vinyl chloride was detected in well EGW054 in 2014 after having not been detected above the laboratory reporting limit since 2007. TCE concentrations remained stable in 2014.

Soil Gas Conditions

TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride were detected in soil gas during the FS sampling at locations outside Building 40-11. The TCE concentration in soil gas exceeds the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 $\mu g/m^3$) (USEPA 2015a). The MTCA Method C air cleanup level is presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in the soil gas is 170 $\mu g/m^3$.

2.8 BUILDING 40-11, UST EV-48-1

UST EV-48-1 is located at the fueling station north of Building 40-11 (Figure 2-5). A summary of subsurface conditions in the vicinity of UST EV-48-1 and Building 40-11 is provided in Section 2.7. Field observations indicated a sand backfill present from below the concrete to approximately 10 feet bgs, followed by pea gravel with some sand until 15 feet bgs. Sand fill extends to 24 feet bgs before transitioning to native glacial till.

2.8.1 Summary Description of UST EV-48-1

The fueling station facilities include two double-walled steel USTs of approximately 15,000-gallon capacity, a dispenser island with two dispensers and an overhead canopy, two oil/water separators, and associated piping. UST EV-48-1 contains unleaded gasoline and UST EV-49-1 contains diesel. On May 18, 2006, an apparent release of unleaded gasoline was discovered by Boeing personnel during routine maintenance work on UST EV-48-1. The release was verbally reported to the Ecology UST program by Boeing Everett personnel that same day. A crack was observed in the containment chamber that surrounds the fill ports of the gasoline UST and a small quantity of gasoline was puddled in soil underlying the containment chamber. The puddled gasoline was suspected to be the result of overfilling during a fuel delivery, which then migrated through the crack in the containment chamber. Boeing temporarily terminated use of the UST until an inspection and necessary repairs were completed. The containment chamber and UST fill pipe were replaced on June 6 to 9, 2006. The UST passed a tightness test on June 13, 2006 and was returned to service.

2.8.2 Summary of RI Findings Regarding UST EV-48-1

The RI for UST EV-48-1 included soil sampling from six borings and analysis for gasoline-, diesel-, and oil-range TPH and the volatile aromatic hydrocarbons benzene, toluene, ethylbenzene, and xylenes (BTEX) to evaluate the subsurface extent of the apparent release of unleaded gasoline from UST EV-48-1. Soil boring locations are shown on Figure 2-5. The investigation was performed in 2007, and borings were extended as deep as 20 feet bgs. Perched groundwater was not encountered in any of the borings.

TPH-G and BTEX in soils in the vicinity of UST EV-48-1 were recommended for evaluation in the FS, including the potential vapor intrusion pathway.

2.8.3 UST EV-48-1 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from four additional soil borings and four soil gas samples to assess vertical extent of soil contamination and characterize soil gas concentrations.

The combined RI and FS data for soil and the FS data for sub-slab vapor are presented in Tables 2-8a and 2-8b. Sampling locations are presented with selected analytical results on Figure 2-5, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

TPH-G and BTEX are present in soil located between and north-northeast of the USTs at concentrations exceeding the MTCA Method A soil cleanup levels (TPH-G 30 mg/kg, benzene 30 µg/kg, ethylbenzene 6,000 µg/kg, toluene 7,000 µg/kg, and total xylenes 9,000 µg/kg), which are proposed as cleanup levels for this SMWU/AOC in Section 5 of this FS. The maximum concentration of all contaminants occurs at 11 feet bgs (ESB1677):

- Benzene: 5,300 µg/kg
- Ethylbenzene: 23,000 µg/kg
- Toluene: 63,000 µg/kg
- Total xylenes: 230,000 µg/kg
- TPH-G: 3,700 mg/kg

The extent of contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 710 ft^2 that extends to a maximum depth of 23 feet bgs (560 CY). Access to the estimated area of contamination may be limited by the presence of the USTs and their bedding material.

The conservative vadose zone transport model (Appendix B) indicates that with a concrete surface cover (pavement) in place to prevent recharge, residual TPH-G and BTEX present in soil at this SWMU will not leach to Esperance Sand for at least 999 years. Without a surface cover in place, the model predicts that the residual benzene, toluene, and xylenes present in soil could leach to Esperance Sand groundwater at concentrations greater than the MCLs within about 100 years, but the model overpredicts the potential migration due to conservative assumptions inherent in the model.

Soil Gas Conditions

BTEX and aliphatic hydrocarbons were detected in soil gas during the FS sampling at locations near the USTs outside of existing building structures at concentrations below the industrial air screening levels, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (benzene 110 $\mu g/m^3$, toluene 170,000 $\mu g/m^3$, ethylbenzene 33,000 $\mu g/m^3$, m,p-xylene and o-xylene 3,300 $\mu g/m^3$, low-range aliphatic hydrocarbons 200,000 $\mu g/m^3$, and midrange aliphatic hydrocarbons 10,000 $\mu g/m^3$) (USEPA 2015a). The MTCA Method C air cleanup levels are presented for this SWMU/AOC in Section 5 of this FS. The maximum concentrations of these constituents are as follows:

- Benzene: 3.6 $\mu g/m^3$,
- Toluene: 11 $\mu g/m^3$
- Ethylbenzene: 1.2 $\mu g/m^3$
- m,p-Xylene: 5.2 $\mu g/m^3$

- o-Xylene: 1.8 µg/m^3
- Low-range aliphatic hydrocarbons: 130,000 µg/m^3
- Midrange aliphatic hydrocarbons: 3,200 µg/m^3

2.9 SWMU/AOC NO. 097, BUILDING 40-11, FORMER VAPOR DEGREASER

This former vapor degreaser was located inside the southern portion of Building 40-11 near building column C-6 (Figure 2-6a). A summary of subsurface conditions in the vicinity of SWMU/AOC No. 097 and Building 40-11 is provided in Section 2.7.

2.9.1 Summary Description of SWMU/AOC No. 097

The vapor degreaser was a self-contained aboveground unit that used TCE as the degreasing agent. The unit was installed in 1975, used infrequently, and removed in 1993. The degreaser was situated on top of the concrete floor, and TCE was stored in a pressure cylinder attached to the unit. Vapors created by the unit were vented via ducting to the outside. Obvious staining is not present on the concrete floor at the former location of this unit, and the concrete floor is in good condition (Dames & Moore 1997a). The only known chemical constituent associated with operation of this degreasing unit is TCE.

2.9.2 Summary of RI Findings Regarding SWMU/AOC No. 097

The RI for SWMU/AOC No. 097 included soil sampling from four borings and analysis for VOCs to assess whether TCE was present in subsurface soil located in the vicinity of the former vapor degreaser. Soil boring locations are shown on Figure 2-6b. The investigation was performed in 1998 and borings extended as deep as 25½ feet bgs. Field observations indicate an 8-inch concrete floor. Below the concrete, a 4-inch layer of asphalt was observed in borings ESB1106, ESB1107, and ESB1324, a 4-inch layer of CDF in boring ESB2007, and a similar layer of sand fill in boring ESB1323. Fill composed of sand with trace gravel was encountered below this layer to 2½ feet underlain by glacial till to boring completion at 2.75 feet bgs in borings ESB1106 and ESB1107. Glacial till was encountered directly below both the sand fill and CDF in borings ESB1323 and ESB2007 to refusal at 15 and 21 feet bgs, respectively. Fill of sand with trace gravel was observed below the asphalt in ESB1324 to boring completion at 25.5 feet bgs. The soil was dry, except for a thin zone of moist soil located within 1 to 2 feet below the concrete floor slab in three of the soil borings. Perched groundwater was not encountered in the glacial till to the maximum depth explored of 25½ feet bgs.

The RI recommended the FS evaluate TCE in soil near SWMU/AOC No. 097 for the protection of groundwater and vapor intrusion pathways.

2.9.3 SWMU/AOC No. 097 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of a soil sample from one additional soil boring and two sub-slab vapor samples to assess vertical extent of soil contamination and characterize soil vapor concentrations.

The combined RI and FS data for soil and the FS data for sub-slab vapor are presented in Tables 2-9a and 2-9b. Sampling locations are presented with selected analytical results on Figure 2-6a, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a vadose zone model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

The TCE concentration (27 µg/kg) in one shallow soil sample from boring ESB1106 beneath the location of the former vapor degreaser, collected at a depth of 2 feet below finished grade, exceeds the MTCA Method B soil cleanup level for protection of groundwater (25 µg/kg), which is proposed as the cleanup level for soil at this SWMU/AOC in Section 5 of this FS. The extent of contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 8 ft^2 that extends to a maximum depth of 2.25 feet bgs (0.52 CY).

The conservative vadose zone transport model (Appendix B) indicates that, with or without a concrete surface cover (floor) in place, residual TCE present in soil at this SWMU/AOC will not leach to Esperance Sand groundwater at concentrations greater than the MCL for TCE of 5 µg /L for at least 999 years. The presence of the building above the cap would provide additional protection against the potential for recharge that could cause the TCE to migrate to Esperance Sand groundwater. The model simulations demonstrate that TCE concentrations in soil at the SWMU/AOC No. 097 area are protective of Esperance Sand groundwater per MTCA criteria.

Sub-Slab Vapor Conditions

TCE was detected in sub-slab vapor during the FS sampling. The TCE concentrations in sub-slab vapor exceed the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 $\mu g/m^3$) (USEPA 2015a). The MTCA Method C air cleanup level is presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in the sub-slab vapor is 6,500 $\mu g/m^3$. Johnson and Ettinger modeling of the vapor intrusion pathway at this SWMU/AOC (Appendix C) indicates that the chlorinated solvent concentrations detected in sub-slab vapor could result in an exceedance of the MTCA Method C cleanup level for indoor air.

Upon review of the sub-slab vapor data that exceeded the industrial MTCA screening levels for TCE, and because similar chemicals are used in the manufacturing processes, Boeing industrial hygienists were requested to assess indoor air to evaluate potential worker exposures. TCE and its degradation products were not detected. Based on this assessment, the concentrations in sub-slab vapor are not a risk to workers via indoor air at this SWMU/AOC. No further investigation is necessary for this AOC in compliance with the Washington State Airborne Contaminants Standard, Chapter 296-841 WAC.

2.10 SWMU/AOC NO. 169, BUILDING 40-02, SMALL VAPOR DEGREASER

Building 40-02 is located in the northwest portion of the facility (Figure 1-2). Three SWMUs/AOCs located in or near this building (SWMU/AOC Nos. 169 and 170 and Paint Crib) were identified for further evaluation in the FS (Figure 2-7a) and are discussed in Sections 2.10, 2.11, and 2.12, respectively. Environmental assessment of soils, sub-slab vapor, and indoor air in the area of the former vapor degreasers and paint crib were performed by Landau (2008) as part of Boeing's due diligence associated with converting the building to general manufacturing space. Additional assessment of sub-slab vapor, indoor air, and groundwater was performed by URS as a supplemental RI per subsequent requests by Ecology.

Building 40-02 is underlain by fill soils at depths ranging from 2 to 35 feet, which overlie dense to very dense, low permeability glacial till (URS 2011b). Esperance Sand groundwater occurs at a depth of approximately 195 feet below Building 40-02. Perched water was not present in the fill, at the interface of the fill and glacial till, or in the till encountered in the geotechnical soil borings prior to building construction. Minor discontinuous perched water was encountered between depths of approximately 60 to 75 feet bgs in the till in deep monitoring well (EGW177 and EGW178) borings during the RI (URS 2011b). The nearest surface water, Powder Mill Creek, is located approximately 500 feet northeast of Building 40-02.

2.10.1 Summary Description of SWMU/AOC No. 169

The former small vapor degreaser pit was located in a separate internal room within Building 40-02 (Figure 2-7a). The degreaser was constructed in 1990 and situated within a stainless-steel-lined concrete containment pit constructed below grade (13 feet deep). Decommissioning of the degreaser and backfilling of the pit with CDF was completed in February/March 2008. The internal building that housed the former small vapor degreaser has been removed, and the area is now part of the wire shop. The degreaser originally used 1,1,1-TCA, but was converted to use TCE in the mid-1990s. The solvent stabilizer 1,4-dioxane was also used in the degreaser according to Boeing personnel.

2.10.2 Summary of RI Findings Regarding SWMU/AOC No. 169

A subsurface investigation of soils and sub-slab vapor beneath the former small vapor degreaser pit, as well as indoor air quality in this area, was performed in January 2008. The investigation included collection of soil and sub-slab vapor samples from six soil/sub-slab vapor borings and one indoor air sample. Boring locations are shown on Figure 2-7b. Soil samples were analyzed for VOCs, TPH-D, metals, and 1,4-dioxane. Sub-slab vapor samples were analyzed for VOCs and 1,4-dioxane. Concentrations of chemical constituents in soil were either not detected or detected below the RI screening levels. The sub-slab vapor analytical results indicated that one or more of the VOCs TCE, dichlorodifluoromethane (Freon 12), and/or chloroform were detected in the sub-slab vapor samples from the former vapor degreaser area above the RI sub-slab vapor screening levels. TCE was also detected in indoor air samples at concentrations exceeding the RI screening level. Based on the indoor air and sub-slab analytical results, Ecology requested additional sub-slab vapor sampling and indoor air monitoring in this area of Building 40-02.

Additional investigations were performed for sub-slab vapor and indoor air in February/March 2009 and January 2010, respectively. A second indoor air sampling event was performed in November 2010. Sub-slab vapor sampling and the indoor air sample locations are shown on Figure 2-7b. TCE, PCE, benzene, chloroform, and Freon 12 were detected above the RI sub-slab vapor screening levels in one or both samples. No VOC was detected above the RI indoor air screening levels when detected indoor air concentrations were corrected for concentrations in the ambient air samples.

The former small vapor degreaser was recommended for evaluation in the FS with respect to chlorinated VOCs in soil as a source of sub-slab vapor and the vapor intrusion pathway for chlorinated VOCs, chloroform, and Freon 12.

2.10.3 SWMU/AOC No. 169 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of a soil sample from one additional soil boring to assess vertical extent of soil contamination and collect soil physical characteristics data.

The combined RI and FS data for soil and sub-slab vapor are presented in Tables 2-10a and 2-10b. Sampling locations are presented with selected analytical results on Figure 2-7b, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

Chemical constituents are not present in soil beneath the location of the former vapor degreaser at concentrations exceeding the MTCA Method B soil cleanup levels for protection of groundwater, which are proposed as the cleanup levels for soil at this SWMU/AOC in Section 5 of this FS.

The SWMU/AOC is located in an area without shallow perched groundwater. TCE was not detected at concentrations greater than the MTCA Method B protection of groundwater cleanup level. Therefore the potential for leaching to the Esperance Sand groundwater was not performed for this SWMU/AOC. Additionally, empirical evidence to date from groundwater monitoring wells at the site verifies that there has been no migration of TCE to groundwater at concentrations exceeding the proposed cleanup levels.

Sub-Slab Vapor and Indoor Air Conditions

TCE and Freon-12 are present in sub-slab vapor above the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 and 3,330 µg/m^3, respectively), but are not present in indoor air at concentrations above the unattenuated industrial air screening levels (USEPA 2015a). The MTCA Method C air cleanup levels are presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in the sub-slab vapor is 410 µg/m^3. The maximum concentration of Freon 12 in the sub-slab vapor is 5,500 µg/m^3. There is no known source of Freon 12 at SWMU/AOC No. 169. Historical records do not document the past use of Freon 12 in this area, and it has not been identified in soil or groundwater beneath the building. The degreaser used refrigerant but records indicate that Freon 12 was not used.

2.11 SWMU/AOC NO. 170, BUILDING 40-02, LARGE VAPOR DEGREASER

The former large vapor degreaser pit was located within southern portion of Building 40-02 (Figure 2-7a) in a separate room that was removed during remodeling in 2008 and 2009. A summary of subsurface conditions in the vicinity of SWMU/AOC No. 170 and Building 40-02 is provided in Section 2.10.

2.11.1 Summary Description of SWMU/AOC No. 170

The former large vapor degreaser was constructed in 1990 and situated within a stainless-steel-lined concrete containment pit constructed below grade (15 feet deep). Decommissioning of the degreaser and backfilling of the pit with controlled density fill was completed in February/March 2008. The subsurface beneath the building floor at this SWMU/AOC consists of approximately 12 feet of CDF, the reinforced concrete floor of the former degreaser pit, and then native glacial till. The area of the former large vapor degreaser is currently used by the wire shop.

The degreaser originally used 1,1,1-TCA, but was converted to use TCE in the mid-1990s. The solvent stabilizer 1,4-dioxane was used in the degreaser, according to Boeing personnel.

2.11.2 Summary of RI Findings Regarding SWMU/AOC No. 170

A subsurface investigation of soils and sub-slab vapor beneath the former large degreaser pit, as well as indoor air quality in this area, was performed in January 2008. The investigation included collection of soil gas and sub-slab vapor samples from seven soil/sub-slab vapor borings and one indoor air sample. Boring locations are shown on Figure 2-7c. Soil samples were analyzed for VOCs, TPH-D, metals, and 1,4-dioxane. Sub-slab vapor samples were analyzed for VOCs and 1,4-dioxane. TCE was detected in soil samples at concentrations exceeding the RI screening level and all other constituent concentrations were either not detected or below the respective RI screening level. The sub-slab vapor analytical results indicated that one or more of the VOCs TCE, Freon 12, and/or chloroform were detected in the sub-slab vapor samples from the former vapor degreaser area above the RI sub-slab vapor screening levels. TCE was also detected in indoor air samples at concentrations exceeding the RI screening level. Based on the indoor air and sub-slab analytical results, Ecology requested additional sub-slab vapor sampling and indoor air monitoring in the large vapor degreaser area.

Additional investigations were performed for sub-slab vapor and indoor air in February/March 2009 and January 2010, respectively. A second indoor air sampling event was performed in November 2010. Sub-slab vapor sample locations (SSV4002-3 and SSV4002-4) and an indoor air sample were collected at locations shown on Figure 2-7c. TCE, benzene, and chloroform were detected above the RI screening level for sub-slab vapor in one or both samples. No VOC was detected above the RI screening level for indoor air when detected indoor air concentrations were corrected for concentrations in the ambient air samples in one or more samples.

Because of the TCE concentrations detected in soil beneath the former large degreaser pit, groundwater sampling was also performed for SWMU/AOC No. 170 to assess whether TCE, or other VOCs, were present in the Esperance Sand groundwater downgradient of the former large vapor degreaser. Two monitoring wells (EGW177 and EGW178 on Figure 2-7c) were installed in 2009 outside the building downgradient from the former large vapor degreaser. Six grab soil samples were collected at selected depths between 28 and 76 feet bgs during well installation for VOC analysis. TCE was not detected in any of the samples, but acetone, carbon disulfide, and 2-butanone were detected in one or more samples at concentrations below the RI screening levels.

Groundwater samples have been collected from the new wells periodically since May 2009. TCE was detected below the MTCA Method A groundwater cleanup level in the May 2009 samples from both wells, and chloromethane was detected in the well EGW178 sample below the MTCA Method B groundwater cleanup level. VOCs have not been detected in any groundwater sample from these wells since July 2009.

Based on soil sampling results for TCE at the former large vapor degreaser, the potential for future Esperance Sand groundwater contamination from the soil to groundwater pathway was recommended for evaluation in the FS, as well as evaluation of the vapor intrusion pathway for chlorinated VOCs, chloroform, and Freon 12.

2.11.3 SWMU/AOC No. 170 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from two additional soil borings to assess vertical extent of soil contamination and collect soil physical characteristics data for use in leaching modeling.

The combined RI and FS data for soil and sub-slab vapor are presented in Tables 2-11a and 2-11b. Sampling locations are presented with selected analytical results on Figure 2-7c, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a vadose zone model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

TCE is present in soil beneath the location of the former vapor degreaser and below the concrete floor and CDF-backfilled degreaser pit. TCE concentrations at two depths at one location (ESB1529) exceed the MTCA Method B soil cleanup levels for protection of groundwater (25 µg/kg), which is proposed as the cleanup level for soil at this SWMU/AOC in Section 5 of this FS. The maximum concentration of TCE in this soil is 40 µg/kg at approximately 19 feet bgs. The extent of contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 170 ft^2 that extends to a maximum depth of 19 feet bgs (20 CY).

The conservative vadose zone transport model (Appendix B) indicates that, with a concrete surface cover (floor) in place to prevent recharge, residual TCE present in soil at this SWMU will not leach to Esperance Sand groundwater for at least 999 years. The presence of the building above the cover would provide additional protection against the potential for recharge that could cause the TCE to migrate to Esperance Sand groundwater. Without a surface cover in place, the model predicts that the residual TCE in soil could leach to Esperance Sand groundwater at concentrations greater than the MCL for TCE of 5 µg/L in about 100 years, but the model over-predicts the potential migration due to conservative assumptions inherent in the model.

Sub-Slab Vapor and Indoor Air Conditions

TCE is present in sub-slab vapor at concentrations exceeding the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 $\mu g/m^3$), but is not present in indoor air at concentrations above the MTCA

Method C air cleanup level (USEPA 2015a), which is .proposed for this SWMU/AOC in Section 5 of this FS. The maximum concentration of TCE in the sub-slab vapor is 980 µg/m^3.

2.12 BUILDING 40-02, PAINT SHOP CHEMICAL CRIB

The Paint Crib is located in the southwest portion of the building (Figure 2-7a) and was identified for further evaluation in the FS. The summary of subsurface conditions in the vicinity of the Paint Crib is provided in Section 2.10.

2.12.1 Summary Description of Paint Shop Chemical Crib

The former paint shop chemical crib is a small room located on the southwestern side of Building 40-02, which was used historically for paint and chemical storage. A fume hood and concrete containment trench is present within the chemical crib room. At the time of the FS, the paint shop chemical crib room appeared to still be in use for minor and occasional chemical handling.

2.12.2 Summary of RI Findings Regarding Paint Shop Chemical Crib

A subsurface investigation of soils and sub-slab vapor beneath the paint crib, as well as indoor air quality in this area, was performed in January 2008. The investigation included collection of soil and soil gas samples from three soil/soil gas borings and one indoor air sample. Boring locations are shown on Figure 2-7d. Soil samples were analyzed for VOCs, TPH-D, metals, and 1,4-dioxane. Sub-slab vapor samples were analyzed for VOCs and 1,4-dioxane. Concentrations of chemical constituents in soil were either not detected or detected below the RI screening levels. The sub-slab vapor analytical results indicated that TCE and/or chloroform were detected in one or more of the sub-slab vapor samples above the RI screening levels for sub-slab vapor. TCE was also detected in the indoor air sample at a concentration exceeding the RI screening level for indoor air. Based on the indoor air and sub-slab vapor analytical results, Ecology requested additional sub-slab vapor sampling and indoor air monitoring in the paint crib area.

Additional investigations were performed for sub-slab vapor and indoor air in February/March 2009 and January 2010, respectively. A second indoor air sampling event was performed in November 2010. Sub-slab vapor sample locations and indoor air samples were collected at locations shown on Figure 2-7d. TCE and PCE were the only VOCs detected above the RI screening levels for sub-slab vapor in one or both samples collected in the paint crib area. No VOC was detected above the RI screening levels for indoor air when detected indoor air concentrations were corrected for concentrations in the ambient air samples in one or more samples.

Based on the cumulative soil and sub-slab vapor results, the paint crib area was recommended for evaluation in the FS with respect to the vapor intrusion pathway for TCE, Freon-12, and chloroform.

2.12.3 Paint Crib Current Conditions

The combined RI data for soil and sub-slab vapor are presented in Tables 2-12a and 2-12b. Sampling locations are presented with selected analytical results on Figure 2-7d, and data interpretations are discussed further in Sections 3, 5, and 6.1.

Soil Conditions

Chemical constituents are not present in soil beneath the location of the former paint crib at concentrations exceeding the MTCA Method B soil cleanup levels for protection of groundwater, which are proposed as the cleanup levels for soil at this SWMU/AOC in Section 5 of this FS.

Empirical evidence to date from groundwater monitoring wells at the site demonstrates no migration of TCE to Esperance Sand groundwater at concentrations exceeding the MCL of 5 µg/L.

Sub-Slab Vapor and Indoor Air Conditions

TCE is present in sub-slab vapor at a concentration exceeding the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 $\mu g/m^3$), but are not present in indoor air at concentrations above the unattenuated industrial air screening levels (USEPA 2015a). The MTCA Method C air cleanup level is presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in the sub-slab vapor is 220 $\mu g/m^3$.

2.13 SOUTH COMPLEX – ESPERANCE SAND WELL EGW061

As discussed in the FSWP (URS 2012b), the uppermost regional groundwater aquifer beneath the South Complex of the Everett Plant occurs in the Esperance Sand at a depth of approximately 200 feet bgs. Groundwater flow in the Esperance Sand aquifer beneath the plant is inferred to be to the northwest toward Port Gardner Bay in Possession Sound (USGS 1996).

2.13.1 Summary Description of Esperance Sand Well EGW061

Previous compilations of information on water supply wells in the Esperance Sand aquifer in the vicinity of the Everett Plant (Dames & Moore 1997a) indicate one industrial supply well, one well for golf course irrigation, and two possible residential supply wells. Prior to the RI, only

one monitoring well on the site had been installed into this aquifer. This pre-RI well (EGW040) is located on the west side of Building 40-56 in the west central portion of the North Complex of the plant (Figure 2-8). It was installed in the inferred downgradient direction of an area south of Building 40-56, which has elevated concentrations of chemical constituents (principally VOCs from silk-screen solvents) in perched groundwater in a utility corridor. Well EGW061 was installed as part of the RI, as described in Section 2.13.2.

2.13.2 Summary of RI Findings Regarding Esperance Sand Well EGW061

Prior to initiating the RI, groundwater monitoring was conducted from one existing monitoring well (EGW040) by Boeing personnel on a quarterly or semiannual basis following well installation in February 1995. This monitoring included measuring groundwater elevation and collecting and analyzing groundwater samples for VOCs completed in the Esperance Sand. VOCs were not detected in groundwater samples from this well, except one low vinyl chloride detection in 1997. Vinyl chloride has not been detected in subsequent samples from well EGW040.

Two monitoring wells were installed as part of the RI in 1998 to obtain additional information regarding physical characteristics, groundwater quality, elevations, and flow direction in the Esperance Sand aquifer. One well (EGW060) is located near the west boundary of Boeing Lake, and one (EGW061) is adjacent to Building 40-37 in the southeast corner of the North Complex of the Everett Plant (Figure 2-8). The Esperance Sand was encountered in boring EGW060 at approximately 147 feet bgs. The well was completed with the screened section from a depth of 203 to 233 feet bgs, and groundwater was measured at approximately 216 feet bgs following well installation. The Esperance Sand was encountered in boring EGW061 at approximately 130 feet bgs. The well was completed with the screened section from a depth of 189 to 219 feet bgs, and groundwater was measured at approximately 201 feet bgs following well installation.

Groundwater within the Esperance Sand is unconfined and occurs at a depth of approximately 195 to 215 feet bgs (approximately 60 to 70 feet below the top of the Esperance Sand unit), below the upland area of the Everett Plant.

These Esperance Sand wells have been included in the groundwater monitoring program since they were installed, and chemical constituents other than arsenic and chromium have not been detected. The results for arsenic and chromium showed the following:

- Total and dissolved arsenic above the RI screening levels in all the samples
- Total chromium in the initial well EGW060 sample and two initial well EGW061 samples and the EGW040 sample collected during the third quarter 2002: Dissolved chromium concentrations in these three samples, as well as total and

dissolved concentrations in all subsequent samples from the three Esperance Sand wells, were less than the RI screening levels.

The arsenic concentrations have been consistently greater in groundwater from well EGW061, relative to wells EGW040 and EGW060. The arsenic concentrations detected in wells EGW040 and EGW060 were interpreted to be representative of regional background, based on the location of these wells relative to SWMUs/AOCs investigated and the available soil and shallow perched groundwater analytical data from the RI and prior investigations at the site. However, it is uncertain whether the arsenic concentrations in well EGW061 are representative of background concentrations, and this issue was recommended for further evaluation in the FS.

2.13.3 Esperance Sand Well EGW061 Current Conditions

Trend graphs of recent groundwater sample results for arsenic are provided on Figure 2-8. Complete groundwater sampling results are provided in Appendix A.

Arsenic concentrations in groundwater exceed the MTCA Method A groundwater cleanup level (0.005 mg/L), which is proposed as the cleanup level for groundwater at this SWMU/AOC in Section 5 of this FS.

The maximum concentrations of total arsenic (0.0119 mg/L) and dissolved arsenic (0.0121 mg/L) in the last 5 years occurred for well EGW061 in April 2011.

2.14 SWMU/AOC NOS. 168 AND 055, BUILDING 40-24, UTILITY TRENCHES AND SUMPS

Building 40-24 is located in the north-central portion of the facility (Figure 1-2). Two SWMUs/AOCs located in this building (SWMU/AOC Nos. 55 and 168) were identified for further evaluation in the FS (Figure 2-9a).

The results of drilling beneath and adjacent to the two SWMUs/AOCs in and adjacent to Building 40-24 indicate the presence of fill to depths ranging from 11 to 16½ feet bgs (URS 2011b). A thin layer of gravel fill underlies the concrete floor of the utility trench. The fill soils are underlain by very dense, glacial till to the maximum depth investigated of 60½ feet bgs. Perched groundwater elevations and occurrence suggest that the perched groundwater encountered in the wells adjacent and through Vault E and in well EGW037 is contiguous, but that perched groundwater only occurs in discontinuous lenses beneath the utility trench north of EGW037. The perched water, where present, is situated within coarse granular backfill (i.e., sand and gravel) beneath and adjacent to the utility trench and Vault E. Perched groundwater was not encountered within the glacial till surrounding and underlying Vault E to the depth explored of 45 feet bgs.

2.14.1 Summary Description of SWMU/AOC Nos. 168 and 055

SWMU/AOC No. 168 consists of utility trenches and two sumps located within Building 40-24 and associated buried piping, as shown on Figure 2-9a. Operations in this building included aircraft hydraulic testing and final assembly of the 767 aircraft. The building was converted for use in final assembly of 787 aircraft in 2011, and will eventually be used for final assembly of 777X aircraft. The ground surface in this area is concrete paved, except for the protective floor plates that cover concrete trenches. The waste fluids collection system in this building in operation from 1980 to 1992 consisted of four piping systems that flowed by gravity or were pumped into accumulation tanks (EV-75 and EV-76). Although tanks EV-75 and EV-76 (SWMU/AOC No. 055) were removed from service, the areas of soil near samples PVB-4 and SWMU No. 055 are proposed for evaluation in the FS. Utility trenches, sumps, and associated piping are included in SWMU/AOC No. 168. An 8-foot-deep concrete vault located south of Building 40-24 (Vault E) serves as the southern terminus for below grade utility trenches in Building 40-24 and is associated with SWMU/AOC No. 168. This system was taken out of service in October 1992 because of changes in the manufacturing process, aircraft testing procedures, and plant practices. In 2011 and 2012, this area was converted from a 767 final assembly area to a 787 final assembly area and, as a result, the hydraulic system was decommissioned.

The principal chemical constituents of the fluid contained in these areas are tributyl phosphate (TBP), di-n-butyl phenyl phosphate (DPP), n-butyl diphenyl phosphate, triphenyl phosphate, and butoxyhydroxytoluene (BHT). BHT was not known to be a component of the hydraulic fluid until after completion of the initial RI and most of the supplemental RI. Consequently, soil and perched groundwater samples collected in the area of the SWMU/AOC No. 168 utility trench and sumps were not analyzed for this compound in the RI.

2.14.2 Summary of RI Findings Regarding SWMU/AOC Nos. 168 and 055

Pre-RI Findings

Prior to the AO and RI, independent (not Ecology approved) proactive investigations and cleanup actions were completed including removal of waste tanks and piping and decontamination of utility trenches in 1993, subsurface investigation in 1994 (SECOR 1994a and 1994b), and perched groundwater monitoring.

A subsurface investigation was conducted in 1994 to assess the extent of soil and perched groundwater containing hydraulic fluid near the former waste tanks, sumps, and utility trench system. Soil samples were collected at depths ranging from 6 to 39 feet bgs. Soil boring locations are shown on Figure 2-9a. The investigation indicated that the area of the North Sump and the former tanks (i.e., borings PVB-2 and PVB-4) showed the hydraulic fluid concentrations at the greatest depth. Significant attenuation of total hydraulic fluid concentrations was observed

with depth. These data suggest that the vertical extent of detectable concentrations of hydraulic fluid constituents may currently be limited to a depth of 50 feet or less in this area.

One boring encountered perched groundwater in a 2½-foot-thick unit of gravel fill at 10 feet bgs and was converted into a monitoring well (EGW037) (Figure 2-9b). Perched groundwater analytical results from 1994 through 1996 indicated that TBP and DPP were the only components detected in perched groundwater, and TBP concentrations were the highest. Concentrations did not change significantly between 1994 and 1996.

RI Findings

The RI included soil and perched groundwater sampling to assess whether potential chemical constituents are present in the fill, glacial till soil, and perched perched groundwater beneath the utility trenches, sumps and vaults, and selected buried piping associated with SWMU/AOC No. 168 and the lateral extent and thickness of dense nonaqueous-phase liquid (DNAPL), if present, around Vault E.

During the investigation beneath Building 40-24, 21 borings were advanced during the RI in 1998, 1999, and 2001, as shown on Figure 2-9a, beneath and adjacent to the utility trenches, sumps and vaults, and selected buried piping in Building 40-24. Soil samples were collected at depths ranging from 5 to 20 feet bgs. Phosphate compounds in soil were either not detected or were detected at concentrations below the RI soil screening levels. Perched water was encountered in fill in soil borings ESB1290 and ESB1292. Perched groundwater samples collected from a depth of 1.5 feet below the utility trench floor surface indicated that only TBP was detected at ESB1290 at a concentration above the groundwater screening level calculated by Boeing per MTCA and approved by Ecology.

During the investigation surrounding Vault E, located immediately south of Building 40-24, 10 soil borings were advanced during the RI from 1998 to 2001 and 6 were completed as perched groundwater monitoring wells, as shown on Figures 2-9a and 2-9b, beneath and adjacent to Vault E. Fifty-four soil samples were collected at depths ranging from 5 to 45 feet bgs. Phosphate compounds in soil were either not detected or were detected at concentrations below the RI soil screening levels. Detected phosphate compounds and BHT were predominately found in fill soils adjacent to or directly beneath the vault, and concentrations decrease with depth.

Two samples each from borings EGW070 through EGW074 were also analyzed for VOCs, SVOCs, and metals.

Perched water was encountered at the till/fill interface at a typical depth of 9 to 10 feet bgs adjacent to Vault E in soil borings ESB1116/EGW055, EGW070 through EGW074, and ESB1330. Perched groundwater samples were collected from wells EGW037, EGW055 (except

when measurable DNAPL was present in EGW055), and EGW070 through EGW074 on a quarterly or semiannual basis during and subsequent to the RI.

During sampling of well EGW055 in May 1999, Boeing discovered that DNAPL had accumulated in the bottom of the well. The maximum DNAPL thickness measured was 1.54 feet on July 13, 1999. Boeing periodically removed the accumulated DNAPL in 1999 and 2000, and DNAPL has not been detected at measurable amounts since December 1, 2000. Trace amounts of light nonaqueous-phase liquid (LNAPL) and/or DNAPL were detected in wells EGW070 and EGW071 in 2001, but have not been found in measurable amounts in wells EGW070 through EGW074 since 2001. The DNAPL samples from well EGW055 contained detectable concentrations of toluene and total xylenes, in addition to the four phosphate compounds. The analytical results for well EGW055 perched groundwater samples indicated that concentrations of phosphate compounds were significantly less after initiating removal of DNAPL in May 1999, but detected concentrations of n-butyl diphenyl phosphate, DPP, and TBP remained above the RI screening levels.

TBP and/or DPP concentrations were also detected above the Boeing calculated perched groundwater screening levels in wells EGW037, EGW070, EGW071, and EGW074. VOCs and SVOCs were either not detected or were detected at concentrations below the RI screening levels in the six wells (EGW055 and EGW070 through EGW074), with the exception of phenol, bis(2-ethylhexyl)phthalate, and PCE. Arsenic was also detected at or above the MTCA Method A groundwater cleanup level in the six wells.

Arsenic, BTEX, and phosphate compounds in perched groundwater and fill soil around Vault E were recommended for evaluation in the FS, along with evaluation of the vapor intrusion pathway based on the detection of toluene and total xylenes in DNAPL samples.

Benzene has never been detected in perched groundwater samples from any well at this SWMU. Ethylbenzene has been detected at concentrations below the MTCA Method B groundwater cleanup level, in one well (EGW070). Toluene and total xylenes have either not been detected above laboratory cleanup levels in perched groundwater samples from this SWMU, or were detected at concentrations below the MTCA Method B groundwater cleanup levels (0.64 mg/L). When detected, concentrations of toluene, ethylbenzene, and total xylenes (TEX) have also been below the risk-based cleanup levels for perched groundwater proposed in Section 5 of this FS.

2.14.3 SWMU/AOC No. 168 and 055 Current Conditions

Additional investigation at this SWMU/AOC under the Ecology-approved FSWP (URS and Landau 2012) consisted of laboratory “bench scale” pilot testing of Skydrol (LD-4) degradation under the injection pilot test work plan (URS 2013a), and step-drawdown testing to assess perched groundwater production characteristics under the aquifer testing pilot test work plan (URS 2013b).

The historical and RI data for soil samples collected at SWMU/AOC Nos. 168 and 055 are presented in Tables 2-13a and 2-13b. Trend graphs of recent perched groundwater sample results for TBP are provided on Figure 2-9b. Complete perched groundwater sampling results are provided in Appendix A. Sampling locations relevant to FS decisions are presented with selected analytical results on Figures 2-9a and 2-9b, and data interpretations are discussed further in Sections 3, 5, and 6.1.

Soil Conditions

Phosphate compounds are present in soil near former USTs EV-75 and EV-76 (SWMU/AOC No. 055), in fill soils around portions of the utilidor beneath the factory floor, and in fill soils around Vault E at concentrations exceeding the MTCA Method B protection of groundwater soil cleanup levels (8.2 mg/kg), which are proposed as the cleanup levels for soil at this SWMU/AOC in Section 5 of this FS. Consistent with the RI, the compound TBP is used as the indicator compound for establishing the distribution of phosphate contamination at these SWMUs/AOCs. Of the phosphate compounds, TBP concentrations are highest, exceed in more locations/depths, and are colocated with exceedances of other phosphate compounds. The maximum TBP concentration in soil is 2,700 mg/kg at 10 ½ feet bgs below the existing utility tunnel inside the building. The maximum TBP concentration outside of the building is 250 mg/kg (estimated) at 10 feet bgs.

n-Butyl alcohol is also present in fill soils around Vault E at concentrations exceeding the MTCA Method B protection of groundwater soil cleanup level (3,300 µg/kg), which is proposed as the cleanup levels for soil at this SWMU/AOC in Section 5 of this FS. These exceedances are colocated with samples that have TBP concentrations greater than the proposed cleanup level at two locations, but not at other locations. n-Butyl alcohol concentrations are only available for five borings, and because TBP is the primary COC at this SMWU/AOC, the area of concern is defined by TBP exceedances. Proposed remedial alternatives for soil will include removal and characterization of extent of n-butyl alcohol concentration exceedances.

The extent of TBP-contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 3,500 ft^2 that extends to a maximum depth of 30 feet bgs (2,100 CY).

The conservative vadose zone transport model (Appendix B) indicates that, with a concrete surface cover (floor) in place to prevent recharge, TBP present in soil at this SWMU will not leach to Esperance Sand groundwater for at least 999 years. . The presence of the building above the concrete floor would provide additional protection against the potential for recharge that could cause the TBP to migrate to the Esperance Sand groundwater. Without the surface cover, the model predicts that residual TBP in soil at this SWMU will migrate to the Esperance Sand groundwater at concentrations greater than the MTCA Method B groundwater cleanup level of 160 µg/L in approximately 100 years, but the model over-predicts the potential migration due to conservative assumptions inherent in the model. Soils data for this SWMU/AOC area

demonstrate the conservative nature of the model results, indicating that the TBP has only migrated in soil a maximum of about 20 to 25 feet below the former tanks (removed in 1995) and less than 20 feet below the existing vault.

Perched Groundwater Conditions

Phosphate compounds and arsenic are present in perched groundwater in fill soils around Vault E and the utilidor under the southern portion of the factory floor. Phosphate compound concentrations in perched groundwater are present at concentrations exceeding the risk-based cleanup levels for nonpotable perched groundwater (4.3 mg/L), which are proposed as the cleanup levels for perched groundwater at this SWMU/AOC in Section 5 of this FS. The maximum TBP concentration in perched groundwater in the last 5 years is 1,800 mg/L (estimated). Arsenic concentrations in perched groundwater do not exceed the proposed risk-based cleanup levels for nonpotable groundwater (5.3 mg/L), which is proposed as the cleanup level for perched groundwater at this SWMU/AOC in Section 5 of this FS. BTEX compounds are not consistently detected in perched groundwater at this SWMU/AOC.

The extent of contaminated perched groundwater at this SWMU/AOC is estimated as an area of perched groundwater of approximately 4,200 ft^2 that extends to a maximum depth of 12.75 feet bgs (65,000 gallons).

A step-drawdown test was completed during the FS at this SWMU/AOC to evaluate additional perched groundwater site conditions relevant to the feasibility of potential cleanup alternatives (groundwater extraction). The step-drawdown test performed in well EGW037 (Figures 2-9a and 2-9b) indicates that the sustainable flow rate is less than 0.5 gpm. No noticeable drawdown was detected in any of the observation wells (EGW055, EGW070, or EGW071 on Figure 2-9a and 9b).

Conclusions of the Skydrol degradation laboratory study are as follows:

- Oxygen Release Compound Advanced (ORC-A) and oxygen additions were capable of maintaining aerobic conditions in the test microcosms.

- Concentrations of Skydrol constituents decreased similarly in all microcosms, including the sterile control, intrinsic control, and treatment microcosms. This suggests that Skydrol compounds were most likely abiotically removed from the aqueous phase by sorption to the solids. Addition of Tween 80 (surfactant) decreased the amount of sorption observed.

- Biological degradation of the phosphate ester components of Skydrol appear to have been minimal in the treatments, as no increase in inorganic phosphate was

observed, and similar decreases of the phosphate esters were observed in the control microcosms.

- Dissolved arsenic and dissolved manganese concentrations increased in all treatment microcosms, with the greatest increase in arsenic to 0.044 mg/L and manganese to 2.6 mg/L observed in the Petrox Series 3 bioaugmented microcosms.

- A cleanup action alternative involving injections of bioremediation reagents at this SWMU/AOC is not recommended because of laboratory test performance results that suggest little or no bioremediation of Skydrol constituents.

2.15 SWMU/AOC NOS. 086, 089, AND 094, BUILDING 40-56, FORMER USTS

Building 40-56 is located in the north-central portion of the facility (Figure 1-2). Five SWMUs/AOCs located in or near this building (SWMU/AOC Nos. 067, 071, 086, 089, and 094) were identified for further evaluation in the FS (Figures 2-10a and 2-10b) and are discussed in Sections 2.15 and 2.16.

The soils underlying Building 40-56 consist of glacial till and fill soils of variable composition. Prior to construction of Building 40-56, one head of the PMG drainage had extended into the building area. The portion of the former drainage in the area of excavation was filled with recompacted glacial till soil cut from other areas of the Everett Plant. Fill soils underlie the western portion of Building 40-56 in the former ravine and are present along buried utilities adjacent to the building. The fill extends to depths ranging from 7 to 17½ feet. Perched groundwater occurs within granular fill soils along subsurface utilities and in former UST excavations. In addition, discontinuous perched groundwater was encountered at the interface between the fill and the underlying glacial till at a depth of 10 to 17 feet bgs north and east of former UST EV-41. Glacial till soils encountered below coarse fill or till fill did not appear to be saturated. Based on the installation of well EGW040 in 1994, the Esperance Sand was encountered at 100 feet bgs, and the groundwater within the Esperance Sand was encountered at 201 feet bgs.

2.15.1 Summary Description of SWMU/AOC Nos. 086, 089, and 094

All of the SWMUs/AOCs at Building 40-56 were used to store silk-screen solvent product and waste solvent, or to recycle waste solvent. Silk screening for aircraft interiors has been performed in the silk-screen shop since 1969. The washing of inks from silk screens has historically used a variety of nonchlorinated solvent mixtures primarily consisting of ketones, such as cyclohexanone, and VOCs, such as TEX, and trimethylbenzenes. These solvents have been released into the subsurface from a UST system and associated piping, sumps, and other mechanical systems that historically carried spent and new silk-screen washing solvent. The

system was upgraded in 1986 and 1991, and all of the SWMU/AOC components (i.e., tanks and piping) were removed at that time. There remains limited use of these solvents in the current operations, which have been modified to use water-based materials.

The former USTs (SWMU/AOC Nos. 086, 089, and 094) supported the silk-screen shop and were situated in the paved outdoor area south of Building 40-56, as shown on Figure 2-10a. SWMU/AOC No. 086 consists of former UST EV-41, which was a single-walled UST with a 500-gallon capacity. The exact purpose of this tank is unknown, but it is believed to have either been used to store waste acid from the silk-screen washroom, or used for spill containment. It was installed in 1969 and removed in 1986. SWMU/AOC No. 089 (Former UST EV-42) was a single-walled UST with a 1,000-gallon capacity. UST EV-42 was used to store waste solvents generated by activities in the silk-screen washroom. It was removed in 1986. SWMU/AOC No. 094 (Former UST EV-43) was a single-walled UST with a 1,000-gallon capacity. UST EV-43 was located adjacent to UST EV-42 and supplied new solvents to the silk-screen washroom. It was removed from service in 1986 and replaced with a 1,500-gallon double-walled steel UST equipped with leak detection monitoring (EV-43-1). UST EV-43-1 and a limited amount of surrounding soils containing silk-screen solvent were removed in 1997 (Dames & Moore 1998). An east-west trending main utility corridor is located south of and parallel to the southern edge of the building, and several subgrade utility lines extend south from the building connecting to this main utility corridor. An east-west trending redundant steamline utilidor was installed between the main utility corridor and the southern edge of the building in 2011. A substantial volume of soil containing silk-screen solvents was removed and properly disposed of off site during installation of this utilidor.

2.15.2 Summary of Pre-RI and RI Findings Regarding SWMU/AOC Nos. 086, 089, and 094

Pre-RI Site Contamination Assessment of Main Utility Corridor, 1986 to 1996

All of the studies discussed in this section were conducted proactively and independently (not Ecology approved) prior to the AO and RI.

During the removal of USTs EV-41, EV-42, and EV-43 in January 1986, silk-screen solvent was encountered in soil in the vicinity of the USTs and adjacent main utility corridor. Visibly impacted soil and water were removed during removal of these USTs. From June 1986 through October 1987, a site assessment was conducted (Dames & Moore 1987a and 1987b) to assess the extent of silk-screen solvents in the area surrounding the tank. Nine borings were converted to monitoring wells, seven of which (EGW002 and EGW005 through EGW010) remain in place and two of which (EGW003 and EGW004) were subsequently abandoned in 1994 and 1996. Well EGW004 was replaced by EGW050 in 1996.

Most of the residual silk-screen constituents detected were adjacent to the former USTs and in the main utility corridor at a depth of 15 feet bgs or less within the fill soil. The principal VOCs detected in the soils consisted of xylene, toluene, MEK, ethylbenzene, acetone, cyclohexanone, trimethylbenzene, and isopropyl benzene. The highest detected VOC concentrations in perched groundwater were located near the former USTs. Perched groundwater had apparently migrated toward the utility corridor and laterally within the backfill of the east-west trending utility corridor. The results indicated that the impacted perched groundwater is of limited lateral extent.

In August 1986, trench B56-T1 was converted into a French drain with a recovery well. A level-activated pump system and recovery well (EGW043) were installed at the north end of the trench for collection and removal of perched groundwater from the backfill along the utility lines. In 1988, a second recovery well (EGW044) was installed because the perched groundwater levels in monitoring wells indicated a relatively limited lateral influence from the existing recovery system and to prevent perched groundwater from migrating north beneath the building along abandoned utilities. Perched groundwater has been extracted from the two recovery wells since 1988 and is discharged to the Everett Plant's on-site industrial wastewater treatment plant via double-walled underground, or above ground, below-grade piping.

In 1994, a supplemental environmental investigation was conducted to further assess the extent of VOC-impacted groundwater in the vicinity of Building 40-56 (Dames & Moore 1994). A deep groundwater monitoring well (EGW040) was installed in the Esperance Sand aquifer to the west of Building 40-56 to evaluate the groundwater quality downgradient of the former USTs and the silk-screen washroom (Figure 2-10b). Analysis of groundwater samples from well EGW040 from the Esperance Sand aquifer indicated that VOCs were not detected in groundwater in this area.

In 1995 and 1996, perched groundwater samples were collected on a quarterly basis from seven shallow monitoring wells (EGW002 and EGW005 through EGW010) and one deep well (EGW040) (Dames & Moore 1996 and 1997c). One or more VOCs were detected at concentrations exceeding the RI screening levels in at least one sample from each shallow monitoring well, except well EGW009. LNAPL was detected in wells EGW004 and EGW007. VOCs were not detected in deep well EGW040.

The pump in recovery well EGW043 was replaced in November 1996, and additional subsurface investigation of soil and shallow perched groundwater quality south of Building 40-56 was conducted (Dames & Moore 1997d). Based on the results of this investigation, one additional monitoring well (EGW051) was installed at a location where solvent was visible in soil samples, and well EGW004 was replaced with well EGW050. A passive recovery system was also installed in well EGW050 in November 1996 to remove LNAPL on the perched groundwater.

RI Findings - 1997 to 2010

The RI included soil and perched groundwater sampling south of the western portion of Building 40-56 in the area of former USTs EV-41, EV-42, and EV-43 to (1) better delineate the lateral and vertical extent of soil and perched groundwater containing VOCs and (2) determine the extent of soil to be excavated during removal of UST EV-43-1. Thirty-four borings were advanced during the RI in 1997, 1998, 2000, and 2002, as shown on Figures 2-10a and 2-10b. Two perched groundwater monitoring wells (EGW062 and EGW063) and a replacement monitoring well (EGW005) were installed in 2000.

More than 100 soil samples were collected at depths ranging from 2 to 18.5 feet bgs. TEX were found in soil samples above the RI screening levels. Discontinuous LNAPL was observed in borings located south of or adjacent to the former UST excavations. Soil analytical data in the glacial till indicate that the vertical extent of VOCs at concentrations above the applicable screening levels is typically limited to less than 5 feet below the interface between fill soils and the underlying native glacial till soils.

Metals concentrations in soil samples from borings located adjacent to the former USTs were either not detected or were detected at concentrations below the RI screening levels.

Benzene, chloroform, ethylbenzene, styrene, PCE, toluene, TCE, xylenes, and/or vinyl chloride were detected in perched groundwater samples collected from one or more of the borings and monitoring wells at concentrations above the RI screening levels. LNAPL was also detected periodically during the RI in wells at varying thicknesses from trace amounts in well EGW007 to up to 1.25 feet in wells EGW050 and EGW051. Based on a percent saturation calculation, the RI indicated that LNAPL was likely to be present in the vicinity of wells EGW007, EGW050, EGW051, and EGW063 and borings ESB1096, ESB1011, and ESB1297 (refer to Figure 16-13 of the Ecology-approved upland RI report [URS 2011b]).

Groundwater was not apparent in the glacial till to the depth investigated (35 feet bgs), and there is no evidence that there is hydraulic connection between the perched groundwater and deeper groundwater (approximately 200 feet bgs) in the Esperance Sand. The RI data indicated that the silk-screen solvents have partially penetrated the glacial till unit.

The RI recommended that the FS include further evaluation of the extent of perched groundwater containing VOCs, hydraulic control, and potential exposure pathways, such as vapor intrusion and protection of Esperance Sand groundwater from downward migration of perched groundwater and underlying soil containing VOCs.

Post-RI Findings

Shallow soil sampling (i.e., less than 5 feet bgs) was conducted in 2011 prior to construction of the new redundant steamline utilidor located between the main utilidor and the southern side of

Building 40-56 (Figures 2-10a and 2-10b) to assess whether COCs previously detected in deeper subsurface soils in the vicinity of the proposed utility excavation are present in shallow subsurface soils. Of the 44 soil samples collected from 23 soil borings, shown on Figure 2-10a, three soil samples contained VOC concentrations exceeding the RI screening levels. Contaminated soils encountered during the excavation for the steamline utilidor were disposed of at a permitted off-site facility.

2.15.3 SWMU/AOC Nos. 086, 089, and 094 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from eight additional soil borings, of which seven were converted to wells, five sub-slab vapor samples, and seven soil gas samples to assess vertical extent of soil contamination, collect soil characteristics data for use in leaching modeling, and characterize soil vapor concentrations. A dual-phase extraction (DPE) pilot test was conducted in the eastern portion of the site utilizing the newly installed wells. An injection pilot study was conducted in the western portion of the site.

The combined historical and FS data for soil remaining on site following historical cleanup and construction activities and the FS data for sub-slab vapor are presented in Tables 2-14a and 2-14c, respectively. Trend graphs of recent perched groundwater sample results for TEX are provided on Figure 2-10b. Complete perched groundwater sampling results, including the results from new wells installed as part of this FS, are provided in Appendix A. Sampling locations relevant to FS decisions are presented with selected analytical results on Figures 2-10a, 2-10b, and 2-10c, and data interpretations are discussed further in Sections 3, 5, and 6.1. Cross sections showing updated data since the time of the RI are provided as Figures 2-10d through 2-10h. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B, with the conclusions summarized in this section.

TEX compounds, the primary compounds driving the need for cleanup at these SWMUs/AOCs, are present in soil and perched groundwater in the area between the southern wall of Building 40-56 and the main utilidor (Figures 2-10a and 2-10b) from approximately the large air intakes (western extent) to the east side of the trash compactor.

Soil Conditions

TEX compounds are primarily present in fill soils of varying types and placed at various depths in and around numerous individual utilities and two large utilidors. TEX compounds typically also penetrate a few feet into the native till beneath and surrounding the fill soils and were also detected at a depth of 40 feet bgs at location ESB1979. TEX concentrations in soil exceed MTCA Method B protection of groundwater cleanup levels (ethylbenzene 6,000 µg/kg, toluene

4,500 µg/kg, m,p-xylene 13,000 µg/kg, and o-xylene 14,000 µg/kg). The maximum concentrations in soil for these constituents are as follows:

- Ethylbenzene: 2,300,000 µg/kg at 16 feet bgs
- Toluene: 130,000 µg/kg at 12 feet bgs
- Total xylenes: 11,000,000 µg/kg at 15 feet bgs

In addition to the relatively widespread detection of TEX compounds, detected concentrations of MIBK in soil exceed the MTCA Method B protection of groundwater cleanup level (2,700 µg/kg), which is proposed as the cleanup level for soil at these SWMUs/AOCs in Section 5 of this FS. Some MIBK exceedances are colocated with TEX, but in the instances where MIBK exceedances are located outside of the extent of contaminated soil as delineated for TEX, the extent has been expanded to account for these exceedances. The maximum concentration of MIBK in soil is 79,000 µg/kg at 10 feet bgs.

The vadose zone modeling for this multi-SWMU/AOC area used xylenes as the proxy for toluene and ethylbenzene, since it is the most extensive compound and has the highest concentrations in soil. MIBK was not modeled because of its limited extent. The conservative vadose zone transport model (Appendix B) indicates that, with a concrete surface cover (pavement) in place, residual xylenes present in soil in this area will not leach to Esperance Sand groundwater for at least 999 years. Without a surface cover in place, the model predicts that xylenes present in soil could leach to Esperance Sand groundwater at concentrations greater than the MCL within about 200 years and would not attenuate to below the MCL within the 1,000-year model period. Soil data shown on Figures 2-10d through 2-10g indicate that even with perched groundwater present, most of the xylenes and ethylbenzene have not migrated more than about 15 to 20 feet below the base of the former USTs. These USTs were the source of the silkscreen solvents released in this SWMU/AOC area and were removed about 28 years ago.

Perched Groundwater Conditions

Ethylbenzene and xylenes have been detected in the last 5 years at wells EGW007, EGW043, EGW050, EGW051/EGW051A, EGW062, EGW063, and EGW206 through EGW211 at concentrations exceeding the risk-based cleanup levels for nonpotable perched groundwater (ethylbenzene: 4.3 mg/L and total xylenes: 0.49 mg/L), which are proposed as the cleanup levels for perched groundwater at these SWMUs/AOCs in Section 5 of this FS. Nonaqueous-phase liquid (NAPL) is sometimes observed in one of the monitoring wells (EGW050) at these SWMUs/AOCs. The maximum concentrations in perched groundwater for the primary COCs in the last 5 years are as follows:

- Ethylbenzene: 22 mg/L
- Total xylenes: 177 mg/L

Pilot tests were completed during the FS at this SWMU/AOC to further evaluate perched groundwater site conditions relevant to the feasibility of potential cleanup alternatives. These pilot tests included a DPE pilot test and an injection pilot test. Current pumping rates were also evaluated for potential perched groundwater extraction alternatives. The results of these tests for this SWMU/AOC are summarized below.

The DPE extraction pilot test performed at these SWMUs/AOCs (URS 2014b) concluded the following:

- The permeability of soils (glacial till, recompacted glacial till [fill], and granular fill) beneath these SWMUs/AOCs does accommodate vacuum extraction.
- The heterogeneities of site soils related to the UST excavation area and utility corridor have a strong adverse effect on DPE effectiveness, with an apparent radius of influence of less than 5 to 7 feet.
- DPE is unlikely to effectively remove the range of VOCs present, based on the very low VOC mass removal rate observed during the pilot test.

The injection pilot test performed at these SWMUs/AOCs (URS 2014c) concluded the following:

- Injections of the same or similar treatment reagents as those used in the pilot test (ORC-A and RegenOx) was not a recommended cleanup action alternative for these or similar SWMUs/AOCs at the BCA Everett Plant based on limited performance results and concerns over injecting reagents in close proximity to underground utilities.
- Injection of stronger oxidizing reagents (such as activated persulfate or catalyzed hydrogen peroxide), while potentially more effective at treating the COCs, is not feasible because of potential damage to underground utilities.

The ongoing dewatering pump in well EGW043, installed within a French drain as described above, does not dewater the backfill at these SWMUs/AOCs. This on-going pumping indicates a source of recharge (most likely from stormwater). The perched groundwater recovery data collected from EGW043 was evaluated to examine the average pumping rates during the wet and dry seasons. The wet season was assumed to be from October 1 to April 30 and the dry season from May 1 to September 3. Considering data from 1999 through mid-2015, the average pumping rate in the recovery well EGW043 is approximately 2,000 and 1,300 gallons per month during the wet and dry seasons, respectively.

Sub-Slab Vapor and Soil Gas Conditions

Several VOCs were detected in soil gas and sub-slab vapor both outside of Building 40-56 and inside the southern portion of Building 40-56 in areas associated with these SWMUs/AOCs. Of the detected VOCs, only xylenes were detected outside of the building at concentrations above the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (3,300 µg/m^3) (USEPA 2015a). The MTCA Method C air cleanup level is presented for these SWMUs/AOCs in Section 5 of this FS. The concentrations of VOCs in sub-slab vapor beneath the building floor did not exceed the industrial air screening level. The maximum concentration of total xylenes in soil gas is 33,900 µg/m^3.

2.16 SWMU/AOC NOS. 067 AND 071, BUILDING 40-56, FORMER RECYCLING UNIT AND UST EV-153

The former recycling unit and former UST EV-153 (SWMU/AOC Nos. 067 and 071, respectively) were located within the southwestern portion of Building 40-56 (Figure 2-11). The soils underlying Building 40-56 consist of glacial till and fill soils of variable composition. Fill soils underlie the western portion of Building 40-56 in a former ravine and are present along buried utilities adjacent to the building. During removal of the UST in 1991, medium dense to dense fill was encountered beneath the concrete floor. The transition to glacial till occurred at depths between 15 and 17 feet in all borings. Groundwater was not encountered in the borings or excavations (GeoEngineers 1992a). The excavation, with a maximum depth of 8 feet bgs (not uniform over the area), was reported to have been backfilled with CDF to 3 feet below the top of the concrete floor slab (GeoEngineers 1992a). Based on the difficulties with drilling beneath the floor slab for sub-slab vapor collection during the FS, it may be that CDF is present up to the bottom of the current floor slab, or that foundations for the silk-screen equipment were placed on top of the CDF and beneath the current floor slab.

2.16.1 Summary Description of SWMU/AOC Nos. 067 and 071

These SWMUs/AOCs were used to store silk-screen solvent product. Washing inks from silk screens has historically used a variety of nonchlorinated solvent mixtures that have primarily consisted of ketones, such as cyclohexanone, and VOCs, such as TEX and trimethylbenzenes.

The former recycling unit was located in the silk-screen shop to the east of former UST EV-153. The solvent recycling still was an aboveground unit connected to UST EV-153 through a drainpipe. It was removed in 1991. Former UST EV-153 had a 150-gallon capacity and was located underneath the silk-screen washroom within Building 40-56 (Figure 2-11). UST EV-153 began operation in 1980 by serving as a sump for silk-screen wash solvent and was removed in 1991. The active silk-screen shop, which provides silk-screen services for all of Boeing's aircraft manufacturing, is located in the southwest portion of Building 40-56 in the area of SWMU/AOC Nos. 067 and 071.

2.16.2 Summary of Pre-RI Findings Regarding SWMU/AOC Nos. 067 and 071

All of the studies discussed in this section were conducted proactively and independently (not Ecology approved) prior to the AO and RI. In December 1991, UST EV-153 was removed from the silk-screen washroom during the silk-screen shop remodeling. The tank appeared to be in good condition and no corrosion or holes were observed on the surface of the tank. From December 1991 to June 1992, GeoEngineers (1992a) conducted a subsurface investigation, limited remedial excavation, and vapor extraction pilot test in the former silk-screen washroom area. A proactive and independent cleanup action was conducted consisting of excavation and off-site disposal of approximately 470 cubic yards of contaminated soil and debris. Excavation was terminated when the results of field screening suggested that silk-screen wash components were likely not present, or where additional soil removal activity posed a potential for structural damage to Building 40-56. Confirmation sampling indicated that soil containing silk-screen wash components and VOCs at concentrations greater than the MTCA Method A cleanup levels remained beneath the floor of the silk-screen washroom. The excavation was filled with CDF.

No additional soil or groundwater sampling was conducted at SWMU/AOC Nos. 067 or 071 during the RI, because these areas were not accessible for significant further investigation because of current operations. The potential vapor intrusion pathway was recommended for evaluation in the FS.

2.16.3 SWMU/AOC Nos. 067 and 071 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau Associates, 2012) included collection of two sub-slab vapor samples to characterize soil vapor concentrations.

The historical data for soil remaining in place following past IAs and the FS data for sub-slab vapor are presented in Tables 2-15a and 2-15b. Sampling locations are presented with selected analytical results on Figure 2-11, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

VOCs are present in soil beneath and around the excavations backfilled with CDF. Toluene, ethylbenzene, and total xylenes (TEX) exceed the MTCA Method A cleanup levels (7,000, 6,000, and 9,000 µg/kg, respectively), which are proposed as the cleanup levels for these SWMUs/AOCs in Section 5 of this FS. The maximum concentration for ethylbenzene in soil is 860,000 µg/kg at 13 feet bgs, toluene is 1,778,000 µg/kg at 7 feet bgs, and for total xylenes is 6,900,000 µg/kg at 13 feet bgs. The maximum concentrations of these constituents are present near the former UST location. The extent of contaminated soil at these SWMUs/AOCs is

estimated as an area of soil of approximately 1,500 ft^2 that extends to a maximum depth of 25 feet bgs and a smaller area of soil of approximately 80 ft^2 that extends to a maximum depth of 30 feet bgs located to the northeast of the former excavation and main SWMU/AOC (total 970 CY).

The vadose zone modeling for this multi-SWMU/AOC area used xylenes as the proxy for toluene and ethylbenzene since it is the most extensive compound and has the highest concentrations in soil. The other constituents were not modeled due to their isolated occurrence and limited extent. The conservative vadose zone transport model (Appendix B) indicates that, with a concrete surface cover (floor) in place, xylenes present in soil in this area will not leach to Esperance Sand groundwater at a concentration greater than the xylenes MCL of 1,000 µg/L for at least 999 years. The building above the concrete floor would provide additional protection against potential recharge that could cause the migration of VOCs in soil to Esperance Sand groundwater. Without a surface cover in place, the model predicts that residual xylenes present in soil could leach to Esperance Sand groundwater at concentrations greater than the MCL within about 200 years, but the model over-predicts the potential migration due to conservative assumptions inherent in the model.

Sub-Slab Vapor Conditions

Sub-slab vapor samples could not be obtained at all of the planned sampling locations, nor at locations situated optimally near areas of historical soil contamination because of the presence of CDF immediately beneath the floor slab (see Appendix A) and the existing silk-screen shop equipment. Where sub-slab vapor could be sampled, VOCs were detected at concentrations below the industrial air screening levels, which consist of the MTCA Method C air cleanup levels divided by the standard attenuation factor of 0.03 (USEPA 2015a). The MTCA Method C air cleanup levels are presented for these SWMUs/AOCs in Section 5 of this FS. VOCs in sub-slab vapor are well below Occupational Safety and Health Administration (OSHA) permissible exposure limits (PELs), which are applicable to these SWMUs/AOCs because the same chemicals present in sub-slab vapor are in use within the shop (WAC 173-340-750[1][a]).

2.17 SWMU/AOC NO. 100, SOUTH COMPLEX, FORMER GUN CLUB

SWMU/AOC No. 100, Paine Field Sports Club (Former Gun Club), is located in the southeast portion of the Everett Plant (Figure 1-2). Previous investigations and groundwater monitoring indicate that shallow, perched groundwater is present in fill and alluvial soils throughout the Former Gun Club area. This perched groundwater occurs at depths ranging from 6 to 16 feet bgs and flows north to northwest toward Boeing Lake. Very dense glacial till separates this perched groundwater from groundwater in the uppermost, regional aquifer (Esperance Sand) at a depth of at least 200 feet bgs.

2.17.1 Summary Description of SWMU/AOC No. 100

The Paine Field Sports Club operated a trap shooting range on the site from the late 1940s until 1988 when Boeing purchased the property from Snohomish County. The sport of trap shooting involves firing shotguns at flying clay pigeon targets. Shotgun pellets are composed of approximately 95 percent lead and 5 percent hardening agents, such as antimony, copper, nickel, or chromium. Trap shooting clay pigeons used at the Gun Club were 4.5-inch disks made of tar-based derivatives containing polycyclic aromatic hydrocarbons (PAHs).

This SWMU/AOC area encompasses approximately 25 acres and is located west of Airport Road and directly south of Boeing Lake (Figure 2-12a). After acquiring the property from Snohomish County, Boeing constructed two access roads through the Former Gun Club area, Bomarc Road and West Frontage Road. Road construction began in October 1988 and was completed in December 1989. Consequently, the Former Gun Club area is divided into three subareas: (1) Area A is the portion south of Bomarc Road and west of West Frontage Road (29th Avenue West), (2) Area B is the portion north of Bomarc Road, and (3) Area C lies between Airport Road, West Frontage Road, and Bomarc Road (Figure 2-12a). Areas A and C are bounded on the south by the property boundary with Paine Field (Snohomish County Airport) and the Snohomish County Medical Examiner's Office, respectively.

2.17.2 Summary of Pre-RI and RI Findings Regarding SWMU/AOC No. 100

Pre-RI Site Assessment and Contaminated Soil Removal, 1988 to 1996

All of the studies discussed in this section were conducted proactively and independently (not Ecology approved) prior to the AO and RI. In the fall of 1988, the Paine Field Sports Club conducted lead recovery operations in Area A. The recovery operations involved scraping the top 6 inches of surficial fill across the site and placing the soil in a stockpile in the southeastern corner of Area A.

In 1988, a site contamination assessment and geotechnical investigation of approximately 80 acres, including the Former Gun Club area, were conducted associated with Boeing's purchase of the parcel. Perched groundwater samples from two wells contained arsenic, chromium, and lead at concentrations exceeding MTCA Method A cleanup levels. During construction of Bomarc Road and West Frontage Road, surficial soil containing lead shot was scraped from the access road right-of-ways and added to the stockpile in the southeastern corner of Area A. Additional investigations in 1990 to 1991 in Area A found lead, arsenic, and PAHs at concentrations exceeding the MTCA Methods A and/or B soil cleanup levels in shallow soils (Dames & Moore 1988 and Landau 1993). The detected concentrations decreased with depth. Ten monitoring wells were installed, and perched groundwater samples collected had detectable levels of lead, PAHs, arsenic, cyanide, and VOCs. In December 1992 and January 1993, soils stockpiled in Area A were transported off site for stabilization and disposal.

Following the removal and off-site disposal of the soil stockpiles in Area A, soils beneath the stockpiles were sampled for total and toxicity characteristic leaching procedure lead concentrations. Soils with lead concentrations exceeding the MTCA Method A industrial cleanup level were selectively excavated from seven locations in Areas A, B, and C and disposed of off site. Approximately 25 cubic feet of soil were removed at each location.

In June 1996, a supplementary soil sampling program was conducted (Woodward-Clyde 1996a and 1996b) to evaluate the extent of soil requiring remediation as a proactive and independent remedial action in Area C. The soils in the southern half of Area C were found to contain mainly PAHs, while soils in the northern half contained both PAHs and lead. Soils containing lead and PAHs at concentrations exceeding Method A soil cleanup levels for unrestricted land use were removed. A total of 3,305 CY (4,473 tons) of soils classified as RCRA waste were removed, treated off site by stabilization, and disposed of. A total of 6,070 CY (8,215 tons) of soil were disposed of as solid waste (Woodward-Clyde 1997). Site restoration included grading the site, placement of 6 inches of top soil, and hydroseeding with erosion control mixture.

Area A – RI

At the time of the RI, the western portion of Area A was covered by approximately 10 feet of preload surcharge fill placed for a future flightline extension. The RI included soil sampling to further delineate the horizontal and vertical extent of PAHs previously detected in the fill soil underlying the existing preload surcharge fill and to assess PAH and metals concentrations in the surcharge fill. In 1998, 20 soil samples were collected from 7 soil borings at depths ranging from 5 to 17.5 feet bgs.

In 1998 and 2000, sampling was conducted in the northeastern portion of Area A as part of the RI to further characterize the vertical extent of metals and PAHs in soil. At the time of the RI, the northeast portion of Area A was covered with deciduous trees and was north of the area where surficial soils were previously removed. Twenty-two soil samples were collected from eight borings at depths ranging from 0 to 2½ feet bgs.

Area A – Interim Soil Cleanup Action

In 2008, Boeing expanded the existing flightline eastward into Area A. Soils in Area A with arsenic, lead, and carcinogenic PAHs (cPAHs) above RI screening levels and located within the footprint of the planned flightline expansion were remediated under an interim soil cleanup action, with Ecology approval prior to covering the area with concrete. During late 2007 and early 2008, additional soil samples were collected from 60 locations throughout Area A to help delimit the lateral and vertical extent of soil to be removed during the IA and to provide precharacterization data for excavated soil disposal. Excavation “cells” were established based on the analytical results, and soil with cPAHs and lead concentrations exceeding the IA remediation goals was excavated and disposed of off site. A total of 199 soil samples

representative of soil remaining on site following excavation were collected for confirmation that the goals were met. In a letter dated October 29, 2008, Ecology approved completion of the Area A IA. Following completion of the IA and flightline expansion project, most of Area A is currently paved with concrete and is part of the active flightline. The eastern portion of Area A remained unpaved until part of it was used for a new parking lot.

The area within the ordinary high-water mark of Pond D and between the northern bank of Pond D and 94 Street SW (Bomarc Road) was outside the planned limits of excavation under this IA, because soil excavation in this area required a permit from the U.S. Army Corps of Engineers that likely could not be obtained within the accelerated construction project schedule. cPAHs and select metals concentrations in soil and sediment remaining on site in this area (referred to as the "Pond D area") exceeded the IA remediation goals at the conclusion of the 2008 IA.

Pond D was part of a later interim soil cleanup action performed in 2014, and all soil in this area exhibiting PAH and metals concentrations above the IA remediation goals was removed from the Pond D area. The 2014 IA was focused primarily on Area C and is discussed further below.

In 2015, Boeing started construction of a new facility in the east portion of Area A. The parking lot was removed and majority of the unpaved part of Area A was paved. A hangar is being constructed and will be used for modifying 787 aircraft, and eventually testing 777X aircraft.

The IAs performed within Area A met the IA remediation goals, which were equivalent to the cleanup levels proposed for SWMU/AOC No. 100 in Section 5 of this FS.

Area B

Area B is forested with second and third growth deciduous and coniferous trees and contains several drainage swales and designated wetlands, both modified by past earthwork. Boeing Lake bounds Area B on the northwest. The RI included soil sampling in 1998 and 2000 to further delineate the lateral and vertical extent of PAHs and selected metals in Area B soil. Twenty-nine soil samples were collected from 12 borings in 1998 and 2000 at depths ranging from 0 to 2½ feet bgs (Figure 2-12a). Groundwater monitoring well EGW068, shown on Figure 2-12c, was installed to a depth of 15 feet bgs in 2000 and has since been periodically monitored.

Additional soil, sediment, and surface water sampling was performed in 2010 to assess concentrations of PAHs and seven metals in soils, sediment, and surface water in Area B wetlands. Twenty-three surface soil samples were collected in 2010, as shown on Figure 2-12a. Soil, surface water, and sediment sampling locations and results were presented in a letter and data package submitted to Ecology in April 2010 (Boeing 2010).

Area C

At the time of the historical IA at Area C, and during the time of the RI, the eastern portion of Area C adjacent to Airport Road was delineated as a wetland. By August of 2008, when additional IAs at Area C were being considered, this portion of Area C no longer met wetland criteria. The RI included soil sampling in 1998 to delineate the vertical extent of PAHs and selected metals in the soil of the stormwater ditch and buffer areas in the eastern portion of Area C. Thirty soil samples were collected from 12 borings in 1998 at depths ranging from 0 to 2½ feet bgs. Additional soil and sediment sampling was performed in this portion of Area C in 2010. During the 2010 investigation, one soil sample and six sediment samples were collected. Soil and sediment sampling results were presented in a letter and data package submitted to Ecology in April 2010 (Boeing 2010).

As directed by Ecology, Boeing performed an additional IA at Area C in 2014, which consisted of 15 excavation cells, C1 through C15. Fifty-one post-excavation floor samples and 74 post-excavation sidewall samples representative of soil remaining in Area C were collected. All samples from accessible soils on Boeing property representing soil remaining in place in Area C are below remediation goals. Soil located off of Boeing property to the south and east exhibit cPAH and/or metals concentrations above the remediation goals. One excavation sidewall sample from soil on Boeing property, but located beneath the asphalt of West Frontage Road, exceeded the remediation goal.

As discussed above, the Pond D area was included in the 2014 IA, and all soil exhibiting cPAH and metals concentrations above the IA remediation goals was removed from the Pond D area.

With the exception of the one soil sample discussed above and located beneath West Frontage Road, the IAs performed within Area C met the remediation goals, which were equivalent to the cleanup levels proposed for SWMU/AOC No. 100 in Section 5 of this FS. In a letter dated December 8, 2014, Ecology approved completion of the Area C IA.

Boeing constructed a parking lot in Area C in 2015.

Groundwater

Seven monitoring wells installed between 1988 and 1996 in the Former Gun Club area have been monitored on a quarterly or semiannual basis since February 1995 or May 1996, as applicable (Figure 2-12c). The wells range in depth from 7½ to 36 feet bgs and are screened in a zone of perched groundwater that flows toward the northwest to Boeing Lake. Four additional monitoring wells were installed in 1998 to 2000 as part of the RI. After installation, each well was added to the ongoing perched groundwater monitoring program for the Former Gun Club area.

Perched groundwater samples have been analyzed for PAHs, lead, and arsenic. PAHs have not been detected in perched groundwater monitoring wells above applicable MTCA Method A or B cleanup levels. cPAHs have not been detected in any of the perched groundwater samples collected from wells installed in the Former Gun Club areas. Dissolved lead was not detected or was detected at concentrations less than the RI screening level in all of the samples. Total and dissolved arsenic and total lead have been detected at concentrations above the RI screening levels in samples from one or more wells.

Summary

The Former Gun Club was recommended for evaluation in the FS because of the following at the time of the RI:

- cPAHs, arsenic, and lead were present in surficial soil in Areas B and C and near Pond D (Area A) at concentrations above the RI screening levels.
- Antimony was detected in two surficial soil samples in Area B at concentrations above the RI screening level.
- Total and dissolved arsenic and total lead have been detected above the RI screening levels in perched groundwater samples from several monitoring wells.
- PAHs, lead, arsenic, and nickel were detected above the RI sediment screening levels in several sediment samples in Areas B and C.

2.17.3 SWMU/AOC No. 100 Current Conditions

Additional investigation at this SWMU/AOC under the Ecology-approved FSWP (URS and Landau 2012) consisted of step-drawdown testing to assess perched groundwater production characteristics under the aquifer testing pilot test work plan (URS 2013b).

The historical data for soil remaining in place following past IAs are presented in Tables 2-16a and 2-16b. Trend graphs of recent perched groundwater sample results for arsenic and lead are provided on Figure 2-12c. Complete perched groundwater sampling results are provided in Appendix A. Soil sampling locations are presented with selected analytical results on Figures 2-12a and 2-12b, and data interpretations are discussed further in Sections 3, 5, and 6.1.

Soil Conditions

cPAHs and metals are present in surficial soil and sediment at concentrations above proposed FS cleanup levels within approximately 2.8 acres of Area B. cPAHs are present in soil at a concentration exceeding the FS cleanup level in one localized area of Area C, beneath the eastern edge of West Frontage Road. Lead and cPAH concentrations in soil exceed the MTCA

ecological indicator soil concentration and MTCA Method B direct contact cleanup levels (50 mg/kg for lead and 140 µg/kg for cPAHs) and in sediment exceed the Sediment Management Standards (SMS) Cleanup Objectives (360 mg/kg for lead and 17,000 µg/kg for total PAHs, respectively). These cleanup levels are proposed as the cleanup levels for soil and sediment at this SWMU/AOC in Section 5 of this FS. Additional COCs associated with the Former Gun Club (antimony, arsenic, chromium, and nickel) exceed MTCA ecological indicator soil concentrations or Puget Sound background concentrations in some locations at a substantially lower frequency, compared to lead and cPAHs. In most cases, these exceedances are correlated with lead and cPAH exceedances, and any cleanup action focused on lead and arsenic is expected to address these additional constituents. In the few instances where exceedances for these other analytes are not colocated with lead and cPAHs, the relevant locations have been included in the areal extent of the SWMU/AOC (Figure 2-12a), but do not alter the areal extent significantly.

The maximum concentrations in soil for these constituents in Area B are as follows:

- Lead: 77,600 mg/kg
- cPAH: 1,043 µg/kg

The maximum concentrations in sediment for these constituents in Area B are as follows:

- Lead: 6,860 mg/kg (estimated)
- cPAH: 20,132 µg/kg

Following the remedial action in 2014 at the Former Gun Club Area C, a small volume of soil remained on Boeing property in the southwest corner of the site below the asphalt road. cPAH concentrations (254 µg/kg) in this sample exceed the MTCA Method B direct contact cleanup level (140 µg/kg).

Concentrations of chemical constituents in soil in the remainder of Areas A and C on Boeing property are below the cleanup levels proposed in this FS following the historical IAs.

The extent of contaminated soil and sediment in Area B at this SWMU/AOC is estimated as an area of soil of approximately 2.5 acres that extends to a maximum depth of 0.5 foot bgs (2,000 CY). The extent of contaminated soil in Area C at this SWMU/AOC is estimated as an area of soil of approximately 24 ft^2 that extends to a maximum depth of 4 feet bgs (3 CY).

Perched Groundwater Conditions

Lead concentrations in perched groundwater exceeded the MTCA Method A groundwater cleanup level (0.015 mg/L), which is proposed as the cleanup level for perched groundwater at this SWMU/AOC in Section 5 of this FS, in the last 5 years at well EGW018 in November 2013, prior to the well decommissioning and Area A Pond D remedial action. Concentrations declined

significantly following the remedial action and installation of well EGW018A. Lead concentrations do not exceed proposed cleanup levels at any other well over the last 5 years. Arsenic concentrations in perched groundwater do not exceed the proposed risk-based cleanup levels for nonpotable perched groundwater (5.3 mg/L), which is proposed as the cleanup level for perched groundwater at this SWMU/AOC in Section 5 of this FS.

The maximum concentrations in perched groundwater for these constituents in the last 5 years are as follows:

- Total arsenic: 0.0856 mg/L
- Total lead: 0.0175 mg/L at well EGW018

A step-drawdown test was completed during the FS at this SWMU/AOC to further evaluate perched groundwater site conditions relevant to the feasibility of potential cleanup alternatives (perched groundwater extraction). The results of this step-drawdown test performed in well EGW018 (Figure 2-12c) indicates that the sustainable flow rate is less than 0.25 gpm. No noticeable drawdown was detected in any of the observation wells.

2.18 SWMU/AOC NO. 166, BUILDING 45-53, FORMER UST EV-110-1

Building 45-53 is located in the northeast portion of the South Complex of the plant (Figure 1-2). One SWMU/AOC located in this building (SWMU/AOC No. 166) was identified for further evaluation in the FS (Figure 2-13) and is discussed in this section.

Field observations of the SWMU/AOC indicate 3 inches of asphalt pavement underlain by fill soil consisting of medium dense crushed rock and silty sand with gravel to depths ranging from 5 feet (ESB114 and ESB115) to 11 feet (ESB1113) bgs. The fill soil is underlain by native glacial till consisting of very dense silty sand with gravel. Groundwater in this area is discontinuous and perched in the fill soil. Its presence in this area appears to be principally controlled by the location of the removed UST excavation and subgrade utility lines. The perched groundwater elevations measured in 1995 indicated that the perched groundwater consistently flows radially to the northwest, north, and northeast from an inferred perched groundwater high in the area of UST EV-110-1 and well EGW039.

2.18.1 Summary Description of SWMU/AOC No. 166

SWMU/AOC No. 166 is the removed UST EV-110-1 located near Building 45-53 (Figure 2-13), which was formerly used to temporarily store Jet A fuel recovered from a jet fuel filtration and transfer system. Tank EV-110-1 was a double-walled steel UST with a 900-gallon capacity equipped with an interstitial leak detector. This tank was used to collect jet fuel from a number of sources in the jet fuel filtration and transfer system on an emergency basis. These sources included discharge from three pressure-relief valves, a drain funnel used to capture excess jet

fuel from the filter cartridges, and transfer pump seal assemblies. This tank was removed in February 1997.

2.18.2 Summary of Pre-RI and RI Findings Regarding SWMU/AOC No. 166

Pre-RI Soil Removal and Investigations, 1994

All of the studies discussed in this section were conducted proactively and independently (not Ecology approved) prior to the AO and RI. In February 1994, Boeing was performing construction activities near a water valve box located adjacent to a post indicator valve (PIV-SEC-543) approximately 5 feet north of tank EV-110-1. During construction, Jet A fuel floating on perched groundwater was encountered in the fill material surrounding buried utilities. Approximately 10 CY of soil containing Jet A fuel were excavated. Soil samples collected from the excavation floor, sidewalls, and stock pile contained diesel- and gasoline-range hydrocarbons quantitated as Jet A fuel above the MTCA Method A cleanup level (Converse 1994c). Perched groundwater was observed in the fill materials in the excavation and had visible immiscible hydrocarbons floating on the surface.

A soil gas and geophysical survey was performed (Converse 1994d) on March 20, 1994, to identify the source and delineate the approximate extent of hydrocarbon-impacted soil. Tank EV-110-1 was visually examined and identified to be the likely source of the release, which was attributed to a tank overflow. The access vault was modified to be liquid tight to prevent any recurrences of this type of release.

In June and September 1994, a subsurface environmental investigation near UST EV-110-1 was conducted (Converse 1994e) to assess the extent of petroleum hydrocarbons in soils and perched groundwater in the vicinity of the UST. Soil samples collected during this investigation did not contain detectable levels of petroleum hydrocarbons. Five borings were converted to monitoring wells (EGW033, EGW035, EGW036, EGW038, and EGW039). Perched groundwater was encountered only in sandy fill soils in the vicinity of the UST, and the lateral extent of perched groundwater appeared to be of limited extent east, north, and northeast of well EGW035. TPH compounds were detected in perched groundwater at concentrations exceeding the RI screening levels in samples from wells EGW036 and EGW039. Approximately 0.1 foot of LNAPL was measured in monitoring well EGW039. A passive hydrocarbon recovery system was installed in September 1994 to remove LNAPL consisting of Jet A fuel from the surface of perched groundwater in well EGW039.

Pre-RI UST EV-110-1 and Soil Removal

The UST removal discussed in this section was conducted proactively and independently (not Ecology approved) prior to the AO and RI.

Tank EV-110-1 was removed on February 5, 1997 (SECOR 1997a and 1997b). UST EV-110-1 appeared to be in excellent condition and did not have any visible cracks, holes, or ruptures. Perched groundwater with a heavy sheen was observed to enter the excavation at approximately 4 feet bgs at a similar elevation to the top of the tank. The immediate area around the former UST EV-110-1 was excavated to a depth of approximately 8 feet bgs. The areas north and east of the UST were excavated to a shallower depth of approximately 4 feet bgs because of the presence of perched groundwater. Approximately 42 CY of soil were removed. The final excavation limits were constrained by surface features and subsurface utilities. The excavation was backfilled with clean imported fill material and resurfaced with asphaltic concrete. Soil excavation in the vicinity of UST EV-110-1 required abandonment of two monitoring wells (EGW036 and EGW039), which were replaced by wells EGW052 and EGW053. Excavation near the location of EGW039 exposed a Schedule 80 polyvinyl chloride pipe running between the equipment pad and tank EV-110-1. This pipe was found to be damaged, apparently by the installation of EGW039 in 1994. This pipe was likely a contributing source of LNAPL in this well.

RI Findings

Soil and perched groundwater sampling was conducted during the RI in 1998 to assess whether Jet A fuel was present in subsurface soil near perched groundwater monitoring well EGW035 (Figure 2-13) located in the vicinity of former UST EV-110-1. Nine soil samples were collected from three borings (ESB1113 through ESB1115 on Figure 2-13) at depths ranging from 5 to 15 feet bgs. TPH-D, TPH-Jet A, and BTEX were not detected at concentrations exceeding the reporting limits in any of the soil samples analyzed. Perched groundwater was only detected in boring ESB1113 (at approximately 10 feet bgs) and it had a fuel odor. A perched groundwater sample was not collected.

Perched groundwater samples have been collected from monitoring wells EGW033, EGW035, and EGW038 on a quarterly or semiannual basis since January 1995 and from wells EGW052 and EGW053 since March 1997. TPH-D and TPH-Jet A were detected at concentrations above the RI screening levels in all samples from EGW035. TPH and BTEX constituents have not been detected or were detected at concentrations below the RI screening levels in all of the samples collected from EGW033, EGW038, EGW052, and EGW053 since 2004 or earlier. The RI recommended that this area be assessed in the FS for TPH-D, benzene, and TPH-Jet A in perched groundwater only because of concentrations detected in well EGW035.

2.18.3 SWMU/AOC No. 166 Current Conditions

Trend graphs of recent perched groundwater sample results for TPH are provided on Figure 2-13. Complete perched groundwater sampling results are provided in Appendix A.

Perched Groundwater Conditions

TPH-D and TPH-Jet A is consistently detected in well EGW035. TPH concentrations in perched groundwater exceed the MTCA Method A cleanup levels (0.5 mg/L), which are proposed as the cleanup levels for perched groundwater at this SWMU/AOC in Section 5 of this FS. The maximum TPH-D and TPH-Jet A concentrations in perched groundwater in the last 5 years are 1.2 and 2.0 mg/L, respectively. TPH-D and TPH-Jet A concentrations dropped below the cleanup level between January 2012 and January 2014. TPH-D and TPH-Jet A concentrations in all monitoring wells at this SMWU exhibit decreasing concentration trends, excluding the July 2014 data for well EGW035.

An injection pilot test was attempted during the FS at this SWMU/AOC to evaluate additional perched groundwater site conditions relevant to the feasibility of potential cleanup alternatives.

The injection pilot testing was terminated after approximately 2 minutes because of observed leakage of perched groundwater into a nearby storm drain catch basin.

2.19 NORTH COMPLEX, ESPERANCE SAND, POWDER MILL GULCH

The North Complex, Esperance Sand, PMG SWMU is located on the north end of the Boeing Everett Plant property and extends north onto off-site properties. PMG is a steep canyon, incised by Powder Mill Creek (PMC) that extends north from Boeing property toward the Puget Sound. Several Boeing stormwater management structures and features, including a sedimentation basin, detention basin, peat filter, and engineered wetland are located at the head of PMG. These features discharge into the headwaters of PMC.

2.19.1 Summary Description of Powder Mill Gulch

Overall Description

TCE contamination in PMG was discovered in 1998 during BCA Everett Plant RI activities and has subsequently been characterized by multiple field events and investigations, which have targeted groundwater, seeps, surface water, and soil gas. The RI concluded that the source area for the plume was located underneath the northeastern portion of the stormwater detention basin at the head of PMG. From there, a plume of dissolved-phase TCE, and associated breakdown products, extends northward on the eastern side of PMC until it crosses under Seaway Boulevard beneath a culverted segment of PMC, at which point the plume transitions to the western side of PMC. The plume remains on the western side of PMC until it discharges to the surface water of PMC and terminates near boring ESB1961. The plume boundary occupies a portion of five different properties:

- Boeing property on the south side of Seaway Boulevard

- City of Everett (City) Seaway Boulevard right-of-way
- City-owned property known as "Lot 9" on the north side of Seaway Boulevard
- CRISTA Ministries property on the north side of Seaway Boulevard
- Panattoni property (former Intermec property) on the north side of Seaway Boulevard

Based on the RI TCE screening level of 0.49 µg/L (URS 2011b), the plume encompasses an area of approximately 27 acres. No indication of vadose zone soil contamination was identified during the RI.

Field activities and investigative events are composed of an RI, source area IAs, the PMG downgradient plume Phase 1 IA, which targeted the plume south of Seaway Boulevard, and the Phase 2 IA, which targeted the plume north of Seaway Boulevard, and a soil gas assessment as a part of the FSWP (URS and Landau 2012). Results and conclusions from the RI, and subsequent data collection and investigative activities completed as a part of the PMG downgradient plumes Phases 1 and 2 IA work plans (Landau 2011 and 2013a) and the FSWP (URS and Landau 2012), pertaining to the development and analysis of cleanup alternatives, are discussed in this section.

Geology and Hydrogeology

The two principal hydrogeologic units beneath the upland portion of the site are the Vashon till (glacial till) and the underlying Esperance Sand (Vashon advance outwash). Based on regional information (and groundwater elevation data from Esperance Sand monitoring wells in the upland portion of the Everett Plant), the regional groundwater flow in Esperance Sand is to the northwest toward Port Gardner Bay in Possession Sound. On a more local scale, groundwater in the Esperance Sand also flows toward incised drainages, such as PMG and Japanese Gulch located west of PMG.

PMG is incised into the Vashon-till-capped upland and extends downward into the Esperance Sand and eventually into the underlying Lawton Clay, which acts as an aquitard at the lowest extent of the Esperance Sand aquifer. The Esperance Sand aquifer is divided into an upper and lower zone by an approximately 4-foot thick silt interbed. The northern edge of the silt interbed has been incised by PMC and pinches out north of Seaway Boulevard, allowing for convergence of the upper and lower zones of the Esperance Sand aquifer. The Lawton Clay aquitard outcrops farther north of where the silt interbed ends and the aquifer (and the plume) fully discharges to PMC both as direct discharge to the creek and as associated surface water seeps.

PMG formerly extended south-southeast from its current southerly extent, but the upper reaches were filled for construction of the Everett Plant. Currently, the head of the PMG is occupied by the plant's stormwater detention basin, sedimentation basin, and the associated peat filter system

and engineered wetlands. The asphalt-lined detention basin was constructed during the original plant construction in 1968 and 1969. The detention basin was modified in 1991 and 1992, during the construction of the sedimentation basin (also asphalt lined), peat filters, and engineered wetlands.

2.19.2 Summary of Investigation Findings – Esperance Sand, PMG

Surface water sampling in PMC conducted as a part of the RI in 1998 detected TCE in samples from location SW-PMG4 (Figure 2-14a) at concentrations above the surface water screening level detailed in the 2001 MTCA revisions and other subsequent revisions. SW-PMG4 is located a short distance downstream of natural springs that discharge groundwater to PMC, providing the base flow to the creek. As a result, a multiyear phased investigation was conducted as a part of the RI to determine the contaminant source, magnitude, and extent and to characterize the hydrogeology of upper PMG.

These RI investigations included groundwater, seeps, and surface water sampling, as well as soil gas sampling beneath the detention basin. Sediment in PMG was investigated as part of a separate RI (URS 2011a), and will be further addressed under a separate FS. Ultimately, the RI resulted in the installation of 83 permanent groundwater monitoring wells with 121 monitoring intervals, 12 piezometers, 43 temporary wells (i.e., direct-push borings), and 2 groundwater aquifer test wells (extraction wells) between 2003 and 2010. Since installation, most of these wells have been included in the ongoing groundwater monitoring program. Aquifer testing was conducted to further characterize hydrogeologic conditions within PMG. Geologic mapping was performed to assess the surface extent of subsurface hydrogeologic units identified in the area of the groundwater TCE plume, and identify the locations of seeps and springs where Esperance Sand groundwater appears to emerge and discharge to the creek. The results of the phased investigation were presented in more than 20 reports between 2003 and 2010 that are cited and summarized in the RI report (URS 2011b).

2.19.3 Esperance Sand, PMG Current Conditions

Additional investigation at this SWMU/AOC under the Ecology-approved FSWP (URS and Landau Associates, 2012) consisted of installation and sampling of two pairs of soil gas monitoring wells, one pair installed on the Panattoni property (ESG003 and ESG004) and the other on the CRISTA Ministries property (ESG001 and ESG002). Each pair of soil gas monitoring wells includes a shallower well and a deeper well. Soil gas data from these wells is summarized in Table 2-17. Complete soil gas sampling results are provided in Appendix A.

No additional investigation of groundwater or surface water was done in conjunction with the FS. Previously collected groundwater and surface water data can be found in RI, IA status reports, and sitewide groundwater monitoring reports.

Groundwater Conditions

Results from the RI indicate that TCE is the primary COC in PMG. TCE breakdown products, vinyl chloride and/or cis-1,2-DCE, were also detected in one or more groundwater samples at concentrations exceeding the RI groundwater screening level. Low levels of minor breakdown products (i.e., trans-1,2-DCE and 1,1-DCE) were also detected in some monitoring locations. Within upper PMG, the TCE plume in the Esperance Sand is generally confined to the portion of the aquifer above the silt interbed; although low concentrations of TCE are found below the silt interbed at various locations. TCE was not detected in groundwater upgradient of the detention basin, except for low concentrations at well EGW102. TCE was also detected in PMC and in seeps located within upper PMG, which was determined to be due to the discharge of groundwater to the creek.

The highest concentrations of TCE in groundwater measured throughout PMG were detected beneath the northeastern portion of the detention basin. Based on these results, this area was considered the source area for the TCE plume in PMG. Between 2006 and 2012, TCE groundwater source area IA cleanup actions were completed beneath the detention basin under AO DE 96HS-N274 and subsequent amendments between The Boeing Company and Ecology. The IA included implementation of electrical resistance heating in 2006 and 2007 and a subsequent enhanced bioremediation program. These IA results were reported to Ecology separately through progress reports, technical memoranda, and other reports. Following the bioremediation program, groundwater sampling analytical results have been evaluated against a combined TCE + breakdown product treatment goal (sum of TCE + cis-1,2-DCE + trans-1,2-DCE + vinyl chloride) of 3.8 µmol/L. Recent sampling events have identified only 2 of the 20 source area wells, EGW127 and EGW158-1, which have concentrations above this goal, as was previously reported to Ecology (Landau 2015a). Well EGW144 is the only well immediately downgradient of the detention basin that exceeds the combined treatment goal. As data have indicated that bioremediation conditions stimulated by donor borings are waning, the source area IA was considered complete as of May 2013 (Landau 2013b and Ecology 2013a), with the exception of the continued groundwater monitoring and associated quarterly reporting.

After completion of the RI and the implementation of the source area IAs, the downgradient plume was targeted through a phased downgradient plume IA under the AO and subsequent amendments (specifically Amendment No. 5). These IAs were implemented to hydraulically prevent additional migration of the plume off of Boeing property under Seaway Boulevard and limit the discharge of contaminated groundwater to PMC. Specifically, the Phase 1 IA was implemented in 2012 per the downgradient plume Phase 1 IA work plan (Landau 2011) to minimize migration of the plume off of Boeing property and reduce contaminant flux to PMC south of Seaway Boulevard to the maximum extent practicable. The associated groundwater extraction and treatment (GET) system, which comprised groundwater extraction from three wells south of Seaway Boulevard, has been running since November 2012. In September 2015, seven additional extraction wells were brought online as a part of the Phase 2 IA expansion of

the GET system per the Phase 2 IA work plan (Landau 2013a), with the purpose of reducing discharge of contaminated groundwater to PMC north of Seaway Boulevard to the maximum extent practicable. As a part of the Phases 1 and 2 IAs, additional piezometers and monitoring wells were installed to provide adequate coverage and resolution for groundwater monitoring. Analytical data from samples taken from these wells are reported to Ecology on a regular basis, together with data from the samples being collected from wells that were installed as a part of the RI.

Hydrologic and water quality data collected as a part of the Phase 1 IA indicate that the plume has been effectively hydraulically contained at Seaway Boulevard and plume migration minimized by the groundwater capture zone created through operation of the GET system (Landau 2014a and 2015b). The data also indicate that groundwater gradients toward the creek on the south side of Seaway Boulevard have generally been reduced since system startup in November 2012. As Phase 2 has only recently been implemented, no conclusion can yet be made regarding its effect and effectiveness in achieving its objectives.

Based on evaluation of groundwater conditions prior to and after implementation of the source area and downgradient plume IAs, TCE concentrations have decreased substantially throughout much of the plume. Figures 2-14b through 2-14e show, respectively, TCE concentration isocontours from prior to the implementation of any IA, after completion of the source area IA, prior to the implementation of the Phase 1 IA, and for each of 2 years after the implementation of the Phase 1 IA. As indicated by the most recent figure (Figure 2-14e, October 2014), source area contributions to the plume have been significantly diminished, and the core of the downgradient plume, defined as TCE concentrations exceeding 250 μg/L, has greatly diminished in extent. Cumulative groundwater quality data are provided in Appendix A.

Surface Water Conditions

Ongoing surface water and seep sampling events have been conducted as a part of the RI and the Phase 1 IA, including reporting in applicable status reports. Data collected from these events since the Phase 1 startup have generally indicated decreasing TCE concentrations in surface water located within the boundary of the plume and relatively low and stable concentrations north of the toe of the plume. The observed decline in the TCE concentration trends appear to be a direct result of the Phase 1 IA, although seasonal effects may play some role in variability in the data (Landau 2015b). Additionally, estimated TCE flux to the creek in the Phase 1 area has been reduced at most locations, from approximately 8 percent to over 100 percent (i.e., greater than 100 percent indicates a negative flux, where gradient reversal between the piezometers is apparent) since the Phase 1 IA start up, with the exception of the area of piezometer pair PMG-P18/P19, where an apparent increased gradient and increased concentrations at PMG-P18 indicate an increased flux (Landau 2014b).

As indicated in the December 2014 status report (Landau 2014b), because of the increased flux in the area around PMG-P18/P19, Ecology has concluded that groundwater quality data and gradients in the vicinity of PMC south of the culvert beneath Seaway Boulevard suggest that additional measures should be considered to more fully achieve the Phase 1 IA objective of reducing the flux of TCE-impacted groundwater to the creek (on Boeing property) to the extent practicable (Yasunda 2015). To achieve this objective, Boeing has agreed to install and operate two new extraction wells located between extraction wells EGW175 and EGW183 (Figure 2-14a). Boeing plans to bring these two new wells on line in early 2016.

As a part of the Phase 1 IA, surface water hydrologic conditions within PMC were documented prior to and following startup of the GET system to evaluate if groundwater extraction has impacted PMC hydrology. These data and an associated technical evaluation are reported to Ecology annually. To date, data indicate that operation of the GET system has not had a significant impact on PMC hydrology (Landau 2014c). Cumulative surface water quality data are provided in Appendix A.

Soil Gas Conditions

Soil vapor intrusion pathways were considered across the plume as a part of the implementation of the FSWP (URS and Landau 2012). The investigation was completed using a Tier I assessment as described in Ecology's draft vapor intrusion guidance (Ecology 2009). Preliminary results from this assessment indicated that chemicals present in the groundwater beneath PMG are sufficiently volatile to pose a potential vapor intrusion risk and that the elevated concentrations of TCE in the shallow groundwater within the plume boundary could result in indoor air TCE concentrations above cleanup levels in buildings in the vicinity of the plume. Currently, the only buildings within the vicinity of the plume are located on the Panattoni property. However, future development of the CRISTA Ministries property is also possible. Boeing has no intention to develop the area on its property where the plume exists north of the detention basin, because of the steep slopes, and wetland and creek buffers limiting construction. Similarly, the Lot 9 (City) property, located north of the Boeing property, will not be developed, as there is a pre-existing deed restriction on the property designating its use only for "open space purposes" (Snohomish County 1989), along with the previously identified steep slopes and buffer areas.

In light of the recently constructed and potential future buildings located on the Panattoni and CRISTA Ministries properties, soil gas sampling in the deep vadose zone soils was conducted as a part of the Tier I assessment activities. Two pairs of soil vapor wells were installed, one pair installed on the Panattoni property (ESG003 and ESG004) and the other on the CRISTA Ministries property (ESG001 and ESG002). Each pair of deep soil gas monitoring wells includes a shallower well and a deeper well. Boring logs and well details for each of these wells can be found in Appendix A.

Soil gas samples were collected in January 2014 from each well. Concentrations of the three VOCs of concern at PMG (TCE, vinyl chloride, and cis-1,2-DCE) were either not detected in the samples or were below the MTCA Method B deep soil gas screening level[1] of 37 $\mu g/m^3$. Tabulated data from this sampling event and associated equipment blanks, which were previously reported to Ecology (Garson 2014a), can be found in Table 2-17 and the associated lab reports are included in Appendix A.

Summary

The PMG SWMU was recommended for evaluation in the FS because the following conditions existed at the time of the RI:

- Concentrations of TCE (and TCE breakdown products) in groundwater were present above the RI screening levels in the shallow Esperance Sand aquifer located within upper PMG.
- As a result of TCE in groundwater from the Esperance Sand aquifer discharging to PMC, concentrations of TCE in surface water in PMC were present above the RI screening levels for surface water.

To hydraulically contain additional plume migration under Seaway Boulevard and limit the TCE flux to PMC, a GET system is being operated as a part of the phased downgradient plume IA.

With completion of the source area IA, source area contributions to the groundwater plume and concentrations within the core of the downgradient plume have been significantly diminished. These areas are being and will be further affected by implementation of the downgradient plume IA.

Potential soil vapor intrusion was assessed on properties impacted by the plume. Soil gas sampling results indicate that TCE concentrations on the Panattoni and CRISTA Ministries properties are below the applicable screening levels. Sampling was not conducted on the two properties owned by Boeing and the City, as it is unlikely that they will be developed due to topographic conditions and land use/deed restrictions. Therefore, soil gas is not considered as a media of concern in the FS.

No indication of soil contamination was identified in PMG during the RI. Therefore, soil is not considered as a media of concern in the FS.

[1]See Ecology's Vapor Intrusion Table updated April 6, 2015 for deep soil gas screening levels: http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/Vapor Intrusion Table update April 6 2015.xlsx.

2.20 SWMU/AOC NO. 165, BUILDING 45-52, FORMER FUEL FARM USTS AND FUELING POSITIONS

The Former Fuel Farm is located on the northern portion of the South Complex (Figure 1-2), near Building 45-52. The Former Fuel Farm was identified for further evaluation in the FS based on the results of the RI and observations made during removal of the USTs and in utility excavations associated with fueling system upgrade, which are discussed in this section.

Soil types observed during the UST site assessment activities included the following:

- Gravel backfill material around the USTs and piping and as base course beneath pavement
- Native glacial till soil and reworked glacial till fill consisting of very dense silty sand in the sidewalls

The till fill overlies the glacial till and varies in thickness to as much as 4 feet. The original UST excavation was made into the glacial till and till fill, concrete tie-down footings were poured, and the USTs were anchored to the tie-down footings.

Field observations of fuel piping and support area excavations indicate shallow reworked glacial till over undisturbed glacial till with limit bank-run gravel fill used during replacement utility construction. Some water and drain line utility corridors in the area had been backfilled with import material consisting of permeable sand, gravel or sand and gravel mixtures.

2.20.1 Summary Description of SWMU/AOC No. 165

Four USTs (EV-26 through EV-29) were present at the Former Fuel Farm until these were removed as part of an upgrade of the fueling storage and piping system in 2007 and 2008. The USTs and associated piping were used to store and distribute Jet A fuel to the nearby fueling positions (F-1, F-2, F-3, F-4, and F-5) as shown on Figures 2-15a and 2-15b. The fueling positions are used for testing fueling systems of newly constructed airplanes at the facility. The four USTs were 60,000-gallon single-walled steel tanks.

The Former Fuel Farm was upgraded during a two-phase program between February 2007 and November 2008 that resulted in the removal of the four USTs, which were replaced by ASTs at the same area. Over 1,900 feet of underground piping running between the Fuel Farm and airplane fueling positions F-1, F-2, and F-3 were abandoned in place or removed, and new underground piping was installed. Additional Fuel Farm infrastructure was decommissioned, including approximately 270 feet of underground fuel piping trench aligned between the Fuel Farm and fueling position F-3, the former fuel filtration system, and the former truck fill stand.

2.20.2 Summary of RI Findings Regarding SWMU/AOC No. 165

Several accidental spills of Jet A fuel were known to have occurred in the area prior to the RI and were reported to Ecology. Approximately 800 CY of affected soil were removed, principally associated with construction projects, prior to initiation of the major fuel system upgrade in February 2007. Historical investigations indicated that backfill around the USTs and perched groundwater within the permeable UST basin backfill contained TPH-D and/or TPH-Jet A at concentrations above MTCA Method A cleanup levels. Native glacial till soils surrounding the backfill did not contain significant TPH concentrations or groundwater (Golder 1995). An extraction well (EGW045) (Figure 2-15a) and a granular-activated charcoal treatment system were installed and operated from 1995 until November 2008. Perched groundwater samples were collected from the recovery well (EGW045) and one monitoring well (EGW001) (Figure 2-15) and analyzed on a quarterly or semiannual basis between 1995 and 2008, when the wells were decommissioned as part of the UST removal and system upgrade.

During removal of the USTs and removal or abandonment of associated fuel piping and support infrastructure, UST site assessments were conducted in February 2007 and November 2008. These assessments were considered part of the RI and assessed whether petroleum hydrocarbon constituents were present in the soils around the removed USTs, fuel piping, and support structures at concentrations greater than applicable MTCA soil cleanup levels. Soil samples were collected from UST excavation walls and floors and along the removed and abandoned piping, as shown on Figures 2-15a and 2-15b.

Petroleum constituents were not detected in post-excavation soil samples at concentrations above MTCA Method A soil cleanup levels in the floor or walls of the excavation for the Former Fuel Farm USTs (EV-26, EV-27, EV-28, and EV-29), except for the east wall of the excavation (sampling location on Figure 2-15a) in the vicinity of former UST EV-29. A portion of the east wall adjacent to EV-29 could not be excavated farther to the east without undermining the adjacent access road, which was required to remain open and accessible for the ongoing construction.

In addition to the east wall of the UST excavation near former UST EV-29, multiple petroleum constituents were detected in soil samples at concentrations above MTCA Method A soil cleanup levels in the vicinity of the electrical duct bank west and southwest of the substation (Figure 2-15a), in imported backfill of two abandoned utilities (Figure 2-15b), and adjacent to portions of the former fuel piping at fueling stations F-2 and F-3 (Figure 2-15b). Additional soil removal in these areas was not performed during the UST removals, because active utilities are present and additional removal would have caused significant disruption to Boeing operations.

Free product was observed in the fuel pipeline trench leading to fueling position F-3 west and southwest of the electrical substation. Much of this free product was removed during excavation, but some soil with evidence of free product could not be removed because it was located beneath

active electrical utility ducts. The soil that was not removed is bounded to the north and south and at the surface by CDF or concrete. Glacial till underlies the pipeline trench.

Perched groundwater was not present within the UST excavation during the 2007 or 2008 removal activities. Minimal quantities of perched water entered the excavation during both removal events, and because of the lack of recharge in 2007 and low volume in 2008, this perched water is not indicative of perched groundwater in the till. Following decommissioning activities, the 2007 excavation was filled with CDF and clean fill and capped with concrete. The 2008 excavation was filled from bottom to top with low-permeability CDF and capped with concrete, CDF, or asphalt. This significantly limits the potential for rain water to collect in the shallow subsurface in this area. For this reason, and because no groundwater was observed in the glacial till or utility trenches during excavation, there was no need to replace monitoring well EGW001 or recovery well EGW045.

BTEX and residual petroleum contamination in soil near SWMU/AOC No. 165 was included in the FS for evaluation for the direct soil contact, potential vapor intrusion into nearby Buildings 45-56 and 45-242, and potential migration of chemical constituents in soil to groundwater.

2.20.3 SWMU/AOC No. 165 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of two soil gas samples to characterize soil vapor concentrations.

The historical data for soil remaining in place following past UST and piping removal actions, and the FS data for sub-slab vapor, are presented in Tables 2-18a and 2-18b. Sampling locations are presented with selected analytical results on Figures 2-15a and 2-15b, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B, with the conclusions summarized in this section.

Soil Conditions

TPH and TEX are present in soil beneath and around the UST excavation predominately backfilled with CDF and some clean fill, and the piping excavations at the fuel stalls, at concentrations exceeding the MTCA Method A soil cleanup levels (TPH-G 30 mg/kg, TPH-D 2,000 mg/kg, benzene 30 µg/kg, ethylbenzene 6,000 µg/kg, and xylenes 9,000 µg/kg), which are proposed as the cleanup levels for this SWMU/AOC in Section 5 of this FS. During UST removal, LNAPL was observed in the granular base course beneath the concrete pavement overlying the electrical duct bank (Figure 2-15a). The maximum concentrations for these contaminants in soil in the fueling positions are as follows:

- TPH-G: 14,000 mg/kg at 4 feet bgs

- TPH-D: 6,200 mg/kg at 1½ feet bgs
- Benzene: not detected
- Ethylbenzene: 7,200 µg/kg at 4 feet bgs
- Xylenes: 9,500 mg/kg at 4 feet bgs

The maximum concentrations for these contaminants in soil in the Former Fuel Farm USTs are as follows:

- TPH-G: 14,000 mg/kg at 8 feet bgs
- TPH-D: 50,700 mg/kg at 8 feet bgs
- Benzene: 790 µg/kg at 8 feet bgs
- Ethylbenzene: 24,000 µg/kg (estimated) at 8 feet bgs
- Xylenes: 12,000 µg/kg at 8 feet bgs

The extent of contaminated soil at this SWMU/AOC at the fueling positions is estimated as an area of 5,900 ft^2 that extends to a maximum depth of 5 feet bgs and at the Former Fuel Farm, approximately 250 ft^2 that extends to a maximum depth of 10 feet bgs in the north and three separate sidewall exceedances with unclear extents to depths ranging from 4 to 20 feet bgs (total 955 CY). Access may be limited by existing utilities and airplane operations.

The conservative vadose zone transport model (Appendix B) indicates that, with or without a concrete surface cover (pavement) in place, residual petroleum hydrocarbons at his SWMU will not leach to Esperance Sand groundwater for at least 999 years. The simulations indicate that, with or without a concrete surface cover (pavement) in place, residual petroleum hydrocarbons at this SWMU will not leach to Esperance Sand groundwater for the duration of the modeled time frame (999 years). Therefore, the residual TPH concentrations in soil in the SWMU/AOC No. 165 area are protective of Esperance Sand groundwater.

Soil Gas Conditions

BTEX compounds are present in soil gas at the Former Fuel Farm at concentrations below the industrial air screening levels, which consists of the MTCA Method C air cleanup levels divided by the standard attenuation factor of 0.03 (benzene 110 $\mu g/m^3$, toluene 170,000 $\mu g/m^3$, ethylbenzene 33,000 $\mu g/m^3$, and m,p-xylene and o-xylene 3,300 $\mu g/m^3$) (USEPA 2015a). These air screening levels are proposed at this SWMU/AOC in Section 5 of this FS. The maximum concentrations for these constituents are as follows:

- Benzene: 2.4 $\mu g/m^3$
- Toluene: 3.8 $\mu g/m^3$
- Ethylbenzene: 0.70 $\mu g/m^3$ (estimated)
- m,p-Xylene: 2.7 $\mu g/m^3$
- o-Xylene: 0.91 $\mu g/m^3$ (estimated)

Aliphatic and aromatic hydrocarbons were not detected in soil gas samples.

2.21 SWMU/AOC NO. 098, BUILDING 40-53, MOCK-UP DEGREASER

Building 40-53 is located in the north-central portion of the plant (Figure 1-2). One SWMU/AOC located in this building (SWMU/AOC No. 098) was identified for further evaluation in the FS based on investigations prior to the RI (Figure 2-16a) and is discussed in this section.

2.21.1 Summary Description of SWMU/AOC No. 098

The original vapor degreaser system was located in the west-central portion of Building 40-53 and in operation from 1968 until 1991, when it was decommissioned. The former degreaser was located in a subgrade concrete pit, which was lined with stainless steel in 1987. TCE and TCA were used as degreaser solvents in the unit. A utilidor extends through a portion of the former vapor degreaser footprint. The material used to backfill the former degreaser pit is not documented. However, drilling during the FS identified the backfill material as sand.

2.21.2 Summary of Pre-RI Findings Regarding SWMU/AOC No. 098

A subsurface investigation that consisted of 11 soil borings (Figure 2-16a) was performed in 1992 (GeoEngineers 1992b). TCE was detected in multiple soil samples above the RI screening level. In 1993, Boeing removed the collection and condensate sumps (Figure 2-16a) and soil to a depth of approximately 4 feet bgs in the two areas where soil TCE concentrations exceeded the MTCA Method A soil cleanup level. Soil samples were collected from the excavation base and sidewalls after removal of the sumps and soil. Analytical results for these samples indicated that residual concentrations of TCE remained above the RI screening level protective of groundwater.

This area was included in the FS for assessment of the direct contact, soil to groundwater, and the vapor intrusion pathways for PCE, TCE, 1,1-DCE, 1,2-DCE, and vinyl chloride.

2.21.3 SWMU/AOC No. 098 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from two additional soil borings and three sub-slab vapor samples to assess the vertical extent of soil contamination, assess the soil physical characteristics for use in leaching modeling, and characterize soil vapor concentrations.

The combined historical and FS data for soil remaining on site following historical cleanup activities and the FS data for sub-slab vapor are presented in Tables 2-19a and 2-19b. Sampling locations are presented with selected analytical results on Figure 2-16a and cross section Figure 2-16a, and data interpretations are discussed further in Sections 3, 5, and 6.1. The

physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

TCE, 1,1-DCE, and 1,2-DCE are present in soil beneath and in the immediate vicinity of the former vapor degreaser. Of these compounds, only the TCE concentrations exceed the RI screening level. The TCE concentrations also exceed the MTCA Method B protection of groundwater soil cleanup level (25 µg/kg), which is proposed as the cleanup level for this SWMU/AOC in Section 5 of this FS. The maximum TCE concentration in soil is 150 µg/kg at approximately 13 feet bgs. Vinyl chloride is not detected in soil.

The extent of contaminated soil at this SWMU/AOC is estimated as an area of 2,700 ft^2 that extends to a maximum depth of 33 feet bgs in the central area and 15 feet in surrounding areas (total 2,500 CY).

The SWMU/AOC is located in an area without shallow perched groundwater.

The conservative vadose zone transport model (Appendix B) indicates that, with a concrete surface cover (floor) in place, residual TCE present in soil at this SWMU will not leach to Esperance Sand groundwater. The presence of the building above the floor would provide additional protection against the potential for recharge that could cause the TCE to migrate to Esperance Sand groundwater. Without a surface cover in place, the model predicts that the TCE in soil could leach to Esperance Sand groundwater at concentrations greater than the MCL for TCE of 5 µg/L in about 10 to 15 years, but the model over-predicts the potential migration due to conservative assumptions inherent in the model. Soil data indicate that the depth of TCE is within 15 to 30 ft. bgs. The TCE concentrations detected in the 2014 FS samples are similar to the 1992 pre-RI samples collected at similar depths and locations, indicating there has been minimal migration since the degreaser was decommissioned and demonstrates the conservative nature of the model results.

Sub-Slab Vapor Conditions

PCE, TCE, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, and 1,1,1-TCA were detected in sub-slab vapor during the FS sampling. TCE and 1,1-DCE concentrations exceed the industrial air screening levels, which consists of the MTCA Method C air cleanup levels divided by the standard attenuation factor of 0.03 (67 and 6,700 $\mu g/m^3$, respectively) (USEPA 2015a). MTCA Method C air cleanup levels are presented for this SWMU/AOC in Section 5 of this FS. The maximum TCE and 1,1-DCE concentrations in sub-slab vapor are 240,000 and 7,100 $\mu g/m^3$, respectively. Johnson and Ettinger modeling of the vapor intrusion pathway at this SWMU/AOC

(Appendix C) indicates that the chlorinated solvent concentrations detected in sub-slab vapor could result in an exceedance of the MTCA Method C cleanup level for indoor air.

Upon review of the sub-slab vapor data that exceeded the industrial MTCA screening levels for TCE, and because similar chemicals are used in the manufacturing processes, Boeing industrial hygienists were requested to assess indoor air to evaluate potential worker exposures. PCE, TCE, and their degradation products were not detected. Based on this assessment, the concentrations in sub-slab vapor are not a risk to workers via indoor air at this SWMU/AOC. No further investigation is necessary for this AOC in compliance with the Washington State Airborne Contaminants Standard, Chapter 296-841 WAC.

2.22 SWMU/AOC NO. 068, SOUTH COMPLEX, SOUTH FIRE PIT

The former South Fire Pit (SWMU/AOC No. 068) is located in the south-central portion of the plant (Figure 1-2). This SWMU/AOC was identified for further evaluation in the FS based on investigations prior to the RI and is discussed in this section.

2.22.1 Summary Description of SWMU/AOC No. 068

The South Fire Pit was a concrete basin that was 50 feet wide and 100 feet long located north of Building 45-07 (Figure 1-2). The pit was used to burn waste fuel and train firefighters, and was demolished in 1979 and paved over. Field observations for the approximate location of the former South Fire Pit indicate approximately 10 inches of asphalt with fill transitioning to glacial till at depths ranging from 4 to 8 feet bgs. A second layer of asphalt was observed in the southern portion of the historical pit at 3 feet bgs. Historical excavations were backfilled with imported fill. The area is currently situated beneath an asphalt-paved parking lot and road.

2.22.2 Summary of Pre-RI Findings Regarding SWMU/AOC No. 068

All of the studies discussed in this section were conducted proactively and independently (not Ecology approved) prior to the AO and RI. A multiphased subsurface investigation and excavation of petroleum-contaminated soil was performed in 1993 and 1994 (Converse 1994f and 1995). The 1994 excavations removed approximately 80 cubic yards of hydrocarbon impacted soil (Converse 1994f). The post-excavation subsurface investigation delineated an approximately 3,000-square-foot area of subsurface soils containing TPH-D and TPH-O at concentrations greater than the RI screening level (Figure 2-17). The documented remaining soils containing elevated TPH concentrations occur at depths of between 0.5 to 3.75 feet bgs (Appendix A). However, deeper borings or test pits were not completed to assess the vertical extent of impacted soils outside the excavation.

During relocation of a storm sewer and sanitary sewer line in 2012, petroleum-impacted soil was encountered in the sanitary sewer trench (Figure 2-17). Floor and sidewall samples were

collected opportunistically during this construction project, to a maximum depth of 6 feet bgs within the trench. The northern half of the trench did not exhibit petroleum odors and BTEX and TPH were either not detected or were detected at concentrations below both the RI screening levels and the MTCA Method A soil cleanup levels, which are proposed as cleanup levels for SWMU/AOC 68 in Section 5 of this FS. Observations in the central portion of the trench indicated a petroleum odor. BTEX concentrations in the sidewall sample collected in this area were either not detected or were detected at concentrations below both the RI screening levels and the MTCA Method A soil cleanup levels. TPH concentrations in this sample exceed the MTCA Method A soil cleanup levels.

This former South Fire Pit area is included in the FS for evaluation of the vertical extent of petroleum-contaminated soils, an assessment of the presence of BTEX in soil and soil gas, and evaluation of the soil to groundwater and vapor intrusion pathways.

2.22.3 SWMU/AOC No. 068 Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of soil samples from three additional soil borings and six soil gas samples to assess vertical extent of soil contamination and characterize soil vapor concentrations.

The historical and FS data for soil remaining in place following past removal actions and the FS data for sub-slab vapor are presented in Tables 2-20a and 2-20b. Sampling locations are presented with selected analytical results on Figure 2-17, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B, with the conclusions summarized in this section.

Soil Conditions

TPH-G, TPH-D, TPH-O and TPH-Jet A are present in soil within and around the footprint of the former burn pit (Figure 2-17) at concentrations greater than the MTCA Method A soil cleanup levels (TPH-G 30 mg/kg and TPH-D, TPH-O, and TPH-Jet A 2,000 mg/kg), which are proposed as the cleanup levels for soil at this SWMU/AOC in Section 5 of this FS. Soil samples with TPH exceedances are located in three areas surrounding the historical Converse excavation and within the historically defined approximate extent of petroleum hydrocarbons in soil. Two areas to the east and south are delimited by shallow historical samples. The maximum TPH concentrations in soil are as follows:

- TPH-G: 3,000 mg/kg at 2 feet bgs
- TPH-D: 5,800 mg/kg at 3 feet bgs
- TPH-O: 13,000 mg/kg at 3 to 3.5 feet bgs

- TPH-Jet A: 3,800 mg/kg at 2 feet bgs

The extent of contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 3,400 ft^2 that extends to a maximum depth of 4 feet bgs (470 CY).

The maximum TPH-D concentration in soil occurs in a sample collected from the northwest corner of the west excavation trench. The maximum TPH-O concentration in soil occurs in a sample collected south of the main excavation. The maximum concentrations of TPH-G and TPH-Jet A in soil occur in a sample collected from the sidewall of the former sanitary sewer trench. TPH-Jet A was not detected in soil samples collected in the approximate location of the former south fire pit. The maximum TPH-G concentration in soil in the former fire pit area is 1,900 mg/kg. The TPH-G, TPH-D, and TPH-Jet A concentrations in the soil sample collected from the former sanitary sewer trench exceed the MTCA Method A soil cleanup levels. A former asphalt swale extended south of the former south fire pit with flow to the west to a former catch basin. TPH exceedances in this area may be attributed to those observed at the south fire pit.

In soil samples from adjacent FS borings ESB1984 and ESB1985 located east and south of the main excavation, respectively, BTEX and TPH are either not detected or are detected below the MTCA Method A soil cleanup levels (benzene: 30 µg/kg, ethylbenzene: 6,000 µg/kg, toluene: 7,000 µg/kg, and xylenes: 9,000 µg/kg), which are proposed as the cleanup levels for this SWMU/AOC in Section 5 of this FS from 10 feet bgs to completion at 31.5 feet bgs. A larger area with TPH exceedances is located west of the Converse excavation and is also likely limited to shallow soils. In FS soil boring ESB1986 located west of the south trench, BTEX and TPH concentrations are either not detected or are detected below the MTCA Method A soil cleanup level from 10 feet bgs to completion at 30.5 feet bgs. Benzene was not analyzed in historical samples and was detected in FS borings at low concentrations that did not exceed the MTCA Method A soil cleanup level.

One historical soil sample (location 3SB-7 at 10 feet bgs [Converse 1994f]) exhibited TBP concentrations exceeding the cleanup level proposed in Section 5 of this FS (8.2 mg/kg). TBP was not detected in the other samples collected at this location. Location 3SB-7 is not colocated with areas of TPH exceeding the proposed cleanup levels.

The conservative vadose zone transport model (Appendix B) indicates that, with or without a surface cover (pavement) in place, residual TPH-G, TPH-D, and TPH-O present in soil at this SWMU will not leach to Esperance Sand groundwater at a concentration greater than their 0.5 mg/L MCL for at least 999 years. Therefore, the residual TPH concentrations in soil in this area are protective of Esperance Sand groundwater per MTCA criteria.

Soil Gas Conditions

BTEX and both aliphatic and aromatic hydrocarbons compounds are present in soil gas at SWMU/AOC 68 at concentrations below the industrial air screening levels, which consists of the MTCA Method C air cleanup levels divided by the standard attenuation factor of 0.03 (benzene 110 µg/m^3, toluene 170,000 µg/m^3, ethylbenzene 33,000 µg/m^3, m,p-xylene and o-xylene 3,300 µg/m^3, low-range aliphatic hydrocarbons 200,000 µg/m^3, midrange aliphatic hydrocarbons 10,000 µg/m^3, and midrange aromatic hydrocarbons 13,300 µg/m^3 (USEPA 2015a). MTCA Method C air cleanup levels are presented for this SWMU/AOC in Section 5 of this FS. The maximum concentrations of these constituents are as follows:

- Benzene: 56 µg/m^3
- Toluene: 77 µg/m^3
- Ethylbenzene: 100 µg/m^3
- m,p-Xylene: 440 µg/m^3
- o-Xylene: 180 µg/m^3
- Low-range aliphatic hydrocarbons: 1,600 µg/m^3
- Midrange aliphatic hydrocarbons: 3,400 µg/m^3
- Midrange aromatic hydrocarbons: 780

2.23 SWMU/AOC NO. 083, FLIGHTLINE, FORMER UST EV-15

The former UST EV-15 (SWMU/AOC No. 083) was located on the flightline in the southwestern portion of the plant (Figure 1-2). This SWMU/AOC was identified for further evaluation in the FS based on investigations prior to the RI and is discussed in this section.

2.23.1 Summary Description of SWMU/AOC No. 083

The former UST EV-15 was located on the west side of the flightline near Stall 104 (Figure 1-2) and used to store diesel fuel. During its removal in 1994 (O'Sullivan Omega 1994), soil containing diesel fuel that leaked from a fitting was encountered. A new UST was placed in the excavation and is currently active. The former excavation area was backfilled with imported fill and is currently paved with concrete or beneath the flightline blast wall berm.

2.23.2 Summary of Pre-RI Findings Regarding SWMU/AOC No. 083

The UST removal discussed in this section was conducted proactively and independently (not Ecology approved) prior to the RI and FS.

During removal of the UST in 1994, as much of the petroleum-contaminated soil as practicable was removed. However, because of the presence of underground utilities, soil containing diesel

TPH above the MTCA Method A soil cleanup level remained in place on the east and south excavation sidewalls (Figure 2-18). Subsequent hand auger borings indicate that the affected soils are limited to only 1 to 2 feet horizontally from the former excavation wall. Based on these results, the petroleum-contaminated soils in this area were recommended for evaluation in the FS for the soil to groundwater pathway.

2.23.3 SWMU/AOC No. 083 Current Conditions

The planned FS soil sampling under the Ecology-approved FSWP (URS and Landau 2012) could not be conducted. Detailed site reconnaissance revealed that the target drilling location was now beneath the flightline blast wall berm and the locations of utilities in the area prevented moving the target drilling station to an alternate location.

The historical and FS data for soil remaining in place following past removal actions are presented in Table 2-21. Sampling locations are presented with selected analytical results on Figure 2-18, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B, with the conclusions summarized in this section.

TPH-D was present in soil in 1994 at concentrations slightly above the current MTCA Method A soil cleanup level (2,000 mg/kg), which is proposed as the cleanup level for soil at this SWMU/AOC in Section 5 of this FS, in the southern and eastern sidewalls of the historical UST excavation (Figure 2-18). The maximum TPH-D concentration in soil in 1994 was 2,800 mg/kg at 8 feet bgs. The current conditions of soil in this area could not be assessed as planned during this FS because the area could not be accessed for drilling. Because TPH-D tends to be degraded over time by soil microorganisms and other processes, it is possible that TPH-D concentrations in this area have decreased to below proposed FS cleanup levels since the samples were collected 20 years ago. The extent of contaminated soil at this SWMU/AOC is estimated as an area of 8 ft^2 that extends to a maximum depth of 9 feet bgs (2.5 CY).

The conservative vadose zone transport model (Appendix B) indicates that, with or without a surface cover (pavement) in place, residual TPH-D present in soil at this SWMU will not leach to Esperance Sand groundwater at a concentration greater than the 0.5 mg/L MCL for at least 999 years. Therefore, the residual TPH concentrations in soil in the SWMU/AOC No. 083 area are protective of Esperance Sand groundwater per MTCA criteria.

2.24 BUILDING 40-32, FOOTING EXCAVATION

Building 40-32 is located in the north-central portion of the plant (Figure 1-2). An excavation in 2010 for a footing at the northwest corner of this building was identified for further evaluation in

the FS and is discussed in this section. The excavation was backfilled with CDF and is now located under the footing for the door.

2.24.1 Summary Description of Building 40-32, Footing Excavation and Investigation Findings

A footing excavation (approximately 9 x 10 x 15 feet deep) for a new hangar door constructed in 2010 encountered soils that exhibited a chemical odor and visible staining. The southwest corner of the excavation was bounded by the external sides of a subsurface building footing and an underground pedestrian tunnel wall, both of which were visibly stained. The contaminated soil was excavated to the extent possible and perched water that entered the excavation was pumped out. Eight soil samples were collected, six of which were analyzed for TPH-G, TPH-D, TPH-O, VOCs, and eight RCRA metals. Only one of the post-excavation soil samples had concentrations above the RI screening levels. The constituents were TPH-G, TPH-D, TPH-O, total xylenes, and ethylbenzene. Low concentrations of TCE were detected in a few samples.

This area was included in the FS for assessment of the vapor intrusion and soil to groundwater pathways for petroleum hydrocarbons and VOCs.

2.24.2 Building 40-32, Footing Excavation Current Conditions

Sampling under the Ecology-approved FSWP (URS and Landau 2012) included collection of a soil sample from one additional soil boring and one sub-slab vapor sample to assess vertical extent of soil contamination and characterize soil vapor concentrations. The historical and FS data for soil remaining in place following past removal actions and FS data for sub-slab vapor are presented in Tables 2-22a and 2-22b. Sampling locations are presented with selected analytical results on Figure 2-19a and cross section Figures 2-19b and 2-19c, and data interpretations are discussed further in Sections 3, 5, and 6.1. The physical parameter and TOC data for soil collected during the FS were used to develop a leaching model to assess the pathway of potential chlorinated solvent migration from soil to Esperance Sand groundwater. The modeling is detailed in Appendix B with the conclusions summarized in this section.

Soil Conditions

TPH-G, TPH-D, TPH-O, TPH-Jet A, ethylbenzene, and xylenes were detected in one soil sample from the footing excavation at concentrations exceeding the MTCA Method A soil cleanup levels as proposed in Section 5 of this FS (Figure 2-19a). These cleanup levels are summarized below:

- TPH-G: 30 mg/kg; TPH-D, TPH-O, and TPH-Jet A: 2,000 mg/kg
- Ethylbenzene: 6,000 µg/kg
- Total xylenes: 15,000 µg/kg

The maximum concentrations of these constituents are all at 14 feet bgs, as follows:

- TPH-G: 16,000 mg/kg
- TPH-D: 2,100 mg/kg
- TPH-O: 6,000 mg/kg
- TPH-Jet A: 6,700 mg/kg
- Ethylbenzene: 55,000 µg/kg
- Xylenes: 116,000 µg/kg

The extent of contaminated soil at this SWMU/AOC is estimated as an area of soil of approximately 7 ft^2 at a depth range of 14 feet bgs to 16 feet bgs at the base of the 2010 excavation below both the concrete pavement and subsurface CDF backfill. The estimated volume of contaminated soil is 0.5 CY.

Localized perched groundwater was observed entering the footing excavation in 2010, however perched groundwater was not observed in the soil boring drilled at the AOC during this FS. Wells have not been installed in this area to verify the presence or extent of perched groundwater.

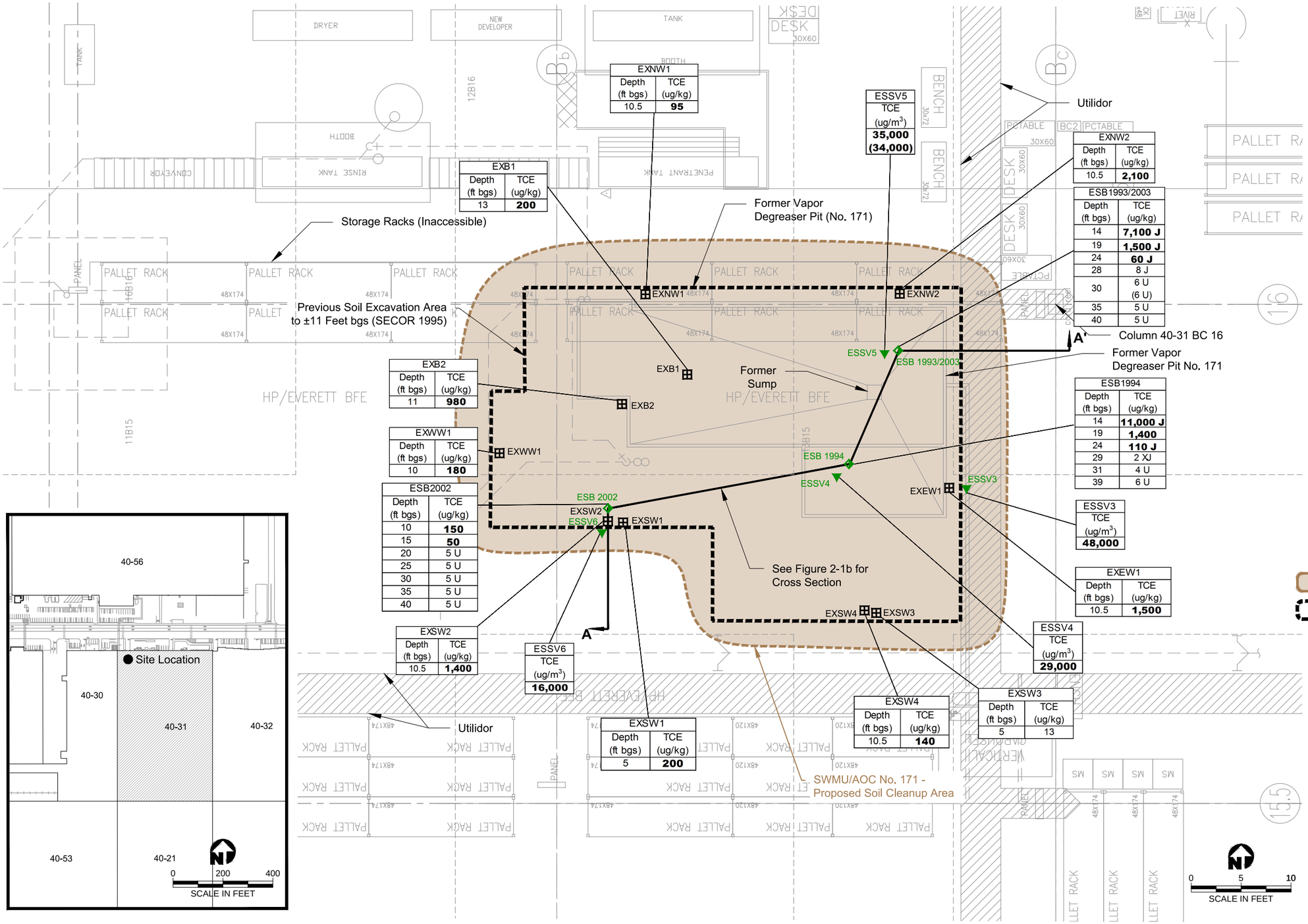
The vadose zone model (Appendix B) for this SWMU used TPH-G and TPG-O as the proxy for the other TPH constituents and xylenes as the proxy for ethylbenzene, since these were the TPH-related compounds with the highest concentrations and greatest potential to migrate in soil. In addition, TCE was also modeled. The conservative vadose zone transport model indicates that, with a concrete surface cover (pavement) in place, the COCs present in soil in this area will not leach to Esperance Sand groundwater at concentrations greater than the MCL and/or MTCA Method A groundwater cleanup levels, as appropriate, for at least 999 years. The CDF footing below the concrete pavement would provide additional protection against the potential for recharge to cause migration of the VOCs in soil to Esperance Sand groundwater. Without a surface cover in place, the model predicts that: (1) TCE present in soil could leach to Esperance Sand groundwater at concentrations greater than the MCL within about 300 years and would not attenuate to below the MCL within the 999-year model period and (2)TPH-G present in soil could leach to Esperance Sand groundwater at a concentration greater than the 0.5 mg/L MCL in about 350 years. However, the model over-predicts the potential migration due to conservative assumptions inherent in the model. The model also predicts that without a surface cover in place, xylenes could leach to the Esperance Sand groundwater within about 300 years and TPH-O within about 100 years, but concentrations of both constituents would remain below their respective MCL/CUL.

Sub-Slab Vapor Conditions

VOCs are present in sub-slab vapor beneath the floor of the pedestrian tunnel adjacent to the footing excavation. TCE is the predominant VOC detected in sub-slab vapor, at a concentration

two orders of magnitude higher than any other VOC and above the industrial air screening level, which consists of the MTCA Method C air cleanup level divided by the standard attenuation factor of 0.03 (67 µg/m^3) (USEPA 2015a). The MTCA Method C air cleanup level is presented for this SWMU/AOC in Section 5 of this FS. The TCE concentration in sub-slab vapor is 6,200 µg/m^3 at a sample location approximately 10 feet bgs in the pedestrian tunnel adjacent to the footing excavation. Aliphatic and aromatic hydrocarbons compounds were not detected in sub-slab vapor. Johnson and Ettinger modeling of the vapor intrusion pathway at this SWMU/AOC (Appendix B) indicates that the TCE concentrations detected in sub-slab vapor could result in an exceedance of the MTCA Method C cleanup level for indoor air.

Upon review of the sub-slab vapor data that exceeded the industrial MTCA screening levels for TCE, and because similar chemicals are used in the manufacturing processes, Boeing industrial hygienists were requested to assess indoor air to evaluate potential worker exposures. TCE and its degradation products were not detected. Based on this assessment, the concentrations in sub-slab vapor are not a risk to workers via indoor air at this SWMU/AOC. No further investigation is necessary for this AOC in compliance with the Washington State Airborne Contaminants Standard, Chapter 296-841 WAC.



Note:
Data boxes depict concentrations for a select contaminant of concern. Bold values exceed the proposed cleanup level or screening level (see Section 5).

Figure 2-1a
Building 40-31, Former Bluestreak Vapor Degreaser (SWMU/AOC No. 171) Sample Locations and Selected Results

AECOM

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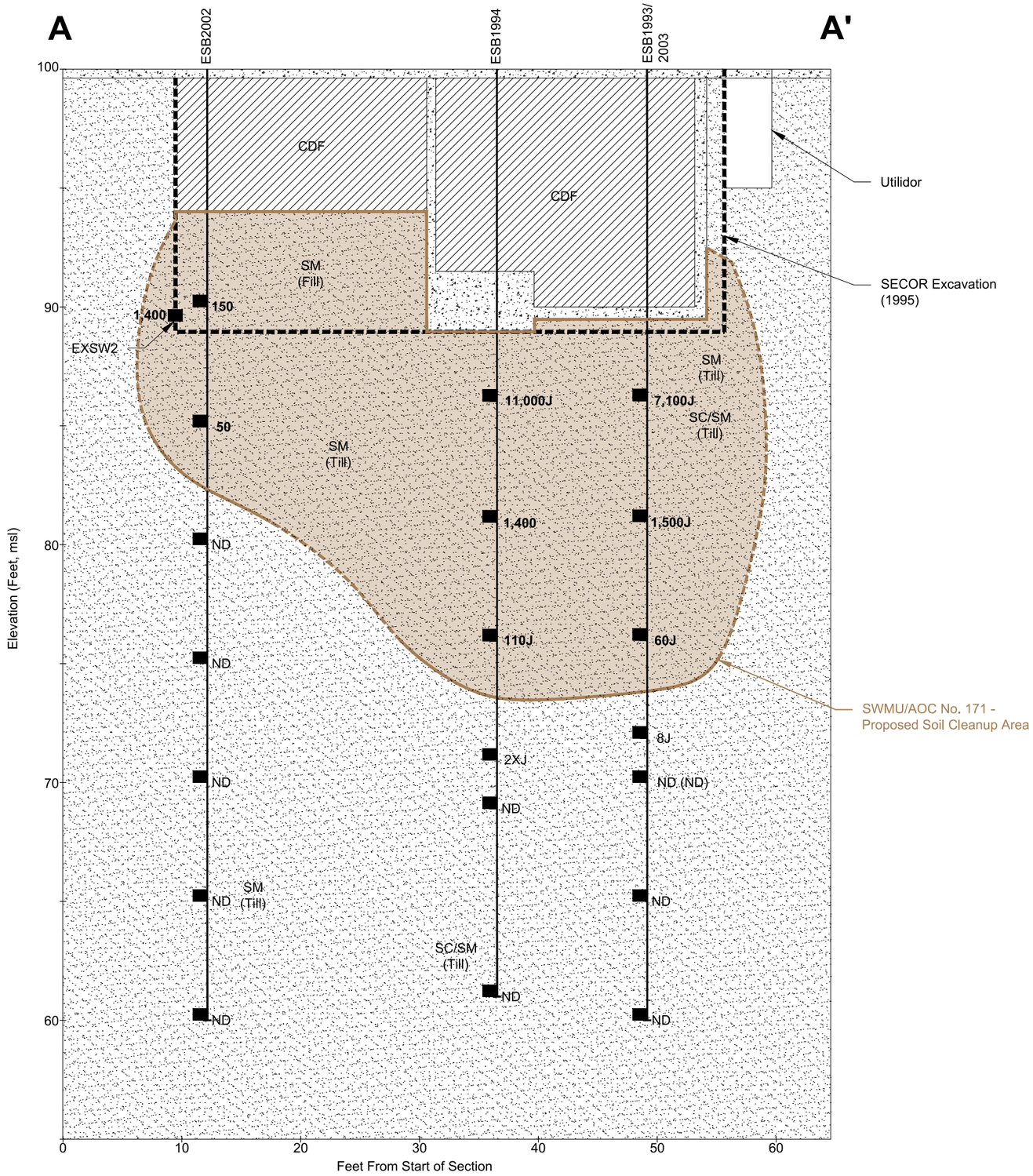


Legend:

ESB1994	Soil Borings
	Estimated Area of Soil Contamination (Dashed where Inferred)
	Edge of Former Excavation
	Concrete
	SM = Silty Fine to Medium Sand With Occasional Gravel
	SC/SM
	Controlled Density Fill
	Sample Collected and Analyzed
2XJ	Concentration of TCE in Soil (ug/kg)
150	Value Above MTCA Method B Protection of Groundwater Cleanup Level
EXSW2	Post Excavation Sample Location Collected in November 1994 During Vapor Degreaser Replacement

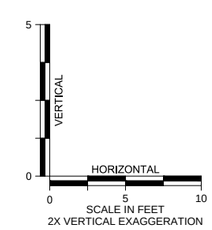
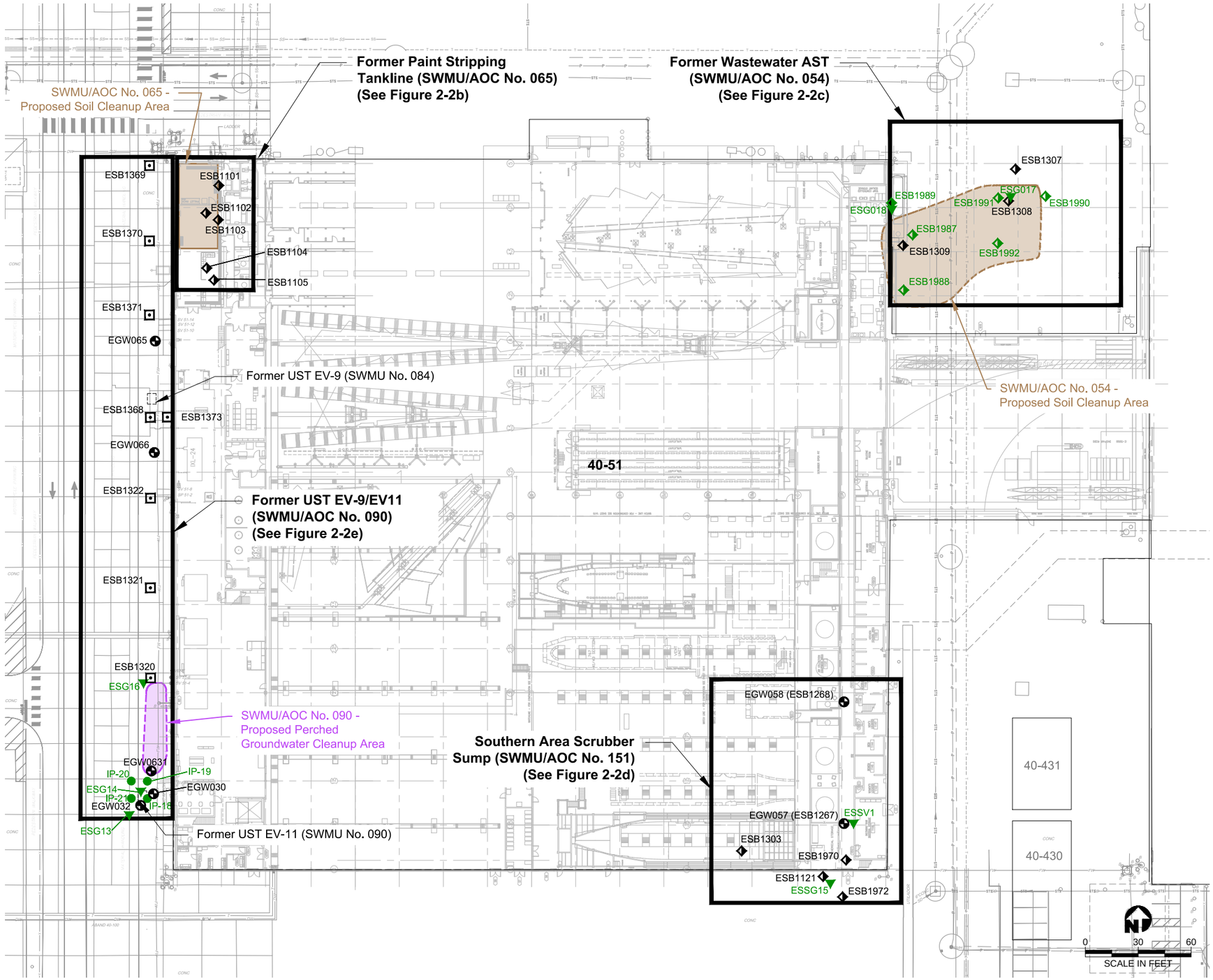
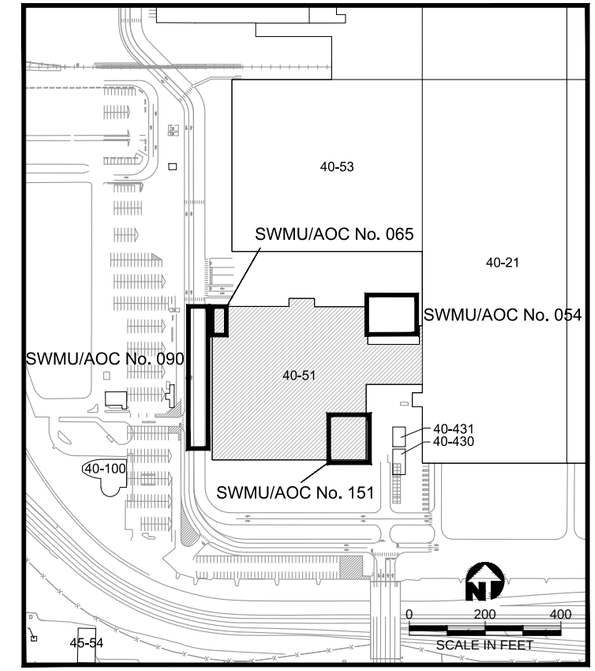


Figure 2-1b
Building 40-31, Former Vapor Degreaser (SWMU/AOC No. 171)
Cross Section





Legend

- Groundwater Monitoring Well
- Historical Grab Groundwater Sample
- Historical Soil Boring
- FS Soil Boring
- FS Injection Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Estimated Area of Soil Contamination (Dashed Where Inferred)

Figure 2-2a
Building 40-51 Site Plan Sample Locations

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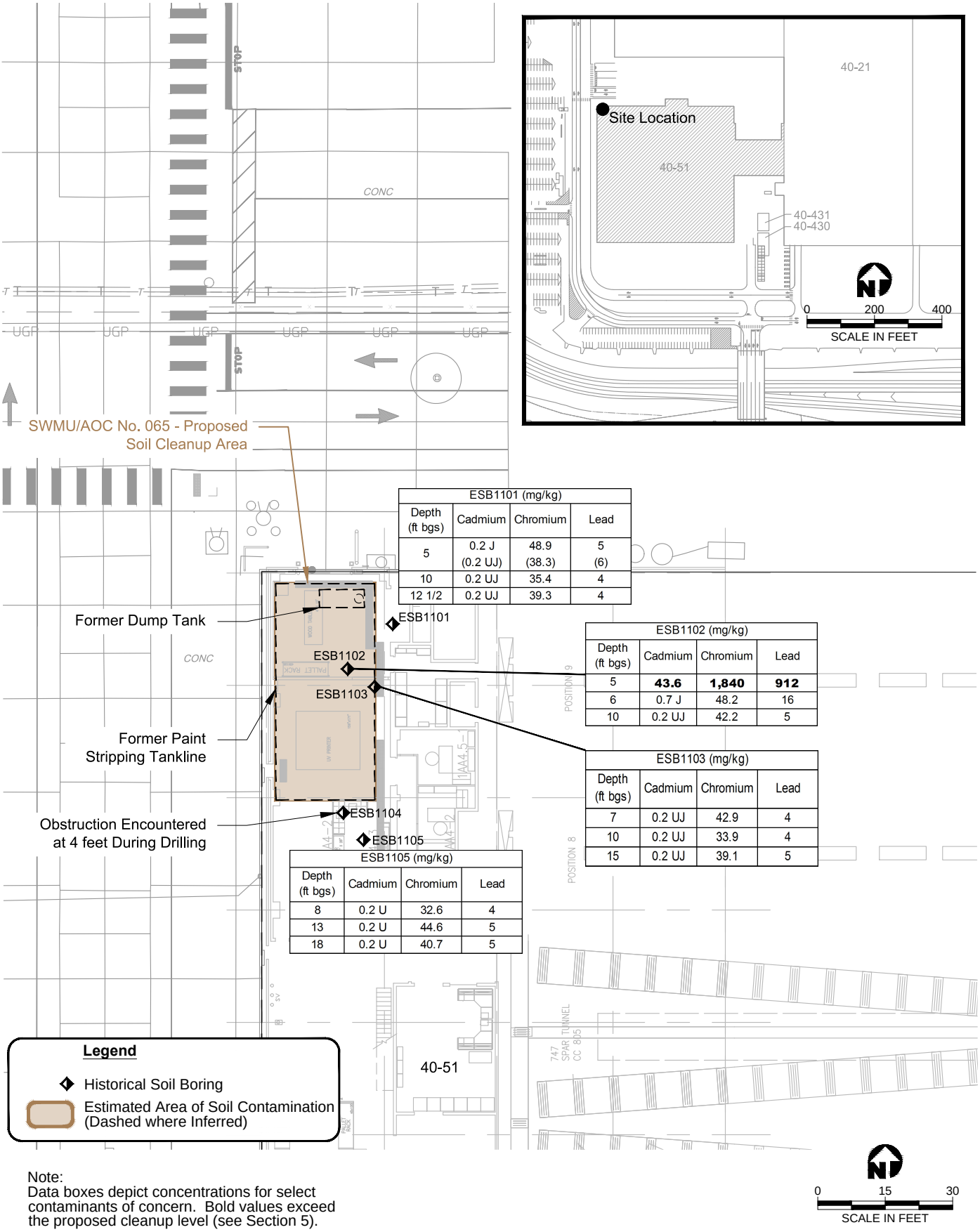

ESB1101 (mg/kg)

Depth (ft bgs)	Cadmium	Chromium	Lead
5	0.2 J (0.2 UJ)	48.9 (38.3)	5 (6)
10	0.2 UJ	35.4	4
12 1/2	0.2 UJ	39.3	4

ESB1102 (mg/kg)

Depth (ft bgs)	Cadmium	Chromium	Lead
5	**43.6**	**1,840**	**912**
6	0.7 J	48.2	16
10	0.2 UJ	42.2	5

ESB1103 (mg/kg)

Depth (ft bgs)	Cadmium	Chromium	Lead
7	0.2 UJ	42.9	4
10	0.2 UJ	33.9	4
15	0.2 UJ	39.1	5

ESB1105 (mg/kg)

Depth (ft bgs)	Cadmium	Chromium	Lead
8	0.2 U	32.6	4
13	0.2 U	44.6	5
18	0.2 U	40.7	5

Note:
Data boxes depict concentrations for select contaminants of concern. Bold values exceed the proposed cleanup level (see Section 5).

Figure 2-2b
Building 40-51, Former Paint Stripping Tankline (SWMU/AOC No. 065)
Sample Locations and Selected Results

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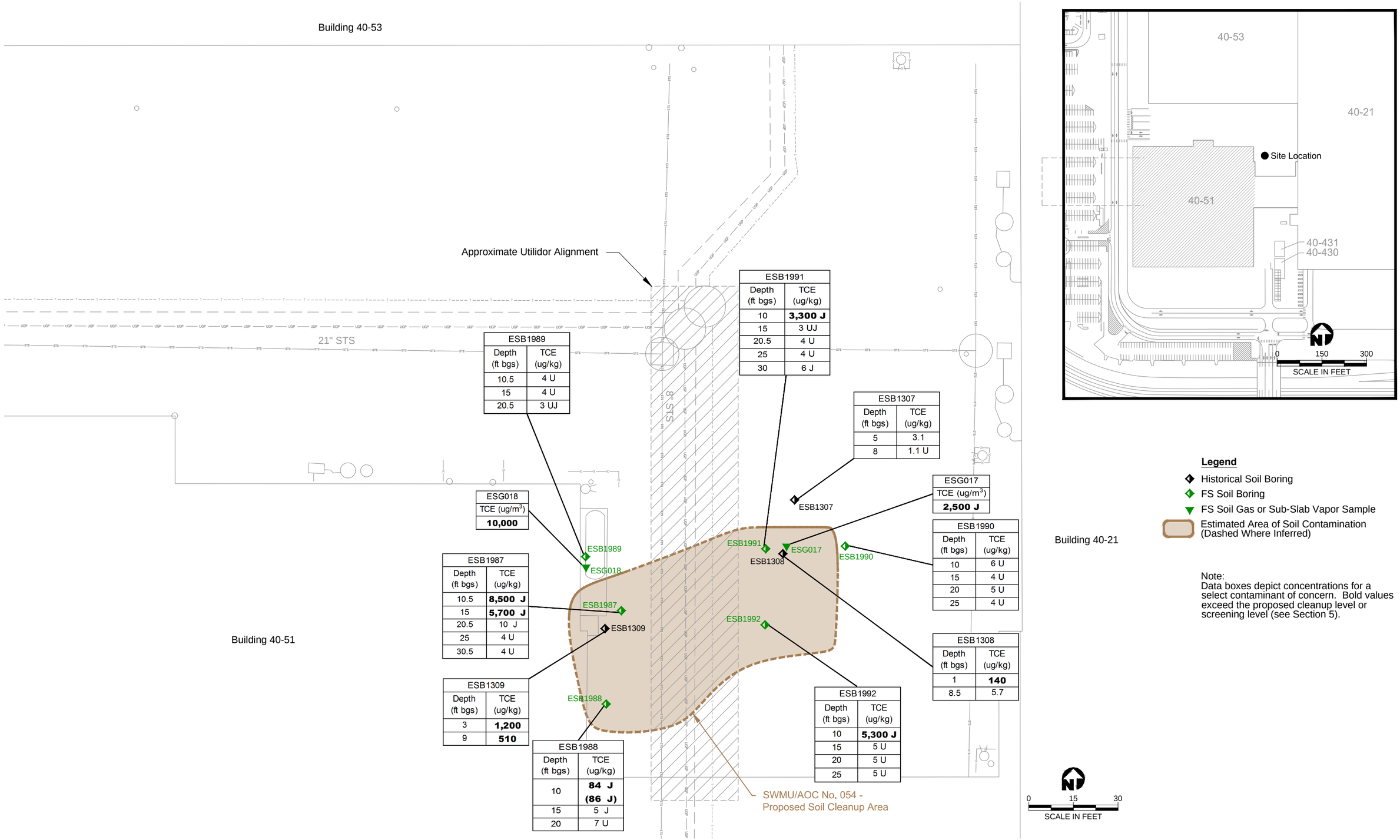

ESB1989	
Depth (ft bgs)	TCE (ug/kg)
10.5	4 U
15	4 U
20.5	3 UJ

ESB1991	
Depth (ft bgs)	TCE (ug/kg)
10	**3,300 J**
15	3 UJ
20.5	4 U
25	4 U
30	6 J

ESB1307	
Depth (ft bgs)	TCE (ug/kg)
5	3.1
8	1.1 U

ESG018
TCE (ug/m^3)
10,000

ESG017
TCE (ug/m^3)
2,500 J

ESB1990	
Depth (ft bgs)	TCE (ug/kg)
10	6 U
15	4 U
20	5 U
25	4 U

ESB1987	
Depth (ft bgs)	TCE (ug/kg)
10.5	**8,500 J**
15	**5,700 J**
20.5	10 J
25	4 U
30.5	4 U

ESB1308	
Depth (ft bgs)	TCE (ug/kg)
1	**140**
8.5	5.7

ESB1309	
Depth (ft bgs)	TCE (ug/kg)
3	**1,200**
9	**510**

ESB1992	
Depth (ft bgs)	TCE (ug/kg)
10	**5,300 J**
15	5 U
20	5 U
25	5 U

ESB1988	
Depth (ft bgs)	TCE (ug/kg)
10	**84 J** **(86 J)**
15	5 J
20	7 U

Figure 2-2c

Building 40-51, Former Wastewater AST (SWMU/AOC No. 054) Sample Locations and Selected Results

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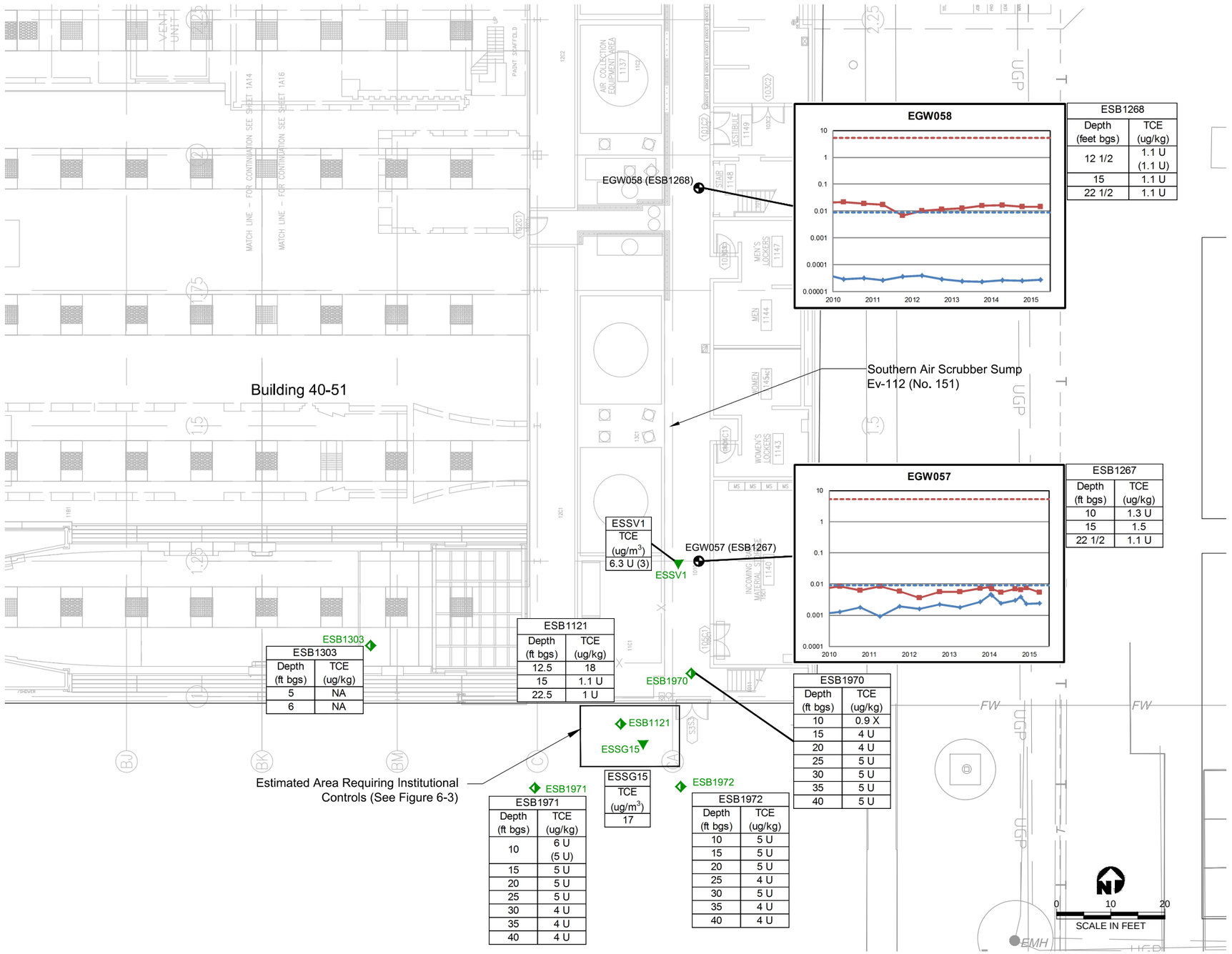

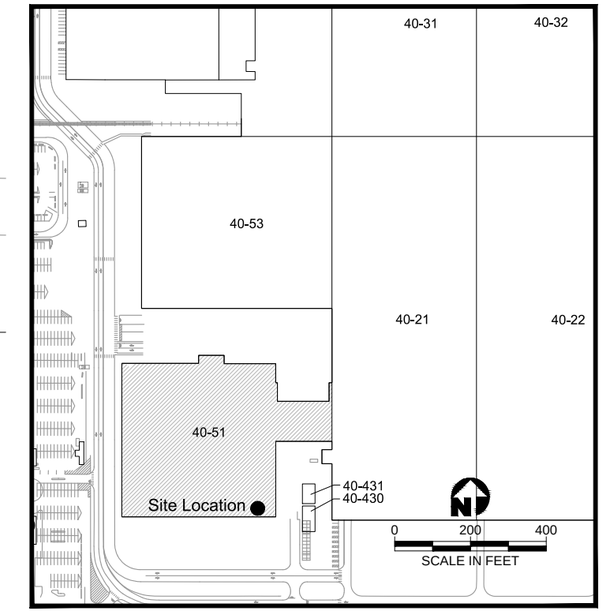

ESB1268	
Depth (feet bgs)	TCE (ug/kg)
12 1/2	1.1 U (1.1 U)
15	1.1 U
22 1/2	1.1 U

ESB1267	
Depth (ft bgs)	TCE (ug/kg)
10	1.3 U
15	1.5
22 1/2	1.1 U

ESSV1
TCE (ug/m^3)
6.3 U (3)

ESB1303	
Depth (ft bgs)	TCE (ug/kg)
5	NA
6	NA

ESB1121	
Depth (ft bgs)	TCE (ug/kg)
12.5	18
15	1.1 U
22.5	1 U

ESB1970	
Depth (ft bgs)	TCE (ug/kg)
10	0.9 X
15	4 U
20	4 U
25	5 U
30	5 U
35	5 U
40	5 U

ESSG15
TCE (ug/m^3)
17

ESB1971	
Depth (ft bgs)	TCE (ug/kg)
10	6 U (5 U)
15	5 U
20	5 U
25	5 U
30	4 U
35	4 U
40	4 U

ESB1972	
Depth (ft bgs)	TCE (ug/kg)
10	5 U
15	5 U
20	5 U
25	4 U
30	5 U
35	4 U
40	4 U

Legend

- Groundwater Monitoring Well
- Historical Soil Boring
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- TCE (mg/L)
- Total Arsenic (mg/L)
- TCE CUL (mg/L)
- Total Arsenic CUL (mg/L)

Note:
Data boxes depict concentrations for a select contaminant of concern. Refer to Section 5 for the proposed cleanup level and screening level.

Figure 2-2d
Building 40-51 Southern Air Scrubber Sump (SWMU/AOC No. 151) Sampling Location and Selected Results

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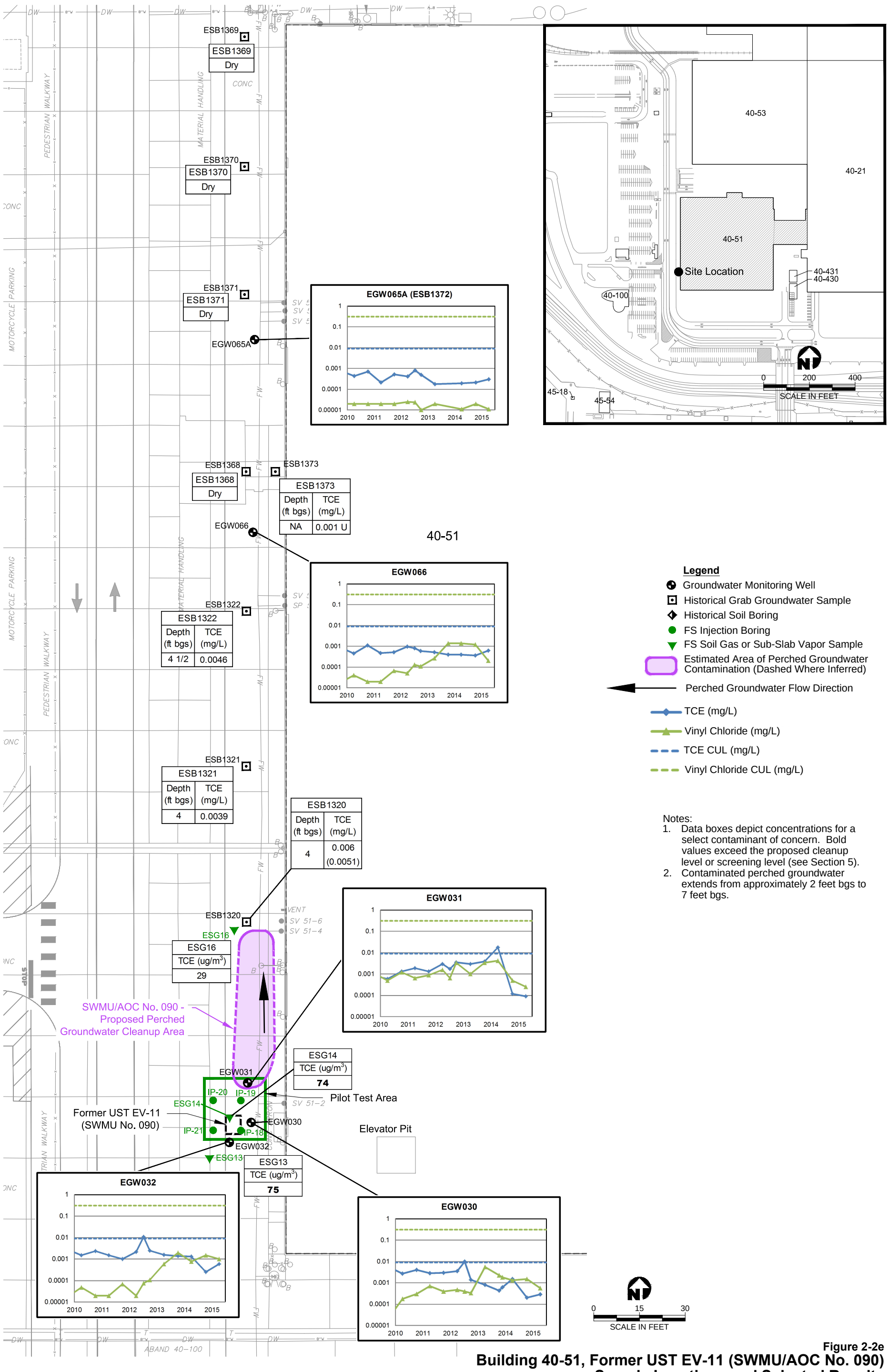

Figure 2-2e
Building 40-51, Former UST EV-11 (SWMU/AOC No. 090) Sample Locations and Selected Results

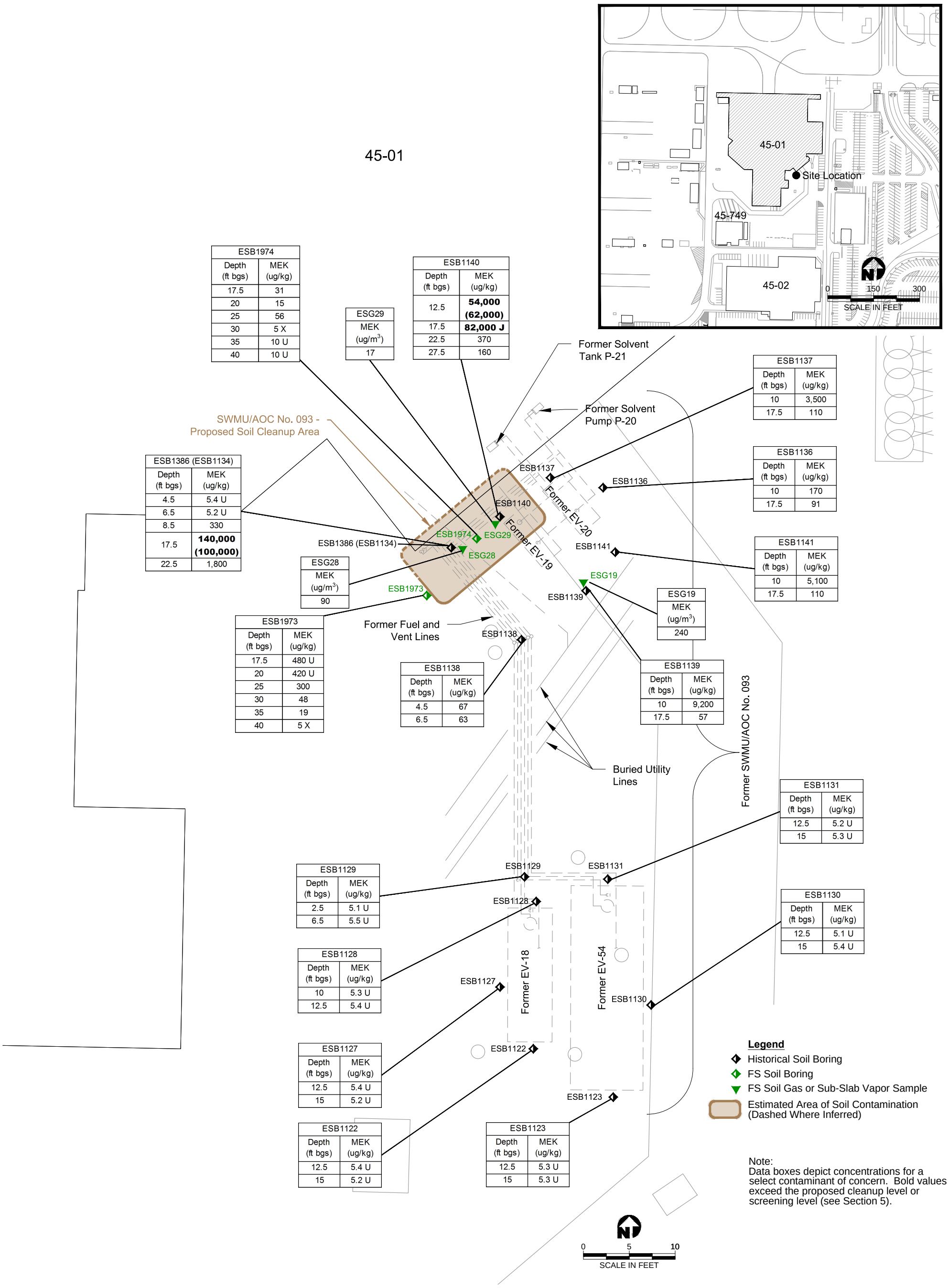

Figure 2-3

Building 45-01, Former Solvent Tanks (SWMU/AOC No. 093) Sample Locations and Selected Results

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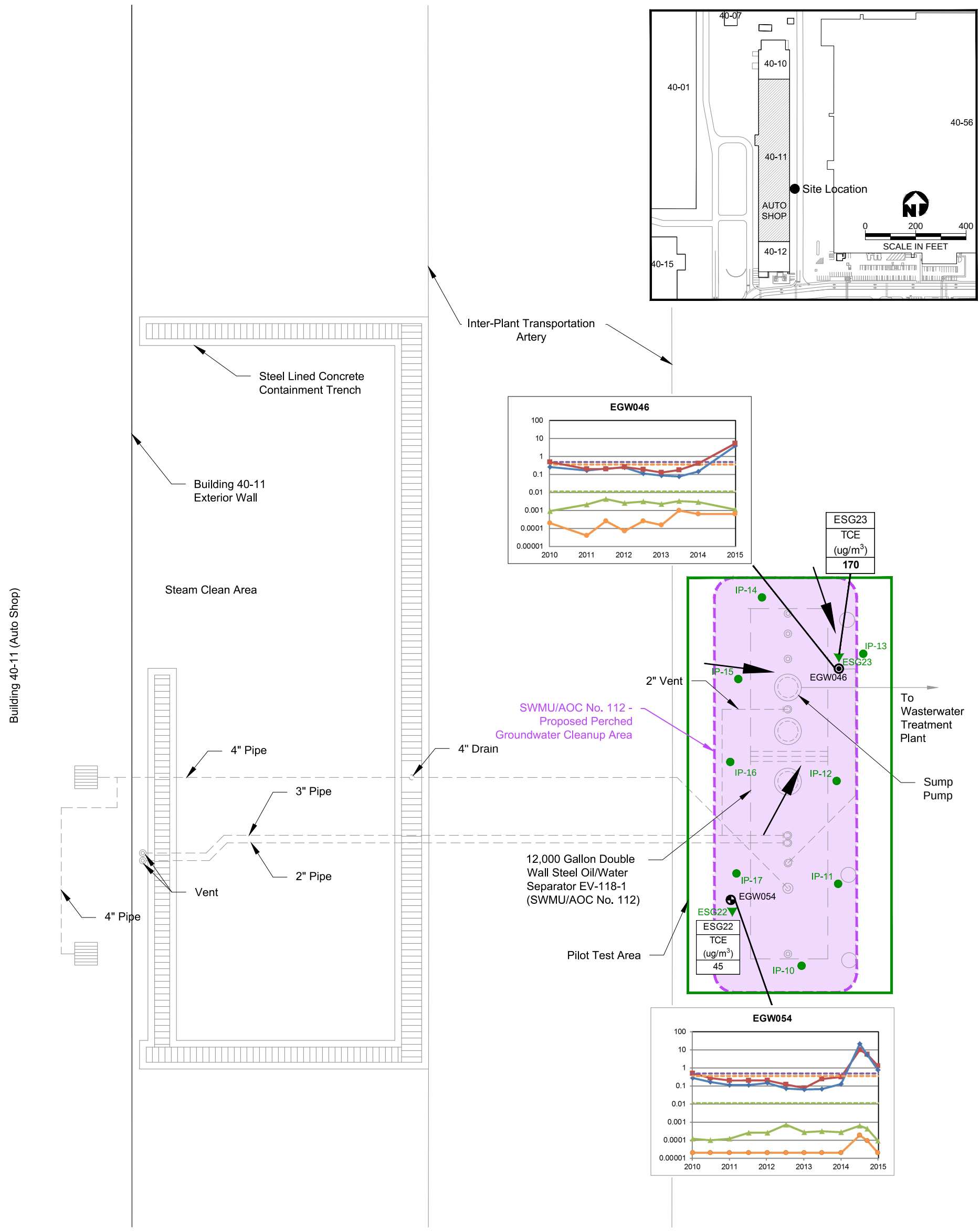

Legend

- Groundwater Monitoring Well
- Groundwater Recovery Well
- FS Injection Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Catch Basin/ Floor Drain
- Perched Groundwater Flow Direction

- TCE (mg/L)
- Vinyl Chloride (mg/L)
- TPH-Dx (mg/L)
- TPH-MO (mg/L)
- TCE CUL (mg/L)
- Vinyl Chloride CUL (mg/L)
- TPH-Dx and TPH-MO CUL (mg/L)

Notes:

1. Data boxes depict concentrations for a select contaminant of concern. Bold values exceed the proposed screening level (see Section 5).
2. Soil gas did not exceed for vinyl chloride and was not analyzed for TPH.
3. Contaminated perched groundwater extends from approximately 11 feet bgs to 16 feet bgs within the fill surrounding the existing oil/water separator.

0 5 10
SCALE IN FEET

Figure 2-4
Building 40-11, Oil/Water Separator (SWMU/AOC No. 112) Sample Locations and Selected Results

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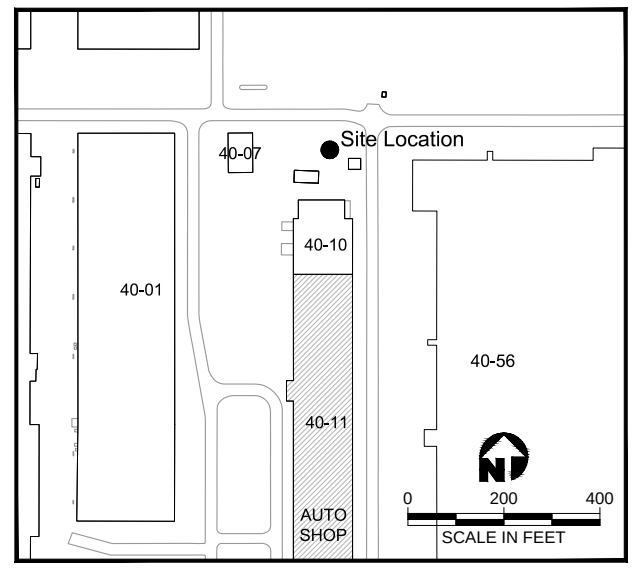
FEASIBILITY STUDY REPORT



ESB1976				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
10	0.3 X	5 U	5 U	5.5 U
15	0.3 X	1 X	5 U	1.8 X
20	0.3 X	5 U	5 U	4.2 X
25	0.3 X	6 U	6 U	6.1 U
30	1 U	5 U	5 U	5.2 U
35	0.5 X	5 U	5 U	4.4 X
40	1 U	5 U	5 U	5.1 U

ESB1678				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
11	**110**	210	1,020	**31**

ESB1679				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
3	**620**	2,900	**17,400**	**170**
12	**43**	140	180	14

ESB1975				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
10	0.9 U (1 U)	5 U (6 U)	5 U (6 U)	5.2 U (4.8 U)
20	0.9 U	5 U	5 U	5.5 U
25	0.9 U	5 U	5 U	4.9 U
30	0.9 U	4 U	4 U	4.5 U
35	1 U	6 U	6 U	6.3 U
40	0.9 U	5 U	5 U	5.7 U

ESG24 (ug/mg^3)			
Benzene	Toulene	Total Xylenes	TPH**
2.8	11	6.4	77 U - 160 U

ESB1680				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
6	13 U	13 U	34	5.3 U

ESG25 (ug/mg^3)			
Benzene	Toulene	Total Xylenes	TPH**
2.0	6.6	7	77 U - 160 U

ESB1675				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
4	**37**	140	650	27*

ESB1998				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
10	0.5 X	1 X	5 U	6.9 U
15	0.6 X	5 X	1 X	4.7 X
20	0.4 X	6 U	6 U	7.1 U
25	0.3 X	5 U	5 U	7.6 U
30	0.3 X	6 U	6 U	7.4 U
35	1	1 X	5 U	6.5 U
40	0.7 X	5 U	5 U	5.4 U

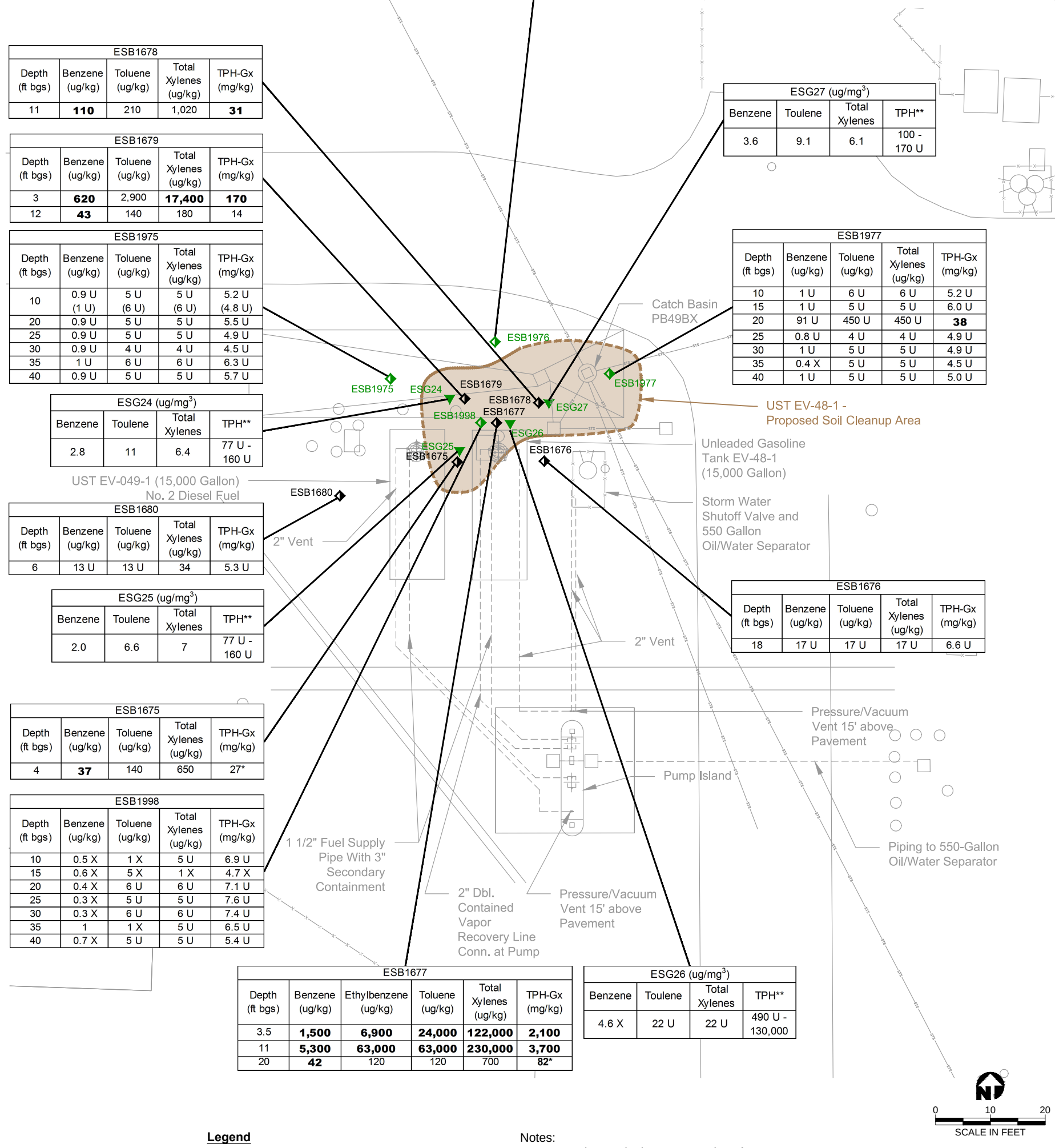
ESG27 (ug/mg^3)			
Benzene	Toulene	Total Xylenes	TPH**
3.6	9.1	6.1	100 - 170 U

ESB1977				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
10	1 U	6 U	6 U	5.2 U
15	1 U	5 U	5 U	6.0 U
20	91 U	450 U	450 U	**38**
25	0.8 U	4 U	4 U	4.9 U
30	1 U	5 U	5 U	4.9 U
35	0.4 X	5 U	5 U	4.5 U
40	1 U	5 U	5 U	5.0 U

ESB1676				
Depth (ft bgs)	Benzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
18	17 U	17 U	17 U	6.6 U

ESB1677					
Depth (ft bgs)	Benzene (ug/kg)	Ethylbenzene (ug/kg)	Toluene (ug/kg)	Total Xylenes (ug/kg)	TPH-Gx (mg/kg)
3.5	**1,500**	**6,900**	**24,000**	**122,000**	**2,100**
11	**5,300**	**63,000**	**63,000**	**230,000**	**3,700**
20	**42**	120	120	700	**82***

ESG26 (ug/mg^3)			
Benzene	Toulene	Total Xylenes	TPH**
4.6 X	22 U	22 U	490 U - 130,000



Legend

- Historical Soil Boring
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)

Notes:

1. Data boxes depict concentrations for select contaminants of concern. Bold values exceed the proposed cleanup level or screening level (see Section 5).
2. Ethylbenzene only exceeds clean up levels at ESB1677.

Figure 2-5
Building 40-11, UST EV-48-1
Sample Locations and Selected Results

AECOM

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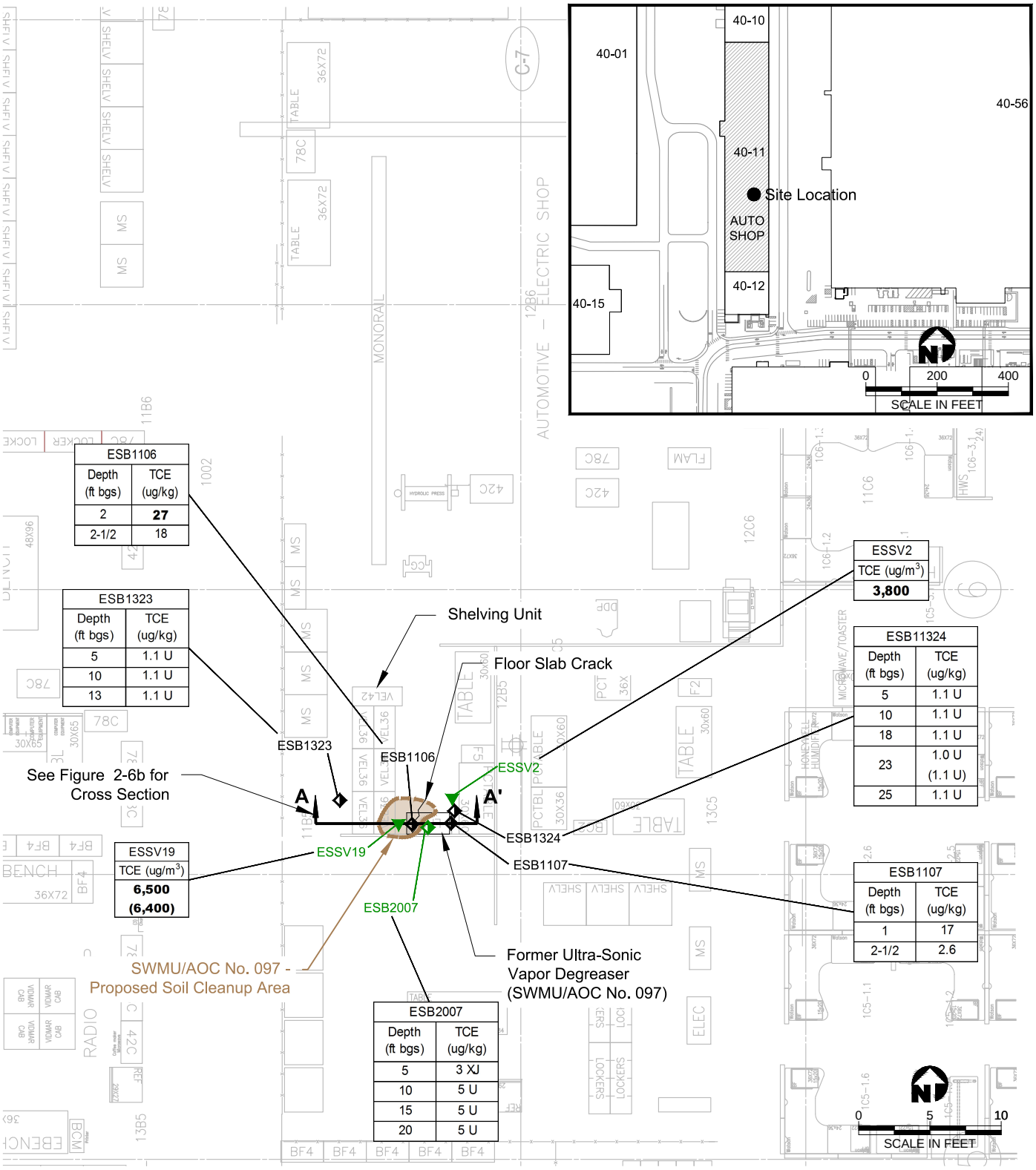
Mod: 10/12/2015, 11:18 | Plotted: 10/21/2015, 14:30 | JOHN_KNOBBS

Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



ESB1106	
Depth (ft bgs)	TCE (ug/kg)
2	**27**
2-1/2	18

ESB1323	
Depth (ft bgs)	TCE (ug/kg)
5	1.1 U
10	1.1 U
13	1.1 U

ESSV2
TCE (ug/m^3)
3,800

ESB11324	
Depth (ft bgs)	TCE (ug/kg)
5	1.1 U
10	1.1 U
18	1.1 U
23	1.0 U (1.1 U)
25	1.1 U

ESSV19
TCE (ug/m^3)
6,500 (6,400)

ESB1107	
Depth (ft bgs)	TCE (ug/kg)
1	17
2-1/2	2.6

ESB2007	
Depth (ft bgs)	TCE (ug/kg)
5	3 XJ
10	5 U
15	5 U
20	5 U

Note:
Data boxes depict concentrations for a select contaminant of concern. Bold values exceed the proposed cleanup level or screening level (see Section 5).

Legend

- Historical Soil Boring
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed where Inferred)

Figure 2-6a

Building 40-11, Former Vapor Degreaser (SWMU/AOC No. 097) Sample Locations and Selected Results

AECOM

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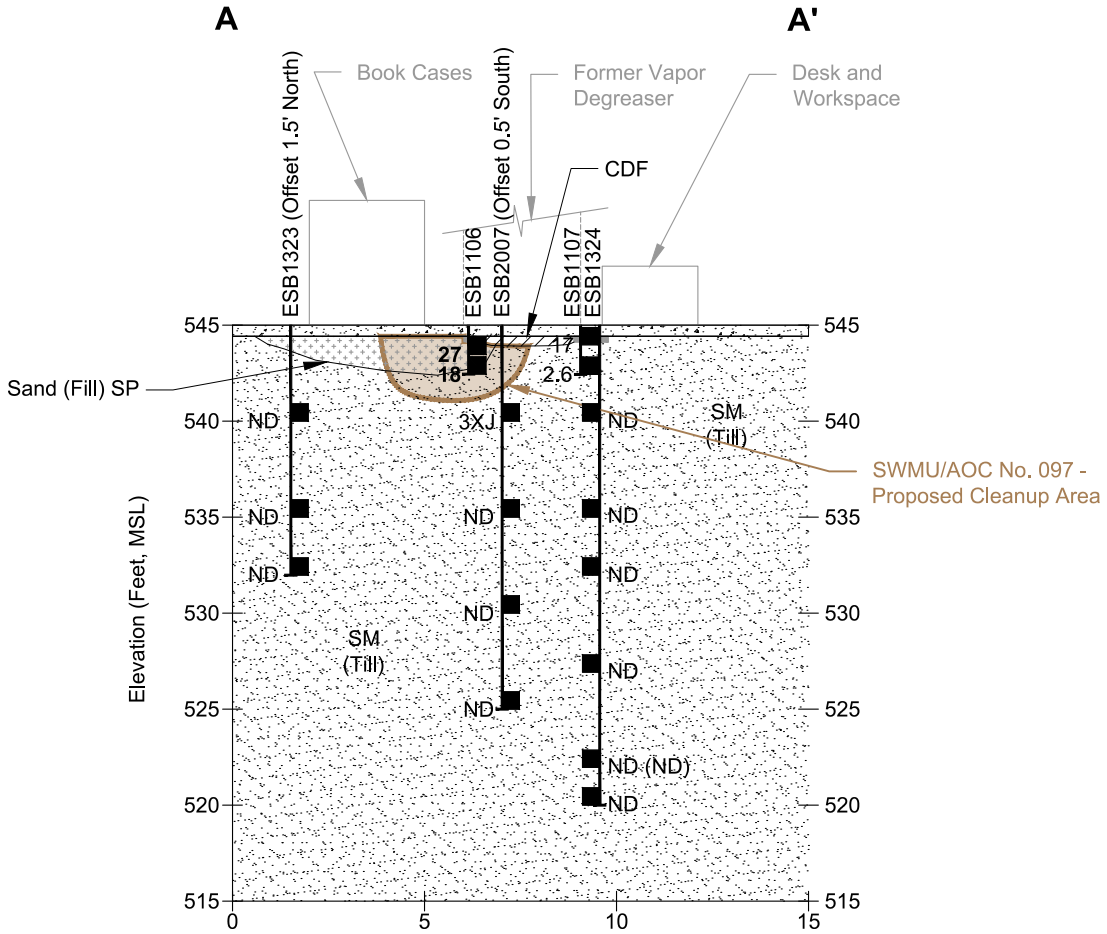
Mod: 10/12/2015, 11:19 | Plotted: 10/12/2015, 11:20 | JOHN_KNOBBS

Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend:

ESB1216 Soil Borings

Estimated Area of Soil Contamination (Dashed Where Inferred)

Concrete

SM = Silty Fine to Medium Sand With Occasional Gravel

Sand (Fill) SP

Controlled Density Fill

Asphalt

Sample Collected and Analyzed

17 Concentration of TCE in Soil (ug/kg)

27 Value Above MTCA Method B Protection of Groundwater Cleanup Level

ND Compound Not Detected Above Method Reporting Limits

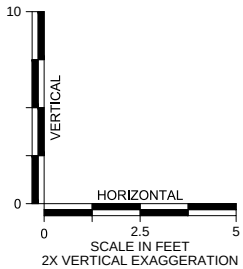
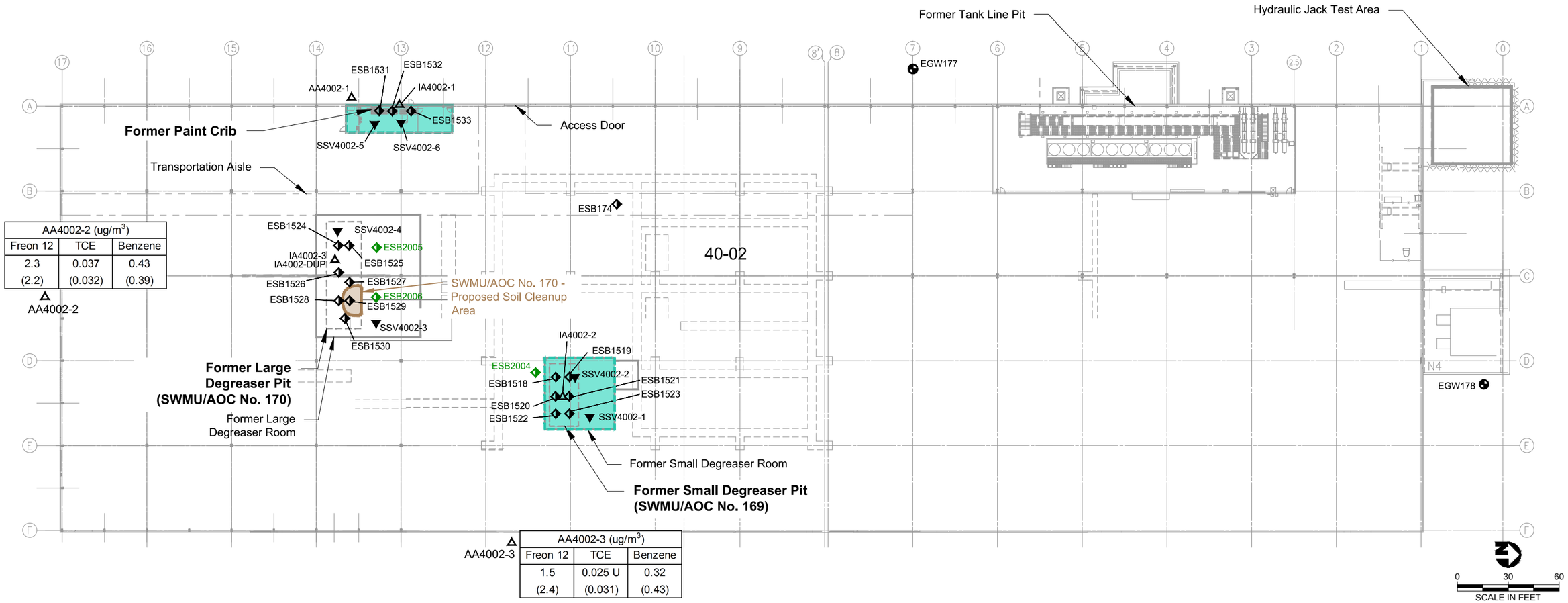


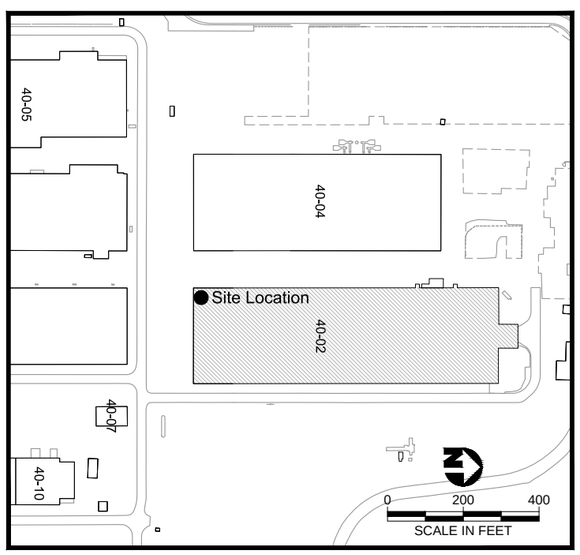
Figure 2-6b

Building 40-11, Former Vapor Degreaser (SWMU/AOC No. 097) Cross Section



AA4002-2 (ug/m^3)		
Freon 12	TCE	Benzene
2.3	0.037	0.43
(2.2)	(0.032)	(0.39)

AA4002-3 (ug/m^3)		
Freon 12	TCE	Benzene
1.5	0.025 U	0.32
(2.4)	(0.031)	(0.43)



Legend

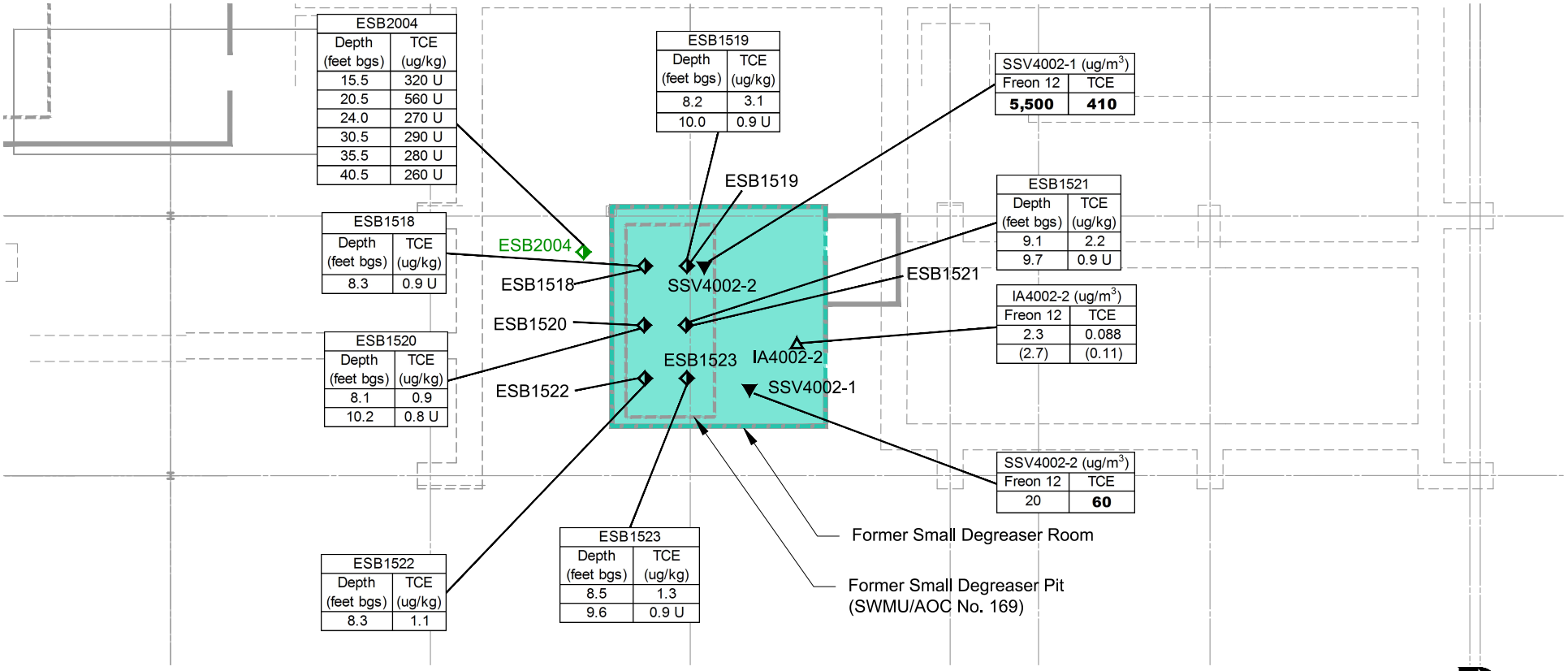
- Groundwater Monitoring Well
- Historical Indoor Air Sample
- Historical Soil Boring (Landau 2008)
- Historical Soil Gas or Sub-Slab Vapor Sample
- FS Soil Boring
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Estimated Area of Sub-Slab Vapor Exceeding a Method C Screening Level (Dashed where Inferred) (See Note 2)
- Subsurface Utility Trench

Notes:

1. Data boxes depict concentrations for select contaminants of concern. Refer to Section 5 for the proposed screening level.
2. Soil gas samples collected by Landau in 2008 were collected below the former concrete pit floor. Samples collected by URS in 2009 were collected below the new slab floor installed over the backfilled pit.

Figure 2-7a

Building 40-02 (SWMUs/AOCs No. 169, No. 170, and Former Paint Crib) Sampling Locations



Legend

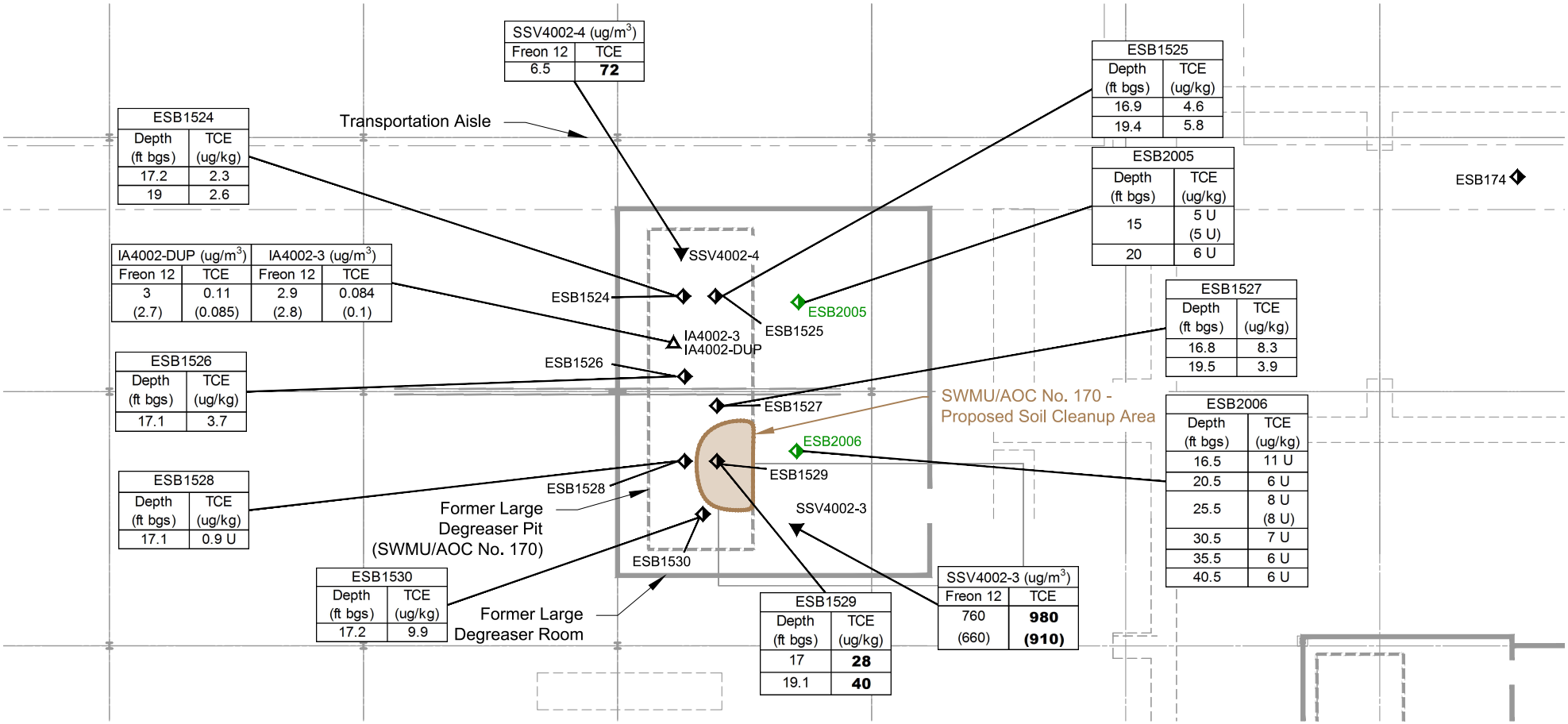
- Subsurface Utility Trench
- Historical Indoor Air Sample
- Historical Soil Boring
- Historical Soil Gas or Sub-Slab Vapor Sample
- FS Soil Boring
- Estimated Area of Sub-Slab Vapor Exceeding a Method C Screening Level (Dashed where Inferred) (See Note 2)

Notes:

1. Data boxes depict concentrations for a select contaminant of concern. Bold values exceed the proposed screening level (see Section 5).
2. At this SWMU, soil concentrations do not exceed proposed cleanup levels and perched groundwater is not present, so sub-slab vapor concentrations were used to define the estimated area of concern.
3. Samples collected by Landau in 2008 were collected below the former concrete pit floor. Samples collected by URS in 2009 were collected below the new slab floor installed over the backfilled pit.

Figure 2-7b

Building 40-02, Former Small Degreaser (SWMU/AOC No. 169) Sample Locations and Selected Results



Legend

- Subsurface Utility Trench
- Historical Indoor Air Sample
- Historical Soil Boring
- Historical Soil Gas or Sub-Slab Vapor Sample
- FS Soil Boring
- Estimated Area of Soil Contamination (Dashed Where Inferred)

Notes:

1. Data boxes depict concentrations for a select contaminant of concern. Bold values exceed the proposed cleanup level or screening level (see Section 5).
2. Samples collected by Landau in 2008 were collected below the former concrete pit floor. Samples collected by URS in 2009 were collected below the new slab floor installed over the backfilled pit.

0 15 30
SCALE IN FEET

Figure 2-7c

Building 40-02, Former Large Degreaser (SWMU/AOC No. 170) Sample Locations and Selected Results

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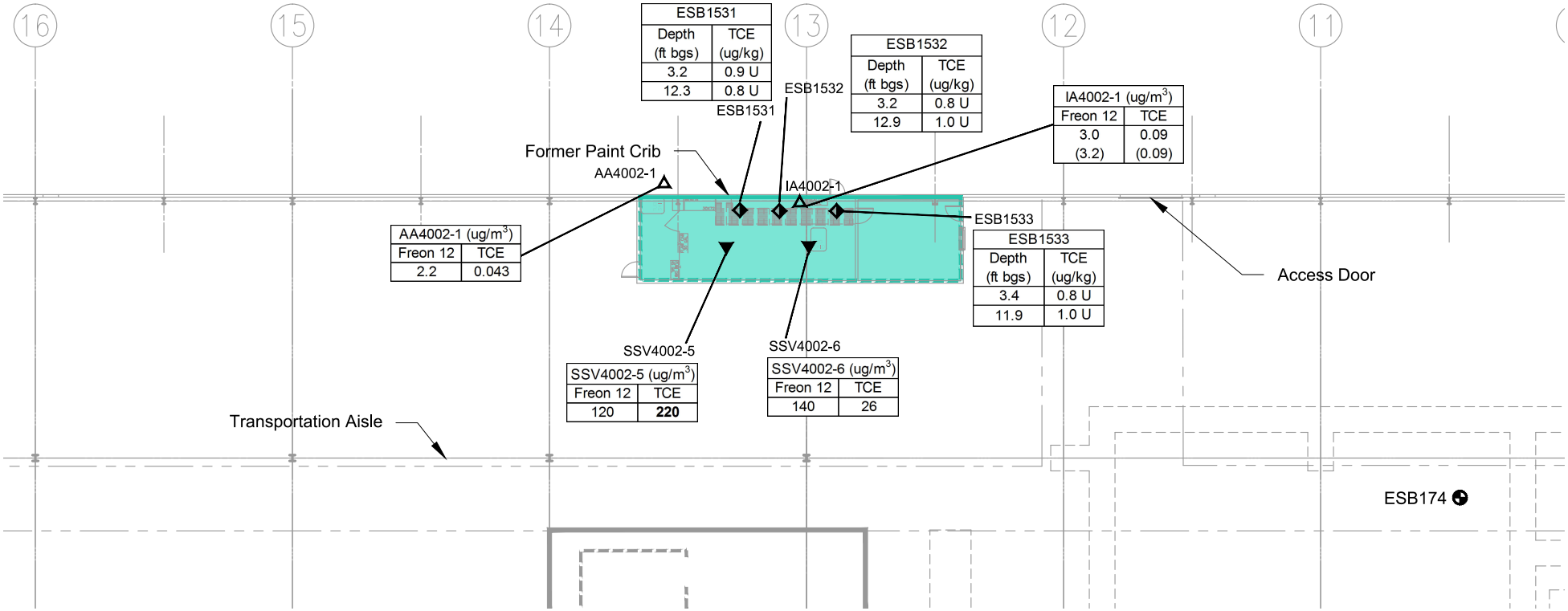
Mod: 10/16/2015, 14:13 | Plotted: 10/16/2015, 14:14 | JOHN_KNOBBS

Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend

- Subsurface Utility Trench
- Groundwater Monitoring Well
- Historical Indoor Air Sample
- Historical Soil Boring
- Historical Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Sub-Slab Vapor Exceeding a Method C Screening Level (Dashed where Inferred) (See Note 2)

Notes:

1. Data boxes depict concentrations for a select contaminant of concern. Bold values exceed the proposed screening level (see Section 5).
2. At this SWMU, soil concentrations do not exceed proposed cleanup levels and perched groundwater is not present, so sub-slab vapor concentrations were used to define the estimated area of concern.
3. Samples collected by Landau in 2008 were collected below the former concrete pit floor. Samples collected by URS in 2009 were collected below the new slab floor installed over the backfilled pit.

0 15 30
SCALE IN FEET

Figure 2-7d

Building 40-02, Former Paint Crib Sample Locations and Selected Results

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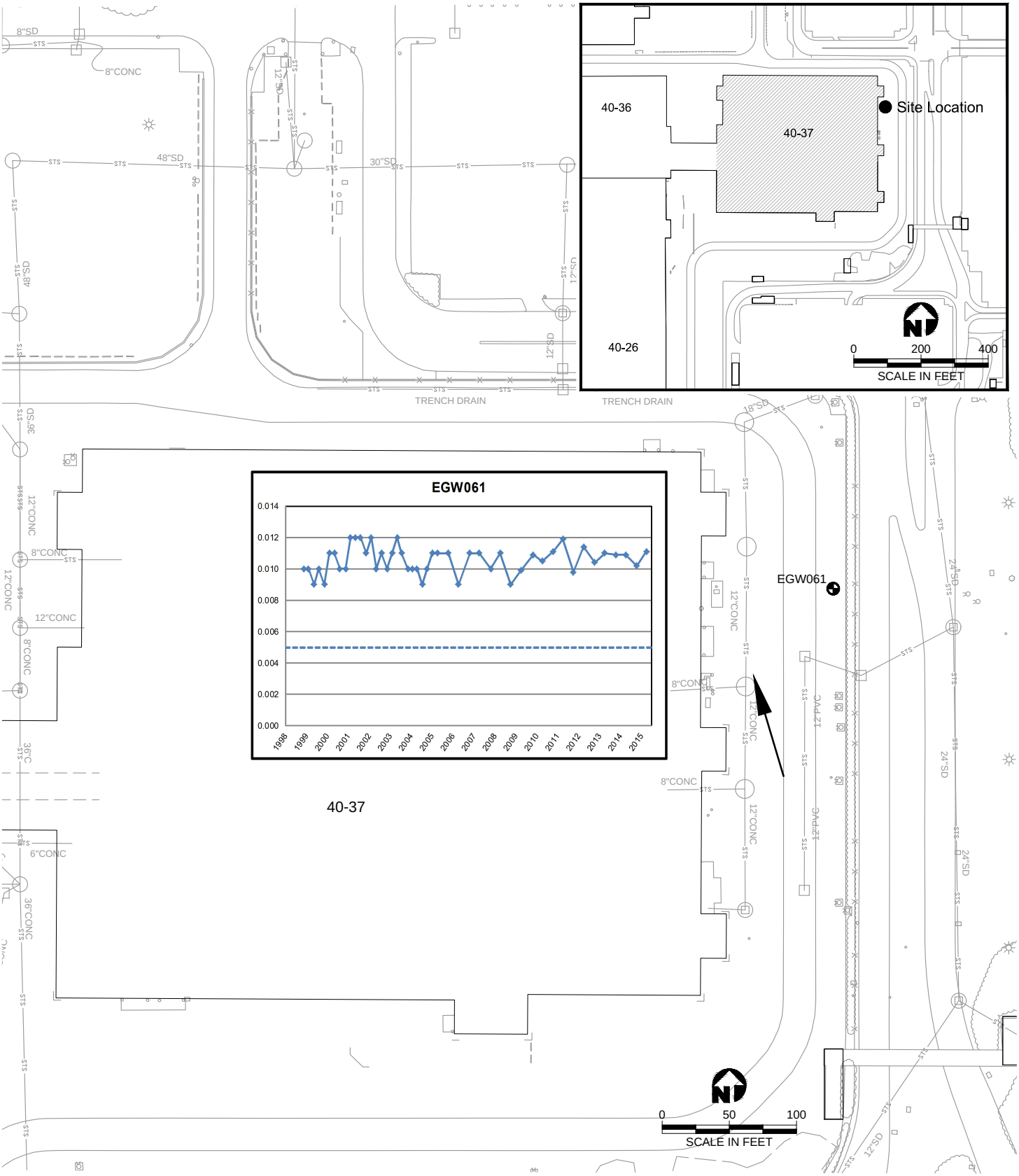
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend:

- Groundwater Monitoring Well
- Groundwater Flow Direction
- Total Arsenic (mg/L)
- Total Arsenic CUL (mg/L)

Figure 2-8

Esperance Sand
Sample Locations and Selected Results

AECOM

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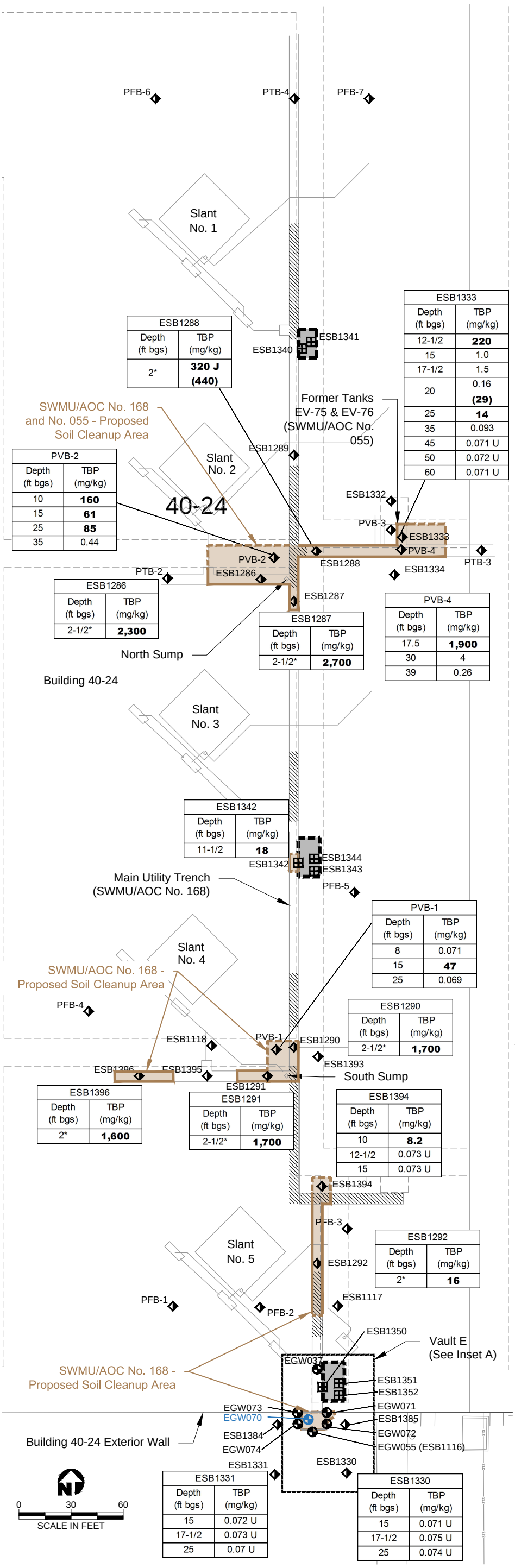
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



ESB1288	
Depth (ft bgs)	TBP (mg/kg)
2*	**320 J (440)**

PVB-2	
Depth (ft bgs)	TBP (mg/kg)
10	**160**
15	**61**
25	**85**
35	0.44

ESB1286	
Depth (ft bgs)	TBP (mg/kg)
2-1/2*	**2,300**

ESB1287	
Depth (ft bgs)	TBP (mg/kg)
2-1/2*	**2,700**

ESB1333	
Depth (ft bgs)	TBP (mg/kg)
12-1/2	**220**
15	1.0
17-1/2	1.5
20	0.16 **(29)**
25	**14**
35	0.093
45	0.071 U
50	0.072 U
60	0.071 U

PVB-4	
Depth (ft bgs)	TBP (mg/kg)
17.5	**1,900**
30	4
39	0.26

ESB1342	
Depth (ft bgs)	TBP (mg/kg)
11-1/2	**18**

PVB-1	
Depth (ft bgs)	TBP (mg/kg)
8	0.071
15	**47**
25	0.069

ESB1290	
Depth (ft bgs)	TBP (mg/kg)
2-1/2*	**1,700**

ESB1396	
Depth (ft bgs)	TBP (mg/kg)
2*	**1,600**

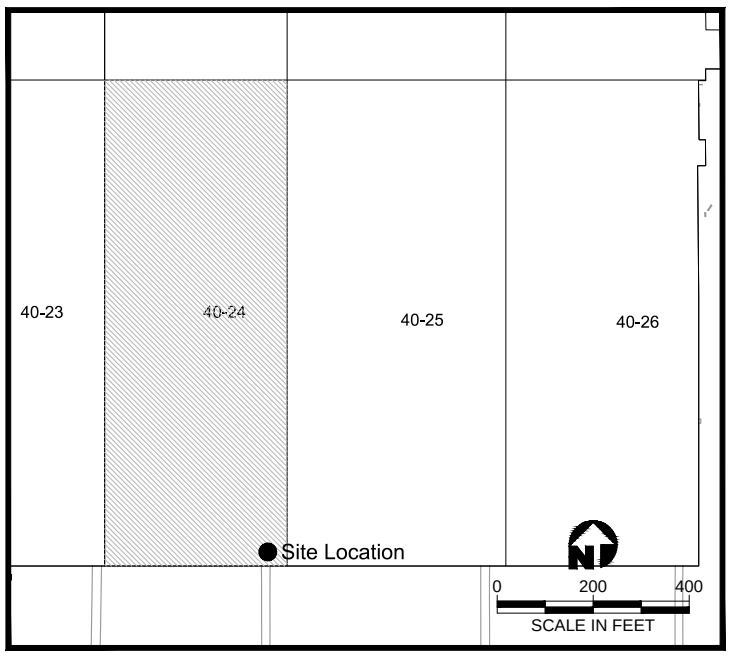
ESB1291	
Depth (ft bgs)	TBP (mg/kg)
2-1/2*	**1,700**

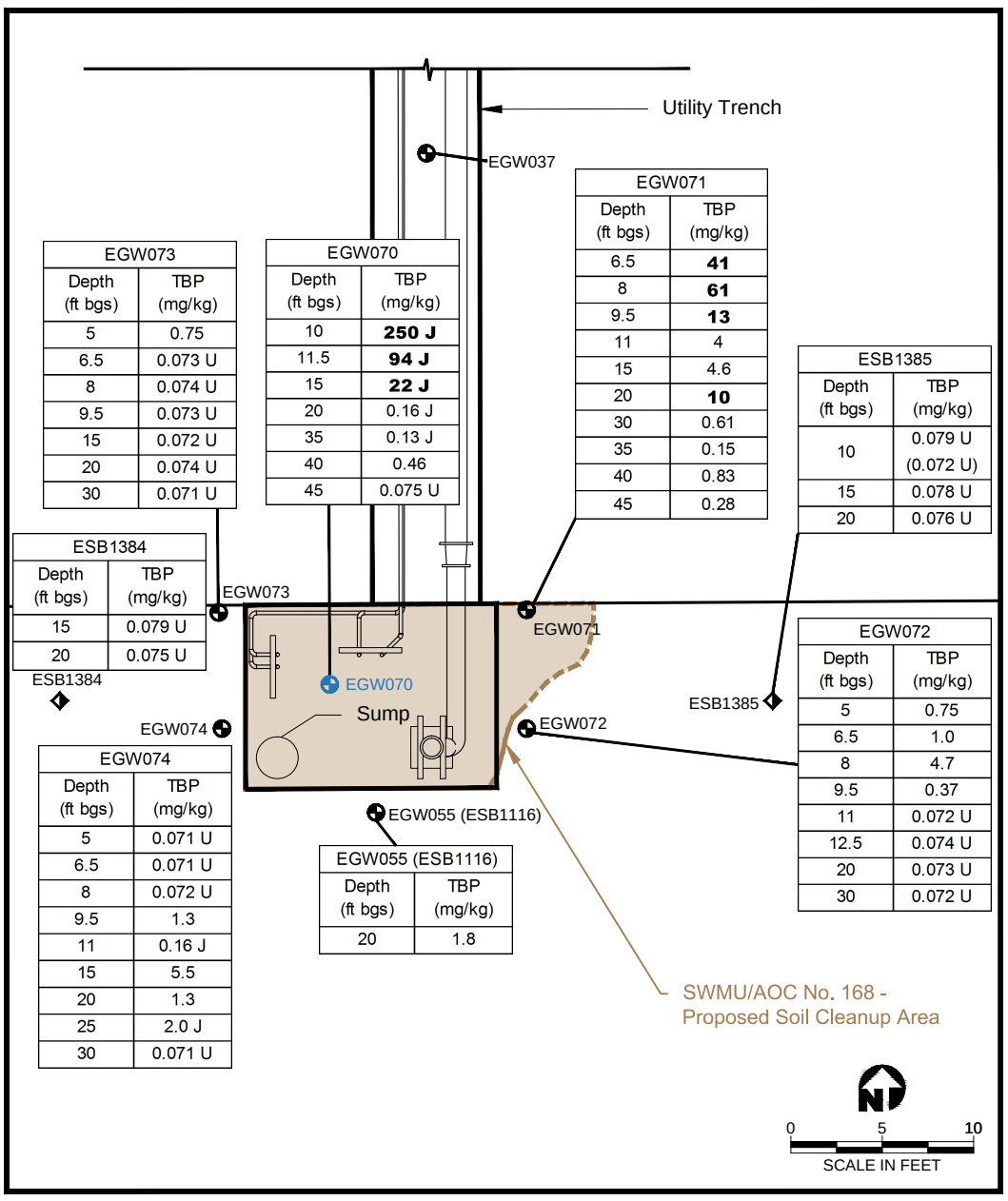
ESB1394	
Depth (ft bgs)	TBP (mg/kg)
10	**8.2**
12-1/2	0.073 U
15	0.073 U

ESB1292	
Depth (ft bgs)	TBP (mg/kg)
2*	**16**

ESB1331	
Depth (ft bgs)	TBP (mg/kg)
15	0.072 U
17-1/2	0.073 U
25	0.07 U

ESB1330	
Depth (ft bgs)	TBP (mg/kg)
15	0.071 U
17-1/2	0.075 U
25	0.074 U





EGW071	
Depth (ft bgs)	TBP (mg/kg)
6.5	**41**
8	**61**
9.5	**13**
11	4
15	4.6
20	**10**
30	0.61
35	0.15
40	0.83
45	0.28

EGW073	
Depth (ft bgs)	TBP (mg/kg)
5	0.75
6.5	0.073 U
8	0.074 U
9.5	0.073 U
15	0.072 U
20	0.074 U
30	0.071 U

EGW070	
Depth (ft bgs)	TBP (mg/kg)
10	**250 J**
11.5	**94 J**
15	**22 J**
20	0.16 J
35	0.13 J
40	0.46
45	0.075 U

ESB1385	
Depth (ft bgs)	TBP (mg/kg)
10	0.079 U (0.072 U)
15	0.078 U
20	0.076 U

ESB1384	
Depth (ft bgs)	TBP (mg/kg)
15	0.079 U
20	0.075 U

EGW072	
Depth (ft bgs)	TBP (mg/kg)
5	0.75
6.5	1.0
8	4.7
9.5	0.37
11	0.072 U
12.5	0.074 U
20	0.073 U
30	0.072 U

EGW074	
Depth (ft bgs)	TBP (mg/kg)
5	0.071 U
6.5	0.071 U
8	0.072 U
9.5	1.3
11	0.16 J
15	5.5
20	1.3
25	2.0 J
30	0.071 U

EGW055 (ESB1116)	
Depth (ft bgs)	TBP (mg/kg)
20	1.8

VAULT E (Inset A) (SWMU/AOC No. 168)

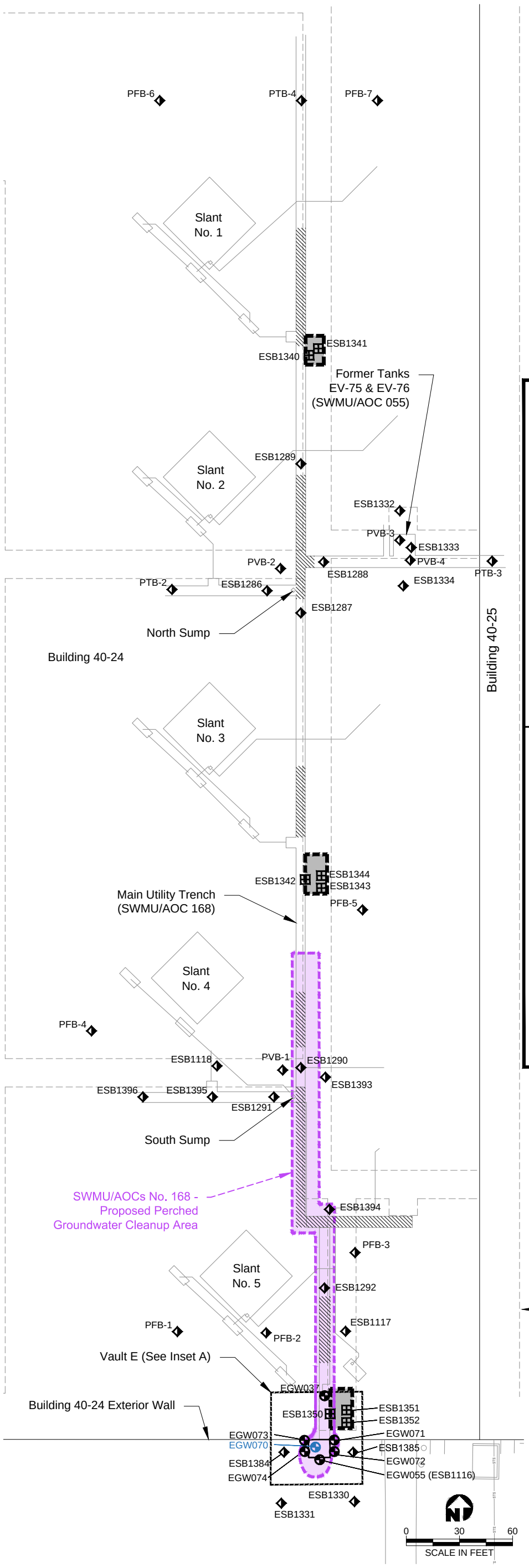
Legend

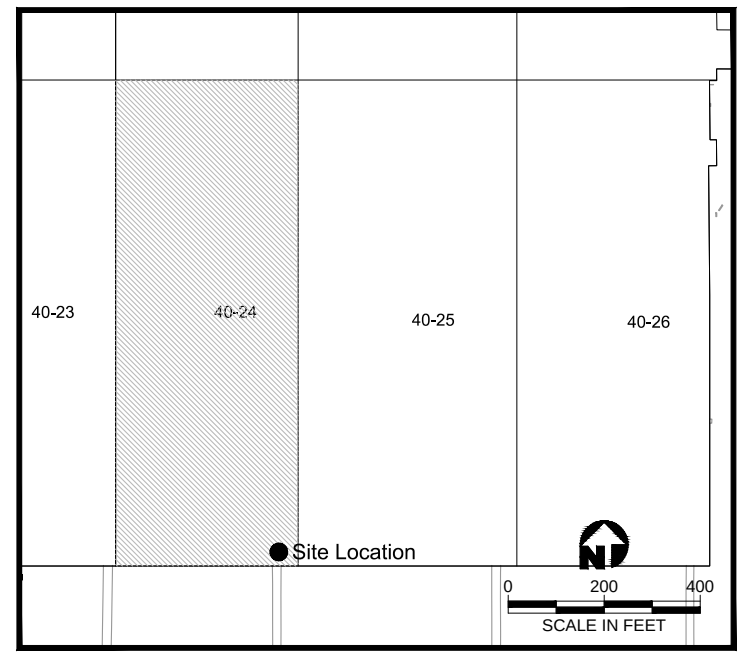
- Groundwater Monitoring Well
- Historical Soil Boring
- Historical Excavation Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Floor of Trench Inaccessible To Drilling
- Utility Vault Excavation
- Source Well for Water for Bench Test

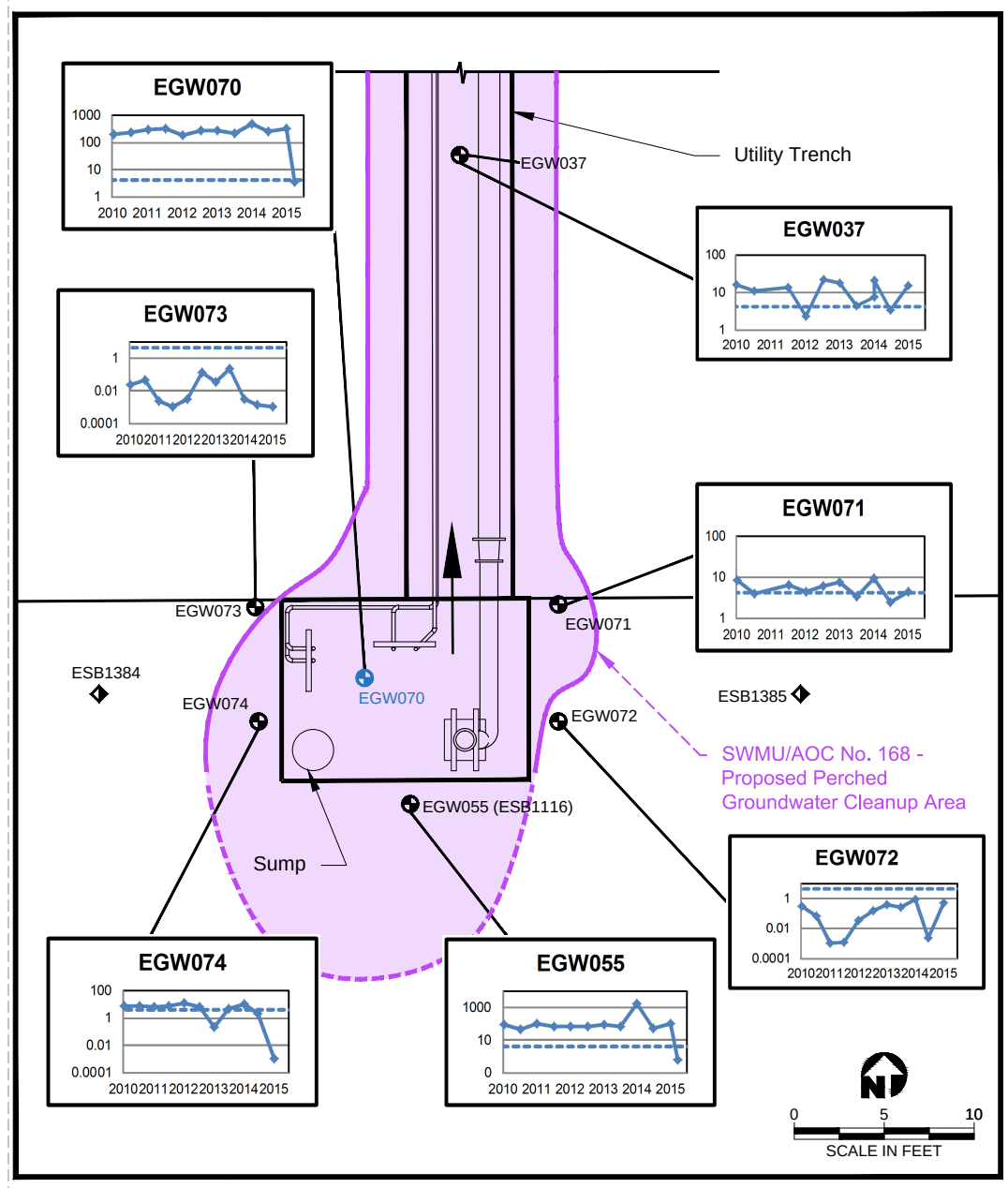
Notes:

1. Data boxes depict concentrations for a select contaminant of concern. Bold values exceed the proposed cleanup level (see Section 5).
2. Data boxes are shown only at locations with phosphate compound exceedances, except for Vault E locations. Other locations do not exceed for phosphate compounds or were collected and not analyzed in the case of some SECOR 1994 locations.
3. PFB-# samples collected by SECOR (1994).
4. *Sample collected below the concrete floor of the utility trench. Depths shown are below the concrete floor approximately 8 feet below ground surface.

Figure 2-9a
Building 40-24 (SWMUs/AOCs No. 168 and No. 055) Soil Sample Locations and Selected Results







VAULT E (Inset A) (SWMU/AOC No. 168)

Legend

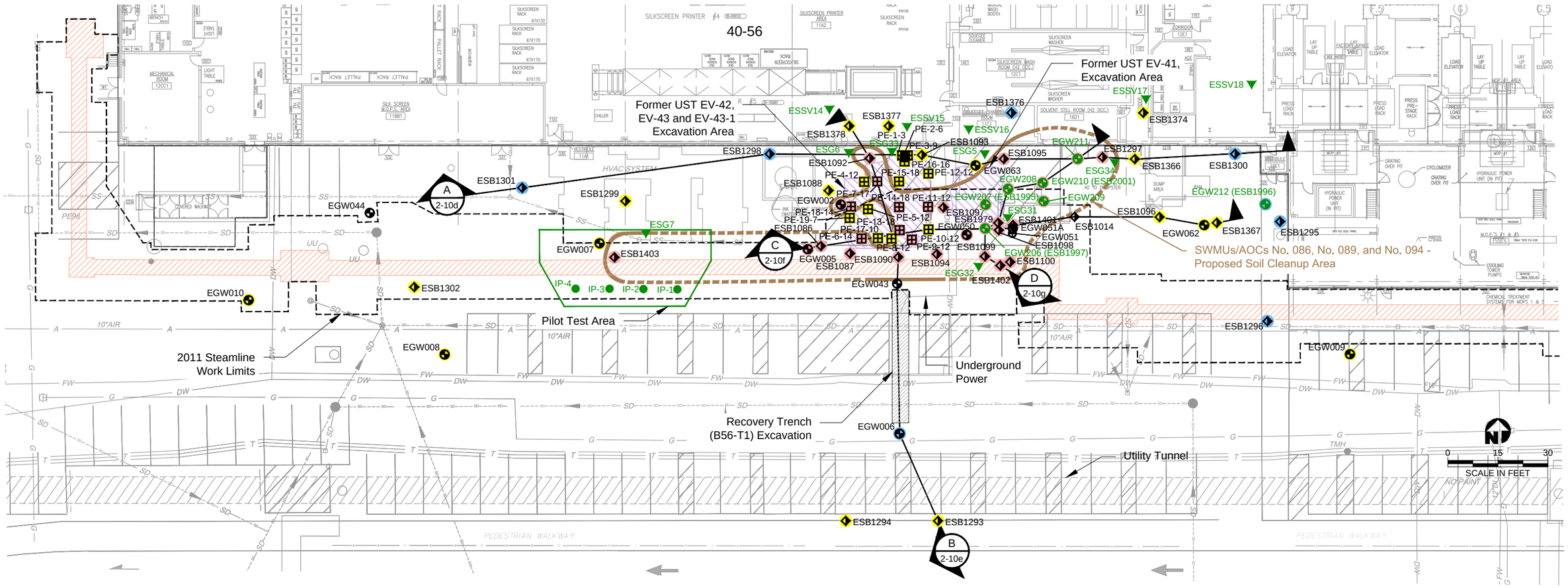
- Groundwater Monitoring Well
- Historical Soil Boring
- Historical Excavation Sample
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Floor of Trench Inaccessible To Drilling
- Historical Utility Vault Excavation
- Source Well for Water for Bench Test
- Perched Groundwater Flow Direction
- Tributyl Phosphate (mg/L)
- Tributyl Phosphate CUL (mg/L)

Notes:

1. The higher value is shown for samples with a duplicate.
2. Perched groundwater extents estimated based on perched water observations at ESB1290 and ESB1292. Area may extend over a greater area or be separate lenses rather than continuous.
3. PFB-# samples collected by SECOR (1994).
4. Contaminated perched groundwater extends from approximately 10.5 feet bgs to 14 feet bgs within the fill surrounding the existing trench and sump.

Figure 2-9b

Building 40-24 (SWMUs/AOCs No. 168 and No. 055)
Monitoring Well Locations and Selected Perched Groundwater Results



Legend

- Historical Soil Boring
- Historical Monitoring Well
- Abandoned Groundwater Monitoring Well
- Historical Excavation Sample
- FS Soil Gas or Sub-slab Vapor Sample
- FS Injection Boring
- FS Monitoring Well
- Recovery Trench
- Former UST Excavation
- Redundant Steam Line Utility Upgrade Excavation
- Concentration Exceeds CUL for One or More Constituent of Concern
- Concentration Was Detected, but Does Not Exceed CUL for One or More Constituent of Concern
- Concentration Was Not Detected or Not Available for All Constituents of Concern
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Sawcut of Pavement and Approximate Limits of Excavation for the 2011 Steamline Replacement
- A 2-10d — Line of Cross Section and Figure Number

Notes:

1. Soil samples were not collected during the installation of EGW043 and EGW044.
2. EGW050 replaced EGW004.
3. Wells shown within the 2011 work limits were not abandoned, except for EGW051, which was replaced by EGW051A.
4. ESB1014 was only sampled for groundwater.

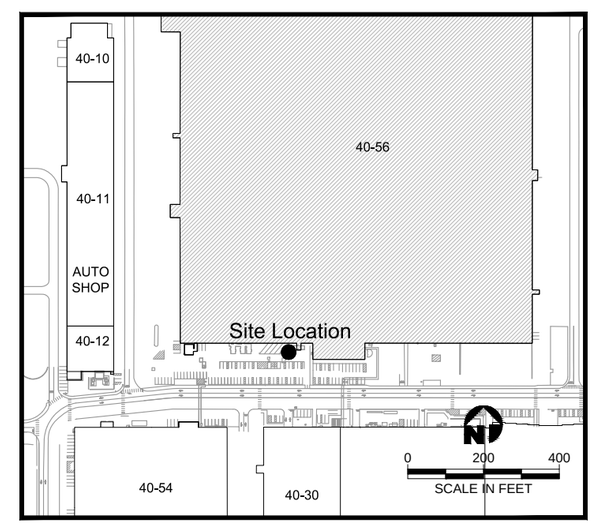


Figure 2-10a

Building 40-56 Former USTs (SWMUs/AOCs No. 086, No. 089, and No. 094) Sample Locations and Selected Soil Results

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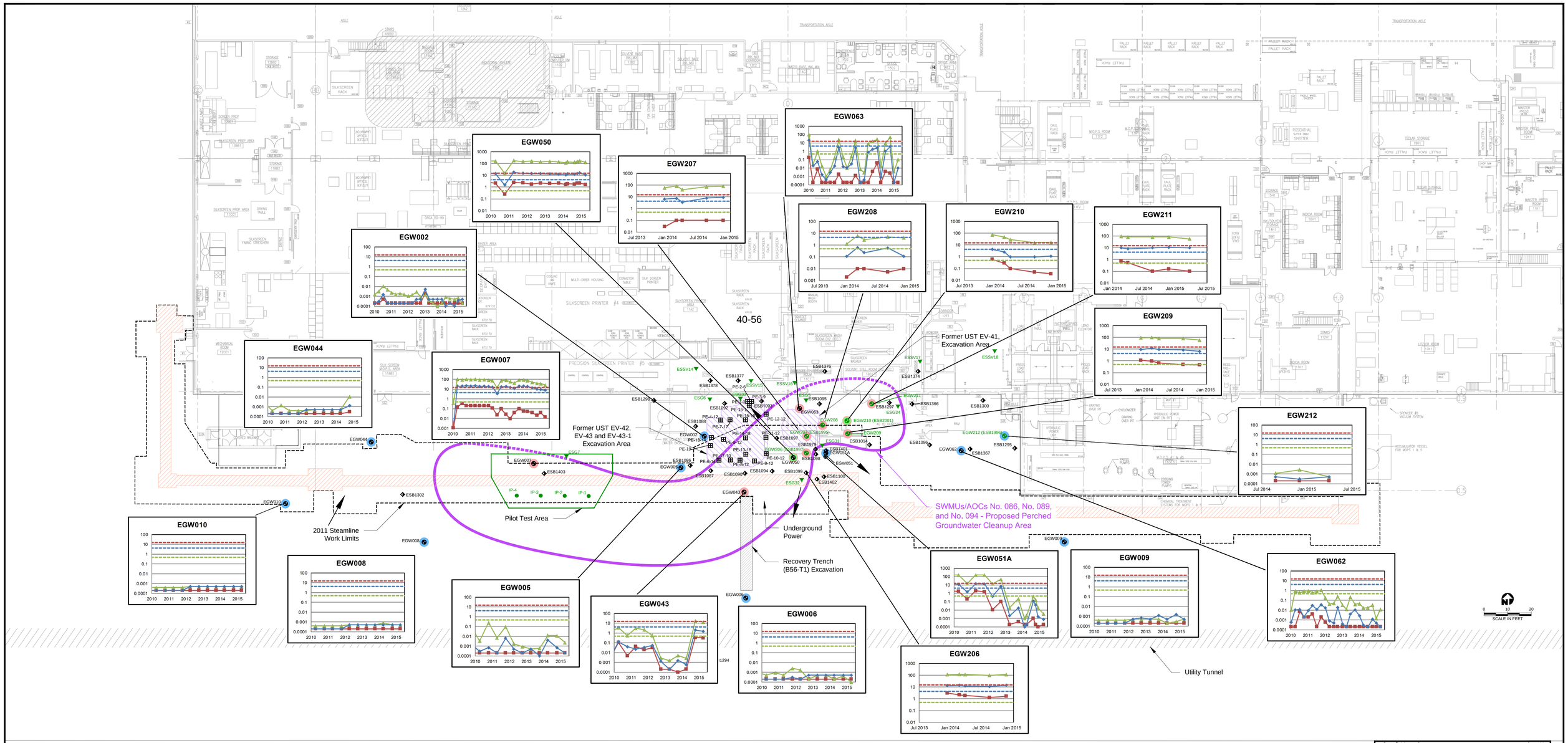

Legend

- Historical Soil Boring
- Historical Monitoring Well
- Abandoned Groundwater Monitoring Well
- Historical Excavation Sample
- FS Soil Gas or Sub-slab Vapor Sample
- FS Injection Boring
- FS Monitoring Well
- Recovery Trench
- Former UST Excavation
- Redundant Steam Line Utility Upgrade Excavation
- Sawcut of Pavement and Approximate Limits of Excavation for the 2011 Steamline Replacement
- DPE Test Well Location
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Perched Groundwater Flow Direction

- Concentration Exceeds CUL for One or More Constituent of Concern Within Previous 2 Years.
- Concentration Does Not Exceed CUL for Any Constituents of Concern Within Previous 2 Years.

Data Notes:
1. The higher value is shown for samples with a duplicate.
2. EGW040 no longer analyzed for Ethybenzene, Toluene or Total Xylenes after 1998. All values were nondetect from well installation in 1995 to 1998.

- Ethylbenzene (mg/L)
- Toluene (mg/L)
- Total Xylenes (mg/L)
- Ethylbenzene CUL
- Toluene CUL
- Total Xylenes CUL

Notes:
1. EGW050 replaced EGW004.
2. Wells shown within the 2011 work limits were not abandoned, except for EGW051, which was replaced by EGW051A.
3. EGW206 through EGW212 were installed in December 2013.
4. Contaminated perched groundwater extends from approximately 8.5 feet bgs to 13 feet bgs.

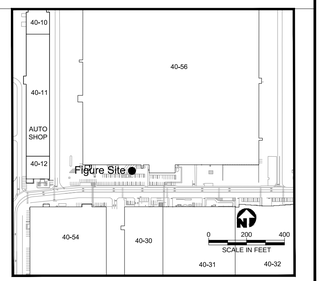

Figure 2-10b
Building 40-56 Former USTs (SWMUs/AOCs No. 086, No. 089, and No. 094) Sample Locations and Selected Perched Groundwater Results

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Boeing Commercial Airplanes
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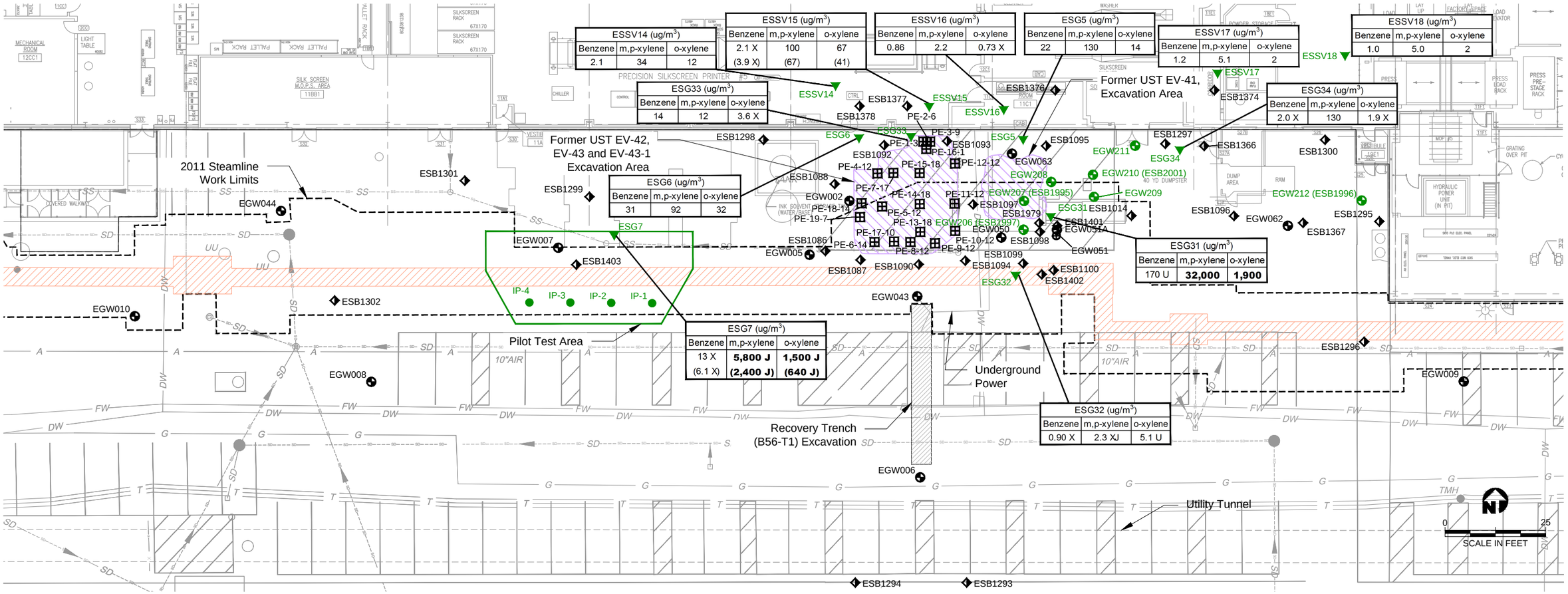
FEASIBILITY STUDY REPORT

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 2\Fig 2-10b (Bldg 40-56 SWMUs 86,89,94 GW).dwg
Mod: 11/11/2015, 10:20 | Plotted: 11/11/2015, 10:24 | JOHN_KNOBBS



Legend

- Historical Soil Boring
- Historical Monitoring Well
- Abandoned Groundwater Monitoring Well
- Historical Excavation Sample
- FS Soil Gas or Sub-slab Vapor Sample
- FS Injection Boring
- FS Monitoring Well
- Recovery Trench
- Former UST Excavation
- Redundant Steam Line Utility Upgrade Excavation
- Sawcut of Pavement and Approximate Limits of Excavation for the 2011 Steamline Replacement

Notes:

1. Data boxes depict concentrations for select contaminants of concern. Bold values exceed the proposed screening level (see Section 5).
2. EGW050 replaced EGW004.
3. Wells shown within the 2011 work limits were not abandoned, except for EGW051, which was replaced by EGW051A.

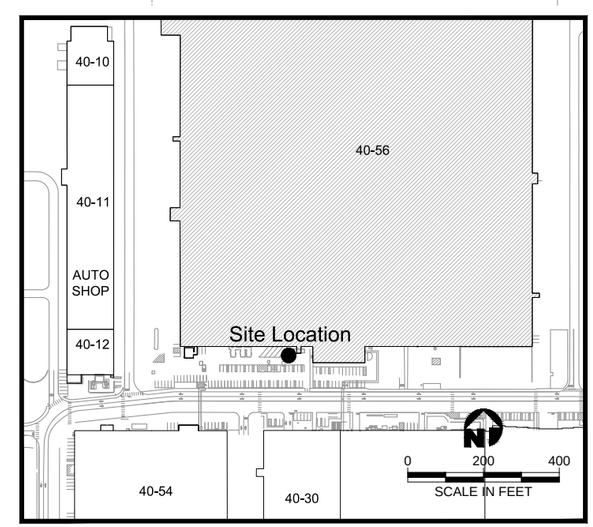
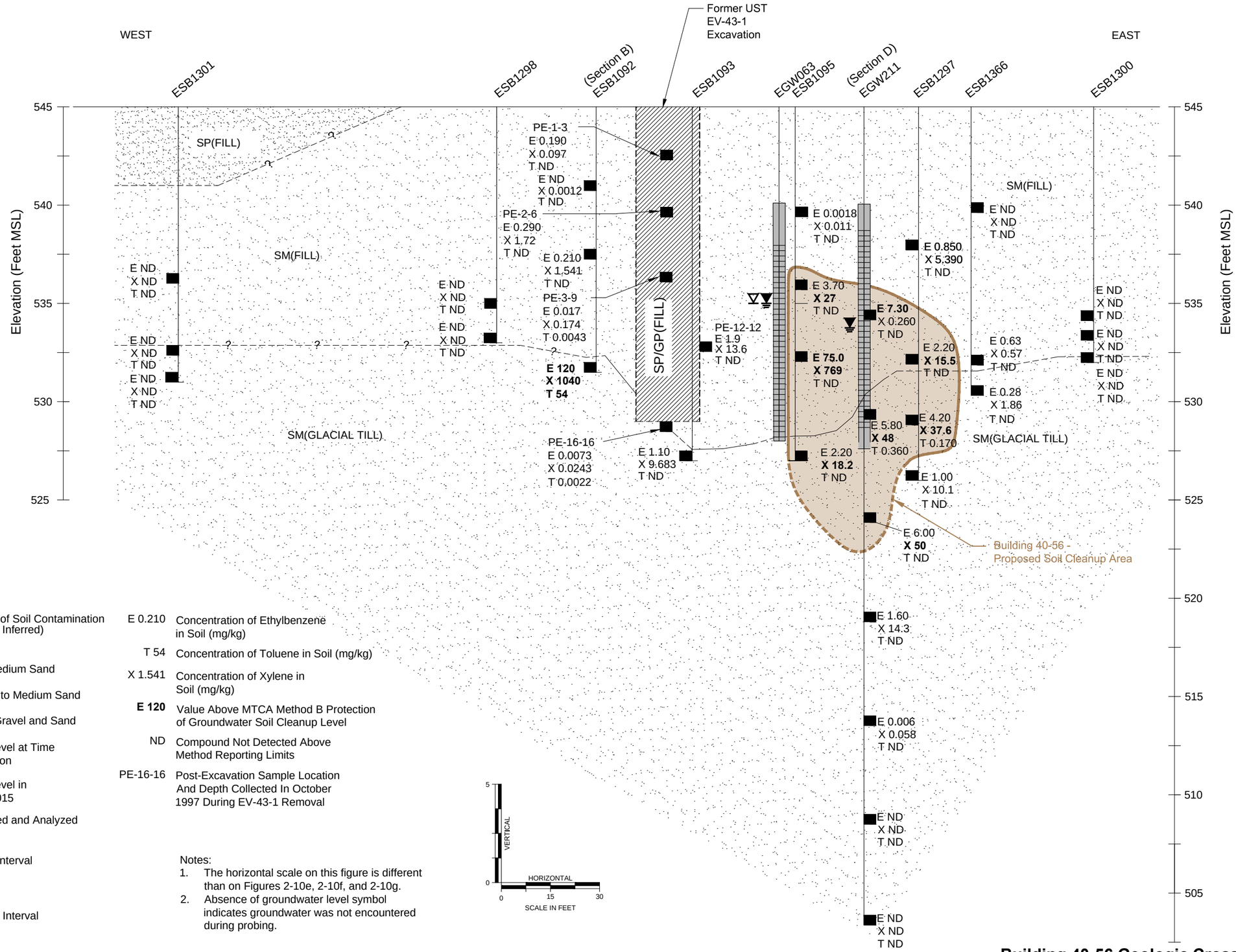


Figure 2-10c

Building 40-56 Former USTs (SWMUs/AOCs No. 086, No. 089, and No. 094) Sample Locations and Selected Soil Vapor Results



Legend:

EGW010	Monitoring Well
ESB1302	Soil Borings
	Estimated Area of Soil Contamination (Dashed Where Inferred)
	SP = Fine to Medium Sand
	SM = Silty Fine to Medium Sand
	SP/GP = Fine Gravel and Sand
	Groundwater Level at Time of Well Installation
	Groundwater Level in Wells in April 2015
	Sample Collected and Analyzed
	Well Screened Interval
	Well Sand Pack Interval

E 0.210	Concentration of Ethylbenzene in Soil (mg/kg)
T 54	Concentration of Toluene in Soil (mg/kg)
X 1.541	Concentration of Xylene in Soil (mg/kg)
E 120	Value Above MTCA Method B Protection of Groundwater Soil Cleanup Level
ND	Compound Not Detected Above Method Reporting Limits
PE-16-16	Post-Excavation Sample Location And Depth Collected In October 1997 During EV-43-1 Removal

Notes:
1. The horizontal scale on this figure is different than on Figures 2-10e, 2-10f, and 2-10g.
2. Absence of groundwater level symbol indicates groundwater was not encountered during probing.

Figure 2-10d

Building 40-56 Geologic Cross Section A

AECOM

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 2\Fig 2-10d (Bldg 40-56 Cross Section A).dwg
Mod: 10/09/2015, 14:45 | Plotted: 10/09/2015, 14:45 | JOHN_KNOBBS

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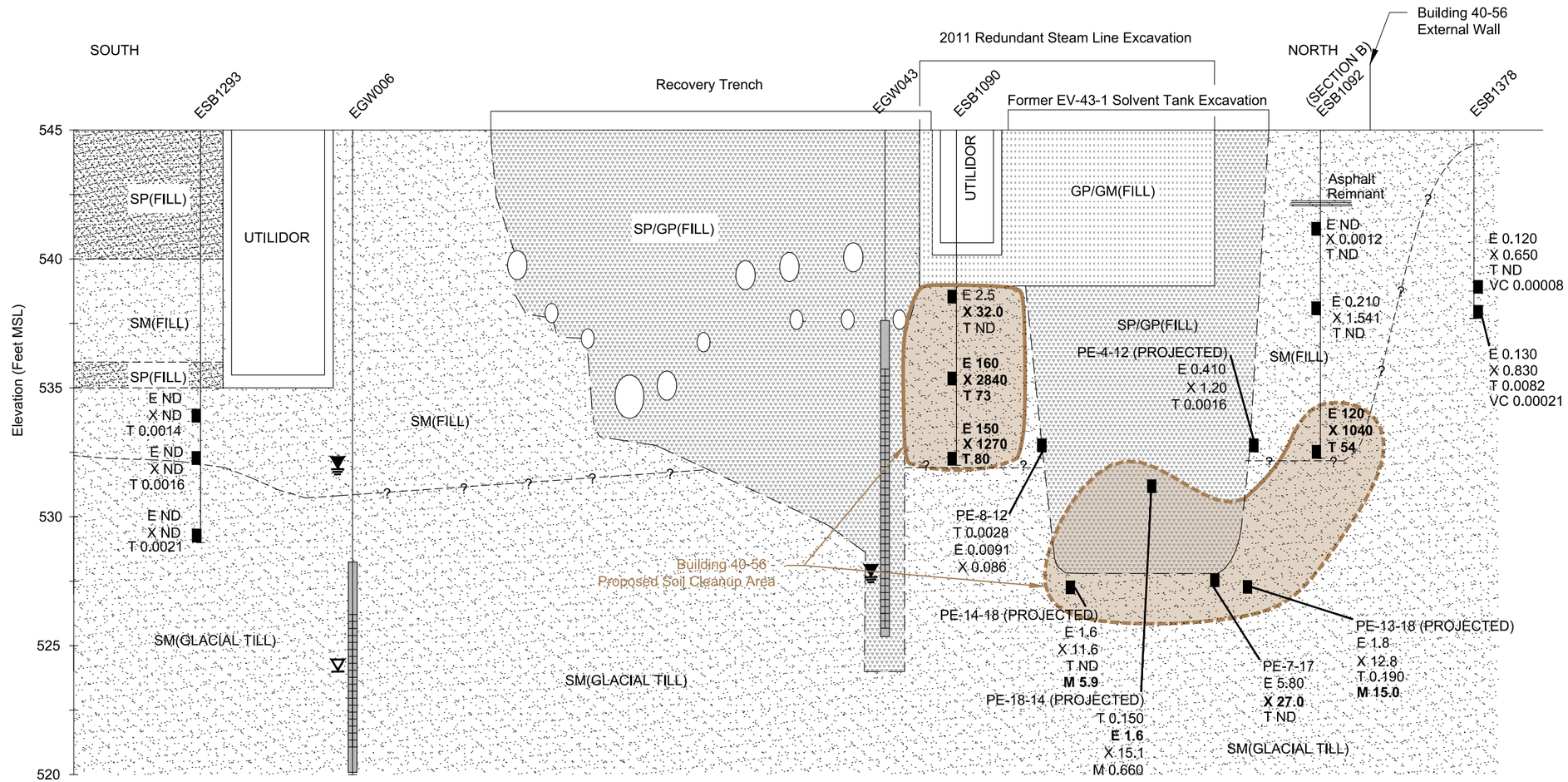
FEASIBILITY STUDY REPORT



Legend

EGW010	Monitoring Well
ESB1302	Soil Borings
	Estimated Area of Soil Contamination (Dashed Where Inferred)
	SP = Fine to Medium Sand
	SM = Silty Fine to Medium Sand
	SP/GP = Fine Gravel and Sand
	SP/GP = Silty/Sandy Gravel
	Utility Pipe
	Well Screened Interval
	Well Sand Pack Interval
	Groundwater Level at Time of Well Installation
	Groundwater Level in Wells in April 2015
	Sample Collected and Analyzed
E 0.210	Concentration of Ethylbenzene in Soil (mg/kg)
T 3.6	Concentration of Toluene in Soil (mg/kg)
X 1.541	Concentration of Xylene in Soil (mg/kg)
VC 0.00021	Concentration of Vinyl Chloride in Soil (mg/kg). Data only included where detected
M 5.9	Concentration of MIBK in Soil (mg/kg). Data only included where detected.
E 1400 **X 10300** **M 5.9**	Value Above MTCA Method B Protection of Groundwater Soil Cleanup Level
ND	Compound Not Detected Above Method Reporting Limits
PE-7-17	Post-Excavation Sample Location And Depth Collected In October 1997 During EV-43-1 Removal

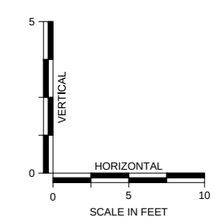


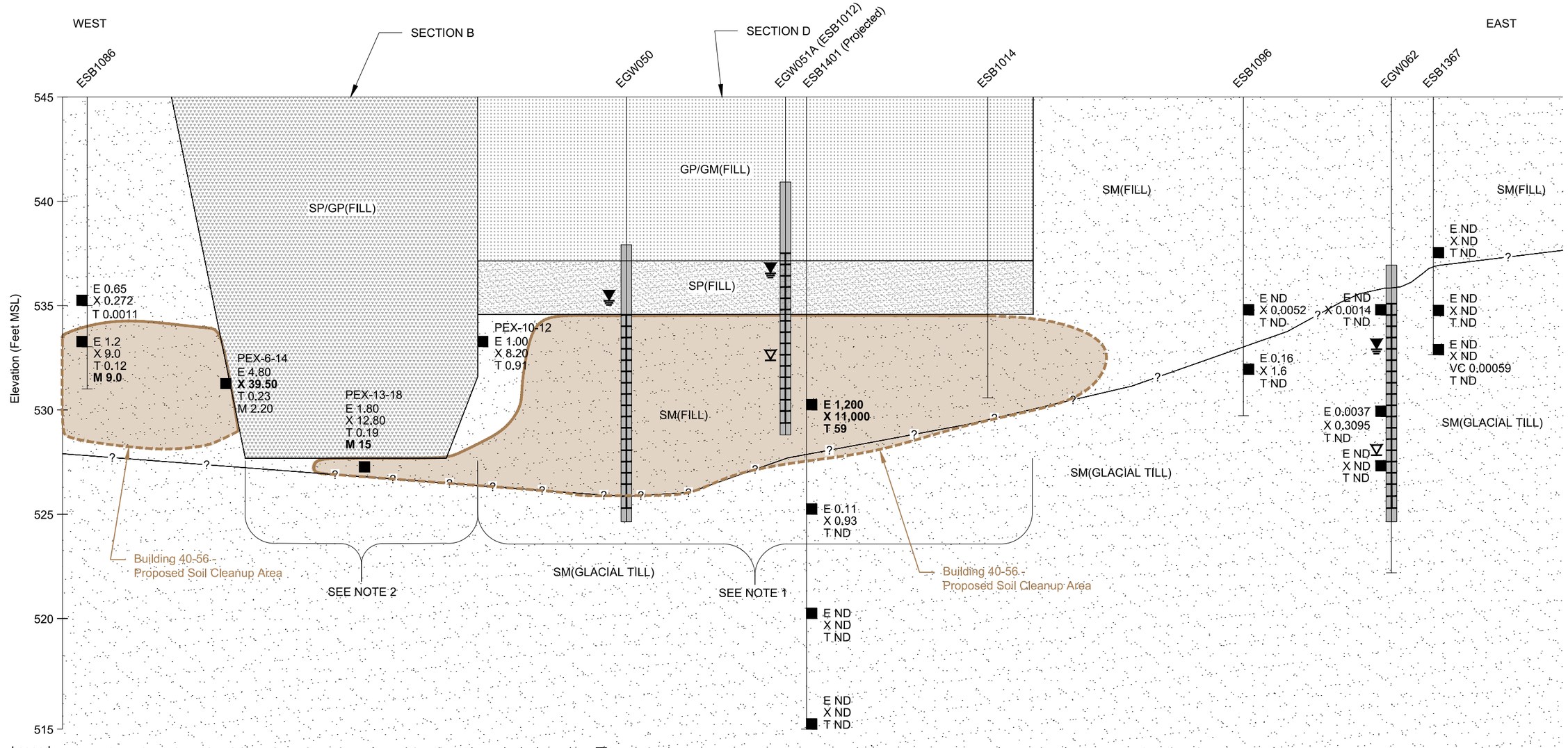
Figure 2-10e

Building 40-56 Geologic Cross Section B

AECOM

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 2\Fig 2-10e (Bldg 40-56 Cross Section B).dwg
Mod: 10/09/2015, 09:56 | Plotted: 10/09/2015, 09:56 | JOHN_KNOBBS

Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend

EGW010	Monitoring Well
ESB1302	Soil Borings
	Estimated Area of Soil Contamination (Dashed Where Inferred)
	SP = Fine to Medium Sand
	SM = Silty Fine to Medium Sand
	SP/GP = Fine Gravel and Sand
	GP/GM = Silty/Sandy Gravel
	Groundwater Level at Time of Well Installation
	Groundwater Level in Wells in April 2015
	Sample Collected and Analyzed

E 2.7	Concentration of Ethylbenzene in Soil (mg/kg).
T 0.44	Concentration of Toluene in Soil (mg/kg).
X 1.6	Concentration of Xylene in Soil (mg/kg)
VC 0.59	Concentration of Vinyl Chloride in Soil (mg/kg). Vinyl Chloride Data Only Included Where Detected.
M 5.9	Concentration of MIBK in Soil (mg/kg). Data only included where detected.
E 8.2 **X 126** **M 5.9**	Value Above MTCA Method B Protection of Groundwater Soil Cleanup Level
ND	Compound Not Detected Above Method Reporting Limit

Well Screened Interval

Well Sand Pack Interval

Notes:
1. Fill in this area was placed as part of redundant steam line construction in 2011. Depth and type of fill interpreted from log of replacement well EGW051A. Extent of fill based on steam line construction plans.
2. Fill in this area was placed as part of UST EV-43-1 and soil removal interim action in 1998.
3. Soil samples were not collected at ESB1014

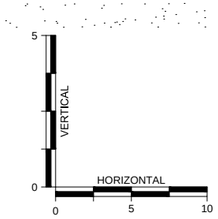


Figure 2-10f
Building 40-56 Geologic Cross Section C

Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT

AECOM

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 2\Fig 2-10f (Bldg 40-56 Cross Section C).dwg
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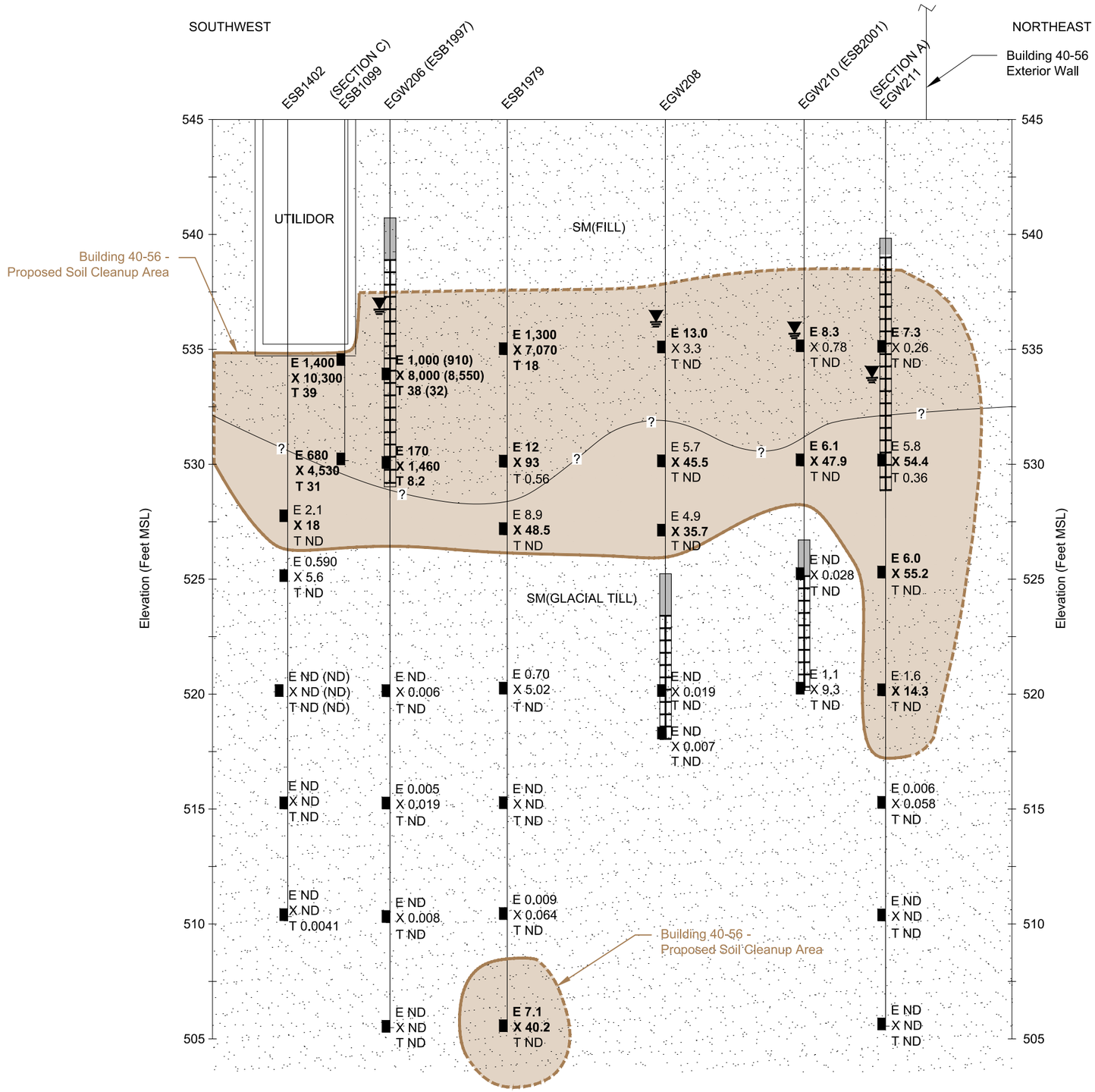


Legend

EGW010	Monitoring Well	Well Screened Interval
ESB1302	Soil Borings	Well Sand Pack Interval
	Estimated Area of Soil Contamination (Dashed Where Inferred)	
	SM = Silty Fine to Medium Sand	
	Groundwater Level at Time of Well Installation	
	Groundwater Level in Wells in April 2015	
	Sample Collected and Analyzed	
E 0.210	Concentration of Ethylbenzene in Soil (mg/kg)	
T 3.6	Concentration of Toluene in Soil (mg/kg)	
X 1.541	Concentration of Xylene in Soil (mg/kg)	
E 1400 X 10300	Value Above MTCA Method B Protection of Groundwater Soil Cleanup Level	
ND	Compound Not Detected Above Method Reporting Limits	
(910)	Duplicate Sample Concentration (mg/kg)	

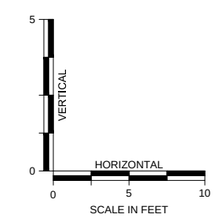
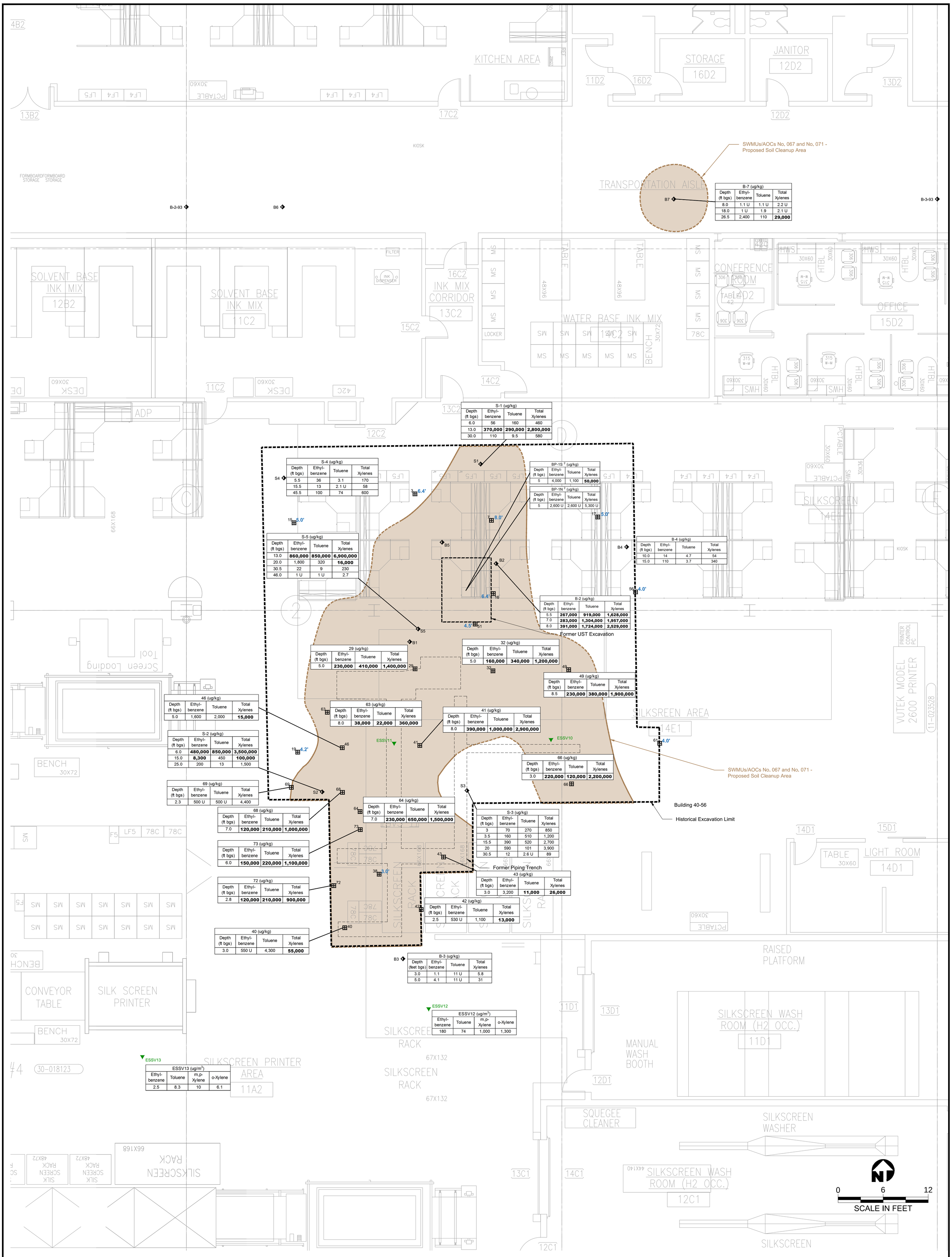


Figure 2-10g
Building 40-56 Geologic Cross Section D

AECOM

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 2\Fig 2-10g (Bldg 40-56 Cross Section D).dwg
Mod: 10/09/2015, 10:10 | Plotted: 10/09/2015, 10:10 | JOHN_KNOBBS

Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Notes:

1. Data boxes depict concentrations for select contaminants of concern. Bold values exceed the proposed cleanup level or screening level (see Section 5).
2. Data boxes are shown only at locations with contaminant of concern exceedances. Other locations do not have exceedances.
3. Samples from ESSV10 and ESSV11 not analyzed due to CDF backfill at sampling location resulting in unrepresentative samples.
4. GeoEngineers 1992 report does not identify exact locations for BP-1S and BP-1N. Samples were collected from the base of the UST removal excavation.
5. GeoEngineers samples from historical excavation are shown if analyzed. Data boxes only indicate locations with exceedances, all others are non-detect.
6. Summary of historical soil borings:
   - S# and B# (GeoEngineers 1992)
   - B-#-93 (Dames & Moore 1993)

5. B-4-93 is not shown on this figure. The boring is located east of B-3-93 in line with column J and TEX concentrations were not detected. (Dames & Moore 1994)

Legend

- Historical Soil Boring
- Historical Excavation Sample
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- 3.0' Sample Depth of Non-Detect Confirmation Sample Location

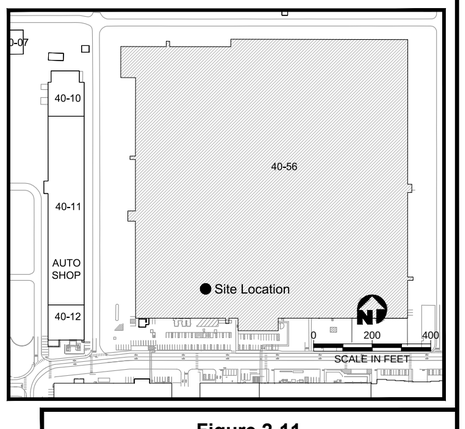


Figure 2-11
Building 40-56, Former Recycling Unit and UST (SWMUs/AOCs No. 067 and No. 071) Sample Locations and Selected Results

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FEASIBILITY STUDY REPORT

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 2\Fig 2-11 (40-56 SWMU 67-71).dwg
Mod: 10/12/2015, 14:23 | Plotted: 10/12/2015, 14:23 | JOHN_KNOBBS

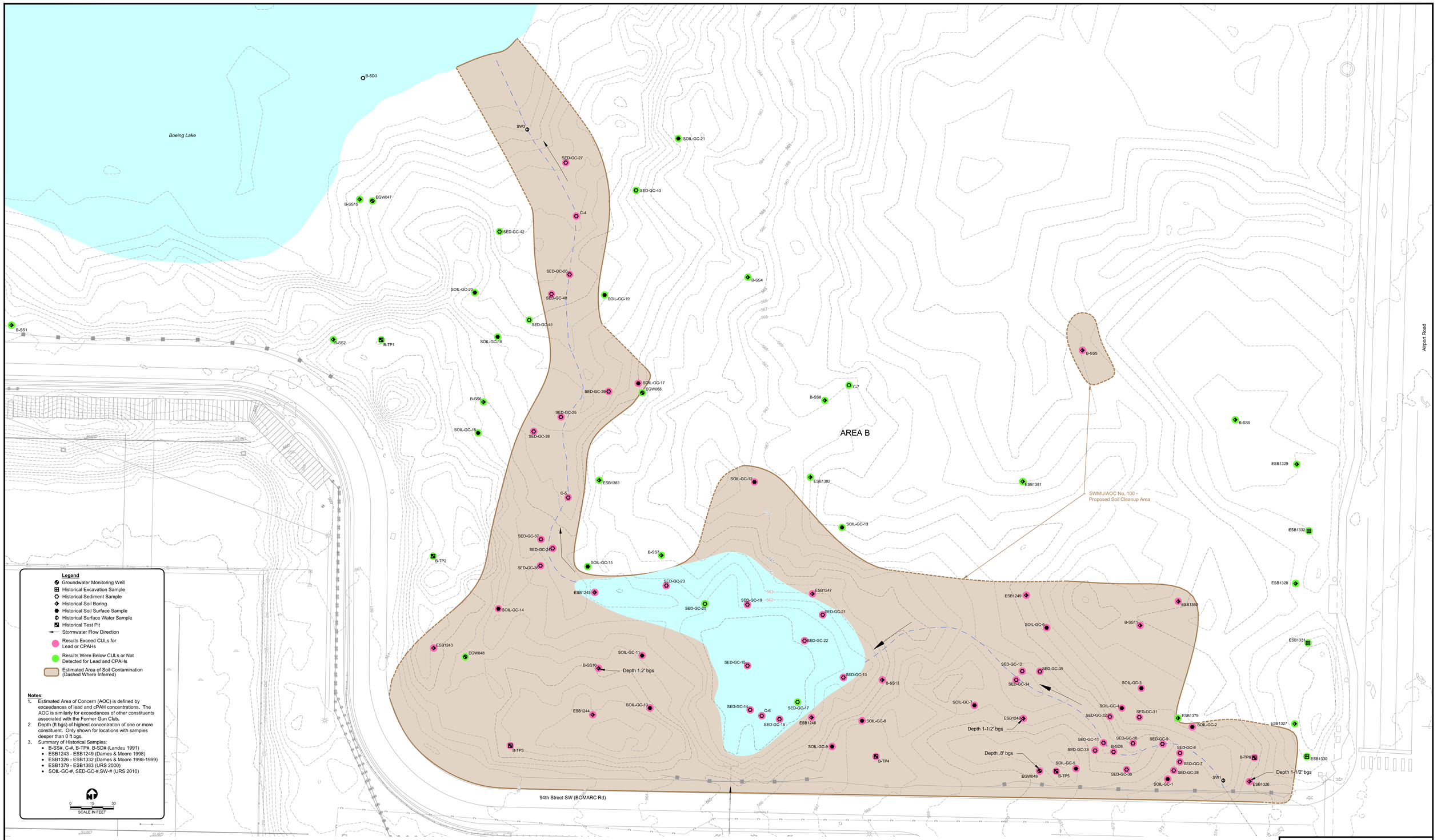

Figure 2-12a
Former Gun Club (SWMU/AOC No. 100)
Soil and Sediment Sample Locations and Selected Results

AECOM

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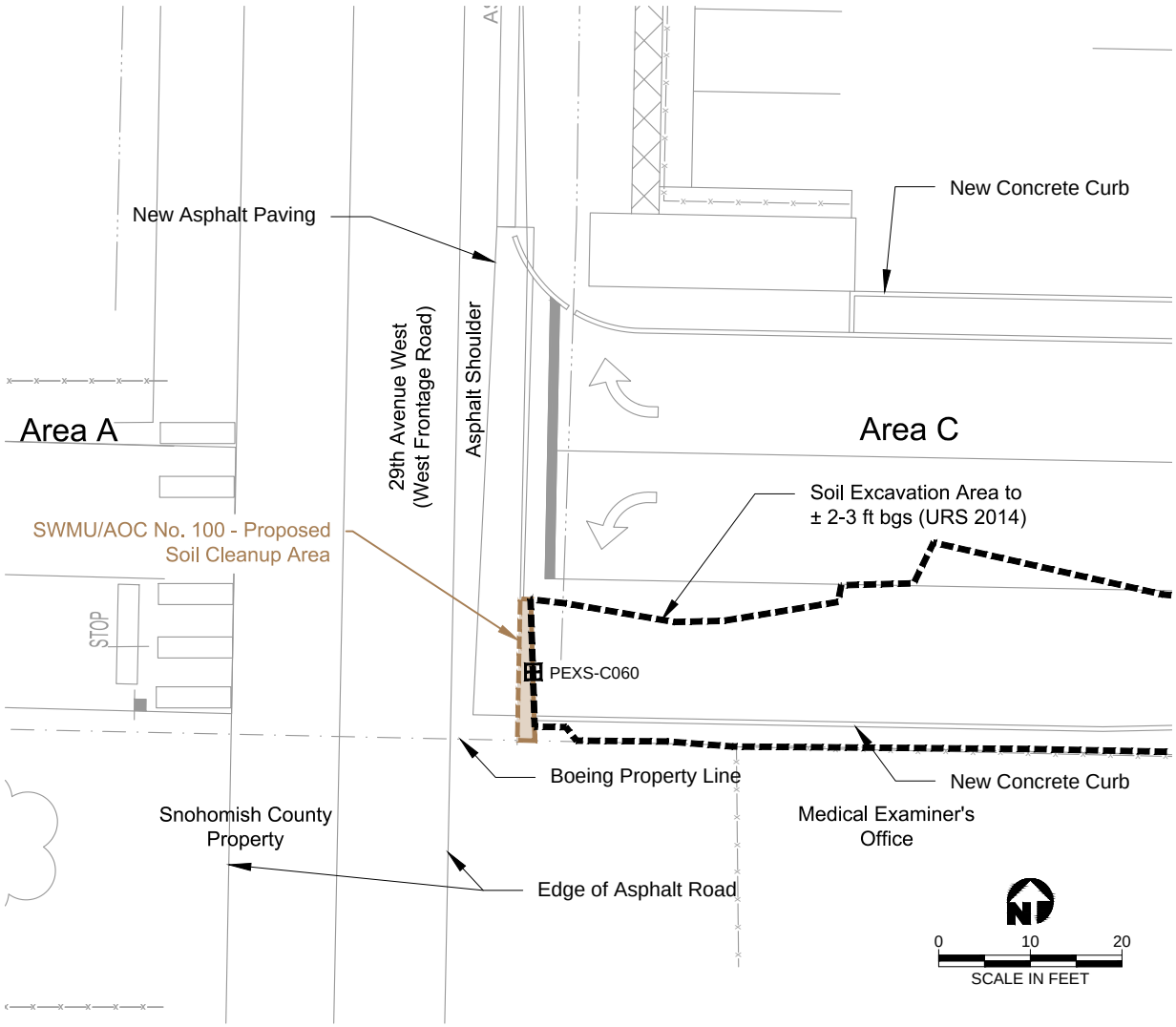
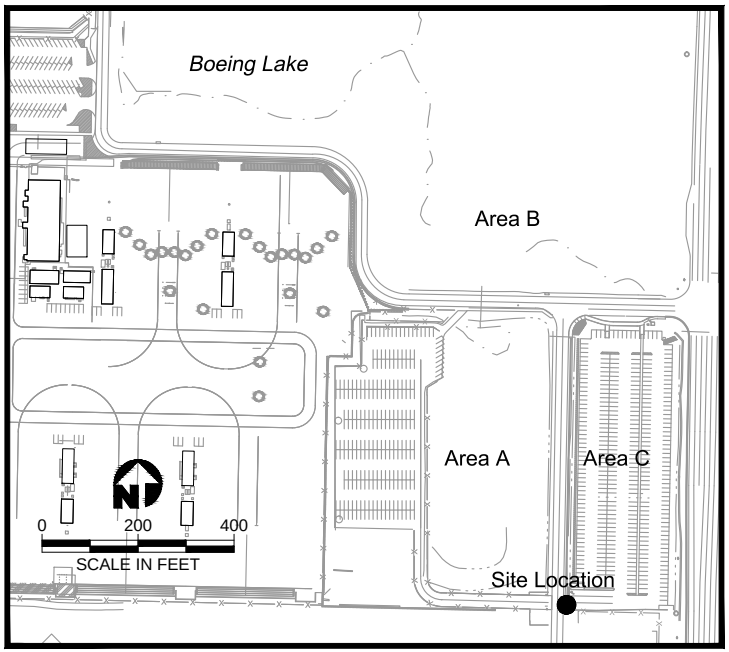
Everett Plant
FEASIBILITY STUDY REPORT

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Updated\FS Report\Section 2\Fig 2-12a (Form Gun SWMU 100 Sed-Soil).dwg
Mod: 10/27/2015, 12:13 | Plotted: 10/27/2015, 13:51 | powelb





Legend

- Historical Excavation Sample (URS 2014)
- Edge of Former Excavation (2014)
- Estimated Area of Soil Contamination (Dashed Where Inferred)

PEXS-C060		
Depth (ft bgs)	cPAH (ug/kg)	Lead (mg/kg)
1	**254**	17

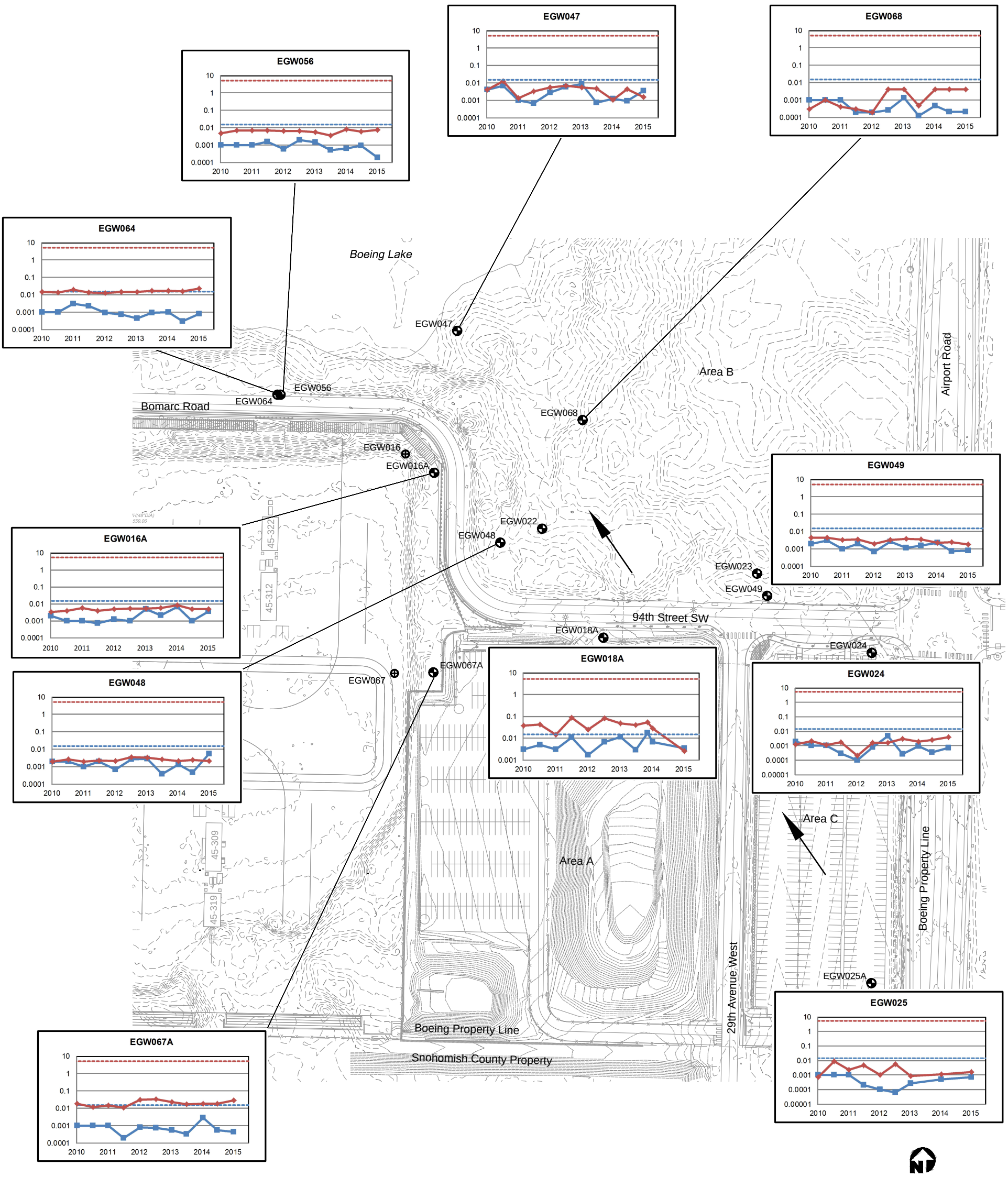
Note:
Data box depicts concentrations for select contaminants of concern. Bold values exceed the proposed cleanup level (see Section 5).

Figure 2-12b
Area C, Former Gun Club (SWMU/AOC No. 100)
Soil Sample Locations and Selected Results

AECOM

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 2\Fig 2-12b (Area C SWMU 100).dwg
Mod: 10/09/2015, 13:56 | Plotted: 10/12/2015, 14:30 | JOHN_KNOBBS

Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend:

- Groundwater Monitoring Well
- Abandoned Groundwater Monitoring Well
- Perched Groundwater Flow Direction
- Total Lead (mg/L)
- Total Arsenic (mg/L)
- Total Lead CUL
- Total Arsenic CUL

Notes:

1. Area A and Area C topography pre-dates completion of the Area A Flightline Expansion and Soil Cleanup completed in 2008, and the Interim Action Sediment and Soil Removal completed in 2014.
2. EGW018 and EGW025 were abandoned in July 2014 and reinstalled as EGW018A and EGW025A in December 2014. New locations shown.

Figure 2-12c

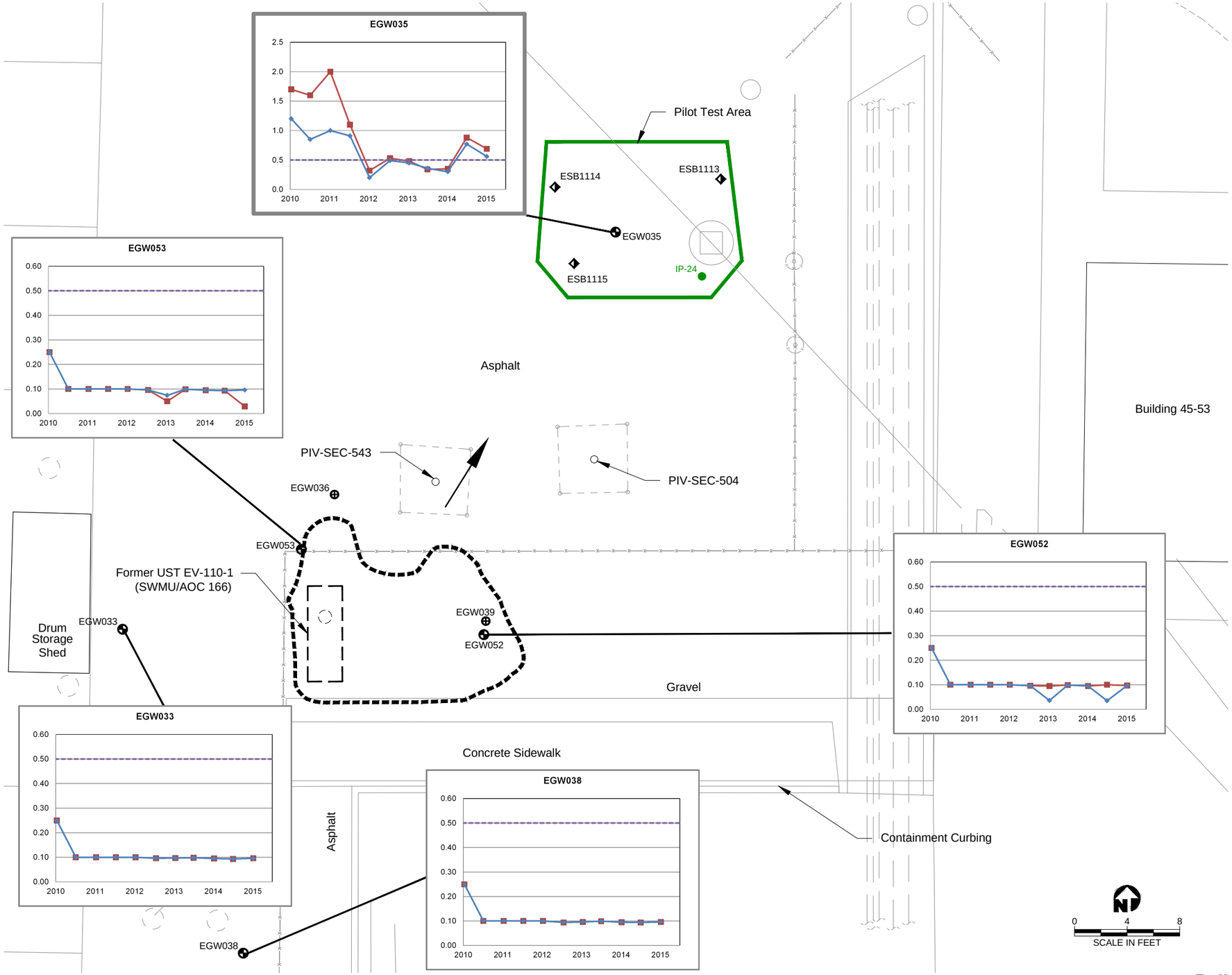
Former Gun Club (SWMU/AOC No. 100)

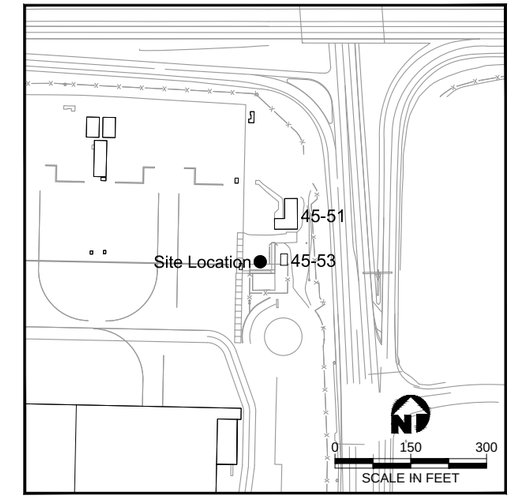
Monitoring Well Locations and Selected Perched Groundwater Results

AECOM

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 2\Fig 2-12c (Frmr Gun Club SWMU100).dwg
Mod: 10/12/2015, 14:45 | Plotted: 10/12/2015, 14:48 | JOHN_KNOBBS

Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT





Legend:

- Groundwater Monitoring Well
- Abandoned Groundwater Monitoring Well (Abandoned February 1997)
- Historical Soil Boring
- FS Injection Boring
- Chain Link Fence
- STS — Storm Drain
- Abandoned Subsurface Gravity Feed Drain
- Edge of Former Excavation
- Perched Groundwater Flow Direction
- TPH (Jet A) (mg/L)
- TPH (Diesel) (mg/L)
- TPH CUL (mg/L)

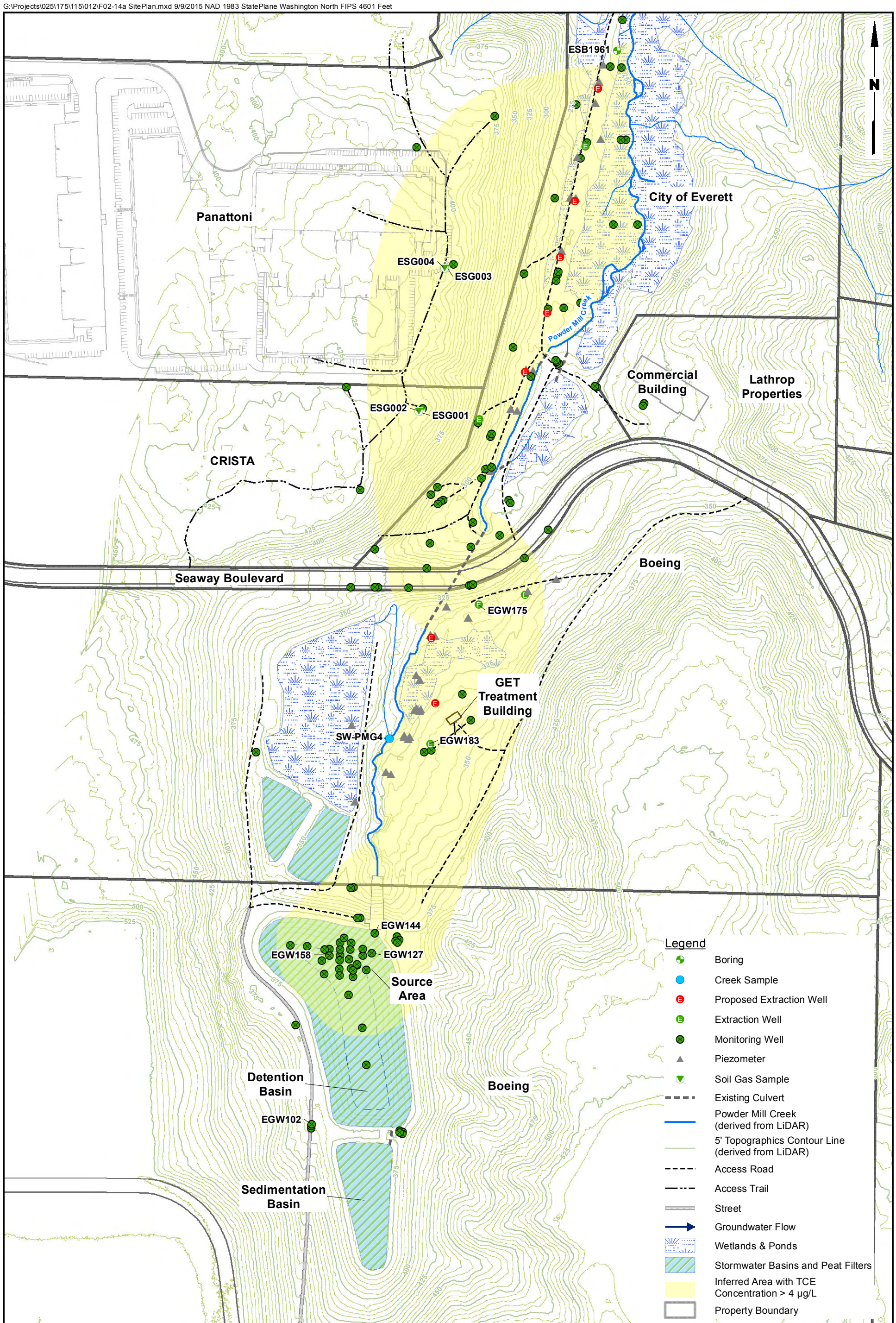
Notes:

1. The higher value is shown for samples with a duplicate.
2. TPH and BTEX all non-detect in soil samples at ESB1113, ESB1114, and ESB1115.
3. Contaminated perched groundwater extends from approximately 6 feet bgs to 10 feet bgs.

Figure 2-13

Building 45-53, UST EV-110-1 (SWMU/AOC No. 166)
Sample Locations and Selected Results

G:\Projects\025\175\115\012\F02-14a SitePlan.mxd 9/9/2015 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Base Map Sources: URS 2005; City of Everett 2005
LiDAR Data Source: URS 2005 (Data Collected November 2005)

0 250 500
Scale in Feet

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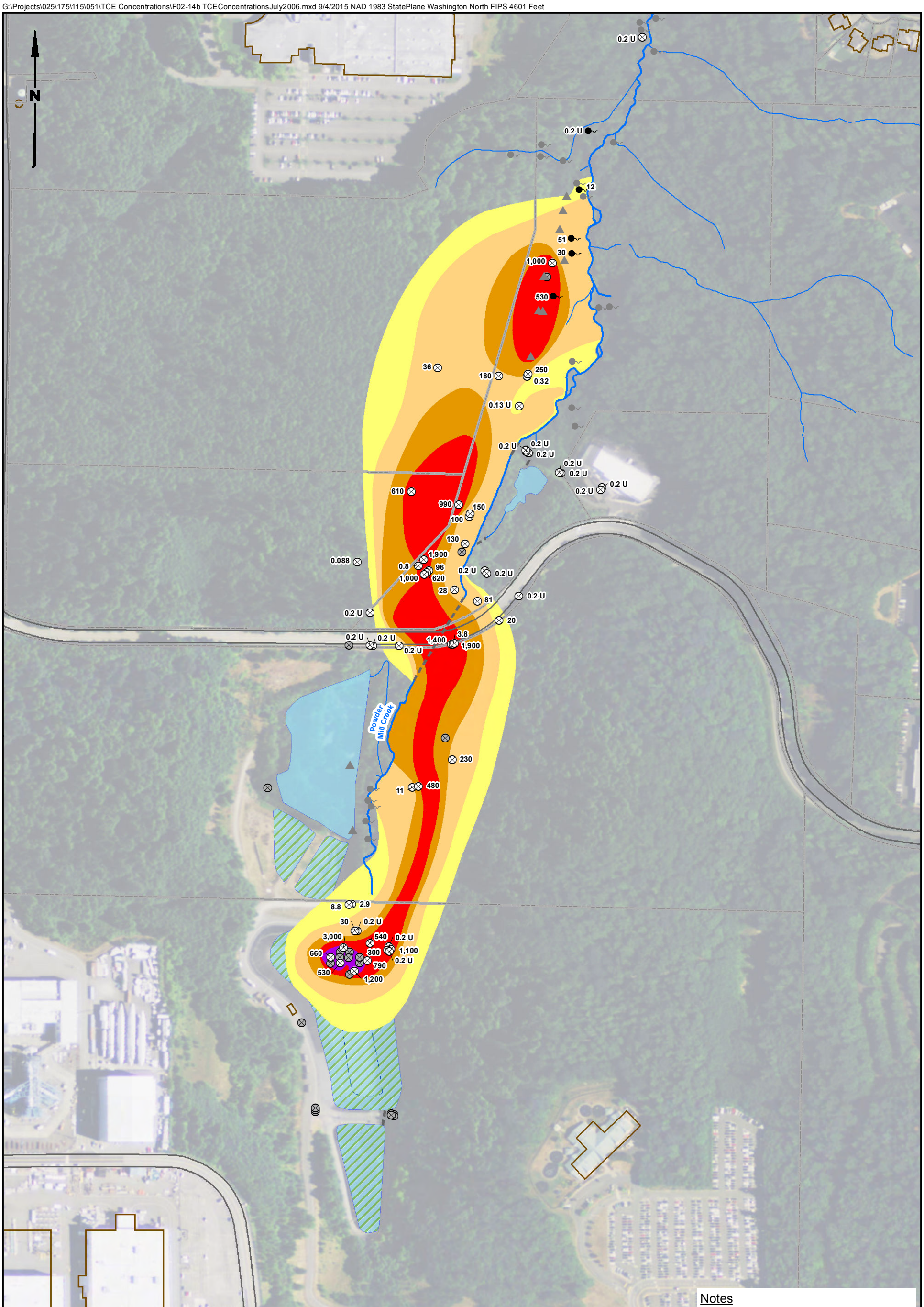
Boeing Commercial Airplanes
Everett, Washington

Powder Mill Gulch SWMU Site Plan

Figure
2-14a

G:\Projects\025\175\115\051\TCE Concentrations\F02-14b TCEConcentrationsJuly2006.mxd 9/4/2015 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

Samples Collected in July 2006
- Monitoring Well
- Piezometer
- Seep

Other Monitoring Locations
- Monitoring Well
- Piezometer
- Seep

- 4 ≤ TCE <25 µg/L
- 25 ≤ TCE <250 µg/L
- 250 ≤ TCE <500 µg/L
- 500 ≤ TCE <2,500 µg/L
- TCE ≥ 2,500 µg/L

0 300 600
Scale in Feet

Data Sources: Esri World Imagery.

Notes

1. Source area well data shown from July 2006 (prior to commencing ERH). Downgradient well data shown is the earliest available from July 2006 to July 2008.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

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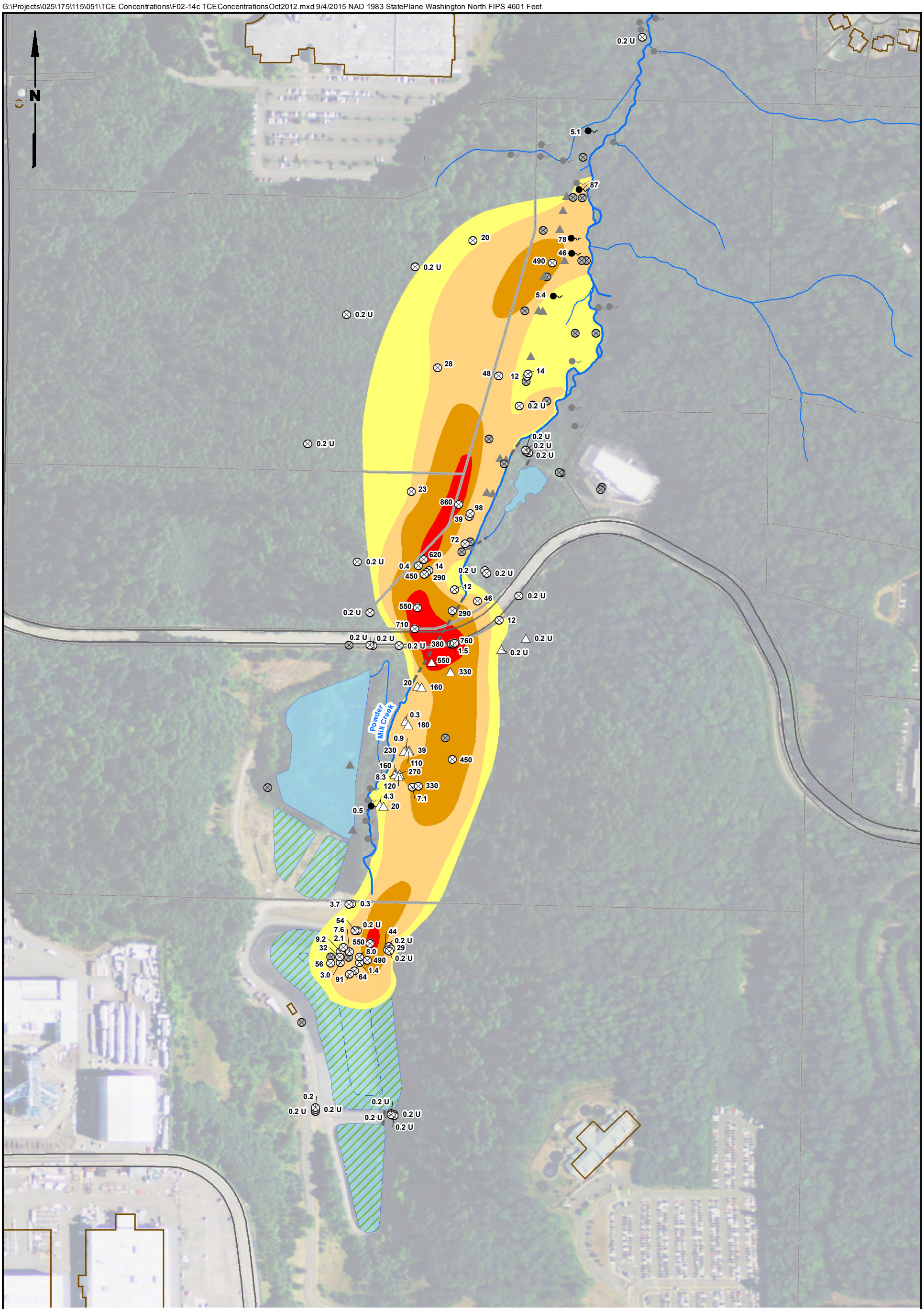
Boeing Commercial Airplanes
Everett, Washington

TCE Concentrations
July 2006 - July 2008

Figure
2-14b

G:\Projects\025\175\115\051\TCE Concentrations\F02-14c TCEConcentrationsOct2012.mxd 9/4/2015 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Data Sources: Esri World Imagery.

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

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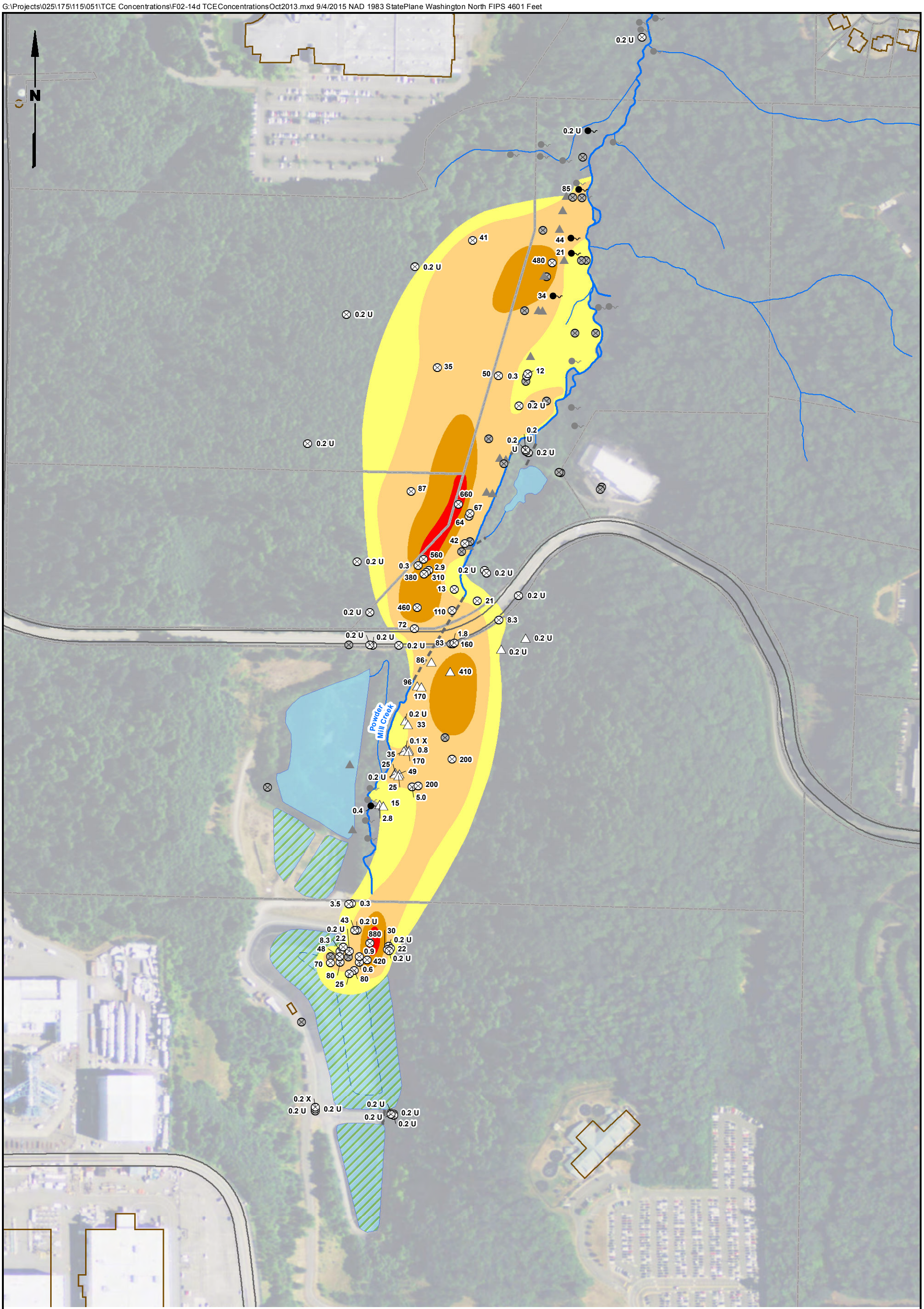
Boeing Commercial Airplanes Everett, Washington	**TCE Concentrations October 2012**	Figure 2-14c

G:\Projects\025\175\115\051\TCE Concentrations\F02-14d TCEConcentrationsOct2013.mxd 9/4/2015 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

Samples Collected in October 2013
- Monitoring Well
- Piezometer
- Seep

Other Monitoring Locations
- Monitoring Well
- Piezometer
- Seep

- 4 ≤ TCE <25 µg/L
- 25 ≤ TCE <250 µg/L
- 250 ≤ TCE <500 µg/L
- 500 ≤ TCE <2,500 µg/L

0 300 600
Scale in Feet

Data Sources: Esri World Imagery.

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

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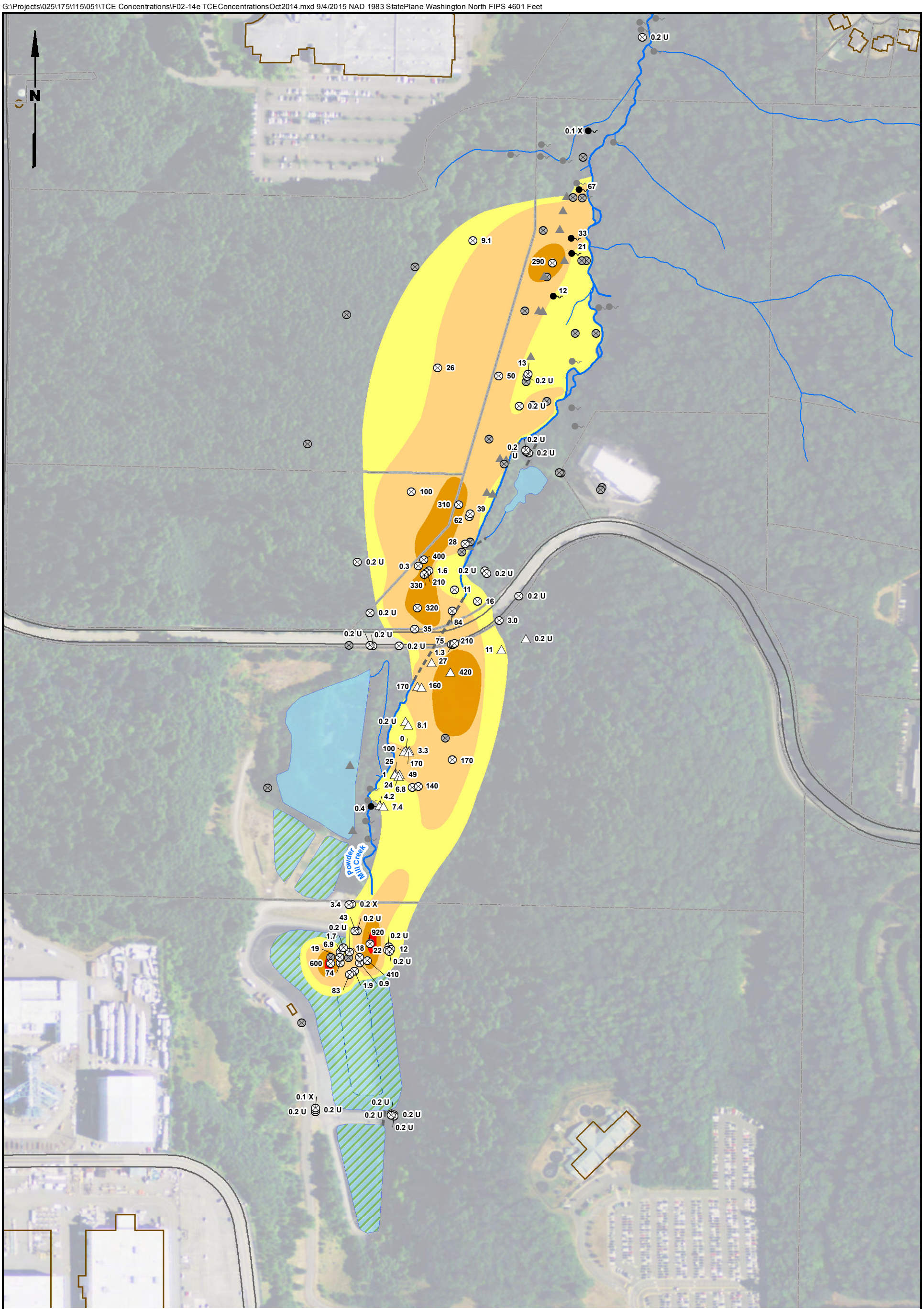
Boeing Commercial Airplanes
Everett, Washington

TCE Concentrations
October 2013

Figure
2-14d

G:\Projects\025\175\115\051\TCE Concentrations\F02-14e TCEConcentrationsOct2014.mxd 9/4/2015 NAD 1983 StatePlane Washington North FIPS 4601 Feet



Legend

Samples Collected in October 2014
- Monitoring Well
- Piezometer
- Seep

Other Monitoring Locations
- Monitoring Well
- Piezometer
- Seep

- 4 ≤ TCE <25 µg/L
- 25 ≤ TCE <250 µg/L
- 250 ≤ TCE <500 µg/L
- 500 ≤ TCE <2,500 µg/L

0 300 600
Scale in Feet

Data Sources: Esri World Imagery.

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

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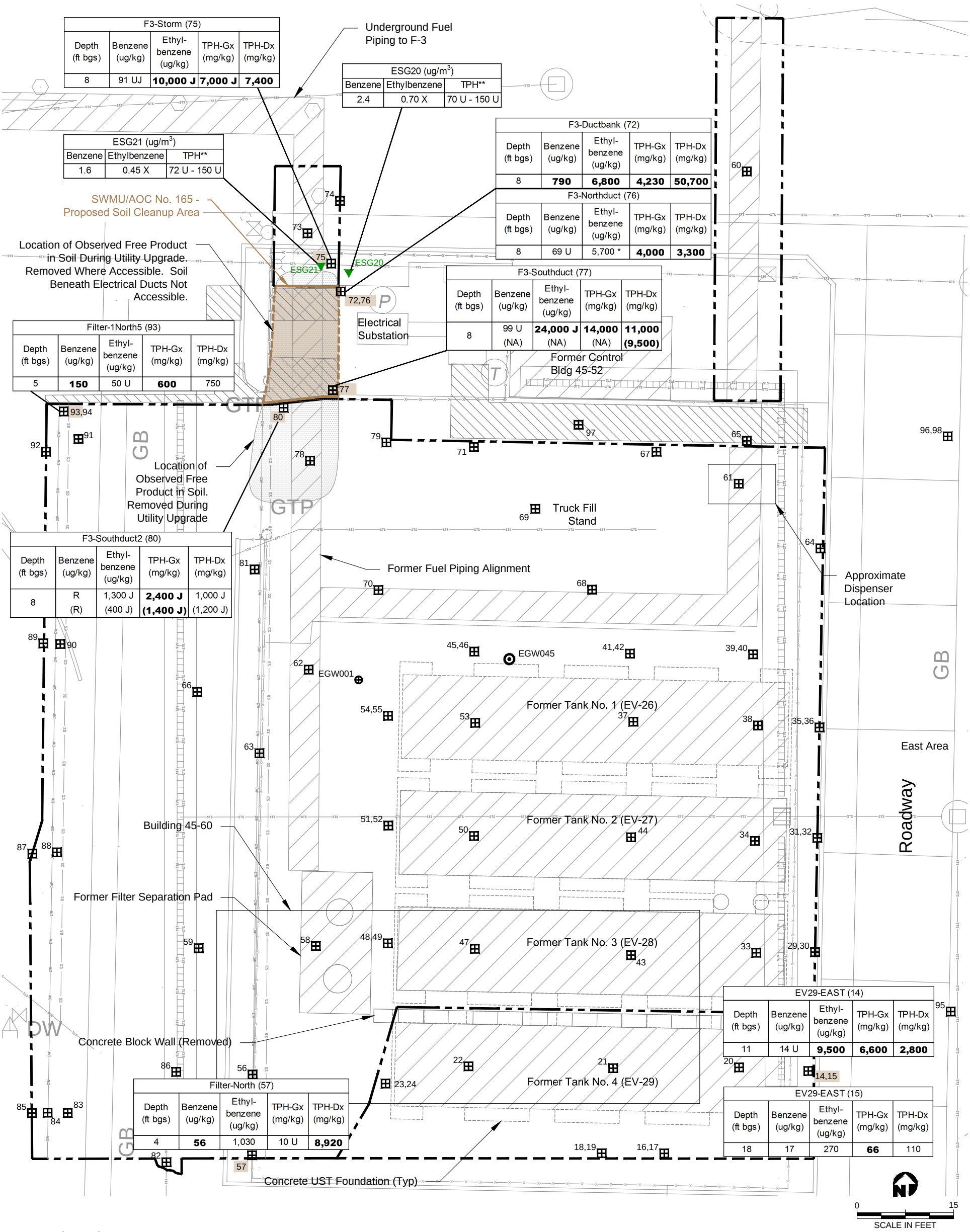
Boeing Commercial Airplanes
Everett, Washington

TCE Concentrations
October 2014

Figure
2-14e



F3-Storm (75)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	91 UJ	**10,000 J**	**7,000 J**	**7,400**

ESG20 (ug/m^3)		
Benzene	Ethylbenzene	TPH**
2.4	0.70 X	70 U - 150 U

ESG21 (ug/m^3)		
Benzene	Ethylbenzene	TPH**
1.6	0.45 X	72 U - 150 U

F3-Ductbank (72)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	**790**	**6,800**	**4,230**	**50,700**

F3-Northduct (76)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	69 U	5,700 *	**4,000**	**3,300**

F3-Southduct (77)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	99 U (NA)	**24,000 J** (NA)	**14,000** (NA)	**11,000 (9,500)**

Filter-1North5 (93)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
5	**150**	50 U	**600**	750

F3-Southduct2 (80)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	R (R)	1,300 J (400 J)	**2,400 J (1,400 J)**	1,000 J (1,200 J)

Filter-North (57)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	**56**	1,030	10 U	**8,920**

EV29-EAST (14)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
11	14 U	**9,500**	**6,600**	**2,800**

EV29-EAST (15)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
18	17	270	**66**	110

Legend

- Abandoned Groundwater Monitoring Well
- Abandoned Groundwater Recovery Well
- Historical Excavation Sample
- FS Soil Gas or Sub-Slab Vapor Sample
- * Sample Result Reported From TPH-VPH Analysis
- ** TPH Range from Hydrocarbons by Modified TO-15
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- 2008 Excavation Outline
- 2007 Excavation Outline
- SD Storm Drain Line
- DW Water Line
- Electrical Duct

Notes:

1. Data boxes depict concentrations for select contaminants of concern. Bold values exceed the proposed cleanup level or screening level (see Section 5).
2. Data boxes shown for locations with exceedances. All other locations are representative of current conditions and nondetect.
3. Tank No. 1, 2 & 3 removed November 2008. Tank No. 4 removed February 2007.
4. Concrete UST foundations were left in place during UST removals.
5. Highlighted areas and samples have petroleum constituent concentrations in soil exceeding MTCA Method A or B Soil Cleanup Levels.

Figure 2-15a

Building 45-52, Former Fuel Farm UST (SWMU/AOC No. 165) Sample Locations and Selected Results

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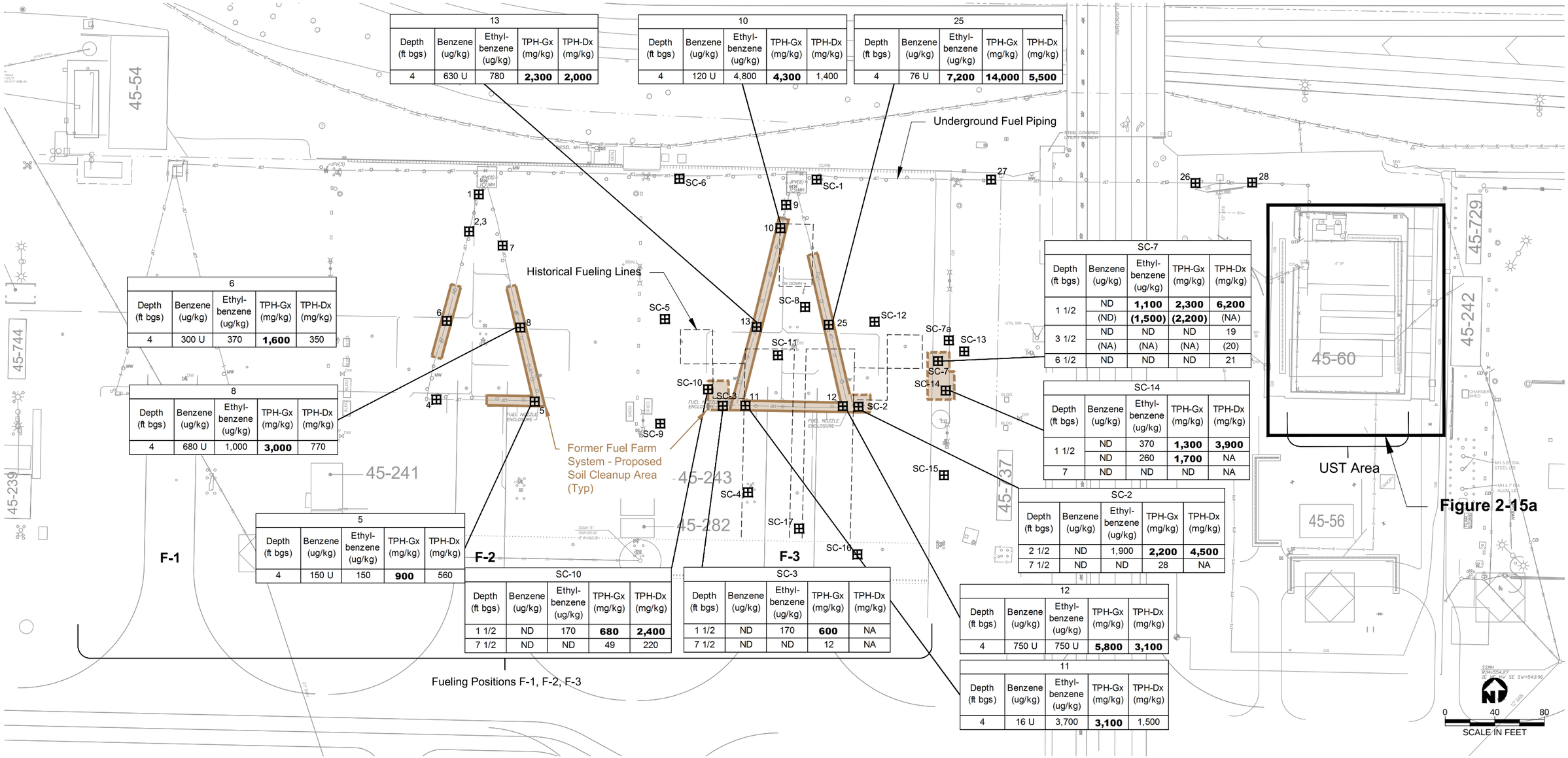
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



13				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	630 U	780	**2,300**	**2,000**

10				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	120 U	4,800	**4,300**	1,400

25				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	76 U	**7,200**	**14,000**	**5,500**

6				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	300 U	370	**1,600**	350

8				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	680 U	1,000	**3,000**	770

5				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	150 U	150	**900**	560

SC-10				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
1 1/2	ND	170	**680**	**2,400**
7 1/2	ND	ND	49	220

SC-3				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
1 1/2	ND	170	**600**	NA
7 1/2	ND	ND	12	NA

SC-7				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
1 1/2	ND	**1,100**	**2,300**	**6,200**
	(ND)	**(1,500)**	**(2,200)**	(NA)
3 1/2	ND	ND	ND	19
	(NA)	(NA)	(NA)	(20)
6 1/2	ND	ND	ND	21

SC-14				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
1 1/2	ND	370	**1,300**	**3,900**
	ND	260	**1,700**	NA
7	ND	ND	ND	NA

SC-2				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
2 1/2	ND	1,900	**2,200**	**4,500**
7 1/2	ND	ND	28	NA

12				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	750 U	750 U	**5,800**	**3,100**

11				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	16 U	3,700	**3,100**	1,500

Figure 2-15a

Legend

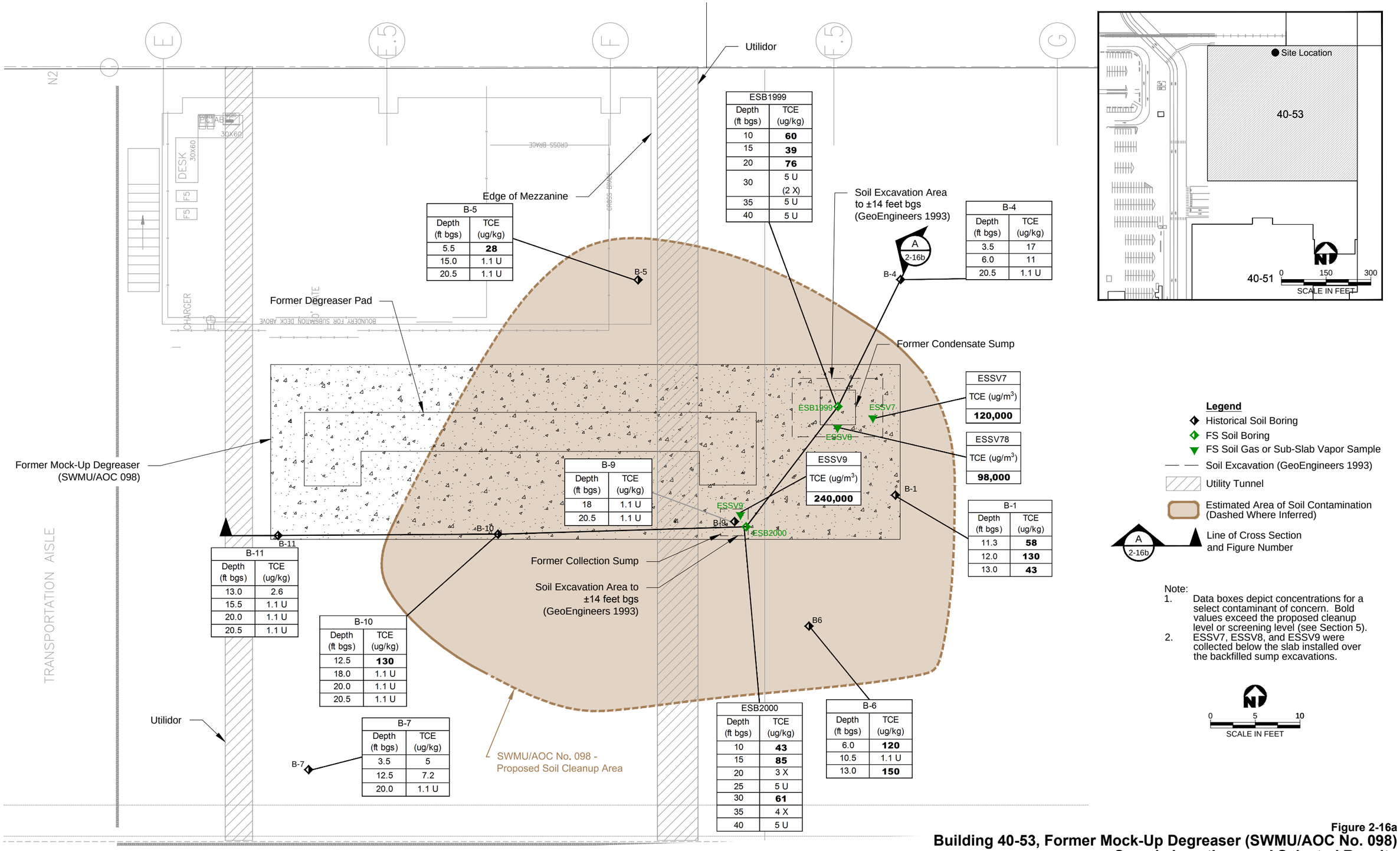
- ⊞ Historical Excavation Sample
- **F-1** Fueling Position
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- * Sample Result Reported From TPH-VPH Analysis

Note:

1. Data boxes depict concentrations for select contaminants of concern. Bold values exceed the proposed cleanup level (see Section 5).
2. Data boxes shown for locations with exceedances. All other locations are representative of current conditions and have soil concentraions below proposed FS CULs or are non-detect.

Figure 2-15b

Former Fuel Farm System Sample Locations and Selected Results



ESB1999	
Depth (ft bgs)	TCE (ug/kg)
10	**60**
15	**39**
20	**76**
30	5 U (2 X)
35	5 U
40	5 U

B-5	
Depth (ft bgs)	TCE (ug/kg)
5.5	**28**
15.0	1.1 U
20.5	1.1 U

B-4	
Depth (ft bgs)	TCE (ug/kg)
3.5	17
6.0	11
20.5	1.1 U

ESSV7
TCE (ug/m^3)
120,000

ESSV78
TCE (ug/m^3)
98,000

ESSV9
TCE (ug/m^3)
240,000

B-9	
Depth (ft bgs)	TCE (ug/kg)
18	1.1 U
20.5	1.1 U

B-1	
Depth (ft bgs)	TCE (ug/kg)
11.3	**58**
12.0	**130**
13.0	**43**

B-11	
Depth (ft bgs)	TCE (ug/kg)
13.0	2.6
15.5	1.1 U
20.0	1.1 U
20.5	1.1 U

B-10	
Depth (ft bgs)	TCE (ug/kg)
12.5	**130**
18.0	1.1 U
20.0	1.1 U
20.5	1.1 U

B-7	
Depth (ft bgs)	TCE (ug/kg)
3.5	5
12.5	7.2
20.0	1.1 U

ESB2000	
Depth (ft bgs)	TCE (ug/kg)
10	**43**
15	**85**
20	3 X
25	5 U
30	**61**
35	4 X
40	5 U

B-6	
Depth (ft bgs)	TCE (ug/kg)
6.0	**120**
10.5	1.1 U
13.0	**150**

Figure 2-16a

Building 40-53, Former Mock-Up Degreaser (SWMU/AOC No. 098) Sample Locations and Selected Results

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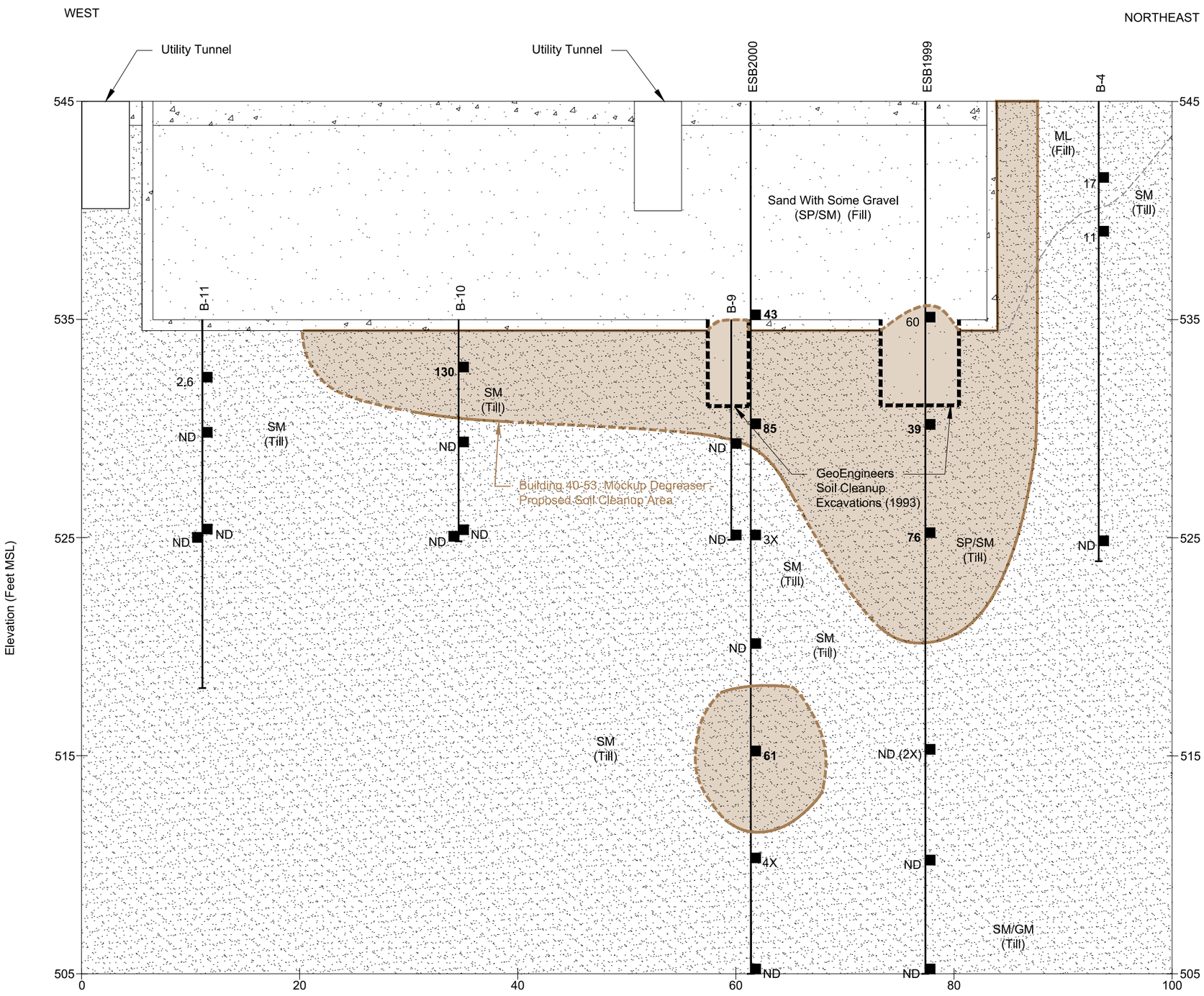
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend:

ESB1999	Soil Borings
	Estimated Area of Soil Contamination (Dashed Where Inferred)
	Edge of Former Excavation
	Concrete
	SM = Silty Fine to Medium Sand With Occasional Gravel and Cobbles
	ML = Silt With Sand
■	Sample Collected and Analyzed
2.6	Concentration of TCE in Soil (ug/kg)
130	Value Above MTCA Method B Protection of Groundwater Soil Cleanup Level
ND	Compound Not Detected Above Method Reporting Limits

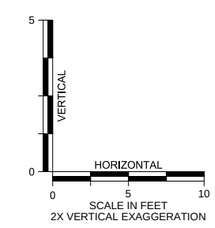


Figure 2-16b
Building 40-53 Mock-Up Degreaser (SWMU/AOC No. 098)
Cross Section A

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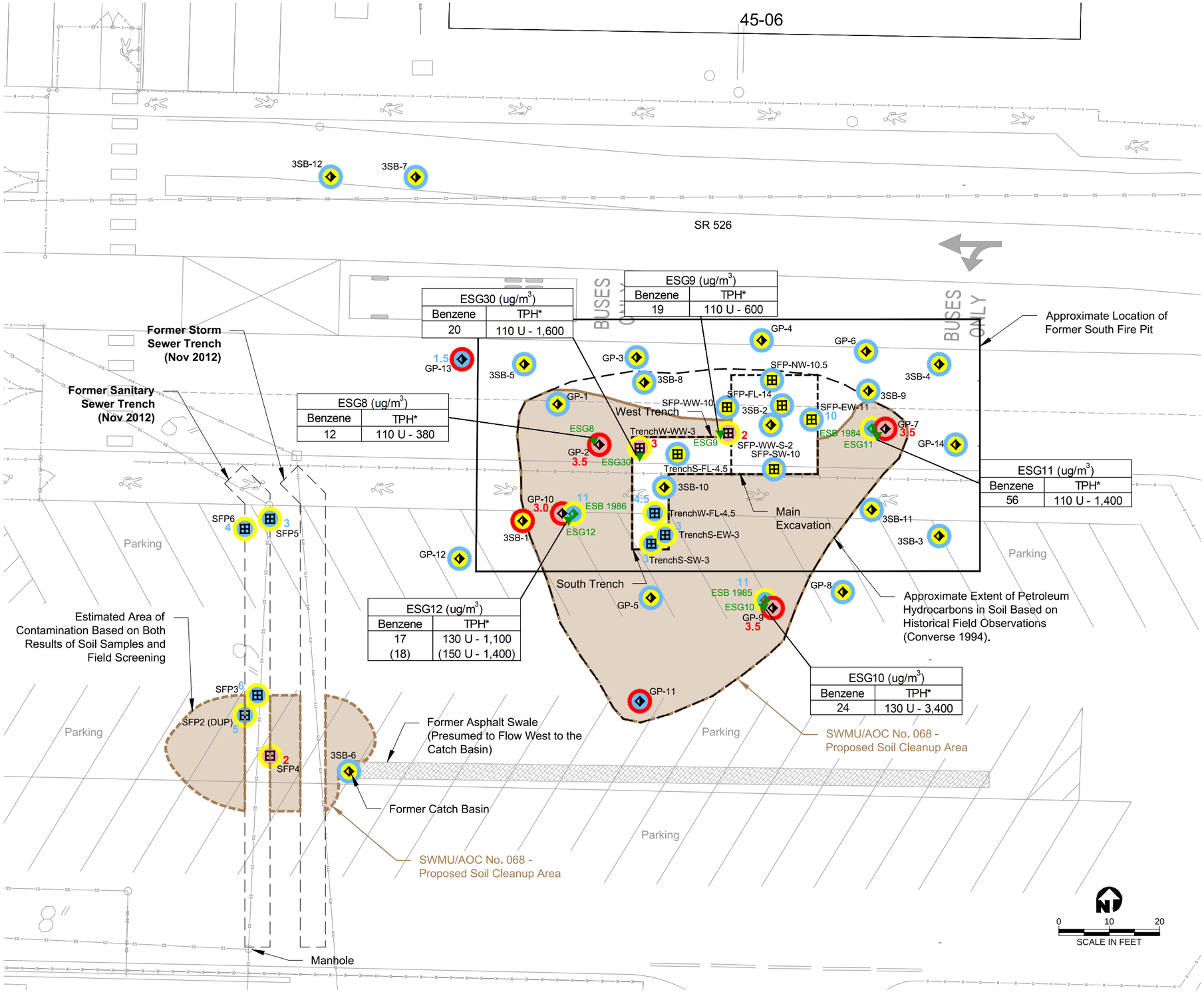

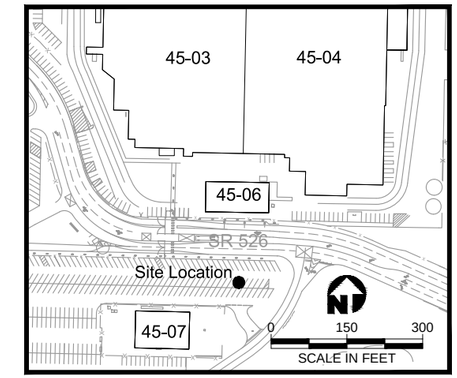

Legend

- Historical Soil Boring (Converse 1994)
- Historical Excavation Sample (Converse 1994 and URS 2012)
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- * TPH Range From Hydrocarbons by Modified TO-15
- 3.5 Maximum Depth of Sample Exceedance of One or More Constituent
- 10 Most Shallow Depth of Clean Sample
- Refer to Table 2-20a for Specific Analytical Results and Sample Depths.
- Results Were Detected for WTPH-HCID Analysis for One or More Consituent
- Results Were Not Analyzed for WTPH-HCID Analysis
- Results Were Not Detected for WTPH-HCID Analysis for All Consituents
- Results Exceed NWTPH CULs for One or More Constituent
- Not Analyzed for NWTPH
- Results Do Not Exceed NWTPH CULs for One or More Constituents

Notes:

1. Data boxes depict concentrations for select contaminants of concern. Bold values exceed the proposed screening level (see Section 5).
2. Based on review of analytical results and observations in historical reports, the contaminated lense is present between 1.5 - 3.5 ft across the AOC.
3. TPH was detected in 35B-1 using WTPH-HCID, but not analyzed for NWTPH. Converse Report indicates the result is below 1991 MTCA Method A CULs, so farther analysis was not completed.

Figure 2-17

Former South Fire Pit (SWMU/AOC No. 068) Sample Locations and Selected Results

AECOM

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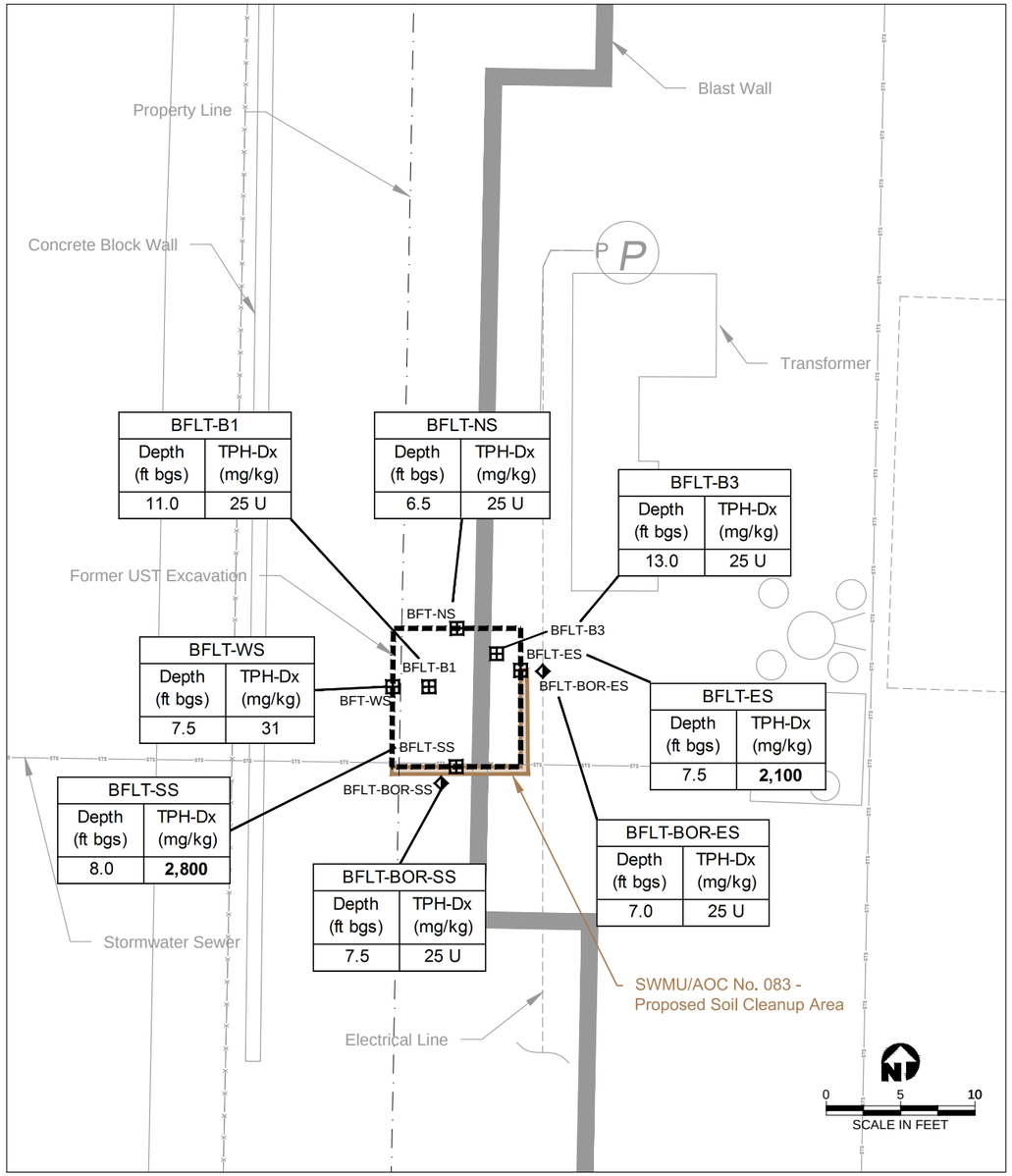
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



BFLT-B1	
Depth (ft bgs)	TPH-Dx (mg/kg)
11.0	25 U

BFLT-NS	
Depth (ft bgs)	TPH-Dx (mg/kg)
6.5	25 U

BFLT-B3	
Depth (ft bgs)	TPH-Dx (mg/kg)
13.0	25 U

BFLT-WS	
Depth (ft bgs)	TPH-Dx (mg/kg)
7.5	31

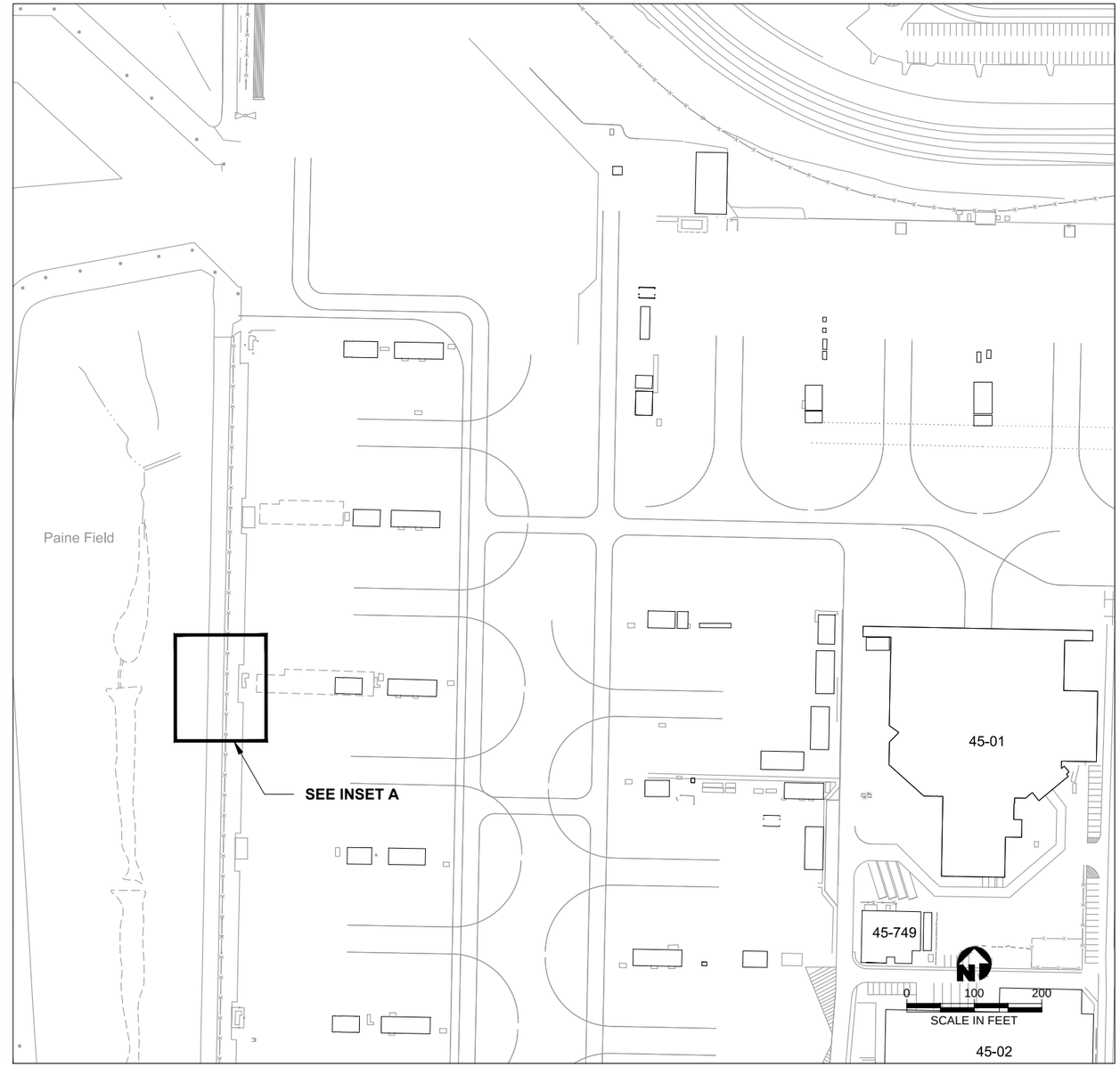
BFLT-ES	
Depth (ft bgs)	TPH-Dx (mg/kg)
7.5	**2,100**

BFLT-SS	
Depth (ft bgs)	TPH-Dx (mg/kg)
8.0	**2,800**

BFLT-BOR-ES	
Depth (ft bgs)	TPH-Dx (mg/kg)
7.0	25 U

BFLT-BOR-SS	
Depth (ft bgs)	TPH-Dx (mg/kg)
7.5	25 U

Inset A



Legend

- Historical Soil Boring (O'Sullivan Omega 1994)
- Historical Excavation Sample (O'Sullivan Omega 1994)
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Edge of Former Excavation

Note:
Data boxes depict concentrations for a select contaminant of concern. Bold values exceed the proposed cleanup level or screening level (see Section 5).

Figure 2-18
Former UST EV-15 (SWMU/AOC No. 083)
Sample Locations and Selected Results

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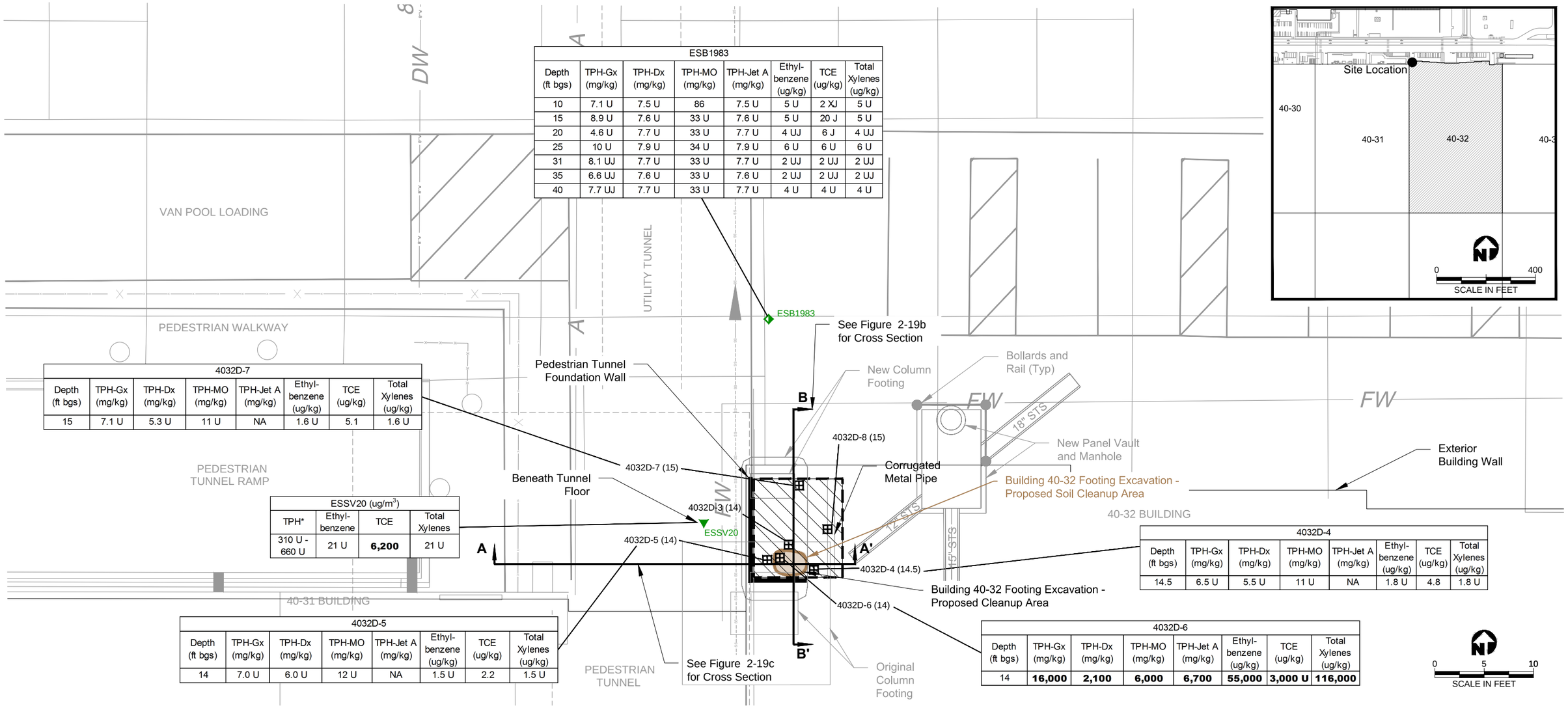
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



ESB1983							
Depth (ft bgs)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)	TPH-MO (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
10	7.1 U	7.5 U	86	7.5 U	5 U	2 XJ	5 U
15	8.9 U	7.6 U	33 U	7.6 U	5 U	20 J	5 U
20	4.6 U	7.7 U	33 U	7.7 U	4 UJ	6 J	4 UJ
25	10 U	7.9 U	34 U	7.9 U	6 U	6 U	6 U
31	8.1 UJ	7.7 U	33 U	7.7 U	2 UJ	2 UJ	2 UJ
35	6.6 UJ	7.6 U	33 U	7.6 U	2 UJ	2 UJ	2 UJ
40	7.7 UJ	7.7 U	33 U	7.7 U	4 U	4 U	4 U

4032D-7							
Depth (ft bgs)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)	TPH-MO (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
15	7.1 U	5.3 U	11 U	NA	1.6 U	5.1	1.6 U

ESSV20 (ug/m^3)			
TPH*	Ethyl-benzene	TCE	Total Xylenes
310 U - 660 U	21 U	**6,200**	21 U

4032D-4							
Depth (ft bgs)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)	TPH-MO (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
14.5	6.5 U	5.5 U	11 U	NA	1.8 U	4.8	1.8 U

4032D-5							
Depth (ft bgs)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)	TPH-MO (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
14	7.0 U	6.0 U	12 U	NA	1.5 U	2.2	1.5 U

4032D-6							
Depth (ft bgs)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)	TPH-MO (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
14	**16,000**	**2,100**	**6,000**	**6,700**	**55,000**	**3,000 U**	**116,000**

Legend

- Historical Excavation Sample (Landau 2011)
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Concrete Footing or Foundation Bordering Excavation
- Concrete Cut and Removal Area
- Estimated Excavation Extent (Filled by Concrete [Footing] and CDF Backfill) (Landau 2011)
- * TPH Range From Hydrocarbons by Modified TO-15
- (14) Sample Depth (bgs)

Notes:

1. Data boxes depict concentrations for select contaminants of concern. Bold values exceed the proposed cleanup level or screening level (see Section 5).
2. Samples 4032D-3 and 4032D-8 were discarded prior to analysis. 4032D-3 may have contained disturbed soil from the vacuuming excavation process. 4032D-8 was discarded based on low VOC screening levels.
3. Sample ESSV20 was collected below the concrete in the pedestrian tunnel located approximately 10 feet bgs.

Figure 2-19a
Building 40-32 Footing Excavation Sample Locations and Selected Results

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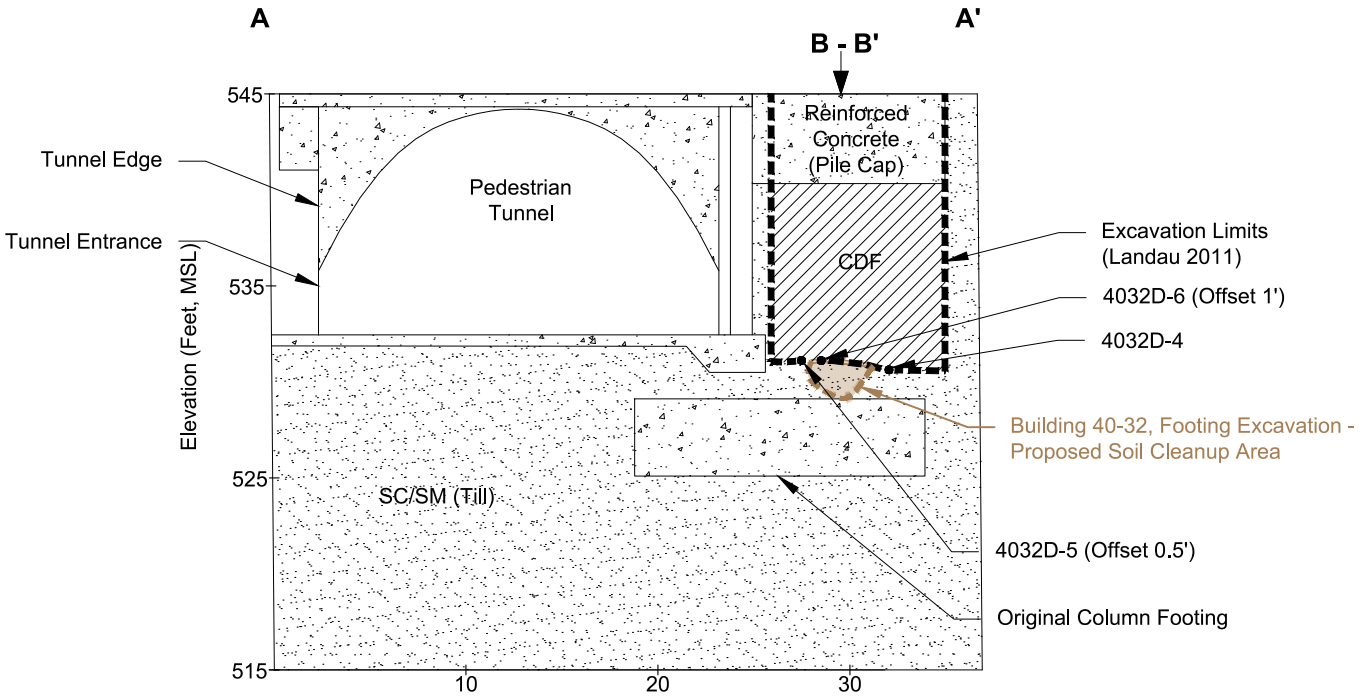
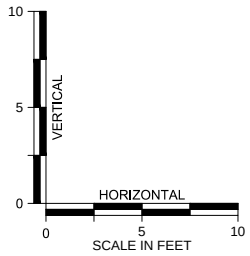
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



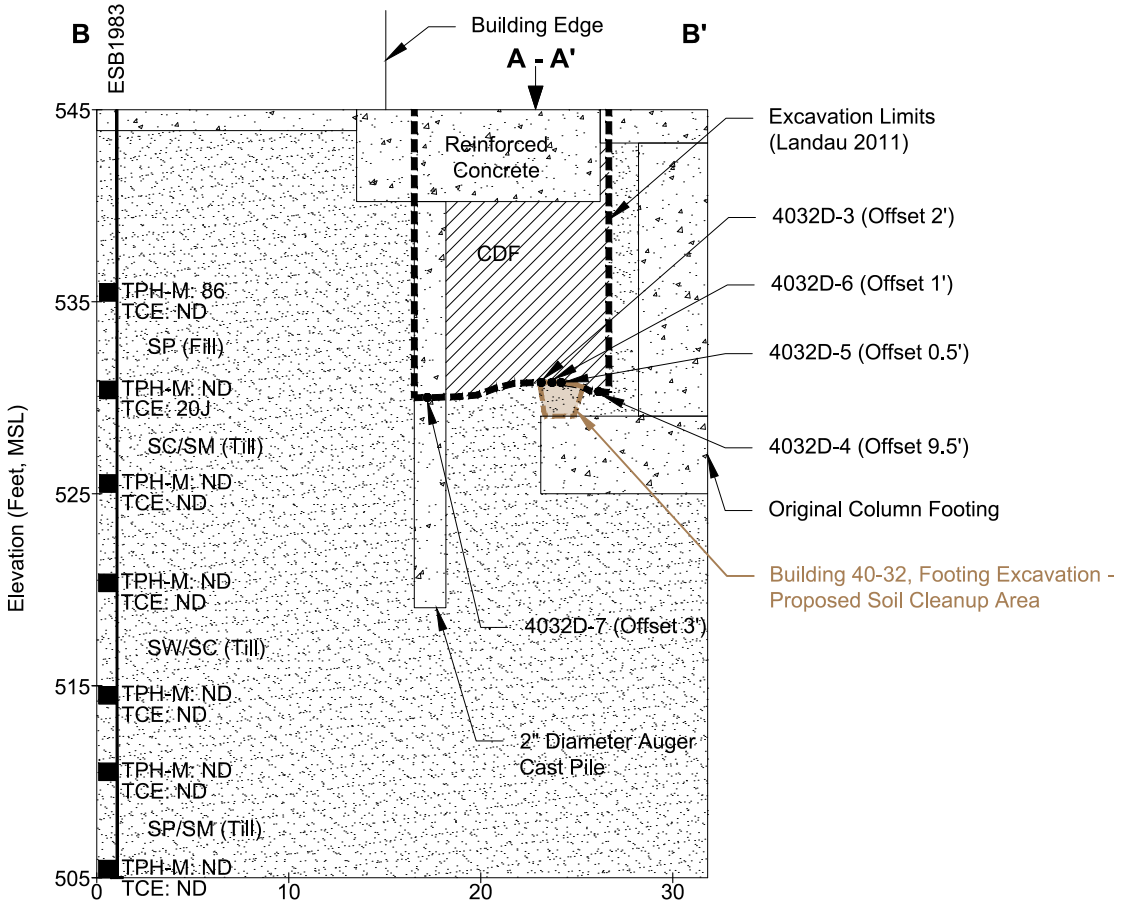
Legend:

- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Edge of Former Excavation
- ESB1994 Soil Borings
- Concrete
- SM = Silty Fine to Medium Sand With Occasional Gravel
- SC/SM
- Controlled Density Fill



Notes:
1. See Figure 2-19 or Table 2-21a for Analytical Results.
2. 4032D-6 post excavation sample location collected in June 2010 during building footing construction.

Figure 2-19b
Building 40-32, Footing Excavation Cross Section A



Legend:

Estimated Area of Soil Contamination (Dashed Where Inferred)

Edge of Former Excavation

ESB1994 Soil Borings

Concrete

SM = Silty Fine to Medium Sand With Occasional Gravel

SC/SM

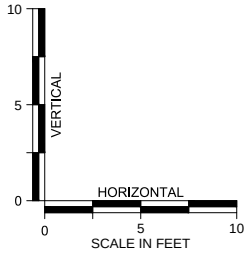
Controlled Density Fill

TPH: 86 Concentration of TPH-Motor Oil in Soil (ug/kg)

TCE: 20J Concentration of TCE in Soil (ug/kg)

ND Compound Not Detected Above Method Reporting Limits

Sample Collected and Analyzed



Notes:

1. All other COCs for this site are non-detect for ESB1983. Only constituents with a detection are shown.
2. 4032D-34 post excavation sample location collected in June 2010 during building footing construction.

Figure 2-19c

Building 40-32, Footing Excavation Cross Section B

Table 2-1a
Summary of VOC Results in Soils for SWMU/AOC NO. 171 Former Bluestreak Vapor Degreaser

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compounds (µg/kg)				
			1,1-Dichloroethene	**cis-1,2-Dichloroethene**	**trans-1,2-Dichloroethene**	**Trichloroethene**	**Vinyl Chloride**
		MTCA Cleanup Level	**46**	**78**	**520**	**25**	**1.7**
EXB1	13	11/27/1994 or 11/28/1994	5.4	6.3	NA	**200**	NA
EXB2	11	11/27/1994 or 11/28/1994	13	24	NA	**980**	NA
EXB3	11	11/27/1994 or 11/28/1994	9.7 U	22	NA	**11,000**	NA
EXB4	11	11/27/1994 or 11/28/1994	10 U	10 U	NA	**510**	NA
EXNW1	10.5	11/27/1994 or 11/28/1994	8.4	1.9	NA	**95**	NA
EXNW2	10.5	11/27/1994 or 11/28/1994	5.6	44	NA	**2,100**	NA
EXSW1	5	11/27/1994 or 11/28/1994	2.3	6.1	NA	**200**	NA
EXSW2	10.5	11/27/1994 or 11/28/1994	4.1	6.8	NA	**1,400**	NA
EXSW3	5	11/27/1994 or 11/28/1994	1.0 U	1.0 U	NA	13	NA
EXSW4	10.5	11/27/1994 or 11/28/1994	1.1 U	2.4	NA	**140**	NA
EXEW1	10.5	11/27/1994 or 11/28/1994	8.6 U	15	NA	**1,500**	NA
EXWW1	10	11/27/1994 or 11/28/1994	2.1	1.7	NA	**180**	NA
ESB1993	14	10/26/2013	4 XJ	60 J	7 U	3,600 E DNR	7 U
		10/26/2013 (RE)	5 X DNR	70 DNR	8 U DNR	4,000 E DNR	8 U DNR
		10/26/2013 (DL)	310 U DNR	85 X DNR	310 U DNR	**7,100 J**	310 U DNR
	19	10/26/2013	5 U	12 J	5 U	390 E DNR	5 U
		10/26/2013 (RE)	6 U DNR	13 DNR	6 U DNR	350 DNR	6 U DNR
		10/26/2013 (DL)	330 U DNR	330 U DNR	330 U DNR	**1,500 J**	330 U DNR
	24	10/26/2013	9 J	59 J	6 U	**60 J**	6 U
	28	10/26/2013	5 U	5 U	5 U	8 J	5 U
		10/26/2013 (RE)	5 U DNR	5 U DNR	5 U DNR	5 X DNR	5 U DNR

Table 2-1a (Continued)
Summary of VOC Results in Soils for SWMU/AOC NO. 171 Former Bluestreak Vapor Degreaser

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compounds (µg/kg)				
			1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
		MTCA Cleanup Level	**46**	**78**	**520**	**25**	**1.7**
ESB1994	14	10/26/2013	3 X DNR	43 DNR	6 U DNR	1,700 E DNR	6 U DNR
		10/26/2013 (RE)	6 J	**86 J**	1 XJ	2,400 E DNR	5 U DNR
		10/26/2013 (DL)	280 U DNR	200 X DNR	280 U DNR	**11,000 J**	280 U DNR
	19	10/26/2013	11 J	**160 J**	5 U	540 E DNR	5 U
		10/26/2013 (RE)	9 DNR	70 DNR	4 U DNR	16 DNR	4 U DNR
		10/26/2013 (DL)	260 U DNR	280 DNR	260 U DNR	**1,400**	260 U DNR
	24	10/26/2013	6 J	40 J	5 U	**110 J**	5 U
		10/26/2013 (RE)	5 DNR	34 DNR	5 U DNR	88 DNR	5 U DNR
	29	10/26/2013	5 U	1 XJ	5 U	2 XJ	5 U
		10/26/2013 (RE)	4 U DNR	4 U DNR	4 U DNR	3 X DNR	4 U DNR
	31	10/26/2013	4 U	4 U	4 U	4 U	4 U
	39	10/26/2013	6 U	6 U	6 U	6 U	6 U
ESB2002	10	2/16/2014	1 X	3 X	5 U	**150**	5 U
	15	2/16/2014	7 U	7 U	7 U	**50**	7 U
	20	2/16/2014	5 U	5 U	5 U	5 U	5 U
	25	2/16/2014	5 U	5 U	5 U	5 U	5 U
	30	2/16/2014	5 U	5 U	5 U	5 U	5 U
	35	2/16/2014	5 U	5 U	5 U	5 U	5 U
	40	2/16/2014	5 U	5 U	5 U	5 U	5 U
ESB2003	30	2/15/2014	6 U	6 U	6 U	6 U	6 U
		2/15/2014 (DUP)	6 U	6 U	6 U	6 U	6 U
	35	2/15/2014	5 U	5 U	5 U	5 U	5 U
	40	2/15/2014	5 U	5 U	5 U	5 U	5 U

Table 2-1a (Continued)
Summary of VOC Results in Soils for SWMU/AOC NO. 171 Former Bluestreak Vapor Degreaser

[a]Model Toxics Control Act (MTCA) Cleanup Regulation, Washington Administrative Code 173-340. MTCA values for the protection of groundwater are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
bgs - below ground surface
DL - dilution
DNR - do not report
DUP - field duplicate
E - Sample concentration exceeded the linear range of the instrument. The E-flagged result is considered an estimated value.
J - estimated value
µg/kg - microgram per kilogram
NA - not analyzed or not available
RE - reanalysis
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table 2-1b
Summary of VOCs and Helium Results in Sub-Slab Vapor for SWMU/AOC No. 171, Former Bluestreak Vapor Degreaser

Chemical	MTCA Air Screening Level		Sample ID and Date				
	Method C	Method C/AF 0.03	ESSV3 2/13/14	ESSV4 2/12/14	ESSV5/REP 2/12/14		ESSV6 2/13/14
Volatile Organic Compounds (µg/m^3)							
Vinyl Chloride	2.8	93	**150**	**110**	**110/100**		32 U
1,1-Dichloroethene	200	6,700	1,200	950	910/870		200
trans-1,2-Dichloroethene	NE	NE	30 X	19 X	18 X/19 X		49 U
cis-1,2-Dichloroethene	NE	NE	750	1,000	670/640		71
Trichloroethene	2	67	**48,000**	**29,000**	**35,000/34,000**		**16,000**
Tetrachloroethene	40	1,300	80 U	81 U	79 U/84 U		690
Helium							
Helium (% in canister)	NE	NE	0.40	0.14	0.046 X	0.041 X	0.41
Helium (% in shroud[a])	NE	NE	10.5	5.5	6.7	7.6	12.6
Helium (% as ratio[b])	5		3.81	2.55	0.69	0.54	3.25

[a]Helium concentration within sampling shroud enclosing the sampling apparatus as measured in field at the time of sampling
[b]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling; screening level from 2012.

Notes:
Values in bold font indicate that the result reported meets or exceeds the indoor air screening levels divided by AF 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, Washington Administrative Code 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
California Advisory Active Soil Gas Investigations, April 2012.
AF - attenuation factor
Ecology - Washington State Department of Ecology
µg/m^3 - microgram per cubic meter
NE - not established
REP - field replicate
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table 2-2a
Summary of Metals Results in Soils for SWMU/AOC No. 065, Former Paint Stripping Tankline

Sample ID	Sample Depth (feet bgs)	Date Collected	Metals (mg/kg)		
			Cadmium	Chromium	Lead
		Soil Cleanup Level	1[a]	48[a]	250[b]
ESB1101	5	8/9/1997	0.2 J	**48.9**	5
		8/9/1997 (DUP)	0.2 UJ	38.3	6
	10	8/9/1997	0.2 UJ	35.4	4
	12 1/2	8/9/1997	0.2 UJ	39.3	4
ESB1102	5	8/9/1997	**43.6**	**1,840**	**912**
	6	8/9/1997	0.7 J	**48.2**	16
	10	8/9/1997	0.2 UJ	42.2	5
ESB1103	7	8/9/1997	0.2 UJ	42.9	4
	10	8/9/1997	0.2 UJ	33.9	4
	15	8/9/1997	0.2 UJ	39.1	5
	13	8/11/1997	0.2 U	44.6	5
	18	8/11/1997	0.2 U	40.7	5

[a]Ecology Natural Background Soil Metals Concentrations in Washington State, October 1994
[b]MTCA Method A direct contact cleanup level

Notes:
Values in bold font indicate that the result reported meets or exceeds the cleanup level.
MTCA Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DUP - field duplicate
Ecology - Washington State Department of Ecology
J - estimated value
mg/kg - milligram per kilogram
MTCA - Model Toxics Control Act
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

Table 2-3a
Summary of VOC Results in Soils for SWMU/AOC No. 054, Former Wastewater AST

Sample ID	Sample Depth (feet bgs)	Date Collected	Trichloroethene (µg/kg)
		MTCA Cleanup Level	**25**
ESB1307	5	7/30/1998	3.1
	8	7/30/1998	1.1 U
ESB1308	1	7/30/1998	**140**
	8.5	7/30/1998	5.7
ESB1309	3	7/30/1998	**1,200**
	9	7/30/1998	**510**
ESB1987	10.5	10/23/2013	**8,500 J**
	15	10/23/2013	**5,700 J**
	20.5	10/23/2013	10 J
	25	10/23/2013	4 U
	30.5	10/23/2013	4 U
ESB1988	10	10/23/2013	**84 J**
		10/23/2013 (DUP)	**86 J**
	15	10/23/2013	5 J
	20	10/23/2013	7 U
ESB1989	10.5	10/23/2013	4 U
	15	10/23/2013	4 U
	20.5	10/23/2013	3 UJ
ESB1990	10.5	10/24/2013	6 U
	15	10/24/2013	4 U
	20	10/24/2013	5 U
	25	10/24/2013	4 U
ESB1991	10	10/24/2013	**3,300 J**
	15	10/24/2013	3 UJ
	20.5	10/24/2013	4 U
	25	10/24/2013	4 U
	30	10/24/2013	6 J
ESB1992	10	10/24/2013	**5,300 J**
	15	10/24/2013	5 U
	20	10/24/2013	5 U
	25	10/24/2013	5 U

Notes:
Values in bold font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DUP - field duplicate
µg/kg - microgram per kilogram

Table 2-3a (Continued)
Summary of VOC Results in Soils for SWMU/AOC No. 054, Former Wastewater AST

J - estimated value
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown.
Reporting limit is an estimated value.
VOC - volatile organic compound

Table 2-3b
Summary of VOC and Helium Results in Soil Gas and Sub-Slab Vapor for SWMUC/AOC No. 054, Former Wastewater AST

Chemical	MTCA Air Screening Level		Sample ID and Date	
	Method C	Method C/ AF 0.03	ESG17[a] 1/23/14	ESG18 1/23/14
Volatile Organic Compounds (µg/m^3)				
Vinyl chloride	2.8	93	5.1 UJ	19 U
1,1-Dichloroethene	200	6,700	7.9 UJ	30 U
cis-1,2-Dichloroethene	NE	NE	5.7 XJ	7.7 X
Trichloroethene	2.0	67	**2,500 J**	**10,000**
trans-1,2-Dichloroethene	NE	NE	7.9 UJ	30 U
Helium				
Helium (% in canister)	NE	NE	0.13	0.017 X
Helium (% in shroud[b])	NE	NE	87	87
Helium (% as ratio[c])	5		0.15	0.020

[a]Canister pressure upon laboratory receipt much lower than pressure at completion of sampling. Data are estimated due to potential leakage at some point, but laboratory did not identify any leaks upon receipt.
[b]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[c]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in bold font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
J - estimated result
µg/m^3 - microgram per cubic meter
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-4a
Summary of VOC Results in Soils for SWMU/AOC No. 151, Sumps EV-112 and EV-119

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)				
			1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
		MTCA Cleanup Level	**46**	**78**	**520**	**25**	**1.7**
ESB1121	12.5	3/4/1998	NA	1.7	NA	18	NA
	15	3/4/1998	NA	1.1 U	NA	1.1 U	NA
	22.5	3/4/1998	NA	1 U	NA	1 U	NA
ESB1970	10	9/16/2013	4 U	4 U	4 U	0.9 X	4 U
	15	9/16/2013	4 U	4 U	4 U	4 U	4 U
	20	9/16/2013	4 U	4 U	4 U	4 U	4 U
	25	9/16/2013	5 U	5 U	5 U	5 U	5 U
	30	9/16/2013	5 U	5 U	5 U	5 U	5 U
	35	9/16/2013	5 U	5 U	5 U	5 U	5 U
	40	9/16/2013	5 U	5 U	5 U	5 U	5 U
ESB1971	10	9/23/2013	6 U	6 U	6 U	6 U	6 U
		9/23/2013 (DUP)	5 U	5 U	5 U	5 U	5 U
	15	9/23/2013	5 U	5 U	5 U	5 U	5 U
	20	9/23/2013	5 U	5 U	5 U	5 U	5 U
	25	9/23/2013	5 U	5 U	5 U	5 U	5 U
	30	9/23/2013	4 U	4 U	4 U	4 U	4 U
	35	9/23/2013	4 U	4 U	4 U	4 U	4 U
	40	9/23/2013	4 U	4 U	4 U	4 U	4 U
ESB1972	10	9/23/2013	5 U	5 U	5 U	5 U	5 U
	15	9/23/2013	5 U	5 U	5 U	5 U	5 U
	20	9/23/2013	5 U	5 U	5 U	5 U	5 U
	25	9/23/2013	4 U	4 U	4 U	4 U	4 U
	30	9/23/2013	5 U	5 U	5 U	5 U	5 U
	35	9/23/2013	4 U	4 U	4 U	4 U	4 U
	40	9/23/2013	4 U	4 U	4 U	4 U	4 U

Table 2-4a
Summary of VOC Results in Soils for SWMU/AOC No. 151, Sumps EV-112 and EV-119

Notes:
Values in bold font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DUP - field duplicate
µg/kg - microgram per kilogram
NA - not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-4b
Summary of VOC and Helium Results in Soil Gas and Sub-Slab Vapor for SWMU/AOC No. 151, Sumps EV-112 and EV-119

Chemical	MTCA Air Screening Level		Sample ID and Date		
	Method C	Method C AF 0.30	ESG15 1/22/14	ESSV1 1/22/14	ESSV1 5/14/14
Volatile Organic Compounds (µg/m^3)					
Vinyl chloride	2.8	93	2.8 U	3.0 U	0.60 U
1,1-Dichloroethene	200	6,700	4.3 U	4.6 U	0.93 U
cis-1,2-Dichloroethene	NE	NE	4.3 U	4.6 U	0.93 U
Trichloroethene	2	67	17	6.3 U	3.0
trans-1,2-Dichloroethene	NE	NE	4.3 U	4.6 U	0.49 X
Tetrachloroethene	40	1,300	7.3 U	7.9 U	1.6 U
Helium					
Helium (% in canister)	NE	NE	0.034 X	0.12 U	0.89
Helium (% in shroud[a])	NE	NE	18.79	4.97	11.6
Helium (% as ratio[b])	5		0.18	NA	**7.7**

[a]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[b]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
µg/m^3 - microgram per cubic meter
NA - not applicable
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-5
Summary of VOC and Helium Results in Soil Gas for SWMU/AOC No. 090, Former UST EV-11

Chemical	MTCA Air Screening Level		ESG13 1/21/14	ESG14 1/21/04	ESG16 1/22/04
	Method C	Method C AF 0.30			
Volatile Organic Compounds (µg/m^3)					
Vinyl chloride	2.8	93	5.6	3.0 U	2.3 X
1,1-Dichloroethene	200	6,700	2.9 X	4.6 U	3.8 X
cis-1,2-Dichloroethene	NE	NE	5.5	4.6 U	7.6
Trichloroethene	2	67	**75**	**74**	29
trans-1,2-Dichloroethene	NE	NE	4.7 U	4.6 U	4.7 U
Tetrachloroethene	40	1,300	8.1 U	7.9 U	8.4
Helium					
Helium (% in canister)	NE	NE	1.1	0.0072 X	0.12 U
Helium (% in shroud[a])	NE	NE	7.57	9.87	9.37
Helium (% as ratio[b])	5		**15**	0.073	NA

[a]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[b]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance. (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
µg/m^3 - microgram per cubic meter
NA - not applicable
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-6a
Summary of VOC Results in Soils for SWMU/AOC No. 093, Former Solvent USTs

Sample ID	Sample Depth (feet bgs)	Date Collected	2-Butanone (µg/kg)
MTCA Method B Cleanup Level[a]		**Protection of Groundwater [a]**	**20,000**
ESB1122	12.5	3/4/1998	5.4 U
	15	3/4/1998	5.2 U
ESB1123	12.5	3/4/1998	5.3 U
	15	3/4/1998	5.3 U
ESB1127	12.5	3/9/1998	5.4 U
	15	3/9/1998	5.2 U
ESB1128	10	3/9/1998	5.3 U
	12.5	3/9/1998	5.4 U
ESB1129	2.5	3/9/1998	5.1 U
	6.5	3/9/1998	5.5 U
ESB1130	12.5	3/9/1998	5.1 U
	15	3/9/1998	5.4 U
ESB1131	12.5	3/9/1998	5.2 U
	15	3/9/1998	5.3 U
ESB1134	4.5	3/10/1998	5.4 U
	6.5	3/10/1998	5.2 U
	8.5	3/10/1998	330
ESB1136	10	3/12/1998	170
	17.5	3/12/1998	91
ESB1137	10	3/12/1998	3,500
	17.5	3/12/1998	110
ESB1138	4.5	3/12/1998	67
	6.5	3/12/1998	63
ESB1139	10	3/12/1998	9,200
	17.5	3/12/1998	57
ESB1140	12.5	3/12/1998	**54,000**
		3/12/1998 (DUP)	**62,000**
	17.5	3/12/1998	**82,000 J**
	22.5	3/12/1998	370
	28	3/12/1998	160
ESB1141	10	3/12/1998	5,100
	17.5	3/12/1998	110
ESB1386	17.5	6/14/2000	**140,000**
		6/14/2000 (DUP)	**100,000**
	22.5	6/14/2000	1,800
ESB1973	17.5	9/25/2013	480 U
	20	9/25/2013	420 U
	25	9/25/2013	300
	30	9/25/2013	48
	35	9/25/2013	19
	40	9/25/2013	5 X

Table 2-6a (Continued)
Summary of VOC Results in Soils for SWMU/AOC No. 093, Former Solvent USTs

Sample ID	Sample Depth (feet bgs)	Date Collected	2-Butanone (µg/kg)
MTCA Method B Cleanup Level[a]		**Protection of Groundwater [a]**	**20,000**
ESB1974	17.5	9/25/2013	31
	20	9/25/2013	15
	25	9/25/2013	56
	30	9/25/2013	5 X
	35	9/25/2013	10 U
	40	9/25/2013	10 U

[a]Protection of groundwater cleanup levels were calculated using MTCA equation 747-1 (WAC 173-340-747)

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DUP - field duplicate
µg/kg - microgram per kilogram
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-6b
Summary of 2-Butanone and Helium Results in Soil for SWMU/AOC No. 093, Former Solvent USTs

Chemical	MTCA Air Screening Level		Sample ID and Data		
	Method C	Method C/ AF 0.03	ESG19 2/13/14	ESG28 3/14/14	ESG29 3/14/14
Volatile Organic Compounds (µg/m^3)					
2-Butanone	5,000	170,000	240	90	17
Helium					
Helium (% in canister)	NE	NE	0.12 U	0.12 U	0.012 X
Helium (% in shroud[a])	NE	NE	5.6	9.5	7.8
Helium (% as ratio[b])	5		NA	NA	0.154

[a]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[b]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/ CLARCDataTables.aspx).
AF - attenuation factor
µg/m3 - microgram per cubic meter
NA - not applicable
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-7
Summary of VOC and Helium Results in Soil Gas for SWMU/AOC No. 112, Oil/Water Separator

Chemical	MTCA Air Screening Level		Sample ID and Date	
	Method C	Method C/ AF 0.03	ESG22 2/25/14	ESG23 3/12/14
Volatile Organic Compounds (µg/m^3)				
Vinyl Chloride	2.8	93	0.62 U	1.3
1,1-Dichloroethene	200	6,700	0.96 U	1.7
trans-1,2-Dichloroethene	NE	NE	0.96 U	2.0
cis-1,2-Dichloroethene	NE	NE	8.6	87
Trichloroethene	2	67	45	**170**
Helium				
Helium (% in canister)	NE	NE	0.051 X	0.26
Helium (% in shroud[a])	NE	NE	4.8	5.6
Helium (% as ratio[b])	5		1.1	4.6

[a]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[b]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
µg/m3 - microgram per cubic meter
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-8a
Summary of VOC and TPH Results in Soil for Building 40-11, UST EV-48-1

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)					Gasoline-range TPH (mg/kg)
			Benzene	Ethylbenzene	Toluene	o-Xylene[a]	m,p-Xylene[a]	
MTCA Method A Cleanup Level			**30**	**6,000**	**7,000**	**9,000 (total xylenes)**		**30/100[b]**
ESB1675	4	1/16/2007	**37**	83	140	650		27 [c]
ESB1676	18	1/16/2007	17 U	17 U	17 U	17 U		6.6 U
ESB1677	3.5	1/16/2007	**1,500**	**6,900**	**24,000**	**122,000**		**2,100**
	11	1/16/2007	**5,300**	**23,000**	**63,000**	**230,000**		**3,700**
	20	1/16/2007	**42**	110	120	700		**82[c]**
ESB1678	11	1/16/2007	**110**	63	210	1,020		**31**
ESB1679	3	1/16/2007	**620**	2,300	2,900	**17,400**		**170**
	12	1/16/2007	**43**	20 U	140	180		14
ESB1680	6	1/16/2007	13 U	13 U	13 U	34		5.3 U
ESB1975	10	9/26/2013	0.9 U	5 U	5 U	5 U	5 U	5.2 U
		9/26/2013 (DUP)	1 U	6 U	6 U	6 U	6 U	4.8 U
	20	9/26/2013	0.9 U	5 U	5 U	5 U	5 U	5.5 U
	25	9/26/2013	0.9 U	5 U	5 U	5 U	5 U	4.9 U
	30	9/26/2013	0.9 U	4 U	4 U	4 U	4 U	4.5 U
	35	9/26/2013	1 U	6 U	6 U	6 U	6 U	6.3 U
	40	9/26/2013	0.9 U	5 U	5 U	5 U	5 U	5.7 U
ESB1976	10	9/26/2013	0.3 X	5 U	5 U	5 U	5 U	5.5 U
	15	9/26/2013	0.3 X	5 U	1 X	5 U	5 U	1.8 X
	20	9/26/2013	0.3 X	5 U	5 U	5 U	5 U	4.2 X
	25	9/26/2013	0.3 X	6 U	6 U	6 U	6 U	6.1 U
	30	9/26/2013	1 U	5 U	5 U	5 U	5 U	5.2 U
	35	9/26/2013	0.5 X	5 U	5 U	5 U	5 U	4.4 X
	40	9/26/2013	1 U	5 U	5 U	5 U	5 U	5.1 U
ESB1977	10	9/27/2013	1 U	6 U	6 U	6 U	6 U	5.2 U
	15	9/27/2013	1 U	5 U	5 U	5 U	5 U	6.0 U
	20	9/27/2013	91 U	450 U	450 U	450 U	450 U	38

Table 2-8a (Continued)
Summary of VOC and TPH Results in Soil for Building 40-11, UST EV-48-1

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)					Gasoline-range TPH (mg/kg)
			Benzene	Ethylbenzene	Toluene	o-Xylene[a]	m,p-Xylene[a]	
MTCA Method A Cleanup Level			**30**	**6,000**	**7,000**	**9,000 (total xylenes)**		**30/100[b]**
	25	9/27/2013	0.8 U	4 U	4 U	4 U	4 U	4.9 U
	30	9/27/2013	1 U	5 U	5 U	5 U	5 U	4.9 U
	35	9/27/2013	0.4 X	5 U	5 U	5 U	5 U	4.5 U
	40	9/27/2013	1 U	5 U	5 U	5 U	5 U	5.0 U
ESB1998	10	11/16/2014	0.5 X	5 U	1 X	5 U	5 U	6.9 U
	15	11/16/2014	0.6 X	6 U	5 X	6 U	1 X	4.7 X
	20	11/16/2014	0.4 X	6 U	6 U	6 U	6 U	7.1 U
	25	11/16/2014	0.3 X	5 U	5 U	5 U	5 U	7.6 U
	30	11/16/2014	0.3 X	6 U	6 U	6 U	6 U	7.4 U
	35	11/16/2014	1	5 U	1 X	5 U	5 U	6.5 U
	40	11/16/2014	0.7 X	5 U	5 U	5 U	5 U	5.4 U

[a]Historical data from 2007 were reported for total xylenes rather than for the individual compounds o-xylene and m,p-xylene.
[b]The cleanup level is 100 mg/kg if benzene is not present, and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 30 mg/kg.
[c]Chromotographic profile does not match the laboratory standard chromatogram.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx)
bgs - below ground surface
DUP - field duplicate
µg/kg - microgram per kilogram
mg/kg - milligram per kilogram
TPH - total petroleum hydrocarbon
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table 2-8b
Summary of VOC, Petroleum Hydrocarbon, and Helium Results in Soil Gas for Building 40-11, UST EV-48-1

Chemical	MTCA Air Screening Level		Sample ID and Date			
	Method C	Method C/ AF 0.03	ESG24 3/11/14	ESG25 3/11/14	ESG26 3/12/14	ESG27 3/12/14
Volatile Organic compounds (µg/m^3)						
Benzene	3.2	110	2.8	2.0	4.6 X	3.6
Toluene	5,000	170,000	11	6.6	22 U	9.1
Ethylbenzene	1,000	33,000	0.93 X	1.2	3.8 X	1.2
m,p-Xylene	100	3,300	4.9	5.2	22 U	4.5
o-Xylene	100	3,300	1.5	1.8	22 U	1.6
Petroleum Hydrocarbon[a] (µg/m^3)						
C5-C6 Aliphatic	6,000	200,000	77 U	77 U	130,000	100
>C6-C8 Aliphatic			98 U	97 U	30,000	100 U
>C8-C10 Aliphatic	300	10,000	140 U	140 U	3,200	140 U
>C10-C12 Aliphatic			160 U	160 U	690 U	170 U
>C8-C10 Aromatic	400	13,000	120 U	120 U	490 U	120 U
>C10-C12 Aromatic	NE	NE	130 U	130 U	550 U	130 U
Helium						
Helium (% in canister)	NE	NE	0.039 X	0.031 X	0.0085 X	0.014 X
Helium (% in shroud[a])	NE	NE	6.0	11.0	11.2	5.1
Helium (% as ratio[b])	5		0.65	0.28	0.076	0.27

[a]Screening levels based on the sum of the associated ranges.
[b]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[c]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).

Table 2-8b (Continued)
Summary of VOC, Petroleum Hydrocarbon, and Helium Results in Soil Gas for Building 40-11, UST EV-48-1

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx)
AF - attenuation factor
$\mu g/m^3$ - microgram per cubic meter
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-9a
Summary of VOC Results in Soils for SWMU/AOC No. 097, Former Vapor Degreaser

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)				
			1,1-Dichloroethene	**cis-1,2-Dichloroethene**	**trans-1,2-Dichloroethene**	**Trichloroethene**	**Vinyl Chloride**
MTCA Cleanup Level			**46**	**78**	**520**	**25**	**1.7**
ESB1106	2	2/16/1998	NA	NA	NA	**27**	NA
	2-1/2	2/16/1998	NA	NA	NA	18	NA
ESB1107	1	2/16/1998	NA	NA	NA	17	NA
	2-1/2	2/16/1998	NA	NA	NA	2.6	NA
ESB1323	5	8/18/1998	NA	NA	NA	1.1 U	NA
	10	8/18/1998	NA	NA	NA	1.1 U	NA
	13	8/18/1998	NA	NA	NA	1.1 U	NA
ESB1324	5	8/18/1998	NA	NA	NA	1.1 U	NA
	10	8/18/1998	NA	NA	NA	1.1 U	NA
	18	8/18/1998	NA	NA	NA	1.1 U	NA
	23	8/18/1998	NA	NA	NA	1.0 U	NA
	23 (DUP)	8/18/1998	NA	NA	NA	1.1 U	NA
	25	8/18/1998	NA	NA	NA	1.1 U	NA
ESB2007	5	5/31/2014	4 U	4 U	4 U	3 XJ	4 U
		5/31/2014 (RE)	4 U DNR	4 U DNR	4 U DNR	4 U DNR	4 U DNR
	10	5/31/2014	5 U	5 U	5 U	5 U	5 U
		5/31/2014 (RE)	5 U DNR	5 U DNR	5 U DNR	5 U DNR	5 U DNR
	15	5/31/2014	5 U	5 U	5 U	5 U	5 U
	20	5/31/2014	5 U	5 U	5 U	5 U	5 U

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DNR - do not report

Table 2-9a
Summary of VOC Results in Soils for SWMU/AOC No. 097, Former Vapor Degreaser

DUP - field duplicate
J - estimated value
µg/kg - microgram per kilogram
NA - not analyzed or not available
RE - reanalysis
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-9b
Summary of VOC and Helium Results in Sub-Slab Vapor for SWMU/AOC No. 097, Former Vapor Degreaser

Chemical	MTCA Air Screening Level		ESSV2[a] 1/24/14	ESSV19 3/19/14	
	Method C	Method C AF 0.30		FS	REP
Volatile Organic Compounds (µg/m^3)					
Vinyl Chloride	2.8	93	7.0 U	12 U	12 U
1,1-Dichloroethene	200	6,700	11 U	19 U	19 U
cis-1,2-Dichloroethene	NE	NE	11 U	19 U	19 U
Trichloroethene	2	67	**3,800**	**6,500**	**6,400**
trans-1,2-Dichloroethene	NE	NE	11 U	19 U	19 U
Helium					
Helium (% in canister	NE	NE	0.061 X	0.49	0.63
Helium (% in shroud[b]	NE	NE	10.1	9.5	14.5
Helium (% as ratio[c])	5%		0.60	**5.2**	4.3

[a]This sample is listed on the laboratory report, chain of custody, and data validation report as BSSV2.
[b]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[c]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in bold font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/Vapor Intrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
FS - field sample
µg/m^3 - microgram per cubic meter
NE - not established
REP - field replicate sample
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-10a
Summary of VOC Results in Soils for SWMU/AOC No. 169, Small Vapor Degreaser

Sample ID	Sample Depth[a] (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)				
			1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
		MTCA Cleanup Level	**46**	**78**	**520**	**25**	**1.7**
ESB1518	8.3	1/22/2008	NA	NA	NA	0.9 U	NA
ESB1519	8.2	1/22/2008	NA	NA	NA	3.1	NA
	10.0	1/22/2008	NA	NA	NA	0.9 U	NA
ESB1520	8.1	1/23/2008	NA	NA	NA	0.9	NA
	10.2	1/23/2008	NA	NA	NA	0.8 U	NA
ESB1521	8.1	1/23/2008	NA	NA	NA	2.2	NA
	9.7	1/23/2008	NA	NA	NA	0.9 U	NA
ESB1522	8.3	1/24/2008	NA	NA	NA	1.1	NA
ESB1523	8.5	1/23/2008	NA	NA	NA	1.3	NA
	9.6	1/23/2008	NA	NA	NA	0.9 U	NA
ESB2004	15.5	3/29/2014	320 U	320 U	320 U	320 U	320 UJ
	20.5	3/29/2014	560 U	560 U	560 U	560 U	560 UJ
	24.0	3/29/2014	270 U	270 U	270 U	270 U	270 UJ
	30.5	3/29/2014	290 U	290 U	290 U	290 U	290 UJ
	35.5	3/29/2014	280 U	280 U	280 U	280 U	280 UJ
	40.5	3/29/2014	260 U	260 U	260 U	260 U	260 UJ

[a]The sample depths of historical borings ESB1518 through ESB1523 are based on the 6-foot depth of the degreaser pit floor and the reported sample depths below the degreaser pit floor.

Notes:
Values in bold font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

Table 2-10a (Continued)
Summary of VOC Results in Soils for SWMU/AOC No. 169, Small Vapor Degreaser

bgs - below ground surface
µg/kg - microgram per kilogram
NA - not analyzed or not available
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
VOC - volatile organic compound

Table 2-10b
Summary of VOC and Helium Results in Sub-Slab Vapor and Air for SWMU/AOC No. 169, Small Vapor Degreaser

Chemical	MTCA Air Screening Level		SSV4002-1 2/28/09	SSV4002-2 2/28/09	IA4002-2 1/3/10		AA4002-1 1/3/10	AA4002-2 1/3/10		AA4002-3 1/3/10	
	Method C	Method C/ AF 0.03			FS	ALT		FS	ALT	FS	ALT
Volatile Organic Compounds (µg/m^3)											
Chloroform	1.1	36	17 U	5.3	0.82 U	0.89 U	0.80 U	1.1 U	0.80 U	0.77 U	0.77 U
Freon 12 (Dichlorodifluoromethane)	100	3,330	**5,500**	20	2.3	2.7	2.2	2.3	2.2	1.5	2.4
trans-1,2-Dichloroethene	NE	NE	28	68	0.67 U	0.72 U	0.65 U	0.88 U	0.65 U	0.62 U	0.63 U
Vinyl Chloride	2.8	93	0.92 U	0.67	0.043 U	0.047 U	0.042 U	0.057 U	0.042 U	0.040 U	0.040 U
1,1-Dichloroethene	200	6,667	3.3	24	0.067 U	0.072 U	0.065 U	0.088 U	0.065 U	0.062 U	0.063 U
cis-1,2-Dichloroethene	NE	NE	2.8 U	0.43 U	0.13 U	0.14 U	0.13 U	0.18 U	0.13 U	0.12 U	0.12 U
Trichloroethene	2	67	**410**	60	0.088	0.11	0.043	0.037	0.032	0.025 U	0.031
Helium											
Helium (% in canister)	NE	NE	0.31	0.082 U	NA	NA	NA	NA	NA	NA	NA
Helium (% in shroud[a])	NE	NE	99.8	11.9	NA	NA	NA	NA	NA	NA	NA
Helium (% as ratio[b])	5		0.31	NA	NA	NA	NA	NA	NA	NA	NA

[a]Helium concentration within sampling shroud around sample inlet but not enclosing the sampling apparatus, measured in field at the time of sampling.
[b]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in bold font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
ALT - alternate sample volume collected that was analyzed by the laboratory.
µg/m^3 - microgram per cubic meter
NA - not applicable
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.

Table 2-11a
Summary of VOC Results in Soils for SWMU/AOC No. 170, Large Vapor Degreaser

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)				
			1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride
		MTCA Cleanup Level	**46**	**78**	**520**	**25**	**1.7**
ESB1524	8.2	1/24/2008	NA	NA	NA	2.3	NA
	10.0	1/24/2008	NA	NA	NA	2.6	NA
ESB1525	7.9	1/24/2008	NA	NA	NA	4.6	NA
	10.4	1/24/2008	NA	NA	NA	5.8	NA
ESB1526	8.1	1/24/2008	NA	NA	NA	3.7	NA
ESB1527	7.8	1/24/2008	NA	NA	NA	8.3	NA
	10.5	1/24/2008	NA	NA	NA	3.9	NA
ESB1528	8.1	1/25/2008	NA	NA	NA	0.9 U	NA
ESB1529	8.0	1/25/2008	NA	NA	NA	**28**	NA
	10.1	1/25/2008	NA	NA	NA	**40**	NA
ESB1530	8.2	1/25/2008	NA	NA	NA	9.9	NA
ESB2005	15	4/19/2014	5 U	5 U	5 U	5 U	5 U
		4/19/2014 (DUP)	5 U	5 U	5 U	5 U	5 U
	20	4/19/2014	6 U	6 U	6 U	6 U	6 U
ESB2006	16.5	4/19/2014	11 U	11 U	11 U	11 U	11 U
	20.5	4/19/2014	6 U	6 U	6 U	6 U	6 U
	25.5	4/19/2014	8 U	8 U	8 U	8 U	8 U
		4/19/2014 (DUP)	8 U	8 U	8 U	8 U	8 U
	30.5	4/19/2014	7 U	7 U	7 U	7 U	7 U
	35.5 [a]	4/19/2014	6 U	6 U	6 U	6 U	6 U
	40.5	4/19/2014	6 U	6 U	6 U	6 U	6 U

[a]Sample results were reported on a wet-weight basis.

Table 2-11a
Summary of VOC Results in Soils for SWMU/AOC No. 170, Large Vapor Degreaser

Notes:
Values in bold font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DUP - field duplicate
µg/kg - microgram per kilogram
NA - not analyzed or not available
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound

Table 2-11b
Summary of VOC and Helium Results in Sub-Slab Vapor and Air for SWMU/AOC No. 170, Large Vapor Degreaser

Chemical	Air Screening Level		Sample ID and Date											
			SSV4002-3		SSV4002-4	IA4002-3 1/3/10				AA4002-1	AA4002-2 1/3/10		AA4002-3 1/3/10	
	Method C	Method C/ AF 0.03	2/28/09 FS	2/28/09 DUP	2/28/09	FS	DUP	ALT	ALT DUP	1/3/10	FS	ALT	FS	ALT
Volatile Organic Compounds (µg/m^3)														
Chloroform	1.1	36	16 U	16 U	1.9	0.86 U	0.88 U	0.85 U	0.84 U	0.80 U	1.1 U	0.80 U	0.77 U	0.77 U
Freon 12 (Dichlorodifluoromethane)	100	3,300	760	660	6.5	2.9	3.0	2.8	2.7	2.2	2.3	2.2	1.5	2.4
trans-1,2-Dichloroethene	NE	NE	13 U	15	0.80 U	0.70 U	0.72 U	0.69 U	0.68 U	0.65 U	0.88 U	0.65 U	0.62 U	0.63 U
Vinyl Chloride	2.8	93	0.86 U	0.86 U	0.59	0.045 U	0.046 U	0.045 U	0.044 U	0.042 U	0.057 U	0.042 U	0.040 U	0.040 U
1,1-Dichloroethene	200	6,700	13	12	11	0.070 U	0.072 U	0.069 U	0.068 U	0.065 U	0.088 U	0.065 U	0.062 U	0.063 U
cis-1,2-Dichloroethene	NE	NE	2.7 U	2.7 U	0.46	0.14 U	0.14 U	0.14 U	0.14 U	0.13 U	0.18 U	0.13 U	0.12 U	0.12 U
Trichloroethene	2	67	**980**	**910**	**72**	0.084	0.11	0.10	0.085	0.043	0.037	0.032	0.025 U	0.031
Helium														
Helium (% in canister)	NE	NE	0.084 U	0.084 U	0.10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Helium (% in shroud[a])	NE	NE	28.4	28.4	21.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Helium (% as ratio[b])	5		NA	NA	0.48	NA	NA	NA	NA	NA	NA	NA	NA	NA

[a]Helium concentration within sampling shroud around sample inlet but not enclosing the sampling apparatus, measured in field at the time of sampling.
[b]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in bold font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
ALT - Alternate sample volume collected that was analyzed by the laboratory.
DUP - field duplicate
FS - field sample
µg/m^3 - microgram per cubic meter
NA - not applicable
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown

Table 2-12a
Summary of VOC Results in Soils for Building 40-02, Former Paint Crib

Sample ID	Sample Depth[a] (feet below Paint Crib Floor)	Date Collected	Trichloroethene (µg/kg)
		MTCA Cleanup Level	**25**
ESB1531	3.2	1/25/2008	0.9 U
	12.3	1/25/2008	0.8 U
ESB1532	3.2	1/28/2008	0.8 U
	12.9	1/28/2008	1.0 U
ESB1533	3.4	1/28/2008	0.8 U
	11.9	1/28/2008	1.0 U

[a]The sample depths of historical borings ESB1531 through ESB1533 are based on the 2-foot depth of the paint crib and the reported sample depths below the concrete floor.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
µg/kg - microgram per kilogram
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound

Table 2-12b
Summary of VOC and Helium Results in Sub-Slab Vapor and Air for Building 40-02, Former Plaint Crib

Chemical	MTCA Air Screening Level		Sample ID and Date								
	Method C	Method C AF 0.03	SSV4002-5 3/14/09	SSV4002-6 3/14/09	IA4002-1 1/3/10		AA4002-1 1/3/10	AA4002-2 1/3/10		AA4002-3 1/3/10	
					FS	ALT		FS	ALT	FS	ALT
Volatile Organic Compounds (µg/m^3)											
Chloroform	1.1	33	2.0 U	0.79 U	0.85 U	0.85 U	0.80 U	1.1 U	0.80 U	0.77 U	0.77 U
Freon 12 (Dichlorodifluoromethane)	100	3,300	120	140	3.0	3.2	2.2	2.3	2.2	1.5	2.4
trans-1,2-Dichloroethene	NE	NE	3.6	2.1	0.69 U	0.69 U	0.65 U	0.88 U	0.65 U	0.62 U	0.63 U
Vinyl Chloride	2.8	93	0.10 U	0.056	0.045 U	0.045 U	0.042 U	0.057 U	0.042 U	0.040 U	0.040 U
1,1-Dichloroethene	200	6,700	0.16 U	0.29	0.069 U	0.069 U	0.065 U	0.088 U	0.065 U	0.062 U	0.063 U
cis-1,2-Dichloroethene	NE	NE	0.32 U	0.13 U	0.14 U	0.14 U	0.13 U	0.18 U	0.13 U	0.12 U	0.12 U
Trichloroethene	2	67	**220**	26	0.090	0.090	0.043	0.037	0.032	0.025 U	0.031
Helium											
Helium (% in canister)	NE	NE	0.32	0.080 U	NA	NA	NA	NA	NA	NA	NA
Helium (% in shroud[a])	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Helium (% as ratio[b])	5		NA[c]	NA[c]	NA	NA	NA	NA	NA	NA	NA

[a]Helium concentration within sampling shroud around sample inlet but not enclosing the sampling apparatus, measured in field at the time of sampling.
[b]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.
[c]The helium concentration was less than 5% of the concentration in the shroud.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
ALT - Alternate sample volume collected that was analyzed by the laboratory.
DUP - field duplicate
µg/m^3 - microgram per cubic meter
NA - not available or not applicable
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown

Table 2-13a
Summary of VOC Results in Soils for SWMU/AOC Nos. 168 and 055, Utility Trenches and Sumps

Sample ID	Sample Depth (feet bgs)	Date Collected	Nonhalogenated VOCs n-Butyl Alcohol (µg/kg)
MTCA Cleanup Level			**3,300**
EGW070	10.0	4/3/2001	13,000 U
	11.5	4/3/2001	**18,000**
EGW071	9.5	4/4/2001	**23,000**
	11.0	4/4/2001	**16,000**
EGW072	8.0	4/4/2001	**14,000**
	9.5	4/4/2001	**15,000**
EWG073	8.0	4/5/2001	**13,000**
	9.5	4/5/2001	**15,000**
EGW074	8.0	4/5/2001	**13,000**
	9.5	4/5/2001	**14,000**

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
µg/kg - microgram per kilogram
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound

Table 2-13b
Summary of SVOC Results in Soils for SWMU/AOC Nos. 168 and 055, Utility Trenches and Sumps

Sample ID	Sample Depth (feet bgs)	Date Collected	Phosphate Compounds (mg/kg)				Butylated Hydroxytoluene (mg/kg)
			Butyl Diphenyl Phosphate	Dibutyl Phenyl Phosphate	Tributyl Phosphate	Triphenyl Phosphate	
	MTCA Method B Cleanup Level[a]		**8.2**	**8.2**	**8.2**	**8.2**	**700**
PVB-1	8	7/28/1994	0.36 U	0.14 U	0.071	0.36 U	NA
	15	7/28/1994	18 U	7.2 U	**47**	18 U	NA
	25	7/28/1994	0.35 U	0.14 U	0.069	0.35 U	NA
PVB-2	10	7/26/1994	18 U	**14**	**160**	18 U	NA
	15	7/26/1994	11 U	4.3 U	**61**	11 U	NA
	25	7/26/1994	18 U	7 U	**85**	18 U	NA
	35	7/26/1994	0.35 U	0.14 U	0.44	0.35 U	NA
PVB-4	17.5	7/28/1994	190 U	**290**	**1,900**	190 U	NA
	30	7/28/1994	0.35 U	0.74	4	0.35 U	NA
	39	7/28/1994	0.35 U	0.14 U	0.26	0.35 U	NA
PTB-2	11	7/28/1994	0.36 U	0.15 U	0.073 U	0.36 U	NA
	17	7/28/1994	0.35 U	0.14 U	0.07 U	0.35 U	NA
	27	7/28/1994	0.36 U	0.14 U	0.071 U	0.36 U	NA
PTB-3	10	7/29/1994	0.37 U	0.38	3.5	0.37 U	NA
	13	7/29/1994	0.36 U	0.15 U	0.96	0.36 U	NA
PTB-4	10	7/29/1994	0.35 U	0.14 U	2	0.35 U	NA
	15	7/29/1994	0.35 U	0.14 U	0.071 U	0.35 U	NA
	25	7/29/1994	0.36 U	0.14 U	0.072 U	0.36 U	NA
PFB-1	10	7/27/1994	0.35 U	0.14 U	0.071 U	0.35 U	NA
	13	7/27/1994	0.37 U	0.15 U	0.075 U	0.37 U	NA
	24	7/27/1994	0.37 U	0.15 U	0.074 U	0.37 U	NA
PFB-2	6.5	7/27/1994	0.35 U	0.14 U	0.069 U	0.35 U	NA
	13	7/27/1994	0.36 U	0.14 U	0.072 U	0.36 U	NA
	25	7/27/1994	0.35 U	0.14 U	0.07 U	0.35 U	NA
PFB-3	15	7/28/1994	0.37 U	0.15 U	0.073 U	0.37 U	NA
	20	7/28/1994	0.35 U	0.14 U	0.071 U	0.35 U	NA
	30	7/28/1994	0.35 U	0.14 U	0.071 U	0.35 U	NA
PFB-4	10	7/29/1994	0.36 U	0.14 U	0.071 U	0.36 U	NA
	15	7/29/1994	0.36 U	0.14 U	0.072 U	0.36 U	NA
	25	7/29/1994	0.36 U	0.14 U	0.071 U	0.36 U	NA
PFB-5	7.5	7/28/1994	0.36 U	0.14 U	1	0.36 U	NA
	15	7/28/1994	0.36 U	0.14 U	1.1	0.36 U	NA
PFB-6	10	7/29/1994	0.36 U	0.14 U	0.072 U	0.36 U	NA
	15	7/29/1994	0.36 U	0.14 U	0.071 U	0.36 U	NA
	20	7/29/1994	0.36 U	0.14 U	0.071 U	0.35 U	NA
PFB-7	10.5	7/26/1994	0.36 U	0.15 U	0.073 U	0.36 U	NA
	15	7/26/1994	0.36 U	0.14 U	0.071 U	0.36 U	NA
	19	7/26/1994	0.35 U	0.14 U	0.07 U	0.35 U	NA
ESB1116[b]	20	2/19/1998	360 U	0.92	1.8	0.36 U	NA
ESB1117	5	2/19/1998	0.4	2	3.2	0.35 U	NA
	10	2/19/1998	0.37	1.9	4.7	0.36 U	NA
	20	2/19/1998	0.37 U	0.82	3.3	0.37 U	NA

Table 2-13b (Continued)
Summary of SVOC Results in Soils for SWMU/AOC Nos. 168 and 055, Utility Trenches and Sumps

Sample ID	Sample Depth (feet bgs)	Date Collected	Phosphate Compounds (mg/kg)				Butylated Hydroxytoluene (mg/kg)
			Butyl Diphenyl Phosphate	Dibutyl Phenyl Phosphate	Tributyl Phosphate	Triphenyl Phosphate	
ESB1118	5	2/19/1998	0.34 U	0.14 U	0.069 U	0.34 U	NA
	10	2/19/1998	0.37 U	0.15 U	0.073 U	0.37 U	NA
	20	2/19/1998	0.37 U	0.18	0.62	0.37 U	NA
ESB1286	2 1/2[c]	7/15/1998	**33**	**140**	**2,300**	**84**	NA
ESB1287	2 1/2[c]	7/15/1998	**60**	**180**	**2,700**	57 U	NA
ESB1288	2[c]	7/15/1998	6.6 J	**42 J**	**320 J**	2.7 UJ	NA
		7/15/1998 (DUP)	**13**	**56**	**440**	11 U	NA
ESB1289	2 1/4[c]	7/15/1998	0.42 U	0.17 U	0.56	0.42 U	NA
ESB1290	2 1/2[c]	7/16/1998	6.7 EJ	**150**	**1,700**	**38**	NA
ESB1291	2 1/2[c]	7/16/1998	53 U	**28**	**1,700**	**56**	NA
ESB1292	2[c]	7/16/1998	0.41 U	0.48	**16**	0.41 U	NA
ESB1330	15	9/21/1998	0.36 U	0.14 U	0.071 U	0.36 U	NA
	17 1/2	9/21/1998	0.38 U	0.15 U	0.075 U	0.38 U	NA
	25	9/21/1998	0.37 U	0.15 U	0.074 U	0.37 U	NA
ESB1331	15	9/23/1998	0.36 U	0.14 U	0.072 U	0.36 U	NA
	17 1/2	9/23/1998	0.37 U	0.15 U	0.073 U	0.37 U	NA
	30	9/23/1998	0.35 U	0.14 U	0.07 U	0.35 U	NA
ESB1332	20	11/16/1998	0.36 U	0.14 U	0.072 U	0.36 U	NA
	30	11/16/1998	0.36 U	0.15 U	0.073 U	0.36 U	NA
	40	11/16/1998	0.36 U	0.14 U	0.072 U	0.36 U	NA
ESB1333	12 1/2	11/18/1998	36 U	**24**	**220**	1.4	NA
	15	11/18/1998	0.36 U	0.14 U	1.0	0.36 U	NA
	17 1/2	11/18/1998	0.38 U	0.24	1.5	0.38 U	NA
	20	11/18/1998	0.35 U	0.14 U	0.16	0.35 U	NA
		11/18/1998 (DUP)	1.0	3.0	**29**	0.36 U	NA
	25	11/18/1998	0.49	1.4	**14**	0.37 U	NA
	35	11/18/1998	0.36 U	0.14 U	0.093	0.36 U	NA
	45	11/18/1998	0.35 U	0.14 U	0.071 U	0.35 U	NA
	50	11/18/1998	0.36 U	0.14 U	0.072 U	0.36 U	NA
	60	11/18/1998	0.35 U	0.14 U	0.071 U	0.35 U	NA
ESB-1334	15	11/17/1998	0.37 U	0.15 U	0.073 U	0.37 U	NA
	20	11/17/1998	0.36 U	0.15 U	0.073 U	0.36 U	NA
	30	11/17/1998	0.37 U	0.15 U	0.074 U	0.37 U	NA
	40	11/17/1998	0.36 U	0.14 U	0.072 U	0.36 U	NA
ESB1340	9’8”	12/14/1998	0.35 U	0.14 U	3.5	0.35 U	NA
ESB1341	10	12/14/1998	0.37 U	0.15 U	0.074 U	0.37 U	NA
ESB1342	11 1/2	2/22/1999	0.36 U	0.31	**18**	0.36 U	NA
ESB1343	6	2/22/1999	0.72 U	0.29 U	1	0.72 U	NA
ESB1344	10	2/22/1999	0.34 U	0.14 U	0.069 U	0.34 U	NA
ESB1350	9 1/2	4/15/1999	0.37 U	0.12 J	7.3	0.37 U	NA
ESB1351	11	4/15/1999	0.36 U	0.15	3.3	0.36 U	NA
ESB1352	6	4/15/1999	0.36 U	0.14 U	0.072 U	0.36 U	NA
ESB1384	15	6/13/2000	0.39 U	0.16 U	0.079 U	0.39 U	NA
	20	6/13/2000	0.38 U	0.15 U	0.075 U	0.38 U	NA

Table 2-13b (Continued)
Summary of SVOC Results in Soils for SWMU/AOC Nos. 168 and 055, Utility Trenches and Sumps

Sample ID	Sample Depth (feet bgs)	Date Collected	Phosphate Compounds (mg/kg)				Butylated Hydroxytoluene (mg/kg)
			Butyl Diphenyl Phosphate	Dibutyl Phenyl Phosphate	Tributyl Phosphate	Triphenyl Phosphate	
ESB1385	10	6/13/2000	0.40 U	0.16 U	0.079 U	0.40 U	NA
		6/13/2000 (DUP)	0.36 U	0.14 U	0.072 U	0.36 U	NA
	15	6/13/2000	0.39 U	0.16 U	0.078 U	0.39 U	NA
	20	6/13/2000	0.38 U	0.15 U	0.076 U	0.38 U	NA
ESB1393	10	1/15/2001	0.35 U	0.14 U	0.070 U	0.35 U	NA
	12.5	1/15/2001	0.36 U	0.15 U	0.073 U	0.36 U	NA
	15	1/15/2001	0.36 U	0.14 U	0.072 U	0.36 U	NA
ESB1394	10	1/15/2001	0.36 U	0.14 U	**8.2**	0.36 U	NA
	12.5	1/15/2001	0.36 U	0.15 U	0.073 U	0.36 U	NA
	15	1/15/2001	0.37 U	0.15 U	0.073 U	0.37 U	NA
ESB1395-2’	2	1/15/2001	0.36 U	0.15 U	0.16	0.36 U	NA
		1/15/2001 (DUP)	0.37 U	0.15 U	0.42	0.37 U	NA
ESB1396	2	1/15/2001	**25**	**67 EJ**	**1,600**	**33**	NA
EGW070	10.0	4/3/2001	**34**	**73**	**250 J**	**9.5 EJ**	31
	11.5	4/3/2001	3.2	**12**	**94 J**	1.0 J	1.8
	15.0	4/3/2001	2.0	3.3	**22 J**	0.38 UJ	0.71
	20.0	4/3/2001	0.36 U	0.14 U	0.16 J	0.36 UJ	0.0099
	35.0	4/3/2001	0.36 U	0.14 U	0.13 J	0.36 UJ	0.0071
	40.0	4/3/2001	0.37 U	0.15 U	0.46	0.37 U	0.0022 UJ
	45.0	4/3/2001	0.37 U	0.15 U	0.075 U	0.37 U	0.0023 UJ
EGW071	6.5	4/4/2001	0.35 UJ	0.19	**41**	0.35 UJ	0.0055
	8.0	4/4/2001	0.53	0.79	**61**	5.3 J	0.012
	9.5	4/4/2001	0.37 U	0.60	**13**	0.37 UJ	0.064
	11.0	4/4/2001	0.37 U	0.46	4.0	0.37 UJ	0.061
	15.0	4/4/2001	2.2	3.2	4.6	0.37 UJ	0.31
	20.0	4/4/2001	4.5	5.1	**10**	0.36 UJ	0.36
	30.0	4/4/2001	0.36 U	0.36	0.61	0.36 UJ	0.017
	35.0	4/4/2001	0.36 U	0.15 U	0.15	0.36 U	0.0022 UJ
	40.0	4/4/2001	0.36 U	0.42	0.83	0.36 U	0.0022 UJ
	45.0	4/4/2001	0.36 U	0.15	0.28	0.36 U	0.0022 UJ
EGW072	5.0	4/4/2001	0.37 U	0.31	0.75	0.37 UJ	0.0049
	6.5	4/4/2001	0.36 U	0.14 U	1.0	0.36 UJ	0.0022 U
	8.0	4/4/2001	0.37 U	0.66	4.7	0.37 UJ	0.036
	9.5	4/4/2001	0.37 U	0.15 U	0.37	0.37 UJ	0.0087
	11.0	4/4/2001	0.36 U	0.14 U	0.072 U	0.36 U	0.0022 UJ
	12.5	4/4/2001	0.37 U	0.15 U	0.074 U	0.37 UJ	0.0022 U
	20.0	4/4/2001	0.37 U	0.15 U	0.073 U	0.37 UJ	0.0022 U
	30.0	4/4/2001	0.36 U	0.14 U	0.072 U	0.36 UJ	0.0022 U

Table 2-13b (Continued)
Summary of SVOC Results in Soils for SWMU/AOC Nos. 168 and 055, Utility Trenches and Sumps

Sample ID	Sample Depth (feet bgs)	Date Collected	Phosphate Compounds (mg/kg)				Butylated Hydroxytoluene (mg/kg)
			Butyl Diphenyl Phosphate	Dibutyl Phenyl Phosphate	Tributyl Phosphate	Triphenyl Phosphate	
EWG073	5.0	4/5/2001	0.36 U	0.27	0.75	0.36 UJ	0.0025 J
	6.5	4/5/2001	0.37 U	0.15 U	0.073 U	0.37 U	0.0022 U
	8.0	4/5/2001	0.37 U	0.15 U	0.074 U	0.37 U	0.0022 U
	9.5	4/5/2001	0.36 U	0.15 U	0.073 U	0.36 UJ	0.0022 U
	15.0	4/5/2001	0.36 U	0.14 U	0.072 U	0.36 U	0.0022 U
	20.0	4/5/2001	0.37 U	0.15 U	0.074 U	0.37 U	0.0022 U
	30.0	4/5/2001	0.35 U	0.14 U	0.071 U	0.35 U	0.0021 U
EGW074	5.0	4/5/2001	0.36 U	0.14 U	0.071 U	0.36 U	0.0021 U
	6.5	4/5/2001	0.35 U	0.14 U	0.071 U	0.35 U	0.0021 U
	8.0	4/5/2001	0.36 U	0.14 U	0.072 U	0.36 U	0.0022 U
	9.5	4/5/2001	0.36 U	0.14 U	1.3	0.36 U	0.0022 U
	11.0	4/5/2001	0.36 U	0.14 U	0.16 J	0.36 U	0.13 J
	15.0	4/5/2001	0.36 U	1.4	5.5	0.36 U	0.077
	20.0	4/5/2001	0.36 U	0.24	1.3	0.36 U	0.0095
	25.0	4/5/2001	0.36 U	0.32	2.0 J	0.36 U	0.0045 J
	30.0	4/5/2001	0.35 U	0.14 U	0.071 U	0.35 U	0.0021 U

[a]Protection of groundwater cleanup levels were calculated using MTCA equation 747-1 (WAC 173-340-747)
[b]Boring ESB1116 was converted to monitoring well EGW055.
[c]Sample collected below the concrete floor of the utility trench. Depths shown are below the concrete floor approximately 8 feet below ground surface.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method B values were calculated in accordance with the MTCA regulation.
bgs - below ground surface
DUP - field duplicate
EJ - The results is an estimated value, as it exceeds the calibration range of the instrument.
J - estimated value
mg/kg - milligram per kilogram
NA - not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
SVOC - semivolatile organic compound

Table 2-14a
Summary of VOC Results in Soils for SWMU/AOC Nos. 086, 089, and 094, Former USTs

Sample ID	Sample Depth (feet bgs)	Date Collected[a]	Volatile Organic Compound (µg/kg)											
			Benzene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	4-Methyl-2-pentanone	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	m,p-Xylene[b]	o-Xylene[b]
	MTCA Cleanup Level		**27**	**46**	**78**	**520**	**6,000**	**2,700**	**50**	**4,500**	**25**	**1.7**	**13,000 15,000 (Total Xylenes)**	**14,000 15,000 (Total Xylenes)**
EGW002	1	6/9/1986	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
	14	6/9/1986	ND	ND	NA	NA	53	**15,000**	ND	26	ND	ND	45	
	15	6/9/1986	ND	ND	NA	NA	370	**11,000**	ND	75	ND	ND	2,000	
EGW004	5	6/10/1986	ND	ND	NA	NA	33	ND	ND	5	ND	ND	340	
	20	6/10/1986	ND	ND	NA	NA	**9,200**	280	ND	890	ND	ND	**41,000**	
	25	6/10/1986	ND	ND	NA	NA	1,600	110	ND	68	ND	ND	14,000	
EGW005	5	6/11/1986	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	39	
	20	6/11/1986	ND	ND	NA	NA	50	**3,600**	ND	6	ND	ND	770	
EGW006	5	6/11/1986	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
	20	6/11/1986	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
EGW007	5	6/17/1986	ND	ND	NA	NA	790	36	ND	ND	ND	ND	4,700	
	20	6/17/1986	ND	ND	NA	NA	350	110	ND	ND	ND	ND	1,700	
EGW008	5	9/24/1986	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	ND	
	12	9/24/1986	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	18	
	18	9/24/1986	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	3	
EGW009	6	10/7/1986	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	4.9	
	12	10/7/1986	NA	NA	NA	NA	6	NA	NA	ND	NA	NA	9.1	
	18	10/7/1986	NA	NA	NA	NA	38	NA	NA	10	NA	NA	260	
EGW010	5	10/16/1986	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	ND	
	9	10/16/1986	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	ND	
	9	10/16/1986	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	ND	
	15	10/16/1986	NA	NA	NA	NA	3	NA	NA	1.7	NA	NA	7	
	20	10/16/1986	NA	NA	NA	NA	ND	NA	NA	ND	NA	NA	6	
ESB1086	10	7/7/1997	NA	NA	NA	NA	650	5.2 U	NA	1.1	NA	NA	272	
	13	7/7/1997	NA	NA	NA	NA	1,200	**9,000**	NA	120	NA	NA	9,000	
ESB1087	7	7/7/1997	NA	NA	NA	NA	220	28 U	NA	5.6 U	NA	NA	1,141	
	10	7/7/1997	NA	NA	NA	NA	**9,500**	2,400 U	NA	490 U	NA	NA	**91,000**	
	13	7/7/1997	NA	NA	NA	NA	2,900	2,200 U	NA	450 U	NA	NA	**28,700**	
ESB1088	10	7/7/1997	NA	NA	NA	NA	15	5.3 U	NA	3.0	NA	NA	33	
	13	7/7/1997	NA	NA	NA	NA	1,200	27 U	NA	5.4 U	NA	NA	43	
ESB1090	7	7/7/1997	NA	NA	NA	NA	2,500	1,800 U	NA	360 U	NA	NA	**32,000**	
	10	7/7/1997	NA	NA	NA	NA	**160,000**	4,700 U	NA	**73,000**	NA	NA	**2,840,000**	
	13	7/7/1997	NA	NA	NA	NA	**150,000**	4,600 U	NA	**80,000**	NA	NA	**1,270,000**	
ESB1092	4	7/7/1997	NA	NA	NA	NA	1.0 U	4.8 U	NA	1.0 U	NA	NA	1.2	
	7	7/7/1997	NA	NA	NA	NA	210	44 U	NA	8.9 U	NA	NA	1,541	
	13	7/7/1997	NA	NA	NA	NA	**120,000**	4,300 U	NA	**54,000**	NA	NA	**1,040,000**	
ESB1093	18	7/7/1997	NA	NA	NA	NA	1,100	41 U	NA	8.2 U	NA	NA	9,683	
ESB1094	10	7/7/1997	NA	NA	NA	NA	**370,000**	**79,000**	NA	**45,000**	NA	NA	**2,630,000**	
	13.5	7/7/1997	NA	NA	NA	NA	**1,300,000**	170,000 U	NA	**75,000**	NA	NA	**8,900,000**	
	15	7/7/1997	NA	NA	NA	NA	4,600	2,100 U	NA	410 U	NA	NA	**36,800**	
		7/7/1997 (DUP)	NA	NA	NA	NA	**9,700**	2,300 U	NA	460 U	NA	NA	**73,500**	
ESB1095	5	7/8/1997	NA	NA	NA	NA	1.8	4.7 U	NA	0.9 U	NA	NA	11	
	9	7/8/1997	NA	NA	NA	NA	3,700	670 U	NA	130 U	NA	NA	**27,000**	
	12	7/8/1997	NA	NA	NA	NA	**75,000**	56,000 U	NA	11,000 U	NA	NA	**769,000**	
	17.5	7/8/1997	NA	NA	NA	NA	2,200	620 U	NA	120 U	NA	NA	**18,200**	
ESB1096	10	7/8/1997	NA	NA	NA	NA	0.9 U	4.6 U	NA	0.9 U	NA	NA	5.2	
	13	7/8/1997	NA	NA	NA	NA	160	680 U	NA	140 U	NA	NA	1,600	
ESB1097	6	7/8/1997	NA	NA	NA	NA	16	5.0 U	NA	1.0 U	NA	NA	226	
	9	7/8/1997	NA	NA	NA	NA	140	640 U	NA	130 U	NA	NA	1,100	
	12	7/8/1997	NA	NA	NA	NA	4,600	700 U	NA	140 U	NA	NA	**31,200**	
	17	7/8/1997	NA	NA	NA	NA	3,400	1,400 U	NA	270 U	NA	NA	3,500	
ESB1098	7	7/8/1997	NA	NA	NA	NA	140	30 U	NA	6.1 U	NA	NA	960	
	8	7/8/1997	NA	NA	NA	NA	4,400	640 U	NA	170	NA	NA	**35,400**	
	12	7/8/1997	NA	NA	NA	NA	**45,000**	6,900 U	NA	1,400 U	NA	NA	**341,000**	
	16	7/8/1997	NA	NA	NA	NA	**2,300,000**	130,000 U	NA	**110,000**	NA	NA	**10,700,000**	
ESB1099	11	7/8/1997	NA	NA	NA	NA	**1,400,000**	130,000 U	NA	**39,000**	NA	NA	**10,300,000**	
	15	7/8/1997	NA	NA	NA	NA	**680,000**	130,000 U	NA	**31,000**	NA	NA	**4,530,000**	
ESB1100	9	7/8/1997	NA	NA	NA	NA	**740,000**	120,000 U	NA	23,000 U	NA	NA	**7,030,000**	
	11	7/8/1997	NA	NA	NA	NA	**580,000**	130,000 U	NA	25,000 U	NA	NA	**7,500,000**	
	16	7/8/1997	NA	NA	NA	NA	**9,700**	1,200 U	NA	500	NA	NA	**71,000**	

Table 2-14a (Continued)
Summary of VOC Results in Soils for SWMU/AOC Nos. 086, 089, and 094, Former USTs

Sample ID	Sample Depth (feet bgs)	Date Collected[a]	Volatile Organic Compound (µg/kg)											
			Benzene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	4-Methyl-2-pentanone	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	m,p-Xylene[b]	o-Xylene[b]
	MTCA Cleanup Level		27	46	78	520	6,000	2,700	50	4,500	25	1.7	13,000 15,000 (Total Xylenes)	14,000 15,000 (Total Xylenes)
PE-1-3	3	10/8/1997	NA	NA	NA	NA	190	5.6 U	NA	1.1 U	NA	NA	63	34
PE-2-6	6	10/8/1997	NA	NA	NA	NA	NA	27 U	NA	5.4 U	NA	NA	NA	NA
		10/8/1997 (DL RE)	NA	NA	NA	NA	290	NA	NA	NA	NA	NA	1,200	520
PE-3-9	9	10/9/1997	NA	NA	NA	NA	17	540	NA	4.3	NA	NA	150	24
PE-4-12	12	10/9/1997	NA	NA	NA	NA	NA	20 U	NA	4 U	NA	NA	NA	4 U
		10/9/1997 (DL RE)	NA	NA	NA	NA	410	NA	NA	NA	NA	NA	1,200	NA
PE-5-12	12	10/9/1997	NA	NA	NA	NA	71 J	5.3 U	NA	1.6	NA	NA	NA	83 J
		10/9/1997 (DL RE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	280	NA
PE-6-14	14	10/10/1997	NA	NA	NA	NA	4,800	2,200	NA	230	NA	NA	**34,000**	5,500
PE-7-17	17	10/10/1997	NA	NA	NA	NA	5,800	640 U	NA	130 U	NA	NA	**22,000**	2,500
PE-8-12	12	10/9/1997	NA	NA	NA	NA	9.1	5.6 U	NA	2.8	NA	NA	70	16
PE-9-12	12	10/9/1997	NA	NA	NA	NA	**9,500**	2,200 U	NA	440 U	NA	NA	**51,000**	13,000
PE-10-12	12	10/9/1997	NA	NA	NA	NA	1,000	660 U	NA	910	NA	NA	6,700	1,500
PE-11-12	12	10/9/1997	NA	NA	NA	NA	**120,000**	24,000 U	NA	**130,000**	NA	NA	**650,000**	**98,000**
PE-12-12	12	10/9/1997	NA	NA	NA	NA	1,900	680 U	NA	140 U	NA	NA	11,000	2,600
PE-13-18	18	10/10/1997	NA	NA	NA	NA	1,800	**15,000**	NA	190	NA	NA	11,000	1,800
PE-14-18	18	10/10/1997	NA	NA	NA	NA	1,600	**5,900**	NA	140 U	NA	NA	10,000	1,600
PE-15-18	18	10/10/1997	NA	NA	NA	NA	810	56	NA	5 U	NA	NA	1,100	33
PE-16-16	16	10/10/1997	NA	NA	NA	NA	7.3	5.6 U	NA	2.2	NA	NA	22	2.3
PE-17-10	10	10/10/1997	NA	NA	NA	NA	480 J	25 U	NA	180 J	NA	NA	1,300 J	830 J
PE-18-14	14	10/10/1997	NA	NA	NA	NA	1,600	660	NA	150	NA	NA	**13,000**	2,100
PE-19-7	7	10/16/1997	NA	NA	NA	NA	1.1 U	5.6 U	NA	1.1 U	NA	NA	2.7	1.2
ESB1293	11	7/27/1998	1.1 UJ	NA	4.4	NA	1.1 UJ	5.6 U	NA	1.4 J	8.0 J	NA	1.1 U	
	12 1/2	7/27/1998	1.4 J	NA	12	NA	1.1 UJ	5.4 U	NA	1.6 J	22 J	NA	1.1 U	
	15 1/2	7/27/1998	1.6 J	NA	6.4	NA	1.1 UJ	5.4 U	NA	2.1 J	2.5 J	NA	1.1 U	
ESB1294	9 1/2	7/27/1998	1.1 UJ	NA	1.1 U	NA	1.1 UJ	5.5 U	NA	1.1 UJ	1.1 UJ	NA	1.1 U	
	11	7/27/1998	1.1 UJ	NA	2.0	NA	1.1 UJ	5.4 U	NA	1.1 UJ	1.1 UJ	NA	1.1 U	
	14	7/27/1998	1.1 UJ	NA	1.1 U	NA	1.1 UJ	5.3 U	NA	1.1 UJ	1.1 UJ	NA	1.1 U	
ESB1295	9	7/27/1998	1.2 U	NA	1.2 U	NA	1.2 U	6.0 U	NA	1.2 U	1.2 U	NA	1.2 U	
	11 1/2	7/27/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.4 U	NA	1.1 U	1.1 U	NA	1.1 U	
	13 1/2	7/27/1998	1.1 UJ	NA	1.1 U	NA	1.1 UJ	5.6 U	NA	1.1 UJ	1.1 UJ	NA	1.1 U	
ESB1296	4 1/2	7/27/1998	1.1 UJ	NA	1.1 U	NA	1.1 UJ	5.3 U	NA	1.1 UJ	1.1 UJ	NA	1.1 U	
	9 1/2	7/27/1998	1.2 UJ	NA	1.2 U	NA	1.2 UJ	5.8 U	NA	1.2 UJ	1.2 UJ	NA	1.2 UJ	
	10 1/2	7/27/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.6 U	NA	1.1 U	1.1 U	NA	1.1 U	
ESB1297	7	7/28/1998	140 U	NA	140 U	NA	850	690 U	NA	140 U	140 U	NA	5,390	
	12	7/28/1998	140 U	NA	140 U	NA	2,200	690 U	NA	140 U	140 U	NA	**15,500**	
	15.5	7/28/1998	140 U	NA	140 U	NA	4,200	700 U	NA	170	140 U	NA	**37,600**	
		7/28/1998 (DUP)	140 U	NA	140 U	NA	3,900	680 U	NA	170	140 U	NA	**35,000**	
	18.5	7/28/1998	130 U	NA	130 U	NA	1,000	640 U	NA	130 U	130 U	NA	10,100	
ESB1298	9.5	7/28/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.7 U	NA	1.1 U	1.1 U	NA	1.1 U	
	11.5	7/28/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.6 U	NA	1.1 U	1.1 U	NA	1.1 U	
ESB1299	9 1/2	7/28/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.4 U	NA	1.1 U	1.1 U	NA	2.6	
	11	7/28/1998	1.2 U	NA	1.2 U	NA	1.2 U	5.8 U	NA	1.2U	1.2 U	NA	1.2 U	
	11 1/2	7/28/1998	1.2 U	NA	1.2 U	NA	1.2 U	5.8 U	NA	1.2 U	1.2 U	NA	1.2 U	
ESB1300	10.5	7/28/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.5 U	NA	1.1 U	1.1 U	NA	1.1 U	
	11.5	7/28/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.6 U	NA	1.1 U	1.1 U	NA	1.1 U	
	12.5	7/28/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.4 U	NA	1.1 U	1.1 U	NA	1.1 U	
ESB1301	9 1/2	7/28/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.5 U	NA	1.1 U	1.1 U	NA	1.1 U	
	12 1/2	7/28/1998	1.1 U	NA	1.1 U	NA	1.1 U	5.6 U	NA	1.1 U	1.1 U	NA	1.1 U	
	13 1/2	7/28/1998	1.2 U	NA	1.2 U	NA	1.2 U	6.0 U	NA	1.2 U	1.2 U	NA	1.2 U	
ESB1302	11	7/28/1998	140 U	NA	140 U	NA	200	680 U	NA	140 U	140 U	NA	680	
	12	7/28/1998	130 U	NA	130 U	NA	990	670 U	NA	130 U	130 U	NA	4,480	
	13.5	7/28/1998	1,300 U	NA	1,300 U	NA	1,200 J	6,300 U	NA	1,300 U	1,300 U	NA	6,500	
	15.5	7/28/1998	1.1 U	NA	1.1 U	NA	270 E	26	NA	3.6	1.1 U	NA	1,050	
ESB1366	5	4/3/2000	NA	1.1 U	NA	NA	1.1 U	5.6 U	NA	1.1 U	NA	0.053 U	1.1 U	
	12 1/2	4/3/2000	NA	9.8 U	NA	NA	630	49 U	NA	9.8 U	NA	0.054 U	570	
	14	4/3/2000	NA	8.3 U	NA	NA	280	42 U	NA	8.3 U	NA	0.056 U	1,855	
ESB1367	7 1/2	4/3/2000	NA	1.1 U	NA	NA	1.1 U	5.4 U	NA	1.1 U	NA	0.053 U	1.1 U	
	10	4/3/2000	NA	1.1 U	NA	NA	1.1 U	5.7 U	NA	1.1 U	NA	0.054 U	1.1 U	
	12	4/3/2000	NA	1.1 U	NA	NA	1.1 U	5.5 U	NA	1.1 U	NA	0.59	1.1 U	

Table 2-14a (Continued)
Summary of VOC Results in Soils for SWMU/AOC Nos. 086, 089, and 094, Former USTs

Sample ID	Sample Depth (feet bgs)	Date Collected[a]	Volatile Organic Compound (µg/kg)											
			Benzene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	4-Methyl-2-pentanone	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	m,p-Xylene[b]	o-Xylene[b]
	MTCA Cleanup Level		27	46	78	520	6,000	2,700	50	4,500	25	1.7	13,000 15,000 (Total Xylenes)	14,000 15,000 (Total Xylenes)
ESB1374	2	4/4/2000	NA	1.0 U	NA	NA	1.0 U	5.1 U	NA	1.0 U	NA	0.051 U	1.0 U	
	5	4/4/2000	NA	1.1 U	NA	NA	1.1 U	5.7 U	NA	1.1 U	NA	0.11	1.1 U	
	6	4/4/2000	NA	1.1 U	NA	NA	1.1 UJ	5.7 U	NA	1.1 U	NA	0.058 U	1.1 UJ	
ESB1376	5 1/2	4/5/2000	NA	0.9 U	NA	NA	0.9 U	4.6 U	NA	0.9 U	NA	0.057 U	0.9 U	
ESB1377	6	4/5/2000	NA	1.1 U	NA	NA	43	5.4 U	NA	1.1 U	NA	0.087 J	100.4	
ESB1378	6	4/5/2000	NA	0.9 U	NA	NA	97	4.6 U	NA	1.9	NA	0.16 J	650	
		4/5/2000 (DUP)	NA	1.1 U	NA	NA	120	5.6 U	NA	1.1 U	NA	0.080 J	404	
	7	4/5/2000	NA	1.2	NA	NA	130	5.0 U	NA	8.2	NA	0.21	830	
EGW062	10	6/12/2000	NA	1.1 U	NA	NA	1.1 U	5.7 U	NA	1.1 U	NA	0.056 U	1.4	
	15	6/12/2000	NA	1.1 U	NA	NA	3.7	5.4 U	NA	1.1 U	NA	0.055 UJ	309.5	
	17 1/2	6/12/2000	NA	1.2 U	NA	NA	1.2 U	5.8 U	NA	1.2 U	NA	0.056 U	1.2 U	
EGW063	15	6/12/2000	NA	1.2 U	NA	NA	400	5.9 U	NA	4.2	NA	0.055 UJ	4,330	
	17 1/2	6/12/2000	NA	1.1 U	NA	NA	550	18	NA	44	NA	0.058 UJ	4,970	
ESB1401	15	6/5/2002	NA	NA	NA	NA	**1,200,000**	NA	NA	**59,000 J**	NA	NA	**11,000,000**	
	20	6/6/2002 [c]	50 U	NA	NA	NA	110	NA	NA	50 U	NA	NA	930	
	25	6/6/2002 [c]	50 U	NA	NA	NA	50 U	NA	NA	50 U	NA	NA	50 U	
	30	6/6/2002 [c]	50 U	NA	NA	NA	50 U	NA	NA	50 U	NA	NA	50 U	
		6/6/2002	NA	NA	NA	NA	1.1 U	NA	NA	1.1 U	NA	NA	2.3 U	
ESB1402	17.5	6/5/2002	NA	NA	NA	NA	2,100	NA	NA	280 U	NA	NA	**18,000**	
	20	6/6/2002 [c]	50 U	NA	NA	NA	590	NA	NA	50 U	NA	NA	5,600	
	25	6/6/2002 [c]	50 U	NA	NA	NA	50 U	NA	NA	50 U	NA	NA	50 U	
		6/6/2002 (DUP) [c]	50 U	NA	NA	NA	50 U	NA	NA	50 U	NA	NA	50 U	
	30	6/6/2002 [c]	50 U	NA	NA	NA	50 U	NA	NA	50 U	NA	NA	50 U	
	35	6/6/2002 [c]	50 U	NA	NA	NA	50 U	NA	NA	50 U	NA	NA	50 U	
		6/6/2002	NA	NA	NA	NA	1.1 U	NA	NA	1.1 U	NA	NA	4.1	
ESB1403	11	6/5/2002	NA	NA	NA	NA	4,500	NA	NA	290 U	NA	NA	**27,000**	
	15	6/6/2002 [c]	50 U	NA	NA	NA	920	NA	NA	50 U	NA	NA	4,600	
		6/6/2002	NA	NA	NA	NA	1,400	NA	NA	12	NA	NA	5,100	
	20	6/6/2002 [c]	50 U	NA	NA	NA	440	NA	NA	50 U	NA	NA	1,900	
	25	6/6/2002 [c]	50 U	NA	NA	NA	50	NA	NA	50 U	NA	NA	400	
	30	6/6/2002 [c]	50 U	NA	NA	NA	50 U	NA	NA	50 U	NA	NA	50 U	
		6/7/2002 (DUP) [c]	50 U	NA	NA	NA	50 U	NA	NA	50 U	NA	NA	50 U	
		6/6/2002	NA	NA	NA	NA	1.1 U	NA	NA	1.1 U	NA	NA	2.5	
ESB1979	10	12/5/2013	790 UJ	4,000 UJ	4,000 UJ	4,000 UJ	670,000 E DNR	7,900 UJ	790 UJ	**18,000 J**	4,000 UJ	4,000 UJ	2,400,000 E DNR	880,000 E DNR
		12/5/2013 (DL)	16,000 U DNR	79,000 U DNR	79,000 U DNR	79,000 U DNR	**1,300,000 J**	160,000 U DNR	16,000 U DNR	79,000 U DNR	79,000 U DNR	79,000 U DNR	**6,200,000 J**	**870,000 J**
	15	12/5/2013	94 U	470 U	470 U	470 U	**12,000**	940 U	94 U	560	470 U	470 U	72,000 E DNR	12,000
		12/5/2013 (DL)	940 U DNR	4,700 U DNR	4,700 U DNR	4,700 U DNR	13,000 DNR	9,400 U DNR	940 U DNR	4,700 U DNR	4,700 U DNR	4,700 U DNR	**81,000**	12,000 DNR
	18	12/5/2013	43 U	210 U	210 U	210 U	**8,900**	430 U	43 U	210 U	210 U	210 U	39,000 E DNR	5,500
		12/5/2013 (DL)	430 U DNR	2,100 U DNR	2,100 U DNR	2,100 U DNR	9,400 DNR	4,300 U DNR	430 U DNR	2,100 U DNR	2,100 U DNR	2,100 U DNR	**43,000**	5,700 DNR
	25	12/5/2013	59 UJ	290 UJ	290 UJ	290 UJ	700 J	590 UJ	59 UJ	290 UJ	290 UJ	290 UJ	4,200 J	820 J
		12/5/2013 (RE)	59 U DNR	290 U DNR	290 U DNR	290 U DNR	700 DNR	590 U DNR	59 U DNR	250 X DNR	290 U DNR	290 U DNR	4,200 DNR	810 DNR
	30	12/5/2013	1 U	5 U	5 U	5 U	5 U	10 U	1 U	5 U	5 U	5 U	5 U	5 U
	35	12/5/2013	1 U	5 U	5 U	5 U	9	10 U	1 U	5 U	5 U	5 U	57	7
		12/5/2013 (DL)	56 U DNR	280 U DNR	280 U DNR	280 U DNR	280 U DNR	560 U DNR	56 U DNR	280 U DNR	280 U DNR	280 U DNR	93 X DNR	280 U DNR
	40	12/5/2013	69 U	340 U	340 U	340 U	**7,100**	690 U	69 U	340 U	340 U	340 U	**35,000**	5,200
ESB1995	6	10/30/2013	1 U	7 U	7 U	7 U	7 U	15 U	1 U	7 U	7 U	7 U	7 U	7 U
	11.5	10/30/2013	2,300 UJ	12,000 UJ	12,000 UJ	12,000 UJ	**260,000 J**	23,000 UJ	2,300 UJ	12,000 UJ	12,000 UJ	12,000 UJ	2,300,000 E DNR	**150,000 J**
		10/30/2013 (DL)	46,000 U DNR	230,000 U DNR	230,000 U DNR	230,000 U DNR	200,000 X DNR	460,000 U DNR	46,000 U DNR	230,000 U DNR	230,000 U DNR	230,000 U DNR	**1,800,000 J**	110,000 DNR
	16	10/30/2013	900 U	4,500 U	4,500 U	4,500 U	**110,000**	9,000 U	4,500 U	4,500 U	4,500 U	4,500 U	910,000 E DNR	**69,000**
		10/30/2013 (DL)	9,000 U DNR	45,000 U DNR	45,000 U DNR	45,000 U DNR	93,000 DNR	90,000 U DNR	9,000 U DNR	45,000 U DNR	45,000 U DNR	45,000 U DNR	**790,000 J**	60,000 DNR
	17.5	10/30/2013	12 X	150 U	150 U	150 U	1,500	290 U	29 U	150 U	150 U	150 U	8,700	83 X
ESB1996	10	10/31/2013	0.9 U	4 U	4 U	4 U	4 U	9 U	0.9 U	4 U	4 U	4 U	4 U	4 U
	20	10/31/2013	0.9 U	4 U	4 U	4 U	4 U	9 U	0.9 U	4 U	4 U	4 U	4 U	4 U
	25	10/31/2013	0.7 U	3 U	3 U	3 U	3 U	7 U	0.7 U	3 U	3 U	3 U	3 U	3 U
	30	10/31/2013	0.5 U	2 U	2 U	2 U	2 U	5 U	0.5 U	2 U	2 U	2 U	2 U	2 U
	35	10/31/2013	0.7 U	3 U	3 U	3 U	3 U	7 U	0.7 U	3 U	3 U	3 U	3 U	3 U
	40	10/31/2013	0.7 U	4 U	4 U	4 U	4 U	7 U	0.7 U	4 U	4 U	4 U	4 U	4 U
		10/31/2013 (DUP)	0.9 U	4 U	4 U	4 U	4 U	9 U	0.9 U	4 U	4 U	4 U	4 U	4 U

Table 2-14a (Continued)
Summary of VOC Results in Soils for SWMU/AOC Nos. 086, 089, and 094, Former USTs

Sample ID	Sample Depth (feet bgs)	Date Collected[a]	Volatile Organic Compound (µg/kg)											
			Benzene	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	4-Methyl-2-pentanone	Tetrachloroethene	Toluene	Trichloroethene	Vinyl Chloride	m,p-Xylene[b]	o-Xylene[b]
	MTCA Cleanup Level		27	46	78	520	6,000	2,700	50	4,500	25	1.7	13,000 15,000 (Total Xylenes)	14,000 15,000 (Total Xylenes)
ESB1997	11	11/1/2013	9,700 UJ	48,000 UJ	48,000 UJ	48,000 UJ	**1,000,000 J**	97,000 UJ	9,700 UJ	**38,000 XJ**	48,000 UJ	48,000 UJ	8,000,000 E DNR	**1,100,000 J**
		11/1/2013 (DL)	48,000 U DNR	240,000 U DNR	240,000 U DNR	240,000 U DNR	850,000 DNR	480,000 U DNR	48,000 U DNR	240,000 U DNR	240,000 U DNR	240,000 U DNR	**6,900,000 J**	870,000 DNR
		11/1/2013 (DUP)	6,400 UJ	32,000 UJ	32,000 UJ	32,000 UJ	**910,000 J**	64,000 UJ	6,400 UJ	**32,000 XJ**	32,000 UJ	32,000 UJ	6,800,000 E DNR	**950,000 J**
		11/1/2013 (DUP DL)	32,000 U DNR	160,000 U DNR	160,000 U DNR	160,000 U DNR	940,000 DNR	320,000 U DNR	32,000 U DNR	33,000 X DNR	160,000 U DNR	160,000 U DNR	**7,600,000 J**	960,000 DNR
	15	11/1/2013	1,700 U	8,500 U	8,500 U	8,500 U	**170,000**	17,000 U	1,700 U	**8,200 X**	8,500 U	8,500 U	1,100,000 E DNR	**160,000**
		11/1/2013 (DL)	8,500 U DNR	42,000 U DNR	42,000 U DNR	42,000 U DNR	200,000 DNR	85,000 U DNR	8,500 U DNR	9,700 X DNR	42,000 U DNR	42,000 U DNR	**1,300,000 J**	180,000 DNR
	25	12/4/2013	1 U	6 U	6 U	6 U	6 U	11 U	1 U	6 U	6 U	6 U	6	6 U
	30	12/4/2013	1 U	5 U	5 U	5 U	5	10 U	1 U	5 U	5 U	5 U	19	5 U
	35	12/4/2013	1 U	6 U	6 U	6 U	6 U	11 U	1 U	6 U	6 U	6 U	8	6 U
	40	12/4/2013	1 U	6 U	6 U	6 U	6 U	13 U	1 U	6 U	6 U	6 U	6 U	6 U
EGW208	10	12/6/2013	66 U	330 U	330 U	330 U	**13,000**	660 U	66 U	330 U	330 U	330 U	3,300	330 U
	15	12/6/2013	57 U	280 U	280 U	280 U	5,700	570 U	57 U	280 U	280 U	280 U	40,000 E DNR	5,500
		12/6/2013 (DL)	570 U DNR	2,800 U DNR	2,800 U DNR	2,800 U DNR	5,500 DNR	5,700 U DNR	570 U DNR	2,800 U DNR	2,800 U DNR	2,800 U DNR	**40,000**	5,200 DNR
	18	12/6/2013	54 U	270 U	270 U	270 U	4,900	540 U	54 U	270 U	270 U	270 U	**31,000**	4,700
	25	12/6/2013	1 U	5 U	5 U	5 U	5 U	4 X	1 U	5 U	5 U	5 U	19	5 U
	27	12/6/2013	1 U	5 U	5 U	5 U	5 U	10 U	1 U	5 U	5 U	5 U	7	5 U
EGW209	10	12/7/2013	0.8 U	4 U	4 U	4 U	36	8 U	0.8 U	4 U	4 U	4 U	43	5
	15	12/7/2013	44 U	220 U	220 U	220 U	**8,700**	440 U	44 U	250	220 U	220 U	58,000 E DNR	8,500
		12/7/2013 (DL)	440 U DNR	2,200 U DNR	2,200 U DNR	2,200 U DNR	9,300 DNR	4,400 U DNR	440 U DNR	2,200 U DNR	2,200 U DNR	2,200 U DNR	**70,000**	8,800 DNR
	20	12/7/2013	49 U	250 U	250 U	250 U	4,100	490 U	49 U	250 U	250 U	250 U	30,000 E DNR	3,000
		12/7/2013 (DL)	490 U DNR	2,500 U DNR	2,500 U DNR	2,500 U DNR	4,200 DNR	4,900 U DNR	490 U DNR	2,500 U DNR	2,500 U DNR	2,500 U DNR	**32,000**	2,900 DNR
	25	12/7/2013	47 U	230 U	230 U	230 U	2,100	470 U	47 U	230 U	230 U	230 U	**15,000**	1,400
EGW211	10	12/9/2013	48 U	240 U	240 U	240 U	**7,300**	480 U	48 U	240 U	240 U	240 U	260	240 U
	15	12/9/2013	51 U	260 U	260 U	260 U	5,800	510 U	51 U	360	260 U	260 U	45,000 E DNR	6,400
		12/9/2013 (DL)	510 U DNR	2,600 U DNR	2,600 U DNR	2,600 U DNR	5,900 DNR	5,100 U DNR	510 U DNR	2,600 U DNR	2,600 U DNR	2,600 U DNR	**48,000**	6,300 DNR
	20	12/9/2013	77 U	390 U	390 U	390 U	**6,000**	770 U	77 U	390 U	390 U	390 U	47,000 E DNR	5,200
		12/9/2013 (DL)	770 U DNR	3,900 U DNR	3,900 U DNR	3,900 U DNR	6,200 DNR	7,700 U DNR	770 U DNR	3,900 U DNR	3,900 U DNR	3,900 U DNR	**50,000**	5,000 DNR
	25	12/9/2013	72 U	360 U	360 U	360 U	1,600	720 U	72 U	360 U	360 U	360 U	**13,000**	1,300
	30	12/9/2013	1 U	5 U	5 U	5 U	6	10 U	1 U	5 U	5 U	5 U	52	6
		12/9/2013 (DL)	86 U DNR	430 U DNR	430 U DNR	430 U DNR	430 U DNR	860 U DNR	86 U DNR	430 U DNR	430 U DNR	430 U DNR	160 X DNR	430 U DNR
		12/9/2013 (DL RE)	86 U DNR	430 U DNR	430 U DNR	430 U DNR	430 U DNR	860 U DNR	86 U DNR	430 U DNR	430 U DNR	430 U DNR	120 X DNR	430 U DNR
	35	12/9/2013	1 U	5 U	5 U	5 U	5 U	6 X	1 U	5 U	5 U	5 U	5 U	5 U
		12/9/2013 (DL)	61 U DNR	310 U DNR	310 U DNR	310 U DNR	310 U DNR	610 U DNR	61 U DNR	310 U DNR	310 U DNR	310 U DNR	310 U DNR	310 U DNR
	40	12/9/2013	1 U	5 U	5 U	5 U	5 U	10 U	1 U	5 U	5 U	5 U	5 U	5 U
		12/9/2013 (DL)	49 U DNR	240 U DNR	240 U DNR	240 U DNR	240 U DNR	490 U DNR	49 U DNR	240 U DNR	240 U DNR	240 U DNR	240 U DNR	240 U DNR
ESB2001	10	12/10/2013	41 U	210 U	210 U	210 U	**8,300**	410 U	41 U	210 U	210 U	210 U	780	210 U
	15	12/10/2013	44 U	220 U	220 U	220 U	**6,100**	440 U	44 U	220 U	220 U	220 U	40,000 E DNR	4,900
		12/10/2013 (DL)	440 U DNR	2,200 U DNR	2,200 U DNR	2,200 U DNR	6,300 DNR	4,400 U DNR	440 U DNR	2,200 U DNR	2,200 U DNR	2,200 U DNR	**43,000**	4,800 DNR
	20	12/10/2013	1 U	5 U	5 U	5 U	5 U	10 U	1 U	5 U	5 U	5 U	28	5 U
	25	12/10/2013	48 U	240 U	240 U	240 U	1,100	480 U	48 U	240 U	240 U	240 U	8,100	1,200

[a] For data reported prior to November 5, 2008, concentrations below the reporting limits were reported as not detected. Beginning with Ecology approval on November 5, 2008, of the Quality Assurance Project Plan, Revision 1.7, concentrations detected between the detection and reporting limits were reported with qualification.
[b] Historical data were reported for total xylenes rather than for individual compounds o-xylene and m,p-xylene.
[c] Samples were analyzed by a mobile chemistry laboratory on the job site.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DL - dilution
DNR - do not report
DUP - field duplicate
E - Sample concentration exceeded the linear range of the instrument. The E-flagged result is considered an estimated value.
J - estimated value
µg/kg - microgram per kilogram
NA - not analyzed or not available
ND - not detected
RE - reanalysis
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-14b
Summary of VOC and Helium Results in Soil Gas and Sub-Slab Vapor for SWMU/AOC Nos. 086, 089, and 094, Former USTs

Chemical	MTCA Air Screening Level		Sample ID and Date													
	Method C	Method C AF 0.030	ESG31[a] 1/13/14	ESG32[a] 1/13/14	ESG33[a] 1/13/14	ESG34[a] 1/14/14	ESG5 1/14/14	ESG6 1/14/14	ESG7 1/14/14 FS	ESG7 1/14/14 REP	ESSV14 2/23/14	ESSV15 2/23/14 FS	ESSV15 2/23/14 REP	ESSV16 2/23/14	ESSV17 2/23/14	ESSV18 2/23/14
Volatile Organic Compounds (µg/m^3)																
Chloromethane	90	3,000	1,100 U	24 U	24 U	23 U	24 U	23 U	110 U	48 U	0.38 X	20 U	21 U	0.38 X	2.4 U	0.80 X
Vinyl Chloride	2.8	93	130 U	3.0 U	3.0 U	2.9 U	2.9 U	2.8 U	14 U	5.9 U	0.55 U	4.8 U	5.2 U	0.56 U	0.61 U	0.62 U
Bromomethane	5	170	2,000 U	46 U	46 U	44 U	44 U	43 U	210 U	90 U	4.2 U	37 U	40 U	4.3 U	4.6 U	4.7 U
Chloroethane	10,000	300,000	550 U	12 U	12 U	12 U	12 U	12 U	57 U	24 U	2.8 U	25 U	27 U	2.9 U	3.1 U	3.2 U
Trichlorofluoromethane	700	23,000	290 U	0.95 X	2.3 X	1.0 X	1.8 X	0.95 X	110 J	55 J	2.2	11 U	11 U	1.3	2.2	1.8
1,1,2-Trichloro1-1,2,2-trifluoroethane	30,000	1,000,000	400 U	9.1 U	9.0 U	8.6 U	8.8 U	8.5 U	41 U	18 U	4.1	14 U	16 U	0.56 X	0.70 X	0.84 X
1,1-Dichloroethene	200	6,700	210 U	4.7 U	4.6 U	4.5 U	4.5 U	4.4 U	21 U	9.1 U	0.86 U	7.5 U	8.1 U	0.87 U	0.94 U	0.96 U
Acetone	31,000	1,000,000	270 X	6.7 X	49	12 X	20 X	59	18 X	14 X	110	5,400 J	3,800 J	28	67	46
Carbon Disulfide	700	23,000	650 U	15 U	6.2 X	14 U	47	14 U	67 U	29 U	2.4 X	29 U	32 U	2.0 X	7.0	2.4 X
Methylene Chloride	600	20,000	92 X	41 U	41 U	1.9 X	40 U	38 U	190 U	80 U	0.71 X	13 U	14 U	0.64 X	0.59 X	0.79 X
trans-1,2-Dichloroethene	NE	NE	210 U	4.7 U	4.6 U	4.5 U	4.5 U	4.4 U	21 U	9.1 U	0.86 U	7.5 U	8.1 U	0.87 U	0.94 U	0.96 U
1,1-Dichloroethane	16	520	210 U	4.8 U	4.8 U	4.6 U	4.6 U	4.5 U	22 U	9.3 U	0.87 U	7.6 U	8.2 U	0.89 U	0.96 U	0.98 U
2-Butanone	5,000	170,000	620 U	8.0 X	10 X	13 U	6.7 X	13 U	43 X	12 X	28	7.7 X	8.2 X	6.6	15	10
cis-1,2-Dichloroethene	NE	NE	210 U	4.7 U	4.6 U	4.5 U	4.5 U	4.4 U	21 U	9.1 U	0.86 U	7.5 U	8.1 U	0.87 U	0.94 U	0.96 U
Chloroform	1.1	36	260 U	5.8 U	1.6 X	5.5 U	5.6 U	3.6 X	26 U	11 U	2.0	9.2 U	10 U	6.3	13	0.56 X
1,1,1-Trichloroethane	5,000	170,000	290 U	6.5 U	7.2	6.1 U	6.2 U	6.0 U	29 U	12 U	6.2	19	13	1.4	1.3 U	1.3 U
Carbon Tetrachloride	4.2	140	330 U	7.4 U	7.4 U	7.1 U	7.2 U	7.0 U	34 U	14 U	0.49 X	12 U	13 U	1.4 U	0.61 X	1.5 U
Benzene	3.2	110	170 U	0.90 X	14	2.0 X	22	31	13 X	6.1 X	2.1	2.1 X	3.9 X	0.86	1.2	1.0
1,2-Dichloroethane	0.96	32	210 U	4.8 U	4.8 U	4.6 U	4.6 U	4.5 U	22 U	9.3 U	0.87 U	7.6 U	8.2 U	0.89 U	0.96 U	0.98 U
Trichloroethene	2	67	280 U	6.4 U	1.5 X	6.0 U	6.2 U	6.0 U	11 X	12 U	0.33 X	10 U	11 U	1.2 U	1.3 U	1.3 U
1,2-Dichloropropane	2.5	83	240 U	5.5 U	5.4 U	5.2 U	5.3 U	5.1 U	25 U	11 U	1.0 U	8.7 U	9.4 U	1.0 U	1.1 U	1.1 U
Bromodichloromethane	0.68	23	350 U	7.9 U	7.9 U	7.5 U	7.7 U	7.4 U	36 U	15 U	1.4 U	13 U	14 U	1.5 U	1.6 U	1.6 U
cis-1,3-Dichloropropene	6.3[c]	210	240 U	5.4 U	5.3 U	5.1 U	5.2 U	5.0 U	24 U	10 U	0.98 U	8.6 U	9.2 U	1.0 U	1.1 U	1.1 U
4-Methyl-2-pentanone	3,000	100,000	220 U	1.7 X	2.5 X	4.6 U	4.7 U	4.5 U	22 U	9.4 U	14	6.4 X	4.3 X	3.4	4.5	1.9
Toluene	5,000	170,000	150 XJ	2.2 XJ	15	8.1	26	90	41	19	21	9.0	17	2.7	4.3	4.3
trans-1,3-Dichloropropene	6.3[b]	210	240 U	5.4 U	5.3 U	5.1 U	5.2 U	5.0 U	24 U	10 U	0.98 U	8.6 U	9.2 U	1.0 U	1.1 U	1.1 U
1,1,2-Trichloroethane	0.2	6.7	290 U	6.5 U	6.4 U	6.1 U	6.2 U	6.0 U	29 U	12 U	1.2 U	10 U	11 U	1.2 U	1.3 U	1.3 U
Tetrachloroethene	40	1,300	360 U	8.0 U	8.0 U	7.6 U	7.8 U	7.5 U	37 U	5.5 X	0.64 X	13 U	14 U	1.5 U	9.3	0.60 X
2-Hexanone	NE	NE	860 U	19 U	19 U	18 U	19 U	18 U	88 U	38 U	2.9 X	39 U	42 U	0.73 X	1.4 X	4.9 U
Dibromochloromethane	0.93	31	450 U	10 U	10 U	9.6 U	9.8 U	9.4 U	46 U	20 U	1.8 U	16 U	17 U	1.9 U	2.0 U	2.0 U
Chlorobenzene	50	1,700	240 U	5.4 U	5.4 U	5.2 U	5.3 U	5.1 U	25 U	11 U	0.99 U	8.7 U	9.4 U	1.0 U	1.1 U	1.1 U
Ethylbenzene	1,000	33,000	6,800	5.1 U	3.5 X	33	26	19	1,600 J	650 J	6.8	21	12	0.51 X	0.98 X	1.7
m,p-Xylene	100	3,300	**32,000**	2.3 XJ	12	130	130	92	**5,800 J**	2,400 J	34	100	67	2.2	5.1	5.0
o-Xylene	100	3,300	1,900	5.1 U	3.6 X	1.9 X	14	32	1,500 J	640 J	12	67	41	0.73 X	2.0	1.8
Styrene	1,000	33,000	220 U	5.0 U	5.0 U	4.8 U	4.9 U	4.7 U	23 U	9.8 U	0.92 U	8.0 U	8.7 U	0.94 U	1.0 U	1.0 U
Bromoform	23	760	540 U	12 U	12 U	12 U	12 U	11 U	56 U	24 U	2.2 U	20 U	21 U	2.3 U	2.5 U	2.5 U
1,1,2,2-Tetrachloroethane	0.43	14	360 U	8.1 U	8.1 U	7.7 U	7.9 U	7.6 U	37 U	16 U	1.5 U	13 U	14 U	1.5 U	1.6 U	1.6 U
Vinyl Acetate	200	6,700	740 U	17 U	16 U	16 U	16 U	16 U	76 U	32 U	3.8 U	33 U	36 U	3.9 U	4.2 U	4.2 U
Helium (% in canister)	NE	NE	NA	NA	NA	NA	NA	NA	NA		0.11 U	0.11 U	0.12 U	0.11 U	0.12 U	0.077 X
Helium (% in shroud[c])	NE	NE	19.5	16	16	30	46	33	24.6		15	7.0	7.2	6.4	6.2	9.9
Helium (% as ratio[d])	5		NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	0.78

[a]The sample IDs for these locations are listed in the associated laboratory report and data validation report as ESG1, ESG2, ESG3, and ESG4, respectively.
[b]MTCA value for 1,3-dichloropropene
[c]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[d]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
J - estimated value
µg/m^3 - microgram per cubic meter
NE - not established
REP - field replicate
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-15a
Summary of VOC Results in Soils for SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compounds (µg/kg)			
			Ethylbenzene	Toluene	o-Xylene	m,p-Xylene[a]
	MTCA Method A Cleanup Level		**6,000**	**7,000**	**9,000 (Total Xylenes)**	
B-1	2.5	12/8/1991	5,000 U	**7,900**	**11,000**	
	5.5	12/8/1991	**286,000**	**1,099,000**	**637,000**	
	5.5 (DUP)	12/8/1991	**326,000**	**1,124,000**	**2,135,000**	
	7.0	12/8/1991	**422,000**	**1,778,000**	**2,889,000**	
B-2	5.5	12/8/1991	**267,000**	**919,000**	**1,628,000**	
	7.0	12/8/1991	**283,000**	**1,304,000**	**1,957,000**	
	8.0	12/8/1991	**391,000**	**1,724,000**	**2,529,000**	
B-3	3.0	12/26/1991	1.1	11 U	5.8	
	5.0	12/26/1991	4.1	11 U	31	
B-4	10.0	12/29/1991	14	4.7	54	
	15.0	12/29/1991	110	3.7	340	
B-5	10.0	12/29/1991	3,600	**7,900**	**32,000**	
	15.0	12/29/1991	720	870	**4,400**	
	20.0	12/29/1991	2,100	720	**14,000**	
B-6	8.0	12/30/1991	1.1 U	0.9	2[b]	
	18.0	12/30/1991	1.1 U	9.1	2.3[b]	
	28.0	12/30/1991	1.1 U	3.6	1.9[b]	
B-7	8.0	12/31/1991	1.1 U	1.1 U	2.2 U	
	18.0	12/31/1991	1 U	1.9	2.1 U	
	26.5	12/31/1991	2,400	110	**29,000**	
BP-1N[c]	5	12/28/1991	2,600 U	2,600 U	5,300 U	
BP-1S[c]	5	12/28/1991	4,000	1,100	**50,000**	
S-1	6	3/25/1992	56	160	460	
	13	3/25/1992	**370,000**	**290,000**	**2,800,000**	
	30	3/26/1992	110	9.5	580	
S-2	6	3/26/1992	**480,000**	**850,000**	**3,500,000**	
	15	3/26/1992	**8,300**	450	**100,000**	
	25	3/26/1992	200	13	1,500	
S-3	3	3/23/1992	70	270	850	
	3.5	3/23/1992	160	510	1,200	
	15.5	3/23/1992	390	520	2,700	
	20	3/23/1992	590	101	3,900	
	30.5	3/23/1992	12	2.6 U	89	
S-4	5.5	3/24/1992	36	3.1	170	
	15.5	3/24/1992	13	2.1 U	58	
	45.5	3/25/1992	100	74	600	

Table 2-15a (Continued)
Summary of VOC Results in Soils for SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compounds (µg/kg)			
			Ethylbenzene	Toluene	o-Xylene	m,p-Xylene[a]
	MTCA Method A Cleanup Level		6,000	7,000	9,000 (Total Xylenes)	
S-5	13	3/21/1992	**860,000**	**850,000**	**6,900,000**	
	20	3/21/1992	1,800	320	**16,000**	
	30.5	3/21/1992	22	9	230	
	46	3/22/1992	1 U	1 U	2.7	
3	6.4	4/12/1992	16	19	140	
7	8.0	4/12/1992	4.1	9.6	47	
15	5.0	4/12/1992	2.3	5.2	14	
16	6.4	4/12/1992	12 U	72	180	
17	5.0	4/12/1992	1 U	4.2	7	
19	4.2	4/13/1992	2.6 U	2.6 U	5.6	
29	5.0	4/14/1992	**230,000**	**410,000**	**1,400,000**	
32	5.0	4/14/1992	**160,000**	**340,000**	**1,200,000**	
38	3.0	4/15/1992	270 U	270 U	550 U	
40	3.0	4/16/1992	550 U	4,300	**55,000**	
41	8.0	4/16/1992	**390,000**	**1,000,000**	**2,900,000**	
42	2.5	4/16/1992	530 U	1,100	**13,000**	
43	3.0	4/16/1992	3,200	**11,000**	**26,000**	
46	5.0	4/16/1992	1,600	2,000	**15,000**	
49	8.5	4/16/1992	**230,000**	**380,000**	**1,900,000**	
51	4.5	4/16/1992	1.7 U	5.9	24	
56	4.0	4/16/1992	3.3	21	21	
61	4.0	4/16/1992	130 U	130 U	3,100	
63	8.0	4/16/1992	**38,000**	**22,000**	**360,000**	
64	7.0	4/16/1992	**230,000**	**650,000**	**1,500,000**	
66	3.0	4/16/1992	**220,000**	**120,000**	**2,200,000**	
68	7.0	4/16/1992	**120,000**	**210,000**	**1,000,000**	
69	2.3	4/16/1992	500 U	500 U	4,400	
72	2.8	4/16/1992	**120,000**	**210,000**	**900,000**	
73	6.0	4/16/1992	**150,000**	**220,000**	**1,100,000**	

[a]Historical data were reported for total xylenes rather than for the individual compounds o-xylene and m,p-xylene.
[b]Analyte was also detected in laboratory method blank.
[c]Samples BP-1N and BP-1S were collected at the bottom of the underground storage tank excavation UST SEV-40-56-1-1 (5 feet bgs of excavation floor).

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

Table 2-15a (Continued)
Summary of VOC Results in Soils for SWMU/AOC Nos. 067 and 071,
Former Recycling Unit and UST EV-153

bgs - below ground surface
DUP - field duplicate
µg/kg - microgram per kilogram
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound

Table 2-15b
Summary of VOC and Helium Results in Sub-Slab Vapor for SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153

Chemical	MTCA Air Screening Level		Sample ID and Date	
	Method C	Method C AF (0.030)	ESSV12 2/23/2014	ESSV13 2/23/2014
Volatile Organic Compounds (µg/m^3)				
Chloromethane	90	3,000	250 U	0.30 X
Vinyl Chloride	2.8	93	30 U	0.61 U
Bromomethane	5	167	460 U	4.6 U
Chloroethane	10,000	330,000	130 U	3.1 U
Trichlorofluoromethane	700	23,000	67 U	5.9
1,1,2-Trichloro1-1,2,2-trifluoroethane	30,000	1,000,000	72 X	4.5
1,1-Dichloroethene	200	6,700	47 U	0.94 U
Acetone	31,000	1,000,000	6,100	570 J
Carbon Disulfide	700	23,000	150 U	0.94 X
Methylene Chloride	600	20,000	420 U	1.9
trans-1,2-Dichloroethene	60	2,000	47 U	0.94 U
1,1-Dichloroethane	16	520	48 U	0.96 U
2-Butanone	5,000	170,000	1,000	7.1
cis-1,2-Dichloroethene	NE	NE	47 U	0.94 U
Chloroform	1.1	36	58 U	0.83 X
1,1,1-Trichloroethane	5,000	170,000	400	73
Carbon Tetrachloride	4.2	140	75 U	1.5 U
Benzene	3.2	110	38 U	1.2
1,2-Dichloroethane	0.96	32	48 U	0.96 U
Trichloroethene	2	67	64 U	1.3 U
1,2-Dichloropropane	2.5	83	55 U	1.1 U
Bromodichloromethane	0.68	23	80 U	1.6 U
cis-1,3-Dichloropropene	6.3[c]	210	54 U	1.1 U
4-Methyl-2-pentanone	3,000	100,000	19 X	0.85 X
Toluene	5,000	170,000	74	8.3
trans-1,3-Dichloropropene	6.3[c]	210	54 U	1.1 U
1,1,2-Trichloroethane	0.2	6.7	65 U	1.3 U
Tetrachloroethene	40	1,300	45 X	17
2-Hexanone	NE	NE	200 U	0.65 X
Dibromochloromethane	0.93	31	100 U	2.0 U
Chlorobenzene	50	1,700	55 U	1.1 U
Ethylbenzene	1,000	33,000	180	2.5
m,p-Xylene	100	3,300	1,000	10
o-Xylene	100	3,300	1,300	6.1
Styrene	1,000	33,000	51 U	1.0 U
Bromoform	23	760	120 U	2.5 U
1,1,2,2-Tetrachloroethane	0.43	14	82 U	1.6 U
Vinyl Acetate	200	6,700	170 U	4.2 U

Table 2-15b (Continued)
Summary of VOC and Helium Results in Sub-Slab Vapor for SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153

Chemical	MTCA Air Screening Level		Sample ID and Date	
	Method C	Method C AF (0.030)	ESSV12 2/23/2014	ESSV13 2/23/2014
Helium				
Helium (% in canister)	NE	NE	0.042 X	0.047 X
Helium (% in shroud[b])	NE	NE	6.6	9.8
Helium (% as ratio[c])	5		0.64	0.48

[a]MTCA value for 1,3-dichloropropene.
[b]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[d]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html)
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
J - estimated result
NE - not established
µg/m^3 - microgram per cubic meter
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-16a
Summary of PAH and Metals Results in Soils for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:		B-TP1	B-TP2		B-TP3					B-TP4		B-TP5		B-TP6	EGW047 (B-MW1)			EGW068 (B-MW2)	EGW048 (B-MW3)
Depth (feet bgs):		14.5	5.5	12.0	0.2	0.8	1.3	2.4	3.1	1.0	2.5	1.5	2.5	1.5	2.5	4.0	8.0	3.0	6.0
Sample Date:	Cleanup Level	6/5/1991	6/5/1991	6/5/1991	6/5/1991	6/5/1991	6/5/1991	6/5/1991	6/5/1991	6/4/1991	6/4/1991	6/4/1991	6/4/1991	6/4/1991	6/13/1991	6/13/1991	6/13/1991	6/7/1991	6/12/1991
PAHs (µg/kg)[a]																			
1-Methylnaphthalene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	**320,000**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Acenaphthene	**4,800,000**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Acenaphthylene	**NE**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Anthracene	**24,000,000**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Benzo(a)anthracene [b]	**See Note b**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	160 M	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Benzo(a)pyrene [b]	**See Note b**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	220	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Benzo(b)fluoranthene [b]	**See Note b**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	420 *	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	**NE**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Benzo(k)fluoranthene [b]	**See Note b**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	420	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Chrysene [b]	**See Note b**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	300	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene [b]	**See Note b**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Dibenzofuran	**160,000**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Fluoranthene	**3,200,000**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	280	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Fluorene	**3,200,000**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene [b]	**See Note b**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Naphthalene	**1,600,000**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	150 U	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Phenanthrene	**NE**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	130 M	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Pyrene	**2,400,000**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	250	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
TTEC (cPAHs)	**140 [a,b]**	77 U	70 U	65 U	NA	68 U	NA	NA	59 U	**323**	83 U	81 U	82 U	68 U	NA	NA	NA	NA	NA
Metals (mg/kg)																			
Antimony	**5 [c]**	4 U	4 U	4 U	**527**	4 U	**6**	**7**	4 U	**464**	4 U	**5**	4 U	5 U	**5 J**	**5 J**	4 J	5 U	4 UJ
Arsenic	**20 [d]**	5	4 U	7	**227**	15	5	8	6	**170**	4 U	5 U	4 U	8	4 U	4 U	4 U	5 U	4 U
Chromium	**48 [e]**	36.6	34.0	35.4	14.6	21.4	28.4	35.5	33.6	14.3	30.3	32.4	35.2	28.1	30.3	28.0	**51.4**	36.4	33.0
Lead	**50 [c]**	7	8	9	**37,900**	**113**	21	10	6	**23,100**	**133**	11	9	**55**	12	13	8	5	5
Nickel	**48 [e]**	39	41	36	22	28	38	43	**51**	20	38	43	43	39	42	41	41	36	44

[a] MTCA Method B soil cleanup level
[b] These compounds are considered carcinogenic PAHs (cPAHs) and are subject to WAC-173-340 TTEC calculations. Compliance is determined by comparing the TTEC with the cleanup level for benzo(a)pyrene.
[c] MTCA Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals (Table 749-3)
[d] MTCA Method A soil cleanup level
[e] Washington State Department of Ecology Natural Background Soil Metals Concentrations in Washington State, October 1994

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
DUP - field duplicate
FS - field sample
J - estimated value
µg/kg - microgram per kilogram
mg/kg - milligram per kilogram
NA - not applicable or not analyzed
NE - not established
PAH - polycyclic aromatic hydrocarbon
TTEC - total toxicity equivalent concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table 2-16a (Continued)
Summary of PAH and Metals Results in Soils for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:	Cleanup Level	EGW049 (B-MW4)				B-SS1	B-SS2		B-SS3		B-SS4	B-SS5	B-SS6	B-SS7		B-SS8	B-SS9	B-SS10		
Depth (feet bgs):		0.0	0.8	2.2	7.0	0.5	0.0	0.5	0.4	0.7	0.5	0.0	0.4	0.0	0.8	0.6	0.6	0.0	1.2	2.3
Sample Date:		6/11/1991	6/11/1991	6/11/1991	6/11/1991	6/13/1991	6/13/1991	6/13/1991	6/13/1991	6/13/1991	6/14/1991	6/14/1991	6/14/1991	6/14/1991	6/14/1991	6/14/1991	6/21/1991	6/12/1991	6/12/1991	6/12/1991
PAHs (µg/kg)[a]																				
1-Methylnaphthalene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	**320,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	**4,800,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	**24,000,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	**160,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	**3,200,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	**3,200,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	**1,600,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	**2,400,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TTEC (cPAHs)	**140 [a,b]**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals (mg/kg)																				
Antimony	**5 [c]**	**68 J**	**5 J**	**5 J**	4 J	**5 J**	5 UJ	5 UJ	4 UJ	**5 J**	4 U	6 U	5 U	5 U	4 U	4 U	5 U	**45 J**	**6 J**	**5 J**
Arsenic	**20 [d]**	**27**	6	5 U	4 U	5	5 U	6	4 U	4 U	5	7	5 U	7	4 U	4 U	6	**41**	6	5 U
Chromium	**48 [e]**	18.1 J	27.1 J	41.1 J	30.6 J	31.6	41.4	36.3	28.0	30.8	24.2	17.9	33.5	22.3	28.8	26.2	31.9	24.9	32.8	30.1
Lead	**50 [c]**	**3,680**	**57**	11	6	11	15	11	8	8	13	**70**	8	38	15	11	15	**4,230**	**66**	18
Nickel	**48 [e]**	18	28	**51**	**49**	37	40	45	38	45	34	17	**49**	34	45	45	36	32	44	44

Table 2-16a (Continued)
Summary of PAH and Metals Results in Soils for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:	Cleanup Level	B-SS11				B-SS12		B-SS13			B-SS15	ESB1243	ESB1243	ESB1244		ESB1245	ESB1245		ESB1246		
Depth (feet bgs):		0.0		0.6		0.6		1.0	1.7	2.5	0.8	0	1 1/2	0	1 1/2	0.0	1 1/2	2 1/2	0	1 1/2	2 1/2
Sample Date:		6/13/1991		6/13/1991		6/13/1991		6/11/1991	6/11/1991	6/11/1991	6/13/1991	6/4/1998	6/4/1998	6/4/1998	6/4/1998	6/4/1998	6/4/1998	6/4/1998	6/4/1998	6/4/1998	6/4/1998
		FS	DUP	FS	DUP	FS	DUP														
PAHs (µg/kg)[a]																					
1-Methylnaphthalene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	**320,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9 U	7.4 U	18 U	7.6 U	13 U	8.5 U	8.4 U	22 U	9.6 U	9.5 U
Acenaphthene	**4,800,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9 U	7.4 U	18 U	7.6 U	13 U	8.5 U	8.4 U	22 U	9.6 U	9.5 U
Acenaphthylene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9 U	7.4 U	18 U	7.6 U	13 U	8.5 U	8.4 U	22 U	9.6 U	9.5 U
Anthracene	**24,000,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9 U	7.4 U	18 U	7.6 U	13 U	8.5 U	8.4 U	22 U	9.6 U	9.5 U
Benzo(a)anthracene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	7.4 U	160	7.6 U	89	8.5 U	8.4 U	170	9.6 U	9.5 U
Benzo(a)pyrene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	29	7.4 U	240	7.6 U	120	8.5 U	8.4 U	270	9.6 U	9.5 U
Benzo(b)fluoranthene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30	7.4 U	230	7.6 U	140	8.5 U	8.4 U	260	9.6 U	9.5 U
Benzo(g,h,i)perylene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	7.4 U	170	7.6 U	92	8.5 U	8.4 U	140	9.6 U	9.5 U
Benzo(k)fluoranthene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	7.4 U	220	7.6 U	130	8.5 U	8.4 U	210	9.6 U	9.5 U
Chrysene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	7.4 U	310	7.6 U	170	8.5 U	8.4 U	310	9.6 U	9.5 U
Dibenz(a,h)anthracene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9 U	7.4 U	37	7.6 U	19	8.5 U	8.4 U	31	9.6 U	9.5 U
Dibenzofuran	**160,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9 U	7.4 U	18 U	7.6 U	13 U	8.5 U	8.4 U	22 U	9.6 U	9.5 U
Fluoranthene	**3,200,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	7.4 U	310	7.6 U	190	8.5 U	8.4 U	300	9.6 U	9.5 U
Fluorene	**3,200,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9 U	7.4 U	18 U	7.6 U	13 U	8.5 U	8.4 U	22 U	9.6 U	9.5 U
Indeno(1,2,3-cd)pyrene [b]	**See Note b**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15	7.4 U	160	7.6 U	93	8.5 U	8.4 U	140	9.6 U	9.5 U
Naphthalene	**1,600,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9 U	7.4 U	39	7.6 U	31	8.5 U	8.4 U	37	9.6 U	9.5 U
Phenanthrene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	7.4 U	130	7.6 U	98	8.5 U	8.4 U	160	9.6 U	9.5 U
Pyrene	**2,400,000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	7.4 U	310	7.6 U	190	8.5 U	8.4 U	360	9.6 U	9.5 U
TTEC (cPAHs)	**140 [a,b]**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37.3	7.4 U	**324**	7.6 U	**169**	8.5 U	8.4 U	**354**	9.6 U	9.5 U
Metals (mg/kg)																					
Antimony	**5 [c]**	**5 J**	5 UJ	4 J	4 J	**6 J**	**5 J**	**8 J**	**6 J**	5 UJ	**6 J**	6 UJ	5 UJ	**580 J**	5 UJ	8 UJ	NA	6 UJ	**850 J**	NA	7 UJ
Arsenic	**20 [d]**	15	17	4 U	7	5 U	5 U	13	5 U	6	5 U	10 J	6.5 J	**1,470 J**	3.2 J	**31.6 J**	3	1.8 J	**500 J**	2	2.8 J
Chromium	**48 [e]**	27.4	25.5	28.4	35.0	26.6	27.0	36.8 J	38.3 J	45.0 J	31.1	33.0	36.1	6.0	39.9	22.3	NA	39.7	7.0	NA	37.3
Lead	**50 [c]**	**101**	**114**	8	9	14	15	**788**	40	18	13	**642**	29	**76,800**	15	**355**	17	5	**77,600**	9	11
Nickel	**48 [e]**	32	31	35	38	33	34	44	**52**	**75**	43	46	45	14	**52**	20	29	**49**	12	34	41

Table 2-16a (Continued)
Summary of PAH and Metals Results in Soils for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:	Cleanup Level	ESB1247			ESB1248		ESB1249			ESB1326			ESB1327		ESB1328				ESB1329		ESB1330
Depth (feet bgs):		0	1 1/2	2 1/2	0	1 1/2	0	1 1/2	2 1/2	0	1 1/2	2 1/2	0	2 1/2	1	1 1/2	2 1/2	5 1/2	0	2 1/2	2
Sample Date:		6/4/1998	6/4/1998	6/4/1998	6/5/1998	6/5/1998	6/5/1998	6/5/1998	6/5/1998	9/9/1998	9/9/1998	9/9/1998	9/9/1998	9/9/1998	9/9/1998	9/9/1998	9/9/1998	9/9/1998	9/9/1998	9/9/1998	6/25/1999
PAHs (µg/kg)[a]																					
1-Methylnaphthalene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	**320,000**	24 U	8.3 U	8.1 U	26	9.4 U	18 U	8.4 U	8.0 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	4.1 U	NA	NA	3.7 U	3.8 U	3.8 U	8.8 U
Acenaphthene	**4,800,000**	24 U	8.3 U	8.1 U	31	9.4 U	18 U	8.4 U	8.0 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	4.1 U	NA	NA	3.7 U	3.8 U	3.8 U	8.8 U
Acenaphthylene	**NE**	24 U	8.3 U	8.1 U	18	9.4 U	18 U	8.4 U	8 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	6.5	NA	NA	3.7 U	3.8 U	3.8 U	8.8 U
Anthracene	**24,000,000**	24	8.3 U	8.1 U	44	9.4 U	18 U	8.4 U	8.0 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	4.9	NA	NA	3.7 U	3.8 U	3.8 U	8.8 U
Benzo(a)anthracene [b]	**See Note b**	610	8.3 U	8.1 U	460	9.4 U	100	8.4 U	8.0 U	7.1	4.6 U	NA	3.7 U	3.5 U	21	NA	NA	3.7 U	9.0	3.8 U	17
Benzo(a)pyrene [b]	**See Note b**	780	8.3 U	8.1 U	680.0	9.4 U	170.0	8.4 U	8.0 U	9.7	4.6 U	NA	3.7 U	3.5 U	13	NA	NA	3.7 U	3.8 U	3.8 U	24
Benzo(b)fluoranthene [b]	**See Note b**	730	8.3 U	8.1 U	660.0	9.4 U	160.0	8.4 U	8.0 U	16	4.6 U	NA	3.7 U	3.5 U	4.1 U	NA	NA	3.7 U	9.8	6.0	21
Benzo(g,h,i)perylene	**NE**	320	8.3 U	8.1 U	510	9.4 U	120	8.4 U	8.0 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	4.1 U	NA	NA	3.7 U	5.6	3.8 U	16
Benzo(k)fluoranthene [b]	**See Note b**	740	8.3 U	8.1 U	590	9.4 U	110	8.4 U	8.0 U	9.7	4.6 U	NA	3.7 U	3.5 U	4.1 U	NA	NA	3.7 U	3.8 U	4.9	21
Chrysene [b]	**See Note b**	840	8.3 U	8.1 U	760	9.4 U	160	8.4 U	8.0 U	5.7	4.6 U	NA	7.8	3.5 U	27	NA	NA	3.7 U	7.5	3.8 U	25
Dibenz(a,h)anthracene [b]	**See Note b**	93	8.3 U	8.1 U	120	9.4 U	22	8.4 U	8.0 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	4.1 U	NA	NA	3.7 U	3.8 U	3.8 U	8.8 U
Dibenzofuran	**160,000**	24 U	8.3 U	8.1 U	38	9.4 U	18 U	8.4 U	8.0 U	17 U	23 U	NA	19 U	18 U	20 U	NA	NA	18 U	19 U	19 U	8.8 U
Fluoranthene	**3,200,000**	890	8.3 U	8.1 U	840	9.4 U	180	8.4 U	8.0 U	13	6.5	NA	3.7 U	3.5 U	31	NA	NA	3.7 U	6.4	5.6	23
Fluorene	**3,200,000**	24 U	8.3 U	8.1 U	16	9.4 U	18 U	8.4 U	8.0 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	4.1 U	NA	NA	3.7 U	3.8 U	3.8	8.8 U
Indeno(1,2,3-cd)pyrene [b]	**See Note b**	370	8.3 U	8.1 U	430	9.4 U	100	8.4 U	8.0 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	4.1 U	NA	NA	3.7 U	3.8 U	3.8 U	17
Naphthalene	**1,600,000**	24	8.3 U	8.1 U	89	9.4 U	18 U	8.4 U	8.0 U	3.4 U	4.6 U	NA	3.7 U	3.5 U	13	NA	NA	3.7 U	3.8 U	3.8 U	8.8 U
Phenanthrene	**NE**	300	8.3 U	8.1 U	410	9.4 U	68	8.4 U	8.0 U	4.4	4.6 U	NA	3.7 U	3.5 U	31	NA	NA	3.7 U	6.0	4.1	27
Pyrene	**2,400,000**	920	8.3 U	8.1 U	650	9.4 U	150	8.4 U	8.0 U	10	4.6 U	NA	4.9	3.5 U	54	NA	NA	3.7 U	11	5.6	31
TTEC (cPAHs)	**140 [a,b]**	**1,043**	8.3 U	8.1 U	**914**	9.4 U	**221**	8.4 U	8.4 U	13	4.6 U	NA	0.080	3.5 U	15	NA	NA	3.7 U	2.0	1.1	32
Metals (mg/kg)																					
Antimony	**5 [c]**	20 UJ	NA	**6 J**	8 UJ	7 UJ	20 UJ	NA	6 UJ	5 UJ	7 UJ	NA	6 UJ	5 UJ	6 UJ	NA	NA	6 UJ	6 UJ	6 UJ	6 U
Arsenic	**20 [d]**	10 J	2.1	2.2 J	**41 J**	2.9 J	4.6 J	2.5	2.7 J	4.1	5.8	NA	5.3	3.9	16	9.9	2.6	5	5.2	2.6	9
Chromium	**48 [e]**	7.0	NA	46.2	29.4	35.9	9.0	NA	31.8	**49.5 J**	34.7 J	NA	27.0 J	41.0 J	31.4 J	NA	NA	38.5 J	30.8 J	34.2 J	33.2
Lead	**50 [c]**	**920**	5	5	**2,850**	**60**	**277**	5	3	19	**331**	6	7	5	32	NA	NA	5	17	3	40
Nickel	**48 [e]**	13	33	**49**	31	36	14	25	**50**	**49**	37	NA	35	45	35	NA	NA	45	35	41	42

Table 2-16a (Continued)
Summary of PAH and Metals Results in Soils for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:	Cleanup Level	ESB1331	ESB1332	ESB1379		ESB1380	ESB1380	ESB1381			ESB1382		ESB1383		SOIL-GC1	SOIL-GC2	SOIL-GC3	SOIL-GC4	SOIL-GC5		SOIL-GC6
Depth (feet bgs):		2	2	1/2	1 1/2	1/2	1 1/2	1/2		1 1/2	1/2	1 1/2	1/2	1 1/2	0	0	0	0	0		0
Sample Date:		6/25/1999	6/25/1999	4/6/2000	4/6/2000	4/6/2000	4/6/2000	4/6/2000		4/6/2000	4/6/2000	4/6/2000	4/6/2000	4/6/2000	2/4/2010	2/4/2010	2/4/2010	2/4/2010	2/4/2010		2/4/2010
								FS	DUP										FS	DUP	
PAHs (µg/kg)[a]																					
1-Methylnaphthalene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U
2-Methylnaphthalene	**320,000**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	5.0 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U
Acenaphthene	**4,800,000**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	7.0	4.8 U	9.3	4.8 U	5.0 U	4.8 U	5.9
Acenaphthylene	**NE**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	5.0 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U
Anthracene	**24,000,000**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	11	4.8 U	14	4.8 U	5.4	4.8	8.4
Benzo(a)anthracene [b]	**See Note b**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	96	15	100	19	41	38	73
Benzo(a)pyrene [b]	**See Note b**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	160.0	23	150	28	65	57	110
Benzo(b)fluoranthene [b]	**See Note b**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	110 J	18	71.0	22	40	40	73
Benzo(g,h,i)perylene	**NE**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	170	21	120	28	57	44 J	88
Benzo(k)fluoranthene [b]	**See Note b**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	110 J	18	100	22	40	40	73
Chrysene [b]	**See Note b**	8.1 U	9.1 U	9.1 UJ	8.8 UJ	10 UJ	10 UJ	9.0 UJ	9.0 UJ	45 UJ	11 UJ	9.1 UJ	49 UJ	7.7 UJ	140 J	24	170	34	67	60	110
Dibenz(a,h)anthracene [b]	**See Note b**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	42	6.3	42	5.3	17	12	24
Dibenzofuran	**160,000**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	5.0 U	4.8 U	4.9 U	4.8 U	5.0 U	4.8 U	5.0 U
Fluoranthene	**3,200,000**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	160	28	160	34	74	69	120
Fluorene	**3,200,000**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	5.0 U	4.8 U	5.9	4.8 U	5.0 U	4.8 U	5.0 U
Indeno(1,2,3-cd)pyrene [b]	**See Note b**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	120	16	90	20	42	35	62
Naphthalene	**1,600,000**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	5.0 U	4.8 U	8.3	4.8 U	5.0 U	4.8 U	5.0 U
Phenanthrene	**NE**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	62	11	81	16	8.0	25	45
Pyrene	**2,400,000**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	120 J	20 J	140 J	27 J	54 J	52	94 J
TTEC (cPAHs)	**140 [a,b]**	8.1 U	9.1 U	9.1 U	8.8 U	10 U	10 U	9.0 U	9.0 U	45 U	11 U	9.1 U	49 U	7.7 U	209	31	**192**	37	84	74	**142**
Metals (mg/kg)																					
Antimony	**5 [c]**	6 U	6 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2 UJ	0.4 J	**36.6**	0.4 J	3.4 J	**8.0 J**	**15.8 J**
Arsenic	**20 [d]**	8	8	8.2 J	2.9 J	8.3 J	3.8 J	5.9 J	7.8 J	1.7 J	3.7 J	2.2 J	5.2 J	2.5 J	12.9 J	6.5 J	**40.6**	12.8 J	11.4 J	13.4 J	**21.7 J**
Chromium	**48 [e]**	38.5	39.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	36.7 J	29.9 J	21.0 J	25.0 J	27.9 J	26.8 J	24 J
Lead	**50 [c]**	11	8	11	5	**55**	7	10	16	5	27	4	22	3	33	**158**	**2,830**	**209**	**440**	**524**	**4,170**
Nickel	**48 [e]**	**50**	43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**124 J**	32 J	24 J	33 J	32 J	30 J	26 J

Table 2-16a (Continued)
Summary of PAH and Metals Results in Soils for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:	Cleanup Level	SOIL-GC7	SOIL-GC8	SOIL-GC9	SOIL-GC10	SOIL-GC11	SOIL-GC12	SOIL-GC13	SOIL-GC14	SOIL-GC15	SOIL-GC16	SOIL-GC17		SOIL-GC18	SOIL-GC19	SOIL-GC20	SOIL-GC21	PEXS-C060
Depth (feet bgs):		0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	1
Sample Date:		2/4/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/5/2010	2/5/2010	2/5/2010	2/5/2010	2/5/2010	2/5/2010		2/5/2010	2/5/2010	2/5/2010	2/5/2010	7/1/2014
												FS	DUP					
PAHs (µg/kg)[a]																		
1-Methylnaphthalene	**NE**	5.0 U	4.9 U	4.7 U	4.8 U	4.8 U	4.7 U	4.8 U	4.8 U	4.9 U	5.0 U	5.0 U	4.7 U	5.0 U	4.7 U	4.8 U	4.7 U	0.77 X
2-Methylnaphthalene	**320,000**	5.0 U	4.9 U	4.7 U	4.8 U	4.8 U	4.7 U	4.8 U	4.8 U	4.9 U	5.0 U	5.0 U	4.7 U	5.0 U	4.7 U	4.8 U	4.7 U	1.4 X
Acenaphthene	**4,800,000**	5.0 U	4.9 U	4.7 U	5.3	4.8 U	4.7 U	14	14	4.9 U	5.0 U	5.0 U	4.7 U	5.0 U	4.7 U	4.8 U	4.7 U	7.5 J
Acenaphthylene	**NE**	5.0 U	4.9 U	4.7 U	4.8 U	4.8 U	4.7 U	4.8 U	4.8 U	4.9 U	5.0 U	5.0 U	4.7 U	5.0 U	4.7 U	4.8 U	4.7 U	1.8 U
Anthracene	**24,000,000**	5.0 U	4.9 U	4.7 U	6.7	4.8 U	4.7 U	4.8 U	16	4.9 U	5.0 U	5.0	4.7 U	5.0 U	4.7 U	4.8 U	4.7 U	9.9
Benzo(a)anthracene [b]	**See Note b**	27	22	27	69	48	27	10	220	22	17	54	48	10	7.5	8.1	26	**130**
Benzo(a)pyrene [b]	**See Note b**	37	37	46	130	83	44	15	380	34	29	90	78	16	11	12	41	**190**
Benzo(b)fluoranthene [b]	**See Note b**	29	30	34	74	50	33	16	240	26	22	58	48	13	9.8	10	30	240
Benzo(g,h,i)perylene	**NE**	32 J	30	32	89	59	36	16	260	27	23	60	54	12	9.4	10	30	150
Benzo(k)fluoranthene [b]	**See Note b**	29	33	34 J	74	50	33	16	240	26	22	58	48	13	9.8	10	30	94
Chrysene [b]	**See Note b**	45	39	42	120	76	44	22	280	29	25	75	66	15	11	13	37	**170**
Dibenz(a,h)anthracene [b]	**See Note b**	8.9	7.4	9	28	21	9.4	4.8 U	64	6.9	6.9	15	16	5.0 U	4.7 U	4.8 U	9.4	39
Dibenzofuran	**160,000**	5.0 U	4.9 U	4.7 U	4.8 U	4.8 U	4.7 U	4.8 U	4.8 U	4.9 U	5.0 U	5.0 U	4.7 U	5.0 U	4.7 U	4.8 U	4.7 U	1.5 X
Fluoranthene	**3,200,000**	49	36	40	99	70	42	20	260	31	25	78	70	16	12	12	42	150
Fluorene	**3,200,000**	5.0 U	4.9 U	4.7 U	4.8 U	4.8 U	4.7 U	4.8	4.8	4.9 U	5.0 U	5.0 U	4.7 U	5.0 U	4.7 U	4.8 U	4.7 U	2.5
Indeno(1,2,3-cd)pyrene [b]	**See Note b**	25	24	24	62	43	27	11	200	21	17	48	43	9.9	7.0	7.1	24	120 J
Naphthalene	**1,600,000**	5.0 U	5.4	4.7 U	4.8 U	4.8 U	4.7 U	4.8 U	4.8 U	4.9 U	5.0 U	5.0 U	4.7 U	5.0 U	4.7 U	4.8 U	4.7 U	1.5 X
Phenanthrene	**NE**	22	24	16	44	30	18	12	84	13	9.4	28	26	6.4	6.1	6.2	16	45
Pyrene	**2,400,000**	37	48	48	120	82	44	23	300	35	25	80	68	16	12	13	41	160
TTEC (cPAHs)	**140 [a,b]**	49	49	59	**162**	105	57	21	**479**	44	38	114	99	21	15	16	53	**254**
Metals (mg/kg)																		
Antimony	**5 [c]**	**148 J**	**15.4 J**	**31.8 J**	**1,130 J**	**19 J**	0.5 J	0.2 UJ	2.1 J	0.2 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.3 UJ	0.157 X
Arsenic	**20 [d]**	**44.5 J**	**38.7 J**	**33.5 J**	**516 J**	**39 J**	13.1	5.9	16.4	4.4	4.0	5.8	6.1	5.4	7.6	3.7	5.3	3.39
Chromium	**48 [e]**	19 J	21	30.0	23.8	17	21.6	26.5	26.7	26.2	39.8	29.4	25.4	37.6	28.3	31.8	33.8	40.8
Lead	**50 [c]**	**815**	**7,080 J**	**5,150 J**	**14,400 J**	**69,300 J**	**129 J**	26 J	**2,290 J**	32 J	22 J	46 J	**61 J**	14 J	22 J	7 J	17 J	16.6
Nickel	**48 [e]**	22 J	26	40	27	22	26	41	39	38	**54**	36	34	45	34	40	40	43.2

Table 2-16b
Summary of PAH and Metals Results in Sediments for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:		C-4		C-5		C-6		C-7	B-SD3	B-SD8		SED-GC7	SED-GC8	SED-GC9	SED-GC10			SED-GC11	SED-GC12	SED-GC13		SED-GC14	
Depth (feet bgs):	Sediment	0	0	0	0	0	0	0	0	0		0	0	0	0	0.5		0	0	0		0	0.5
Sample Date:	Cleanup	5/24/1991	9/9/1991	5/24/1991	9/9/1991	5/24/1991	9/9/1991	5/24/1991	5/28/1991	5/28/1991		2/4/2010	2/4/2010	2/4/2010	2/4/2010	2/4/2010		2/4/2010	2/4/2010	2/8/2010		2/8/2010	2/8/2010
	Level									FS	DUP					FS	DUP			FS	DUP		
PAHs (µg/kg) [a]																							
1-Methylnaphthalene	**NE**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	29 U	29 U	29 U	29 U	29 U	30 U	14 U	15 U	5.0 U	4.9	6.9	4.8 U
2-Methylnaphthalene	**NE**	79 U	NA	120 U	NA	330 U	NA	82 U	330 U	2,400	2,400	29 U	31	29 U	29 U	43	30 U	14 U	15	7.9	7.8	12	4.8 U
Acenaphthene	**NE**	79 U	NA	120 U	NA	330 U	NA	82 U	330 U	83	110	29	31	29 U	29 U	29 U	30 U	14 U	15 U	9.4	11	120	4.8 U
Acenaphthylene	**NE**	79 U	NA	120 U	NA	330 U	NA	82 U	330 U	80 U	78 U	29 U	29 U	29 U	29 U	29 U	30 U	14 U	15 U	5.0 U	5.4	5.0 U	4.8 U
Anthracene	**NE**	79 U	NA	120 U	NA	330 U	NA	82 U	330 U	160	160	61	80	51	47	54	54	14 U	28	17	21	150	4.8
Benzo(a)anthracene	**NE**	79 U	NA	530	NA	330 U	NA	82 U	330 U	490	440	330	420	250	230	240	270	54	150	110	140	1,700	53
Benzo(a)pyrene	**NE**	79 U	NA	670	NA	330 U	NA	82 U	330 U	480	420	500	630	410	440	380	430	71	220	160	220	2,900	81
Benzo(b)fluoranthene	**NE**	79 U	NA	680	NA	330 U	NA	82 U	330 U	520	770	470	570	380	450	400	440	69	200	120	160	1,900	53
Benzo(g,h,i)perylene	**NE**	79 U	NA	300	NA	330 U	NA	82 U	330 U	180	140	540	610	440	600 J	540 J	600 J	89	280 J	130	180	1,900	50
Benzo(k)fluoranthene	**NE**	79 U	NA	500	NA	330 U	NA	82 U	330 U	320	770	470	570	380	450	400	440	69	200	120	160	1,900	53
Chrysene	**NE**	40 M	NA	640	NA	330 U	NA	82 U	330 U	540	520	720	900	540	580	460	660	100	280	150	200	2,100	63
Dibenz(a,h)anthracene	**NE**	79 U	NA	250 M	NA	330 U	NA	82 U	330 U	130 M	110	140	150	110	160	130	110	14	54	38	47	730	16
Dibenzofuran	**200 [a]**	79 U	NA	120 U	NA	330 U	NA	82 U	330 U	63 J	90	29 U	29 U	29 U	29 U	29 U	30 U	14 U	15 U	5.0 U	4.9 U	14	4.8 U
Fluoranthene	**NE**	44 J	NA	630	NA	330 U	NA	82 U	330 U	970	750	1,000	1,500	740	770	700	850	130	380	170	220	2,000	59
Fluorene	**NE**	79 U	NA	120 U	NA	330 U	NA	82 U	330 U	100	120	32	40	29 U	29 U	29 U	30 U	14 U	15 U	8.4	7.8	41	4.8 U
Indeno(1,2,3-cd)pyrene	**NE**	79 U	NA	580	NA	330 U	NA	82 U	330 U	270	240	350	380	260	330	320	330	57	170	91	130	1,500	39
Naphthalene	**NE**	79 U	NA	120 U	NA	330 U	NA	82 U	330 U	2,000	2,100	29 U	31	29 U	29 U	29	30 U	14 U	15	7.4	5.9	12	4.8 U
Phenanthrene	**NE**	79 U	NA	200	NA	330 U	NA	82 U	330 U	780	840	440	590	290	300	250	300	59	140	88	110	660	20
Pyrene	**NE**	37 J	NA	520	NA	330 U	NA	82 U	330 U	910	850	720 J	980 J	570 J	570 J	430	560	100 J	260	180	220	2,500	75.0
Total PAHs [b]	**17,000 [a,b]**	121	NA	5,500	NA	330 U	NA	82 U	330 U	10,333	10,740	5,802	7,513	4,421	4,927	4,376	5,044	812	2,392	1,407	1,851	**20,132**	567
Metals (mg/kg)																							
Antimony	**NE**	4 UJ	NA	9	NA	26	NA	5 U	9	4 UJ	5 UJ	0.6 J	1.3 J	1.5 J	1.5 J	1.7 J	2.2 J	1.1 J	1.9 J	3.9 J	2.5	41.9 J	3.5 J
Arsenic	**14 [a]**	10	NA	**85**	NA	9	NA	9	**19**	8	8	8.1 J	12.2 J	**16.6 J**	**15.4 J**	**14.9 J**	**15.2 J**	**18.9 J**	**23.1 J**	**25.2 J**	**21.5**	**38.9 J**	4.4 J
Chromium	**72 [a]**	40.9	NA	37.6	NA	10.8	NA	29.3	42.4	38.3	40	49	**77**	**76**	**87**	**72 J**	**87 J**	55	67 J	45	49	14	7
Lead	**360 [a]**	55	NA	**1,360**	**1,270**	**1,020**	**3,720**	19	78	59	61	52 J	85 J	114 J	96 J	138	109	184 J	**487**	**1,310 J**	**963**	324 J	346 J
Nickel	**61.6 [c]**	49	NA	52	NA	20	NA	35	**63**	**68**	**67**	57	**77**	**79**	**91**	**71 J**	**88 J**	**90**	**118 J**	61	**65**	23	12

[a]Washington State Sediment Management Standards (SMS) Sediment Cleanup Objectives for Freshwater, February 2013.

[b]The total PAH criterion in Table VI of SMS represents the sum of the following PAHs: 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, and total benzofluoranthenes (b+k+j).

[c]Site-specific background concentration for nickel in sediment established as part of the freshwater sediment cleanup level development for the sediment feasibility study.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
DUP - field duplicate
FS - field sample
J - estimated value
M - Indicates an estimated value of analyte found and confirmed by analyst but with low spectral match parameters.
µg/kg - microgram per kilogram
mg/kg - milligram per kilogram
NA - Not applicable or not analyzed
NE - Not established
PAH - polycyclic aromatic hydrocarbon
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.

Table 2-16b
Summary of PAH and Metals Results in Sediments for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:		SED-GC15		SED-GC16	SED-GC16	SED-GC17		SED-GC19		SED-GC20		SED-GC21			SED-GC22		SED-GC23	SED-GC24	SED-GC25	SED-GC26	SED-GC27	
Depth (feet bgs):	Sediment	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0		0.5	0	0.5	0	0	0	0	0	
Sample Date:	Cleanup	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/8/2010		2/8/2010	2/8/2010	2/8/2010	2/8/2010	2/5/2010	2/5/2010	2/5/2010	2/5/2010	
	Level											FS	DUP								FS	DUP
PAHs (µg/kg) [a]																						
1-Methylnaphthalene	**NE**	5.0 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	4.8 U	8.9	5.0 U	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U
2-Methylnaphthalene	**NE**	5.0 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	4.8 U	12	5.0 U	4.8 U	6	4.9 U	4.8 U	4.8 U	4.8 U
Acenaphthene	**NE**	8.9	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	12	5.0 U	5.0 U	5.0 U	5.0 U	5.0	4.8 U	26	5.0 U	4.8 U	5.5	15	5.3	12	10
Acenaphthylene	**NE**	5.0 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	4.8 U	8.9	5.0 U	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U
Anthracene	**NE**	11	5.0 U	4.9	4.9 U	5.0 U	5.0 U	14	5.0 U	5.0 U	5.0 U	5.0 U	6.9	4.8 U	44.0	5.0 U	5.3	7.5	16.0	6.3	16.0	14.0
Benzo(a)anthracene	**NE**	110	8.0	56	27	8.5	5.0 U	160	20	5.0 U	5.0 U	20 J	56 J	9.2	290	8.9	68	62	180	82	200	160
Benzo(a)pyrene	**NE**	180	12	90	45	12	5.0 U	250	32	5.0	5.0 U	29 J	86 J	13	490	12	120	110	280	140	320	280
Benzo(b)fluoranthene	**NE**	110	9.0	63	33	8.5	5.0 U	170	22	5.0 U	5.0 U	22 J	64 J	10	310	9.9	82	98	210	100	240	200
Benzo(g,h,i)perylene	**NE**	110	8.5	55.0	28	8.0	5.0 U	160	19	5.0 U	5.0 U	23 J	59 J	9.7	330	9.4	85	110	92	110	240	220
Benzo(k)fluoranthene	**NE**	110	9.0	63	33	8.5	5.0 U	170	22	5.0 U	5.0 U	22 J	64 J	10	310	9.9	82	98	110	100	240	200
Chrysene	**NE**	130	10	76	38	11	5.0 U	200	26	5.4	5.0 U	28 J	71 J	13	400	11	93	130	240	110	270	220
Dibenz(a,h)anthracene	**NE**	32	5.0 U	18	9.3	5.0 U	5.0 U	62	6.0	5.0 U	5.0 U	6.4 J	14 J	4.8 U	120	5.0 U	22	29	27 UJ	35	67	63
Dibenzofuran	**200 [a]**	5.0 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	4.8 U	7.4	5.0 U	4.8 U	5.0 U	4.9 U	4.8 U	4.8 U	4.8 U
Fluoranthene	**NE**	140	9.5	71	35	10	5.0 U	210	25	5.0	5.0 U	28 J	74 J	13	420	9.9	81	130	270	110	280	220
Fluorene	**NE**	5.0 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	5.5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	4.8 U	20	5.0 U	4.8 U	5.0 U	5.9	4.8 U	5.3	4.8
Indeno(1,2,3-cd)pyrene	**NE**	82	6.0	46	22	5.5	5.0 U	130	16	5.0 U	5.0 U	16 J	50 J	7.8	260	7.9	66	75	140	85	200	170
Naphthalene	**NE**	5.0 U	5.0 U	4.9 U	4.9 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	4.8 U	11	5.0 U	4.8 U	7.5	4.9 U	4.8 U	4.8 U	4.8 U
Phenanthrene	**NE**	52	5.0 U	24	12	5.0 U	5.0 U	72	9.5	5.0 U	5.0 U	13 J	38 J	5.8	210	5.9	34	50	89	36	90	72
Pyrene	**NE**	160	12	85	43	16	7.4	240	30	7.9	6.9	31 J	94 J	16	450	15	110	120	260	110	270	220
Total PAHs [b]	**17,000 [a,b]**	1,236	84	652	325	88	7.4	1,856	228	23	6.9	238	682	108	3,721	100	848	1,039	1,908	1,030	2,450	2,054
Metals (mg/kg)																						
Antimony	**NE**	4.7 J	0.9 J	34.1 J	1.9 J	12.7 J	0.4 UJ	1.5 J	1.6 J	2.8 J	0.7 UJ	2.1 J	1.6	0.5 UJ	25.6	9.8	2.4	7 J	4.7 J	0.7 J	0.7 J	0.7 J
Arsenic	**14 [a]**	8.2 J	8.5 J	6.9 J	2.5 J	3.3 J	1.0 J	12.2 J	**14.1 J**	**38.9 J**	1.5 J	6.1 J	3.1 J	2.8 J	**32.6**	9.9	5.5	**74**	**178**	**17.8**	**20**	**14.5**
Chromium	**72 [a]**	12	7	15	21	18	20.2	7	8	11	**76**	32	33	30	22	36	25	51	44	28	33	33.8
Lead	**360 [a]**	315 J	52 J	**2,440 J**	117 J	210 J	16 J	48 J	72 J	48 J	19 J	171 J	**398 J**	94 J	**1,080**	**4,610**	**590**	**1,350 J**	**1,750 J**	206 J	319 J	232 J
Nickel	**61.6 [c]**	20	13	19	26	22	19	18	20	21	31	31	35	31	25	46	23	**72**	**74**	38	47	48

Table 2-16b
Summary of PAH and Metals Results in Sediments for SWMU/AOC No. 100, Former Gun Club - Area B

Sample ID:		**SED-GC28**	**SED-GC29**	**SED-GC30**	**SED-GC31**	**SED-GC32**	**SED-GC33**	**SED-GC34**	**SED-GC35**	**SED-GC36**	**SED-GC37**	**SED-GC38**	**SED-GC39**	**SED-GC40**	**SED-GC41**	**SED-GC42**	**SED-GC43**
Depth (feet bgs):	**Sediment**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Sample Date:	**Cleanup Level**	**2/4/2010**	**2/4/2010**	**2/4/2010**	**2/4/2010**	**2/4/2010**	**2/4/2010**	**2/4/2010**	**2/4/2010**	**2/5/2010**	**2/5/2010**	**2/5/2010**	**2/5/2010**	**2/5/2010**	**2/5/2010**	**2/5/2010**	**2/5/2010**
PAHs (µg/kg) [a]																	
1-Methylnaphthalene	**NE**	30 U	5.0 U	29 U	29 U	4.7 U	4.9 U	14 U	29 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	14 U
2-Methylnaphthalene	**NE**	30 U	5.0 U	29 U	29 U	4.7 U	4.9 U	14	29 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	14 U
Acenaphthene	**NE**	30 U	5.5	29 U	29 U	4.7 U	12	14 U	29 U	5.4	7.8	4.8 U	9.7	8.6	4.8 U	4.8 U	14 U
Acenaphthylene	**NE**	30 U	5.0 U	29 U	29 U	4.7 U	4.9 U	14 U	29 U	4.9 U	11	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	14 U
Anthracene	**NE**	56.0	8.5	61.0	29.0	5.7	16.0	27.0	41.0	5.9	8.8	5.7	14.0	10.0	4.8 U	7.2	19.0
Benzo(a)anthracene	**NE**	230	68	290	170	35	160	140	220	72	110	74	160	120	39	34	58
Benzo(a)pyrene	**NE**	340	98	400 J	280	52	240	220	280	110	170	140	260	200	63	54	97
Benzo(b)fluoranthene	**NE**	320	72	430 J	290	36	150	200	300	86	130	95	180	140	44	44	65
Benzo(g,h,i)perylene	**NE**	340	76	450 J	370	39	180	220	310	86	120	110	180	140 J	43 J	38 J	68 J
Benzo(k)fluoranthene	**NE**	320	72	430 J	290	36	150	200	300	86	130	95	180	140	44	44	65
Chrysene	**NE**	470	100	740	350	51	240	260	400	100	160	100	200	160	58	55	94
Dibenz(a,h)anthracene	**NE**	95	26	95 J	74	7.1	65	50	56	25	39	25	57	45	15	12	20
Dibenzofuran	**200 [a]**	30 U	5.0 U	29 U	29 U	4.7 U	4.9 U	14 U	29 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	14 U
Fluoranthene	**NE**	740	120	930	470	64	260	340	590	110	170	100	210	190	68	68	140
Fluorene	**NE**	30 U	5.0 U	29 U	29 U	4.7 U	6.9	14 U	29 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	14 U
Indeno(1,2,3-cd)pyrene	**NE**	210	55	270 J	210	30	130	140	190	67	98	80	150	110	34	31	52
Naphthalene	**NE**	30 U	5.0 U	29	29 U	4.7 U	4.9 U	14 U	29 U	4.9 U	4.9 U	4.8 U	4.8 U	4.8 U	4.8 U	4.8 U	14 U
Phenanthrene	**NE**	310	48	350	180	29	97	140	220	41	58	31	66	50	23	26	61
Pyrene	**NE**	490 J	96 J	670 J	350 J	51 J	210 J	260 J	420 J	110	170	99	210	130	46	44	88
Total PAHs [b]	**17,000 [a,b]**	3,921	845	5,145	3,063	436	1,917	2,211	3,327	904	1,383	955	1,877	1,444	477	457	911
Metals (mg/kg)																	
Antimony	**NE**	1.4 J	6.1 J	1.3 J	2.2 J	2.2 J	16.4 J	1.3 J	1.3 J	4 J	7 J	0.4 J	0.4 UJ	0.4	0.4 U	0.5 U	0.3 U
Arsenic	**14 [a]**	**14.0 J**	**15.5 J**	**17.4 J**	**26.1 J**	9.0 J	**19.1 J**	**23.5 J**	**19.9 J**	**30**	**34**	10.8	7.8	12.6	3.6	7.0	3.4
Chromium	**72 [a]**	**75**	24	**85**	66	31	18	54	70	34	26	29	25	36.3	30	42	26.1
Lead	**360 [a]**	99 J	**1,130 J**	101 J	**1,100 J**	**737 J**	**6,860 J**	**471 J**	**415 J**	**620 J**	**1,020 J**	103 J	79 J	115	67	26	15
Nickel	**61.6 [c]**	**76**	25	**89**	**81**	26	17	**79**	**103**	47	**64**	44	39	46	38	53	43

Table 2-17
Summary of Soil Gas Analytical Results for Powder Mill Gulch

Sample ID: / Sample Date:	MTCA Method B Screening Level for Deep Soil Gas (Indoor Air/VAF)	ESG001 1401301-04A 1/17/2014		ESG002-1 1401301-01A 1/16/2014		ESG002-3 1401301-02A 1/16/2014		ESG002-10 1401301-03A 1/16/2014		ESG003 1401301-05A 1/17/2014		DUP of ESG003 SSG-DUP1 1401301-08A 1/17/2014		ESG004-1 1401301-06A 1/17/2014		ESG004-3 1401301-07A 1/17/2014		ESG004-10 1401301-09A 1/17/2014		ESG-SWAGBLANK 1402414-01A 2/21/2014		ESG-MISCBLANK 1402414-02A 2/21/2014	
VOCs by Method TO-15	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3	ppbv	µg/m^3
Chloromethane	4,100	1.0 U	2.2 U	**1.3**	**2.6**	1.1 U	2.2 U	2.1 U	4.3 U	1.1 U	2.2 U	**1.1**	**2.3**	1.1 U	2.2 U	1.1 U	2.2 U	1.0 U	2.2 U	1.1 U	2.4 U	**1.8**	**3.6**
Vinyl Chloride	28	0.21 U	0.54 U	0.20 U	0.52 U	0.21 U	0.54 U	0.42 U	1.1 U	0.22 U	0.55 U	0.22 U	0.56 U	0.21 U	0.54 U	0.22 U	0.55 U	0.21 U	0.53 U	0.23 U	0.58 U	0.22 U	0.56 U
Bromomethane	230	1.0 U	4.1 U	1.0 U	3.9 U	1.1 U	4.1 U	2.1 U	8.1 U	1.1 U	4.2 U	1.1 U	4.3 U	1.1 U	4.1 U	1.1 U	4.2 U	1.0 U	4.0 U	1.1 U	4.4 U	1.1 U	4.2 U
Chloroethane	457,100	1.0 U	2.8 U	1.0 U	2.7 U	1.1 U	2.8 U	2.1 U	5.5 U	1.1 U	2.8 U	1.1 U	2.9 U	1.1 U	2.8 U	1.1 U	2.8 U	1.0 U	2.8 U	1.1 U	3.0 U	1.1 U	2.9 U
Freon 11	32,000	0.21 U	1.2 U	0.20 U	1.1 U	0.21 U	1.2 U	0.42 U	2.3 U	0.22 U	1.2 U	0.22 U	1.2 U	0.21 U	1.2 U	0.22 U	1.2 U	0.21 U	1.2 U	0.23 U	1.3 U	0.22 U	1.2 U
Freon 113	1,371,400	0.21 U	1.6 U	0.20 U	1.5 U	0.21 U	1.6 U	0.42 U	3.2 U	0.22 U	1.6 U	0.22 U	1.7 U	0.21 U	1.6 U	0.22 U	1.6 U	0.21 U	1.6 U	0.23 U	1.8 U	0.22 U	1.7 U
1,1-Dichloroethene	9,100	0.21 U	0.83 U	0.20 U	0.80 U	0.21 U	0.84 U	0.42 U	1.6 U	0.22 U	0.86 U	0.22 U	0.87 U	0.21 U	0.84 U	0.22 U	0.86 U	0.21 U	0.83 U	0.23 U	0.91 U	0.22 U	0.86 U
Acetone	NE	**13**	**30**	**19**	**46**	**11**	**27**	**18**	**43**	**4.8** J	**12** J	**16** J	**38** J	**8.4**	**20**	**5.4**	**13**	**3.1**	**7.4**	**52**	**120**	**51**	**120**
Carbon Disulfide	32,000	**1.2**	**3.9**	**1.2**	**3.7**	1.1 U	3.3 U	2.1 U	6.5 U	**1.1**	**3.4**	**1.3**	**4.0**	1.1 U	3.3 U	1.1 U	3.4 U	1.0 U	3.2 U	**2.2**	**6.8**	**5.2**	**16**
Methylene Chloride	25,000	0.42 U	1.4 U	0.40 U	1.4 U	0.43 U	1.5 U	0.84 U	2.9 U	0.43 U	1.5 U	0.44 U	1.5 U	0.43 U	1.5 U	0.43 U	1.5 U	0.42 U	1.4 U	**0.86**	**3.0**	**1.3**	**4.4**
trans-1,2-Dichloroethene	NE	0.21 U	0.83 U	0.20 U	0.80 U	0.21 U	0.84 U	0.42 U	1.6 U	0.22 U	0.86 U	0.22 U	0.87 U	0.21 U	0.84 U	0.22 U	0.86 U	0.21 U	0.83 U	0.23 U	0.91 U	0.22 U	0.86 U
1,1-Dichloroethane	160	0.21 U	0.85 U	0.20 U	0.82 U	0.21 U	0.86 U	0.42 U	1.7 U	0.22 U	0.87 U	0.22 U	0.89 U	0.21 U	0.86 U	0.22 U	0.87 U	0.21 U	0.85 U	0.23 U	0.93 U	0.22 U	0.88 U
2-Butanone (Methyl Ethyl Ketone)	229,000	**18**	**52**	**2.4**	**7.0**	**1.8**	**5.4**	**2.4**	**7.0**	**1.1** UJ	**3.2** UJ	**8.3** J	**24** J	**2.8**	**8.3**	1.1 U	3.2 U	1.0 U	3.1 U	**4.4**	**13**	**7.8**	**23**
cis-1,2-Dichloroethene	NE	0.21 U	0.83 U	0.20 U	0.80 U	0.21 U	0.84 U	0.42 U	1.6 U	0.22 U	0.86 U	0.22 U	0.87 U	0.21 U	0.84 U	0.22 U	0.86 U	0.21 U	0.83 U	0.23 U	0.91 U	0.22 U	0.86 U
Chloroform	11	0.21 U	1.0 U	**0.45**	**2.2**	**0.46**	**2.2**	**0.43**	**2.1**	**0.86**	**4.2**	**1.0**	**5.0**	**0.64**	**3.1**	**0.70**	**3.4**	**0.64**	**3.1**	0.23 U	1.1 U	0.22 U	1.1 U
1,1,1-Trichloroethane	229,000	0.21 U	1.1 U	0.20 U	1.1 U	0.21 U	1.2 U	0.42 U	2.3 U	0.22 U	1.2 U	0.22 U	1.2 U	0.21 U	1.2 U	0.22 U	1.2 U	0.21 U	1.1 U	0.23 U	1.2 U	0.22 U	1.2 U
Carbon Tetrachloride	42	0.21 U	1.3 U	0.20 U	1.3 U	0.21 U	1.3 U	0.42 U	2.6 U	0.22 U	1.4 U	0.22 U	1.4 U	0.21 U	1.3 U	0.22 U	1.4 U	0.21 U	1.3 U	0.23 U	1.4 U	0.22 U	1.4 U
Benzene	32	**1.1**	**3.5**	**5.4**	**17**	**7.4**	**24**	**8.5**	**27**	**0.92** J	**2.9** J	**2.5** J	**8.0** J	**2.3**	**7.4**	**1.4**	**4.4**	**0.62**	**2.0**	**21**	**66**	**37**	**120**
1,2-Dichloroethane	10	0.21 U	0.85 U	**1.3**	**5.5**	**2.3**	**9.2**	**3.5**	**14**	0.22 U	0.87 U	**0.59**	**2.4**	**1.0**	**4.2**	**0.40**	**1.6**	**0.24**	**0.97**	**3.5**	**14**	**7.6**	**31**
Trichloroethene (TCE)	37	0.21 U	1.1 U	**1.8**	**9.6**	0.21 U	1.1 U	0.42 U	2.2 U	0.22 U	1.2 U	0.22 U	1.2 U	0.21 U	1.1 U	0.22 U	1.2 U	0.21 U	1.1 U	0.23 U	1.2 U	0.22 U	1.2 U
1,2-Dichloropropane	25	0.21 U	0.97 U	**0.23**	**1.1**	**0.41**	**1.9**	**0.61**	**2.8**	0.22 U	1.0 U	0.22 U	1.0 U	**0.22**	**0.99**	0.22 U	1.0 U	0.21 U	0.96 U	**0.46**	**2.1**	**0.95**	**4.4**
Bromodichloromethane	7	0.21 U	1.4 U	0.20 U	1.4 U	0.21 U	1.4 U	0.42 U	2.8 U	0.22 U	1.4 U	0.22 U	1.5 U	0.21 U	1.4 U	0.22 U	1.4 U	0.21 U	1.4 U	0.23 U	1.5 U	0.22 U	1.5 U
cis-1,3-Dichloropropene	62.5	0.21 U	0.95 U	0.20 U	0.92 U	0.21 U	0.97 U	0.42 U	1.9 U	0.22 U	0.98 U	0.22 U	1.0 U	0.21 U	0.97 U	0.22 U	0.98 U	0.21 U	0.95 U	0.23 U	1.0 U	0.22 U	0.99 U
4-Methyl-2-pentanone (MIBK)	137,000	**5.4**	**22**	**14**	**57**	**12**	**49**	**9.9**	**40**	**1.9**	**7.9**	**2.8**	**11**	**5.1**	**21**	**3.1**	**13**	**2.2**	**9.0**	**16**	**65**	**16**	**66**
Toluene	229,000	**2.3**	**8.5**	**6.9**	**26**	**11**	**40**	**10**	**38**	**1.6** J	**6.2** J	**2.9** J	**11** J	**6.1**	**23**	**3.0**	**11**	**1.4**	**5.4**	**21**	**79**	**36**	**140**
trans-1,3-Dichloropropene	62.5	0.21 U	0.95 U	0.20 U	0.92 U	0.21 U	0.97 U	0.42 U	1.9 U	0.22 U	0.98 U	0.22 U	1.0 U	0.21 U	0.97 U	0.22 U	0.98 U	0.21 U	0.95 U	0.23 U	1.0 U	0.22 U	0.99 U
1,1,2-Trichloroethane	9.1	0.21 U	1.1 U	0.20 U	1.1 U	0.21 U	1.2 U	0.42 U	2.3 U	0.22 U	1.2 U	0.22 U	1.2 U	0.21 U	1.2 U	0.22 U	1.2 U	0.21 U	1.1 U	0.23 U	1.2 U	0.22 U	1.2 U
Tetrachloroethene (PCE)	960	0.21 U	1.4 U	0.20 U	1.4 U	0.21 U	1.4 U	0.42 U	2.8 U	**2.8** J	**19** J	**0.22** UJ	**1.5** UJ	**3.8**	**26**	0.22 U	1.5 U	0.21 U	1.4 U	0.23 U	1.6 U	0.22 U	1.5 U
2-Hexanone	NE	1.0 U	4.3 U	1.0 U	4.1 U	1.1 U	4.4 U	2.1 U	8.6 U	1.1 U	4.4 U	1.1 U	4.5 U	1.1 U	4.4 U	1.1 U	4.4 U	1.0 U	4.3 U	1.1 U	4.7 U	1.1 U	4.5 U
Dibromochloromethane	9	0.21 U	1.8 U	0.20 U	1.7 U	0.21 U	1.8 U	0.42 U	3.6 U	0.22 U	1.8 U	0.22 U	1.9 U	0.21 U	1.8 U	0.22 U	1.8 U	0.21 U	1.8 U	0.23 U	2.0 U	0.22 U	1.8 U
Chlorobenzene	2,300	0.21 U	0.97 U	0.20 U	0.93 U	0.21 U	0.98 U	0.42 U	1.9 U	0.22 U	0.99 U	0.22 U	1.0 U	0.21 U	0.98 U	0.22 U	0.99 U	0.21 U	0.96 U	0.23 U	1.0 U	0.22 U	1.0 U
Ethyl Benzene	45,700	**0.35**	**1.5**	**0.44**	**1.9**	**0.68**	**2.9**	**0.85**	**3.7**	**0.39**	**1.7**	**0.44**	**1.9**	**0.74**	**3.2**	**0.63**	**2.7**	**0.38**	**1.7**	**0.77**	**3.4**	**0.92**	**4.0**
m,p-Xylene	4,570 (total)	**1.1**	**4.8**	**0.72**	**3.1**	**1.7**	**7.2**	**1.9**	**8.1**	**1.2**	**5.1**	**1.4**	**5.9**	**1.8**	**7.9**	**2.0**	**8.6**	**0.79**	**3.4**	**1.1**	**4.8**	**1.8**	**7.7**
o-Xylene	4,570 (total)	**0.55**	**2.4**	**0.58**	**2.5**	**1.4**	**5.9**	**1.2**	**5.2**	**0.64**	**2.8**	**0.79**	**3.4**	**1.2**	**5.3**	**1.2**	**5.2**	**0.64**	**2.8**	**1.1**	**4.7**	**1.5**	**6.4**
Styrene	45,700	0.21 U	0.89 U	0.20 U	0.86 U	0.21 U	0.91 U	0.42 U	1.8 U	0.22 U	0.92 U	0.22 U	0.94 U	0.21 U	0.91 U	0.22 U	0.92 U	0.21 U	0.89 U	0.23 U	0.98 U	**0.48**	**2.0**
Bromoform	230	0.21 U	2.2 U	0.20 U	2.1 U	0.21 U	2.2 U	0.42 U	4.3 U	0.22 U	2.2 U	0.22 U	2.3 U	0.21 U	2.2 U	0.22 U	2.2 U	0.21 U	2.2 U	0.23 U	2.4 U	0.22 U	2.2 U
1,1,2,2-Tetrachloroethane	4	0.21 U	1.4 U	**1.1**	**7.8**	0.21 U	1.5 U	0.42 U	2.9 U	0.22 U	1.5 U	0.22 U	1.5 U	0.21 U	1.5 U	0.22 U	1.5 U	0.21 U	1.4 U	0.23 U	1.6 U	0.22 U	1.5 U
Vinyl Acetate	9,100	1.0 U	3.7 U	1.0 U	3.6 U	1.1 U	3.7 U	2.1 U	7.4 U	1.1 U	3.8 U	1.1 U	3.9 U	1.1 U	3.7 U	1.1 U	3.8 U	1.0 U	3.7 U	1.1 U	4.0 U	1.1 U	3.8 U

Notes:

µg/m3 = micrograms per cubic meter.
ppbv= part per billion by volume.
VOCs = Volatile Organic Compounds
SAP = Sampling and Analysis Plan
COC = Chemical of Concern
PMG = Powder Mill Gulch
VAF = Vapor Attenuation Factor

U = Indicates the compound was not detected at the reported concentration.
J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.
NE = Screening level not established.
Bold = Detected compound.
Box = Exceedance of the applicable screening level value.

1) Deep soil gas screening level is based on a VAF = 0.01 per Ecology guidance (2009, with April 6, 2015 revised indoor air/deep soil gas screening levels).
2) The -1, -3, and -10 suffix following the sample identifications for ESG002 and ESG004 refer to the number of well volumes purged prior to the specified sample collection.
3) Certain VOCs that are not COCs at PMG were unexpectedly detected in the soil vapor samples, and were also reported to Ecology (Garson 2014a). An analysis of these contaminants indicated that sample train contamination due to an oil placed on the fittings during the manufacturing process was the source of nontarget VOCs.

Table 2-18a
Summary of VOC and TPH Results in Soil for SWMU/AOC No. 165, Former Fuel Farm USTs and Fueling Positions

Sample Area	Sample ID	Sample Location[a]	Sample Depth (feet bgs)	Date Collected	PID (ppm)	Volatile Organic Compound (µg/kg)				Total Petroleum Hydrocarbon (mg/kg)		
						Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range	Diesel Range	Motor Oil Range
MTCA Method A Cleanup Level						**30**	**7,000**	**6,000**	**9,000**	**30/100[b]**	**2,000**	**2,000**
Fueling Positions												
F-2	F2-1	1	4	2/26/2007	220	15 U	15 U	15 U	30 U	9.2 [c]	9.9 [d]	11 U
	F2-2	2	4	2/26/2007	--	13 U	13 U	13 U	26 U	11 [c]	6.4 U	13 U
		3	4	2/26/2007 (DUP)	--	23 U	23 U	23 U	47 U	19 [c]	7.2 U	14 U
	F2-3	4	4	2/26/2007	--	13 U	13 U	13 U	26 U	13 [c]	10 [d]	14 [d]
	F2-1	5	4	3/5/2007	75.9	150 U	150 U	150	190	**900 [c]**	560 [c]	110 U
	F2-2	6	4	3/5/2007	136	300 U	300 U	370	600 U	**1,600 [c]**	350 [c]	110 U
	F2-1	7	4	3/7/2007	--	13 U	13	54	70	43 [c]	15 [c]	11 U
	F2-2	8	4	3/7/2007	--	680 U	680 U	1,000	790	**3,000 [c]**	770 [c]	100 U
F-3	SC-1	NA	2 1/2	9/4/1992	NA	ND	ND	ND	ND	ND	ND	NA
		NA	7 1/2	9/4/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-2	NA	2 1/2	9/3/1992	NA	ND	ND	1,900	4,800	**2,200**	**4,500**	NA
		NA	7 1/2	9/3/1992	NA	ND	ND	ND	ND	28	NA	NA
	SC-3	NA	1 1/2	9/3/1992	NA	ND	ND	170	340	**600**	NA	NA
		NA	7 1/2	9/3/1992	NA	ND	ND	ND	ND	12	NA	NA
	SC-4	NA	2 1/2	9/3/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-5	NA	3 1/2	9/3/1992	NA	ND	ND	ND	ND	ND	NA	NA
		NA	7	9/3/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-6	NA	4 1/2	9/3/1992	NA	ND	ND	ND	ND	ND	NA	NA
		NA	7 1/2	9/3/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-7	NA	1 1/2	9/4/1992	NA	ND	ND	1,100	1,800	**2,300**	**6,200**	NA
				9/4/1992 (DUP)	NA	ND	ND	1,500	2,200	**2,200**	NA	NA
		NA	3 1/2	9/4/1992	NA	ND	ND	ND	ND	ND	19	NA
				9/4/1992 (DUP)	NA	NA	NA	NA	NA	NA	20	NA
		NA	6 1/2	9/4/1992	NA	ND	ND	ND	ND	ND	21	NA
	SC-8	NA	2 1/2	9/4/1992	NA	ND	ND	ND	ND	ND	NA	NA
		NA	7 1/2	9/4/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-9	NA	1 1/2	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA
		NA	6	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-10	NA	1 1/2	9/22/1992	NA	ND	63	170	2,400	**680**	**2,400**	NA
		NA	7 1/2	9/22/1992	NA	ND	ND	ND	97	49	220	NA
	SC-11	NA	1 1/2	9/22/1992	NA	ND	ND	ND	ND	20	NA	NA
		NA	6	9/22/1992	NA	ND	ND	ND	ND	7.4	NA	NA
	SC-12	NA	1 1/2	9/22/1992	NA	ND	ND	ND	ND	ND	28	NA
		NA	6 1/2	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-13	NA	3	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA
		NA	7	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-14	NA	1 1/2	9/22/1992	NA	ND	ND	370	1,200	**1,300**	**3,900**	NA
				9/22/1992 (DUP)	NA	ND	ND	260	1,000	**1,700**	NA	NA
		NA	7	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA

Table 2-18a
Summary of VOC and TPH Results in Soil for SWMU/AOC No. 165, Former Fuel Farm USTs and Fueling Positions

Sample Area	Sample ID	Sample Location[a]	Sample Depth (feet bgs)	Date Collected	PID (ppm)	Volatile Organic Compound (µg/kg)				Total Petroleum Hydrocarbon (mg/kg)		
						Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range	Diesel Range	Motor Oil Range
MTCA Method A Cleanup Level						**30**	**7,000**	**6,000**	**9,000**	**30/100[b]**	**2,000**	**2,000**
F-3	SC-15	NA	3	9/22/1992	NA	ND	ND	ND	ND	ND	ND	NA
		NA	7	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA
	SC-16	NA	2	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA
		NA	6 1/2	9/22/1992	NA	ND	ND	ND	ND	ND	ND	NA
	SC-17	NA	2 1/2	9/22/1992	NA	ND	ND	ND	ND	ND	NA	NA
	F3-1	9	4	2/26/2007	--	12 U	12 U	12 U	24 U	22 [c]	20 [d]	16 [d]
	F3-2	10	4	2/26/2007	2.9	120 U	120 U	4,800	4,360	**4,300 [c]**	1,400 [d]	65 [d]
	F3-3	11	4	2/26/2007	--	16 U	74	3,700	2,840	**3,100 [c]**	1,500 [d]	52 [c]
	F3-1	12	4	3/7/2007	523	750 U	750 U	3,500	**9,500**	**5,800 [c]**	**3,100 [c]**	210 U
	F3-2	13	4	3/7/2007	--	630 U	630 U	780	1,200 U	**2,300 [c]**	**2,000 [c]**	220 U
	F3-1	25	4	3/30/2007	200	76 U	120	**7,200**	5,260	**14,000 [c]**	**5,500 [c]**	170 [c]
	F3-2	26	4	3/30/2007	0	15 U	15 U	15 U	29 U	12 [c]	28 [c]	22 [c]
	F3-3	27	4	3/30/2007	0.5	13 U	13 U	13 U	26 U	6.7 [c]	9.5 [c]	63 [d]
	F3-1	28	4	4/5/2007	0	14 UJ	14 UJ	18 J	28 UJ	10 J [c]	250 [c]	170 c
Underground Storage Tank Excavations												
Former Tank No. 4 (EV-29)	EV29-EAST	14	11	2/28/2007	442	14 U	95	**9,500**	5,430	**6,600 [c]**	**2,800 [c]**	29 [c]
	EV29-EAST	15	18	2/28/2007	172	17	24	270	35 U	**66 [c]**	110 [c]	340 [d]
	EV29-SOUTHE	16	8	3/19/2007	44.1	12 U	12 U	12 U	24 U	5.7 [c]	5.6 [c]	11 U
	EV29-SOUTHE	17	12	3/19/2007	1.1	18 U	18 U	37	35 U	12 [c]	5.5 U	11 U
	EV29-SOUTHC	18	8	3/19/2007	0.0	12 U	12 U	12 U	24 U	4.7 U	5.4 U	11 U
	EV29-SOUTHC	19	12	3/19/2007	0.0	16 U	16 U	16 U	32 U	6.3 U	5.7 U	12 U
	EV29-FLOOR1	20	18	3/20/2007	3.2	15 UJ	15 UJ	15 UJ	30 UJ	9.6 J [c]	19 [c]	11 U
	EV29-FLOOR2	21	18	3/23/2007	0.3	14 U	14 U	14 U	28 U	5.7 U	5.5 U	11 U
				3/23/2007 (DUP)	0.3	14 U	14 U	14 U	28 U	5.7 U	13 [d]	11 U
	EV29-FLOOR3	22	18	3/23/2007	0.5	13 U	13 U	13 U	26 U	5.3 U	5.4 [d]	11 U
	EV29-WEST	23	8	3/23/2007	--	67 U	67 U	67 U	130 U	32 [c]	98 [d]	33 [d]
	EV29-WEST	24	12	3/23/2007	0.5	14 U	73 J	21	106 J	5.7 U	5.4 U	11 U
	EV29-CONF [e]	--	4	3/23/2007	--	13 U	13 U	78	55	**150 [c]**	160 [d]	110 [d]
Former Tank No. 1 (EV-26)	EV26-East10	36	10	11/8/2008	0.6	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-East17	35	17	11/8/2008	0.3	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-Floor1	37	19	11/8/2008	1.3	20 U	100 U	80	60	10 U	25 U	40 U
	EV26-Floor2	38	20	11/8/2008	0.9	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-Floor3	53	19	11/11/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-NE10	40	10	11/8/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-NE17	39	17	11/8/2008	1.6	20 U	100 U	110	150 U	18	25 U	40 U
	EV26-North17	41	17	11/8/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-North10	42	10	11/8/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-NW10	46	10	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U

Table 2-18a
Summary of VOC and TPH Results in Soil for SWMU/AOC No. 165, Former Fuel Farm USTs and Fueling Positions

Sample Area	Sample ID	Sample Location[a]	Sample Depth (feet bgs)	Date Collected	PID (ppm)	Volatile Organic Compound (µg/kg)				Total Petroleum Hydrocarbon (mg/kg)		
						Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range	Diesel Range	Motor Oil Range
MTCA Method A Cleanup Level						**30**	**7,000**	**6,000**	**9,000**	**30/100[b]**	**2,000**	**2,000**
Former Tank No. 1 (EV-26)	EV26-NW17	45	17	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
				11/10/2008 (DUP)		20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-West17	54	17	11/11/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV26-West10	55	10	11/11/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
Former Tank No. 2 (EV-27)	EV27-East10	32	10	11/8/2008	0.2	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV27-East17	31	17	11/8/2008	0.7	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV27-Floor1	34	22	11/8/2008	6.9	20 U	100 U	50 U	150 U	22	25 U	40 U
	EV27-Floor2	44	19	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV27-Floor3	50	19	11/10/2008	0.4	20 U	100 U	50 U	150 U	10 U	40 U	40 U
	EV27-West10	52	10	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV27-West17	51	17	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
Former Tank No. 3 (EV-28)	EV28-East17	29	17	11/8/2008	0	27	100 U	70	150 U	21	25 U	40 U
				11/8/2008 (DUP)		20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV28-East10	30	10	11/8/2008	0.6	25	100 U	100	150 U	12	25 U	40 U
	EV28-Floor1	33	19	11/8/2008	0	20 U	100 U	50 U	150 U	21	25 U	40 U
	EV28-Floor2	43	19	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV28-Floor3	47	19	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV28-West10	49	10	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	EV28-West17	48	17	11/10/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
Fuel Piping Excavation												
Truck Fill Stand	Fillstand-Piping1	60	6	11/15/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Fillstand-Piping2	61	10	11/15/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Fillstand-Ductbank	65	8	11/17/2008	22.3	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Fillstand-Piping3	68	10	11/17/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Fillstand-Piping4	70	10	11/18/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
Underground Fuel Piping to F-3	F3-Ductbank	72	8	11/18/2008	823	**790**	2,500	**6,800**	150 U	**4,230**	**50,700**	40 U
	F3-Piping1	73	9.5	11/19/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	F3-East8	74	8	11/19/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	F3-Storm	75	8	11/19/2008	>700	91 UJ	91 UJ	**10,000 J**	8,300 J	**7,000 J**	**7,400**	540 U
	F3-Northduct	76	8	11/19/2008	>700	69 U	69 U	5,700 [f]	3,300	**4,000**	**3,300**	210 U
	F3-Southduct	77	8	11/19/2008	>500	99 U	99 U	**24,000 J [f]**	**12,000 J [f]**	**14,000**	**11,000**	550 U
				11/19/2008 (DUP)		NA	NA	NA	NA	NA	**9,500**	600 U
	F3-Piping2	78	11	11/19/2008	14.7	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	F3-Southduct2	80	8	11/20/2008	>500	R	R	1,300 J	R	**2,400 J**	1,000 J	96 J
				11/20/2008 (DUP)		R	R	400 J	R	**1,400 J**	1,200 J	99 J

Table 2-18a
Summary of VOC and TPH Results in Soil for SWMU/AOC No. 165, Former Fuel Farm USTs and Fueling Positions

Sample Area	Sample ID	Sample Location[a]	Sample Depth (feet bgs)	Date Collected	PID (ppm)	Volatile Organic Compound (µg/kg)				Total Petroleum Hydrocarbon (mg/kg)		
						Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline Range	Diesel Range	Motor Oil Range
MTCA Method A Cleanup Level						**30**	**7,000**	**6,000**	**9,000**	**30/100[b]**	**2,000**	**2,000**
Support Area Excavation												
Fuel Filter	Filter-Floor1	56	8	11/13/2008	2.3	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-North [f]	57	4	11/13/2008	398	**56**	710	1,030	290	10 U	**8,920**	80 U
	Filter-Floor2	58	6.5	11/14/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Floor3	59	6	11/14/2008	0.2	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Piping1	62	9	11/15/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Floor4	63	8	11/15/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Floor5	66	7	11/17/2008	66	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Floor5	81	11	11/21/2008	1.0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Floor6	82	4	11/21/2008	0.9	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Floor7	83	9	11/21/2008	8.0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-SW6	84	6	11/21/2008	98.0	20 U	100 U	50 U	150 U	10 U	70	40 U
	Filter-SW4.5	85	4.5	11/21/2008	0.5	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Strip5	86	5	11/22/2008	0.0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-1West7	87	7	11/24/2008	0	20 U	100 U	50 U	150 U	11	32	40 U
	Filter-Floor8	88	9	11/24/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-2West7	89	7	11/24/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Floor9	90	9	11/24/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-Floor10	91	9	11/25/2008	0	20 U	100 U	50 U	150 U	11	25 U	40 U
	Filter-NW	92	7	11/25/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Filter-1North5	93	5	11/25/2008	186	**150**	100 U	50 U	150 U	**600**	750	40 U
	Filter-2North7	94	7	11/25/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
Truck Fill Stand	Fillstand-East8	64	8	11/17/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Fillstand-North8	67	8	11/17/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Fillstand-Blacksand	69	12	11/17/2008	11.6	20 U	100 U	50 U	150 U	10 U	25 U	40 U
				11/17/2008 (DUP)		20 U	100 U	50 U	150 U	10 U	25 U	40 U
	Fillstand-2North8	71	8	11/18/2008	0.0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	F3-SW8	79	8	11/19/2008	0	20 U	100 U	50 U	150 U	10 U	25 U	40 U
	FF3	97	6	2/13/2008	--	12 U	14	12 U	24 U	4.8 U	6.2 U	12 U
East Area	FF1	95	9	2/11/2008	--	11 U	11 U	11 U	22 U	4.4 U	5.4 U	11 U
	FF2	96	9	2/13/2008	--	14 U	14 U	33	26	97	16	11 U
	FF4	98	11.5	2/18/2008	--	14 U	14 U	14 U	29 U	5.7 U	5.4 U	11 U

[a]Sample number shown on sample location figure
[b]The cleanup level is 100 mg/kg if benzene is not present, and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 30 mg/kg.
[c]Chromatographic profile matches the laboratory standard chromatogram.
[d]Sample result reported from TPH-VPH analysis.
[e]Composite sample of excavated soils
[f]Sample location was mislabeled in field. Sample location is along the south wall.

Table 2-18a
Summary of VOC and TPH Results in Soil for SWMU/AOC No. 165, Former Fuel Farm USTs and Fueling Positions

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DUP - field duplicate
J - estimated value
µg/kg - microgram per kilogram
mg/kg - milligram per kilogram
NA - not analyzed
PID - photoionization detector
ppm - parts per million
R - rejected result
TPH - total petroleum hydrocarbon
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
VOC - volatile organic compound

Table 2-18b
Summary of VOC, Petroleum Hydrocarbon, and Helium Results in Soil Gas for SWMU/AOC No. 165, Former Fuel Farm USTs and Fueling Positions

Chemical	MTCA Air Screening Level		Sample ID and Date	
	Method C	Method C AF 0.03	ESG20 2/21/14	ESG21 2/21/14
Volatile Organic Compounds (µg/m^3)				
Benzene	3.21	107	2.4	1.6
Toluene	5,000	167,000	3.8	2.3
Ethylbenzene	1,000	33,300	0.70 X	0.45 X
m,p-Xylene	100	3,330	2.7	2.0
o-Xylene	100	3,330	0.91 X	0.54 X
Petroleum Hydrocarbons[a] (µg/m^3)				
C5-C6 Aliphatic	6,000	200,000	70 U	72 U
>C6-C8 Aliphatic			89 U	91 U
>C8-C10 Aliphatic	300	10,000	130 U	130 U
>C10-C12 Aliphatic			150 U	150 U
>C8-C10 Aromatic	400	13,300	110 U	110 U
>C10-C12 Aromatic	NE	NE	120 U	120 U
Helium				
Helium (% in canister)	NE	NE	0.11 U	0.11 U
Helium (% in shroud[b])	NE	NE	6.1	8.2
Helium (% as ratio[c])	5		NA	NA

[a]Screening levels based on the sum of the associated ranges.
[b]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[c]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
µg/m^3 - microgram per cubic meter
NA - not analyzed
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-19a
Summary of VOC Results in Soils for SWMU/AOC No. 098, Mock-Up Degreaser

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compounds (µg/kg)				
			Trichloroethene	1,1-Dichloroethene	cis-1,2-Dichloroethene[a]	trans-1,2-Dichloroethene[a]	Vinyl Chloride
MTCA Cleanup Level			**25**	**46**	**78**	**520**	**1.7**
B-1	11.3	11/14/1991	**58**	2.1 U	1.0 U		NA
	12.0	11/14/1991	**130**	1.3	1.1 U		NA
	13.0	11/14/1991	**43**	1.1 U	1.1 U		NA
B-4	3.5	12/10/1991 to 12/17/1991	17	0.8	1.1 U		NA
	6.0	12/10/1991 to 12/17/1991	11	1.2	1.1 U		NA
	20.5	12/10/1991 to 12/17/1991	1.1 U	2.1 U	1.1 U		NA
B-5	5.5	12/10/1991 to 12/17/1991	**28**	1.1 U	1.1 U		NA
	15.0	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
	20.5	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
B-6	6.0	12/10/1991 to 12/17/1991	**120**	1.1 U	1.1 U		NA
	10.5	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
	13.0	12/10/1991 to 12/17/1991	**150**	1.6	3.5		NA
B-7	3.5	12/10/1991 to 12/17/1991	5	1.1 U	1.1 U		NA
	12.5	12/10/1991 to 12/17/1991	7.2	1.1 U	1.1 U		NA
	20.0	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
B-9	18.0	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
	20.5	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
B-10	12.5	12/10/1991 to 12/17/1991	**130**	4.9	6.2		NA
	18.0	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
	20.0	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
	20.5	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
B-11	13.0	12/10/1991 to 12/17/1991	2.6	1.7	2		NA
	15.5	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
	20.0	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
	20.5	12/10/1991 to 12/17/1991	1.1 U	1.1 U	1.1 U		NA
ESB1999	10	11/16/2014	**60**	6 U	6 U	6 U	6 U
	15	11/16/2014	**39**	5 U	5 U	5 U	5 U
	20	11/17/2014	**76**	1 X	4 U	4 U	4 U
	30	11/17/2014	5 U	5 U	5 U	5 U	5 U
		11/17/2014 (DUP)	2 X	5 U	5 U	5 U	5 U
	35	11/17/2014	5 U	5 U	5 U	5 U	5 U
	40	11/17/2014	5 U	5 U	5 U	5 U	5 U

Table 2-19a (Continued)
Summary of VOC Results in Soils for SWMU/AOC No. 098, Mock-Up Degreaser

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compounds (µg/kg)				
			Trichloroethene	1,1-Dichloroethene	cis-1,2-Dichloroethene[a]	trans-1,2-Dichloroethene[a]	Vinyl Chloride
ESB2000	10	11/17/2014	**43**	5 U	5 U	5 U	5 U
	15	11/17/2014	**85**	6 U	6 U	6 U	6 U
	20	11/17/2014	3 X	5 U	5 U	5 U	5 U
	25	11/17/2014	5 U	5 U	5 U	5 U	5 U
	30	11/17/2014	**61**	10	2 X	6 U	6 U
	35	11/17/2014	4 X	2 X	4 U	4 U	4 U
	40	11/17/2014	5 U	5 U	5 U	5 U	5 U

[a]Data from 1991 were reported for total 1,2-dichloroethene rather than for the individual isomers.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
The sample depths of historical borings B-1 through B-11 are based on GeoEngineers' reported sample depths from the bottom of the former mock-up degreaser pit. The bottom of the pit was approximately 10 feet bgs.
bgs - below ground surface
DUP - field duplicate
µg/kg - microgram per kilogram
NA - not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-19b
Summary of VOC and Helium Results in Sub-Slab Vapor for SWMU/AOC No. 098, Mock-Up Degreaser

Chemical	MTCA Air Screening Level		ESSV7[a] 2/14/14	Sample ID and Date	
	Method C	Method C AF 0.03		ESSV8 2/14/14	ESSV9 2/14/14
Volatile Organic Compounds (µg/m^3)					
Vinyl Chloride	2.8	93	20 X	57 U	200 U
trans-1,2-Dichloroethene	NE	NE	140	110	300 U
Trichloroethene	2	67	**120,000**	**98,000**	**240,000**
cis-1,2-Dichloroethene	NE	NE	960	720	340
1,1,1-Trichloroethane	5,000	170,000	26,000	22,000	4,900
Tetrachloroethene	40	1,300	150 X	120 X	290 X
1,1-Dichloroethene	200	6,700	**7,100**	5,600	1,800
Helium					
Helium (% in canister)	NE	NE	0.13 U	0.051 X	0.27
Helium (% in shroud[b])	NE	NE	5.8	6.3	6.4
Helium (% as ratio[c])	5%		NA	0.81	4.2

[a]The sample canister for ESSV7 was received by the laboratory at ambient pressure, indicating a leak. A field replicate was collected at ESSV7 and identified as SSV-DUP2. The field replicate canister was received at an acceptable pressure. The data reported on this table is noted as SSV-DUP2 in the associated laboratory report.
[b]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[c]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's Draft Vapor Intrusion Guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
µg/m^3 - microgram per cubic meter
NA - not analyzed
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-20a
Summary of VOC and TPH Results in Soils for SWMU/AOC No. 068, Former South Fire Pit

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)					TPH (mg/kg)				WTPH-HCID (mg/kg)			
			Benzene	Ethylbenzene	Toluene	m,p-Xylene[a]	o-Xylene[a]	Gasoline Range	Diesel Range	Motor Oil Range	Jet A Range	Gasoline	Diesel	Oil	Other
	MTCA Method A Cleanup Level		30	6,000	7,000	9,000 (total xylenes)	9,000 (total xylenes)	30/100 [a]	2,000	2,000	2,000	NE	NE	NE	NE
3SB-1	5	12/12/1993	1.1 U	1.1 U	1.1 U	2.1 U		NA	NA	NA	NA	20 U	25 U	50 U	NA
	10	12/12/1993	1.1 U	1.1 U	1.1 U	2.1 U		NA	NA	NA	NA	20 U	25 U	50 U	NA
	15	12/12/1993	1.1 U	1.1 U	1.1 U	2.1 U		NA	NA	NA	NA	20 U	25 U	54	NA
3SB-2	15	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
3SB-3	5	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	5 (DUP)	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	10	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	15	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
3SB-4	5	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	10	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	15	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
3SB-5	5	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	10	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	15	12/12/1993	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
3SB-6	5	12/12/1993	1.1 U	1.1 U	1.1 U	2.1 U		NA	NA	NA	NA	20 U	25 U	50 U	NA
	10	12/12/1993	1.1 U	1.1 U	1.1 U	2.1 U		NA	NA	NA	NA	20 U	25 U	50 U	NA
	15	12/12/1993	1.1 U	1.1 U	1.1 U	2.1 U		NA	NA	NA	NA	20 U	25 U	50 U	NA
3SB-7	5	12/12/1993	1.1 U	1.1 U	1.1 U	2.3 U		NA	NA	NA	NA	20 U	25 U	50 U	NA
	10	12/12/1993	1.0 U	1.0 U	1.0 U	2.1 U		NA	NA	NA	NA	20 U	25 U	50 U	NA
	15	12/12/1993	1.1 U	1.1 U	1.1 U	2.2 U		NA	NA	NA	NA	20 U	25 U	50 U	NA
3SB-8	5	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	29 U	100 U	NA
	10	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	15	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	27 U	77 U	NA
3SB-9	5	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	10	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	47 U	83 U	NA
	15	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
3SB-10	5	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	10	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 UJ	25 UJ	50 UJ	NA
	15	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 UJ	25 UJ	50 UJ	NA
3SB-11	5	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 UJ	27 UJ	81 UJ	NA
	10	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	15	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
3SB-12	5	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	40 U	130 U	NA
	10	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	38 U	94 U	NA
	15	5/24/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	34 U	120 U	NA
SFP-NW-10.5	10.5	9/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	NA	50 U
SFP-EW-11	11	9/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	NA	50 U
SFP-SW-10	10	9/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	NA	50 U
SFP-WW-10	10	9/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	NA	50 U
SFP-FL-14	14	9/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	NA	50 U
SFP-WW-S-2	2	9/20/1994	NA	NA	NA	NA	NA	**1,600**	**5,000**	120	NA	NA	NA	NA	NA
TrenchW-WW-3	3	9/22/1994	NA	NA	NA	NA	NA	**1,900**	**5,800**	180	NA	NA	NA	NA	NA
TrenchW-FL-4.5	4.5	9/22/1994	NA	NA	NA	NA	NA	5 U	5 U	20 U	NA	NA	NA	NA	NA
TrenchS-EW-3	3	9/22/1994	NA	NA	NA	NA	NA	5 U	5 U	20 U	NA	NA	NA	NA	NA
TrenchS-SW-3	3	9/22/1994	NA	NA	NA	NA	NA	5 U	5 U	20 U	NA	NA	NA	NA	NA
TrenchS-FL-4.5	4.5	9/22/1994	NA	NA	NA	NA	NA	5 U	5 U	20 U	NA	NA	NA	NA	NA
GP-1	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
GP-2	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	**74**	480	NA	NA	200	1,200	50 U	NA
GP-3	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA

Table 2-20a (Continued)
Summary of VOC and TPH Results in Soils for SWMU/AOC No. 068, Former South Fire Pit

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)					TPH (mg/kg)				WTPH-HCID (mg/kg)			
			Benzene	Ethylbenzene	Toluene	m,p-Xylene[a]	o-Xylene[a]	Gasoline Range	Diesel Range	Motor Oil Range	Jet A Range	Gasoline	Diesel	Oil	Other
	MTCA Method A Cleanup Level		30	6,000	7,000	9,000 (total xylenes)	9,000 (total xylenes)	30/100 [a]	2,000	2,000	2,000	NE	NE	NE	NE
GP-4	1.5-2.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
GP-5	3.5-4.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
GP-6	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
GP-7	1.5-2.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	NA	**4,000**	**6,600**	NA	20 U	640	1,800	NA
GP-8	3.5-4.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
GP-9	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	**620**	1,200	**13,000**	NA	1,400	2,200	160	NA
GP-10	1.5-2.0	12/20/1994	NA	NA	NA	NA	NA	NA	370	**2,200**	NA	20 U	380	1,900	NA
	2.5-3.0	12/20/1994	NA	NA	NA	NA	NA	**700**	**5,500**	NA	NA	1,100	1,800	50 U	NA
GP-11	1.5-2.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	NA	NA	450	NA	20 U	25 U	95	NA
GP-12	3.5-4.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
GP-13	1.5-2.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	48	NA	20 U	25 U	58	NA
	3.5-4.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
GP-14	1.5-2.0	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
	3.0-3.5	12/20/1994	NA	NA	NA	NA	NA	NA	NA	NA	NA	20 U	25 U	50 U	NA
SFP2	5	11/7/2012	0.9 U	4 U	4 U	4 U		20	52 J**	17 J**	47 J	NA	NA	NA	NA
	5 (DUP)	11/7/2012	0.9 U	5 U	5 U	5 U		19	5.1 J**	8.9 J**	4.2 J	NA	NA	NA	NA
SFP3	6	11/7/2012	1 U	6 U	6 U	6 U		6.7 U	8.7 U	34 X**	8.7 U	NA	NA	NA	NA
SFP4	2	11/7/2012	1 U	3 X	5 U	38		**3,000**	**3,100****	550 X**	**3,800**	NA	NA	NA	NA
SFP5	3	11/7/2012	1 U	6 U	6 U	6 U		6.1 U	1.2 X	6.6 U	0.72 X	NA	NA	NA	NA
SFP6	4	11/7/2012	1 U	6 U	6 U	6 U		2.3 X	1.4 X**	15	1.5 U	NA	NA	NA	NA
ESB1984	10	10/22/2014	0.6 U	3 U	3 U	3 U	3 U	4.4 U	7.6 U	33 U	7.6 U	NA	NA	NA	NA
		10/22/2014 (RE)	0.3 U DNR	2 U DNR	2 U DNR	2 U DNR	2 U DNR	NA	NA	NA	NA	NA	NA	NA	NA
		10/22/2013 (DUP)	1 U	5 U	5 U	5 U	5 U	4.5 U	7.7 U	33 U	7.7 U	NA	NA	NA	NA
		10/22/2014 (DUP RE)	0.6 U DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	NA	NA	NA	NA	NA	NA	NA	NA
	15	10/22/2014	1 U	5 U	5 U	5 U	5 U	5.2 U	7.5 U	32 U	7.5 U	NA	NA	NA	NA
		10/22/2014 (RE)	0.6 U DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	NA	NA	NA	NA	NA	NA	NA	NA
	21	10/22/2014	0.2 X	4 U	4 U	4 U	4 U	4.2 U	7.6 U	32 U	7.6 U	NA	NA	NA	NA
	25	10/22/2014	0.2 XJ	5 U	5 U	5 U	5 U	4.9 U	7.6 U	33 U	7.6 U	NA	NA	NA	NA
		10/22/2014 (RE)	0.8 U DNR	4 U DNR	4 U DNR	4 U DNR	4 U DNR	NA	NA	NA	NA	NA	NA	NA	NA
	31.5	10/22/2014	0.2 XJ	3 U	3 U	3 U	3 U	4.6 U	7.7 U	33 U	7.7 U	NA	NA	NA	NA
		10/22/2014 (RE)	0.2 X DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	NA	NA	NA	NA	NA	NA	NA	NA
ESB1985	11	10/22/2014	1 U	5 U	5 U	5 U	5 U	4.7 U	7.6 U	32 U	7.6 U	NA	NA	NA	NA
		10/22/2014 (RE)	0.7 U DNR	4 U DNR	4 U DNR	4 U DNR	4 U DNR	NA	NA	NA	NA	NA	NA	NA	NA
	15	10/22/2014	1 U	6 U	6 U	6 U	6 U	6.1 U	7.7 U	33 U	7.7 U	NA	NA	NA	NA
		10/22/2014 (RE)	0.8 U DNR	4 U DNR	4 U DNR	4 U DNR	4 U DNR	NA	NA	NA	NA	NA	NA	NA	NA
	20	10/22/2014	0.7 U DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	4.3 U	7.5 U	32 U	7.5 U	NA	NA	NA	NA
		10/22/2014 (RE)	0.1 XJ	3 U	3 U	3 U	3 U	NA	NA	NA	NA	NA	NA	NA	NA
	25	10/22/2014	0.8 U	4 U	4 U	4 U	4 U	4.5 U	7.6 U	32 U	7.6 U	NA	NA	NA	NA
		10/22/2014 (RE)	0.7 U DNR	4 U DNR	4 U DNR	4 U DNR	4 U DNR	NA	NA	NA	NA	NA	NA	NA	NA
	31.5	10/22/2014	0.8 U	4 U	4 U	4 U	4 U	4.8 U	7.5 U DNR	32 U DNR	7.5 U DNR	NA	NA	NA	NA
		10/22/2014 (RE)	0.7 U DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	NA	7.4 UJ	32 UJ	7.4 UJ	NA	NA	NA	NA

Table 2-20a (Continued)
Summary of VOC and TPH Results in Soils for SWMU/AOC No. 068, Former South Fire Pit

Sample ID	Sample Depth (feet bgs)	Date Collected	Volatile Organic Compound (µg/kg)					TPH (mg/kg)				WTPH-HCID (mg/kg)			
			Benzene	Ethylbenzene	Toluene	m,p-Xylene[a]	o-Xylene[a]	Gasoline Range	Diesel Range	Motor Oil Range	Jet A Range	Gasoline	Diesel	Oil	Other
	MTCA Method A Cleanup Level		**30**	**6,000**	**7,000**	**9,000 (total xylenes)**	**9,000 (total xylenes)**	**30/100 [a]**	**2,000**	**2,000**	**2,000**	**NE**	**NE**	**NE**	**NE**
ESB1986	11	10/22/2014	0.6 U	3 U	3 U	3 U	3 U	3.0 U	7.6 U DNR	33 U DNR	7.6 U DNR	NA	NA	NA	NA
		10/22/2014 (RE)	0.6 U DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	NA	7.6 UJ	32 UJ	7.6 UJ	NA	NA	NA	NA
	15	10/22/2014	0.7 U	4 U	4 U	4 U	4 U	2.6 U	7.6 U DNR	32 U DNR	7.6 U DNR	NA	NA	NA	NA
		10/22/2014 (RE)	0.7 U DNR	4 U DNR	4 U DNR	4 U DNR	4 U DNR	NA	7.6 UJ	32 UJ	7.6 UJ	NA	NA	NA	NA
	20.5	10/22/2014	0.9 U	4 U	4 U	4 U	4 U	2.9 U	7.6 U DNR	32 U DNR	7.6 U DNR	NA	NA	NA	NA
		10/22/2014 (RE)	0.7 U DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	NA	7.6 UJ	32 UJ	7.6 UJ	NA	NA	NA	NA
	25	10/22/2014	0.8 U	4 U	4 U	4 U	4 U	3.3 U	7.6 U DNR	33 U DNR	7.6 U DNR	NA	NA	NA	NA
		10/22/2014 (RE)	0.7 U DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	NA	7.6 UJ	33 UJ	7.6 UJ	NA	NA	NA	NA
	30.5	10/22/2014	0.7 U	4 U	4 U	4 U	4 U	2.2 X	7.5 U DNR	32 U DNR	7.5 U DNR	NA	NA	NA	NA
		10/22/2014 (RE)	0.6 U DNR	3 U DNR	3 U DNR	3 U DNR	3 U DNR	NA	7.5 UJ	32 UJ	7.5 UJ	NA	NA	NA	NA

[a]The cleanup level is 100 mg/kg if benzene is not present, and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 30 mg/kg.
[b]Historical data from 1993 were reported for total xylenes rather than for the individual compounds o-xylene and m,p-xylene.
[c]Pattern profile does not match standard chromatogram.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DNR - do not report
DUP - field duplicate
J - estimated value
µg/kg - microgram per kilogram
mg/kg - milligram per kilogram
NA - not analyzed
NE - not established
RE - reanalysis
TPH - total petroleum hydrocarbon
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
VOC - volatile organic compound
WTPH-HCID - Washington State Hydrocarbon Identification Method
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-20b
Summary of VOC, Petroleum Hydrocarbon, and Helium Results in Soil Gas for SWMU/AOC No. 068, South Fire Pit

Chemical	MTCA Air Screening Level		Sample ID and Date						
	Method C	Method C AF 0.03	ESG8 1/15/14	ESG9 1/15/14	ESG10 1/15/14	ESG11 1/16/14	ESG12 1/16/14 FS	ESG12 1/16/14 REP	ESG30 3/27/14
Volatile Organic Compounds (µg/m^3)									
Benzene	3.21	107	12	19	24	56	17	18	20
Toluene	5,000	170,000	23	46	25	61	24	29	77
Ethylbenzene	1,000	33,000	5.0 U	8.2	24	14	82	100	11
m,p-Xylene	100	3,300	11	30	85	39	340	440	43
o-Xylene	100	3,300	5.5	8.8	27	12	140	180	14
Petroleum Hydrocarbons[a] (µg/m^3)									
C5-C6 Aliphatic	6,000	200,000	290	600	440	1,400	400	340	500
>C6-C8 Aliphatic			380	440	730	540	580	470	1,600
>C8-C10 Aliphatic	300	10,000	160	420	3,400	690	1,100	1,400	720
>C10-C12 Aliphatic			160 U	160 U	160 U	160 U	160 U	150 U	190
>C8-C10 Aromatic	400	13,000	110 U	110 U	150	110 U	610	780	110 U
>C10-C12 Aromatic	NE	NE	130 U	120 U	130 U	130 U	130 U	160 U	120 U
Helium									
Helium (% in canister)	NE	NE	NA	NA	NA	NA	NA		0.024 X
Helium (% in shroud[b])	NE	NE	52	14.6	20	32	38		6.1
Helium (% as ratio[c])	5		NA	NA	NA	NA	NA		0.39

[a]Screening levels based on the sum of the associated ranges.
[b]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[c]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.

Table 2-20b (Continued)
Summary of VOC, Petroleum Hydrocarbon, and Helium Results in Soil Gas for SWMU/AOC No. 068, South Fire Pit

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
FS - field sample
$\mu g/m^3$ - microgram per cubic meter
NA - not analyzed or not applicable
NE - not established
REP - field replicate
U - Compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-21
Summary of TPH Results in Soils for SWMU/AOC No. 083, Former UST EV-15

Sample ID	Sample Depth (feet bgs)	Date Collected	Diesel-Range TPH (mg/kg)
MTCA Method A Cleanup Level			**2,000**
BFLT-WS	3.0	9/28/1994	NA
	7.5	9/28/1994	31
BFLT-ES	7.5	9/28/1994	2,100
BFLT-NS	6.5	9/28/1994	25 U
BFLT-SS	8.0	9/28/1994	2,800
BFLT-B1	11.0	9/28/1994	25 U
BFLT-B2	11.0	9/28/1994	NA
BFLT-B3	13.0	9/29/1994	25 U
BFLT-BOR-ES	7.0	9/29/1994	25 U
BFLT-BOR-SS	7.5	9/29/1994	25 U

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
mg/kg - milligram per kilogram
NA - not analyzed
TPH - total petroleum hydrocarbon
U - Compound was analyzed for but not detected above the reporting limit shown.

Table 2-22a
Summary of VOC and TPH Results in Soil for Building 40-32 Footing Excavation

Sample ID:		**4032D-1**	**4032D-2**	**4032D-4**	**4032D-5**	**4032D-6**	**4032D-7**	**ESB1983**										
Depth (feet bgs):	**MTCA**	**12**	**13**	**14.5**	**14**	**14**	**15**	**10**		**15**		**20**		**25**	**31**		**35**	**40**
Sample Date:	**Cleanup Level**	**6/23/2010**	**6/23/2010**	**6/24/2010**	**6/24/2010**	**6/24/2010**	**6/24/2010**	**10/21/2013**	**10/21/2013 (RE)**	**10/21/2013**	**10/21/2013 (RE)**	**10/21/2013**	**10/21/2013 (RE)**	**10/21/2013**	**10/21/2013**	**10/21/2013 (RE)**	**10/21/2013**	**10/21/2013**
Volatile Organic Compounds (µg/kg)																		
Trichloroethene	**25** [a]	1.1 U	1.1 U	4.8	2.2	3,000 U	5.1	2 XJ	3 X DNR	20 J	24 DNR	6 J	7 DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
1,1-Dichloroethene	**46** [a]	1.1 U	1.1 U	1.8 U	1.5 U	3,000 U	1.6 U	5 U	6 U DNR	5 U	5 U DNR	4 UJ	3 U DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
cis-1,2-Dichloroethene	**78** [a]	1.1 U	1.1 U	1.8 U	1.5 U	3,000 U	1.6 U	5 U	6 U DNR	5 U	5 U DNR	4 UJ	3 U DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
trans-1,2-Dichloroethene	**520** [a]	1.1 U	1.1 U	1.8 U	1.5 U	3,000 U	1.6 U	5 U	6 U DNR	5 U	5 U DNR	4 UJ	3 U DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
Vinyl Chloride	**1.7** [a]	1.1 U	1.1 U	1.8 U	1.5 U	3,000 U	1.6 U	5 U	6 U DNR	5 U	5 U DNR	4 UJ	3 U DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
Benzene	**27** [a]	1.1 U	1.1 U	1.8 U	1.5 U	3,000 U	1.6 U	1 U	1 U DNR	0.9 U	1 U DNR	0.9 UJ	0.6 U DNR	1 U	0.4 UJ	0.7 U DNR	0.5 UJ	0.8 U
Ethylbenzene	**6,000** [a]	1.1 U	1.1 U	1.8 U	1.5 U	**55,000**	1.6 U	5 U	6 U DNR	5 U	5 U DNR	4 UJ	3 U DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
Toluene	**4,500** [a]	1.1 U	1.1 U	1.8 U	1.5 U	3,000 U	1.6 U	5 U	6 U DNR	5 U	5 U DNR	4 UJ	3 U DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
m,p-Xylene	**13,000** **15,000 (total xylenes)**[a]	1.1 U	1.1 U	1.8 U	1.5 U	**71,000**	1.6 U	5 U	6 U DNR	5 U	5 U DNR	4 UJ	3 U DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
o-Xylene	**14,000** **15,000 (total xylenes)**[a]	1.1 U	1.1 U	1.8 U	1.5 U	**45,000**	1.6 U	5 U	6 U DNR	5 U	5 U DNR	4 UJ	3 U DNR	6 U	2 UJ	3 U DNR	2 UJ	4 U
TPH (mg/kg)																		
Gasoline range	**30/100** [b,c]	6.3 U	5.7 U	6.5 U	7.0 U	**16,000**	7.1 U	7.1 U	NA	8.9 U	NA	4.6 U	NA	10 U	8.1 UJ	NA	6.6 UJ	7.7 UJ
Diesel range	**2,000** [b]	5.4 U	5.3 U	5.5 U	6.0 U	**2,100**	5.3 U	7.5 U	NA	7.6 U	NA	7.7 U	NA	7.9 U	7.7 U	NA	7.6 U	7.7 U
Motor oil range	**2,000** [b]	11 U	14	11 U	12 U	**6,000**	11 U	86	NA	33 U	NA	33 U	NA	34 U	33 U	NA	33 U	33 U
Jet A range	**2,000** [b]	NA	NA	NA	NA	**6,700**	NA	7.5 U	NA	7.6 U	NA	7.7 U	NA	7.9 U	7.7 U	NA	7.6 U	7.7 U

[a]MTCA protection of groundwater cleanup level
[b]MTCA Method A direct contact cleanup level
[c]The cleanup level is 100 mg/kg if benzene is not present, and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture. The cleanup level for all other gasoline mixtures is 30 mg/kg.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the cleanup level.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
bgs - below ground surface
DNR - do not report
J - estimated value
µg/kg - microgram per kilogram
mg/kg - milligram per kilogram
NA - not applicable
TPH - total petroleum hydrocarbon
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

Table 2-22b
Summary of VOC, Petroleum Hydrocarbon, and Helium Results in Sub-Slab Vapor for Building 40-32, Footing Excavation

Chemical	MTCA Air Screening Level		Sample ID and Date
	Method C	Method C AF 0.03	ESSV20 4/3/14
Volatile Organic Compounds (µg/m^3)			
Chloromethane	90	3,000	98 U
Vinyl Chloride	2.8	93	12 U
Bromomethane	5	170	180 U
Chloroethane	10,000	330,000	50 U
Trichlorofluoromethane	700	23,000	4.4 X
1,1,2-Trichloro1-1,2,2-trifluoroethane	30,000	1,000,000	44
1,1-Dichloroethene	200	6,700	19 U
Acetone	31,000	1,000,000	97 X
Carbon Disulfide	700	23,000	18 X
Methylene Chloride	600	20,000	160 U
trans-1,2-Dichloroethene	NE	NE	19 U
1,1-Dichloroethane	16	520	19 U
2-Butanone	5,000	170,000	56 U
cis-1,2-Dichloroethene	NE	NE	11 X
Chloroform	1.1	36	21 X
1,1,1-Trichloroethane	5,000	170,000	26 U
Carbon Tetrachloride	4.2	140	30 U
Benzene	3.2	110	6.6 X
1,2-Dichloroethane	0.96	32	19 U
Trichloroethene	2	67	**6,200**
1,2-Dichloropropane	2.5	83	22 U
Bromodichloromethane	0.68	23	32 U
cis-1,3-Dichloropropene	6.3 [d]	210	22 U
4-Methyl-2-pentanone	3,000	100,000	19 U
Toluene	5,000	170,000	18 U
trans-1,3-Dichloropropene	6.3 [d]	210	22 U
1,1,2-Trichloroethane	0.2	6.7	26 U
Tetrachloroethene	40	130	6.3 X
2-Hexanone	NE	NE	78 U
Dibromochloromethane	0.93	31	40 U
Chlorobenzene	50	1,700	22 U
Ethylbenzene	1,000	33,000	21 U
m,p-Xylene	100	3,300	21 U
o-Xylene	100	3,300	21 U
Styrene	1,000	33,000	20 U
Bromoform	23	757	49 U
1,1,2,2-Tetrachloroethane	0.43	14	33 U
Vinyl Acetate	200	6,700	67 U

Table 2-22b
Summary of VOC, Petroleum Hydrocarbon, and Helium Results in Sub-Slab Vapor for Building 40-32, Footing Excavation

Chemical	MTCA Air Screening Level		Sample ID and Date
	Method C	Method C AF 0.03	ESSV20 4/3/14
Petroleum Hydrocarbons [a] (µg/m^3)			
C5-C6 Aliphatic	6,000	200,000	310 U
>C6-C8 Aliphatic			390 U
>C8-C10 Aliphatic	300	10,000	550 U
>C10-C12 Aliphatic			660 U
>C8-C10 Aromatic	400	13,000	470 U
>C10-C12 Aromatic	NE	NE	520 U
Helium			
Helium (% in canister)	NE	NE	0.050 X
Helium (% in shroud[b])	NE	NE	6.6
Helium (% as ratio[c])	5		0.76

[a]Screening levels based on the sum of the associated ranges.
[b]Helium concentration within sampling shroud enclosing the sampling apparatus, measured in field at the time of sampling.
[c]Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Screening level from California Advisory Active Soil Gas Investigations, April 2012.
[d]MTCA value for 1,3-dichloropropene.

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the indoor air screening levels divided by the attenuation factor of 0.03 in accordance with Ecology's draft vapor intrusion guidance (http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/vig.html).
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
AF - attenuation factor
µg/m^3 - microgram per cubic meter
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
X - Result was reported at a concentration between the method detection and the reporting limits. The result is an estimated value.

3.0 CONCEPTUAL SITE MODEL

This section presents the overall CSM for the Everett Plant, and more detailed CSMs for groups of SWMUs/AOCs with similar characteristics. A CSM consists of a summary description of potential or suspected sources of hazardous substances, types and concentrations of hazardous substances, potentially contaminated media, and actual and potential exposure pathways and receptors. The CSM is refined through the RI/FS process as new information is obtained. The CSM is a tool to assist in making investigation and cleanup decisions at a contaminated site and is used throughout the remainder of this FS to guide development and evaluation of cleanup alternatives.

3.1 SITEWIDE CONCEPTUAL SITE MODEL

This section provides an overview CSM for the entire site, as depicted graphically on Figure 3-1. More detailed CSMs for groups of SWMUs/AOCs with similar characteristics are provided in Section 3.2.

3.1.1 History and Potential Sources

During its operations as a continuously active aircraft manufacturing facility since 1968, the Boeing Everett Plant has utilized, and continues to utilize, a variety of chemicals. Some of the chemicals used historically, and some currently in use, are potential or suspected hazardous substances when released to environmental media (soil, groundwater, surface water, etc.). In addition, Boeing has acquired property over time (such as the Former Gun Club) on which hazardous substances were present in environmental media at the time of purchase, and Boeing has, thereby, taken responsibility for cleanup of these hazardous substances on what is now Boeing property.

The RI identified the areas of the Everett Plant where releases have occurred and hazardous substances are present in environmental media at concentrations that warrant evaluation under this FS. The general source types for hazardous substances that have been identified at the Everett Plant are the following:

- Former vapor degreasers
- Former and current process USTs, ASTs, oil/water separators, sumps, piping, and similar structures
- Fuel USTs and piping
- Stormwater basin structures

- Sport shooting (the Former Gun Club area)

At the majority of the identified source areas, past interim cleanup actions (including both those performed prior to execution of the AO, and those performed under the AO) have been performed to address the primary source (such as removal of USTs and excavation of contaminated soil). In these cases, the remaining residual source consists of hazardous substances still present in environmental media following the historical action.

3.1.2 Types of Hazardous Substances

Types of hazardous substances present in environmental media include the following:

- VOCs
- SVOCs
- Metals
- Petroleum hydrocarbons

3.1.3 Types of Contaminated Media

Types of contaminated environmental media at the Everett plant addressed under this FS include the following:

- Soil
- Sediment (limited to sediment present at the Former Gun Club)
- Perched groundwater within the Vashon Till
- Groundwater within the Esperance Sand
- Surface water (limited to PMG and the Former Gun Club)
- Sub-slab and soil vapor

These media are briefly described in the sections that follow.

Soil

As depicted schematically on Figure 3-1, the uppermost natural soils beneath the facility are very dense glacial deposits of the Vashon till (glacial till). The till predominately consists of silty, fine to medium sand with varying amounts of gravel, coarse sand, and clay. The glacial till is underlain by glacial advance outwash commonly referred to as the Esperance Sand. The Esperance Sand is underlain by the Lawton Clay, of glaciolacustrine origin.

Figure 3-1 also illustrates that construction of the facility has resulted in discontinuous fill materials overlying the natural soils, including fill beneath structures and around utilities, and fill within former low-lying areas (such as the historical upper reaches of PMG). The fill at the

Everett Plant is generally less than 15 feet thick, except in the areas of the filled upper reaches of PMG where fill thickness ranges to greater than 120 feet. Fill consists of reworked glacial till, imported granular backfill (pea gravel, well-graded gravel, or sand), and CDF. A mixture of fill types is frequently encountered around subsurface infrastructure, especially when multiple construction episodes have occurred over the years.

Soil physical characteristics data collected during the RI and FS investigations and the results of pilot testing and leaching modeling during the FS provide the following conceptual soil information with the potential to affect the efficacy of potential cleanup technologies:

- The glacial till beneath the site is very dense and exhibits a relatively low permeability, substantially restricting the movement of vapor (e.g., as evidenced during pilot testing of vacuum extraction technologies) and water (e.g., as evidenced during injection pilot testing)

- The density and permeability of the glacial till impedes the downward migration of water and water-born contaminants, compared to a looser and more permeable material

- The distribution of varying types of fill materials within some SWMUs/AOCs can result in preferential flow pathways that make it difficult to predict the lateral influence of vacuum extraction systems, or the distribution patterns of injected liquids

Sediment

Sediment at the facility will be primarily addressed in the pending FS for sediments, stormwater, surface water, and accumulated solids. Sediment is discussed in this FS because one of the SWMUs/AOCs addressed under this FS includes surface water and sediment (the Former Gun Club).

Sediment located at the Former Gun Club consists of settled particulate matter below the ordinary high water mark within the flow channel and pond at Area B (see Section 2.17).

Groundwater

Groundwater occurs beneath the facility in three ways: (1) as discontinuous zones of perched water within fill soil and weathered glacial till overlying dense glacial till, (2) discontinuous perched zones within the till, and (3) unconfined groundwater within the Esperance Sand. The perched groundwater level within the fill and weathered till on the upland portion of the Everett Plant is generally between 10 and 20 feet bgs. The movement of perched groundwater through the fill/weathered till is primarily controlled by gravity and typically follows the local topography and/or the slope on the interface between the fill and top of the glacial till. However,

local variations in the stratigraphic conditions and man-made features such as cut-and-fill areas, recovery wells, or utility trenches may influence perched groundwater movement. The various perched groundwater zones detected at the site are hydraulically isolated from each other and predominately occur in backfill soil in former UST excavations and along utility corridors.

The perched zones are also hydraulically isolated from the deeper, regional groundwater occurring within the Esperance Sand by the thick sequence of dense glacial till present beneath the plant. Soil samples of glacial till collected beneath perched groundwater zones are not saturated, and chemical constituents present in perched groundwater are either at low concentrations or not detected in the underlying glacial till. The possibility that contamination will migrate through the soil vadose zone to the underlying Esperance Sand aquifer is evaluated in this FS using a leaching model approved by Ecology as part of the FSWP (URS and Landau Associates, 2012). The results are summarized for each SWMU/AOC modeled in Section 2, with the details provided in Appendix B. The potability of the perched groundwater beneath the facility is evaluated in Section 5.1.4.

Surface Water

Surface water at the facility will be primarily addressed in the pending FS for sediments, stormwater, surface water, and accumulated solids. Surface water is discussed in this FS because two of the SWMUs/AOCs addressed under this FS include surface water and sediment (PMG and the Former Gun Club).

Surface water is located at the Former Gun Club within the flow channel and pond at Area B (see Section 2.17).

For surface water at PMG, this FS is focused on that portion of PMC potentially impacted by chlorinated solvents.

Sub-Slab and Soil Vapor

Sub-slab vapor and soil gas data are used to screen sites for potential exceedances of indoor air cleanup criteria. PMG, sub-slab vapor, soil vapor, or soil gas data were collected at the Everett Plant as part of the FS investigation at all SWMUs/AOCs where sources of VOCs were identified by the RI in soil or perched groundwater.

3.1.4 Exposure Pathways and Receptors

Potential exposure pathways are depicted on Figures 3-2 through 3-6. In general, potentially exposed populations within the security-controlled perimeter of the plant consist of factory workers and construction workers. Factory workers are those personnel involved in day-to-day operations of the factory, in any capacity, and who generally work within the existing infrastructure. For exposure pathway analysis, factory workers are distinguished from

construction workers, who may modify the infrastructure during construction projects, including excavating through floor slabs and pavement to exposure contaminate environmental media.

Workers could also be potentially exposed at SWMUs/AOCs located outside of the security-controlled perimeter of the plant, as could recreational users from the public and ecological receptors. Because of the size of the plant, the nature of the work performed at the plant, and the geographic distributions of SWMUs/AOCs within and around the plant, exposed populations only have the potential to be exposed to individual SWMUs/AOCs, rather than receiving an additive exposure to several SWMUs/AOCs.

As mentioned in Section 1.1 the SWMUs/AOCs included in this FS for evaluation are grouped in Section 3.2 based on similar characteristics, and the exposure pathways are evaluated to create an exposure pathway model (EPM) for each group. Although the FS evaluation has been performed individually for each SWMU/AOC, presentation of the CSMs and FS evaluation according to EPM groups helps to make this report more concise.

3.2 EXPOSURE PATHWAY MODELS

This section presents a summary description of the characteristics and currently complete exposure pathways for each EPM group. A summary of the EPMs used throughout the FS, including exposure pathway characteristics and the SWMU/AOCs included in each EPM, is presented in Table 3-1. Specifics regarding each SWMU/AOC are provided in Tables 3-1 through 3-5 at the end of this section.

3.2.1 Exposure Pathway Model A

EPM A consists of SWMUs/AOCs exhibiting fill soils with perched groundwater and VOC contamination. EPM A is depicted graphically on Figure 3-7 and includes the following SWMUs/AOCs:

- SWMU/AOC No. 90, Building 40-51, Former UST EV-11
- SWMU/AOC No. 112, Building 40-11, Oil/Water Separator
- SWMU/AOC No. 151, Building 40-51, Southern Air Scrubber Sump

The characteristics and sources of hazardous substances for these EPM A SWMUs/AOCs are listed on Figure 3-7. Potential sources of chemical constituents at the EPM A SWMUs/AOCs include one or more of the following at each SWMU/AOC:

- Historical releases from former USTs (UST EV-11 at SWMU/AOC 90 and the Oil/Water Separator at SWMU/AOC 112). Solvents containing TCE were stored in UST EV-11. At SWMU/AOC 112, TPH releases would have originated from

fuel in the equipment in the automotive and motive equipment maintenance shop and TCE was most likely used as a degreaser for metal parts.

- Incidental releases during operation of the USTs (UST EV-11 and the Oil/Water Separator)

- Incidental releases during wastewater disposal at SWMU/AOC 112 and the Southern Air Scrubber Sump EV-112 at SWMU/AOC 151

The currently complete exposure pathways are also listed on Figure 3-7 and consist of potential construction worker exposure to perched groundwater. Where chemical constituents are present in perched groundwater above the risk-based cleanup levels proposed in this FS (see Section 5.1.4), concrete flooring or pavement currently prevents direct contact by factory workers. Volatile constituent concentrations in soil gas exceed the industrial MTCA screening levels at two SWMU/AOCs, which are both located outside of existing buildings. Perched groundwater at EPM A SWMUs/AOCs is not used as a drinking water source. Perched groundwater at these SWMUs/AOCs is not a future potential source of drinking water because of the very low flow rates (measured at less than 0.25 gpm at SWMU/AOC 90, approximately 0.02 to 0.04 gpm based on recovery pump data at SWMU/AOC 112), limited lateral extent, and shallow depth of the perched groundwater. Drinking water well regulations for the State of Washington (WAC 173-160) and Snohomish County require that wells are cased and sealed to a minimum depth of 18 feet, which is deeper than the bottom of the perched groundwater zone at these SWMUs/AOCs. A well meeting this depth requirement would be screened in dry glacial till beneath the perched groundwater and would not produce water. Therefore, a legal drinking water well could not be installed within the perched groundwater and produce greater than 0.5 gpm, making the perched groundwater nonpotable under WAC 173-340-720(2). See Section 5.1.4 for additional discussion regarding the assessment of perched groundwater potability. Leaching to Esperance Sands will not occur with the pavement in place (see Appendix B for the results of vadose zone modeling).

These SWMUs/AOCs are excluded from terrestrial ecological risk evaluation in accordance with the criteria of WAC 173-340-7491. Future exposures could include future site users if a residential building is constructed over areas with elevated soil vapor concentrations or during potential site excavations.

Based on the nature and extent of contamination at these SWMUs/AOCs and the current and future complete exposure pathways, numeric cleanup levels proposed for EPM A SWMUs/AOCs consist of the following:

- Soil – MTCA Method A (TPH) and Method B, protection of groundwater
- Perched groundwater – risk-based cleanup levels
- Indoor air – MTCA Method C

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.2 Exposure Pathway Model B

EPM B consists of SWMUs/AOCs exhibiting fill soils with perched groundwater and BTEX contamination. EPM B is depicted graphically on Figure 3-8 and includes only SWMUs/AOCs 86, 89, 94 at Building 40-56, Former USTs. Although this group of SWMUs shares many characteristics with the EPM A SWMUs/AOCs, this group differs with regards to the complexity of the contaminant distribution (distributed through a variety of fill soils with differing properties in an area with many utilities) in the subsurface and the type of contaminant (BTEX rather than chlorinated solvents or TPH).

The characteristics and sources of hazardous substances for these EPM B SWMUs/AOCs are listed on Figure 3-8. Potential sources of chemical constituents at the EPM B SWMUs/AOCs include incidental releases from former USTs and piping.

The currently complete exposure pathways are also listed on Figure 3-8, and consist of potential construction worker exposure to perched groundwater. Although VOCs in the sub-slab vapor samples exceed air screening levels, they represent a low potential risk because they are located outside of Building 40-56. The results of vadose zone modeling (Appendix B) indicate that leaching to deep groundwater within the Esperance Sand will not occur with the pavement and building in place. Empirical evidence to date from groundwater monitoring wells screened within the Esperance Sand and located throughout the facility demonstrates no migration of TEX to deep groundwater at concentrations exceeding the MTCA Method B cleanup level for unrestricted use. This AOC is excluded from terrestrial ecological risk evaluation in accordance with the criteria of WAC 173-340-7491. Future exposures could include workers performing excavations at the site or future site users if the site is changed to a residential use.

Based on the nature and extent of contamination at these SWMUs/AOCs, and the current and future complete exposure pathways, numeric cleanup levels proposed for EPM B SWMUs/AOCs consist of the following:

- Soil – MTCA Method B, protection of groundwater
- Perched groundwater – risk-based cleanup levels
- Indoor air – MTCA Method C

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.3 Exposure Pathway Model C

EPM C consists of SWMUs/AOCs exhibiting fill soils with perched groundwater and TPH contamination. EPM C is depicted graphically on Figure 3-9 and includes only SWMU/AOC No. 166 near Building 45-53, Former UST EV-110-1. Although this SWMU/AOC shares many

characteristics with the EPMs A and B SWMUs/AOCs, this SWMU/AOC differs with regards to the complexity of the contaminant distribution (a small area of TPH in very shallow perched groundwater) in the subsurface and the type of contaminant (only TPH).

The characteristics and sources of hazardous substances for the EPM C SWMU/AOC are listed on Figure 3-9. Potential sources of chemical constituents at the EPM C SWMU/AOC include the following:

- Historical releases from the former UST EV-110-1
- Incidental releases of fuel during operation of the UST

The currently complete exposure pathways are also listed on Figure 3-9, and consist of potential construction worker exposure to perched groundwater. There are no current or reasonably possible future exposures to TPH at this SWMU/AOC. No soil contamination exists above protection of groundwater or direct-contact cleanup levels. Perched groundwater in this area is not used as a drinking water source. Perched groundwater at this SWMU/AOC is not a future potential source of drinking water because of the limited lateral extent and shallow depth of the perched groundwater. Drinking water well regulations for the State of Washington (WAC 173-160) and Snohomish County require that wells are cased and sealed to a minimum depth of 18 feet, which is deeper than the bottom of the perched groundwater zone at this SWMU/AOC. A well meeting this depth requirement would be screened in dry glacial till beneath the perched groundwater and would not produce water. Therefore, a legal drinking water well could not be installed within the perched groundwater and produce greater than 0.5 gpm, making the perched groundwater nonpotable under WAC 173-340-720(2).

Based on the nature and extent of contamination at these SWMUs/AOCs and the current and future complete exposure pathways, numeric cleanup levels proposed for the EPM C SWMU/AOC consist of the following:

- Perched groundwater – MTCA Method A (TPH) and risk-based cleanup levels

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.4 Exposure Pathway Model D

EPM D consists of SWMUs/AOCs exhibiting fill soils with perched groundwater and hydraulic fluid contamination. EPM D is depicted graphically on Figure 3-10 and includes only SWMUs/AOCs 55 and 168 at Building 40-24, Utility Trenches and Sumps. Although these two SWMUs/AOCs share many characteristics with the EPMs A through C SWMUs/AOCs, these two groups differ with regards to the complexity of the contaminant distribution in the subsurface (in soil around a utilidor beneath a building, as well as in soil and perched

groundwater in fill around a vault outside of the building) and the type of contaminant (hydraulic fluid instead of VOCs or TPH).

The characteristics and sources of hazardous substances for these EPM D SWMUs/AOCs are listed on Figure 3-10. Potential sources of chemical constituents at the EPM E SWMUs/AOCs include historical releases from utility vaults and sumps along the utility trench.

The currently complete exposure pathways are also listed on Figure 3-10, and consist of potential construction worker exposure to perched groundwater, NAPL, and soil. There is no current potential exposure to TBP at this SWMU/AOC. A limited number of soil samples exceed direct contact cleanup levels. These are located below and potentially in fill around the utility trench and vaults. Direct contact is prevented by the concrete floor. Perched groundwater in this area is not currently used as a drinking water source. Perched groundwater at this SWMU/AOC is not a future potential source of drinking water because of the very low flow rates (less than 0.5 gpm), limited lateral extent, and shallow depth of the perched groundwater. Perched groundwater that cannot be pumped on a sustained basis from a legally constructed drinking water well at greater than 0.5 gpm is not considered potable (WAC 173-340-720[2][b][i]). Drinking water well regulations for the State of Washington (WAC 173-160) and Snohomish County require that wells are cased and sealed to a minimum depth of 18 feet, which is deeper than the bottom of the perched groundwater zone at this SWMU/AOC. A well meeting this depth requirement would be screened in dry glacial till beneath the perched groundwater and would not produce water. Therefore, a legal drinking water well could not be installed within the perched groundwater and produce greater than 0.5 gpm, making the perched groundwater nonpotable under WAC 173-340-720(2). See Section 5.1.4 for additional discussion regarding the assessment of perched groundwater potability.

Leaching to Esperance Sands will not occur with the flooring in place (see Appendix B for the results of vadose zone modeling). This AOC is excluded from terrestrial ecological risk evaluation in accordance with the criteria of WAC 173-340-7491. Future exposures could include workers performing excavations at the site, or future site users if the building configuration changes in a way that exposes contaminated soil.

Based on the nature and extent of contamination at these SWMUs/AOCs and the current and future complete exposure pathways, numeric cleanup levels proposed for EPM D SWMUs/AOCs consist of the following:

- Soil – MTCA Method B, protection of groundwater
- Perched groundwater – risk-based cleanup levels

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.5 Exposure Pathway Model E

EPM E consists of SWMUs/AOCs exhibiting fill soils without perched groundwater and VOC contamination. EPM E is depicted graphically on Figure 3-11 and includes the following SWMUs/AOCs:

- SWMU/AOC No. 171, Building 40-31, Former Bluestreak Vapor Degreaser
- SWMU/AOC No. 97, Building 40-11, Former Vapor Degreaser
- SWMU/AOC No. 98, Building 40-53, Former Mock-Up Degreaser
- SWMU/AOC No. 170, Building 40-02, Former Large Vapor Degreaser
- SWMU/AOC No. 169, Building 40-02, Former Small Vapor Degreaser
- Former Paint Crib, Building 40-02
- SWMU/AOC No. 54, Building 40-51, Former Wastewater AST
- Footing Excavation, Building 40-32

The characteristics and sources of hazardous substances for these EPM E SWMUs/AOCs are listed on Figure 3-11. Potential sources of chemical constituents at the EPM E SWMUs/AOCs include one or more of the following at each SWMU/AOC:

- Historical releases of solvents associated with the operation of active units, including vapor degreasers, a paint crib (Building 40-02, Paint Shop Chemical Crib), and an AST (SWMU/AOC 54)

- Incidental spills in the vicinity of these units during operation

- Undocumented past surface releases (in the case of the Building 40-32 footing excavation)

As shown on Figure 3-11, there are no complete exposure pathways at these SWMUs/AOCs other than potential construction worker exposure to chemical constituents in soil. Where chemical constituents are present in soil above a concentration protective of the direct contact pathway, concrete flooring or pavement currently prevents direct contact by factory workers. Where volatile constituent concentrations in sub-slab vapor exceed the industrial MTCA screening levels, the concentrations are not a current risk to industrial indoor air, either based on Boeing's industrial hygiene evaluation of the interior work spaces, or because the sub-slab vapor detections are outside of existing building structures. The EPM E SWMUs/AOCs are located in areas without perched groundwater and modeling demonstrates that leaching to the Esperance Sand aquifer will not occur with the building or pavement in place. Empirical evidence to date from groundwater monitoring wells screened within the Esperance Sand and located throughout the facility demonstrates no migration of chemical constituents to groundwater at concentrations exceeding the MTCA Method B cleanup level for unrestricted use. These SWMUs/AOCs are excluded from terrestrial ecological risk evaluation in accordance with the criteria of WAC 173-

340-7491. Future exposures could include workers performing excavations at the site, or future site users if the site is changed to a residential use, or if the site is redeveloped in a way that increases infiltration.

Based on the nature and extent of contamination at these SWMUs/AOCs, and the current and future complete exposure pathways, numeric cleanup levels proposed for EPM E SWMUs/AOCs consist of the following:

- Soil – MTCA Method B, protection of groundwater
- Indoor air – MTCA Method C

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.6 Exposure Pathway Model F

EPM F consists of SWMUs/AOCs exhibiting fill soils without perched groundwater and TPH contamination. EPM F is depicted graphically on Figure 3-12 and includes only SWMU/AOC No. 68, the South Fire Pit. Although this SWMU/AOC shares many characteristics with the EPM E SWMUs/AOCs, these two groups differ with regards to the type of contaminant and the current exposure pathways.

The characteristics and sources of hazardous substances for the EPM F SWMU/AOC are listed on Figure 3-12. Potential sources of chemical constituents at the EPM F SWMU/AOC includes:

- Incomplete combustion of fuels disposed of at the former fire pit
- Incidental releases of fuel during use of the former fire pit

The currently complete exposure pathways are also listed on Figure 3-11, and consist of potential construction worker exposure to soil. Direct contact is prevented by the asphalt pavement. VOCs in the sub-slab vapor do not exceed industrial screening levels. The SWMU/AOC is located in an area without perched groundwater and leaching to Esperance Sands will not occur with the pavement and building in place (see Appendix B for the results of leaching modeling). This SWMU/AOC is excluded from terrestrial ecological risk evaluation in accordance with the criteria of WAC 173-340-7491. Future exposures could include workers performing excavations at the site, or future site users if a residential building is constructed over the area.

Based on the nature and extent of contamination at this SWMU/AOC and the current and future complete exposure pathways, numeric cleanup levels proposed for the EPM F SWMU/AOC consist of the following:

- Soil – MTCA Method A
- Indoor air – MTCA Method C

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.7 Exposure Pathway Model G

EPM G consists of SWMUs/AOCs exhibiting fill soils without perched groundwater and with VOC, TPH, or metals contamination. EPM G is depicted graphically on Figure 3-13 and includes the following SWMUs/AOCs:

- SWMU/AOC No. 65, Building 40-51, Former Paint Stripping Tankline
- UST EV-48-1, Building 40-11
- SWMU/AOC No. 165, Former Fuel Farm USTs and Fuel Stall Piping
- SWMU/AOC No. 83, Former UST EV-15

Although this group of SWMUs/AOCs shares many characteristics with EPMs E and F SWMUs/AOCs, these groups differ with regards to the type of contaminant (petroleum) and the current exposure pathways (no current exposures). The characteristics and sources of hazardous substances for these EPM G SWMUs/AOCs are listed on Figure 3-13. Potential sources of chemical constituents at the EPM G SWMUs/AOCs include one or more of the following at each SWMU/AOC:

- Historical releases during operation of equipment (former paint stripping tankline and former fuel farm USTs and underground fuel piping)

- Historical releases while cleaning the former dump tank

- Incidental releases during operation of equipment (former paint stripping tankline and former fuel farm USTs and underground fuel piping)

- Historical release of unleaded gasoline at the Building 40-11 UST EV-48-1, May 18, 2006, discovered by Boeing personnel during routine maintenance and reported to the Ecology UST program on the same day.

As shown on Figure 3-13, there are no complete exposure pathways at these SWMUs/AOCs, other than potential construction worker exposure to chemical constituents in soil. Direct contact is prevented by the concrete or asphalt pavement. At SWMU/AOC No. 65, the former paint stripping tankline, the contaminated soil is enclosed by the concrete floor slab and the historical concrete containment. At SWMUs/AOCs where sub-slab vapor sampling was completed as a part of the FS, VOCs in the sub-slab vapor samples do not exceed industrial air screening levels. These SWMUs/AOCs are located in areas without perched groundwater and leaching to Esperance Sands will not occur with the pavement/flooring in place (see Appendix B for the results of the leaching model as applicable). These SWMUs/AOCs are excluded from terrestrial

ecological risk evaluation in accordance with the criteria of WAC 173-340-7491. Future exposures could include workers performing excavations at the site.

Based on the nature and extent of contamination at these SWMUs/AOCs and the current and future complete exposure pathways, numeric cleanup levels proposed for EPM G SWMUs/AOCs soil consist of the following:

- MTCA Method B, protection of groundwater for metals (and associated benzene at SWMU/AOC No. 065),
- MTCA Method A for lead, TPH, and BTEX.

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.8 Exposure Pathway Model H

EPM H consists of SWMUs/AOCs exhibiting fill soils without perched groundwater and with VOC contamination. EPM H is depicted graphically on Figure 3-14 and includes the following SWMUs/AOCs:

- SWMU/AOC No. 93, Building 45-01, Former Solvent USTs
- SWMU/AOC Nos. 67 and 71, Building 40-56, Former Recycling Unit and UST EV-153

Although this group of SWMUs/AOCs shares many characteristics with the EPMs E, F, and G SWMUs/AOCs, these groups differ with regards to the type of contaminant (MEK and TEX rather than petroleum or chlorinated solvents). The characteristics and sources of hazardous substances for these EPM H SWMUs/AOCs are listed on Figure 3-14. Potential sources of chemical constituents at the EPM H SWMUs/AOCs include one or more of the following at each SWMU/AOC:

- Historical release of MEK from the former solvent tank system at SWMU/AOC No. 93, or of silk-screen solvents from the historical aboveground solvent recycling still and former UST at SWMU/AOC Nos. 67 and 71.
- Historical release of MEK from the piping associated with EV-19 at SWMU/AOC No. 93, or movement of MEK in more permeable piping backfill from a release at EV-19
- Incidental spills in the vicinity of the solvent tanks while they were in operation

As shown on Figure 3-1, there are no complete exposure pathways at these SWMUs/AOCs other than potential construction worker exposure to chemical constituents in soil. Direct contact is prevented by the concrete pavement or flooring at both EPM G SWMUs/AOCs and up to 8 feet of CDF backfill below the concrete at locations in the historical excavation at SWMU/AOC Nos. 67 and 71. Concentrations of VOCs at SWMU/AOC 93 in the sub-slab vapor samples do not exceed industrial or residential air screening levels. Concentrations of VOCs at SWMUs/AOCs 67 and 71 in the sub-slab vapor samples do not exceed industrial air screening levels. The SWMUs/AOCs are located in an area without perched groundwater and leaching to Esperance Sands will not occur with the concrete floor of the building in place (see Appendix B for the results of leaching modeling). Empirical evidence to date from groundwater monitoring wells screened within the Esperance Sand and located throughout the facility demonstrates no migration of TEX to deep groundwater at concentrations exceeding the MTCA Method B cleanup levels for unrestricted use. These SWMUs/AOCs are excluded from terrestrial ecological risk evaluation in accordance with the criteria of WAC 173-340-7491. Future exposures could include workers performing excavations at the site, or future site users if the building use is changed to residential.

Based on the nature and extent of contamination at these SWMUs/AOCs and the current and future complete exposure pathways, numeric cleanup levels proposed for EPM H SWMUs/AOCs consist of the following:

- Soil – MTCA Method B, protection of groundwater (SWMU/AOC No. 93), MTCA Method A (SWMU/AOC Nos. 67 and 71)
- Indoor Air – MTCA Method C (SWMU/AOC 93), OSHA PELs (SWMUs/AOCs 67 and 71)

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.9 Exposure Pathway Model I

EPM I consists of SWMUs/AOCs exhibiting arsenic in deep Esperance Sand groundwater. EPM I is depicted graphically on Figure 3-15 and includes only Esperance Sand Well EGW061.

The characteristics and sources of hazardous substances for the EPM I AOC are listed on Figure 3-15. There are no known or documented releases that suggest a source of elevated arsenic in deep groundwater in this area (EGW061 was drilled to 219 feet bgs). The likeliest source is relatively higher arsenic concentrations in the native Esperance Sand aquifer materials in this area, or an artifact of localized redox conditions in this portion of the Esperance Sand aquifer (Maguffin et al. 2015).

The only complete exposure pathway for this AOC is future drinking water. There is no current potential exposure to arsenic in groundwater at this AOC, because groundwater in this area is not used as a drinking water source. A municipal supply of drinking water is available and is currently in use at the property. Future exposures could result from development of groundwater in this area for drinking water.

Background and current conditions information is provided for each SWMU/AOC in Section 2.

3.2.10 Exposure Pathway Model J

EPM J is depicted graphically on Figure 3-16 and includes only SWMU/AOC No. 100, Former Gun Club.

The characteristics and sources of hazardous substances for the EPM J SWMU/AOC are listed on Figure 3-16. Potential sources of chemical constituents at the EPM J SWMU/AOC include the following:

- Activities associated with the former gun club: use of lead shot and clay pigeons (cPAH)
- Tracking of contaminated soil and/or sediment by vehicles or animals
- Surface water migration of contaminated sediment

The currently complete exposure pathways are also listed on Figure 3-16, and consist of human direct contact with soil, sediment, and perched groundwater, as well as ecological exposures. Direct contact exposure by humans and wildlife to cPAHs and lead at the Area B AOC, is a complete exposure pathway, although this AOC is not in an area frequently accessed by people. There are also signs in place that indicate this is a private property owned by The Boeing Company. Direct contact is possible from surface contamination in soil and sediment. There is no current potential exposure to cPAH at the remaining Area C AOC. Direct contact is prevented by the asphalt road surface overlying the area of cPAH exceedance in this AOC.

Perched groundwater in this area is not used as a drinking water source. A municipal supply of drinking water is available and is currently in use at the property. Perched groundwater at this SWMU/AOC is not a future potential source of drinking water because of the very low flow rate (less than 0.25 gpm), and shallow depth of the perched groundwater. Perched groundwater that cannot be pumped on a sustained basis at greater than 0.5 gpm from a legally constructed groundwater supply well is not considered potable (WAC 173-340-720[2][b][i]). Drinking water well regulations for the State of Washington (WAC 173-160) and Snohomish County require that wells are cased and sealed to a minimum depth of 18 feet, which is deeper than the bottom of the perched groundwater zone throughout most of this SWMU/AOC. See Section 5.1.4 for additional discussion regarding the assessment of perched groundwater potability.

Future exposures could include workers performing excavations at the site or future site users if the area is changed to an industrial or residential use.

Based on the nature and extent of contamination at this SWMU/AOC and the current and future complete exposure pathways, numeric cleanup levels proposed for the EPM J SWMU/AOC consist of the following:

- Soil – numeric standards based on Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals (MTCA Table 749-3)
- Sediment – Sediment Cleanup Objectives for freshwater sediment (Ecology 2015a)
- Perched Groundwater – risk-based cleanup levels

Background and current conditions information is provided for each SWMU/AOC in Section 2.

The IA performed within all of Areas A and C, except for one location beneath West Frontage Road, met the cleanup standards proposed in Section 5 of this FS. On this basis, the IAs performed in these portions of Areas A and C meet the requirements for a final action.

3.2.11 Exposure Pathway Model K

EPM K is represented graphically on Figure 3-17 and solely includes the PMG SWMU. EPM K is significantly different from other EPMs due to the large scale of the contaminant distribution within groundwater and other various site conditions, which are further described below in the PMG CSM/EPM K. The characteristics of the contaminants associated with EPM K are listed on Figure 3-17. Based on the current and expected future site conditions and the extent and the nature of the contamination in EPM K, cleanup levels proposed for EPM K are as follows:

- Groundwater – MTCA Method B, protective of drinking water and surface water
- Surface water – MTCA Method B, protective of human consumption of organisms and ecological receptors

This CSM for PMG is based upon the current conditions described in Section 2.19. The CSM comprises a TCE source area located beneath the BCA Everett detention basin, which has, in turn, lead to the contamination of the Esperance Sand groundwater beneath and approximately 2,600 feet downgradient of the detention basin, and PMG surface water (PMC and associated seeps) adjacent to the plume. Also as described in Section 2.19, much of the contamination in the source area was previously treated with a series of IAs. Human and ecological receptors could potentially be exposed to TCE via a drinking water pathway, consumption of freshwater organisms, or direct contact. It is also possible that humans could potentially be exposed through

vapor intrusion. However, as indicated by the vapor intrusion assessment, this is an incomplete pathway in developable areas in the vicinity of the plume and there is little potential for future construction in areas where the pathway would become complete.

Sampling data from PMG indicate that contamination is limited to the Esperance Sand aquifer (Figure 3-6). The Esperance Sand is underlain by the Lawton Clay, which serves as a confining unit. Within upper PMG is a silt interbed in the lower Esperance Sand, and the TCE plume is generally confined to the portion of the aquifer above the silt interbed, although low concentrations of TCE are found below the silt interbed. The silt interbed has been incised by PMC and pinches out north of Seaway Boulevard, at which point the plume is then contained by the deeper Lawton Clay aquitard. The Lawton Clay aquitard outcrops farther north of where the silt interbed ends and the aquifer (and the plume) fully discharges to PMC both as direct discharge to the creek and as associated surface water (seeps).

Based on the presence of contaminated groundwater, surface water, and seeps present within PMG, potential human and ecological receptors were identified based on current and reasonable future land use. Potential human receptors include the following:

- Temporary construction workers: Personnel temporarily working within PMG may come into direct contact with impacted shallow groundwater, surface water, or seeps during future construction activities.

- General public: Members of the public participating in recreational activities on City property within the vicinity of the plume may come into direct contact with impacted surface water or seeps. The general public may also ingest impacted groundwater or surface water if either is used as a drinking water source. Consumption of freshwater organisms from PMC is another potential source of exposure.

Ecological receptors include the following:

- Terrestrial plants, exposed through interaction with or uptake of shallow groundwater, surface water, or seeps

- Terrestrial invertebrates, exposed through interaction with or consumption of shallow groundwater, surface water, or seeps

- Terrestrial birds, exposed through interaction with or consumption of surface water or seeps, or consumption of freshwater organisms from PMC

- Terrestrial mammals, exposed through interaction with or consumption of surface water or seeps or consumption of freshwater organisms from PMC

- Amphibians, exposed through the interaction with or consumption of surface water or seeps, or consumption of freshwater organisms from PMC
- Aquatic life, exposed through interaction with or consumption of surface water, or consumption of freshwater organisms from PMC
- Benthic invertebrates, exposed through interaction with or consumption of surface water/shallow groundwater at the groundwater-surface water interface of the creek

These receptors and their associated pathways are considered in this FS in the development of cleanup levels and cleanup alternatives.

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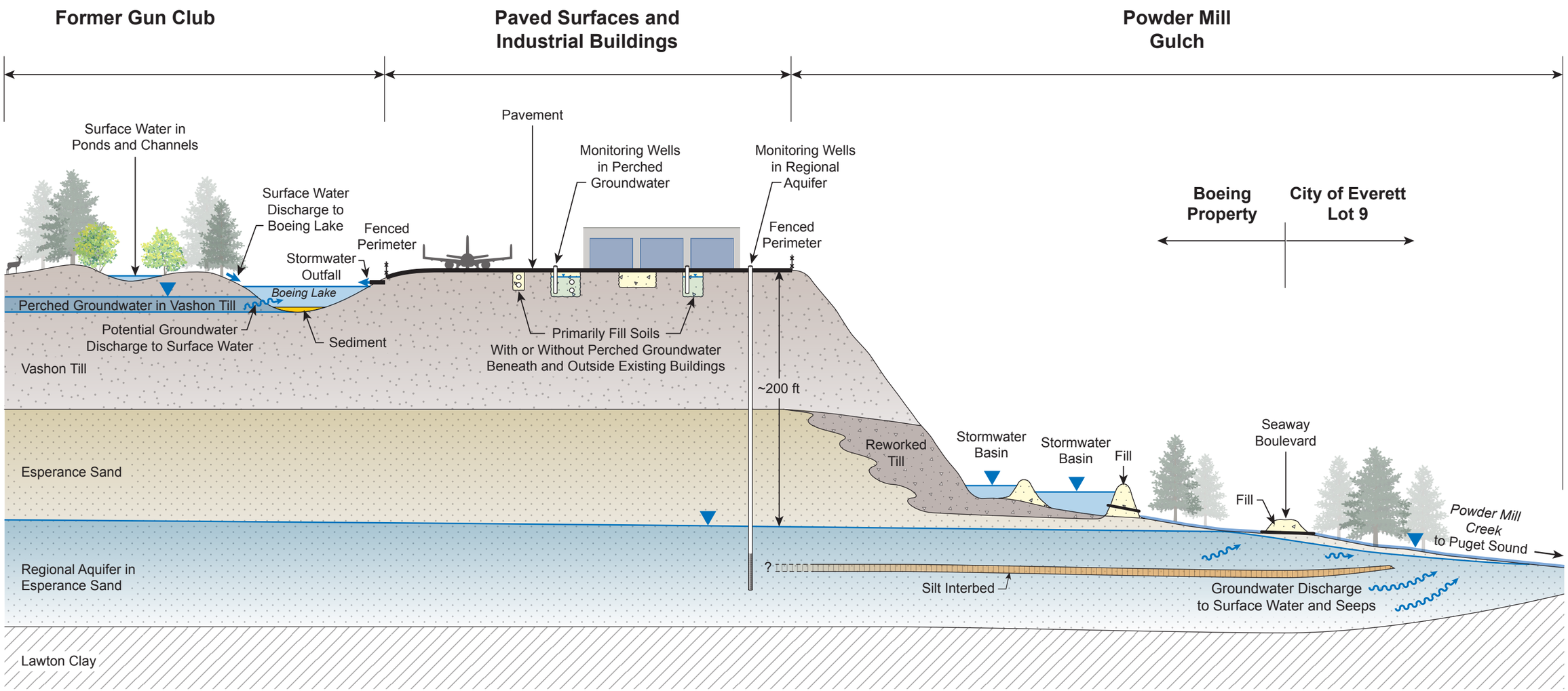
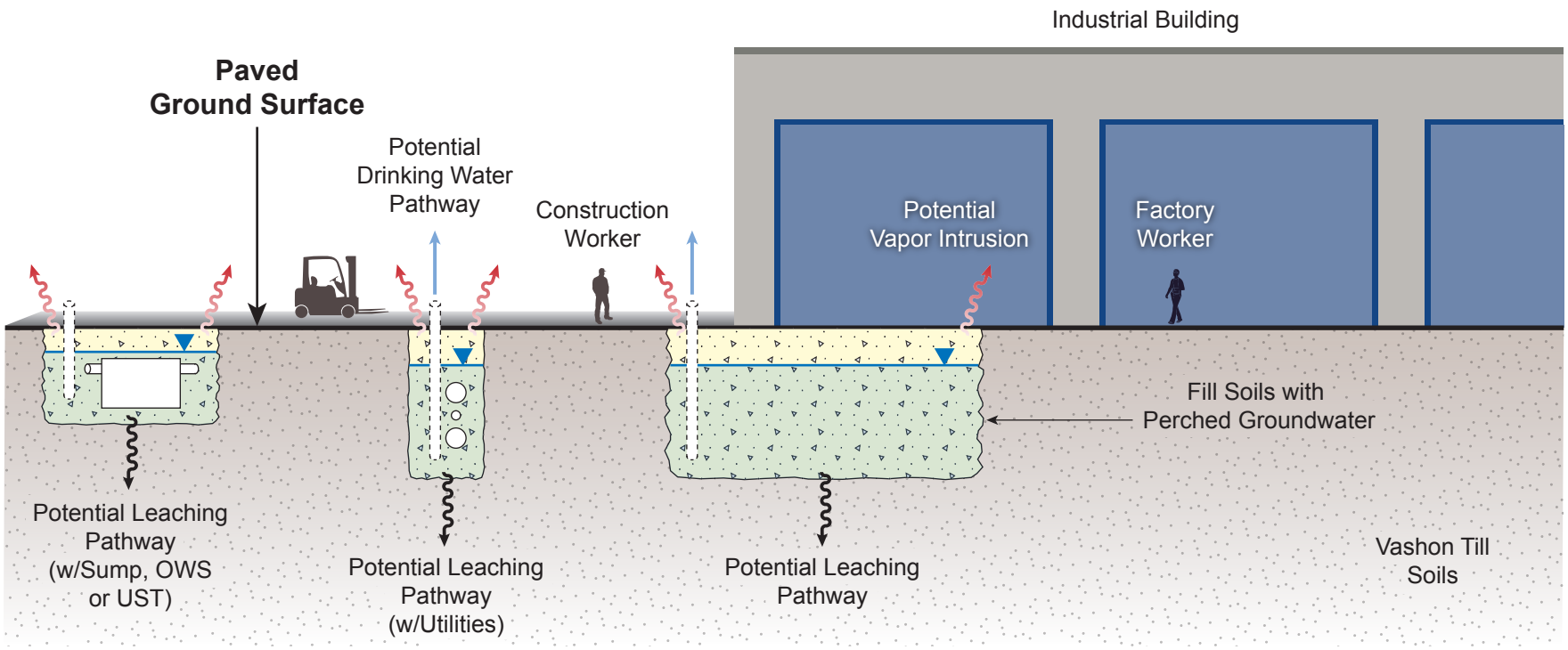


Figure 3-1

Sitewide Conceptual Site Model

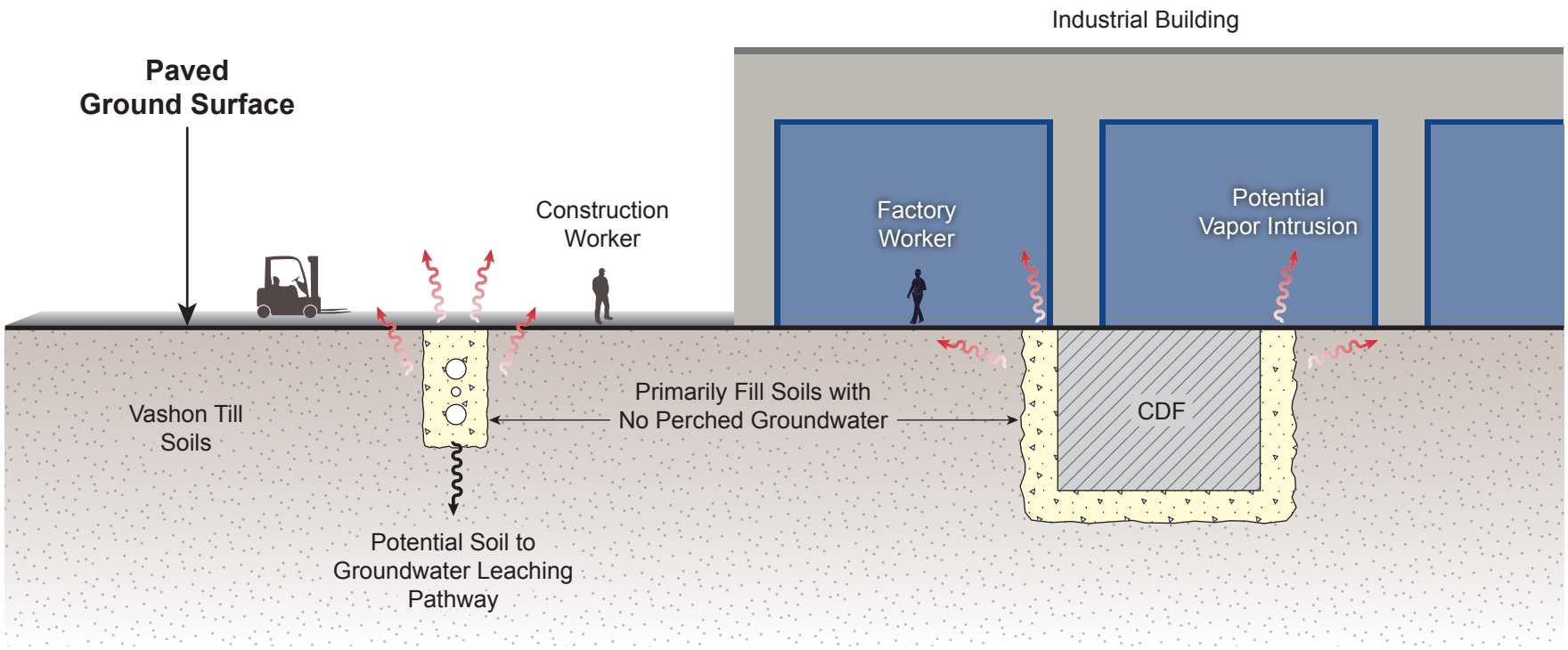


Legend

OWS	Oil/water separator
UST	Underground storage tank

Figure 3-2

Potential Exposure Pathways
Fill Soils with Perched Groundwater



Legend

CDF	Controlled density fill

Figure 3-3

Potential Exposure Pathways
Fill Soils, No Perched Groundwater

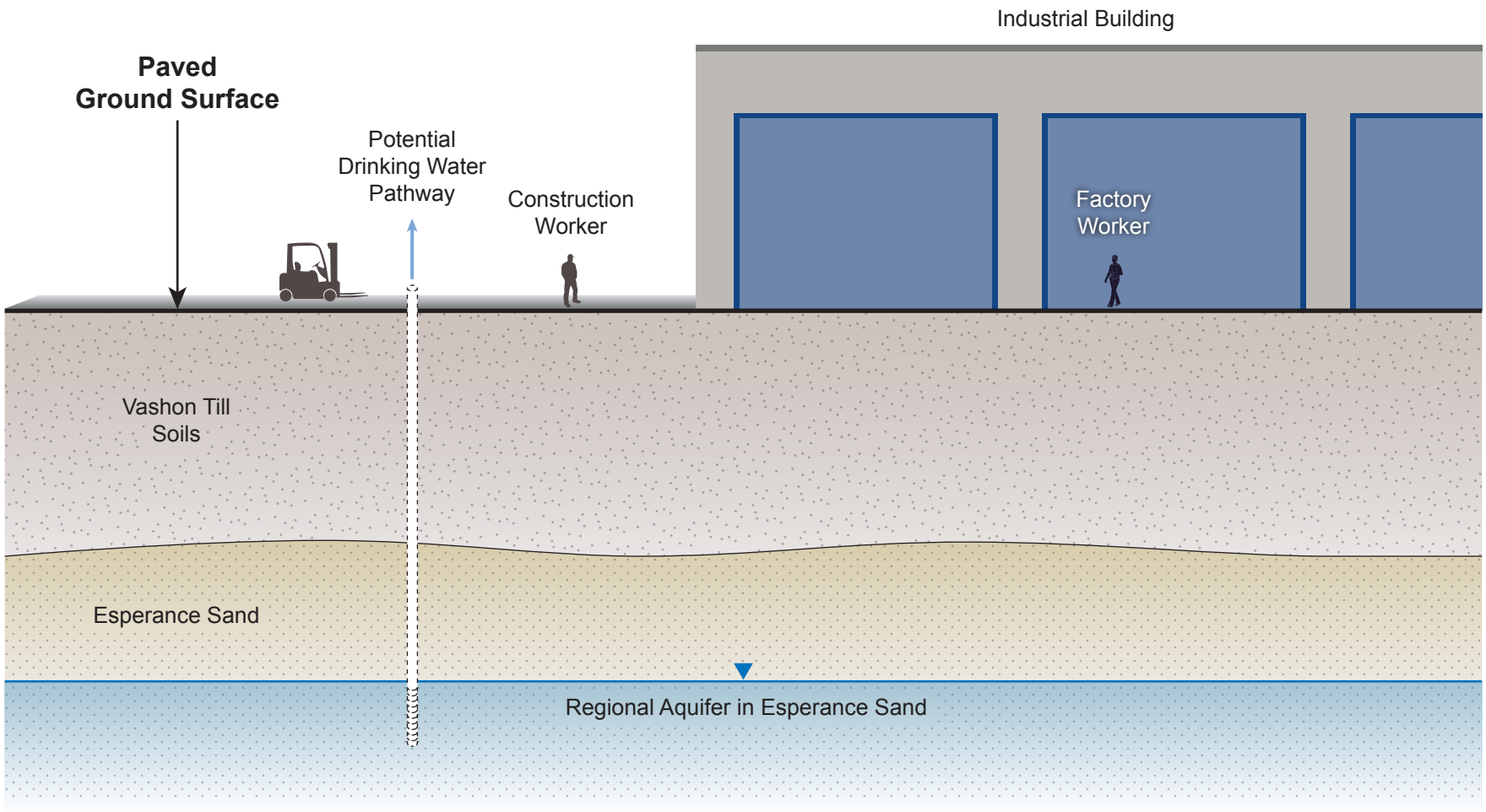


Figure 3-4

Potential Exposure Pathways
Esperance Sand

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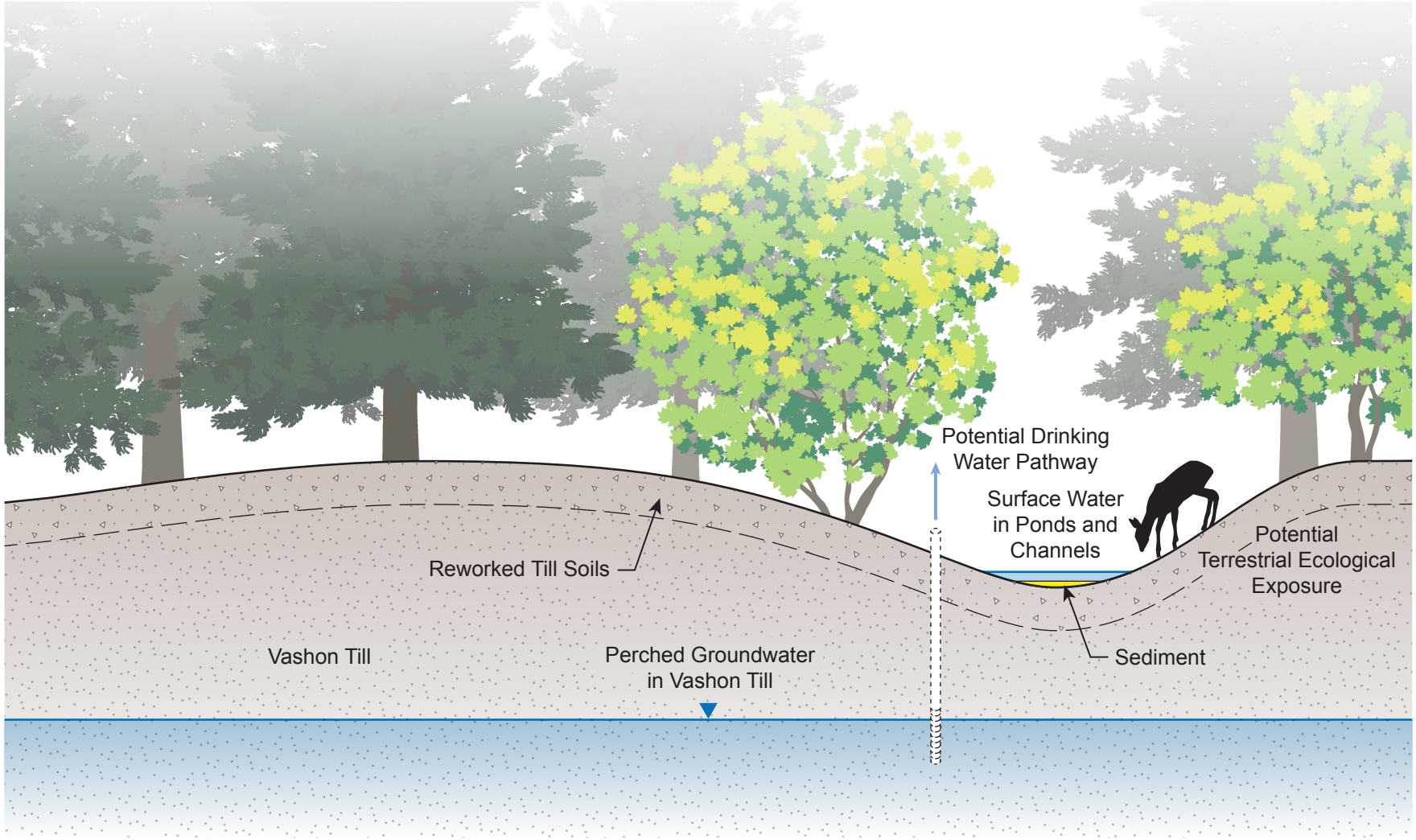

Figure 3-5

Potential Exposure Pathways

Soil, Sediments, Surface Water in Ponds, Channels, and Boeing Lake

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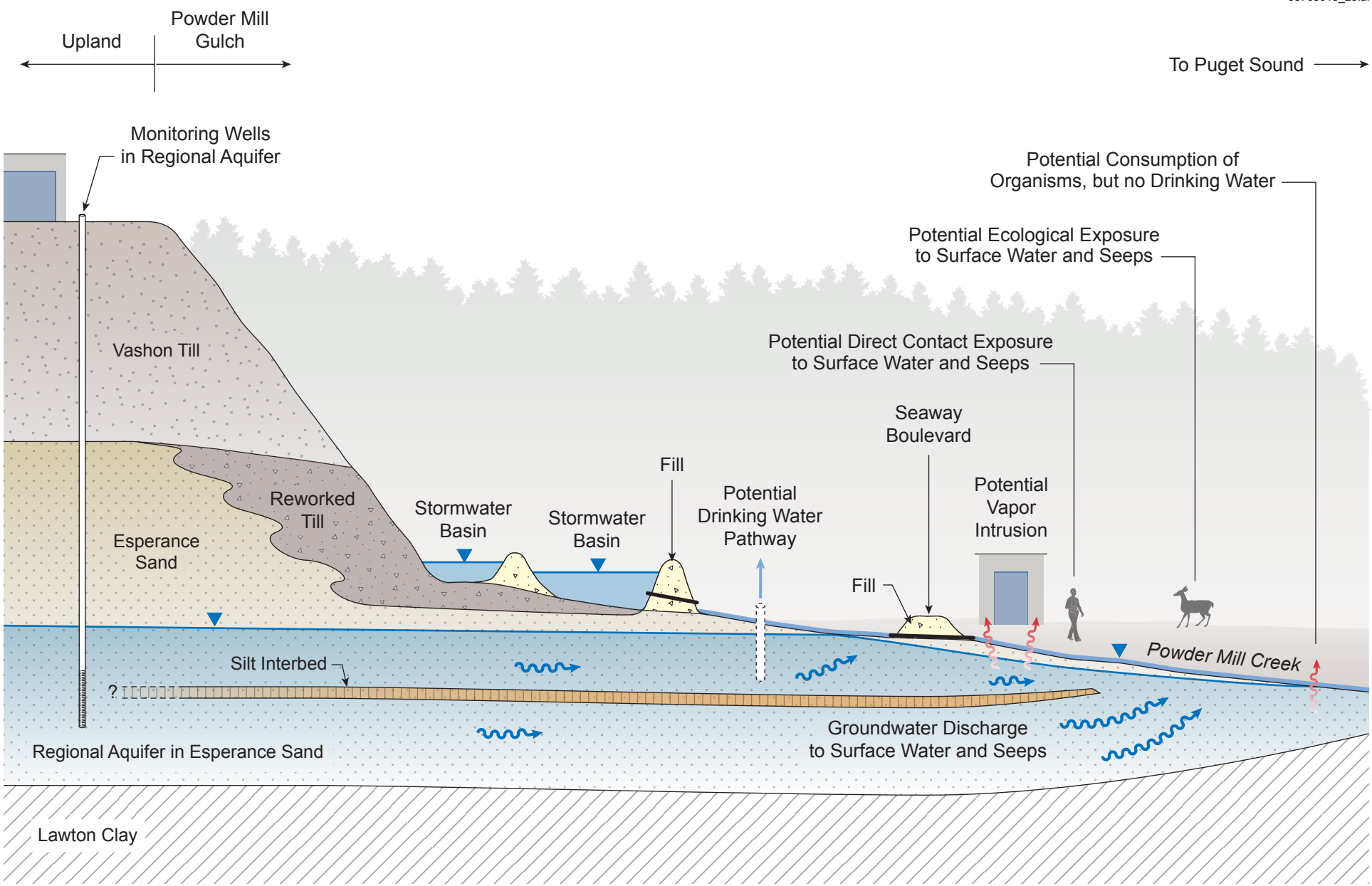
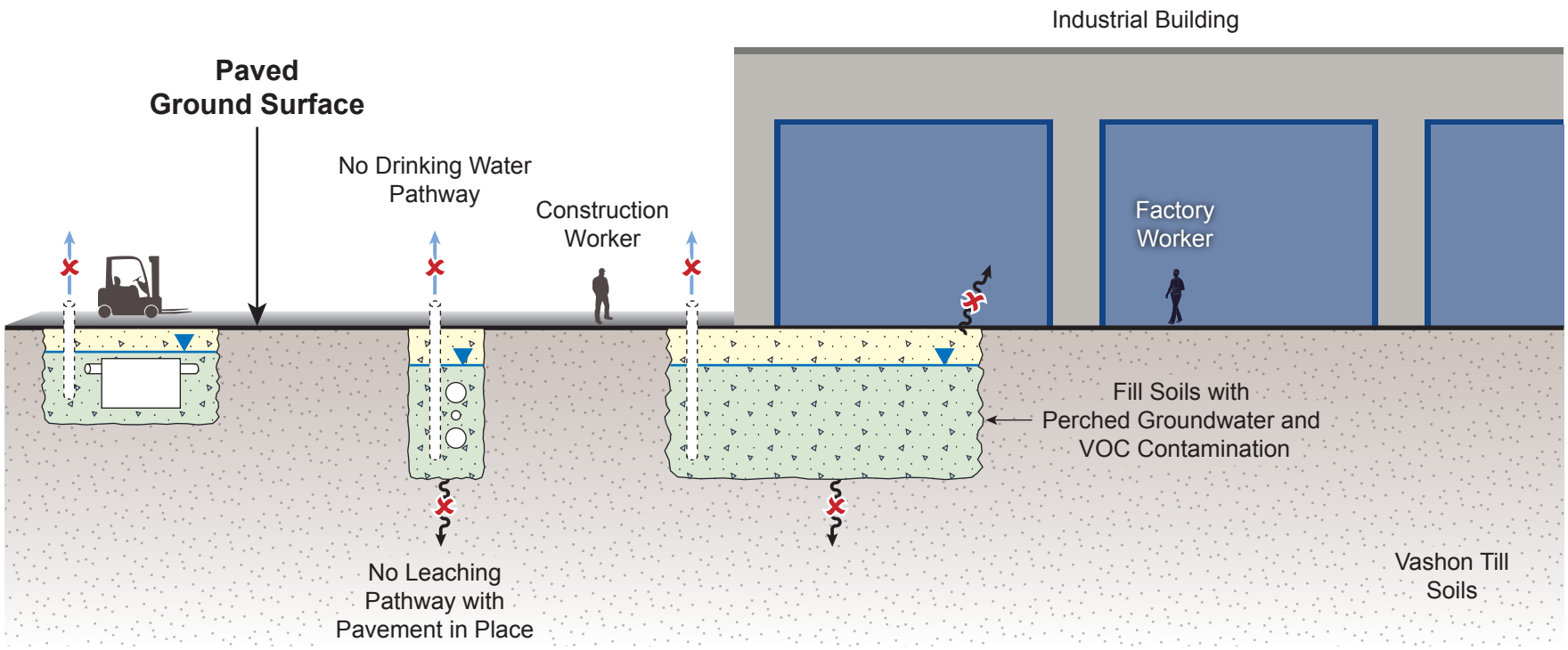


Figure 3-6

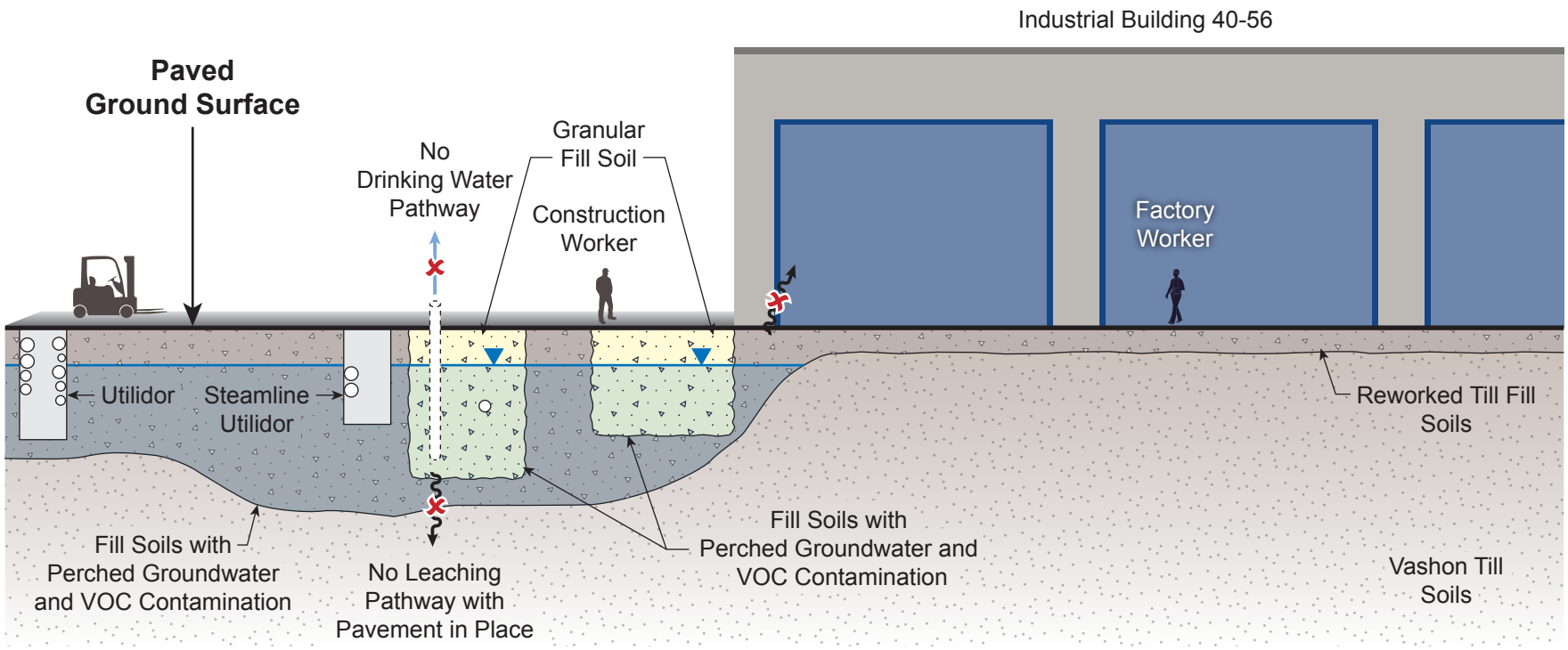
Potential Exposure Pathways – Powder Mill Gulch



Characteristics of EPM A		Complete Exposure Pathways		Sources	
1	Industrial facility	1	Construction worker exposure to perched groundwater	1	Former UST
2	VOCs in sub-slab vapor exceeding screening levels outside existing structures			2	Sumps
3	Perched groundwater with no drinking water pathway			3	Oil/water Separator
4	No leaching to Esperance Sand with pavement in place				
5	Excluded from terrestrial ecological risk evaluation				
6	No soil contamination above direct-contact cleanup levels				

Figure 3-7

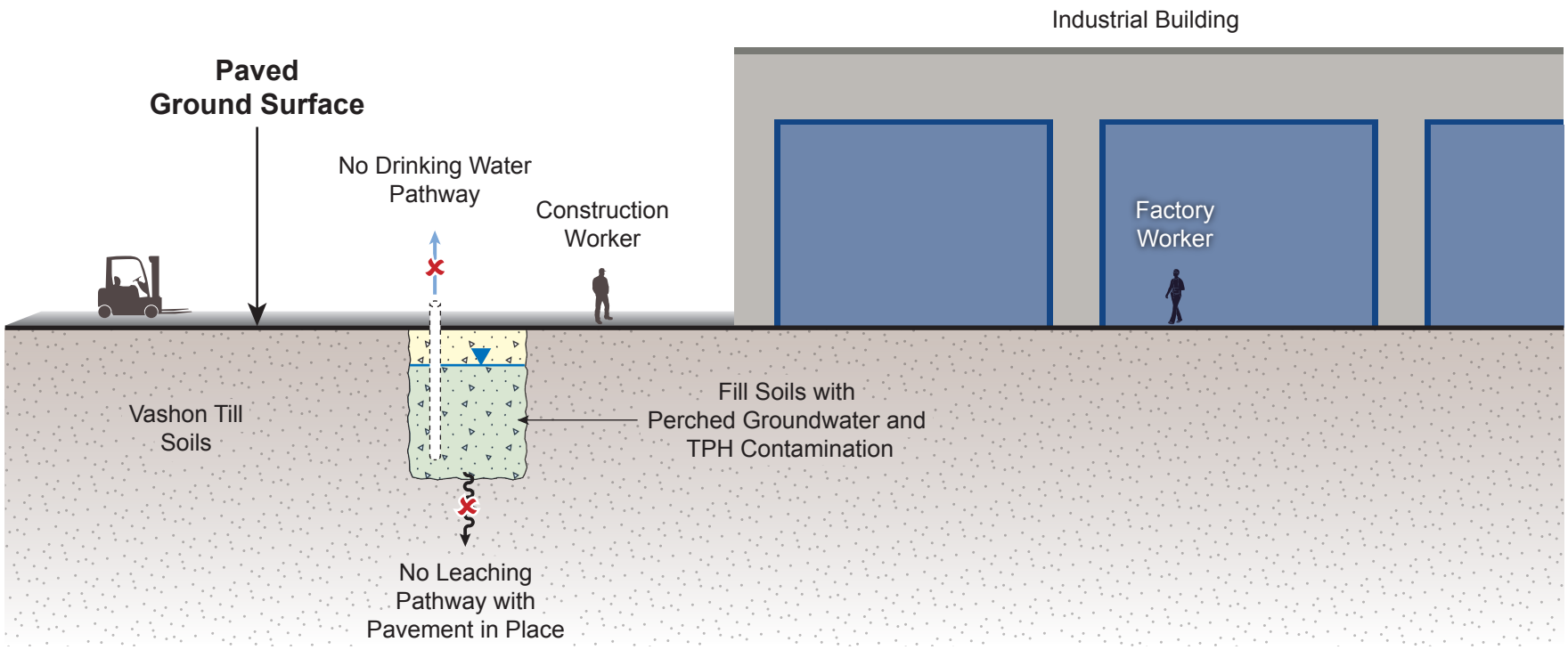
Exposure Pathway Model A



Characteristics of EPM B	Complete Exposure Pathways	Sources
1 Industrial facility	1 Construction worker exposure to perched groundwater	1 Former USTs
2 VOCs in sub-slab vapor exceeding screening levels outside existing structures		
3 Perched groundwater with no drinking water pathway		
4 No leaching to Esperance Sand with pavement in place		
5 Excluded from terrestrial ecological risk evaluation		
6 No direct contact risk from soil		

Figure 3-8

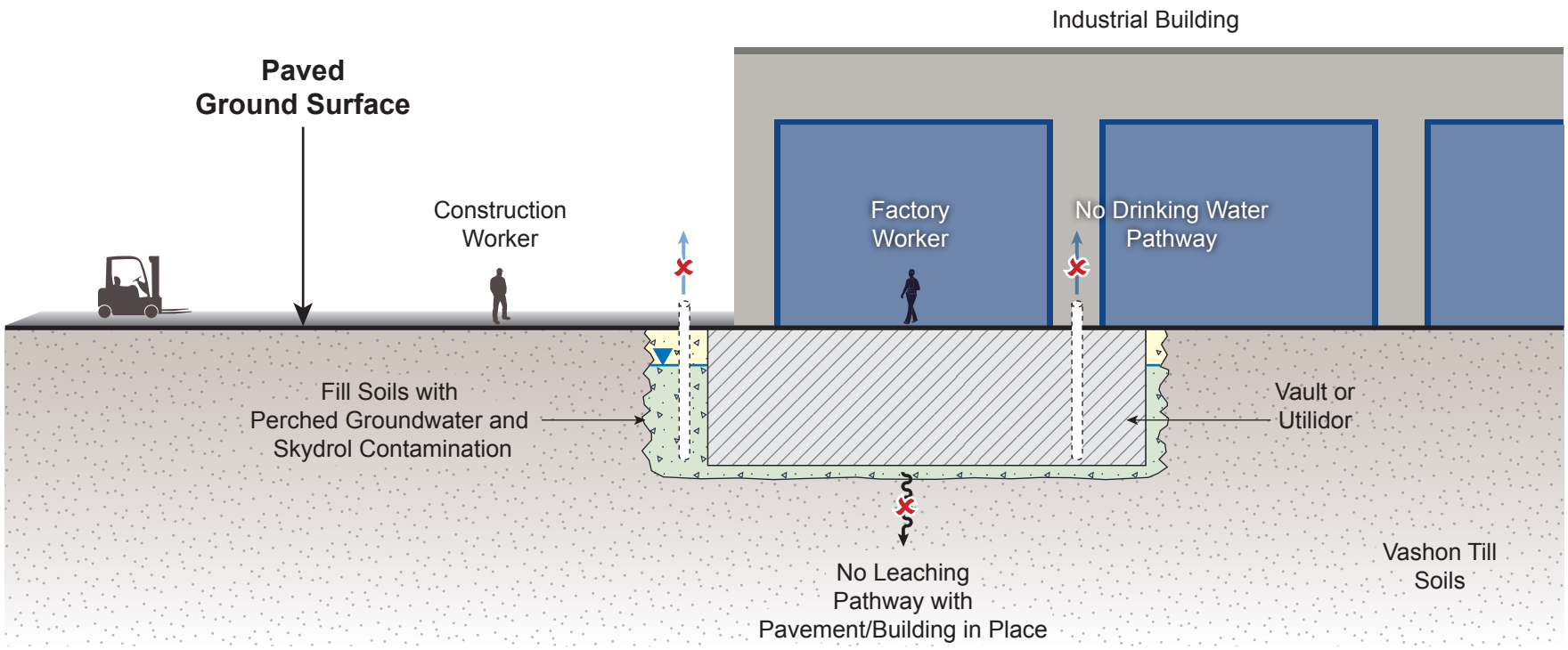
Exposure Pathway Model B



Characteristics of EPM C	Complete Exposure Pathways	Sources
1 Industrial facility	1 Construction worker exposure to perched groundwater	1 Former UST
2 Perched groundwater with no drinking water pathway		
3 No leaching to Esperance Sand with pavement/building in place		
4 Excluded from terrestrial ecological risk evaluation		
5 No soil contamination above protection of groundwater or direct contact cleanup levels		

Figure 3-9

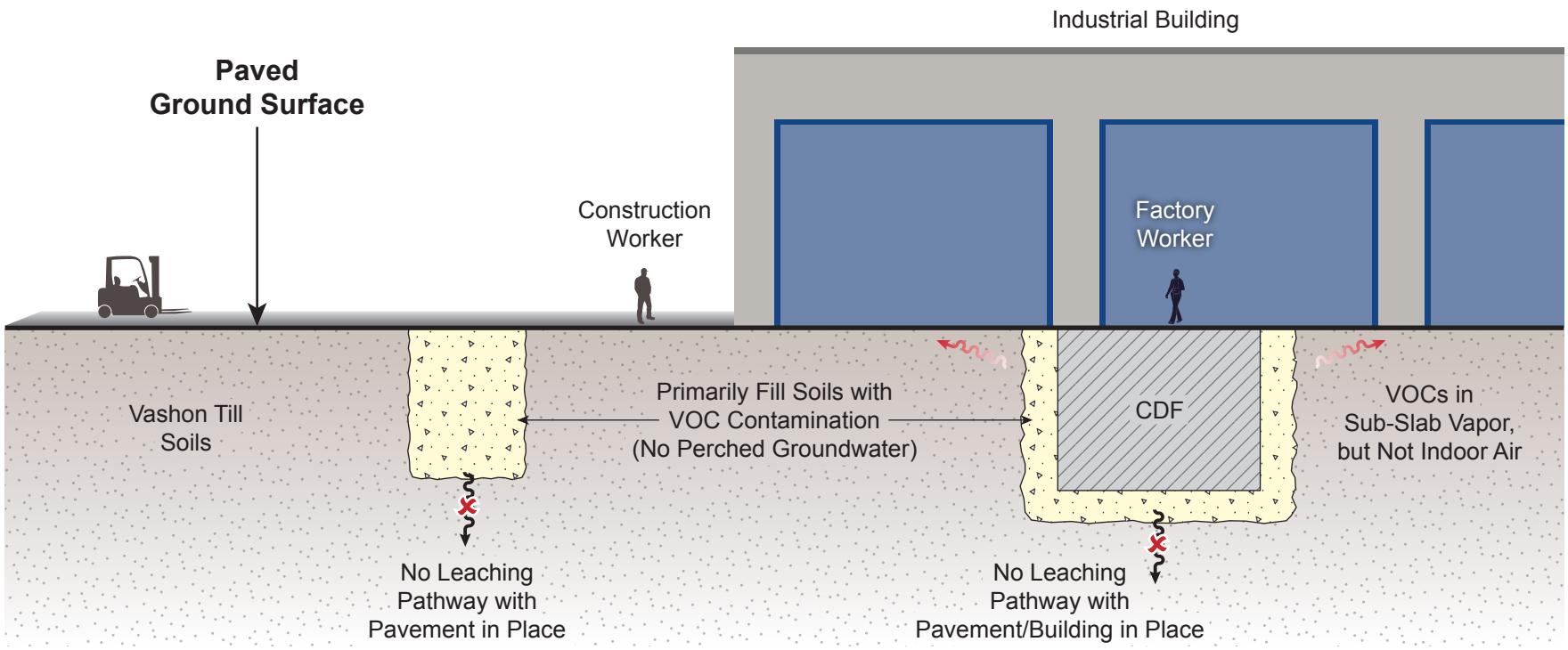
Exposure Pathway Model C



Characteristics of EPM D	Complete Exposure Pathways	Sources
1 Industrial facility	1 Construction worker direct contact with soil	1 Utility trenches and sumps
2 Perched groundwater with no drinking water pathway	2 Construction worker exposure to perched groundwater and NAPL	
3 No leaching to Esperance Sand with pavement/building in place		
4 Excluded from terrestrial ecological risk evaluation		
5 Limited soil contamination above direct contact cleanup levels below and potentially in fill around utilidor/vault		

Figure 3-10

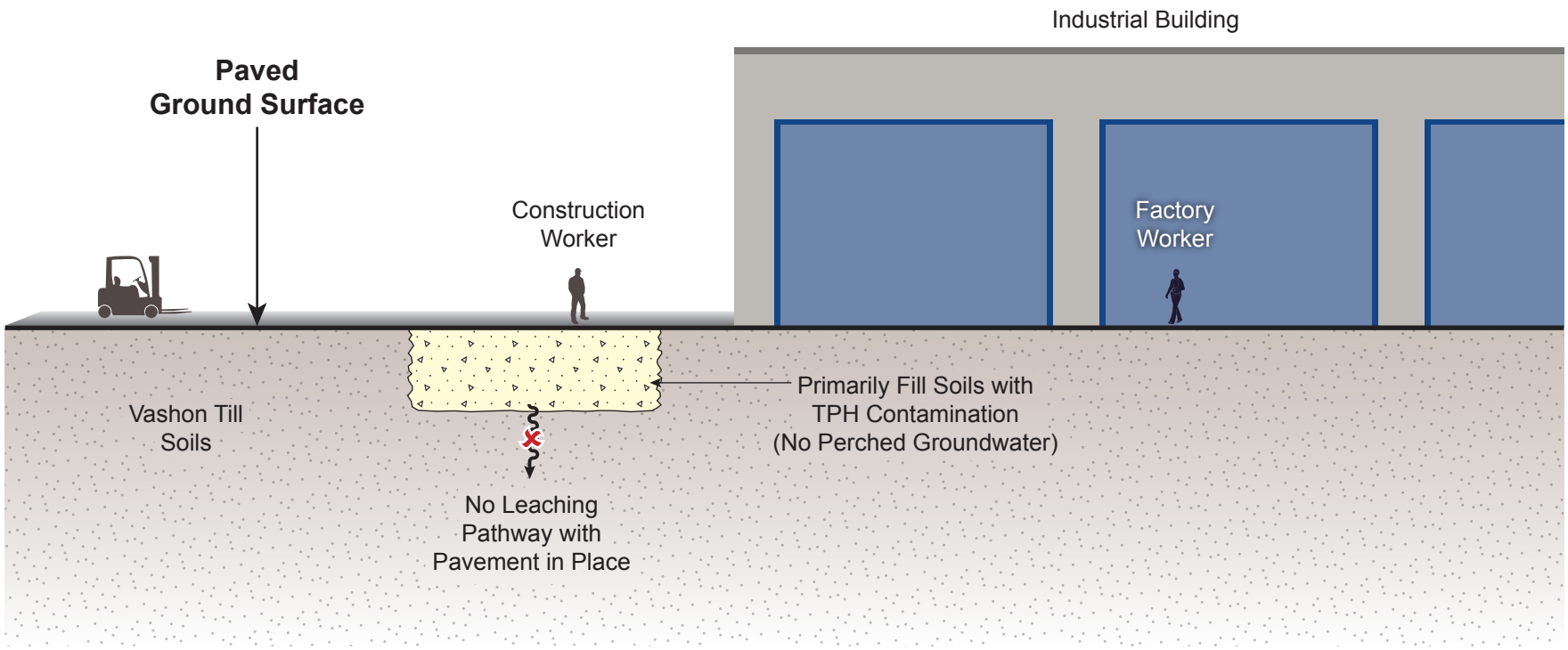
Exposure Pathway Model D



Characteristics of EPM E	Complete Exposure Pathways	Sources
1 Industrial facility	1 None	1 Vapor degreasers
2 VOCs in sub-slab vapor exceeding screening levels outdoors and below building, but no VOCs in indoor air		2 Former AST
3 No perched groundwater		3 Paint crib
4 No leaching to Esperance Sand with pavement/building in place		
5 Excluded from terrestrial ecological risk evaluation		
6 No direct contact risk from soil		

Figure 3-11

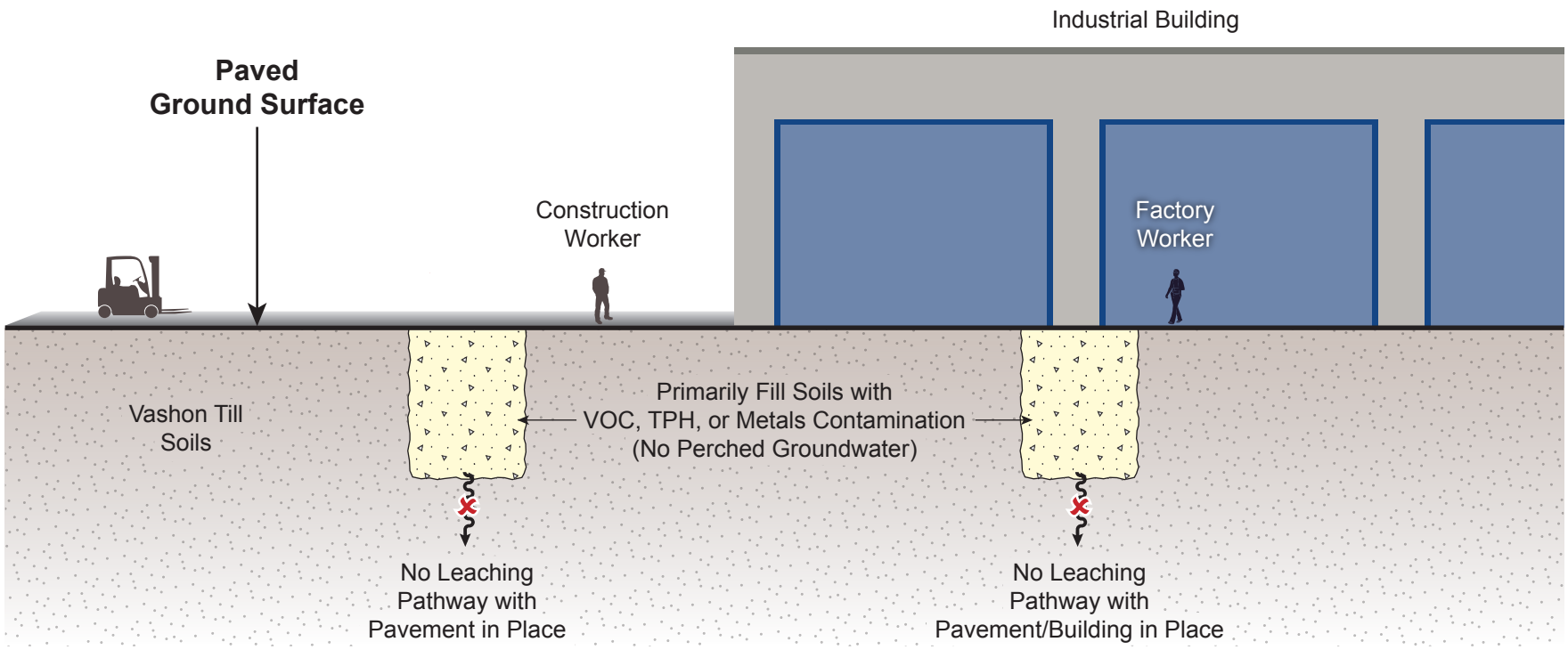
Exposure Pathway Model E



Characteristics of EPM F	Complete Exposure Pathways	Sources
1 Industrial facility	1 Construction worker direct contact with soil	1 Former fire pit
2 VOCs in sub-slab vapor exceeding screening levels outdoors, but no VOCs in indoor air		
3 No perched groundwater		
4 No leaching to Esperance Sand with pavement/building in place		
5 Excluded from terrestrial ecological risk evaluation		

Figure 3-12

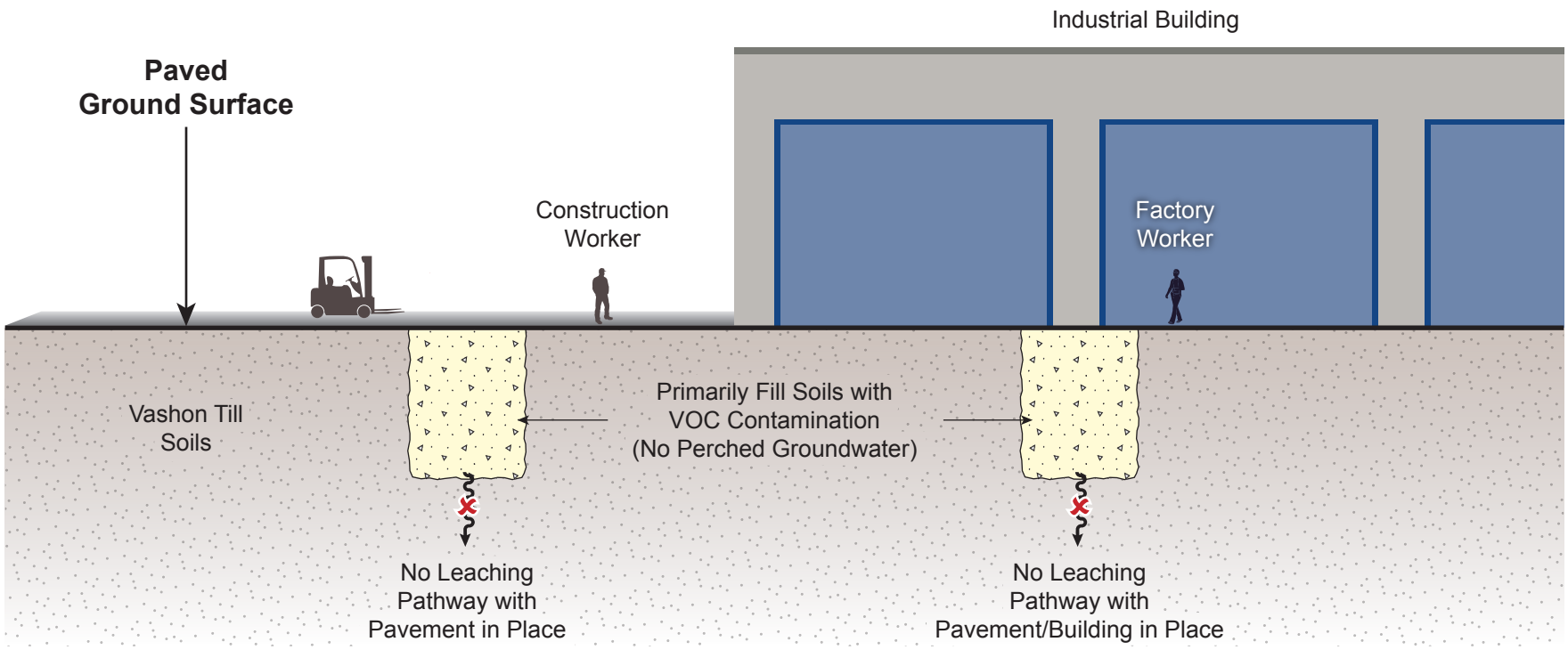
Exposure Pathway Model F



Characteristics of EPM G		Complete Exposure Pathways		Sources	
1	Industrial facility	1	None	1	Former USTs
2	No VOCs exceeding sub-slab vapor screening levels			2	Former tankline
3	No perched groundwater				
4	No leaching to Esperance Sand with pavement/building in place				
5	No direct contact from soil				
6	Excluded from terrestrial ecological risk evaluation				

Figure 3-13

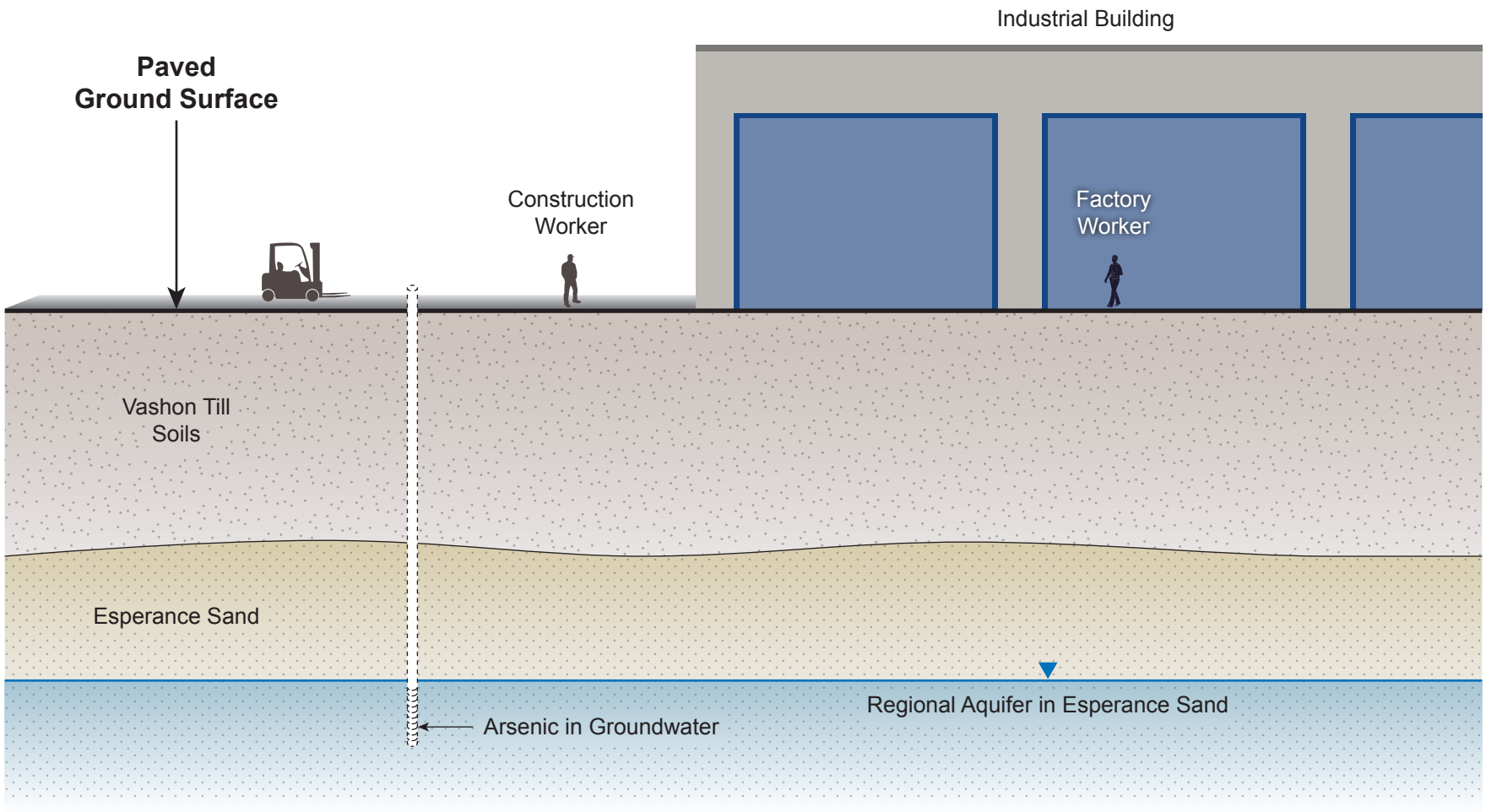
Exposure Pathway Model G



Characteristics of EPM H	Complete Exposure Pathways	Sources
1 Industrial facility	1 None	1 Former USTs
2 No VOCs exceeding subslab vapor screening levels		
3 No perched groundwater		
4 No leaching to Esperance Sand with pavement/building in place		
5 No direct contact risk from soil		
6 Excluded from terrestrial ecological risk evaluation		

Figure 3-14

Exposure Pathway Model H



Characteristics of EPM I

1 Elevated arsenic concentrations in regional aquifer

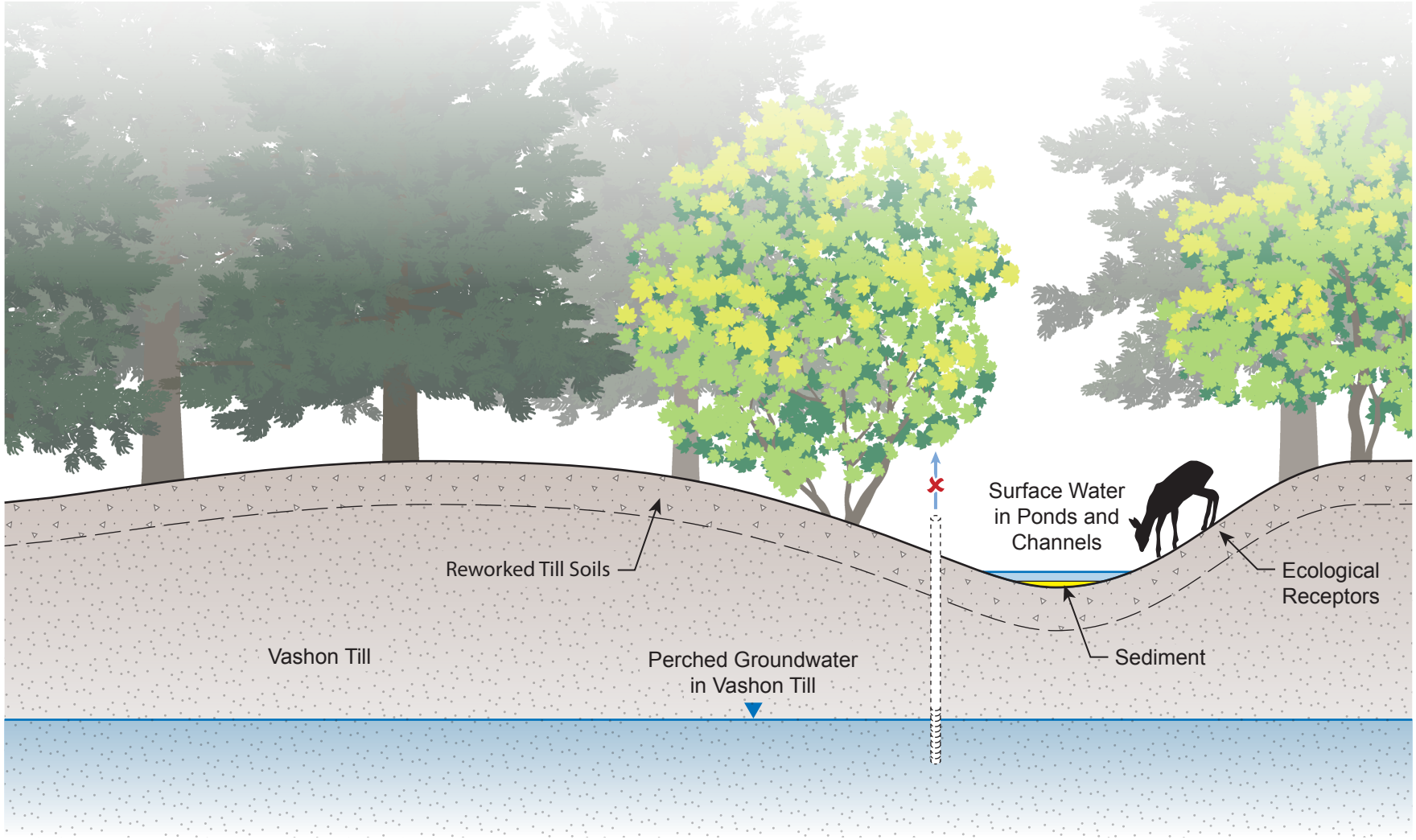
2 No current drinking water exposure pathway

Complete Exposure Pathway

1 Future drinking water

Figure 3-15

Exposure Pathway Model I



Characteristics of EPM J

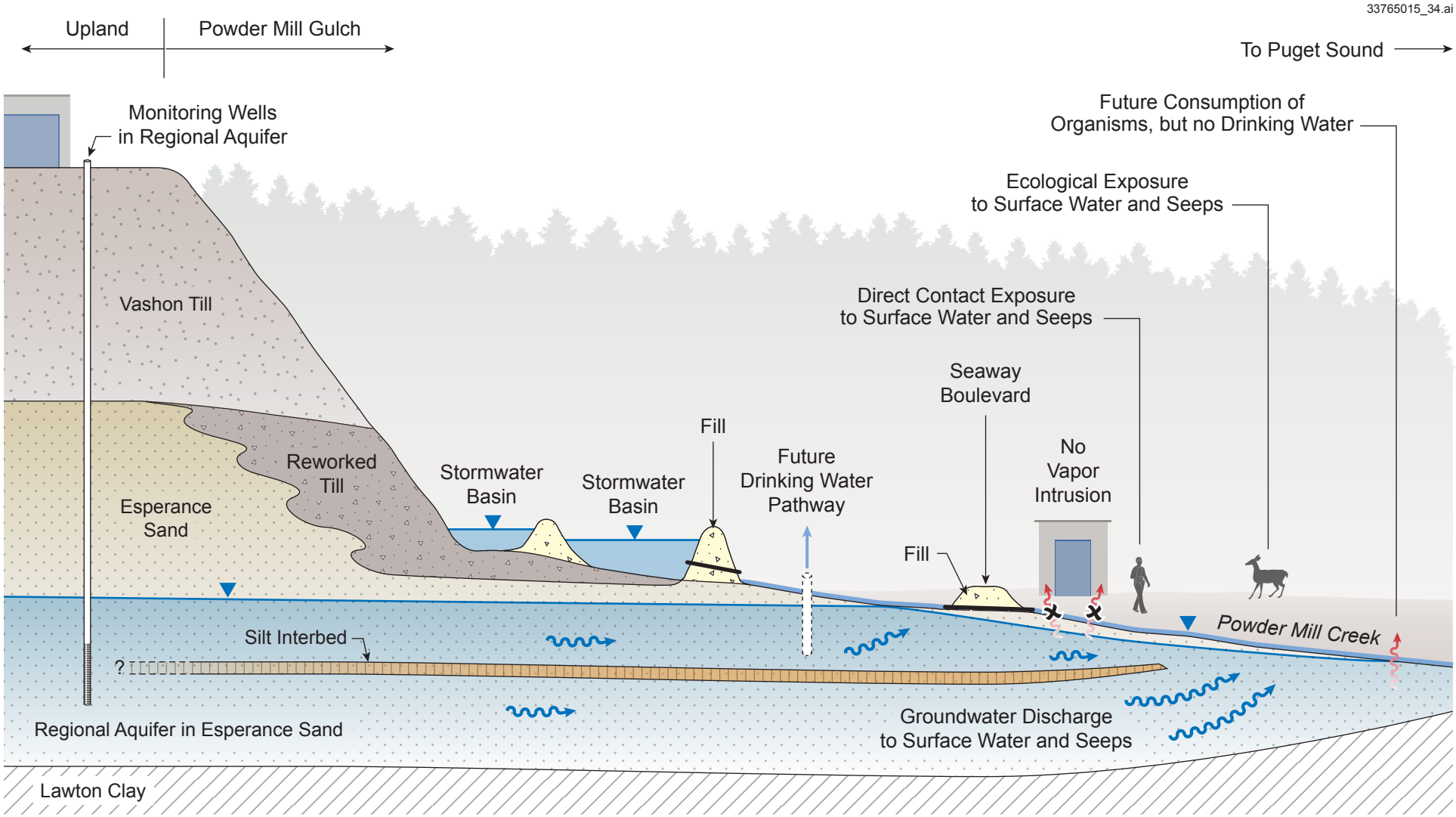
1 Outside fenced portion of industrial facility
2 Metals and PAHs in soil, sediment, and/or groundwater
3 Terrestrial ecological risk evaluation required
4 No drinking water pathway

Complete Exposure Pathways

1 Direct contact with soil, sediment, and perched groundwater
2 Ecological receptors

Figure 3-16

Exposure Pathway Model J



Characteristics of EPM K

1 Outside fenced portion of industrial facility
2 VOCs in regional aquifer
3 Terrestrial ecological risk evaluation not required
4 No current drinking water exposure pathway
5 No current soil gas to indoor air exposure pathway

Complete Exposure Pathways

1 Future drinking water
2 Direct contact with contaminated groundwater (seeps) and surface water
3 Ecological receptors
4 Future consumption of organisms

Figure 3-17

Exposure Pathway Model K

Table 3-1
Summary of Exposure Pathway Models

SWMU/ AOC No.	Building Number and Description	Medium[a]	Primary COC Exceeding Proposed CUL	Source	Exposure Pathway Characteristics
EPM A					
090	40-51, Former UST EV-11	Perched groundwater, soil gas	TCE	• Former UST • OWS • Sumps	• Construction Worker Exposure to Perched Groundwater • Fill Soils with Perched Groundwater and VOC/TPH Contamination • No Leaching to Esperance Sand Aquifer with Pavement In Place • No Soil Above Direct-Contact Cleanup Levels
112	40-11, Oil/Water Separator		TPH		
151	40-51, Southern Air Scrubber Pump	Soil gas/sub-slab vapor	None		
EPM B					
086, 089, 094	40-56, Former USTs	Perched groundwater, soil, soil gas	BTEX	• Former USTs	• Construction Worker Exposure to Perched Groundwater • Fill Soils with Perched Groundwater • No Leaching to Esperance Sand Aquifer with Pavement In Place
EPM C					
166	45-53, Former UST EV-110-1	Perched groundwater	TPH	• Former UST	• Construction Worker Exposure to Perched Groundwater • Fill Soils with Perched Groundwater • No Leaching to Esperance Sand Aquifer with Pavement In Place • No Soil Contamination above Protection of Groundwater or Direct Contact Cleanup Levels
EPM D					
055, 168	40-24, Utility Trenches and Sumps	Perched groundwater, soil	TBP	• Sumps • Utility Trenches	• Construction Worker Direct Contact with Soil • Construction Worker Exposure to Perched Groundwater and NAPL • Fill Soils with Perched Groundwater • No Leaching to Esperance Sand Aquifer with Building In Place

Table 3-1 (Continued)
Summary of Exposure Pathway Models

SWMU/ AOC No.	Building Number and Description	Medium[a]	Primary COC Exceeding Proposed CUL	Source	Exposure Pathway Characteristics
EPM E					
054	40-51, Former Wastewater AST	Soil, sub-slab vapor	TCE	• Former AST • Paint Crib • Vapor Degreasers	• No Complete Exposure Pathway • Fill Soils with No Perched Groundwater • VOCs in Sub-Slab Vapor Exceeding Screening Levels Outdoors and Below Building, but No VOCs in Indoor Air • No Direct Contact Risk from Soil
097	40-11, Former Vapor Degreaser				
098	40-53, Former Mock-up Degreaser				
170	40-02, Former Large Vapor Degreaser				
171	40-31, Former Bluestreak Vapor Degreaser				
NA	40-32, Footing Excavation		TCE, ethylbenzene, xylenes, TPH		
169	40-02, Former Small Vapor Degreaser	Sub-slab vapor	TCE, Freon 12		
NA	40-02, Former Paint Crib		TCE		
EPM F					
068	South Complex, South Fire Pit	Soil	TPH	• Former Fire Pit	• Construction Worker Direct Contact with Soil • VOCs in Sub-Slab Vapor Exceeding Screening Levels Outdoors, but No VOCs in Indoor Air • Fill Soils with No Perched Groundwater

Table 3-1 (Continued)
Summary of Exposure Pathway Models

SWMU/ AOC No.	Building Number and Description	Medium[a]	Primary COC Exceeding Proposed CUL	Source	Exposure Pathway Characteristics
EPM G					
065	40-51, Former Paint Stripping Tankline	Soil	Cadmium, chromium, lead	• Former USTs • Former Tankline	• No Complete Exposure Pathway • Fill Soils with No Perched Groundwater • No VOCs Exceeding Sub-Slab Vapor Screening Levels • No Direct Contact Risk from Soil
083	Flightline, Former UST EV-15		TPH		
165	45-52, Former Fuel Farm USTs and Fuel Stall Piping		TPH, benzene, ethylbenzene, xylenes		
NA	40-11, UST EV-48-1		BTEX, TPH		
EPM H					
067, 071	40-56, Former Recycling Unit and UST EV-153	Soil	TEX	• Former USTs	• No Complete Exposure Pathway • Fill Soils with No Perched Groundwater • No VOCs Exceeding Sub-Slab Vapor Screening Levels • No Direct Contact Risk from Soil
093	45-01, Former Solvent USTs		2-Butanone (methyl ethyl ketone)		
EPM I					
NA	Esperance Sand Well EGW061	Groundwater	Arsenic	• Unknown	• Future Drinking Water, but No Current Drinking Water Pathway • Esperance Sand Aquifer • Elevated Arsenic Concentrations in Regional Aquifer
EPM J					
100	South Complex, Former Gun Club	Perched groundwater, soil, sediment	PAHs, lead	• Former Gun Club	• Direct Contact with Soil, Sediment, and Perched Groundwater • Ecological Receptors • Surface Water in Ponds and Boeing Lake • No Drinking Water Pathway • Terrestrial Ecological Risk Evaluation Required

Table 3-1 (Continued)
Summary of Exposure Pathway Models

SWMU/ AOC No.	Building Number and Description	Medium[a]	Primary COC Exceeding Proposed CUL	Source	Exposure Pathway Characteristics
EPM K					
NA	North Complex, Esperance Sand, Powder Mill Gulch	Groundwater	TCE	• Unknown	• Future Drinking Water (Groundwater), but No Current Drinking Water Pathway (Groundwater or Surface Water) • No VOCs Exceeding Soil Gas Screening Levels in Developable Areas • Direct Contact with Contaminated Groundwater and Surface Water • Future Human Consumption of Surface Water Organisms • Ecological Receptors • Esperance Sand Aquifer • Terrestrial Ecological Risk Evaluation Not Required

[a]Medium listed for each SWMU/AOC have chemical concentrations above a cleanup level or screening level.

Notes:
AOC - area of concern
AST - aboveground storage tank
BTEX - benzene, toluene, ethylbenzene, and xylenes
COC - chemical of concern
CUL - cleanup level
EPM - exposure pathway model
NA - not applicable
NAPL - nonaqueous phase liquid
OWS - oil/water separator
PAH - polycyclic aromatic hydrocarbon
SWMU - solid waste management unit
TBP - tributyl phosphate
TCE - trichloroethene
TEX - toluene, ethylbenzene, and xylenes
TPH - total petroleum hydrocarbons
VOCs - volatile organic compounds
UST - underground storage tank

Table 3-2
Potential Exposure Pathway – Fill Soils with Perched Groundwater

SWMU/AOC No.	090	112	151	086, 089, 094	166	168, 055
Building	**40-51**	**40-11**	**40-51**	**40-56**	**45-53**	**40-24**
Description	**Former UST EV-11**	**Oil/Water Separator**	**Southern Air Scrubber Sump**	**Former USTs**	**Former UST EV-110**	**Utility Trenches and Sumps**
Exposure Model Pathway	**A**	**A**	**A**	**B**	**C**	**D**
Medium[a]						
Soil				X		X
Perched Groundwater	X	X		X	X	X
Soil Vapor	X	X		X		
Chemical of Concern						
VOCs	X	X	X	X		
TPH		X			X	
BTEX/TEX				X		
Hydraulic fluid (Phosphate Compounds)						X
Contaminant Source						
Historical Releases from UST Operation	X	X		X	X	
Historical Releases from Underground Piping		X		X		X
Historical Releases from Utility Vaults and Sumps			X		X	X
Incidental Spills/Releases during Operations	X		X	X	X	X
Incidental Releases during Wastewater Disposal		X	X			
Area of Concern						
Area (SF)	610	580	NA	2,700	NE	3,500
Depth Range(s) (FT)	2-7	11-16	NA	7-25, 7-43	NE	10-30, 1-20
Volume (GAL or CY)	6,400 GAL	4,200 GAL	NA	2,000 CY/65,000 GAL	NE	2,000 CY/19,000 GAL
COC Mass (LBS)	0.001 (TCE)	118 (TPH)	NA	4.1×10^4 (Xylenes)	NE	2.6×10^4 (TBP)
Current Exposure						
Direct Contact	No	No	No	No	No	No
Indoor Air	NA	NA	No	NA	NA	NA
Leaching to Groundwater	No	No	No	No	No	No
Terrestrial Ecological Risk Evaluation	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded
Future Exposure						
Site Excavations	X	X	X	X	X	X
Future Use if Building/Land Changed to Residential	X	X	X	X	X	X

[a]Medium selected for each SWMU/AOC has chemical a concentrations above a cleanup level or a screening level.

Notes:
BTEX - benzene, toluene, ethylbenzene, and xylenes
COC - chemical of concern
cVOCs - Chlorinated volatile organic compounds
CY - cubic yard
FT - foot
GAL - gallon
LBS - pounds
NA - not applicable
NE - not estimated
SF - square foot
TPH - total petroleum hydrocarbons
UST - underground storage unit

Table 3-3
Potential Exposure Pathway – Fill Soils with No Perched Groundwater

SWMU/AOC No.	171	097	098	170	169	NA	054	NA	068
Building	**40-31**	**40-11**	**40-53**	**40-02**	**40-02**	**40-02**	**40-51**	**40-32**	**NA**
Description	**Former Bluestreak Vapor Degreaser**	**Former Vapor Degreaser**	**Former Mock-Up Degreaser**	**Former Large Vapor Degreaser**	**Former Small Vapor Degreaser**	**Former Paint Crib**	**Former Wastewater AST**	**Footing Excavation**	**South Fire Pit**
Exposure Pathway Model	E	E	E	E	E	E	E	E	F
Medium[a]									
Soil	X	X	X	X			X	X	X
Soil Vapor	X	X	X	X	X	X	X	X	X
Chemical of Concern (COC)									
VOCs	X	X	X	X	X	X	X	X	
TPH								X	X
BTEX/TEX								X	
Contaminant Source									
Historical releases from AST Operation							X		
Historical releases from Vapor Degreaser/Paint Crib Operation	X	X	X	X	X	X			
Incidental Spills/Releases During Operations	X	X	X	X	X	X	X		X
Incomplete Combustion of Fuels									X
Unknown								X	
Area of Concern									
Area (SF)	2,000	8	2,700	170	NA	NA	4,400	7	3,400
Depth Range (s) (FT)	5-18, 9-26	0.5-2.25	1-15, 1-33	7-10	NA	NA	1-13, 1-18	14-16	1-4
Volume (CY)	940	0.5	2,500	20	NA	NA	2,100	0.5	380
Estimated COC Mass (LBS)	5.6 (TCE)	5×10^{-5} (TCE)	0.60 (TCE)	0.003 (TCE)	NA	NA	21 (TCE)	56 (Total TPH)	8,800 (Total TPH)
Current Exposure									
Direct Contact	No	No	No	No	No	No	No	No	No
Indoor Air	No	No	No	No	No	No	NA	No	NA
Leaching to Groundwater	No	No	No	No	No	No	No	No	No
Terrestrial Ecological Risk Evaluation	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded
Future Exposure									
Site Excavations	X	X	X	X	X	X	X	X	X
Future Use if Building/Land Changed to Residential	X	X	X	X	X	X	X	X	X

Table 3-3 (Continued)
Potential Exposure Pathway – Fill Soils with No Perched Groundwater

SWMU/AOC No.	065	NA	165	083	093	067, 071
Building/Location	**40-51**	**40-11**	**45-52**	**Flightline**	**45-01**	**40-56**
Description	**Former Paint Stripping Tankline**	**UST EV-48-1**	**Former Fuel Farm System, USTs and Piping**	**Former UST EV-15**	**Former Solvent USTs**	**Former Recycling Unit and UST**
Exposure Pathway Model	**G**	**G**	**G**	**G**	**H**	**H**
Medium[a]						
Soil	X	X	X	X	X	X
Chemical of Concern						
VOCs					X	
TPH		X	X	X		
BTEX/TEX		X	X			X
Metals	X					
Contaminant Source						
Historical releases from Paint Stripping Tankline Operation	X					
Historical Releases while Cleaning Former Dump Tank	X					
Historical Releases from UST Operation		X	X	X	X	X
Historical Releases from Underground Piping			X		X	
Historical Releases from Above-ground System						X
Incidental Spills/Releases During Operations	X		X	X	X	X
Area of Concern						
Area (SF)	1,100	710	6,200	8	110	1,600
Depth (FT)	1-6	1-23	1-4, 1-20	1-9	10-20	1-30
Volume (CY)	200	560	950	2.5	40	970
Estimated COC Mass (LBS)	470 (Cr)	720 (TPH)	19,000 (TPH)	22 (TPH)	8.2 (MEK)	4,900 (Xylenes)
Current Exposure						
Direct Contact	No	No	No	No	No	No
Indoor Air	No	NA	NA	NA	NA	No
Leaching to Groundwater	No	No	No	No	No	No
Terrestrial Ecological Risk Evaluation	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded
Future Exposure						
Site Excavations	X	X	X	X	X	X
Future Use if Building/Land Changed to Residential	X	X	X	X	X	X

[a]Medium selected for each SWMU/AOC has chemical a concentrations above a cleanup level or a screening level.

Table 3-3 (Continued)
Potential Exposure Pathway – Fill Soils with No Perched Groundwater

Notes:
AST - aboveground storage tank
BTEX - benzene, toluene, ethylbenzene, and xylenes
COC - chemical of concern
CY - cubic yard
FT - foot
GAL - gallon
LBS - pounds
NA - not applicable
SF - square feet
TCE - trichloroethane
TEX - toluene, ethylbenzene, and xylenes
UST - underground storage unit

Table 3-4
Potential Exposure Pathway – Esperance Sand

Model Parameter	Exposure Pathway Model 1
Medium[a]	
Groundwater	X
Chemical of Concern (COC)	
Metals	X
Contaminant Source	
Unknown[b]	X
Area of Concern	
Area (SF)	NE
Depth Range(s) (FT)	NE
Volume (CY)	NE
COC Mass (LBS)	NE
Current Exposure	
Drinking Water Source	No
Future Exposure	
Development of Groundwater in this Area for Drinking Water	X

[a]Medium selected for each SWMU/AOC have chemical concentrations above a cleanup level.
[b]Source likely attributed to higher arsenic concentrations in native Esperance Sand aquifer materials in this area, or an artifact of localized redox conditions in this portion of the Esperance Sand aquifer.

Notes:
COC - chemical of concern
CY - cubic yards
FT - foot
LBS - pounds
NA - not applicable
NE - not estimated
SF - square foot

Table 3-5
Potential Exposure Pathway: Soil, Sediment, Surface Water in Ponds, Channels, and Boeing Lake

Model Parameter	Former Gun Club Exposure Pathway Model J
Medium[a]	
Soil	X
Sediment	X
Perched Groundwater	X
Chemical of Concern	
Metals	X
PAHs	X
Contaminant Source	
Operation of Former Sports Club Range	X
Tracking by Vehicles or Animals	X
Surface Water Migration of Contaminated Sediment	X
Area of Concern	
Area (SF)	110,000
Depth Range (FT)	0-4
Volume (CY)	2,000
COC Mass (LBS)	14,000 (lead)
Current Exposure	
Direct Contact[b]	Yes
Leaching to Groundwater	No
Terrestrial Ecological Risk Evaluation	Yes
Drinking Water Source	No
Future Exposure	
Site Excavations	X
Future Use if Building/Land Changed to Residential	X
Development of Perched Groundwater in this Area for Drinking Water	X

[a]Medium selected has chemical concentration above a cleanup level.
[b]Area B infrequently accessed by people. No direct contact at Area C AOC.

Notes:
COC - chemical of concern
CY - cubic yard
FT - foot
LBS - pounds
NA - not applicable
PAHs - polycyclic aromatic hydrocarbons
SF - square foot

4.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

MTCA requires that cleanup actions comply with legally applicable state and federal laws and regulations, as well as other requirements determined by Ecology to be relevant and appropriate requirements. Together, legally applicable state and federal laws and regulations and other relevant and appropriate requirements are known as ARARs. Consideration of ARARs is one component of developing cleanup standards under WAC 173-340-710[3].

Legally applicable requirements under MTCA are "those cleanup standards, standards of control, and other environmental protection requirements, criteria, or limitations adopted under state or federal law that specifically address a hazardous substance, cleanup action, location or other circumstances at the site" (WAC 173-340-710[3]).

Relevant and appropriate requirements are "those cleanup standards, standards of control, and other environmental requirements, criteria, or limitations established under state or federal law that, while not legally applicable to the hazardous substance, cleanup action, location, or other circumstance at a site, address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site" (WAC 173-340-710[4]).

In accordance with WAC 173-340-710(9)(b), cleanup actions conducted under an agreed order are exempt from the procedural requirements of certain state and local laws, including the Washington State Clean Air Act (Chapter 70.94 Revised Code of Washington [RCW]), Washington State Solid Waste Management Act (Chapter 70.95 RCW), Washington State Hazardous Waste Management Act (Chapter 70.105 RCW), Washington State Construction Projects in Water Act (Chapter 75.20 RCW, recodified as Chapter 77.55 RCW), Washington State Water Pollution Control (Chapter 90.48 RCW), and Washington State Shoreline Management Act (Chapter 90.58 RCW), as well as any laws requiring or authorizing local government permits or approvals for the action. The cleanup action must still comply with the substantive requirements of the laws in accordance with WAC 173-340-710(9)(c). It is part of Ecology's role under an AO to ensure compliance with the substantive requirements and provide an opportunity for comment by the public, state agencies, and local governments (WAC 173-340-710[9][d]). In addition, the cleanup action is not exempt from fully complying with federal regulations and obtaining permits from federal agencies. This exemption shall not apply if the department determines that the exemption would result in loss of approval from a federal agency necessary for the state to administer any federal law.

Boeing has concluded that pursuing exemptions from the procedural requirements of certain permits under WAC 173-340-710(9)(b) is unlikely to expedite the cleanup action as intended by the WAC. Boeing therefore intends to obtain the relevant permits, as identified in this section.

This section discusses ARARs, both with regard to cleanup standard development (Section 5) and cleanup action development (Section 6).

4.1 CHEMICAL-SPECIFIC ARARS

Chemical-specific ARARs generally set risk-based concentration limits for specific chemicals within environmental media. The chemical-specific ARAR values may identify an acceptable amount or concentration of a hazardous substance that may be found in or discharged to the environment. For this cleanup action, chemical-specific ARARs, or cleanup levels, are proposed in Section 5 for the following:

- Soil
- Indoor air
- Potable groundwater
- Nonpotable groundwater
- Sediment

The assessment of chemical-specific ARARs in this section and in Section 5 takes into account that the upland portions of the Boeing Everett Plant (within the security controlled fenced portion of the facility) qualify as an industrial facility under WAC 173-340-745.

In addition to the chemical-specific ARARs discussed in the subsections below, cleanup related to SWMUs/AOCs 168 and 055, utility trenches and sumps within Building 40-24, must comply with WAC 173-303-610(b), because these units were closed under RCRA. Under this requirement, numeric cleanup levels calculated under MTCA for these SWMUs/AOCs must meet unrestricted exposure criteria.

Chemical-Specific ARARs for Soil

For cleanup actions at the Boeing Everett Plant, concentration limits in soil are established by MTCA, which promulgates MTCA Methods A and B unrestricted soil cleanup levels (including protection of groundwater), Method C cleanup levels for industrial property, and priority contaminants of ecological concern for sites that qualify for the simplified terrestrial ecological evaluation procedure. The development of cleanup levels using these MTCA methods is discussed in Section 5.1. Soil cleanup levels will be met at the standard point of compliance, based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway. This standard point of compliance shall be established in the soils throughout the site from the ground surface to 15 feet bgs. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of site development activities.

MTCA also recognizes that when cleanup actions involve containment of hazardous substances, the soil cleanup levels will typically not be met at the points of compliance specified above. MTCA establishes conditions that must be met for cleanup actions that include containment to

comply with the cleanup standards (WAC 173-340-740[6][f]). This FS evaluates some cleanup alternatives that use containment technologies throughout the site.

Chemical-Specific ARARs for Indoor Air

Concentration limits for chemicals in indoor air are established by MTCA using either Methods B or C as appropriate based on the site characteristics. For cleanup actions at the Boeing Everett Plant, Method C cleanup levels for indoor air are applicable based on the analysis in Section 5.1.

Airborne contaminants at industrial facilities are also regulated by Chapter 296-841 WAC, Airborne Contaminants. This chapter applies when employees are, or could be, exposed to an airborne hazard, including vapors and gases. Concentration limits under this WAC are established as the PELs for airborne contaminants.

Chemical-Specific ARARs for Potable Groundwater

Concentration limits for chemicals in potable groundwater present in the Esperance Sand aquifer beneath the facility are established by MTCA Methods A and B, depending on the chemical of interest. MTCA Method A or B cleanup levels for potable groundwater are proposed by chemical and by SWMU/AOC in Section 5.1. Consistent with WAC 173-340-705, MTCA Method A or B cleanup levels will comply with applicable federal laws, including MCLs established under the Safe Drinking Water Act.

Chemical-Specific ARARs for Nonpotable Groundwater

For groundwater at sites that do not meet the potability criteria as defined under WAC 173-340-720(2), concentration limits are established using site-specific risk assessment as described in WAC 173-340-720(6)(c). As described in Section 5.1.4, perched groundwater at the Boeing Everett plant does not meet the potability criteria. Section 5.1.4 lists the sites where perched groundwater is present.

Site-specific risk assessment is used to calculate the proposed site-specific cleanup levels for sites where nonpotable, perched groundwater is present. According to WAC 173-340-708(3), site-specific cleanup levels are based on an alternate reasonable maximum exposure scenario that reflects the highest exposure reasonably expected to occur under current and potential future site conditions. All potential exposure pathways were evaluated and presented in Section 3. For perched groundwater, construction workers exposures that occur while performing excavating activities exposing perched groundwater is considered the reasonable maximum exposure scenario for nonpotable, perched groundwater.

Site-specific perched groundwater cleanup levels for construction workers are calculated using standard risk calculation formulas in conjunction with default and site-specific exposure factors.

The Boeing Everett plant qualifies as an industrial facility under WAC 173-340-745. Thus, site-specific perched groundwater cleanup levels for construction workers are calculated consistent with the target health goals established under MTCA for exposures at industrial facilities (WAC 173-340-720[6][c][ii][B]).

A construction worker could be exposed to contaminants in perched groundwater through direct dermal contact and inhalation of perched groundwater vapors while standing in a flooded trench. Ingestion of perched groundwater by construction workers is assumed to be an incomplete pathway. The exposure assumptions used in the cleanup level calculations are discussed below. Target health goals, consistent with WAC 173-340-7209(6)(c)(ii)(B), of a cancer risk level of 1×10^{-5} and noncancer hazard of 1 were used in calculating proposed cleanup levels.

Contaminants. Site-specific cleanup levels are calculated for each of the COCs identified in perched groundwater, except for lead. The following lists the nonlead COCs in perched groundwater:

- Arsenic
- Benzene
- BHT
- 1,1-DCE
- cis-1,2-DCE
- trans-1,2-DCE
- Ethylbenzene
- Tetrachloroethene
- Toluene
- TBP
- TCE
- Vinyl chloride
- Total xylenes

BHT and TBP are included as individual constituents of Skydrol (and similar hydraulic fluids). The cleanup level for TBP is used as a surrogate for the other phosphate constituents in Skydrol, dibutyl phenyl phosphate, butyl diphenyl phosphate and triphenyl phosphate. See discussion in Appendix C.

For lead, a site-specific cleanup level was not calculated. Lead is evaluated differently than other contaminants, and traditional risk assessment equations are not used to calculate cleanup levels for lead. U.S. Environmental Protection Agency (EPA) has developed a lead action level for residential tap water of 15 µg/L. The MTCA Method A cleanup for lead is based on this action level, and MTCA does not derive Standard Method B or Method C cleanup levels for

lead. Therefore, the proposed cleanup level for lead in perched groundwater is the Method A cleanup level of 15 µg/L.

Exposure Assumptions Used to Calculate Site-Specific Cleanup Levels for Perched Groundwater. In general, EPA's default exposure factors (USEPA 2002 and 2014) for construction workers were used to calculate site-specific cleanup levels for perched groundwater. The site-specific factors are described below. Tables 4-1 and 4-2 list the factors and equations used for calculating cleanup levels for the inhalation and dermal pathways, respectively. Appendix C presents the detailed calculations of the proposed cleanup levels.

Exposure Frequency and Duration. The EPA (USEPA 2002) default value for construction workers assumes an exposure duration of 1 year, during which workers are at a job site in a contaminated area for 250 days (exposure frequency). The default exposure duration of 1 year was used to calculate cleanup levels. However, because of the intermittent presence of perched groundwater across the sites, construction worker exposures to perched groundwater are not expected to occur throughout an entire year. Therefore, an exposure frequency of 3 months (60 days/year) was selected as a more appropriate, yet still conservative, facility-specific exposure frequency for construction worker exposures to perched groundwater.

Groundwater Volatilization Factors. Construction workers could potentially be exposed through the inhalation pathway to VOCs in perched groundwater that migrate and accumulate into semi-confined trenches. For volatile COCs in perched groundwater that could be inhaled during construction work, an upper-bound volatilization factor is used that is based on worker exposures in trenches flooded with perched groundwater off-gassing VOCs. To evaluate inhalation exposures to perched groundwater vapors migrating to outdoor (trench) air, an estimate must be made of the outdoor air concentration resulting from the chemicals of potential concern in perched groundwater. The Virginia Department of Environmental Quality (Virginia DEQ) has developed a model that estimates the concentration of groundwater vapors inside a trench using a groundwater-to-outdoor air volatilization factor (Virginia DEQ 2015). The model uses a combination of chemical-specific and default soil properties, together with either default or user-specified trench dimensions and perched groundwater depth, to derive a chemical-specific volatilization factor for each of the perched groundwater chemicals of potential concern. The input details of the trench air model and the calculated chemical-specific volatilization factors (L/m3) for the volatile COCs (all chemicals except arsenic, BHT, and TBP) in perched groundwater beneath the area are presented on Table C-1 of Appendix C. The facility-specific depth to perched groundwater ranges from 2 to 20 feet bgs and was used together with a default trench measuring 2.6 meters (8 feet) long by 1 meter (3 feet) wide by 4.57 meters (15 feet) deep to estimate the trench air volatilization factor.

Toxicity Criteria. Toxicity criteria are derived that can be used to estimate the potential for adverse health effects as a function of exposure to the chemical. Exposure to chemicals can result in cancer or noncancer effects. The methodology used to derive toxicity criteria for

measuring the dose-response relationship differs depending on whether the adverse effect is a cancer or noncancer toxicological effect. Toxicity criteria for cancer and noncancer effects for each COC were preferentially selected from Ecology's Cleanup Level and Risk Calculation (CLARC) database (Ecology 2015a). Where CLARC criteria were not available, toxicity criteria were obtained from EPA's Regional Screening Level table (USEPA 2015b). Table 4-3 summarizes the toxicity criteria used to calculate the site-specific cleanup levels.

Cleanup Levels. Cancer and noncancer based cleanup levels were calculated for each COC for inhalation exposures and dermal exposures separately. Note that the inhalation pathway is only complete for volatile contaminants. The detailed cleanup level calculation worksheets for inhalation and dermal pathways are presented in Tables C-2 and C-3 of Appendix C, respectively. The combined cleanup level for each COC protective of both inhalation and dermal exposures is calculated using the following equation:

$$\text{Final cleanup level} = \frac{1}{\dfrac{1}{\text{Dermal CUL}} + \dfrac{1}{\text{Inhalation CUL}}}$$

The proposed final cleanup levels are summarized in Table 4-4 and were selected based on the lowest of the combined cleanup level for cancer and noncancer values.

Chemical-Specific ARARs for Surface Water

Concentration limits for chemicals in surface water present in Powder Mill Creek in the PMG SWMU/AOC are established by MTCA Method B. MTCA Method B cleanup levels for surface water are proposed by chemical and by SWMU/AOC in Section 5.1. Consistent with WAC 173-340-705, MTCA Method B cleanup levels will comply with applicable federal laws, including MCLs established under the Clean Water Act and the National Toxics Rule.

Development of surface water cleanup levels also consider criteria protective of human health based on consumption of aquatic organisms and protective of aquatic organisms, wildlife, and fish. Where regulatory ARARs have not been established for environmental effects-based concentrations of hazardous substances, per WAC173-340-730(3)(b)(ii), Method B cleanup levels also consider "concentrations that are estimated to result in no adverse effects on the protection and propagation of wildlife, fish, and other aquatic life." To satisfy this requirement, various EPA benchmark and screening values were considered for determining applicable values for use as ARARs in determining the appropriate surface water cleanup levels. The toxicological benchmarks and screening levels for ecological receptors that were considered where ARARs have not been specifically established included:

- EPA Region 3 Biological Technical Assistance Group (BTAG) Freshwater Screening Benchmarks, July 2006.

- EPA Region 4 Waste Management Division Freshwater Surface Water Screening Values for Hazardous Waste Sites, Supplement to Risk Assessment Guidance for Superfund (RAGS), 1995 updated August 1999.

- EPA Region 5 Ecological Screening Levels, August 22, 2003.

Chemical-Specific ARARs for Sediment

For this cleanup action, concentration limits for sediment are set by the Washington State SMS, which establishes sediment cleanup objectives and cleanup screening levels. These cleanup levels will be met at the standard point of compliance based on the definition of sediment, i.e., throughout the site in wetlands, settled particulate matter located in the predominant biologically active aquatic zone, or exposed to the water column (WAC 173-204-200[26]).

4.2 LOCATION-SPECIFIC ARARS

Location-specific ARARs are those requirements that relate to the geographical position or physical condition of the site or its immediate environment. These requirements may limit the type of cleanup action that can be implemented, or may impose additional constraints on some remedial alternatives. Location-specific ARARs that could affect the cleanup action at the site are briefly described below, along with the manner in which the FS intends to meet each ARAR.

Clean Water Act, Section 404, Dredge or Fill Requirements Regulations, 33 United States Code (USC) 1344(a)–(d); 33 Code of Federal Regulations (CFR) Parts 320–330; 40 CFR Part 230. These requirements are applicable to cleanup action alternatives in or near navigable waters, which include wetlands, and establish requirements that limit the discharge of dredged or fill material to these waters. EPA guidelines for discharge of dredged or fill materials in 40 CFR 230 specify consideration of alternatives that have less adverse impacts; prohibit discharges that would result in exceedance of surface water quality standards, exceedance of toxic effluent standards, and jeopardy of threatened or endangered species; and provide for evaluation and testing of fill materials before placement.

This requirement would be met for cleanup action alternatives involving dredging sediment in wetland areas by coverage under a U.S. Army Corps of Engineers Clean Water Act Section 404 Nationwide Permit No. 38. This requirement is potentially applicable to alternatives at SWMU/AOC No. 100, Former Gun Club, and within PMG.

Clean Water Act, Section 401, Water Quality Certification, 33 USC 1340; WAC 173-225-010. Section 401 of the Federal Water Pollution Control Act provides that applicants for a license or permit from the federal government relating to any activity that may result in any discharge into the navigable waters shall obtain a certification from the state that the water quality standards will be met. Ecology's Water Quality Section would review any Nationwide

Permit No. 38 issued by the U.S. Army Corps of Engineers. Ecology would also review any associated draft and final design of the chosen cleanup action alternative to document substantive compliance with the Washington State Water Pollution Control Act requirements. This requirement is potentially applicable to alternatives at SWMU/AOC No. 100, Former Gun Club, and alternative implemented within PMG.

Washington Hydraulics Project Approval (RCW 75.20.100; Chapter 220-110 WAC). This regulation requires Washington State Department of Fish and Wildlife (WDFW) approval for projects that will use, divert, obstruct, or change the natural flow or bed of waters of the state, such as PMC. WDFW typically issues in-stream work windows under the authority of this program. Establishment of an in-stream work window is unlikely to be necessary for alternatives implemented at SWMU/AOC No. 100, Former Gun Club, and alternative implemented within PMG because no fish are known to be present in the areas where cleanup action would occur.

Native American Graves Protection and Repatriation Act (NAGPRA) Regulations, 25 USC 3001 et. seq; 43 CFR Part 10.1, 10.4 and 10.5. This act protects Native American burial sites and funerary objects. If Native American graves are discovered within the area where cleanup activity occurs under a federal permit, the U.S. Department of Interior and the Indian tribe with ownership must be notified of the inadvertent discovery and the activity must cease until a reasonable effort is taken to protect the discovered items. NAGPRA regulations are unlikely to be applicable to cleanup actions at the site because the work area has been previously disturbed. Cleanup action design documents for actions being performed under a federal permit will include a requirement that if Native American materials are inadvertently discovered during cleanup activities, activity will cease and the affiliated tribes will be notified and consulted.

National Historic Preservation Act (NHPA), 16 USC 470; 36 CFR Parts 60, 65, and 800. The National Historic Preservation Act (NHPA) requires federal agencies to assess the impact of proposed actions on historic or culturally important sites, structures, or objects within the site of the proposed projects. It further requires federal agencies to assess all sites, buildings, and objects on the site to determine if any qualify for inclusion in the National Register of Historic Places (NRHP) or as a National Historic Landmark. Historic sites and structures are unlikely to be present at the site because the area has been previously disturbed. However, cleanup action design documents for actions being performed under a federal permit will include a requirement that unavoidable impacts on historic sites or structures will be mitigated, in consultation with the State Historic Preservation Officer, through such means as taking photographs and collecting historical records.

Archaeological and Historic Preservation Act, 16 USC 469. This act establishes procedures to provide for the preservation of historical and archaeological data that might be destroyed through alteration of terrain as a result of a federally licensed activity or program. If historic or archaeological artifacts are present in the area where cleanup activity will occur under a federal permit, the remedial activity must be designed to minimize adverse effects on the artifacts. No

historic or archaeological data are likely to be present at the site because the area was previously disturbed. However, cleanup action design documents for actions being performed under a federal permit will include a requirement that unavoidable impacts on artifacts be mitigated, in consultation with the State Historic Preservation Officer, through such means as taking photographs and collecting historical records.

Everett Municipal Code 14.56.040, Discharge of Polluting Matter into the Surface Water System Prohibited. Under this ordinance, it is unlawful for any person to throw, drain, run or otherwise discharge into the surface water system, or to cause, permit or suffer to be thrown, drained, run, allow to seep or otherwise discharge into the surface water system any organic or inorganic matter that shall cause or tend to cause pollution of such waters. The list of polluting matter includes, but is not limited to "chemicals," and "degreasers and/or solvents." The selected cleanup action for SWMUs/AOCs with the potential to discharge to surface water will be designed to prevent the discharge of polluting matter, as defined under this ordinance, to surface water. The City of Everett will be included in the review of cleanup action designs to verify that the designs comply with this ordinance.

WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington. Per WAC 173-340-730, the classification and the highest beneficial use (HBU) of a surface water body is determined in accordance with WAC 173-201A. WAC 173-201A-600 and -602 (Table 602) identifies use designations for fresh water surface water bodies in the state of Washington. PMC in the PMG SWMU/AOC is indicated as being located within Water Resources Inventory Area 7, the Snohomish River Watershed. However, PMC (the specific water body within this area) and the use designation of PMC are not specifically identified in WAC 173-201A-602. Therefore, other resources were consulted to identify potential HBUs for PMC.

WAC 222-16-030 (Water Typing System) indicates that the Washington State Department of Natural Resources, in cooperation with WDFW and Ecology, will classify streams, lakes, and ponds, and prepare water type maps showing the location of Type "S" (shoreline), Type "F" (fish), and Type "N" (non-fish) Waters within the forested areas of the state. The Department of Natural Resources Forest Practices Water Typing Map[2] indicates that PMC is classified as Type F from Puget Sound to Seaway Boulevard and as Type N from Seaway Boulevard to its headwaters. Each of the tributaries to PMC are designated as Type N or Type "U" (unknown).

Information from the Pacific States Marine Fisheries Commission (PSMFC) were also utilized to further determine potential fish resources in PMC. PSMFC is an interstate compact agency established in 1947 by consent of Congress that helps resource agencies and the fishing industry

[2]Water typing map application available at http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPractices Applications/Pages/fp_watertyping.aspx

sustainably manage Pacific Ocean resources. The PSMFC StreamNet mapping application[3] indicates that PMC is not identified as "protected," and no salmon or steelhead species or critical habitat are identified in PMC. However, WAC 222-016-031(3)(b)(i) states that if fish use has not been determined "stream segments having a defined channel of 2 feet or greater within the bankfull width . . . and having a gradient of 16 percent or less are presumed to have fish use."

In addition, it should be noted, that WAC 173-201A-600 also states the following:

> All surface waters of the state not named in Table 602 are to be protected for the designated uses of: Salmonid spawning, rearing, and migration; primary contact recreation; domestic, industrial, and agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values.

Although fish use has not been identified or specifically determined in PMC south of Seaway Boulevard, due to the requirements of the ARARs indicated above, and because there are only man-made fish barriers (culverts) downstream of the project area, PMC can provisionally be presumed to be usable, now or in the future, by fish including salmonids. Therefore, consumption of organisms is considered in the development of Method B surface water cleanup levels.

4.3 ACTION-SPECIFIC ARARS

Action-specific ARARs are usually technology- or activity-based requirements or restrictions on actions taken with respect to hazardous substances. These requirements are triggered by the particular cleanup action alternative and set performance, design, or other standards that will be used to implement the proposed cleanup action. These requirements are triggered by the cleanup actions selected. The action-specific requirements do not in themselves determine the selected cleanup action alternative. Rather, they indicate how, or to what level, a selected alternative must be achieved.

Clean Water Act's Pretreatment Regulations (40 CFR Part 503.5, City of Everett Code Title 14 Water and Sewers). These regulations and city ordinances are potentially applicable if construction dewatering water or water from remediation extraction wells is discharged to the City of Everett publicly owned treatment works (POTWs) (including through Boeing's on-site industrial wastewater treatment plant or the PMG GET system, both of which discharge to the Everett POTW). The federal regulations and city ordinance limit pollutants in wastewater

[3]The Commission's StreamNet application is available http://www.streamnet.org/data/interactive-maps-and-gis-data/

discharges to sanitary sewer systems to protect POTWs from accepting wastewater that would damage their system or cause them to exceed their permit discharge limits. Cleanup action designs will include pretreatment of construction dewatering water to the standards provided by the POTW. The POTW will have the opportunity to review the treatment approach and goals included in the designs.

Stormwater Permit Program (33 USC 1342, RCW 90.48.260, 40 CFR 122.26; Chapter 173-220 WAC). The Federal Clean Water Act, as delegated to Ecology under RCW 90.48.260, requires that the general stormwater permit be obtained for stormwater discharges associated with construction activities disturbing over 1 acre. The Washington State General Stormwater Permit for Construction Activities is potentially applicable to the cleanup alternatives at some SWMUs/AOCs. Coverage under this permit would be obtained for actions at each SWMU/AOC where the permit requirements apply. The conditions of the Washington State Industrial Stormwater General Permit for the facility are also applicable to any work on the property.

State Environmental Policy Act (SEPA) (RCW 43.21.036, WAC 197-11-250 through 268). Under the SEPA rules, MTCA and SEPA processes are to be combined to reduce duplication and improve public participation (WAC 97-11-250). Ecology is the lead agency for implementing the substantive requirements of SEPA as described in WAC 197-11-253. Ecology is likely to determine that it will act as the lead agency for implementing the requirements of SEPA for cleanup actions at the site. A SEPA checklist will be completed and attached to the draft CAP. It is expected that a determination of nonsignificance will be issued, as the alternatives evaluated in this FS are unlikely to have a significant adverse environmental impact.

Washington Clean Air Act and Implementing Regulations (Chapter 70.94 RCW, WAC 173-400-040[8], and WAC 173-460) and Puget Sound Clean Air Agency (PSCAA) Regulation 1, Section 9.15. WAC 173-400-040(8) and PSCAA Regulation 1, Section 9.15 require that owners and operators of fugitive dust source take reasonable precautions to prevent fugitive dust from becoming airborne and maintain and operate the source to minimize emissions. These requirements are applicable to controlling fugitive dust emissions during implementation of cleanup alternatives. The regulations require use of best management practices for environmental protection. This requirement is potentially applicable to alternatives presented in this FS.

In addition, PSCAA regulations identify requirements for the exemption from and permitting of air pollution sources which exceed specific thresholds under Regulation 1, Section 6. This regulation is potentially applicable to cleanup action alternatives involving the extraction and treatment of vapor or groundwater and will be identified by PSCAA as part of the cleanup action design process. Any cleanup action that results in discharge of volatile organic hazardous air pollutants (VOHAPs) as defined by 40 CFR Part 63 Subpart GGGGG will also be evaluated to ensure that it does not result in the Everett facility as a whole exceeding the remediation exemption limits for VOHAPs.

Washington Solid Waste Management Act and Solid Waste Management Handling Standards Regulations (Chapter 70.95 RCW and Chapter 173-350 WAC). The solid waste regulations are applicable to the off-site disposal of solid nonhazardous wastes and contaminated media that may be generated as part of the cleanup action alternatives. Soils, sediment, dewatering water, and debris generated as the result of the cleanup action alternatives would be characterized, managed, and properly disposed of at a properly licensed and permitted facility. This requirement is potentially applicable to alternatives presented in this FS.

Washington MTCA (Chapter 173-340-440) Institutional Controls. Under WAC 173-340-440, MTCA specifies requirements for institutional controls where active cleanup measures will not attain potential MTCA cleanup levels in the near term, or where a cap or engineered cap is used to contain hazardous substances above proposed cleanup standards. This requirement is potentially applicable to alternatives evaluated in this FS.

Washington Minimum Standards for Construction and Decommissioning Wells (WAC 173-160-381). Under WAC 173-160-381, Ecology or its delegated authority establishes requirements for the decommissioning of monitoring wells. This requirement is potentially applicable to alternatives evaluated in this FS.

Underground Injection Control Program (WAC 173-218). Under WAC 173-160, underground injection control registration would be required for the injection of any materials below ground surface for the purposes of groundwater/perched groundwater cleanup. This would include injection of electron donor substrates for bioremediation, oxidants for chemical oxidation, or other chemical activation agents or catalysts; or reinjection of treated groundwater/perched groundwater.

City of Everett Requirements (Title 19, Chapters 37 and 18.23). City of Everett ordinances are applicable to cleanup actions performed at the site, including design standards and specifications.

For the cleanup actions, Boeing will coordinate with the City of Everett to review the draft CAP and associated documents to ensure compliance with procedural and substantive City permit requirements. Potential local action-specific City requirements that may need to be met to implement the cleanup action alternatives described in the FS include conformance with the environmental critical areas ordinance and obtaining a public works permit for site development and grading, including meeting erosion and sediment control requirements. These requirements will be further defined at the permitting stage of the cleanup action project.

Table 4-1
Construction Worker Exposures to Vapors in Outdoor Air From Perched Groundwater – Exposure Assumptions and Intake Equations

Equations:

$$\text{Noncancer CUL} = \text{RfD} \cdot \text{THQ} / \text{SIF}_{\text{inh-nc}}$$

$$\text{Cancer CUL} = \text{TCR} / \text{CSF} \cdot \text{SIF}_{\text{inh-ca}}$$

$$\text{SIF}_{\text{inh-nc}} = \frac{\text{InhR} \cdot ET \cdot EF \cdot ED \cdot CF \cdot VF}{BW \cdot AT_{nc}}$$

$$\text{SIF}_{\text{inh-ca}} = \frac{\text{InhR} \cdot ET \cdot EF \cdot ED \cdot CF \cdot VF}{BW \cdot AT_{ca}}$$

Where:

$\text{SIF}_{\text{inh-nc}}$ (m^3-mg/µg-kg-day) = Noncancer summary intake factor for inhalation of perched groundwater vapors

$\text{SIF}_{\text{inh-ca}}$ (m^3-mg/µg-kg-day) = Cancer summary intake factor for inhalation of perched groundwater vapors

Parameter	Definition	Value	Unit	Source
THQ	Target hazard quotient	1	unitless	MTCA Method C Default
TCR	Target cancer risk	1×10^{-5}	unitless	MTCA Method C Default
CUL	Cleanup level concentration in perched groundwater	Chemical-specific	µg/L	Calculated value
InhR	Inhalation rate	20	m^3/day	Default, USEPA 2014
ET	Exposure time	8	hours/day	Default, USEPA 2014
EF	Exposure frequency	60	days/year	Site specific, based on size of area
ED	Exposure duration	1	year	Default, USEPA 2002
CF	Conversion factor	1.00E-03	mg/µg	Not applicable
VF	Volatilization Factor	Chemical-specific	L/m^3	Calculated value, Virginia DEQ 2015 (Appendix C)
BW	Body weight	80	kg	Default, USEPA 2014
AT_{nc}	Averaging time (noncarcinogen)	ED x 365 days/yr x 24 hrs/day (8,760)	hours	Default, USEPA 2014
AT_{ca}	Averaging time (carcinogen)	70 yr x 365 days/yr x 24 hrs/day (613,200)	hours	Default, USEPA 2014
RfD	Reference dose inhalation	Chemical-specific	mg/kg-day	See Appendix C Table C-3
CSF	Cancer slope factor inhalation	Chemical-specific	kg-day/mg	See Table C-3

Notes:
hr - hour
L - liter
m^3 - cubic meter
µg - microgram
mg - milligram
yr - year

Table 4-2
Construction Worker Dermal Exposures to Perched Groundwater – Exposure Assumptions and Intake Equations

ORGANIC CHEMICALS:

CUL-nc = If $t_{event} \leq t^*$, then CUL-nc =

$$\frac{DA_{event\text{-}nc} \times CF1}{2 \times FA \times PC \times (6 \times T_{event} \times t_{event}/Pi)^{0.5}}$$

If $t_{event} > t^*$, then CUL-nc =

$$\frac{DA_{event\text{-}nc} \times CF1}{FA \times PC \times [(t_{event}/1 + B) + (2 \times T_{event}) \times (1 + 3B + 3B^2/(1 + B)^2)]}$$

CUL-ca = If $t_{event} \leq t^*$, then CUL-ca =

$$\frac{DA_{event\text{-}ca} \times CF1}{2 \times FA \times PC \times (6 \times T_{event} \times t_{event}/Pi)^{0.5}}$$

If $t_{event} > t^*$, then CUL-ca =

$$\frac{DA_{event\text{-}ca} \times CF1}{FA \times PC \times [(t_{event}/1 + B) + (2 \times T_{event}) \times (1 + 3B + 3B^2/(1 + B)^2)]}$$

INORGANIC CHEMICALS:

CUL-nc =

$$\frac{DA_{event\text{-}nc} \times CF1}{PC \times t_{event}}$$

CUL-ca =

$$\frac{DA_{event\text{-}ca} \times CF1}{PC \times t_{event}}$$

Where:

$DA_{event\text{-}ca}$ =

$$\frac{TR \times AT\text{-}ca \times CF2}{(SFo / ABSGI) \times (EV \times ED \times EF \times SA / BW)}$$

$DA_{event\text{-}nc}$ =

$$\frac{THQ \times AT\text{-}nc \times CF2 \times BW \times RfDo \times ABSGI}{EV \times ED \times EF \times SA}$$

Variable	Variable Definition	Unit	Value	Reference
FA	Fraction absorbed	unitless	Chemical-specific	Table B-3 RAGS Part E (USEPA 2004)
PC	Dermal permeability coefficient (Kp)	cm/hour	Chemical-specific	Kp value (USEPA 2004)
T event	Lag time per event	hour/event	Chemical-specific	Table B-3 RAGS Part E (USEPA 2004)
t*	Time to reach steady state	hours	Chemical-specific	Table B-3 RAGS Part E (USEPA 2004)
t event	Event duration	hour/event	8	Default (USEPA 2014)
Pi		unitless	3.14	NA

Table 4-2 (Continued)
Construction Worker Dermal Exposures to Groundwater – Exposure Assumptions and Intake Equations

Variable	Variable Definition	Unit	Value	Reference
B	Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	unitless	Chemical-specific	Table B-3 RAGS Part E (USEPA 2004)
CUL-ca	Cleanup level concentration in perched groundwater (cancer)	µg/L	Chemical-specific	Calculated value
CUL-nc	Cleanup level concentration in perched groundwater (noncancer)	µg/L	Chemical-specific	Calculated value
TR	Target risk	unitless	1×10^{-5}	MTCA Method C Default
THQ	Target hazard quotient	unitless	1	MTCA Method C Default
AT-ca	Averaging Time (cancer)	days	25,550	Default (USEPA 2014)
AT-nc	Averaging Time (noncancer)	days	365	Default (USEPA 2014)
ED	Exposure Duration	years	1	Default (USEPA 2014)
CF1	Conversion factor	cm3/L	1,000	NA
CF2	Conversion factor	µg/mg	1,000	NA
BW	Body Weight	kg	80	Default (USEPA 2014)
EV	Event Frequency	events/day	1	Default (USEPA 2004)
EF	Exposure Frequency	days/year	60	Site-Specific (see text)
SA	Surface Area Available for Contact	cm^2	3,470	Default (USEPA 2014)
RfDo	Reference dose (ingestion)	mg/kg-day	Chemical-specific	See Table 4-3
SFo	Slope factor (ingestion)	kg-day/mg	Chemical-specific	See Table 4-3
ABSGI	Fraction of contaminant absorbed GI tract	unitless	Chemical-specific tabulated value	RAGS Part E (Exhibit 4-1) (USEPA 2004)
DA event-nc	Absorbed dose per event (noncancer)	$\mu g/cm^2$-event	Chemical-specific	Calculated value
DA event-ca	Absorbed dose per event (cancer)	$\mu g/cm^2$-event	Chemical-specific	Calculated value

Notes:
cm^2 - square centimeter
cm^3 - cubic centimeter
kg - kilogram
L - liter
µg - microgram
mg - milligram

Table 4-3
Toxicity Criteria

Chemical	RfDo (mg/kg-day)	RfDi (mg/kg-day)	SFo $(mg/kg\text{-}day)^{-1}$	SFi $(mg/kg\text{-}day)^{-1}$	Source
Arsenic	3.0E-04	4.3E-06	1.5E+00	1.5E+01	CLARC
Benzene	4.0E-03	8.6E-03	5.5E-02	2.7E-02	CLARC
Butylated Hydroxytoluene (BHT)	3.0E-01	--	3.6E-03	--	EPA RSLs
1,1-DCE	5.0E-02	5.7E-02		--	CLARC
cis-1,2-DCE	2.0E-03	--		--	CLARC
trans-1,2-DCE	2.0E-02	--		--	CLARC
Ethylbenzene	1.0E-01	2.9E-01		--	CLARC
Tetrachloroethene	6.0E-03	1.1E-02	2.1E-03	9.1E-04	CLARC
Toluene	8.0E-02	1.4E+00		--	CLARC
Tributyl Phosphate (TBP)	1.0E-02	--	9.0E-03	--	EPA RSLs
Trichloroethene	5.0E-04	5.7E-04	4.6E-02	1.4E-02	CLARC
Vinyl Chloride	3.0E-03	2.9E-02	7.2E-01	1.6E-02	CLARC
Total Xylenes	2.0E-01	2.9E-02		--	CLARC

Notes:
CLARC - Ecology's Cleanup Level and Risk Calculation online data tables (https://fortress.wa.gov/ecy/clarc/CLARCData Tables.aspx); accessed May 2015
DCE - dichloroethene
EPA RSL - U.S. Environmental Protection Agency Regional Screening Levels (RSL) online data tables (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm); accessed May 2015
mg/kg-day - milligram per kilogram per day
RfDo - oral reference dose
RfDi - inhalation reference dose
SFo - oral slope factor
SFi - inhalation slope factor

Table 4-4
Summary of Proposed Site-Specific Cleanup Levels for Perched Groundwater

Chemical	Cleanup Levels (µg/L)						
	Inhalation		Dermal		Total		
	Cancer	Noncancer	Cancer	Noncancer	Cancer	Noncancer	Final
Arsenic	--	--	8,181	5,259	8,181	5,259	5,259
Benzene	376	125.5	15,145	4,760	366	122	122
Butylated hydroxytoluene (BHT)	--	--	11,951	18,439	11,951	18,439	11,951
1,1-DCE	--	921.9	--	68,576	--	910	910
cis-1,2-DCE	--	--	--	3,020	--	3,020	3,020
trans-1,2-DCE	--	--	--	30,202	--	30,202	30,202
Ethylbenzene	--	4,865	23,603	37,090	--	4,301	4,301
Tetrachloroethene	16,282	241	158,327	2,850	14,764	222	222
Toluene	--	22,699	--	44,860	--	15,072	15,072
Tributyl phosphate (TBP)	--	--	33,235	4,273	33,235	4,273	4,273
Trichloroethene	921	10.8	21,524	707	884	11	11
Vinyl chloride	568	371.4	1,918.8	5,921	438	350	350
Total xylenes	--	488	--	73,142	--	485	485

Notes:
DCE - dichloroethene
µg/L - microgram per liter

5.0 PROPOSED CLEANUP STANDARDS

This section discusses the process used in this FS to establish proposed cleanup standards that are then used in the remainder of the FS to develop and evaluate cleanup alternatives for soil, groundwater, and air. Proposed cleanup standards for surface water and sediment are discussed in detail in the FSWP for sediments, stormwater, surface water, and accumulated solids (URS 2012b), where these media are primarily addressed. The proposed cleanup standards for surface water and sediment developed in the sediment FSWP will also be used as part of the FS process under this upland areas and PMG FS, because two of the SWMUs/AOCs addressed under this FS include surface water and sediment (PMG and the Former Gun Club).

WAC 173-340-700(3) states that "cleanup standards" shall consist of the following:

(a) Cleanup levels for hazardous substances present at the site

(b) The location where these cleanup levels must be met (point of compliance)

(c) Other regulatory requirements that apply to the site because of the type of action and/or location of the site ("applicable state and federal laws")

Items (a) and (b) are discussed in Sections 5.1 and 5.2, respectively. Item (c) is discussed in Section 4.

The cleanup standards discussed in this section are proposed for Ecology review and approval for the site. Final cleanup standards will be selected by Ecology and established in the Ecology draft CAP for public comment.

The overall process proposed for development of proposed cleanup levels is as follows:

- FSWP – Present the process that will be used to establish proposed cleanup standards for use in the FS.

- FS report – Present the results of the SWMU-by-SWMU development of proposed cleanup standards, including the results of protection of groundwater evaluations and ARARs analysis. Ecology selects the cleanup levels, points of compliance, and site remedy based on its evaluation of the FS report.

- CAP – Ecology-selected final cleanup standards are incorporated into the public review draft CAP.

- CAP approval – Ecology determines final cleanup standards by approval of the CAP.

5.1 PROPOSED CLEANUP LEVELS

As explained in MTCA, "eliminating all risks at a contaminated site often is not possible, even after cleanup. And since any level of exposure to a hazardous substance is assumed to result in some risk, 'clean' generally means that a site is cleaned up to the point that contamination no longer poses an unacceptable risk to human health and the environment. This point is defined by the cleanup level established for each medium (groundwater, surface water, soil, and air) at a site." Cleanup levels for affected media developed under MTCA are concentrations of COCs that are protective of human health and the environment for identified potential exposure pathways, based on the highest beneficial use (HBU) and the reasonable maximum exposure (RME) for each affected medium. The process for developing cleanup levels consists of identifying the HBU and RME for affected media, determining those that represent the greatest risk to human health and the environment, and determining the cleanup levels that will provide for an acceptable level of risk associated with the COCs in affected media. MTCA establishes three options for calculating cleanup levels for each of these environmental media, MTCA Methods A, B, and C. As part of developing cleanup levels using these methods, a terrestrial ecological evaluation (WAC 173-340-7490) is required for "determining whether a release of hazardous substances to soil may pose a threat to the terrestrial environment." Per WAC 173-340-7490(1)(c), a terrestrial ecological evaluation is "not intended to be used to evaluate potential threats to ecological receptors in sediments, surface water, or wetlands." Development of soil cleanup levels for metals also considers natural background concentrations in Puget Sound soils.

In Section 3, this FS evaluates potential or suspected sources of hazardous substances, types and concentrations of hazardous substances, potentially contaminated media, and actual and potential exposure pathways and receptors at each SWMU/AOC. The evaluation in Section 3 includes a terrestrial ecological evaluation as required by WAC 173-340-7490 through -7494. Cleanup levels are proposed in Section 3 based on the comprehensive evaluation at each SWMU/AOC, in accordance with WAC 173-340-350(9). This Section 5.1 summarizes the cleanup level approach and rationale and the proposed cleanup levels for categories of SWMUs/AOCs.

COCs for each SWMU were identified based on the chemical constituents shown in the summary Table 26-1 of the Ecology-approved RI (URS 2011b) and refined by review of historical and FS data. Cleanup levels were developed for COCs using the process described in Sections 5.1.1 through 5.1.8. Cleanup levels were proposed for a particular COC for each SWMU/AOC if they were:

- Historically detected in soil or soil vapor above the numeric cleanup level developed in Sections 5.1.1 through 5.1.8
- Detected in groundwater samples in the last 5 years above the numeric cleanup level developed in Sections 5.1.1 through 5.1.8

For SWMUs/AOCs exhibiting parent compounds (such as TCE) that commonly degrade to other chemical constituents (such as DCE and vinyl chloride), cleanup levels were also developed for the breakdown compounds. The intent of these additional cleanup levels is to ensure that, if the degradation products are detected during future sampling, numeric cleanup standards are established and available for comparison to the monitoring data.

The COCs and proposed cleanup levels for each medium at each SWMU/AOC, grouped together by EPM, are summarized in Tables 5-1 through 5-11.

The proposed cleanup levels will be reviewed by Ecology during review of this FS report. Ecology will select the site cleanup levels and include them in the Ecology draft CAP for public review.

The development of cleanup levels in this section takes into account that the upland portions of the Boeing Everett Plant (within the security controlled fenced portion of the facility) qualify as an industrial facility as defined by WAC 173-340-200:

> Industrial properties" means properties that are or have been characterized by, or are to be committed to, traditional industrial uses such as processing or manufacturing of materials, marine terminal and transportation areas and facilities, fabrication, assembly, treatment, or distribution of manufactured products, or storage of bulk materials, that are either:
>
> - Zoned for industrial use by a city or county conducting land use planning under chapter 36.70A RCW (Growth Management Act); or
> - For counties not planning under chapter 36.70A RCW (Growth Management Act) and the cities within them, zoned for industrial use and adjacent to properties currently used or designated for industrial purposes.

The fenced portion of the Boeing Everett Plant is zoned for “heavy industrial” use, “M2” by the City of Everett under Title 19, Everett Municipal Code. (Ord. 1671-89 [part], 1989.)

The Boeing Everett Plant also meets the criteria for an industrial facility established under WAC 173-340-745 based on the following:

- The site meets the definition of an industrial property under WAC 173-340-200.
- People do not live at the Boeing Everett Plant (WAC 173-340-745[1][a][i][A]).
- Access to the Boeing Everett Plant by the general public is highly limited and controlled due to safety and security considerations (WAC 173-340-745[1][a][i][B]).

- Food is not grown at the Boeing Everett Plant (WAC 173-340-745[1][a][i][C]).
- Operations at the Boeing Everett Plant are characterized by use and storage of chemicals, noise, odors, and truck/equipment/airplane traffic (WAC 173-340-745[1][a][i][D]).
- The surface of the land within the security fence at the Boeing Everett Plant is mostly covered by buildings or other structures, paved parking lots, paved access roads, and material storage areas (WAC 173-340-745[1][a][i][E]).
- Support facilities at the Boeing Everett Plant are primarily devoted to administrative functions necessary for the industrial use and primarily intended to serve the industrial facility employees and not the general public (WAC 173-340-745[1][a][i][F]).
- All proposed cleanup alternatives (Section 6) include appropriate institutional controls to be implemented in accordance with WAC 173-340-440 to limit potential exposure (WAC 173-340-745[1][a][ii]).
- Hazardous substances remaining in sub-slab vapor at the property after implementation of the CAP will not pose a threat to human health or the environment at the site or in adjacent nonindustrial areas (WAC 173-340-745[1][a][iii]).

5.1.1 MTCA Method A

Method A tabulated values for industrial properties may be used for cleanups that involve only a few hazardous substances, or where either the cleanup is routine or Method A cleanup levels are available for all indicator hazardous substances (WAC 173-340-704[1]). Under this FS, Method A soil cleanup levels are proposed for the constituents and SWMUs/AOCs described below. Method A soil cleanup levels are proposed for these SWMUs/AOCs for the following reasons:

- These SWMUs/AOCs involve only a few hazardous substances (in many cases petroleum related).
- Method A soil cleanup levels are available for all indicator hazardous substances.
- Methods B and C cleanup levels cannot be calculated for petroleum without specialized additional analytical results that are not available.

MTCA Method A industrial cleanup levels for soil are proposed for TPH and BTEX compounds in soil at the following SWMUs/AOCs:

- SWMU/AOC No. 68, South Fire Pit
- UST EV-48-1, Building 40-11
- SWMU/AOC No. 165, Fuel Farm
- SWMU/AOC No. 83, Former UST EV-15
- SWMU/AOC Nos. 67 and 71, Building 40-56
- Footing Excavation, Building 40-32

MTCA Method A cleanup levels for groundwater are proposed for arsenic in potable groundwater at well EGW061.

5.1.2 MTCA Method B

Although Method C soil cleanup levels are applicable to many SWMUs/AOCs at this industrial plant, the results of the leaching model (Appendix B) demonstrate that Method C soil cleanup levels would not be protective of deep Esperance Sand groundwater in the absence of pavement or flooring that reduces infiltration. For this reason, Method B soil cleanup levels are proposed.

Method B may be used at any site and is the most common method for setting cleanup levels for sites where use of Method A is not appropriate. Sites that are cleaned up to Method B cleanup levels generally do not need future restrictions on the use of the property, because of the small amount of residual contamination typically left on the property (Ecology 2007). Under this FS, Method B cleanup levels are proposed for metals, SVOCs, and VOCs in soil (including protection of groundwater) and the SWMUs/AOCs listed below:

- SWMU/AOC No. 90, Building 40-51
- SWMU/AOC No. 112, Building 40-11
- SWMU/AOC No. 151, Building 40-51
- Footing Excavation, Building 40-32
- SWMU/AOC Nos. 86, 89, 94, Building 40-56
- SWMU/AOC No. 171, Building 40-31
- SWMU/AOC No. 97, Building 40-11
- SWMU/AOC No. 98, Building 40-53
- SWMU/AOC No. 170, Building 40-02
- SWMU/AOC No. 169, Building 40-02
- Former Paint Crib, Building 40-02
- SWMU/AOC No. 54, Building 40-51
- SWMU/AOC No. 65, Building 40-51
- SWMU/AOC No. 93, Building 45-01

MTCA Method B cleanup levels protective of direct contact were obtained from Ecology's CLARC database, which was updated in August 2015. During this August 2015 update,

Ecology also added MTCA Method B cleanup levels protective of groundwater for many chemicals. As suggested by Ecology in the CLARC update, the protection of groundwater cleanup levels published in CLARC were checked using the standard MTCA Method B formula. For chemicals for which protection of groundwater values were not published in the CLARC update, the standard calculation method was used to generate a protection of groundwater value, as shown in Appendix C. Where input values (such as the Henry's law constant for a chemical) to the MTCA calculation were not available in CLARC, values published by EPA were used.

Method B cleanup levels are also proposed for groundwater and surface water in the PMG SWMU/AOC as described in Section 5.18.

5.1.3 MTCA Method C

Method C cleanup levels may be used to set soil and air cleanup levels at industrial sites and to set air cleanup levels in manholes and utility vaults.

Method C cleanup levels for soil are not appropriate for the Boeing Everett Plant, because the leaching model confirms that Method B soil cleanup levels protective of groundwater are necessary to protect against future leaching of soil contaminants to deep Esperance Sand groundwater in the absence of buildings and pavement capping the soil (WAC 173-340-745[1][b][iv]).

Method C cleanup levels are applicable for indoor air at the upland portions of the Boeing Everett Plant (within the security controlled fenced portion of the facility), in accordance with WAC 173-340-706(1)(c). Airborne contaminants at industrial facilities are also regulated by Chapter 296-841 WAC, Airborne Contaminants. This chapter applies when employees are, or could be, exposed to an airborne hazard, including vapors and gases. Concentration limits under this WAC are established as the PELs for airborne contaminants.

This FS recognizes that Ecology is likely to prefer MTCA Method C cleanup levels for indoor air at the Boeing Everett Plant following their regulatory process under Chapter 170-340 WAC. VOCs detected in sub-slab vapor are therefore screened against the MTCA values in this document (see Sections 2 and 3 and Tables 5-1, 5-2, 5-5, 5-6, 5-7, and 5-8). However, Boeing's evaluation of indoor air against the worker exposure requirements of Chapter 296-841 WAC, Airborne Contaminants, indicates no current risk to workers at the facility. Therefore, no cleanup action specific to sub-slab vapor is proposed in this FS.

5.1.4 Risk-Based Cleanup Levels

For perched groundwater at the Boeing Everett Plant, perched groundwater potability was evaluated based on the potability criteria under WAC 173-340-720(2). These criteria can be summarized as listed below. The analysis against these criteria is provided below each criterion.

The potability analysis concludes that perched groundwater at the upland SWMUs/AOCs does not meet the definition of potable water. The criteria and analysis are as follows:

- Criterion 1: Nonpotable groundwater does not serve as a current source of drinking water:

  - The perched groundwater beneath the Upland SWMUs/AOCs does not serve as a current source of drinking water (WAC 173-340-720(2)(a). The land parcels for the Boeing Everett Plant are platted with the source of drinking water as the City of Everett municipal water supply, and therefore the City is obligated to provide drinking water at the plant.

  - Currently, the nearest drinking water well downgradient of the site is located approximately 1,000 feet from the Boeing property line.

- Criterion 2: The groundwater is not a potential future source of drinking water based on criteria such as yield, concentrations of background constituents, or location:

  - A legal drinking water well could not be constructed in the perched groundwater because of the shallow depth of occurrence of the water. WAC 173-160-231(1)(c) requires that the surface seal for a drinking water well must "extend from land surface to a minimum depth of eighteen feet." The bottom of the saturated zone in the upland areas with perched groundwater is near or shallower than 18 feet. This means that the well screen for a drinking water well could not legally be placed within the saturated zone.

  - Per WAC 173-340-720(2)(b)(i), groundwater is not considered potable if "the groundwater is present in insufficient quantity to yield greater than 0.5 gpm on a sustainable basis to a well constructed in compliance with chapter 173-160 WAC and in accordance with normal domestic water well construction practices for the area in which the site is located." Related to this issue, groundwater is not considered potable under WAC 173-340-720(2)(b)(iii) if the water is "situated at a . . . location that makes recovery of water for drinking water purposes technically impossible." As noted above, a water well could not be legally screened in the perched groundwater under WAC 173-160 and therefore could not yield groundwater in sufficient quantity to meet this standard.

  - Even if a well could be legally constructed within the perched groundwater, the sustainable flow rate from any such well is very unlikely to meet the minimum sustained yield requirements established in WAC 173-340-

720(2)(b)(i) of 0.5 gpm or by the Snohomish County Health District (400 gallons per day). The aquifer performance pilot tests performed in perched groundwater (URS 2014d) demonstrated sustainable short-term flow rates from resource protection wells between 0.25 and 0.6 gpm.

- The lateral areas of perched groundwater at each SWMU/AOC are small, and sustained pumping for drinking water would soon deplete the available water.

- Criterion 3: It is unlikely that hazardous substances will be transported from the contaminated perched groundwater to groundwater that is a current or potential future source of drinking water: Per WAC 173-340-720(2)(c), the hydrogeology of the site, as supported by the leaching model, demonstrates that contaminants in perched groundwater are "unlikely to be transported from the contaminated groundwater to groundwater that is a current or potential future source of drinking water."

Perched groundwater at the following SWMUs/AOCs is concluded to be nonpotable:

- SWMU/AOC No. 90, Building 40-51
- SWMU/AOC No. 112, Building 40-11
- SWMU/AOC No. 151, Building 40-51
- Footing Excavation, Building 40-32
- SWMU/AOC Nos. 86, 89, 94, Building 40-56
- SWMU/AOC No. 166, Building 45-53
- SWMU/AOC Nos. 55 and 168, Building 40-24
- SWMU/AOC No. 100, Former Gun Club

For these SWMUs/AOCs, perched groundwater cleanup levels were calculated using human health risk assessment procedures, consistent with WAC 173-340-720(6)(c) and as described in Section 4.1. As described above, the Boeing Everett Plant qualifies as an industrial facility under WAC 173-340-745 and risk-based, site-specific cleanup levels are applicable to these sites where perched groundwater is nonpotable. Proposed risk-based cleanup levels will result in no significant acute or chronic toxic effects on human health above the target health goals of a noncancer hazard quotient of 1 and excess cancer risk of 1×10^{-5}, as established in WAC 173-340-7209(6)(c)(ii)(B).

For the hydraulic fluid constituents at SWMU/AOC Nos. 55 and 168 at Building 40-24, MTCA Method B cleanup levels are proposed as required in the FSWP. The calculated Method B cleanup levels approved by Ecology in the RI as screening levels have been updated based on new toxicity information (Appendix C) and are proposed for soil and perched groundwater at these SWMUs/AOCs.

5.1.5 Terrestrial Ecological Evaluation

The terrestrial ecological evaluation process is potentially applicable to portions of the Boeing Everett Plant that are not excluded under WAC 173-340-7491, which includes PMG and the Former Gun Club Area B. However, as indicated in Section 2.19, there is no documented soil contamination in PMG. Therefore, a terrestrial ecological evaluation is not applicable to this portion of the Boeing Everett Plant. It is applicable to the nonwetland portions of the Former Gun Club, Area B. Per WAC 173-340-7490(1)(c), a terrestrial ecological evaluation is "not intended to be used to evaluate potential threats to ecological receptors in sediments, surface water, or wetlands."

For soil in nonwetland portions of the Former Gun Club Areas B and C, proposed soil cleanup levels are based the Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals (MTCA Table 749-3) for antimony and lead.

5.1.6 Background Soil Concentrations

As established by MTCA (WAC 173-34-700[5][d]), "In some cases, cleanup levels calculated using the methods specified in [MTCA] are less than natural background levels or levels that can be reliable measured. In those situations, the cleanup level shall be established at concentrations equal to the practical quantitation limit or natural background concentration, whichever is higher." On this basis, natural background concentrations established by Ecology for Puget Sound area soils are proposed as the soil cleanup levels for cadmium, chromium, and nickel at the Former Gun Club Areas B and C (Ecology 1994).

For arsenic in soil at the Former Gun Club Areas B and C, the Method A soil cleanup level of 20 mg/kg is proposed as the soil cleanup level. Ecology considers this concentration representative of "urban background" concentrations for arsenic in soils in the State of Washington (https://fortress.wa.gov/ecy/publications/publications/1109095.pdf). In addition, this value is also considered to be adequately protective of the environment. Specifically, EPA ecological soil screening levels for arsenic are 18, 46, and 43 mg/kg for terrestrial plant, mammalian, and avian receptors, respectively (http://www.epa.gov/ecotox/ecossl/pdf/eco-ssl_arsenic.pdf). Thus, the soil cleanup level of 20 mg/kg is considered sufficiently protective of the environment while also taking into consideration natural background concentrations in urbanized areas.

5.1.7 Sediment Cleanup Levels

The Former Gun Club Area B includes wetland areas that contain earth material meeting the definition of sediment under WAC 173-204-200(26) (see also Section 4.1). In these portions of Former Gun Club Area B, the sediment cleanup objective values established in the SMS (Ecology 2013b) are proposed as sediment cleanup levels for arsenic and chromium in sediment.

For nickel in sediment, the site-specific background concentration of 61.1 mg/kg, established as part of the sitewide freshwater sediment cleanup level development process (URS 2014e), is proposed as the cleanup level.

5.1.8 Surface Water and Groundwater Cleanup Levels for Powder Mill Gulch

Based on findings from the RI and current site conditions (Section 2.19), cleanup levels were developed for the North Complex, Esperance Sand, and PMG for TCE, which is the primary COC, and its potential breakdown products (cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, and vinyl chloride). Although other VOCs have been identified in groundwater in this SWMU, detections have been sporadic, inconsistent, and at trace concentrations. Based on the conceptual site model (Section 3.2.11), numerical cleanup levels were developed for groundwater and surface water. PMC sediment cleanup will be addressed under the pending sitewide feasibility study for sediment, accumulated solids, surface water, and stormwater.

Under MTCA, cleanup levels are determined based upon concentrations of hazardous substances that do not threaten human health or the environment. The preliminary cleanup levels for surface water and groundwater are identified in this section and summarized in Table 5-11.

Surface Water

Surface water cleanup levels protective of human health and the environment were developed using MTCA Method B for the constituents indicated above. Under MTCA (WAC 173-340-730), surface water cleanup levels are to be based on estimates of the HBU and the RME expected to occur under both current and potential future site use conditions. For PMG, the surface water cleanup levels (presented in Table 5-11) are protective of human consumption of organisms and ecological receptors based on the HBU determination and ARARs for PMC as described below.

Powder Mill Creek Surface Water Classification and HBU. As described in Section 4.1 and 4.2 and below, the classification and the HBU of a surface water body is determined in accordance with WAC 173-201A. Based on evaluation of PMC through applicable parts of the regulation, PMC can provisionally be presumed to be usable, now or in the future, by fish including salmonids. Therefore, consumption of organisms from PMC is considered in the development of surface water cleanup levels.

PMC is not designated as a current or future drinking water source. A review of state records indicated that there are no existing water rights for the creek for diversion for drinking water purposes (Ecology 2015b). Also, no evidence of any diversionary structures along the creek has been observed during various creek sampling and monitoring events during the RI or subsequent project activities that would indicate current use of water from the creek. PMC is an urban stream, is relatively short in length, and has a relatively low volumentric flow. Additionally, all

residents and businesses within the Everett city limits have access to the public drinking water system. Therefore, PMC is not likely to be used as a future drinking water source.

Based on the factors described above, the HBU for the creek is for recreational use, habitat for aquatic organisms, and future potential consumption of fish (if downstream obstacles to fish passage are removed).

Surface Water ARARs. The following ARARs identify the surface water concentrations established under applicable federal and state laws applicable for development of cleanup levels for surface water quality. Protection of aquatic species and human health are based on standards for freshwater contained in the following:

- WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington (note that none of the Toxics Substance Criteria are for COCs applicable to PMC)
- Federal National Toxics Rule (40 CFR 131)
- Federal Recommended Ambient Water Quality Criteria (promulgated under Federal Clean Water Act Section 304)

EPA Regions 3, 4, and 5 benchmark and screening values were used for ecological receptors where ARARs have not been specifically established. From these resources, the most conservative value indicated for aquatic life and/or terrestrial/freshwater wildlife were considered when comparing against other ARARs and selecting the appropriate surface water CUL.

Groundwater

Groundwater cleanup levels protective of human health and the environment were developed using MTCA Method B for the constituents indicated above. For PMG, the groundwater cleanup levels (presented in Table 5-11) are protective of human consumption of drinking water and protection of surface water based on the HBU determination and ARARs for PMG described below.

Under MTCA (WAC 173-340-720), groundwater cleanup levels are to be based on estimates of the HBU and the RME expected to occur under both current and potential future site use conditions. Ecology has determined that, at most sites, use of groundwater as a source of drinking water is the beneficial use requiring the highest quality of groundwater and that exposure to hazardous substances through ingestion of drinking water and other domestic uses represents the RME. Groundwater at or potentially affected by the PMG SWMU is not likely to be developed as a potable drinking water source because all residents and businesses within the Everett city limits have access to the public drinking water system. However, private drinking

water wells are not strictly prohibited, and this does not exclude the possibility of groundwater at the PMG SWMU being used as a future drinking water source.

Along with the previously mentioned potential uses, groundwater at the PMG SWMU also discharges into PMC. As the ARAR for groundwater protective of surface water is the most restrictive for some constituents, the highest current beneficial use of groundwater at the PMG SWMU is a combination of protection of drinking water and protection of surface water quality in PMC. The following exposure pathways define the surface water quality that needs to be protected by groundwater discharge:

- Protection of surface water beneficial uses (protection of aquatic species and human health) as described in the surface water cleanup level development section above.

- Protection of human health based on standards for groundwater as drinking water contained in the following:

  - WAC 246-290 – Group A Public Water Supplies MCLs
  - Safe Drinking Water Act (40 CFR 141) MCLs
  - Safe Drinking Water Act (40 CFR 141) goals for noncarcinogens

Development of Method B groundwater cleanup levels (presented in Table 5-1) considers criteria protective of human health for drinking water use and protective of human health and ecological receptors based on discharge of groundwater to surface water.

Note that, due to the potential that cleanup of the Esperance Sand Aquifer to the groundwater cleanup levels may require a long restoration time frame, the remedial alternatives for PMG include the potential use of remediation levels (RELs) as allowable under WAC 173-340-355. RELs may be used in cases where performance monitoring during cleanup demonstrates that the primary remedial technology for the alternative is able to reach the RELs, but unable to practically reach the cleanup levels in a reasonable restoration time frame, and an alternate or supplemental technology may be implemented to achieve the cleanup levels. The groundwater RELs will be set at the concentrations equal to the surface water cleanup levels protective of human consumption of organisms (based on Clean Water Act §304 values), which is the assumed HBU for surface water (see Section 5.1.8). Therefore, the RELs represent the most conservative levels protective of likely human or ecological exposure pathways.

5.2 POINTS OF COMPLIANCE

This section discusses the process that will be used to establish points of compliance as part of the development of preliminary cleanup standards and for use in the FS evaluation. Boeing

understands that points of compliance used for the FS will not be final until approved by Ecology in the CAP.

The points of compliance used in this FS evaluation are the standard points of compliance for all media, as established under MTCA.

The point of compliance for groundwater is throughout the site from the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be affected by the site (WAC 173-340-720[8][b]).

The point of compliance for surface water, as established under WAC 173-340-730(6), is the point or points at which hazardous substances are released to surface water. Where hazardous substances are released to the surface water as a result of groundwater flows, the point of compliance is where contaminated groundwater is flowing into surface water. The point of compliance selected for Esperance Sand groundwater discharging to the surface water of PMC is the groundwater-surface water interface.

For soil, the standard point of compliance is defined by MTCA based on the exposure pathway upon which the soil cleanup is based, as follows (WAC 173-340-740[6][a-e]):

a) The point of compliance is the point or points where the soil cleanup levels established under subsection (2) or (3) of this section shall be attained.

b) For soil cleanup levels based on the protection of groundwater, the point of compliance shall be established in the soils throughout the site.

c) For soil cleanup levels based on protection from vapors, the point of compliance shall be established in the soils throughout the site from the ground surface to the uppermost groundwater saturated zone (e.g., from the ground surface to the uppermost water table).

d) For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the site from the ground surface to 15 feet bgs. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of site development activities.

e) For soil cleanup levels based on ecological considerations, see WAC 173-340-7490 for the point of compliance. In general, the standard point of compliance for ecological receptors is the upper 15 feet of soil.

MTCA also recognizes that when cleanup actions involve containment of hazardous substances, the soil cleanup levels will typically not be met at the points of compliance specified in (b) through (e) above. MTCA establishes conditions that must be met for the cleanup action to comply with the cleanup standards (WAC 173-340-740[6][f]). This FS evaluates some cleanup alternatives that will utilize containment technologies as allowed under WAC 173-340-740(6)(f).

In accordance with the FSWP, this FS proposes conditional points depending on the cleanup action alternatives developed and evaluated in Section 6. The FS compares such alternatives to other alternatives that include a standard point of compliance.

Ecology will review, comment, modify (as necessary) and approve all media points of compliance developed by Boeing.

Table 5-1
Exposure Pathway Model A FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	40-51, SWMU 90	40-11, SWMU 112	40-51, SWMU 151
VOCs					
TCE	Soil	Method B[a]	NE	NE	25 µg/kg
	Groundwater	RBCL[b]	0.011 mg/L	0.011 mg/L	0.011 mg/L
	Indoor Air	Method C[c]	2 µg/m^3	2 µg/m^3	2 µg/m^3
1,1-DCE	Soil	Method B[a]	NE	NE	46 µg/kg
	Groundwater	RBCL[b]	0.91 mg/L	0.91 mg/L	0.91 mg/L
	Indoor Air	Method C[c]	200 µg/m^3	200 µg/m^3	200 µg/m^3
cis-1,2-DCE[e]	Soil	Method B[a]	NE	NE	78 µg/kg
	Groundwater	RBCL[b]	3.02 mg/L	3.02 mg/L	3.02 mg/L
	Indoor Air	Method C[c]	NE	NE	NE
trans-1,2-DCE	Soil	Method B[a]	NE	NE	520 µg/kg
	Groundwater	RBCL[b]	30.2 mg/L	30.2 mg/L	30.2 mg/L
	Indoor Air	Method C[c]	NE	NE	NE
PCE	Groundwater	RBCL[b]	0.222 mg/L	NE	NE
	Indoor Air	Method C[c]	40 µg/m^3	NE	40 µg/m^3
Vinyl chloride	Soil	Method B[a]	NE	NE	1.7 µg/kg
	Groundwater	RBCL[b]	0.35 mg/L	0.35 mg/L	0.35 mg/L
	Indoor Air	Method C[c]	2.8 µg/m^3	2.8 µg/m^3	2.8 µg/m^3
TPH-Gx	Groundwater	Method A[d]	NE	1.0 mg/L [2]	NE
TPH-Dx	Groundwater	Method A[d]	NE	0.5 mg/L	NE
TPH-O	Groundwater	Method A[d]	NE	0.5 mg/L	NE
Metals					
Arsenic	Groundwater	RBCL[b]	NE	NE	5.26 mg/L

[a]MTCA Protection of Groundwater (PGW) in the vadose zone at 13°C, where available, otherwise at 25°C
[b]Construction Worker Risk-Based Cleanup Level (RBCL)
[c]MTCA Method C Indoor Air Cleanup Level
[d]MTCA Method A Direct Contact Cleanup Level
[e]The soil vapor CUL for cis-1,2-DCE is not established.
NE - not established

Table 5-2
Exposure Pathway Model B FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	40-56, SWMUs 86, 89, 94
TCE	Soil	Method B[a]	25 µg/kg
	Groundwater	RBCL[b]	0.009 mg/L
	Indoor Air	Method C[c]	2 µg/m^3
1,1-DCE	Soil	Method B[a]	46 µg/kg
	Groundwater	RBCL[b]	0.799 mg/L
	Indoor Air	Method C[c]	200 µg/m^3
cis-1,2-DCE[d]	Soil	Method B[a]	78 µg/kg
	Groundwater	RBCL[b]	3.02 mg/L
	Indoor Air	Method C[c]	NE
trans-1,2-DCE	Soil	Method B[a]	520 µg/kg
	Groundwater	RBCL[b]	30.2 mg/L
	Indoor Air	Method C[c]	NE
PCE	Soil	Method B[a]	50 µg/kg
	Groundwater	RBCL[b]	0.222 mg/L
	Indoor Air	Method C[c]	40 µg/m^3
Vinyl Chloride	Soil	Method B[a]	1.7 µg/kg
	Groundwater	RBCL[b]	0.35 mg/L
	Indoor Air	Method C[c]	2.8 µg/m^3
Benzene	Soil	Method B[a]	27 µg/kg
	Groundwater	RBCL[b]	0.122 mg/L
	Indoor Air	Method C[c]	3.21 µg/m^3
Ethylbenzene	Soil	Method B[a]	6,000 µg/kg
	Groundwater	RBCL[b]	4.3 mg/L
	Indoor Air	Method C[c]	1,000 µg/m^3
Toluene	Soil	Method B[a]	4,500 µg/kg
	Groundwater	RBCL[b]	15.1 mg/L
	Indoor Air	Method C[c]	5,000 µg/m^3
m,p-xylenes	Soil	Method B[a]	13,000 µg/kg
			15,000 µg/kg (total)
	Groundwater	RBCL[b]	0.485 mg/L (total)
	Indoor Air	Method C[c]	100 µg/m^3
o-xylenes	Soil	Method B[a]	14,000 µg/kg
			15,000 µg/kg (total)
	Groundwater	RBCL[b]	0.485 mg/L (total)
	Indoor Air	Method C[c]	100 µg/m^3
MIBK	Soil	Method B[a]	2,700 µg/kg

[a]MTCA Protection of Groundwater in the vadose zone at 13°C, where available, otherwise at 25°C
[b]Construction Worker Risk-Based Cleanup Level (RBCL)
[c]MTCA Method C Indoor Air Cleanup Level
[d]The soil vapor cleanup level for cis-1,2-DCE is not established.

Table 5-3
Exposure Pathway Model C FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	45-53, SWMU 166
TPH-D	Groundwater	Method A[a]	0.5 mg/L
TPH-Jet A	Groundwater	Method A[a]	0.5 mg/L

[a]MTCA Method A Direct Contact Cleanup Level

Table 5-4
Exposure Pathway Model D FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	40-24, SWMU 168
Tributyl Phosphate	Soil	Method B[a]	8.2 mg/kg
	Groundwater	RBCL[b]	4.3 mg/L
Dibutyl Phenyl Phosphate	Soil	Method B[a]	8.2 mg/kg
	Groundwater	RBCL	4.3 mg/L
Butyl Diphenyl Phosphate	Soil	Method B[a]	8.2 mg/kg
	Groundwater	RBCL	4.3 mg/L
Triphenyl Phosphate	Soil	Method B[a]	8.2 mg/kg
	Groundwater	RBCL	4.3 mg/L
BHT	Soil	Method B[a]	700 mg/kg
	Groundwater	RBCL	12 mg/L
n-Butyl Alcohol	Soil	Method B[c]	3,300 µg/kg
Arsenic	Groundwater	RBCL[b]	5.3 mg/L

[a]MTCA Method B Protection of Groundwater calculated using MTCA equation 747-1 (WAC 173-340-747)
[b]Construction Worker Risk-Based Cleanup Level (RBCL) - see Appendix C
[c]MTCA Protection of Groundwater in the vadose zone at 25°C

Table 5-5
Exposure Pathway Model E FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	40-31, SWMU 171	40-11, SWMU 97	40-53, SWMU 98	40-02, SWMU 170	40-02, SWMU 169	40-02, Former Paint Crib	40-51, SWMU 54	40-32, Footing Excavation
TCE	Soil	Method B[a]	25 µg/kg	25 µg/kg	25 µg/kg	25 µg/kg	25 µg/kg	25 µg/kg	25 µg/kg	25 µg/kg
	Indoor Air	Method C[b]	2 µg/m^3	2 µg/m^3	2 µg/m^3	2 µg/m^3	2 µg/m^3	2 µg/m^3	2 µg/m^3	2 µg/m^3
1,1-DCE	Soil	Method B[a]	46 µg/kg	46 µg/kg	46 µg/kg	46 µg/kg	46 µg/kg	NE	NE	46 µg/kg
	Indoor Air	Method C[b]	200 µg/m^3	200 µg/m^3	200 µg/m^3	200 µg/m^3	200 µg/m^3	200 µg/m^3	200 µg/m^3	200 µg/m^3
cis-1,2-DCE[1]	Soil	Method B[a]	78 µg/kg	78 µg/kg	78 µg/kg	78 µg/kg	78 µg/kg	NE	NE	78 µg/kg
	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	NE
trans-1,2-DCE	Soil	Method B[a]	520 µg/kg	520 µg/kg	520 µg/kg	520 µg/kg	520 µg/kg	NE	NE	520 µg/kg
	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	NE
PCE	Indoor Air	Method C[b]	40 µg/m^3	NE	40 µg/m^3	NE	NE	NE	NE	40 µg/m^3
Vinyl Chloride	Soil	Method B[a]	1.7 µg/kg	1.7 µg/kg	1.7 µg/kg	1.7 µg/kg	1.7 µg/kg	NE	NE	1.7 µg/kg
	Indoor Air	Method C[b]	2.8 µg/m^3	2.8 µg/m^3	2.8 µg/m^3	2.8 µg/m^3	2.8 µg/m^3	2.8 µg/m^3	2.8 µg/m^3	2.8 µg/m^3
Freon 12	Indoor Air	Method C[b]	NE	NE	NE	100 µg/m^3	100 µg/m^3	100 µg/m^3	NE	NE
Chloroform	Indoor Air	Method C[b]	NE	NE	NE	1.09 µg/m^3	1.09 µg/m^3	1.09 µg/m^3	NE	NE
Benzene	Soil	Method B[a]	NE	NE	NE	NE	NE	NE	NE	27 µg/kg
	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	3.21 µg/m^3
Ethylbenzene	Soil	Method B[a]	NE	NE	NE	NE	NE	NE	NE	6,000 µg/kg
	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	1,000 µg/m^3
Toluene	Soil	Method B[a]	NE	NE	NE	NE	NE	NE	NE	4,500 µg/kg
	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	5,000 µg/m^3
m,p-xylenes	Soil	Method B[a]	NE	NE	NE	NE	NE	NE	NE	13,000 µg/kg
			NE	NE	NE	NE	NE	NE	NE	15,000 µg/kg (total)
	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	100 µg/m^3
o-xylenes	Soil	Method B[a]	NE	NE	NE	NE	NE	NE	NE	14,000 µg/kg
			NE	NE	NE	NE	NE	NE	NE	15,000 µg/kg (total)
	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	100 µg/m^3
TPH-G	Soil	Method A[c]	NE	NE	NE	NE	NE	NE	NE	30 mg/kg [1]
TPH-D	Soil	Method A[c]	NE	NE	NE	NE	NE	NE	NE	2,000 mg/kg
TPH-O	Soil	Method A[c]	NE	NE	NE	NE	NE	NE	NE	2,000 mg/kg
TPH-Jet A	Soil	Method A[c]	NE	NE	NE	NE	NE	NE	NE	2,000 mg/kg
Hydrocarbons										
C5-C6 Aliphatic and >C6-C8 Aliphatic	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	6,000 µg/m^3

Table 5-5 (Continued)
Exposure Pathway Model E Proposed FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	40-31, SWMU 171	40-11, SWMU 97	40-53, SWMU 98	40-02, SWMU 170	40-02, SWMU 169	40-02, Former Paint Crib	40-51, SWMU 54	40-32, Footing Excavation
>C8-C10 Aliphatic and >C10-C12 Aliphatic	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	300 µg/m^3
>C8-C10 Aromatic and >C10-C12 Aromatic	Indoor Air	Method C[b]	NE	NE	NE	NE	NE	NE	NE	400 µg/m^3

[a]MTCA Protection of Groundwater (PGW) in the vadose zone at 13 degrees Celsius, where available, otherwise at 25 degrees Celsius
[b]MTCA Method C Indoor Air Cleanup Level
[c]MTCA Method A Direct Contact Cleanup Level
[1]The soil vapor CUL for cis-1,2-DCE is not established.
[2]The cleanup level is 100 mg/kg if benzene is not present, and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture.
NE - not established

Table 5-6
Exposure Pathway Model F FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	Former South Fire Pit, SWMU 68
Benzene	Soil	Method A[a]	30 µg/kg
	Indoor Air	Method C[b]	3.21 µg/m^3
Ethylbenzene	Soil	Method A[a]	6,000 µg/kg
	Indoor Air	Method C[b]	1,000 µg/m^3
Toluene	Soil	Method A[a]	7,000 µg/kg
	Indoor Air	Method C[b]	5,000 µg/m^3
m,p-xylenes	Soil	Method A[a]	9,000 µg/kg (total)
	Indoor Air	Method C[b]	100 µg/m^3
o-xylenes	Soil	Method A[a]	9,000 µg/kg (total)
	Indoor Air	Method C[b]	100 µg/m^3
TPH-G	Soil	Method A[a]	30 mg/kg[c]
TPH-D	Soil	Method A[a]	2,000 mg/kg
TPH-O	Soil	Method A[a]	2,000 mg/kg
TPH-Jet A	Soil	Method A[a]	2,000 mg/kg
Hydrocarbons			
C5-C6 Aliphatic and >C6-C8 Aliphatic	Indoor Air	Method C[b]	6,000 µg/m^3
>C8-C10 Aliphatic and >C10-C12 Aliphatic	Indoor Air	Method C[b]	300 µg/m^3
>C8-C10 Aromatic and >C10-C12 Aromatic	Indoor Air	Method C[b]	400 µg/m^3

[a]MTCA Method A Direct Contact Cleanup Level
[b]MTCA Method C Indoor Air Cleanup Level
[c]The cleanup level is 100 mg/kg if benzene is not present, and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture.

Table 5-7
Exposure Pathway Model G FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	40-51, SWMU 65	40-11, UST EV-48-1	Fuel Farm, SWMU 165	SWMU 83, Former UST EV-15
Benzene	Soil	Method A[a]	NE	30 µg/kg	30 µg/kg	NE
	Indoor Air	Method C[b]	NE	3.21 µg/m^3	3.21 µg/m^3	NE
Ethylbenzene	Soil	Method A[a]	NE	6,000 µg/kg	6,000 µg/kg	NE
	Indoor Air	Method C[b]	NE	1,000 µg/m^3	1,000 µg/m^3	NE
Toluene	Soil	Method A[a]	NE	7,000 µg/kg	7,000 µg/kg	NE
	Indoor Air	Method C[b]	NE	5,000 µg/m^3	5,000 µg/m^3	NE
m,p-xylenes	Soil	Method A[a]	NE	9,000 µg/kg (total)	9,000 µg/kg (total)	NE
	Indoor Air	Method C[b]	NE	100 µg/m^3	100 µg/m^3	NE
o-xylenes	Soil	Method A[a]	NE	9,000 µg/kg (total)	9,000 µg/kg (total)	NE
	Indoor Air	Method C[b]	NE	100 µg/m^3	100 µg/m^3	NE
TPH-G	Soil	Method A[a]	NE	100 mg/kg[d]	100 mg/kg[d]	NE
TPH-D	Soil	Method A[a]	NE	NE	2,000 mg/kg	2,000 mg/kg
TPH-O	Soil	Method A[a]	NE	NE	2,000 mg/kg	NE
Hydrocarbons						
C5-C6 Aliphatic and >C6-C8 Aliphatic	Indoor Air	Method C[b]	NE	6,000 µg/m^3	6,000 µg/m^3	NE
>C8-C10 Aliphatic and >C10-C12 Aliphatic	Indoor Air	Method C[b]	NE	300 µg/m^3	300 µg/m^3	NE
>C8-C10 Aromatic and >C10-C12 Aromatic	Indoor Air	Method C[b]	NE	400 µg/m^3	400 µg/m^3	NE
Cadmium	Soil	PS Background[c]	1 mg/kg	NE	NE	NE
Chromium	Soil	PS Background[c]	48 mg/kg	NE	NE	NE
Lead	Soil	Method A[a]	250 mg/kg	NE	NE	NE

[a]MTCA Method A Direct Contact Cleanup Level
[b]MTCA Method C Indoor Air Cleanup Level
[c]WA State Department of Ecology Natural Background Soil Metals Concentrations in Washington State, October 1994, Puget Sound regional background concentration
[d]The cleanup level is 100 mg/kg if benzene is not present, and the total of ethylbenzene, toluene, and xylenes is less than 1% of the gasoline mixture.
NE - not established

Table 5-8
Exposure Pathway Model H FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	45-01, SWMU 93	40-56, SWMUs 67, 71
2-Butanone (MEK)	Soil	Method B[a]	20,000 µg/kg	NE
	Indoor Air	Method C[b]	5,000 µg/m^3	NE
Benzene	Soil	Method A[c]	NE	NE
	Indoor Air	Method C[b]	NE	3.21 µg/m^3
Ethylbenzene	Soil	Method A[c]	NE	6,000 µg/kg
	Indoor Air	Method C[b]	NE	1,000 µg/m^3
Toluene	Soil	Method A[c]	NE	7,000 µg/kg
	Indoor Air	Method C[b]	NE	5,000 µg/m^3
m,p-xylenes	Soil	Method A[c]	NE	9,000 µg/kg (total)
	Indoor Air	Method C[b]	NE	100 µg/m^3
o-xylenes	Soil	Method A[c]	NE	9,000 µg/kg (total)
	Indoor Air	Method C[b]	NE	100 µg/m^3

[a]MTCA Protection of Groundwater (PGW) in the vadose zone at 13°C, where available, otherwise at 25°C
[b]MTCA Method C Indoor Air Cleanup Level
[c]MTCA Method A Direct Contact Cleanup Level
NE - not established

Table 5-9
Exposure Pathway Model I FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	Esperance Sand Well EGW061
Arsenic	Groundwater	Method A[a]	0.005 mg/L

[a]MTCA Method Groundwater Cleanup Level

Table 5-10
Exposure Pathway Model J FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	Former Gun Club, SWMU 100
cPAH	Soil	Method B[a]	137 µg/kg
	Sediment	SMS SCO[b]	17,000 µg/kg
Antimony	Soil	MTCA Eco[c]	5 mg/kg
Arsenic	Soil	Method A[d]	20 mg/kg
	Sediment	SMS SCO[b]	14 mg/kg
	Groundwater	RBCL[e]	5.26 mg/L
Chromium	Soil	PS Background[f]	48 mg/kg
	Sediment	SMS SCO[b]	72 mg/kg
Lead	Soil	MTCA Eco[c]	50 mg/kg
	Sediment	SMS SCO[b]	360 mg/kg
	Groundwater	Method A[h]	0.015 mg/L
Nickel	Soil	PS Background[f]	48 mg/kg
	Sediment	Site Specific Background[g]	61.6 mg/kg

[a]MTCA Method B Direct Contact Cleanup Level
[b]Washington State Sediment Management Standards Sediment Cleanup Objectives for Freshwater, February 2013.
[c]MTCA Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals (Table 749-3)
[d]MTCA Method A Soil Cleanup Level. The Method A soil cleanup level of 20 mg/kg is considered sufficiently protective of the environment while also taking into consideration natural background concentrations in urbanized areas. See additional text discussion in Section 5.16.
[e]Construction Worker Risk-Based Cleanup Level (RBCL)
[f]WA State Department of Ecology Natural Background Soil Metals Concentrations in Washington State, October 1994, Puget Sound regional background concentration
[g]The site-specific background concentration for nickel in sediment was established as part of the work for the freshwater sediment cleanup level development for the sediment FS.
[h]MTCA Method A Groundwater Cleanup Level

Table 5-11
Exposure Pathway K FS Cleanup Levels

Chemical of Concern	Medium	ARAR/Source	PMG SWMU Cleanup Level	Excess Cancer Risk for Pathway/Medium[i]
Trichloroethene	Groundwater	Method B[a]	4 µg/L[j]	7.4×10^{-6}
	Surface Water	Method B/ARAR[b]	7 µg/L	5.4×10^{-7}
cis-1,2-dichloroethene	Groundwater	Method B[a]	16 µg/L	N/A
	Surface Water	Method B/EPA Eco[c]	590 µg/L	N/A
trans-1,2-dichloroethene	Groundwater	Method B/ARAR[d]	100 µg/L	N/A
	Surface Water	Method B/EPA Eco[e]	970 µg/L	N/A
1,1-dichloroethene	Groundwater	Method B[f]	3.2 µg/L	N/A
	Surface Water	Method B/ARAR[g]	3.2 µg/L	N/A
Vinyl Chloride	Groundwater	Method B[h]	0.046 µg/L[k]	1.6 x 10-6
	Surface Water	Method B/ARAR[b]	1.6 µg/L	4.3 x 10-7
				Total Excess Cancer Risk 9.96×10^{-6}

[a]MTCA Method B Non-carcinogen Standard Formula Value
[b]MTCA Method B Cleanup Level based on Clean Water Act §304
[c]MTCA Method B Cleanup Level based on EPA Region 3 BTAG Freshwater Screening Benchmarks, July 2006 (value indicated for "1,2-dichloroethene")
[d]MTCA Method B Cleanup Level based on Federal MCL
[e]MTCA Method B Cleanup Level based on EPA Region 3 BTAG Freshwater Screening Benchmarks, July 2006, and EPA Region 5 Ecological Screening Levels, August 22, 2003
[f]MTCA Method B Cleanup Level based on protection of surface water
[g]MTCA Method B Cleanup Level based on National Toxics Rule - 40 CFR 131
[h]MTCA Method B Carcinogen Standard Formula Value
[i]Carcinogenic risk at cleanup level = (cleanup level divided by the concentration at which the risk is 1E-06) x 1E-06
[j]Trichloroethene MCL (5 ug/L) adjusted down to 4 ug/L so hazard quotient is less than 1 per WAC 173-340-720(7)(b) and as described in May 2015 CLARC Guidance "Trichloroethylene (TCE) - Deriving Cleanup Levels Under the Model Toxics Control Act (MTCA)"
[k]Vinyl chloride MCL (2 ug/L) adjusted down so that individual cancer risk and total cumulative site risk are below 1E-5 per WAC 173-340-720(7)(a&b)

N/A - not applicable

Table 5-11 (Continued)
Exposure Pathway K FS Cleanup Levels

Note: Adjustments to the trichloroethene and vinyl chloride cleanup levels may be made as allowable under WAC 173-340-720(7)(a) and WAC 173-340-708(5)(d), which states that "for carcinogens . . . the cancer risks resulting from exposure to multiple hazardous substances may be apportioned between hazardous substances in any combination as long as the total excess cancer risk does not exceed one in one hundred thousand (1 x 10-5)". Boeing may propose such adjustments depending on the progress of the cleanup with respect to one or both of these constituents.

6.0 DEVELOPMENT OF CLEANUP ALTERNATIVES

6.1 QUANTITIES AND LOCATION OF ENVIRONMENTAL MEDIA REQUIRING CLEANUP

Estimated quantities and location of contaminated media that require cleanup at each SWMU/AOC are included in Section 2.

6.2 SCREENING OF CLEANUP ACTION TECHNOLOGIES

Cleanup action technologies were screened as part of FSWP development, and the results of the screening were summarized in Tables 6.1 and 6.2 of the FSWP. All technologies retained following the screening process for each SWMU/AOC were incorporated into the cleanup action alternatives described in Section 6.3 and evaluated in Section 7, except those injection technologies eliminated following the injection pilot test (URS 2014) at certain SWMUs/AOCs.

6.3 DESCRIPTION OF CLEANUP ACTION ALTERNATIVES

This section describes a reasonable number and type of cleanup action alternatives (WAC 173-340-350[8][c][i][B]) developed for each SWMU/AOC at the Everett plant. These alternatives were developed based on the results of the technology screening performed in the FSWP, the pilot studies performed as part of the FS investigations, and the CSMs developed in Section 3 as supported by the current conditions assessment in Section 2. Cleanup alternatives were developed and evaluated in this FS individually by SWMU/AOC. During the FS evaluation, it became clear that the evaluation results were very similar or identical for individual SWMUs/AOCs with similar characteristics. Therefore, to make the presentation within this FS report more concise, SWMUs/AOCs with similar characteristics and similar FS evaluation results are discussed together in groups in this and subsequent sections.

In these alternatives, the phrase “near term” is used to mean execution of the cleanup action as soon as practical after Ecology’s approval of the final CAP. For near-term excavation, cleanup would be performed after execution of the CAP, Ecology approval of the engineering design report, and then as soon as access can be practicably be arranged. Near term is used in contrast to “future,” which refers to some later time, not specifically defined, during which excavation of contaminated soil is linked to some other site development project on the plant.

Many of the cleanup alternatives described in this section include institutional controls as one element of the cleanup action. An example of such institutional controls is a requirement to maintain pavement or flooring above contaminated media to prevent direct-contact exposure and leaching to deep groundwater. This FS envisions that, if selected in the CAP, such institutional

controls would be implemented as part of a sitewide restrictive environmental covenant, in accordance with WAC 173-340-440, on the Boeing property and recorded on the deeds registered with Snohomish County/City of Everett. This covenant would be binding on the owner's successors and assignees. Associated with the restrictive environmental covenant would be an institutional control plan that would include the following elements:

- A sitewide plan view map clearly identify all portions of the plant subject to institutional control restrictions, and describing those restrictions
- A narrative plan explaining the restrictions for each area, the rationale for the restrictions, resources for more information, and clearly explaining the requirements for maintaining the restrictions, inspecting to document compliance, and reporting inspection results and deviations to Ecology
- Boeing policy requirements, integrated into existing Boeing planning procedures, that require all construction activities involving excavation, groundwater extraction, or in situ treatment and all land use changes to be reviewed by Boeing EHS personnel against the requirements and limitations of the institutional control plan
- Annual inspections of all portions of the plant subject to institutional control restrictions to document any changes in land use or infrastructure and to document compliance of any activities over the year with the institutional control plan
- Annual reporting to Ecology of the results of the inspections, including documentation of compliance with the institutional control plan, and any deviations

6.3.1 Exposure Pathway Model A SMWUs/AOCs

The cleanup alternatives developed in this section are applicable to the following SMWUs/AOCs:

- SWMU/AOC No. 90, Building 40-51, Former UST EV-11
- SWMU/AOC No. 112, Building 40-11, Oil/Water Separator
- SWMU/AOC No. 151, Building 40-51, Southern Air Scrubber Pump

These SWMUs/AOCs exhibit fill soils with perched groundwater and VOC contamination. As discussed in the conceptual site model for this EPM (Section 3.2.1), the currently complete exposure pathway consists only of potential construction worker exposure to perched groundwater. Concrete flooring or pavement currently prevents direct contact by factory

workers and restricts water infiltration that could cause leaching to deep Esperance Sand groundwater. Volatile constituent concentrations in soil gas exceed the industrial MTCA screening levels at two of these SWMU/AOCs. However, both are located outside of existing buildings. Perched groundwater at EPM A SWMUs/AOCs is nonpotable (see Section 5.1.4).

Based on the CSM elements summarized above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM A SWMUs/AOCs include the following:

1. Maintaining the existing containment to prevent future exposures and leaching, with continued perched groundwater monitoring

2. Treating perched groundwater in situ

3. Extracting perched groundwater for treatment at the on-site industrial wastewater treatment plant

4. Excavating the area while removing perched groundwater and backfilling the excavation with an impermeable material to exclude water in the future

The elements for each of the alternatives evaluated for these SWMUs/AOCs are listed in Table 6-1 and graphically presented on Figures 6-2 through 6-3. Detailed assumptions regarding the alternatives for each SWMU/AOC (such as number of monitoring wells) are included in the cost estimates presented in Appendix D.

Cleanup alternatives are not developed for SWMU/AOC No. 151, because concentrations of chemical constituents detected at this SWMU/AOC do not exceed the cleanup levels proposed in this FS. Because MTCA Method C cleanup levels are proposed for indoor air, however, institutional controls would be required at this SWMU/AOC to maintain the use of the property as industrial.

EPM A Alternative 1 – Maintain Containment

Alternative 1 for EPM A SWMUs/AOCs consists of maintaining containment of the contaminated soil and perched groundwater in place at each SWMU/AOC. There is no active treatment component to this alternative.

Institutional Control Components:

- Leaching of contaminants to groundwater would be prevented by requiring the pavement or building floor to remain in place and in good condition.

- Because these SWMUs/AOCs exhibit COCs exceeding sub-slab vapor screening levels located outside of existing structures, any future building construction in the area would be required to address potential vapor intrusion.

- Construction workers would be protected through requirements for notifications, training, soil and perched groundwater handling, and appropriate personal protective equipment during work within these SWMUs/AOCs.

Monitoring Components:

- Long-term monitoring of existing perched groundwater wells would be continued at SWMU/AOC Nos. 90 and 112 to track trends until concentrations of chemical constituents declined below cleanup levels. Monitoring would be discontinued at SWMU 151, where concentrations are currently below the cleanup levels proposed in this FS.

- Perched groundwater samples would be collected using standard low-flow sampling techniques once every 5 years to allow comparison of concentrations to cleanup levels during 5-year reviews.

Closeout: If, over time, concentrations in perched groundwater declined below cleanup levels, institutional controls related to perched groundwater would be removed and monitoring wells would be decommissioned. Institutional controls requiring evaluation of the vapor intrusion pathway for future would remain in place until additional investigation demonstrated that unacceptable risks were no longer present.

EPM A Alternative 2 – In Situ Treatment

Alternative 2 for EPM A SWMUs/AOCs consists of two different in situ technologies depending on the SWMU/AOC, institutional controls, and monitoring. This alternative is applicable to SWMU/AOC No. 90 and SWMU/AOC No. 112.

Active Treatment Component: Injection into permeable backfill material. ISCR would be used to treat VOCs at SWMU/AOC No. 90. In situ sorption and bioremediation using an aqueous carbon would be used to treat petroleum hydrocarbons at SWMU/AOC No. 112.

Institutional Control Component: Because in situ treatment would take some time to reduce contaminant concentrations to below the cleanup levels, the institutional controls listed in Alternative 1 would be applicable.

Monitoring Components:

- Initial perched groundwater sampling at injection sites would be quarterly and performed using standard low-flow sampling techniques to allow analysis for a comprehensive list of injection-related parameters as well as for chemical constituents.

- Following the injection system shakedown period, perched groundwater sampling would be used for tracking groundwater data trends and comparison of concentrations to cleanup levels.

Closeout: Once concentrations in perched groundwater were reduced below cleanup levels, institutional controls would be removed and monitoring and extraction wells would be decommissioned. Institutional controls requiring evaluation of the vapor intrusion pathway for future would remain in place until additional investigation demonstrated that unacceptable risks were no longer present.

EPM A Alternative 3 – Groundwater Extraction

Alternative 3 for EPM A SWMUs/AOCs consists of periodic groundwater extraction and treatment at the on-site industrial wastewater treatment plant, institutional controls, and monitoring. This alternative is applicable to SWMU/AOC Nos. 90 and 112.

Active Treatment Components:

- Extraction of perched groundwater from relatively low-flow well points through periodic pumping using a portable vacuum tank at SWMU/AOC No. 90 and continuous extraction from an additional recovery well at SWMU/AOC No. 112

- Transportation and discharge of extracted perched groundwater at the on-site industrial wastewater treatment plant for SWMU/AOC No. 90

- Direct discharge of extracted perched groundwater into the on-site industrial wastewater line at SWMU/AOC No. 112

Institutional Control Component: Because groundwater extraction would take some time to reduce contaminant concentrations to below the cleanup levels and the institutional controls listed in Alternative 1 would be applicable.

Monitoring Components:

- Initial perched groundwater sampling of monitoring wells would be quarterly for 1 year and performed using standard low-flow sampling techniques to establish initial conditions.

- Following the pumping system 1-year shakedown period, semiannual passive diffusion bag sampling would be used for tracking perched groundwater data trends, with low-flow perched groundwater samples once every 3 years to allow comparison of concentrations to cleanup levels.

Closeout:

- Once concentrations in extracted perched groundwater were documented to be below cleanup levels for 1 year (two consecutive semiannual passive diffusion bag results), the recovery system will be turned off and samples will be collected annually for another 2 years (two events total) using standard low-flow sampling to confirm that perched groundwater concentrations remain below cleanup levels.

- If concentrations below cleanup levels are confirmed, institutional controls related to perched groundwater will be removed and monitoring and extraction wells will be decommissioned. Institutional controls requiring evaluation of the vapor intrusion pathway for future would remain in place until additional investigation demonstrated that unacceptable risks were no longer present.

EPM A Alternative 4 – Near-Term Excavation with Dewatering

Alternative 4 for EPM A consists of soil excavation and removal of perched groundwater beneath the existing pavement outside of buildings. This alternative is applicable to SWMU/AOC No. 112 only.

Active Treatment Components:

- Decommissioning and excavation of the existing oil/water separator and excavation of the surrounding soil in the near term as part of planned site infrastructure activities, with off-site disposal of soil containing chemical constituents

- Decommissioning and removal of the existing recovery well and monitoring well for the oil/water separator

- Removal of perched groundwater during excavation until only negligible perched groundwater enters the excavation and disposal of the perched groundwater at the on-site industrial wastewater plant
- Installation of a new oil/water separator
- Backfill of the excavation with relatively impermeable materials (CDF or equivalent) in areas of over-excavation and backfill of the oil/water separator with suitable backfill (pea gravel)
- This alternative assumes that the cleanup action must account for the interruption of plant operations during excavation and replacement of the existing oil/water separator

Institutional Control Component: Under this alternative, contaminants in soil and perched groundwater would be removed from the site in the near term and institutional controls would not be required.

Monitoring Component: Under this alternative, contaminants in soil and perched groundwater would be removed from the site in the near term and periodic groundwater sampling would not be required.

Closeout: Once excavation takes place, confirmation soil samples would be collected as part of the oil/water separator replacement. An opportunistic perched groundwater sample would be collected from infiltrating or residual perched groundwater for comparison to cleanup levels.

6.3.2 Exposure Pathway Model B SMWUs/AOCs

The cleanup alternatives developed in this section are applicable to SMWU/AOC Nos. 86, 89, and 94 at Building 40-56 (Former USTs), which exhibit fill soils with perched groundwater and BTEX contamination. As discussed in the CSM for this EPM (Section 3.2.2), the currently complete exposure pathway consists only of potential construction worker exposure to perched groundwater. Pavement currently prevents direct contact by factory workers and restricts water infiltration that could cause leaching to deep Esperance Sand groundwater. VOCs in the sub-slab vapor samples exceed air screening levels but are located outside of Building 40-56. Perched groundwater at EPM B SWMUs/AOCs is nonpotable (see Section 5.1.4).

Based on the CSM elements summarized above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM B SWMUs/AOCs include the following:

1. Maintaining the existing containment to prevent future exposures and leaching, with continued perched groundwater monitoring, but no continued perched groundwater recovery using the existing IA pump

2. Treating perched groundwater in situ using a combination of soil vapor extraction and perched groundwater extraction and treatment at the on-site industrial wastewater treatment plant

3. Excavating the area while removing perched groundwater and backfilling the excavation with an impermeable material to exclude water in the future

Based on the pilot test results for DPE technology at these SWMUs/AOCs (URS, 2014b), DPE is not included in the alternatives developed below. However, the essential functional elements of DPE (soil vapor extraction [SVE] and groundwater extraction) are included as components of the in situ treatment alternative.

Based on the injection pilot test results at these SWMUs/AOCs (URS 2014a), injection is not included in the alternatives developed below.

The elements for each alternative evaluated for the SWMUs/AOCs are listed in Table 6-2 and graphically presented on Figures 6-4a and 6-4b. Detailed assumptions regarding the alternatives for each SWMU/AOC are included in the cost estimates presented in Appendix D.

EPM B Alternative 1 – Maintain Containment

Alternative 1 for EPM B SWMUs/AOCs consists of maintaining containment of the contaminated soil and perched groundwater in place. There is no active treatment component to this alternative. The existing perched groundwater recovery pump would be decommissioned.

Institutional Control Components:

- Leaching of contaminants to groundwater would be prevented by requiring the pavement to remain in place and in good condition.

- Any future building construction in the area would be required to address potential vapor intrusion.

- Construction workers would be protected through requirements for notifications, training, soil and perched groundwater handling, and appropriate personal protective equipment during work within these SWMUs/AOCs.

Monitoring Components:

- Long-term monitoring of existing perched groundwater wells would be continued to track trends until concentrations of chemical constituents declined below cleanup levels for unrestricted use.

- Passive diffusion bag sampling would be used for annual perched groundwater data collection for trend tracking, standard low-flow collection of perched groundwater samples once every 5 years to allow comparison of concentrations to cleanup levels.

Closeout: If, over time, concentrations in perched groundwater declined below cleanup levels, institutional controls related to perched groundwater would be removed and monitoring wells would be decommissioned. Institutional controls requiring evaluation of the vapor intrusion pathway for future would remain in place until additional investigation demonstrated that unacceptable risks were no longer present.

EPM B Alternative 2 – In Situ Treatment

Alternative 2 for EPM B SWMUs/AOCs consists of low-flow perched groundwater recovery, SVE, institutional controls, and monitoring.

Active Treatment Components:

- Extraction of perched groundwater from select existing wells through continuous pumping

- Discharge of extracted perched groundwater into the on-site industrial wastewater treatment plant inflow piping for treatment at the plant

- SVE, with multiple extraction-point systems to target fill materials of differing permeabilities.

Institutional Control Component: Because in situ treatment would take some time to reduce contaminant concentrations to below the cleanup levels, the institutional controls listed in Alternative 1 would be applicable.

Monitoring Components:

- Initial perched groundwater sampling monitoring wells would be quarterly for 1 year and performed using standard low-flow techniques to establish initial conditions.

- Following the pumping system 1-year shakedown period, semiannual passive diffusion bag sampling would be used for tracking perched groundwater data trends, with collection of standard low-flow perched groundwater samples once every 3 years to allow comparison of concentrations to cleanup levels.

Closeout: Once the rate of concentration decline in extracted vapor exhibited an asymptotic stabilization (as documented by performance sampling during operation and maintenance [O&M] of the SVE system) and concentrations in perched groundwater were reduced below cleanup levels, institutional controls related to perched groundwater would be removed and monitoring and extraction wells decommissioned. Institutional controls requiring evaluation of the vapor intrusion pathway for future would remain in place until additional investigation demonstrated that unacceptable risks were no longer present.

EPM B Alternative 3 – Near-Term Excavation with Dewatering

Alternative 3 for EPM B SWMUs/AOCs consists of excavation and perched groundwater removal beneath existing pavement outside of existing buildings.

Active Treatment Components:

- Excavation and off-site disposal of soil containing chemical constituents in the near term, using precision excavation, hand-digging, or air knife excavation around utilities and infrastructure.
- Removal of perched groundwater during excavation until only negligible perched groundwater enters the excavation
- Identification, rerouting, and/or repair of sources of perched water to this area (e.g., leaking roof drains or storm drain piping)
- Backfill of the excavation with relatively impermeable materials (CDF or equivalent) to preclude perching of groundwater in the future
- Assumes that the cleanup action must account for the interruption of plant operations during excavation

Institutional Control Component: Because excavation will not remove all contaminated soil and perched groundwater, the institutional controls listed in Alternative 1 would be applicable.

Monitoring Component: Under this alternative, contaminants will remain in soil and perched groundwater, necessitating continued perched groundwater monitoring from remaining wells. Semiannual passive diffusion bag sampling would be used for tracking perched groundwater data

trends, with collection of standard low-flow groundwater samples once every 3 years to allow comparison of concentrations to cleanup levels.

Closeout: Once excavation takes place, confirmation soil samples would be collected. Based on sample results and if concentrations in perched groundwater are below proposed cleanup levels, institutional controls may be removed.

6.3.3 Exposure Pathway Model C SMWUs/AOCs

The cleanup alternatives developed in this section are applicable to SWMU/AOC No. 166, Building 45-53 (UST EV-110-1), which exhibits fill soils with perched groundwater and TPH contamination. As discussed in the CSM for this EPM (Section 3.2.3), the currently complete exposure pathway consists only of potential construction worker exposure to perched groundwater. Pavement currently prevents direct contact by factory workers and restricts water infiltration that could cause leaching to deep Esperance Sand groundwater. Perched groundwater at the EPM C SWMU/AOC is nonpotable (see Section 5.1.4). At the time of preparation of this FS report, TPH concentrations in the most recent perched groundwater samples at this SWMU/AOC had dropped below the cleanup levels proposed in this FS.

Based on the CSM elements summarized above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for the EPM C SWMU/AOC include the following:

1. Maintaining the existing containment to prevent future exposures and leaching, with continued perched groundwater monitoring

2. Periodically extracting perched groundwater for transport to, and treatment by, the on-site industrial wastewater treatment plant

Based on the injection pilot test results at this SWMU/AOC (URS 2014a), injection is not included in the alternatives developed below.

The elements for each alternative evaluated for the SWMUs/AOCs are listed in Table 6-3 and graphically presented on Figure 6-5. Detailed assumptions regarding the alternatives for each SWMU/AOC are included in the cost estimates presented in Appendix D.

EPM C Alternative 1 – Maintain Containment

Alternative 1 for EPM C the SWMU/AOC consists of maintaining containment of the contaminated perched groundwater in place. There is no active treatment component to this alternative.

Institutional Control Components:

- Direct contact with contaminants in perched groundwater would be prevented by requiring the pavement to remain in place and in good condition.
- Construction workers would be protected through requirements for notifications, training, soil and perched groundwater handling, and appropriate personal protective equipment during work within these SWMUs/AOCs.

Monitoring Components:

- Long-term monitoring of existing perched groundwater wells would be continued to track trends until concentrations of chemical constituents remain consistently below cleanup levels for unrestricted use.
- Passive diffusion bag sampling would be used for annual perched groundwater data collection for trend tracking, with collection of standard low-flow perched groundwater samples once every 5 years to allow comparison of concentrations to cleanup levels.

Closeout: If, over time, concentrations in perched groundwater declined below cleanup levels, institutional controls related to perched groundwater would be removed and monitoring wells would be decommissioned.

EPM C Alternative 2 – Groundwater Extraction

Alternative 2 for EPM C SWMUs/AOCs consists of periodic groundwater extraction and disposal at the on-site industrial wastewater treatment plant, institutional controls, and monitoring.

Active Treatment Components:

- Extraction of perched groundwater from well EGW035 on a quarterly basis using a drop-tube attached to a portable vacuum extraction tool
- Discharge of extracted perched groundwater at the on-site industrial wastewater treatment plant

Institutional Control Component: Because perched groundwater extraction would take some time to reduce contaminant concentrations to below the cleanup levels, the institutional controls listed in Alternative 1 would be applicable.

Monitoring Components:

- Perched groundwater sampling at well EGW035 would continue on a semiannual basis for 1 year and would be performed using standard low-flow techniques to establish initial conditions.

- Following the pumping system 1-year shakedown period, semiannual passive diffusion bag sampling would be used for tracking perched groundwater data trends, with collection of standard low-flow perched groundwater samples once every 3 years to allow comparison of concentrations to cleanup levels.

Closeout:

- Once concentrations in extracted perched groundwater were documented to be below cleanup levels for 1 year (two consecutive semiannual passive diffusion bag results), the perched groundwater recovery will be discontinued and samples will be collected semiannually for another year (two events) using standard low-flow techniques to confirm that perched groundwater concentrations remain below cleanup levels.

- If concentrations below cleanup levels are confirmed, institutional controls will be removed and the monitoring wells will be decommissioned.

6.3.4 Exposure Pathway Model D SMWUs/AOCs

The cleanup alternatives developed in this section are applicable to SMWU/AOC Nos. 55 and 168 at Building 40-24 (Utility Trenches and Sumps), which exhibits fill soils with perched groundwater and hydraulic fluid contamination. As discussed in the CSM for this EPM (Section 3.2.4), the currently complete exposure pathway consists only of potential construction worker exposure to perched groundwater, NAPL, and soil. Concrete flooring or pavement currently prevents direct contact by factory workers and restricts water infiltration that could cause leaching to deep Esperance Sand groundwater. Perched groundwater at EPM D SWMUs/AOCs is nonpotable (see Section 5.1.4).

Based on the CSM elements described above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM D SWMUs/AOCs include the following:

1. Maintaining the existing containment to prevent future exposures and leaching

2. Periodically extracting perched groundwater for transport to, and treatment by, the on-site industrial wastewater treatment plant

3. Continuously extracting perched groundwater, with transport through conveyance piping to the on-site industrial wastewater treatment plant

4. Excavating the portion of the SWMU/AOC outside of Building 40-24 (the Vault E area) while removing perched groundwater and backfilling the excavation with an impermeable to material to exclude water in the future and periodic removal of remaining perched groundwater from utilidor backfill beneath the building

Based on the bench-scale pilot test results at these SWMUs/AOCs (URS 2014a), injection is not included in the alternatives developed below.

The alternatives developed do not include excavation of soil containing hydraulic fluid in utilidor backfill beneath Building 40-24. Because of the active airplane manufacturing in this building, such excavation is screened out as clearly disproportionately costly per WAC 173-240-350(8)(b)(i).

The elements for each alternative evaluated for the SWMUs/AOCs are listed in Table 6-4 and graphically presented on Figures 6-6a, 6-6b, and 6-6c. Detailed assumptions regarding the alternatives for each SWMU/AOC are included in the cost estimates presented in Appendix D.

EPM D Alternative 1 – Maintain Containment

Alternative 1 for the EPM D SWMUs/AOCs consists of maintaining containment of the contaminated soil and perched groundwater in place. There is no active treatment component to this alternative.

Institutional Control Components:

- Leaching of contaminants to groundwater, and direct contact with contaminated perched groundwater and soil would be prevented by requiring the pavement or building floor to remain in place and in good condition.

- Construction workers would be protected through requirements for notifications, training, soil and perched groundwater handling, and appropriate personal protective equipment during work within these SWMUs/AOCs.

Monitoring Components:

- Long-term monitoring of a subset of existing perched groundwater wells would be continued to track trends until concentrations of chemical constituents declined below cleanup levels for unrestricted use.

- Passive diffusion bag sampling would be used for annual perched groundwater data collection for trend tracking, with collection of standard low-flow perched groundwater samples once every 5 years to allow comparison of concentrations to cleanup levels.

Closeout: If, over time, concentrations in perched groundwater declined below cleanup levels, institutional controls would be removed and monitoring wells would be decommissioned.

EPM D Alternative 2 – Periodic Groundwater Extraction

Alternative 2 for the EPM D SWMUs/AOCs consists of periodic groundwater recovery, institutional controls, and monitoring.

Active Treatment Components:

- Extraction of perched groundwater using portable equipment on a quarterly basis from all existing monitoring wells exhibiting concentrations of chemical constituents exceeding cleanup levels

- Discharge of extracted perched groundwater into the on-site industrial wastewater treatment plant

Institutional Control Components:

- Because in situ treatment would take some time to reduce contaminant concentrations in perched groundwater to below the cleanup levels, the institutional controls listed in Alternative 1 would be applicable.

- The institutional controls listed in Alternative 1 would also be applicable to soil containing chemical constituents remaining beneath the pavement and factory floor.

Monitoring Components:

- Initial perched groundwater sampling of monitoring wells would be quarterly for 1 year and performed with standard low-flow techniques to establish initial conditions.

- Following the pumping system 1-year shakedown period, semiannual passive diffusion bag sampling would be used for tracking perched groundwater data trends, with collection of standard low-flow perched groundwater samples once every 3 years to allow comparison of concentrations to cleanup levels.

Closeout:

- Once concentrations in perched groundwater were reduced below cleanup levels, institutional controls related to perched groundwater would be removed and monitoring and extraction wells would be decommissioned.

- Institutional controls related to chemical constituents in soil beneath the pavement and factory floor would remain in place until a change in land or building use resulted in additional action at the affected SWMU/AOC that resulted in removal of chemical constituents above cleanup levels.

EPM D Alternative 3 – Continuous Groundwater Extraction

Alternative 3 for the EPM D SWMUs/AOCs consists of continuous groundwater recovery, institutional controls, and monitoring.

Active Treatment Components:

- Extraction of perched groundwater using low-flow pumping from all existing monitoring wells exhibiting concentrations of chemical constituents exceeding cleanup levels

- Discharge of extracted perched groundwater into the on-site industrial wastewater treatment plant inflow piping for treatment at the plant

Institutional Control Components:

- Because in situ treatment would take some time to reduce contaminant concentrations in perched groundwater to below the cleanup levels, the institutional controls listed in Alternative 1 would be applicable.

- The institutional controls listed in Alternative 1 would also be applicable to soil containing chemical constituents remaining beneath the pavement and factory floor.

Monitoring Components:

- Initial perched groundwater sampling monitoring wells would be quarterly for 1 year and performed with standard low-flow techniques to establish initial conditions.

- Following the pumping system 1-year shakedown period, semiannual passive diffusion bag sampling would be used for tracking perched groundwater data trends, with collection of standard low-flow perched groundwater samples once every 3 years to allow comparison of concentrations to cleanup levels.

Closeout:

- Once concentrations in perched groundwater were reduced below cleanup levels, institutional controls related to perched groundwater would be removed and monitoring and extraction wells would be decommissioned.

- Institutional controls related to chemical constituents in soil beneath the pavement and factory floor would remain in place until a change in land or building use resulted in additional action at the affected SWMU/AOC that resulted in removal of chemical constituents above cleanup levels.

EPM D Alternative 4 – Near-Term Excavation with Periodic Groundwater Removal

Alternative 4 for EPM D SWMUs/AOCs consists of decommissioning and excavation of Vault E, perched groundwater removal outside of Building 40-24 during excavation, ongoing periodic perched groundwater removal inside of Building 40-24, institutional controls, and monitoring. Under this alternative, soil containing chemical constituents would remain in place beneath the factory floor inside of Building 40-24.

Active Treatment Components:

- Decommissioning of Vault E, including incoming utilities

- Demolition of Vault E structures and piping

- Excavation and off-site disposal of soil containing chemical constituents in the near term

- Removal of perched groundwater during excavation until only negligible perched groundwater enters the excavation

- Identification and rerouting of sources of perched water to this area (e.g., leaking roof drains or storm drain piping

- Installation of piping connection to well EGW037, located inside of Building 40-24, and low-flow recovery pump installation in well EGW037

- Termination of EGW037 recovery well pump piping outside of Building 40-24 at the location of former Vault E
- Backfill of the excavation with relatively impermeable materials (CDF or equivalent) to preclude perching of groundwater in the future
- Extraction of perched groundwater from well EGW037 using portable equipment on a quarterly basis
- Discharge of extracted perched groundwater into the on-site industrial wastewater treatment plant
- Assumes that the cleanup action must account for the interruption of plant operations during excavation

Institutional Control Components:

- Because perched groundwater recovery from well EGW037 would take some time to reduce contaminant concentrations in perched groundwater to below the cleanup levels, the institutional controls listed in Alternative 1 would be applicable.
- The institutional controls listed in Alternative 1 would also be applicable to soil containing chemical constituents remaining beneath the factory floor.

Monitoring Components:

- Under this alternative, perched groundwater would only remain beneath the utilidor within the footprint of Building 40-24. Following removal of Vault E, only well EGW037 would remain.
- Perched groundwater samples from well EGW037 would be collected from the extracted water stream during quarterly perched groundwater recovery.

Closeout:

- Once concentrations in extracted perched groundwater were reduced below cleanup levels, perched groundwater extraction would be discontinued.
- Sampling of well EGW037 would be performed on a semiannual basis for 2 years (four sampling events). If concentrations in perched groundwater remain below cleanup levels, institutional controls related to perched groundwater would be removed and well EGW037 would be decommissioned.

- Institutional controls related to chemical constituents in soil beneath the factory floor would remain in place until a change in land or building use resulted in additional action at the affected SWMU/AOC that resulted in removal of chemical constituents above cleanup levels.

6.3.5 Exposure Pathway Models E-F SMWUs/AOCs

The cleanup alternatives developed in this section are applicable to the following SMWUs/AOCs:

- SWMU/AOC No. 171, Building 40-31, Former Bluestreak Vapor Degreaser
- SWMU/AOC No. 97, Building 40-11, Former Vapor Degreaser
- SWMU/AOC No. 98, Building 40-53, Former Mock-Up Degreaser
- SWMU/AOC No. 170, Building 40-02, Former Large Vapor Degreaser
- SWMU/AOC No. 169, Building 40-02, Former Small Vapor Degreaser
- Former Paint Crib, Building 40-02
- SWMU/AOC No. 54, Building 40-51, Former Wastewater AST
- Footing Excavation, Building 40-32
- SWMU/AOC No. 68, South Fire Pit (EPM F)

These SWMUs/AOCs exhibit fill soils without perched groundwater and either VOC or TPH contamination. As discussed in the CSM for these EPMs (Sections 3.2.5 and 3.2.6), the only complete exposure pathway at these SWMUs/AOCs is a potential construction worker exposure to soil at some SWMUs/AOCs. Where chemical constituents are present in soil above a concentration protective of the direct contact pathway, concrete flooring or pavement currently prevents direct contact by factory workers. Where volatile constituent concentrations in sub-slab vapor exceed the industrial MTCA screening levels, the concentrations are not a current risk to industrial indoor air, either based on Boeing's industrial hygiene evaluation of the interior work spaces, or because the sub-slab vapor detections are outside of existing structures. The EPMs E and F SWMUs/AOCs are located in areas without perched groundwater, and modeling demonstrates that leaching to the Esperance Sand aquifer will not occur with the building or pavement in place.

Based on the CSM elements described above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPMs E and F SWMUs/AOCs include the following:

1. Maintaining the existing containment to prevent future exposures and leaching
2. Soil vapor extraction
3. Future excavation during other site development at the SWMU/AOC
4. Near-term excavation performed shortly after execution of the CAP

Not all cleanup alternatives in this section are applicable to all SWMUs/AOCs. Limitations are detailed within each alternative description below.

The elements for each alternative evaluated for the SWMUs/AOCs are listed in Tables 6-5 and 6-6 and graphically presented on Figures 6-7a through 6-15b. Detailed assumptions regarding the alternatives for each SWMU/AOC are included in the cost estimates presented in Appendix D.

EPM E-F Alternative 1 – Maintain Containment

Alternative 1 for EPM E-F SWMUs/AOCs consists of maintaining containment of the contaminated soil in place at each SWMU/AOC. There is no active treatment component to this alternative.

Institutional Control Components:

- Leaching of contaminants to groundwater would be prevented by requiring the pavement or building floor to remain in place and in good condition.
- For SWMUs/AOCs located outside of existing structures, any future building construction in the area would be required to address potential vapor intrusion.
- For SWMUs/AOCs with chemical constituents exceeding sub-slab vapor screening inside of existing buildings (SWMU/AOC No. 171 at Building 40-31, SWMU/AOC No. 97 at Building 40-11, SWMU/AOC No. 98 at Building 40-53, and the footing excavation at Building 40-32), any building construction that penetrates the floor or changes the building use would be required to address potential vapor intrusion.

Monitoring Component: No ongoing monitoring is proposed for these SWMUs/AOCs under this alternative.

Closeout: The components of this alternative would remain in place until a change in land or building use resulted in additional action at the affected SWMU/AOC that resulted in removal of chemical constituents above cleanup levels.

EPM E-F Alternative 2 – Soil Vapor Extraction

Alternative 2 for EPM E-F SWMUs/AOCs consists of SVE from beneath existing building floors or pavement outside of existing buildings, institutional controls, and monitoring.

Active Treatment Component: SVE from beneath existing building infrastructure

Institutional Control Components:

- Because SVE would take some time to reduce contaminant concentrations in vapor to below MTCA Method C screening levels, the institutional controls listed in Alternative 1 would be applicable.
- Similarly, it would take some time for contaminant concentrations in soil to be reduced to levels protective of groundwater, and therefore the institutional controls listed for protection of groundwater in Alternative 1 would be applicable.

Monitoring Components: Periodic sampling and analysis of vapors extracted by the SVE system

Closeout: Once concentrations in extracted vapor and sub-slab vapor samples were sufficiently reduced (as documented by sampling during O&M), confirmation soil samples would be collected and institutional controls would be removed.

This alternative is not applicable to SWMU/AOC No. 169 and the Former Paint Crib at Building 40-02. Soil concentrations at these SWMUs/AOCs are below MTCA Method B protection of groundwater cleanup levels and therefore SVE is not necessary.

This alternative is not applicable to SWMU/AOC No. 54 at Building 40-51 because dense glacial till is present immediately below the concrete pavement. Glacial till is too dense and impermeable for SVE to be practicable.

This alternative is not applicable to SWMU/AOC No. 97 at Building 40-11 because excavation for SVE piping and wells would result in removal of the majority of contaminated soil based on the small volume present. Therefore, an excavation alternative is more practicable for contaminant removal.

EPM E-F Alternative 3 – Future Excavation

Alternative 3 for EPM E-F SWMUs/AOCs consists of future excavation from beneath existing building floors or pavement outside of existing buildings, institutional controls, and monitoring.

Active Treatment Components:

- Excavation and off-site disposal of soil containing chemical constituents when a future infrastructure project provides an opportunity for excavation
- Assumes that the future infrastructure project has already accounted for interruption in plant operations, such that the cleanup action need not account for this implementability and cost issue

Institutional Control Component: Until excavation occurs, the institutional controls listed in Alternative 1 for protection of the indoor air and leaching to groundwater pathway would be applicable.

Monitoring Component: No ongoing monitoring is proposed for these SWMUs/AOCs under this alternative.

Closeout: Once excavation takes place, confirmation soil samples would be collected and institutional controls would be removed.

This alternative is not applicable to SWMU/AOC No. 169 and the Former Paint Crib at Building 40-02. Soil concentrations at these SWMUs/AOCs are below MTCA Method B protection of groundwater cleanup levels, and therefore excavation is not necessary.

This alternative is not applicable to the Building 40-32 footing excavation AOC because excavation is not feasible around the 40-32 hangar door footing and pedestrian tunnel infrastructure.

EPM E-F Alternative 4 – Near-Term Excavation

Alternative 4 for EPM E-F SWMUs/AOCs consists of excavation beneath existing building floors or pavement outside of existing buildings.

Active Treatment Components:

- Excavation and off-site disposal of soil containing chemical constituents in the near term
- Assumes that the cleanup action must account for the interruption of plant operations during excavation

Institutional Control Component: Under this alternative, contaminants in soil would be removed from the site in the near term and institutional controls would not be required.

Monitoring Component: Under this alternative, contaminants in soil would be removed from the site in the near term and ongoing sampling would not be required.

Closeout: Once excavation takes place, confirmation soil samples would be collected and institutional controls removed.

This alternative is not applicable to SWMU/AOC No. 169 and the Former Paint Crib at Building 40-02. Soil concentrations at these SWMUs/AOCs are below MTCA Method B protection of groundwater cleanup levels and therefore excavation is not necessary.

This alternative is not applicable to the Building 40-32 footing excavation AOC because excavation is not feasible around the 40-32 hangar door footing and pedestrian tunnel infrastructure.

6.3.6 Exposure Pathway Model G-H SMWUs/AOCs

The cleanup alternatives developed in this section are applicable to the following SMWUs/AOCs:

- SWMU/AOC No. 65, Building 40-51, Former Paint Stripping Tankline
- UST EV-48-1, Building 40-11
- SWMU/AOC 165, Former Fuel Farm USTs and Fuel Stall Piping
- SWMU/AOC No. 83, Former UST EV-15
- SWMU/AOC No. 93, Building 45-01, Former Solvent Tanks
- SWMU/AOC Nos. 67 and 71, Building 40-56, Former Recycling Unit and UST EV-153

These SWMUs/AOCs exhibit fill soils without perched groundwater and either VOC, TPH, or metals contamination. As discussed in the CSM for these EPMs (Sections 3.2.7 and 3.2.8), the only complete exposure pathway at these SWMUs/AOCs is a potential construction worker exposure to soil at some SWMUs/AOCs. Where chemical constituents are present in soil above a concentration protective of the direct contact pathway, concrete flooring or pavement currently prevents direct contact by factory workers. Where volatile constituents are detected in sub-slab vapor, they do not exceed the industrial MTCA screening levels. The EPMs G and H SWMUs/AOCs are located in areas without perched groundwater, and modeling demonstrates that leaching to the Esperance Sand aquifer will not occur with the building or pavement in place.

Based on the CSM elements described above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPMs E and F SWMUs/AOCs include the following:

1. Maintaining the existing containment to prevent future exposures and leaching
2. Future excavation during other site development at the SWMU/AOC
3. Near-term excavation, performed shortly after execution of the CAP

In situ treatment technologies (such as SVE) are not evaluated for these SWMUs/VOCs because of the nature of the chemical constituents present (such as heavy-end hydrocarbons) or the nature of the subsurface (such as dense glacial till).

The elements for each alternative evaluated for the SWMUs/AOCs are listed in Tables 6-7 and 6-8 and graphically presented on Figures 6-16 through 6-21. Detailed assumptions regarding the alternatives for each SWMU/AOC are included in the cost estimates presented in Appendix D.

EPM G-H Alternative 1 – Maintain Containment

Alternative 1 for EPM G-H SWMUs/AOCs consists of maintaining containment of the contaminated soil in place at each SWMU/AOC. With the exception of SWMU/AOC 165, there are no active treatment components to this alternative.

Active Treatment Component: For SWMU/AOC 165, Alternative 1 includes limited excavation in the area of the former fuel farm where free product was observed during UST removal. The area of excavation is near and potentially extends beneath an active electrical substation. Because of limited access, this alternative assumes that the excavation work will be performed during a future substation upgrade completed by Site Services. The current understanding is that the substation upgrade will be completed by 2025.

Institutional Control Components:

- Leaching of contaminants to groundwater and direct contact would be prevented by requiring the pavement or building floor to remain in place and in good condition.
- Institutional controls/containment would be applicable to the remaining contaminated areas of SWMU/AOC No. 165.

Monitoring Component: Other than periodic inspections and reporting of institutional controls, no monitoring is included in this alternative.

Closeout:

- The components of this alternative would remain in place until a change in land use resulted in additional action at the affected SWMU/AOC that resulted in removal of chemical constituents above cleanup levels.
- For SWMU/AOC No. 165, once excavation takes place in the area of free product, confirmation soil samples would be collected and institutional controls would be removed for this portion of the SWMU/AOC.

EPM G-H Alternative 2 – Future Excavation

Alternative 3 for EPM G-H SWMUs/AOCs consists of future excavation from beneath existing building floors or pavement outside of existing buildings, institutional controls, and monitoring.

Active Treatment Components:

- Excavation and off-site disposal of soil containing chemical constituents when a future infrastructure project provides an opportunity for excavation
- Assumes that the future infrastructure project has already accounted for interruption in plant operations, such that the cleanup action need not account for this implementability and cost issue

Institutional Control Component: Until excavation occurs, the institutional controls listed in Alternative 1 for protection of the direct contact and leaching to groundwater pathway would be applicable.

Monitoring Component: Other than periodic inspections and reporting of institutional controls, no monitoring is included in this alternative.

Closeout: Once excavation takes place, confirmation soil samples would be collected and institutional controls would be removed.

This alternative is not applicable to SWMU/AOC No. 93, where excavation activity is not anticipated to adversely impact plant operations.

EPM G-H Alternative 3 – Near-Term Excavation

Alternative 3 for EPM G-H SWMUs/AOCs consists of excavation beneath existing building floors or pavement outside of existing buildings.

Active Treatment Components:

- Excavation and off-site disposal of soil containing chemical constituents in the near term
- Assumes that the cleanup action must account for the interruption and/or relocation of plant operations during excavation, including the permanent relocation of the active electrical substation and associated electrical connections at SWMU/AOC No. 165

Institutional Control Component: Under this alternative, contaminants in soil would be removed from the site in the near term, and institutional controls would not be required.

Monitoring Component: Under this alternative, contaminants in soil would be removed from the site in the near term no monitoring would be required.

Closeout: Once excavation takes place, confirmation soil samples would be collected and institutional controls would be removed.

This alternative is not applicable to SWMU/AOC No. 83 because excavation on the flightline is not feasible except during major infrastructure work or other operations-driven closure.

6.3.7 Exposure Pathway Model I SMWUs/AOCs

The cleanup alternatives developed in this section are applicable to Esperance Sand Well EGW061, which exhibits elevated arsenic in deep Esperance Sand groundwater. As discussed in the CSM for this SWMU/AOC, the relatively higher arsenic concentrations in the native Esperance Sand aquifer materials in this area may be a natural condition and not the result of a release. The only complete exposure pathway for this AOC is future drinking water.

The Esperance Sand aquifer is known to be highly productive, as demonstrated locally by the relatively high pumping rates at the GET system currently operating in PMG. On this basis, pumping of groundwater from the vicinity of well EGW061 for the purposes of containing or treating groundwater exhibiting elevated arsenic would likely generate very large volumes of water. The benefits of pumping groundwater at this SWMU/AOC would be minimal, because there is no current or likely future exposure pathway.

Treatment of groundwater at this SWMU/AOC is screened out as clearly disproportionately costly per WAC 173-240-350(8)(b)(i). As a result, this FS only considers institutional controls and continued groundwater monitoring for this SWMU/AOC.

The elements for the alternative evaluated for Esperance Sand wall EGW061 are listed in Table 6-9 and graphically presented on Figure 6-22. Detailed assumptions regarding the alternative are included in the cost estimates presented in Appendix D.

EPM I Alternative 1 – Institutional Controls

Alternative 1 for the EPM I SWMU/AOC consists of an institutional control and long-term monitoring for the contaminated groundwater. There is no active treatment component to this alternative.

Institutional Control Component: Use of the Esperance Sand groundwater in the vicinity of well EGW061 as a source of drinking water would be prohibited.

Monitoring Components:

- Long-term monitoring of existing Esperance Sand groundwater wells would be continued to ensure that elevated arsenic concentrations continued to be limited to the vicinity of well EGW061.

- Monitoring would be performed annually.

Closeout: If, over time, concentrations in groundwater declined below cleanup levels, institutional controls would be removed and monitoring wells would be decommissioned.

6.3.8 Exposure Pathway Model J SMWUs/AOCs

The cleanup alternatives developed in this section are applicable to SMWU/AOC No. 100, the Former Gun Club, which exhibits cPAHs and lead in shallow soil and sediment (typically the upper 6 inches of soil). The currently complete exposure pathways consist of human direct contact with soil, sediment, and perched groundwater, as well as ecological exposures. Perched groundwater at EPM J SWMUs/AOCs is nonpotable (see Section 5.1.4), and concentrations of chemical constituents in the perched groundwater do not exceed the risk-based cleanup levels proposed in this FS for nonpotable perched groundwater.

The alternatives developed in this FS consider that most of the remaining contaminated area at the Former Gun Club consists of an undeveloped, mature, forested wetland, with some of the cleanup area within the buffer of the Boeing Lake mitigation wetland. In situ technologies were considered as part of cleanup level development (such as in situ stabilization), but were rejected because they could not be implemented without destroying the wetland characteristics of the soil. Because this SWMU/AOC is outside of the fenced portion of the site, containment and institutional controls were not included as potential cleanup elements. The two cleanup level alternatives developed were variants of excavation:

1. Limited excavation, which would attempt to preserve the larger trees in the mature forest in place

2. Comprehensive excavation

The elements for each alternative evaluated for this SWMU/AOC are listed in Table 6-10 and graphically presented on Figure 6-23. Detailed assumptions regarding the alternatives for each SWMU/AOC are included in the cost estimates presented in Appendix D.

EPM J Alternative 1 – Limited Excavation

Alternative 1 for the EPM J SWMU/AOC consists of excavating much of the contaminated soil and sediment, institutional controls, and monitoring.

Active Treatment Components:

- The surface layer of beneficial organic material and humus would be removed and stockpiled. The material would be sampled to confirm that it does not exceed the

MTCA ecological terrestrial cleanup levels and could be returned to the site during restoration.

- The upper layer of soil and sediment would be excavated to an average depth of 6 inches using minimally invasive techniques, such as hand digging, that would also be feasible for the accessibility constraints in the forested area.
- Underbrush, small trees, and decaying trees would be removed.
- Soil would be left in place around large trees with significant diameters, to preserve the forested wetland features to the extent possible.
- The site would be restored as a forested wetland.

Institutional Control Components:

- Direct contact with contaminated soil remaining in Area B would be prevented by prohibiting access, including fencing the affected area.
- Direct contact with contaminated soil remaining beneath West Frontage Road (associated with Area C) would be prevented by requiring the road pavement to remain in place and in good condition.
- Construction workers would be protected through requirements for notifications, training, soil and perched groundwater handling, and appropriate personal protective equipment during work within this SWMU/AOC.

Monitoring Component: None. Monitoring wells would be decommissioned as part of this alternative.

Closeout: Institutional controls related to the soil beneath West Frontage Road and the remaining contaminated soil in Area B would be maintained until a change in land use resulted in additional action that resulted in removal of chemical constituents above cleanup levels, as documented through confirmation soil sampling.

EPM J Alternative 2 – Comprehensive Excavation

Alternative 2 for the EPM J SWMU/AOC consists of excavating all soil at Areas B and C exhibiting chemical constituents exceeding cleanup levels, institutional controls, and monitoring.

Active Treatment Components:

- All surface humus and soil and sediment throughout Area B exhibiting chemical constituents exceeding cleanup levels would be excavated to an average depth of 6 inches below humus, as documented through confirmation soil sampling.
- Complete removal of vegetation within the affected portion of Area B would be required to access all soil, and demolition of a small portion of West Frontage Road would be required.
- Area B would be restored as a forested wetland and West Frontage Road would be restored as a roadway.

Institutional Control Component: No institutional controls would be required under this alternative.

Monitoring Component: None. Monitoring wells would be decommissioned as part of this alternative.

Closeout: Closeout would occur following Ecology concurrence that the excavation and restoration was complete.

6.3.9 Exposure Pathway Model K SMWUs/AOCs

The alternatives developed in this section are applicable to the PMG SWMU/AOC, which exhibits VOCs in groundwater and surface water. The only complete pathways are ecological ingestion of surface water and potential future human consumption of freshwater organisms and groundwater.

Based on the CSM elements described above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM K PMG SWMU/AOC include the following:

- Alternative 1 – Continued Operation of Existing GET System and Institutional Controls
- Alternative 2 – Source Area Bioremediation (ISCO), Continued Operation of Existing GET System, and Institutional Controls
- Alternative 3 – Focused In Situ Chemical Oxidation (EISB), Continued Operation of Existing GET System, and Institutional Controls

- Alternative 4 – Focused Enhanced In Situ Bioremediation, Continued Operation of Existing GET System, and Institutional Controls

The elements for each alternative evaluated for the PMG SWMU/AOC are presented in the following sections. Detailed assumptions regarding the alternatives for each SWMU/AOC are included in the cost estimates presented in Appendix D.

The remedial alternatives proposed in this FS were developed in the context of the significant IAs that have already been implemented at the PMG SWMU/AOC. The PMG source area IA reduced source zone TCE mass to below IA remediation goals in nearly all monitoring locations beneath the detention basin through implementation of electrical resistance heating and bioremediation. Phases 1 and 2 of the downgradient plume IA (both ongoing) have minimized migration of groundwater contamination off of Boeing's property, minimized flux of TCE to PMC, enhanced downgradient plume restoration through groundwater extraction, and increased flushing of the plume. Monitoring and further optimization of the GET system is ongoing. The alternatives described below are made feasible, in part, by these prior actions.

Effectiveness evaluations of the GET system's performance to date has demonstrated that groundwater extraction and treatment can effectively provide hydraulic control of the TCE plume, and has provided strong evidence that groundwater restoration is being enhanced through as a result of GET system operation. Therefore, each of the cleanup alternatives incorporate continued operation of the GET system.

Within the categories of cleanup technologies identified in the FSWP for potential use as an element of a cleanup alternative, several process options could be used in a given cleanup alternative for PMG. Table 6-11 identifies and evaluates representative process options within each cleanup technology, as identified in the work plan, and indicates which are retained for inclusion into the cleanup alternatives discussed in the sections below.

EPM K Alternative 1 – Continued Operation of Existing GET System and Institutional Controls

Alternative 1 includes GET as the primary cleanup technology supplemented with institutional controls. The major components of these two cleanup technologies are described below:

- GET: Operating the Phases 1 and 2 downgradient plume IA GET system for groundwater hydraulic control and capture to provide protection of surface water and long-term groundwater restoration

- Institutional controls: Establishing institutional controls on Boeing and off-site areas of the PMG SWMU to:

  - Prevent use of groundwater and surface water as a drinking water source.

- Limit intrusive activities that would bring workers into contact with contaminated groundwater, limit exposure risks, and ensure protection of workers when intrusive activities are necessary.

- Prevent human consumption of surface water or freshwater organisms.

A conceptual representation of Alternative 1 is shown on Figure 6-24a.

Groundwater Extraction and Treatment. The primary objectives of this alternative include minimizing discharge of contaminated groundwater to surface water and restoring groundwater to:

- Minimize migration of contaminated groundwater off of Boeing property to the maximum extent practicable.

- Minimize discharge of contaminated groundwater to PMC to the maximum extent practicable.

- Achieve groundwater cleanup levels at the standard water point of compliance for groundwater and surface water.

The primary component of the remedy would include continued operation of the existing GET system that was installed for Phases 1 and 2 of the downgradient plume IA. The existing system includes three groundwater extraction wells south of Seaway Boulevard that are designed to:

- Intercept and hydraulically control groundwater leaving the Boeing property, thereby minimizing further migration of TCE-impacted groundwater off of Boeing property

- Intercept or otherwise divert groundwater flow paths from discharging to PMC on Boeing property, thereby reducing TCE flux into the stretch of creek upstream of Seaway Boulevard

The existing system also includes seven extraction wells north of Seaway Boulevard that are designed to intercept TCE-impacted groundwater before discharging to PMC on City property, thereby reducing TCE flux into the stretch of creek downstream of Seaway Boulevard. Two additional extraction wells are planned to be constructed south of Seaway Boulevard and brought online as a part of the GET system in early 2016 to further reduce the flux of TCE-impacted groundwater to PMC on Boeing property.

Continued operation of the GET system will be protective of human and ecological receptors and will (and has already been observed to) accelerate remediation of the plume through direct removal of TCE mass from the groundwater and increased aquifer flushing. However, based on

the historical performance of a large number of pump and treat systems, it is generally demonstrated that pump and treat requires long restoration time frames to achieve parts per billion cleanup levels and, in many cases (especially near source zones), restoration may never be practically achieved using pump and treat technologies alone (USEPA 1996). The reason for the long restoration time frame is the rate-limited process of back diffusion of contaminants from low-permeability soils. Consequently, there is a possibility that GET will not successfully achieve the groundwater cleanup levels developed in Section 5.1.8 throughout the aquifer (i.e., the standard point of compliance) or at the surface water point of compliance (groundwater-surface water interface) within a reasonable restoration time frame. Therefore, this alternative includes the potential for use of RELs (as allowable under WAC 173-340-355) to accommodate the possibility that performance monitoring during cleanup demonstrates that the GET system is unable to practically reach the cleanup levels in a reasonable restoration time frame, but able to reach the RELs. Under this scenario, an alternate or supplemental technology may be implemented to complete the cleanup and achieve the cleanup levels. The RELs will be set at the concentrations equal to the surface water cleanup levels protective of human consumption of organisms (Clean Water Act §304; e.g., 7 µg/L TCE), which is the assumed HBU for surface water (see Section 5.1.8). Therefore, the RELs represent conservative levels protective of the most likely human or ecological exposure pathways.

Under this alternative, GET system operation would be terminated under any of the following conditions, as applicable (see Figures 6-24b and 6-24c visually representing the decision matrix for these conditions):

1. **Condition 1** – Groundwater and surface water cleanup levels are met at the standard point of compliance. If Condition 1 is realized, the GET system will be shut down, and compliance monitoring will be initiated to confirm that no additional cleanup work is required.

2. **Condition 2** – Groundwater RELs are met at the surface water point of compliance, and each of the following criteria are met:

    a. Criteria 2a – Surface water cleanup levels are being met within the water column of the surface water body (i.e., within PMC).

    b. Criteria 2b – Groundwater VOC data indicates that declining concentrations have become asymptotic[4] and groundwater cleanup levels are unlikely to be achieved as a result of continued GET system operation.

[4]Evaluation of asymptotic behavior will be performed per EPA guidance (USEPA 1994 and 2009) or another method acceptable to Ecology and Boeing.

c. Criteria 2c – Groundwater data demonstrates that the groundwater RELs and surface water cleanup levels (within the water column of the surface water body) will continue to be met after shutdown of the GET system. Subsequent groundwater and surface water monitoring will be used to demonstrate continued compliance with the RELs.

   If Condition 2 is realized, the GET system will be shut down and monitored natural attenuation will be implemented (along with continued adherence to institutional controls) for groundwater "polishing" until the cleanup standards are met. Monitoring and/or the effectiveness review process will be used to determine whether additional action may be required. Under Condition 2, the GET system may be restarted if monitoring indicates that the groundwater RELs are not being met or will not be met at the surface water point of compliance, or the surface water cleanup levels are not or will not be met within the water column of the surface water body without active groundwater extraction. In this case, monitoring data will continue to be evaluated to determine if GET system operation can again be terminated under Conditions 1 or 2.

3. **Condition 3** – It becomes evident that this alternative will not achieve the objectives of the cleanup as indicated by either of the following criteria:

   a. Criteria 3a – Groundwater RELs have not been achieved at the surface water point of compliance and groundwater VOC data indicates that declining concentrations have become asymptotic[5] and groundwater RELs are unlikely to be achieved as a result of continued GET system operation; and/or

   b. Criteria 3b – Surface water cleanup levels are not being met within the water column of the surface water body even when groundwater RELs have been achieved.

   If Condition 3 is realized, then the cleanup action will be evaluated for effectiveness, potential optimization, and/or the need to implement alternate actions. Potential outcomes of this evaluation may include the following:

   - Modification of the existing GET system operation to more effectively achieve the cleanup objectives
   - Modification of the extraction portion of the GET system (e.g., moving or adding extraction wells) to more effectively contain the plume

[5]See Condition 2 for method of evaluation of asymptotic behavior.

- Performing supplemental in situ groundwater treatment at strategic locations within the plume, such as those discussed in Alternatives 2, 3, and 4

- Shutting down the GET system and relying on institutional controls (see below) and monitored natural attenuation to protect human health and the environment, with ongoing monitoring and 5-year reviews

For Alternative 1, long-term annual groundwater monitoring and periodic effectiveness reviews would be conducted to verify continued reduction of contaminants, and determine the effectiveness of the GET system in achieving the cleanup objectives and whether optimization measures are necessary. If monitoring data evaluated during the GET system effectiveness and optimization review process indicate that cleanup in discrete areas of the plume could be beneficially enhanced or expedited, or is not progressing as quickly or effectively as intended, the cleanup strategy may be reevaluated. This evaluation may result in the implementation of supplemental cleanup technologies (such as those discussed in Alternatives 2, 3, or 4), in addition to adjustments in the GET system operations, to optimize the treatment effectiveness and/or reduce the restoration time frame of the alternative. Implementation of optimization measures would be subject to Ecology review and approval.

Finally, under all three conditions, specific extraction wells may be selectively shut down when restoration in various areas of the plume is achieved, and Conditions 1 or 2, as described above, are met within the area(s) affected by specific extraction wells. Shut down of individual extraction wells would be subject to Ecology review and approval.

Institutional Controls. Institutional controls would be necessary for this alternative because it is likely that the restoration time frame to achieve groundwater cleanup levels will be greater than 30 years (see Section 7.2.6). Institutional controls would be established until cleanup standards are met. Institutional controls would be implemented and maintained (in accordance with WAC 173-340-440) to achieve the following in the PMG SWMU:

- Prohibit the use of Esperance Sand groundwater or PMC surface water as a potable water supply.

- Restrict intrusive activities on Boeing- and City-owned property that would put workers or the public in contact with contaminated groundwater.

- Require that proper safety measures and soil management practices be implemented as part of any project involving disturbance of soils at depths that may encounter groundwater .

- Inform the public about the contamination in PMC, and advise them against participating in any recreational activities in the creek.

The institutional controls for the portion of the PMG SWMU on Boeing-owned property would be conveyed as a restrictive environmental covenant, as discussed under Section 6.3.

For City-owned property, as allowable under WAC 173-340-440(8)(b)(ii), the City would not be required to file a restrictive covenant on their property unless the City transfers its ownership of the property, so long as a system of institutional controls is implemented that effectively meet the requirements of a restrictive covenant. These institutional controls may include procedures and administrative mechanisms such as the following:

- Worker safety overlays on utility and utility easement maps or other internal notification systems to identify the presence of contamination and convey special working conditions/requirements to potential site workers
- Zoning or other administrative overlays or notices in zoning and building department records preventing the use of groundwater or surface water as a drinking water source
- Development of a contaminated media management plan for intrusive work that may be required on the property
- Development of a site-specific health and safety plan for intrusive work that may be required on the property

Work restrictions and precautions would be necessary and applicable for anybody doing utility work in contaminated areas, and as such, the City would establish notification mechanisms for all parties with easements or ownership of utilities on the City property.

The physical component of institutional controls would include signage that is sufficiently frequent and visible that notifies potential workers of the risk and protocols for performing intrusive work, and notifies the general public against participating in recreational activities in the creek. Signage would be included on both Boeing and City property. Signage is already present on City property and would continue to be maintained, indicating that the surface water of PMC is not suitable for recreation or consumption.

EPM K Alternative 2 - EISB Source Area Remediation, Continued Operation of Existing GET System, and Institutional Controls

Alternative 2 is similar to Alternative 1 and includes GET as the primary cleanup technology supplemented with institutional controls. This alternative would also include performing EISB of residual source area contamination (beneath the detention basin) with concentrations greater than the source area IA remediation goals (i.e., TCE concentrations greater than 500 µg/L). EISB would involve using electron donor to stimulate bioremediation to treat the source area and reduce future contributions to downgradient groundwater contamination and thereby accelerate

site wide groundwater restoration. The major components of these cleanup technologies are described below:

- GET: Operating the Phases 1 and 2 downgradient plume IA GET system for groundwater hydraulic control and capture to provide protection of surface water and long-term groundwater restoration (same as Alternative 1)

- EISB Source Area Remediation: Performing focused EISB in the source area of the plume, where concentrations of TCE and/or breakdown products in groundwater are above remediation goals set during the source area IA. Electron donor and nutrients would be injected into the saturated zone to treat contaminated groundwater and stimulate enhanced desorption processes within the aquifer. Injections would be repeated (two to three injection events anticipated) until rebound no longer results in groundwater concentrations above treatment goals.

- Institutional Controls: Establishing institutional controls on Boeing- and City-owned areas of the PMG SWMU, preventing use of groundwater and surface water as a drinking water source, preventing or limiting intrusive activities that would bring workers into contact with contaminated groundwater, and preventing human consumption of surface water or freshwater organisms (same as Alternative 1)

This alternative assumes that TCE concentrations in the source area in the detention basins will still be above source area IA remediation goals at the time of implementation of the final cleanup. If this is not the case, the EISB source area remediation component of this alternative would not be conducted.

A conceptual representation of Alternative 2 is shown on Figure 6-24d.

Groundwater Extraction and Treatment. The primary component of the remedy includes continued operation of the existing GET system as described in Alternative 1. After completion of source area EISB (see below), termination of GET system operations would be determined based on the same conditions as those described in Alternative 1. Specific extraction wells may also be selectively shut down as restoration in various areas of the plume is achieved, also as described for Alternative 1.

Focused EISB Source Area Remediation. Additional remediation efforts would be focused in groundwater in the source area (beneath the detention basin) to achieve the following:

- Accelerate remediation of COCs in the source area.
- Minimize future contributions to downgradient groundwater contamination.

- Accelerate restoration of groundwater.

Alternative 2 would enhance naturally occurring biological processes to remediate contaminated groundwater within the source area. The biologically active zone would be created/enhanced and maintained by periodically injecting electron donor solution through rows of wells hydraulically upgradient of areas beneath the detention basin with TCE concentrations above 500 µg/L (equivalent to 3.8 µmol/L TCE) or 3.8 µmol/L for the sum of TCE breakdown products. The actual limits of the remaining source area would be determined based on current data at the time of the engineering design. Each injection well would receive a sufficient injection volume to create overlapping radius of influence (ROI) between adjacent wells. Injections of donor substrate would be repeated, up to a maximum of three times, in the source area until TCE and total VOC concentrations in groundwater are maintained at treatment goal concentrations similar to those concentrations elsewhere in the plume (e.g., around 100 to 200 µg/L TCE or around 0.8 to 1.6 µmol/L TCE breakdown products).

For purposes of this alternative, it is assumed that two clusters of injection wells set up in rows across the width of the higher concentration areas in the detention basin would be installed. Figure 6-22d identifies the approximate areas where elevated TCE concentrations currently remain in the source area and a conceptual layout of EISB injection wells. The actual EISB design would be determined based on current data at the time of the engineering design. Well spacing will be designed to allow for the development of biological treatment zones between and downgradient of the wells as donor substrate and fermentation byproducts (e.g., volatile fatty acids and hydrogen) are carried downgradient by groundwater flow. Injection row spacing will be designed to provide adequate treatment coverage while maximizing the treatment potential of injection fluid as it moves downgradient with groundwater.

Injection wells would be constructed to target the vertical intervals above the silt interbed where the treatment goal is exceeded. Typically, vertical treatment intervals greater than 15 to 20 ft should utilize more than one injection well screen to achieve acceptable uniformity of donor placement over the treatment interval (Parsons 2004). To facilitate reasonably uniform distribution of injected donor solution across the vertical target treatment interval, injection location may consist of more than one well set with two to three different screened intervals.

In order to accelerate the biological degradation of the contaminants and provide prolonged treatment between injection events and to minimize the number of injection events, it is assumed that injections slurries will include both fast- and slow-release donor substrates. Use of such slurries can result in several months to more than a year of longevity, depending on the mass of donor injected, the continuing flux of contaminant, and the mass of natural electron acceptors within the treatment zone.

With this approach in mind, it is reasonable to assume two to three injection events conducted over a period of 2 to 3 years would result in 3 to 5 years of optimal bioremediation, with ongoing

residual treatment expected to extend another 3 to 5 years (Sleep et al. 2005 and Adamson and Newell 2009) that would sufficiently reduce contaminant mass in the source area. It is assumed that the existing GET system will be operated for the duration of active EISB at the PMG SWMU, plus an additional 34 years after the final injection event (see Section 7.2.6 for discussion on estimated restoration time frames). For cost-estimating purposes, it is assumed that the GET system will be operated for a total of 37 years.

Long-term groundwater monitoring would be required to verify continued reduction of contaminants.

Institutional Controls. Similar to Alternative 1, institutional controls would be conveyed as a restrictive covenant on the Boeing property and recorded on the deeds registered with Snohomish County, administrative controls and mechanisms implemented by the City for City-owned property, and signage in the affected areas as described in Alternative 1.

EPM K Alternative 3 – Focused ISCO Remediation, Continued Operation of Existing GET System, and Institutional Controls

Alternative 3 includes GET as the primary cleanup technology, supplemented with institutional controls. This alternative also includes ISCO remediation focused on areas with comparatively elevated TCE concentrations ("TCE focus areas"[6]). This approach would use chemical oxidants to treat these TCE focus areas and, thereby, accelerate sitewide groundwater restoration. The major components of this alternative are described below:

- GET: Operating the Phases 1 and 2 downgradient plume IA GET system for groundwater hydraulic control and capture to provide protection of surface water and long-term groundwater restoration (same as Alternative 1)

- ISCO TCE Focus Area Remediation: Performing ISCO remediation in TCE focus areas to accelerate remediation. An oxidant (sodium persulfate) would be injected into the saturated zone to treat contaminated groundwater for direct oxidation of contaminant mass. Injections of sodium persulfate would be repeated at the TCE focus areas (four to six injection events anticipated) until rebound no longer resulted in groundwater concentrations above treatment goals

[6]For the purposes of this FS, TCE focus areas are defined as areas where groundwater TCE concentrations exceed 250 µg/L TCE (or 1.9 µmol/L cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride). Evaluation of current groundwater concentrations indicates a data break between monitoring wells with TCE concentrations under approximately 200 µg/L and those with greater than approximately 250 µg/L TCE. When TCE is concentrations are mapped, these TCE focus areas are discrete and identifiable areas within the plume (see Figure 2-14e).

- Institutional Controls: Establishing institutional controls on Boeing- and City-owned areas of the PMG SWMU, preventing use of groundwater and surface water as a drinking water source, preventing or limiting intrusive activities that would bring workers into contact with contaminated groundwater, and preventing human consumption of surface water or freshwater organisms (same as Alternative 1)

A conceptual representation of Alternative 3 is shown on Figure 6-24e.

Groundwater Extraction and Treatment. The primary component of the remedy includes continued operation of the Phases 1 and 2 downgradient plume IA GET system as described in Alternative 1. After completing remediation of TCE focus area (see below), termination of GET system operations would be determined based on the same conditions as those described in Alternative 1. Specific extraction wells may also be selectively shut down as restoration in various areas of the plume is achieved.

Focused ISCO Remediation. A secondary component of the remedy includes remediation TCE focus areas to achieve the following:

- Accelerate remediation in TCE focus areas.
- Accelerate restoration of site groundwater.

Alternative 3 would use in situ chemical destruction of contaminants to achieve remediation of contaminated groundwater in TCE focus areas within the plume. ISCO would be used to reduce COC concentrations, in the defined TCE focus areas, to concentrations similar to concentrations observed in the plume outside of the TCE focus area (e.g., around 100 to 200 µg/L TCE or around 0.8 to 1.6 µmol/L TCE breakdown products). This would be accomplished through the periodic injection of sodium persulfate and a ferrous iron activating agent via rows of injections wells, creating overlapping ROI between adjacent wells and downgradient treatment zones, throughout the highest concentration portions of the plume.

For the purposes of this alternative, assume that three clusters of injection wells, one in the detention basin source area, one in the Boeing property TCE focus area south of Seaway Boulevard, and one in the City Lot 9 TCE focus area north of Seaway Boulevard, would be constructed in rows across the width of each TCE focus area (Figure 6-2re). However, due to decreasing contaminant concentration trends resulting from implementation of IAs in PMG, TCE focus areas will be determined based on the current data at the time of design. Well spacing will be designed to achieve overlapping ROI along the length of each injection row. Injection row spacing will be designed to provide adequate treatment coverage while maximizing the treatment potential of injection fluid as it moves downgradient with groundwater. The injections of sodium persulfate and an activating agent (iron) would be repeated, up to a maximum of six times, throughout the TCE focus areas until targeted TCE concentrations are reached.

Well screens would target the vertical intervals above the silt interbed where the treatment goal is exceeded. To facilitate reasonably uniform distribution of injected oxidant solution across the vertical target treatment interval, injection locations may consist of more than one well set with two to three different screened intervals. To avoid inadvertent discharge of persulfate into PMC, no injection wells will be placed where it is likely for the material to migrate into the creek (in general nothing closer than approximately 50 feet crossgradient of the creek or 100 feet directly upgradient of the creek). Additionally, to reduce the potential for mineral or biofouling caused by oxidants in the extraction wells and/or the GET system air stripper by drawing oxidants and activating agents into the extraction wells, no injection wells will be placed closer than approximately 50 feet downgradient or crossgradient, or 100 feet upgradient of the extraction wells.

It is anticipated that four to six injection events over a 2- to 3-year period would be necessary to sufficiently reduce contaminant mass in secondary source areas. It is assumed that the existing GET system will be operated for the entire duration of active ISCO injections (2 to 3 years) at the PMG SWMU, plus an additional 22 years after the final injection event for an assumed operating period of 25 years. However, during, and several months following, each injection event, portions of the GET system near the injection locations will likely be shut down to prevent pulling oxidant materials into the extraction wells, avoid iron fouling of the wells, and prevent inadvertent discharge of oxidant to PMC.

Long-term groundwater monitoring would be required to verify continued reduction of contaminants.

Institutional Controls. Institutional controls would be conveyed as a restrictive covenant on the Boeing property and recorded on the deeds registered with Snohomish County, administrative controls and mechanisms implemented by the City on City-owned property, and signage in the affected areas as described in Alternative 1.

EPM K Alternative 4 – Focused EISB Remediation, Continued Operation of Existing GET System, and Institutional Controls

Alternative 4 is similar to Alternative 3, including GET as the primary cleanup technology supplemented by institutional controls, and additional TCE focus area treatment. However, this alternative uses EISB instead of ISCO to treat TCE focus areas within the plume (including the source area in the detention basin) to accelerate sitewide groundwater restoration. The major components of this cleanup alternative are described below:

- GET: Operating the Phases 1 and 2 downgradient plume IA GET system for groundwater hydraulic control and capture to provide protection of surface water and long-term groundwater restoration (same as Alternative 1)

- EISB TCE Focus Area Remediation: Performing EISB remediation in TCE focus areas to accelerate plume restoration. Electron donor solution would be injected into the saturated zone to treat contaminated groundwater and stimulate enhanced desorption of TCE mass from the aquifer material. Injections would be repeated (two to three injection events anticipated) until rebound no longer resulted in groundwater concentrations above treatment goals.

- Institutional Controls: Establishing institutional controls on Boeing and City-owned areas of the PMG SWMU, preventing use of groundwater and surface water as a drinking water source, preventing or limiting intrusive activities that would bring workers into contact with contaminated groundwater, and preventing human consumption of surface water or freshwater organisms (same as Alternative 1)

A conceptual representation of Alternative 4 is shown on Figure 6-24f.

Groundwater Extraction and Treatment. The primary component of the remedy includes continued operation of the PMG Phases 1 and 2 downgradient plume IA GET system as described in Alternative 1. After completion of TCE focus area treatment (see below), procedures for terminating GET system operations would be the same as those described for Alternative 1. Specific extraction wells may also be selectively shut down as restoration in various areas of the plume proximate to the extraction wells is achieved.

Focused EISB Remediation. Remediation of TCE focus areas would be implemented using EISB to achieve the following:

- Accelerate remediation of TCE focus areas.
- Accelerate restoration of groundwater.

Alternative 4 would stimulate in situ biological reductive dechlorination to achieve remediation of contaminated groundwater within TCE focus areas. The biologically active zone would be created/enhanced and maintained by periodically injecting an electron donor solution through rows of wells hydraulically upgradient and transecting areas of the plume with the highest TCE concentrations. Injections of donor would be repeated, as necessary, throughout the TCE focus areas until TCE concentrations in groundwater were similar to those concentrations observed in the plume outside the TCE focus areas (e.g., around 100 to 200 µg/L TCE or around 0.8 to 1.6 µmol/L TCE breakdown products).

For purposes of this alternative, it is assumed that three clusters of injection wells will be installed in the TCE focus areas, one in the detention basin, one in the Boeing property area south of Seaway Boulevard, and one in the City Lot 9 area north of Seaway Boulevard, set up in rows across the width of each TCE focus area (Figure 6-24f). However, due to decreasing

contaminant concentration trends resulting from implementation of IAs in PMG, the TCE focus areas will be determined based on the current data at the time of engineering design. A well spacing of 15 feet along the length of each row has been assumed to be adequate to achieve overlapping ROI and to allow for the development of biological treatment zones as donor substrate and fermentation byproducts (e.g., volatile fatty acids and hydrogen). These biological treatment zones will bridge the gap between rows of injection wells, which is assumed to be 100 feet, and maximize the bacterial uptake of donor substrate as it is carried downgradient by groundwater flow.

Well screens would target the vertical intervals above the silt interbed where the treatment goal is exceeded. To facilitate reasonably uniform distribution of electron donor solution across the vertical target treatment interval, injection locations may consist of more than one well set with two to three different screened intervals. To avoid inadvertent discharge of donor substrate and TOC into PMC, no injection well will be placed where it is likely for donor to migrate into the creek (in general nothing closer than approximately 100 feet crossgradient of the creek or 200 feet directly upgradient of the creek). Additionally, to reduce the potential for mineral or biofouling caused by electron donor solutions in the extraction wells and/or the GET system air stripper, no injection wells will be placed closer than approximately 50 feet downgradient, 100 feet crossgradient, or 200 feet upgradient of the extraction wells.

As with Alternative 2, it is anticipated that two to three injection events over a 2- to 3-year period would result in 3 to 5 years of optimal bioremediation, with residual treatment extending for an additional 3 to 5 years. It is assumed that this period of treatment would sufficiently reduce contaminant mass in the TCE focus areas. It is assumed that the existing GET system will be operated for the entire duration of active EISB (2 to 3 years) at the PMG SWMU, plus an additional 22 years after the final injection event, for a total of 25 years (see Section 7.2.6 for discussion on estimated restoration time frames). However, during and for at least 6 months following each injection event, portions of the GET system within a few hundred feet of the injection areas will likely be shut down to prevent pulling donor substrate into the extraction wells, avoid biological and iron fouling of the wells, and prevent inadvertent discharge of organic substrate to PMC.

Long-term groundwater monitoring would be required to verify continued reduction of contaminants.

Institutional Controls. Institutional controls would be conveyed as a restrictive covenant on the Boeing property and recorded on the deeds registered with Snohomish County, administrative controls and mechanisms implemented by the City on City-owned property, and signage in the affected areas as described in Alternative 1.

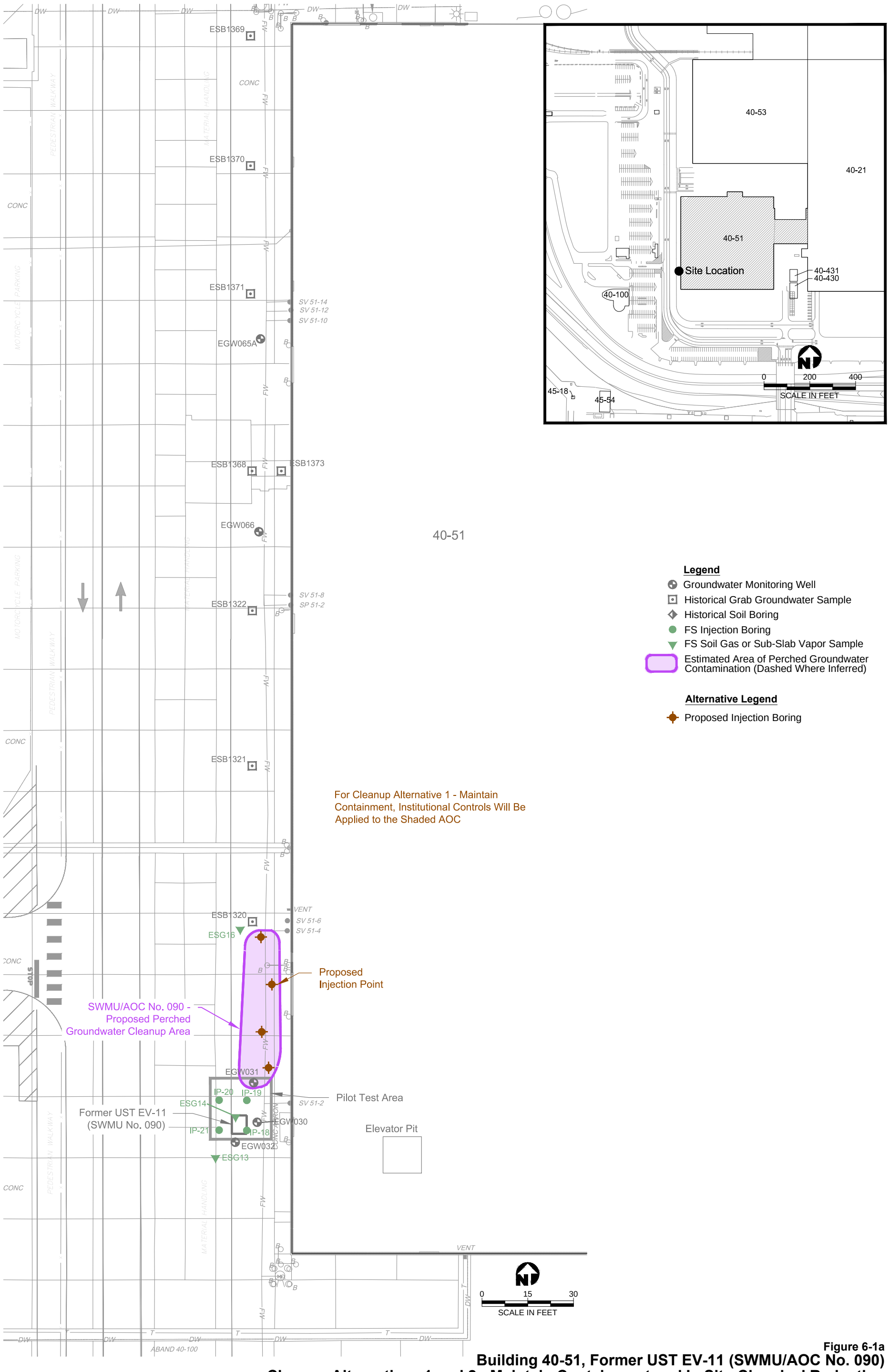


Figure 6-1a

Building 40-51, Former UST EV-11 (SWMU/AOC No. 090)

Cleanup Alternatives 1 and 2 - Maintain Containment and In Situ Chemical Reduction

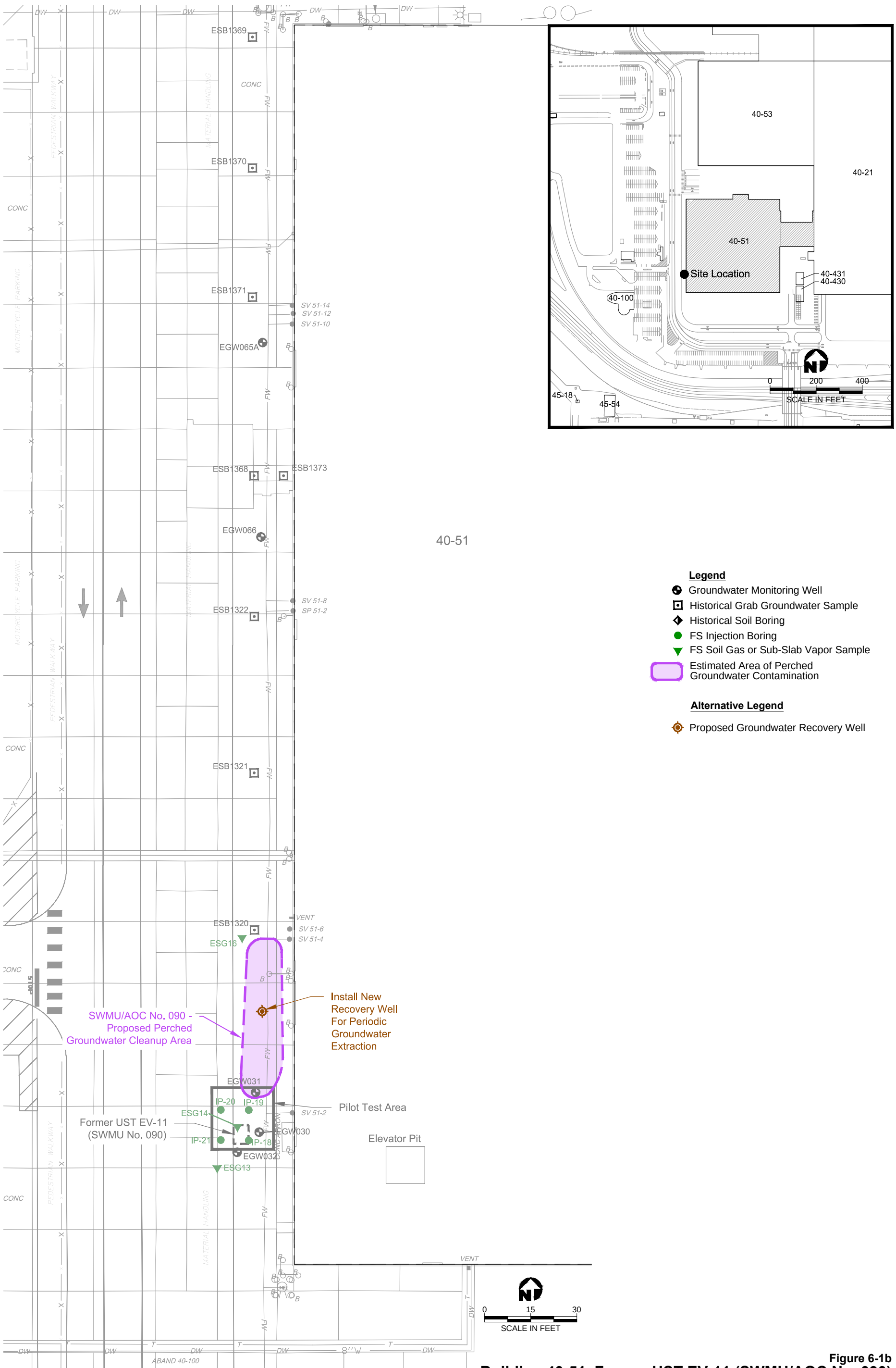


Figure 6-1b

Building 40-51, Former UST EV-11 (SWMU/AOC No. 090)
Cleanup Alternative 3 - Periodic Groundwater Extraction

AECOM

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Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT

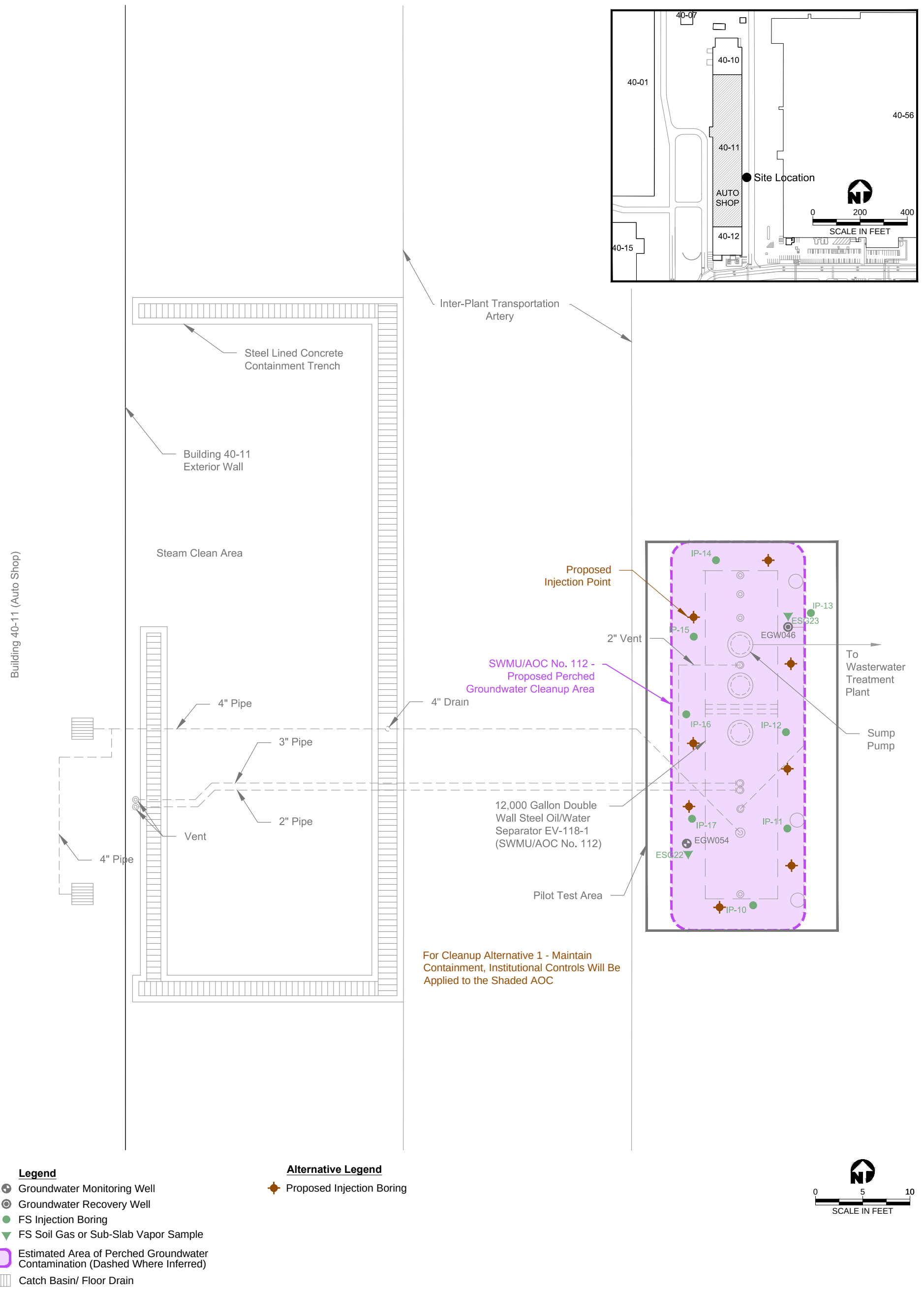

Figure 6-2a

Building 40-11, Oil/Water Separator (SWMU/AOC No. 112)

Cleanup Alternatives 1 and 2 - Maintain Containment and In Situ Sorption and Bioremediation

AECOM

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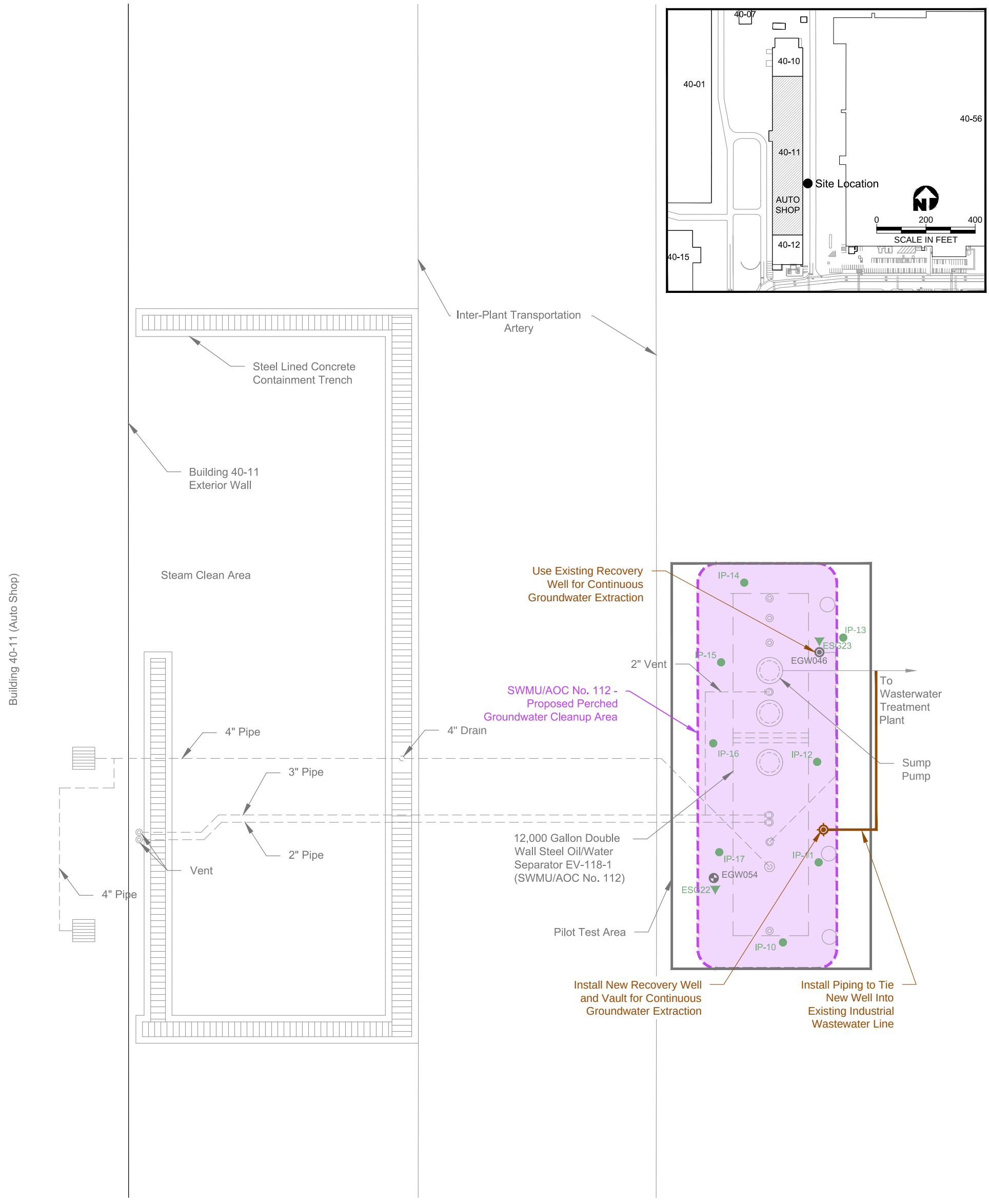

Figure 6-2b

Building 40-11, Oil/Water Separator (SWMU/AOC No. 112)
Cleanup Alternative 3 - Continuous Groundwater Extraction

AECOM

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Boeing Commercial Airplanes, Everett Plant
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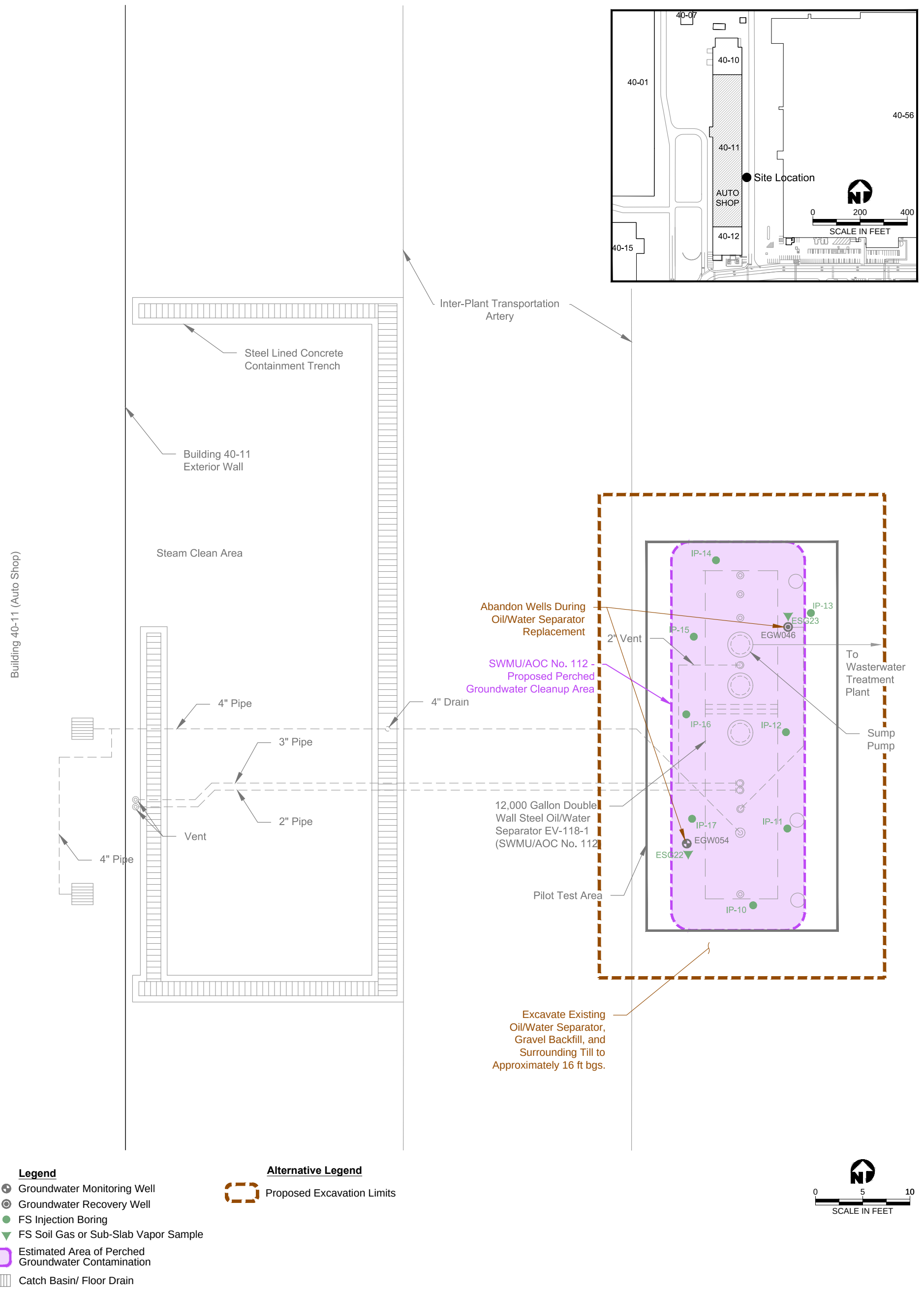

Figure 6-2c

Building 40-11, Oil/Water Separator (SWMU/AOC No. 112)
Cleanup Alternative 4 - Excavation and Dewatering

AECOM

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Boeing Commercial Airplanes, Everett Plant
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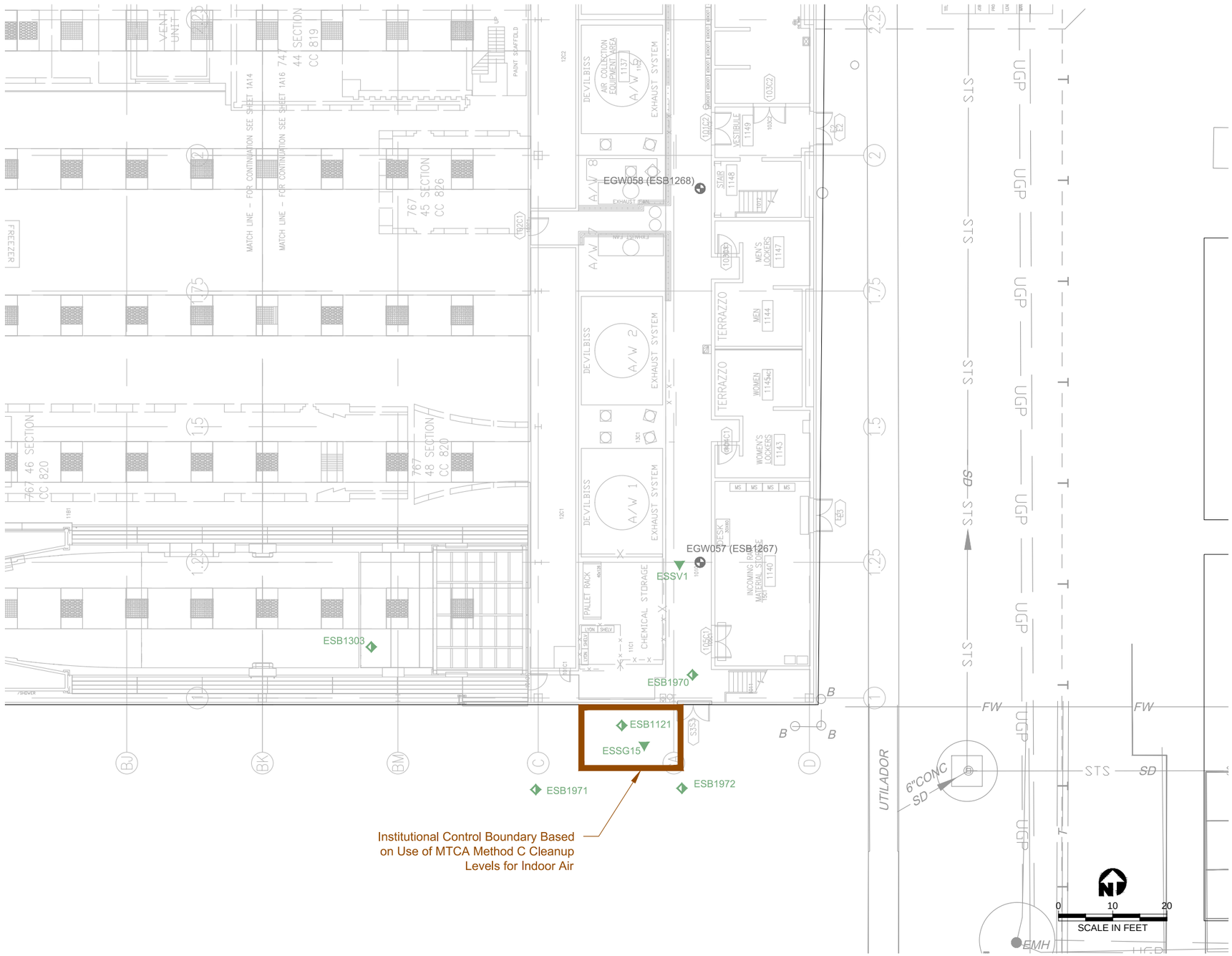

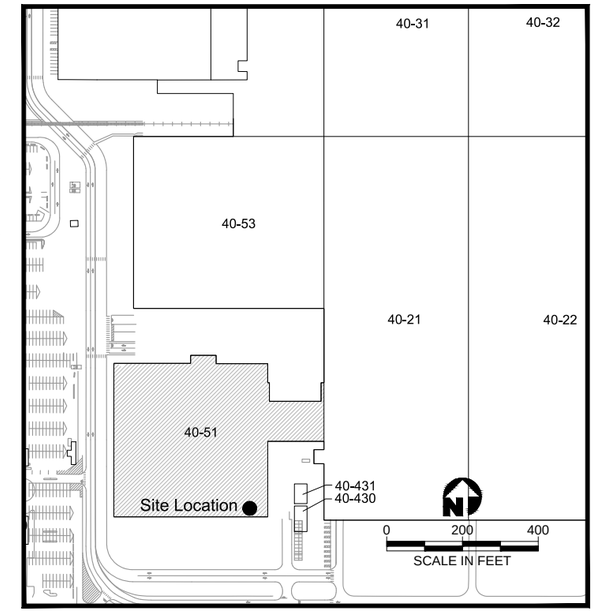

Legend

- Groundwater Monitoring Well
- Historical Soil Boring
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample

Figure 6-3

Building 40-51 Southern Air Scrubber Sump (SWMU/AOC No. 151)
Cleanup Alternative 1 - Institutional Controls

AECOM

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Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT

Approximate Location of Central SVE System Piping

SVE System

Use Existing Monitoring Well for Continuous Groundwater Extraction. Install Vault. (Typ)

Install New Monitoring Well

SWMUs/AOCs No. 086, No. 089, and No. 094 - Proposed Soil Cleanup Area

Install 20 SVE Wells Within This Area

Replace Existing Vault

Continuous Groundwater Extraction Piping

Install 10 SVE Wells Within This Area

SWMUs/AOCs No. 086, No. 089, and No. 094 - Proposed Perched Groundwater Cleanup Area

For Cleanup Alternative 1 - Maintain Containment, Institutional Controls Will Be Applied to the Shaded AOC

0 15 30
SCALE IN FEET

Legend

- Historical Soil Boring
- Historical Monitoring Well
- Abandoned Groundwater Monitoring Well
- Historical Excavation Sample
- FS Soil Gas or Sub-slab Vapor Sample
- FS Injection Boring
- FS Monitoring Well
- Recovery Trench
- Former UST Excavation
- Redundant Steam Line Utility Upgrade Excavation
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Sawcut of Pavement and Approximate Limits of Excavation for the 2011 Steamline Replacement

Alternative Legend

- Proposed Groundwater Monitoring Well
- Proposed Groundwater Extraction Piping
- Proposed SVE Piping

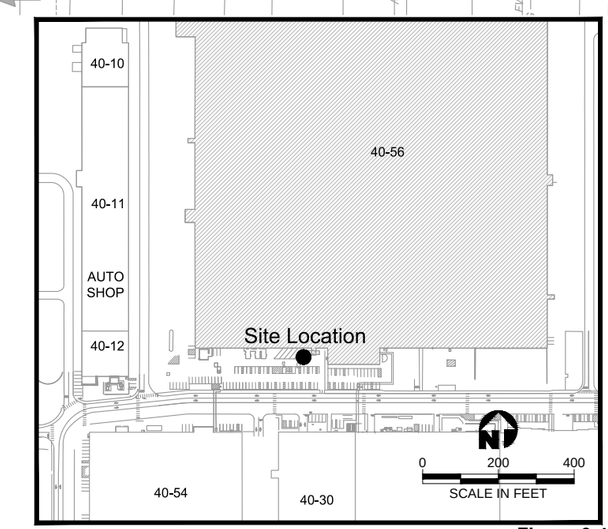

Figure 6-4a

Building 40-56 Former USTs (SWMUs/AOCs No. 086, No. 089, and No. 094)
Cleanup Alternatives 1 and 2 - Maintain Containment and Soil Vapor and Continuous Groundwater Extraction

AECOM

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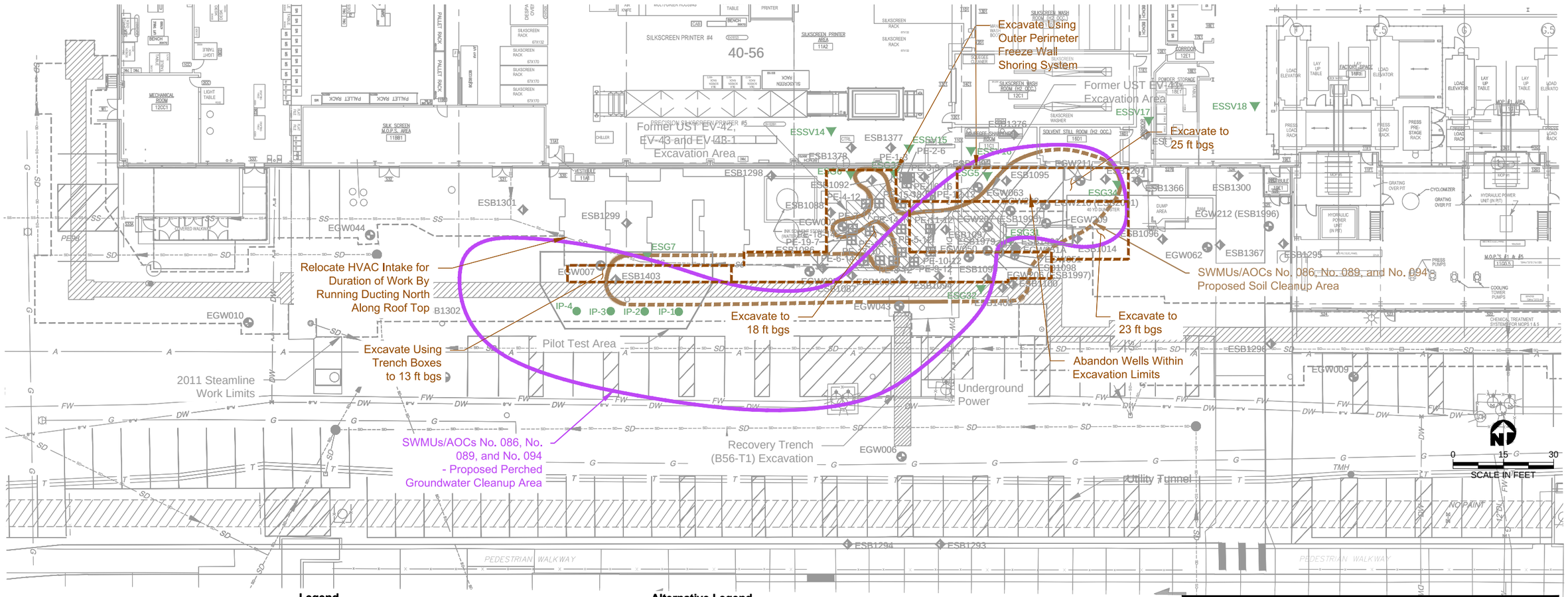
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend

- Historical Soil Boring
- Historical Monitoring Well
- Abandoned Groundwater Monitoring Well
- Historical Excavation Sample
- FS Soil Gas or Sub-slab Vapor Sample
- FS Injection Boring
- FS Monitoring Well
- Recovery Trench
- Former UST Excavation
- Redundant Steam Line Utility Upgrade Excavation
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Sawcut of Pavement and Approximate Limits of Excavation for the 2011 Steamline Replacement

Alternative Legend

- Proposed Excavation Limits

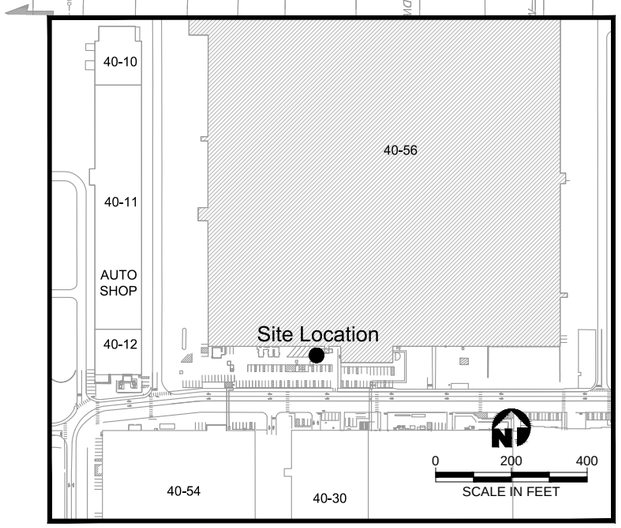


Figure 6-4b
Building 40-56 Former USTs (SWMUs/AOCs No. 086, No. 089, and No. 094)
Cleanup Alternative 3 - Excavation and Dewatering

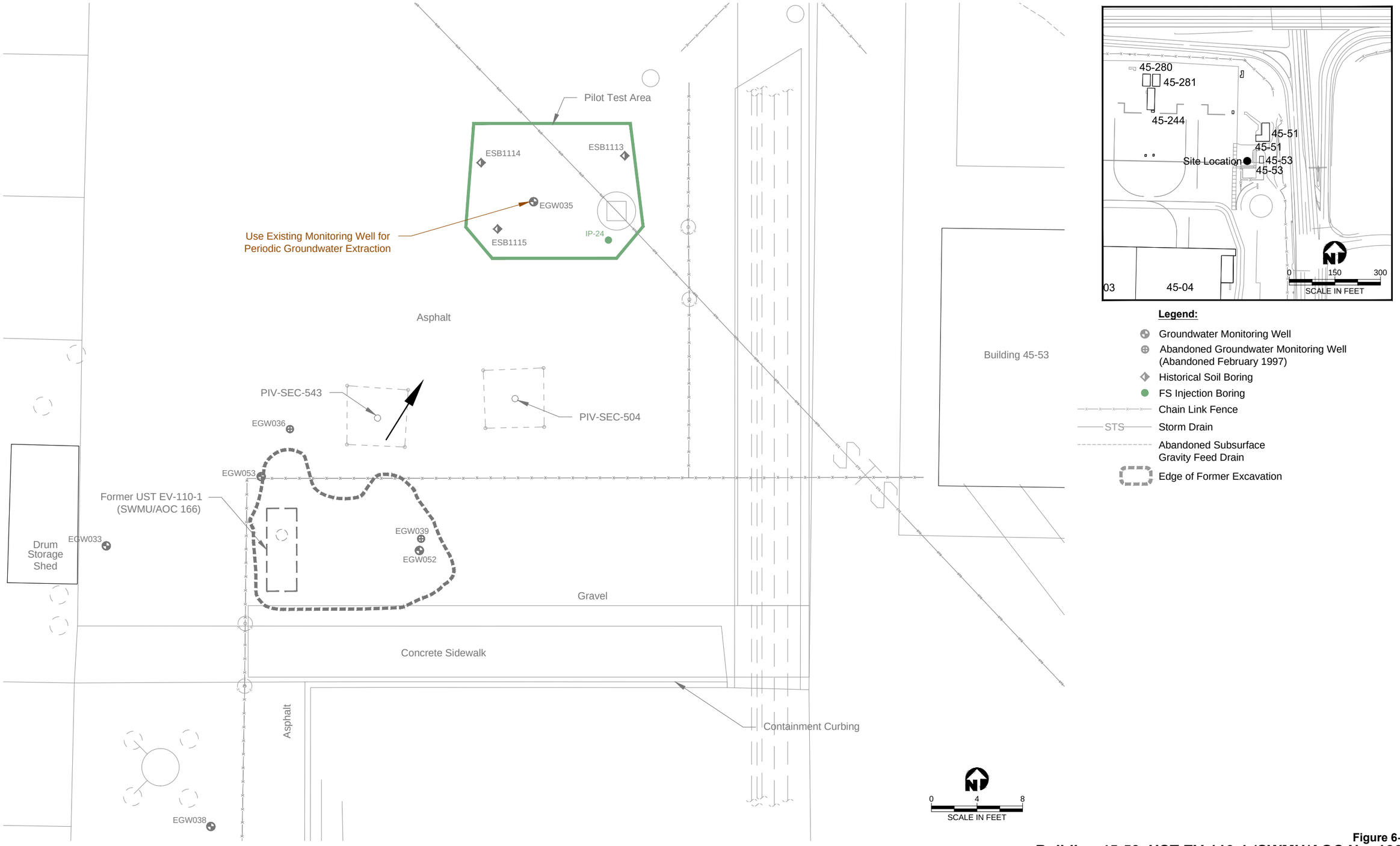


Figure 6-5

Building 45-53, UST EV-110-1 (SWMU/AOC No. 166)
Cleanup Alternative 2 - Periodic Groundwater Extraction

AECOM

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Boeing Commercial Airplanes, Everett Plant
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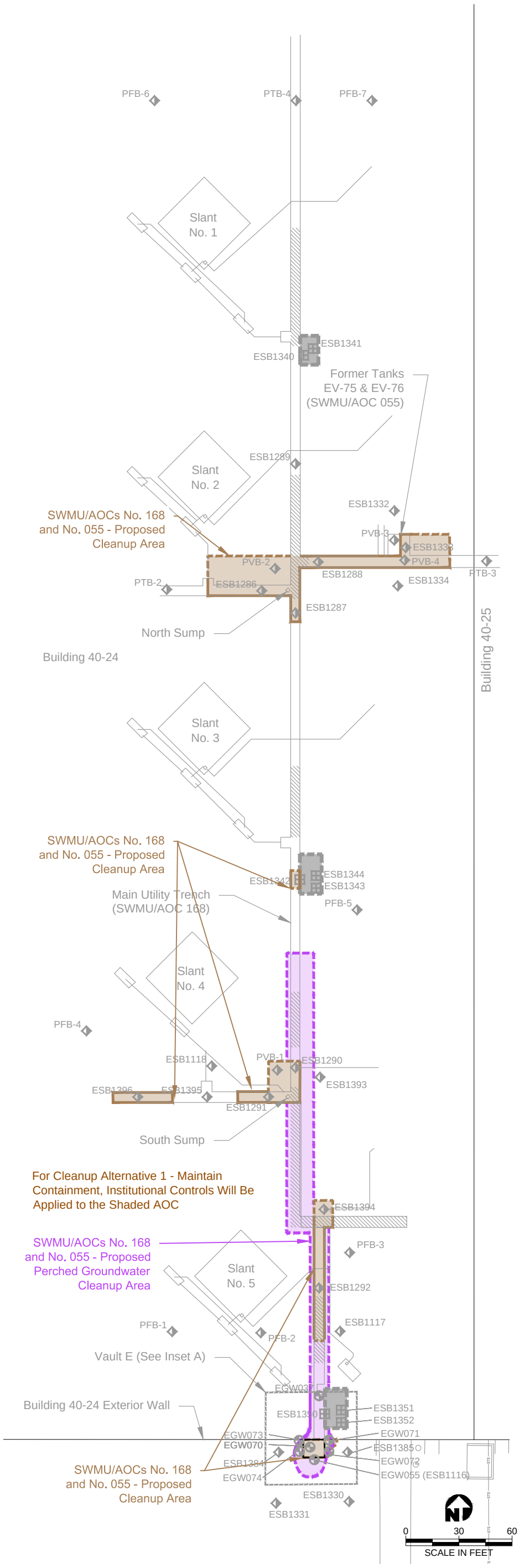

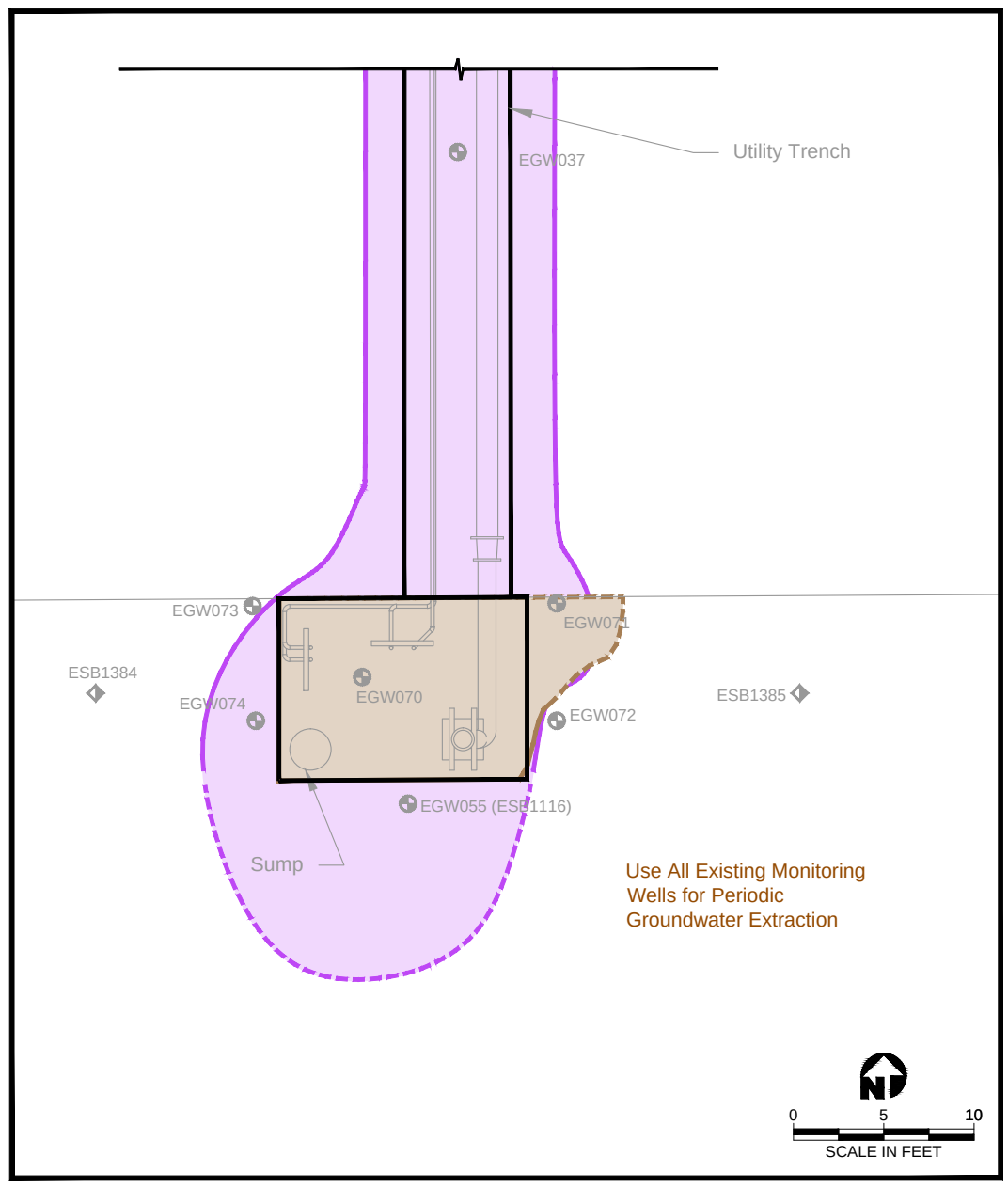

VAULT E (Inset A) (SWMU/AOC No. 168)

Legend

- Groundwater Monitoring Well
- Historical Soil Boring
- Historical Excavation Sample
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Floor of Trench Inaccessible To Drilling
- Historical Utility Vault Excavation

Figure 6-6a

Building 40-24 (SWMUs/AOCs No. 168 and No. 055)

Cleanup Alternatives 1 and 2 - Maintain Containment and Periodic Groundwater Extraction

AECOM

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Boeing Commercial Airplanes, Everett Plant
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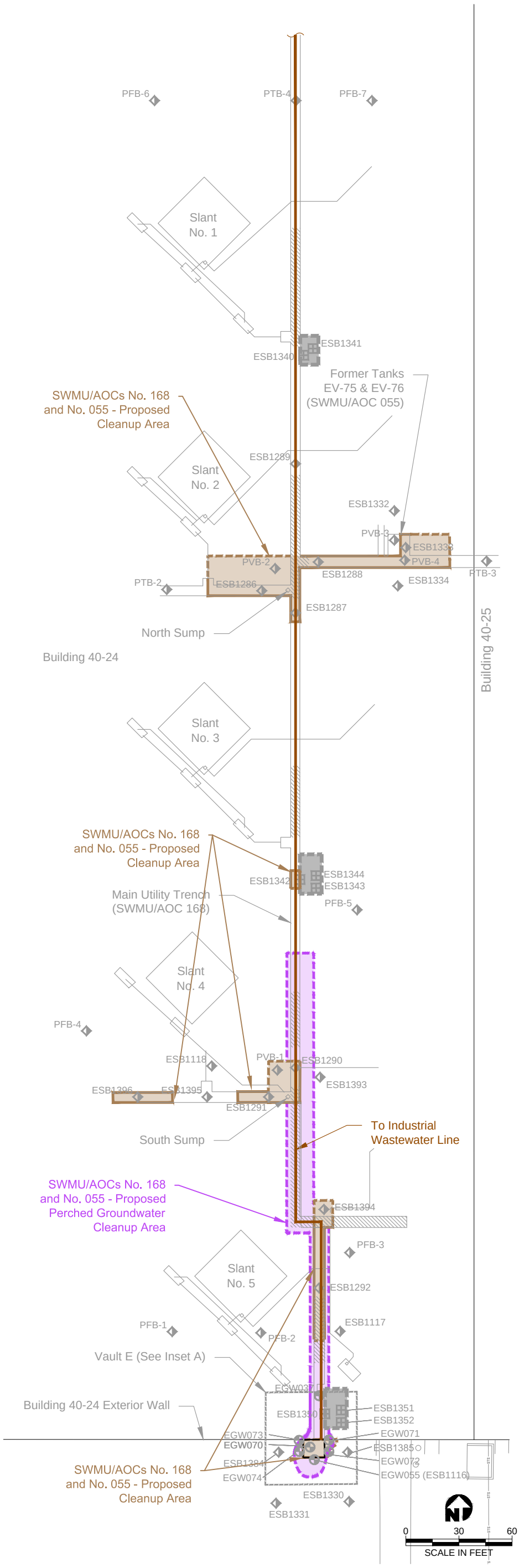

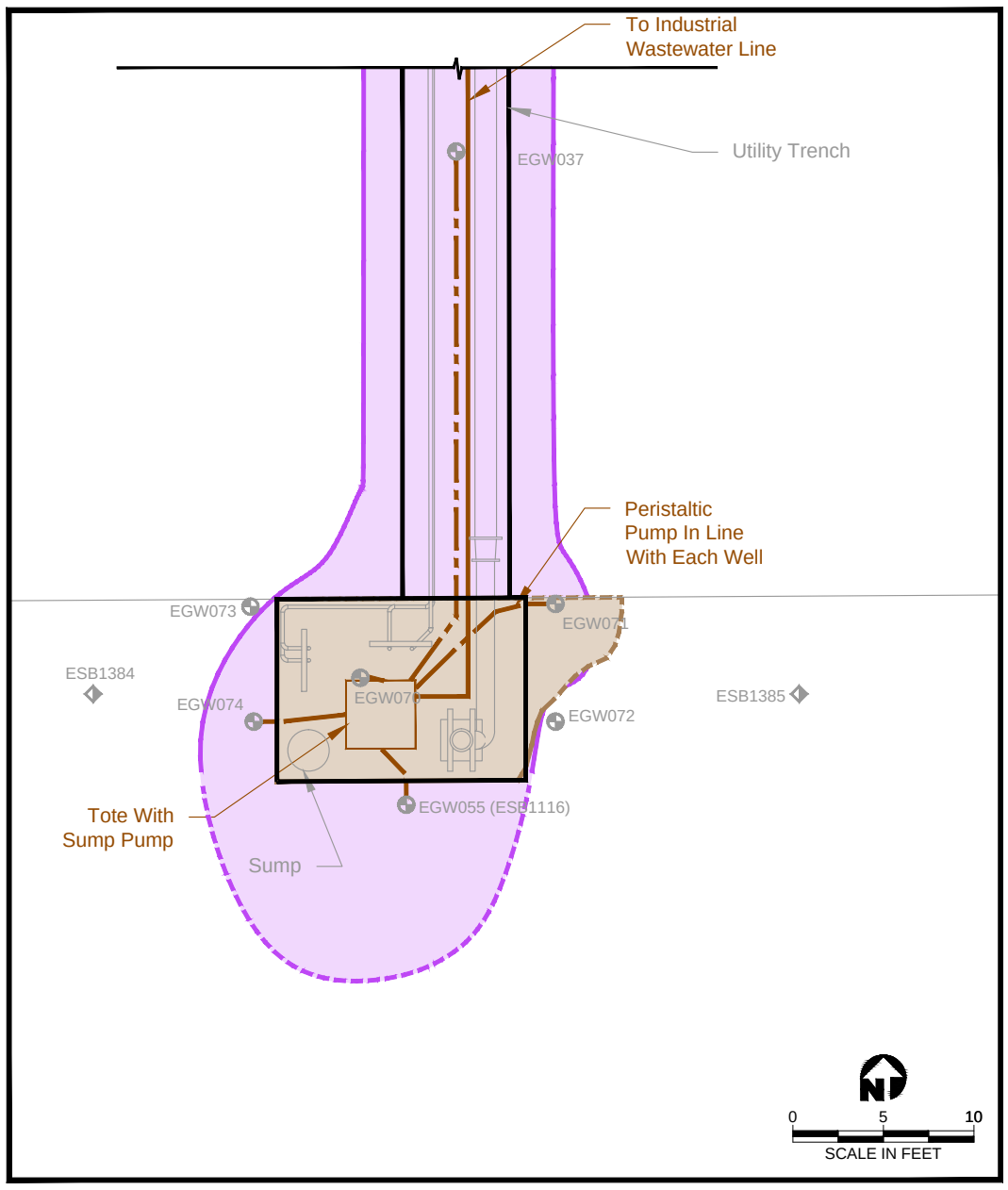

VAULT E (Inset A) (SWMU/AOC 168)

Legend

- Groundwater Monitoring Well
- Historical Soil Boring
- Historical Excavation Sample
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Floor of Trench Inaccessible To Drilling
- Historical Utility Vault Excavation

Alternative Legend

- Proposed Groundwater Extraction Tubing
- Proposed Groundwater Extraction Piping

Figure 6-6b

Building 40-24 (SWMUs/AOCs No. 168 and No. 055)
Cleanup Alternative 3 - Continuous Groundwater Extraction

AECOM

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Boeing Commercial Airplanes, Everett Plant
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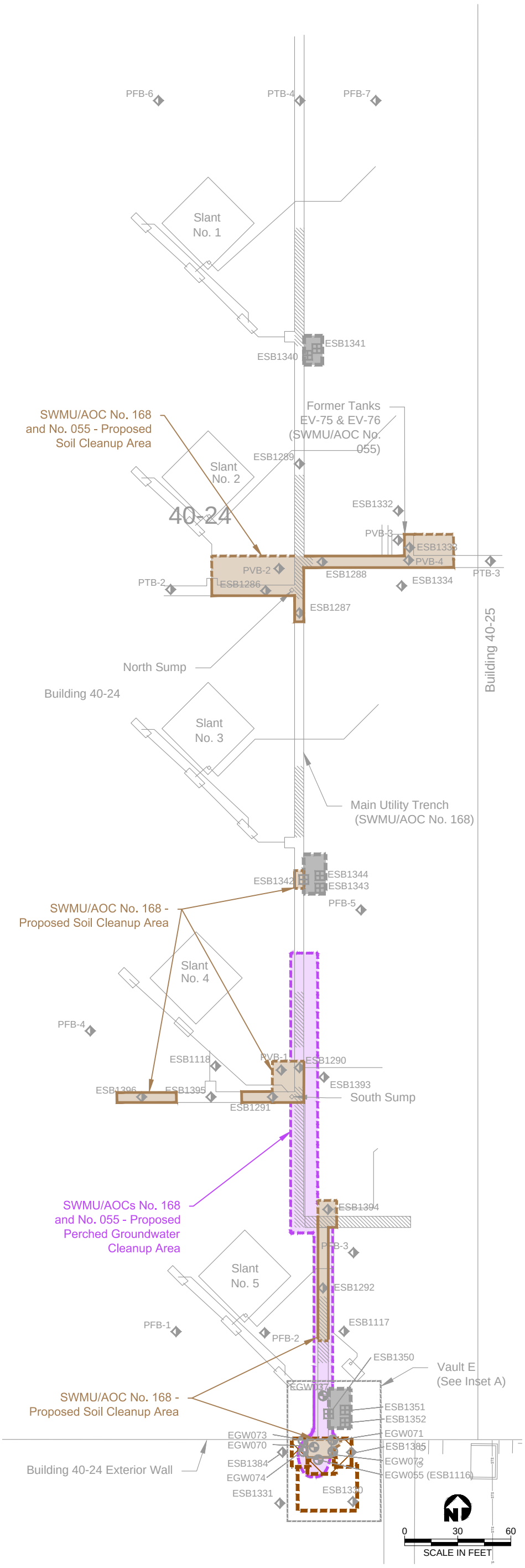

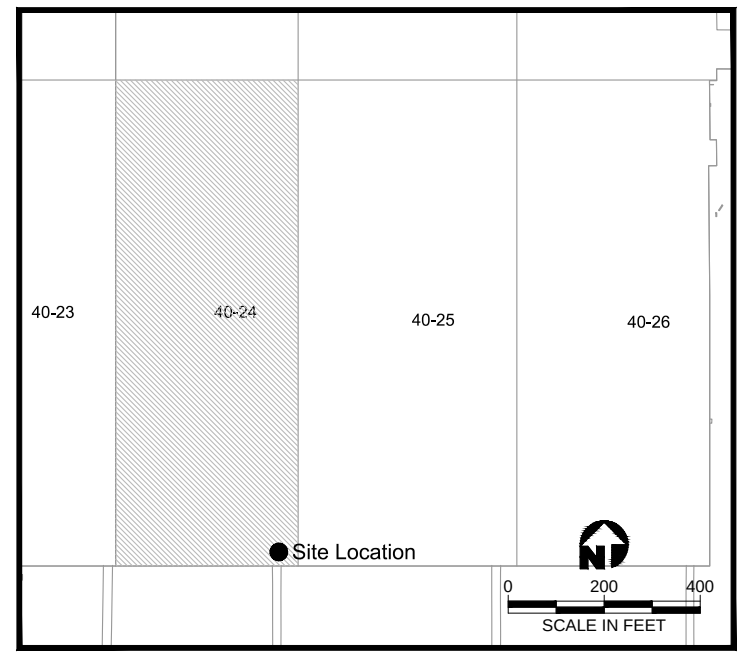

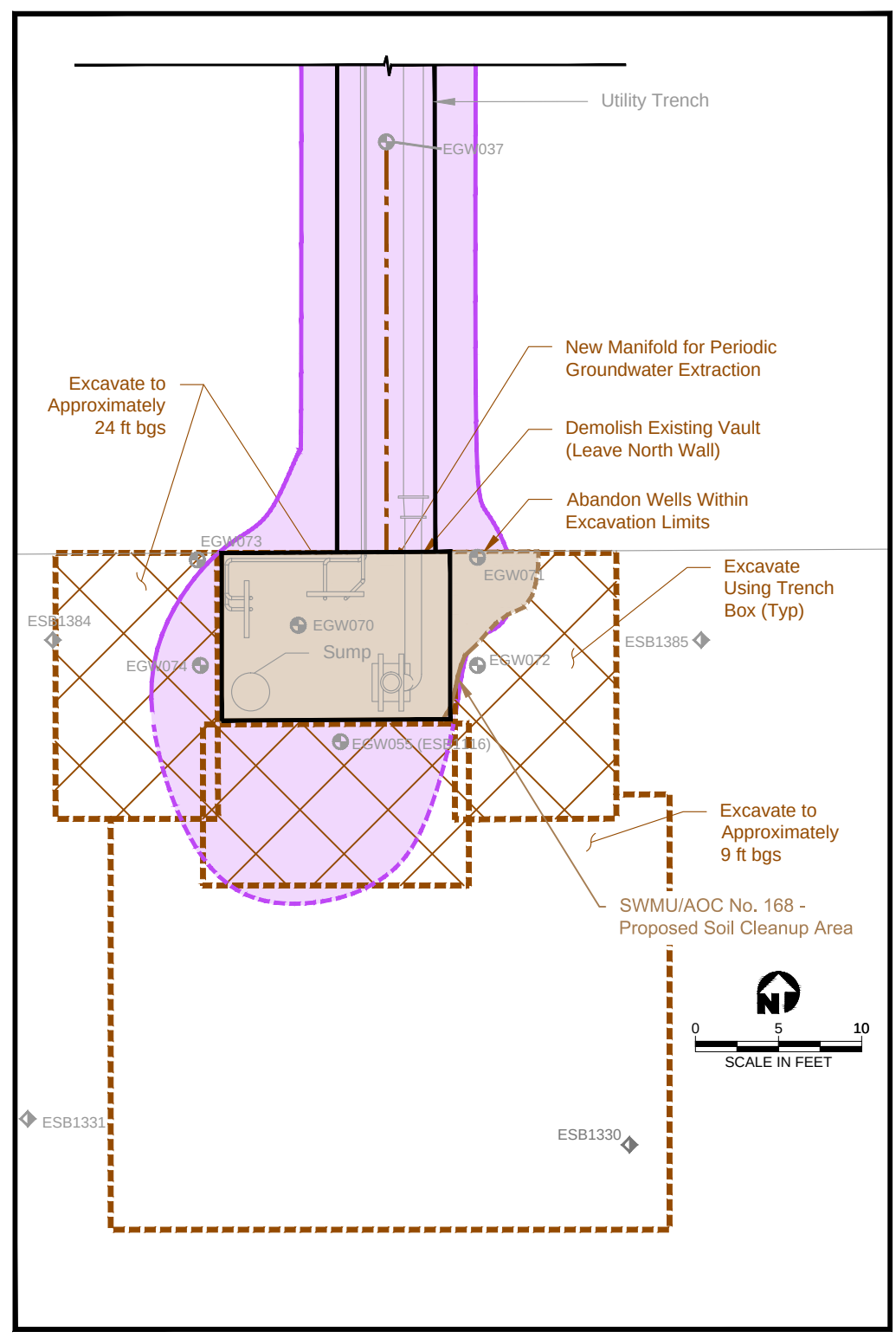

VAULT E (Inset A) (SWMU/AOC No. 168)

Legend

- Groundwater Monitoring Well
- Historical Soil Boring
- Historical Excavation Sample
- Estimated Area of Perched Groundwater Contamination (Dashed Where Inferred)
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Floor of Trench Inaccessible To Drilling
- Historical Utility Vault Excavation

Alternative Legend

- Proposed Groundwater Extraction Tubing
- Proposed Excavation Limits

Figure 6-6c

Building 40-24 (SWMU/AOCs No. 168 and No. 055)
Cleanup Alternative 4 - Near-Term Excavation and Dewatering

AECOM

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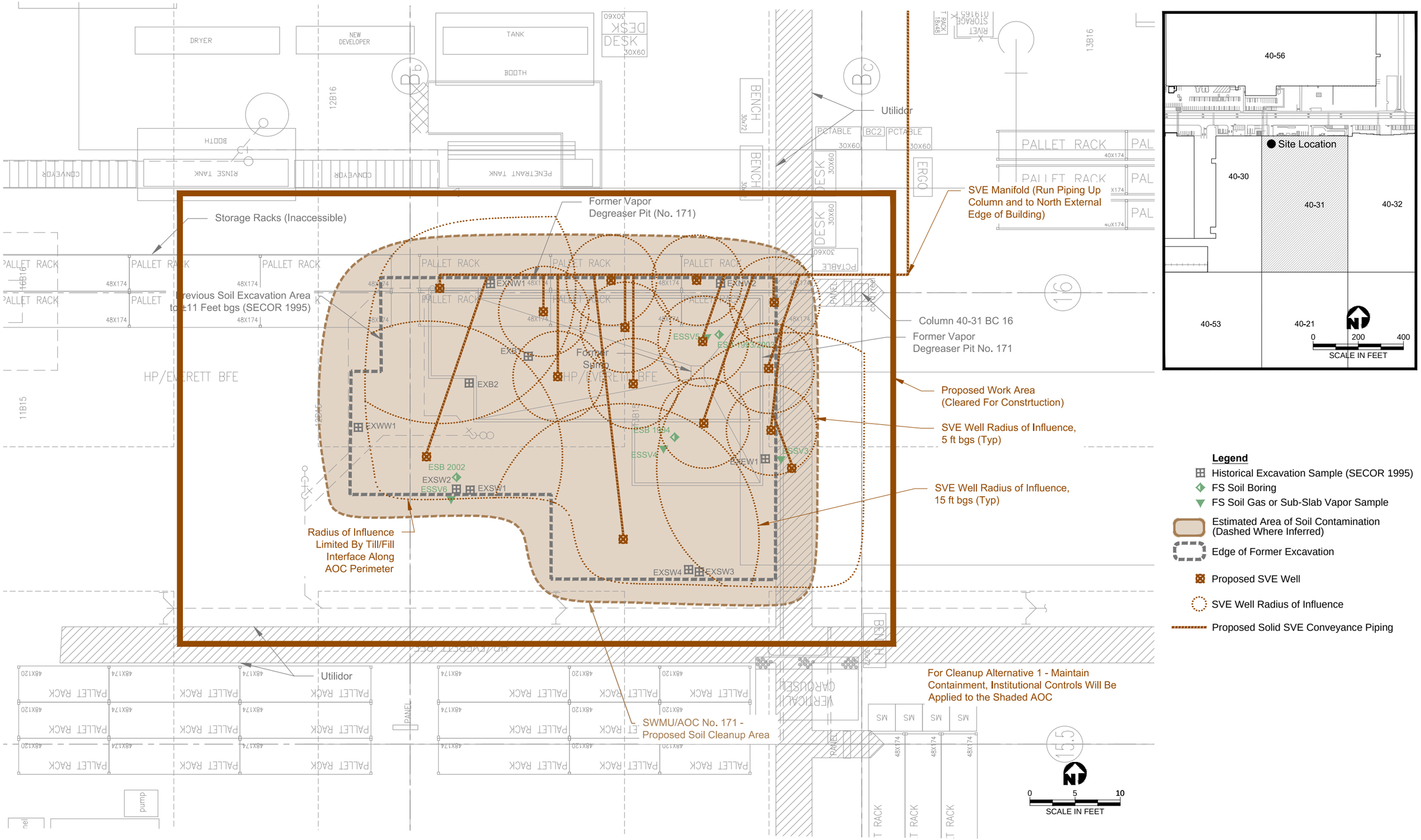

Figure 6-7a

Building 40-31, Former Bluestreak Vapor Degreaser (SWMU/AOC No. 171)
Cleanup Alternatives 1 and 2 - Maintain Containment and Soil Vapor Extraction

AECOM

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Boeing Commercial Airplanes, Everett Plant
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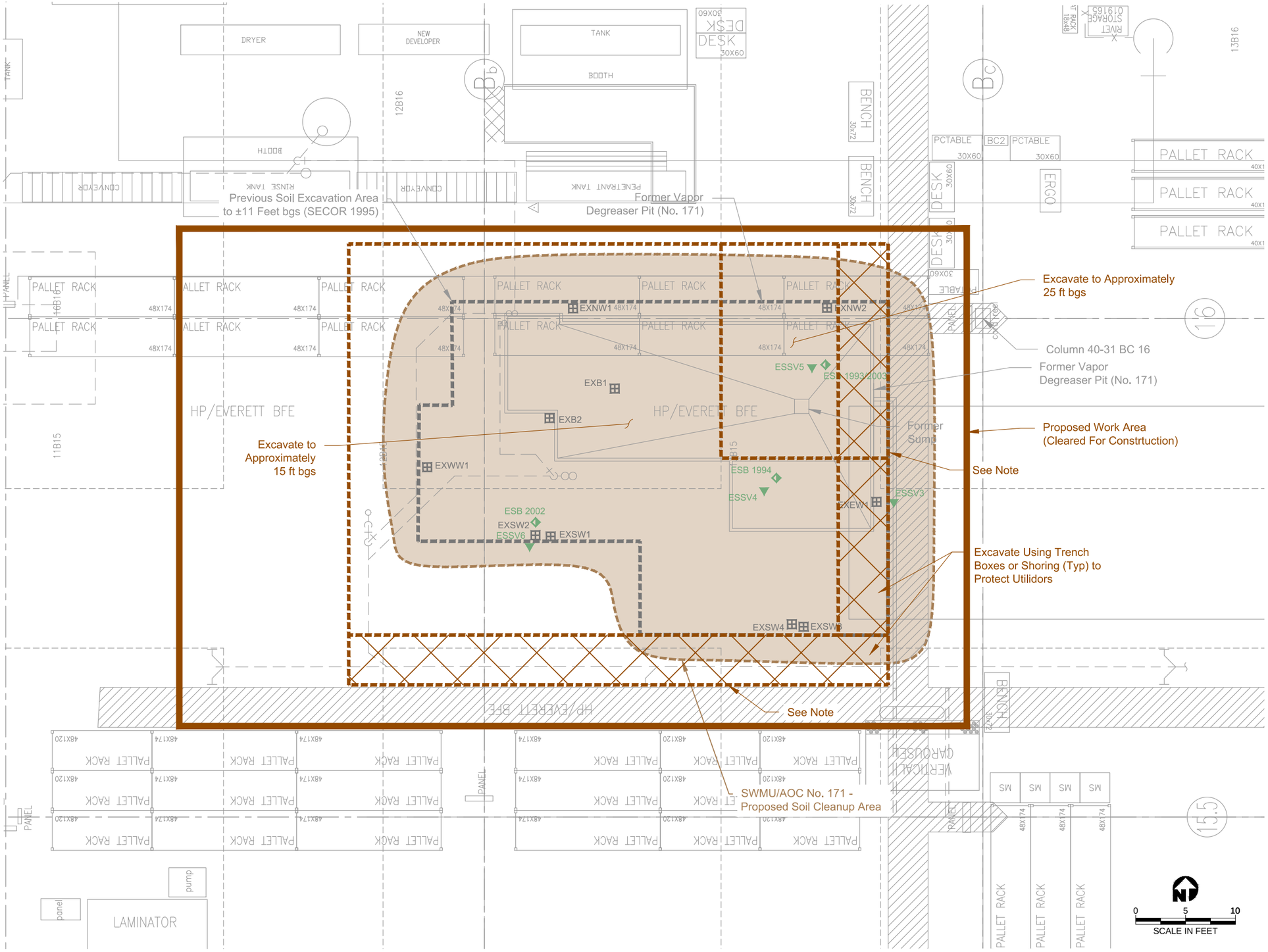

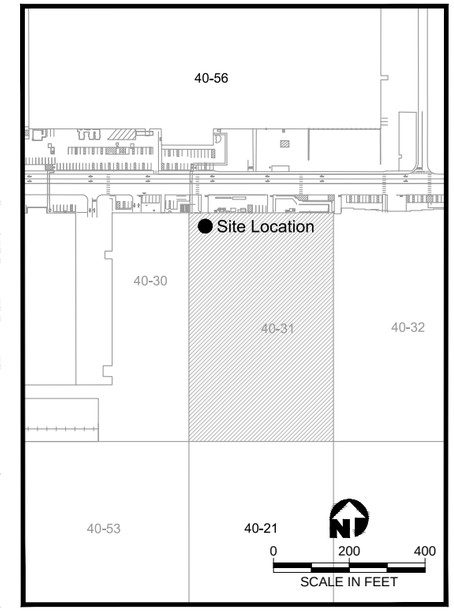

Legend

- Historical Excavation Sample (SECOR 1995)
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Edge of Former Excavation

Alternative Legend

- Proposed Excavation Limits

Note:
Use trenching or shoring alongside the utilidors on the east and south borders of the excavation.

Figure 6-7b
Building 40-31, Former Bluestreak Vapor Degreaser (SWMU/AOC No. 171)
Cleanup Alternatives 3 and 4 - Future and Near-Term Excavation

AECOM

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Boeing Commercial Airplanes, Everett Plant
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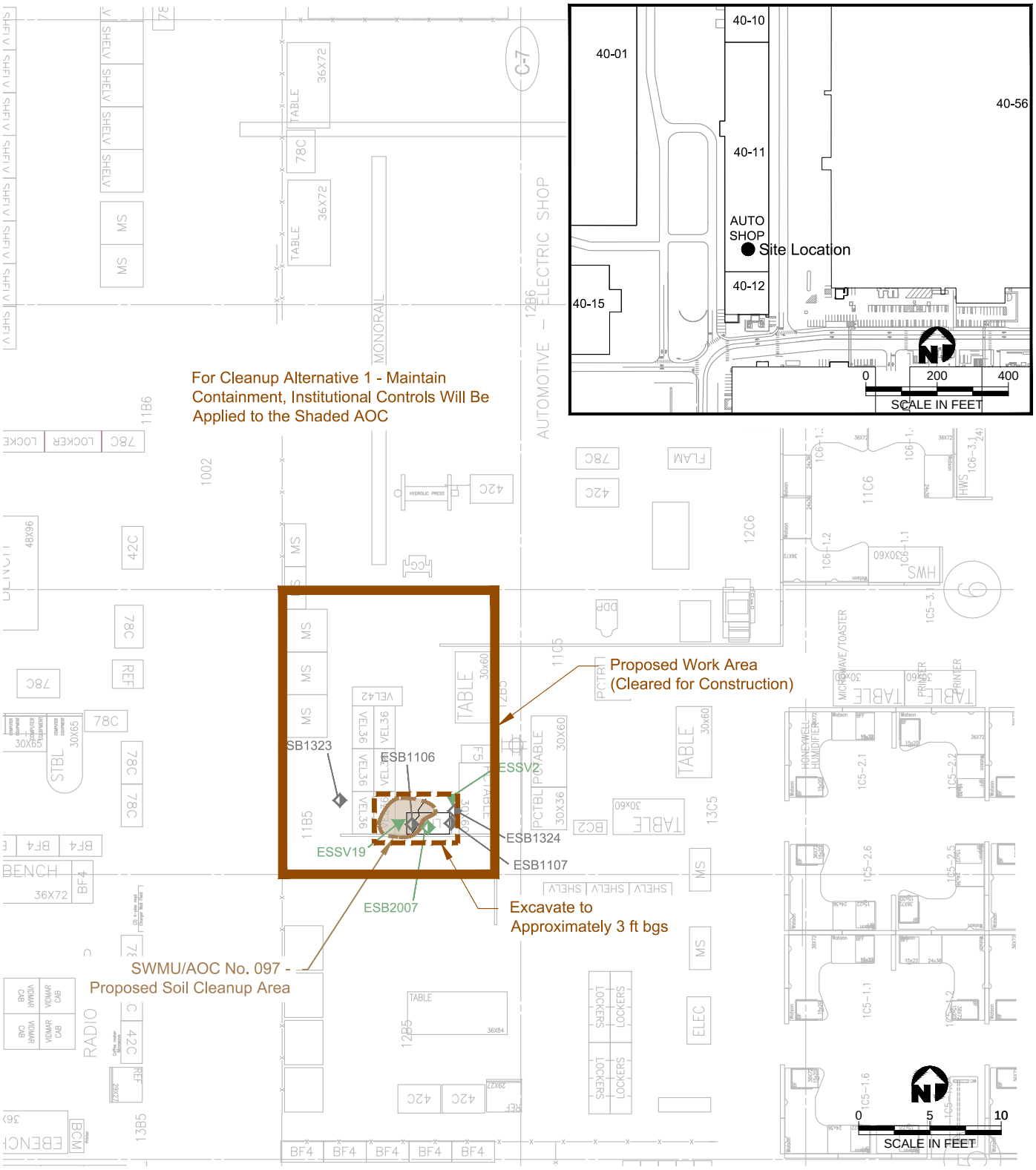

Legend

- Historical Soil Boring
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)

Alternative Legend

- Proposed Excavation Limits

Figure 6-8

Building 40-11, Former Vapor Degreaser (SWMU/AOC No. 097)

Cleanup Alternatives 1, 2, and 3 - Maintain Containment and Future and Near-Term Excavation

AECOM

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Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT

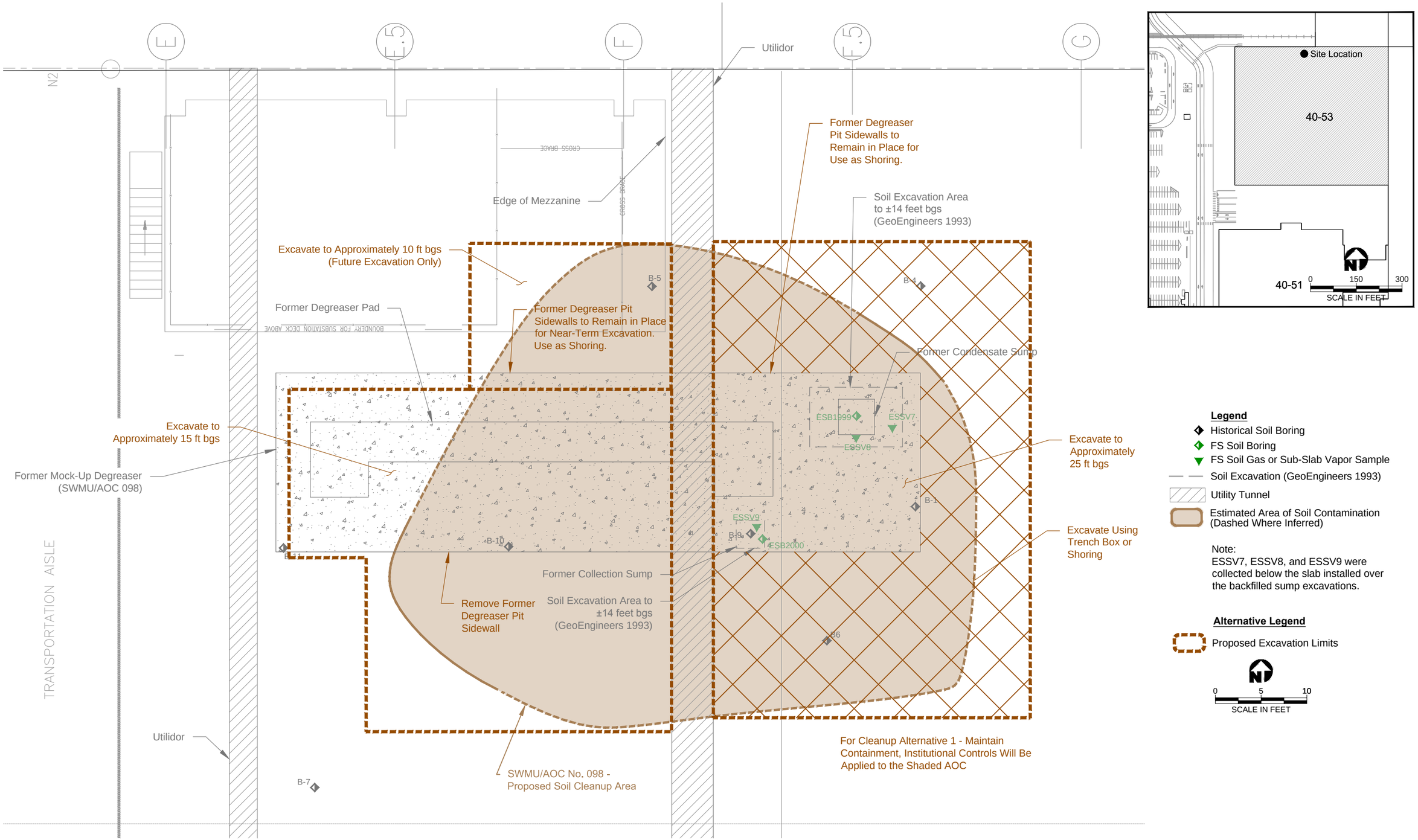

Figure 6-9

Building 40-53, Former Mock-Up Degreaser (SWMU/AOC No. 098)
Cleanup Alternatives 1, 2, and 3 - Maintain Containment and Future and Near-Term Excavation

AECOM

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 6\Fig 6-9 (Alt 2 & 3 Bldg 40-53 SWMU 98).dwg
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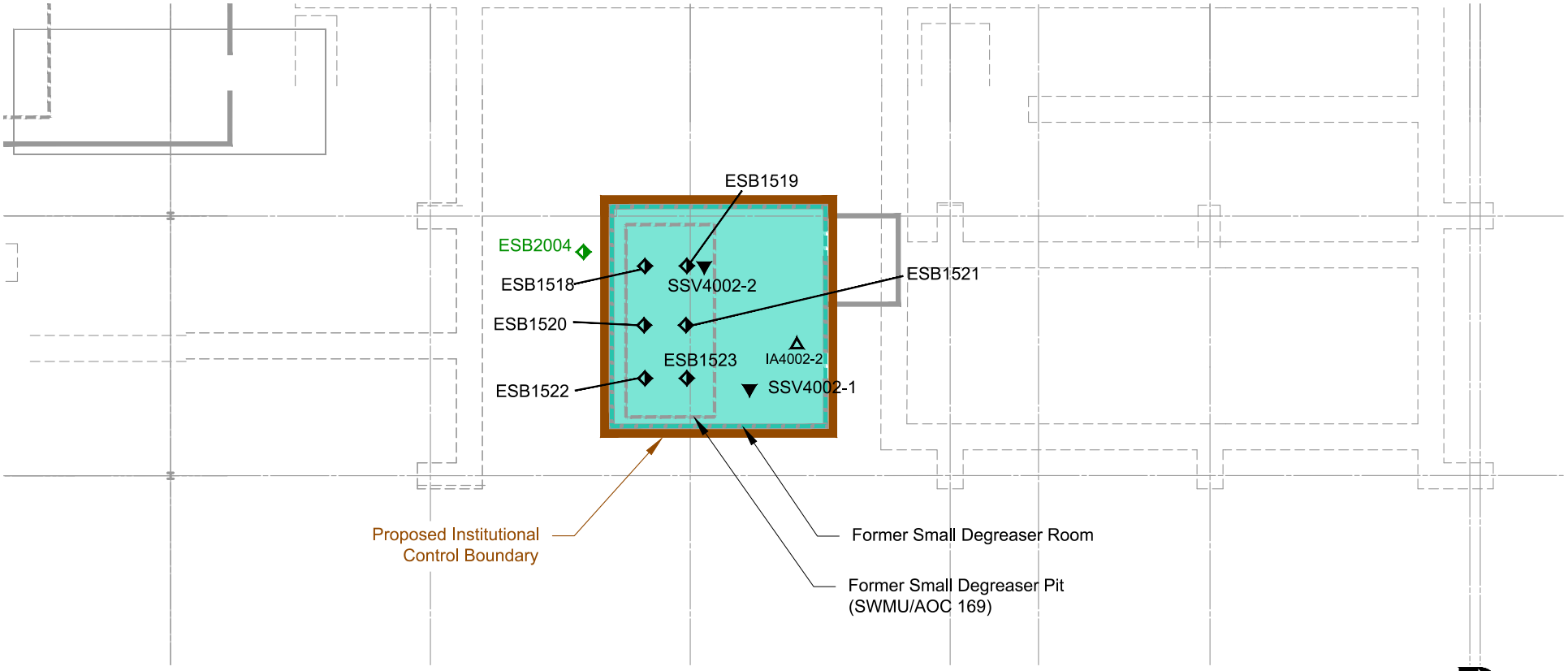
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend

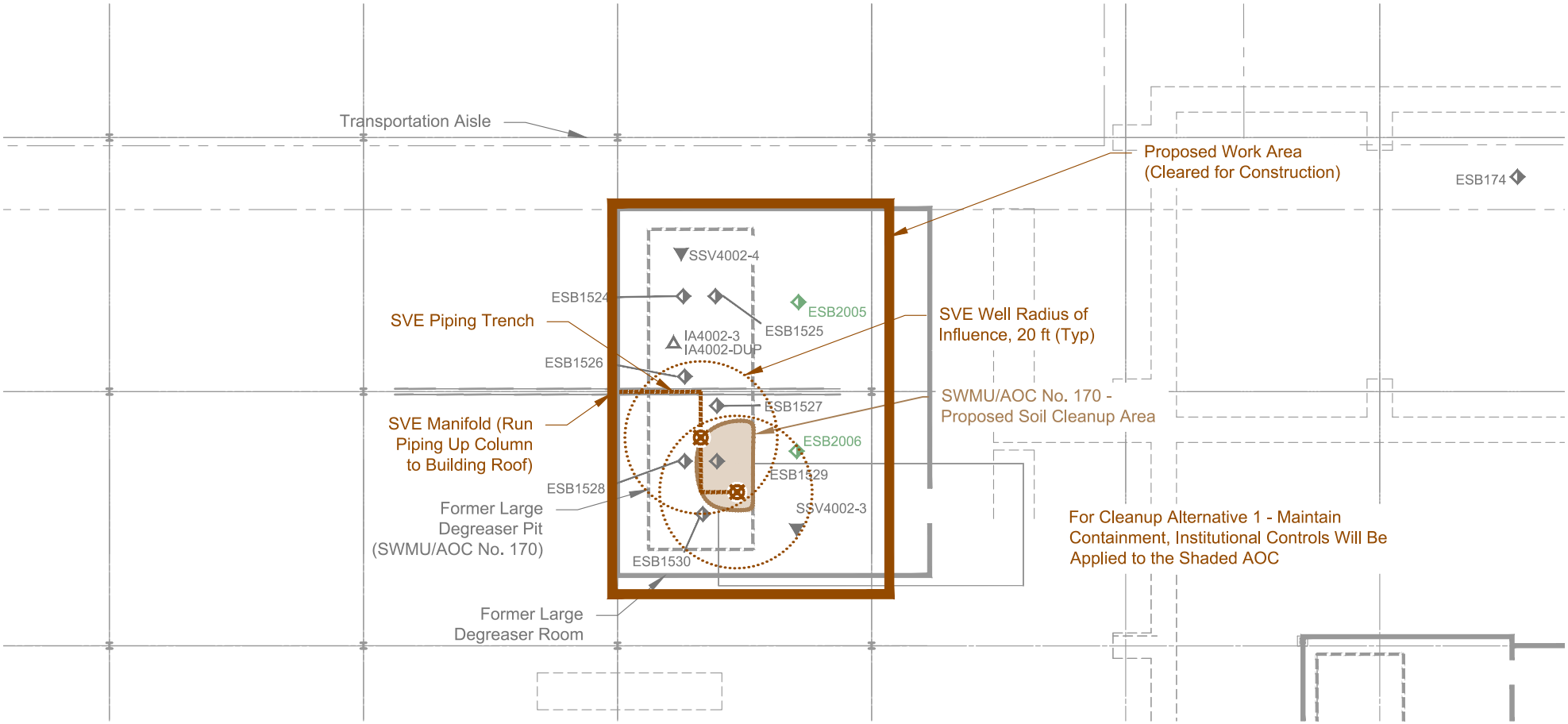
- Subsurface Utility Trench
- Historical Indoor Air Sample
- Historical Soil Boring
- Historical Soil Gas or Sub-Slab Vapor Sample
- FS Soil Boring
- Estimated Area of Sub-Slab Vapor Exceeding a Method C Screening Level (Dashed where Inferred) (See Note 1)

Note:

1. At this SWMU, soil concentrations do not exceed proposed cleanup levels and perched groundwater is not present, so sub-slab vapor concentrations were used to define the estimated area of concern.
2. Samples collected by Landau in 2008 were collected below the former concrete pit floor. Samples collected by URS in 2009 were collected below the new slab floor installed over the backfilled pit.

0 15 30
SCALE IN FEET

Figure 6-10
Building 40-02, Former Small Degreaser (SWMU/AOC No. 169)
Cleanup Alternative 1 - Maintain Containment



Legend

- Subsurface Utility Trench
- Historical Indoor Air Sample
- Historical Soil Boring
- Historical Soil Gas or Sub-Slab Vapor Sample
- FS Soil Boring
- Estimated Area of Soil Contamination (Dashed Where Inferred)

Alternative Legend

- SVE Well
- SVE Well Radius of Influence
- Proposed Solid SVE Conveyance Piping

0 15 30
SCALE IN FEET

Figure 6-11a

Building 40-02, Former Large Degreaser (SWMU/AOC No. 170)
Cleanup Alternatives 1 and 2 - Maintain Containment and Soil Vapor Extraction

AECOM

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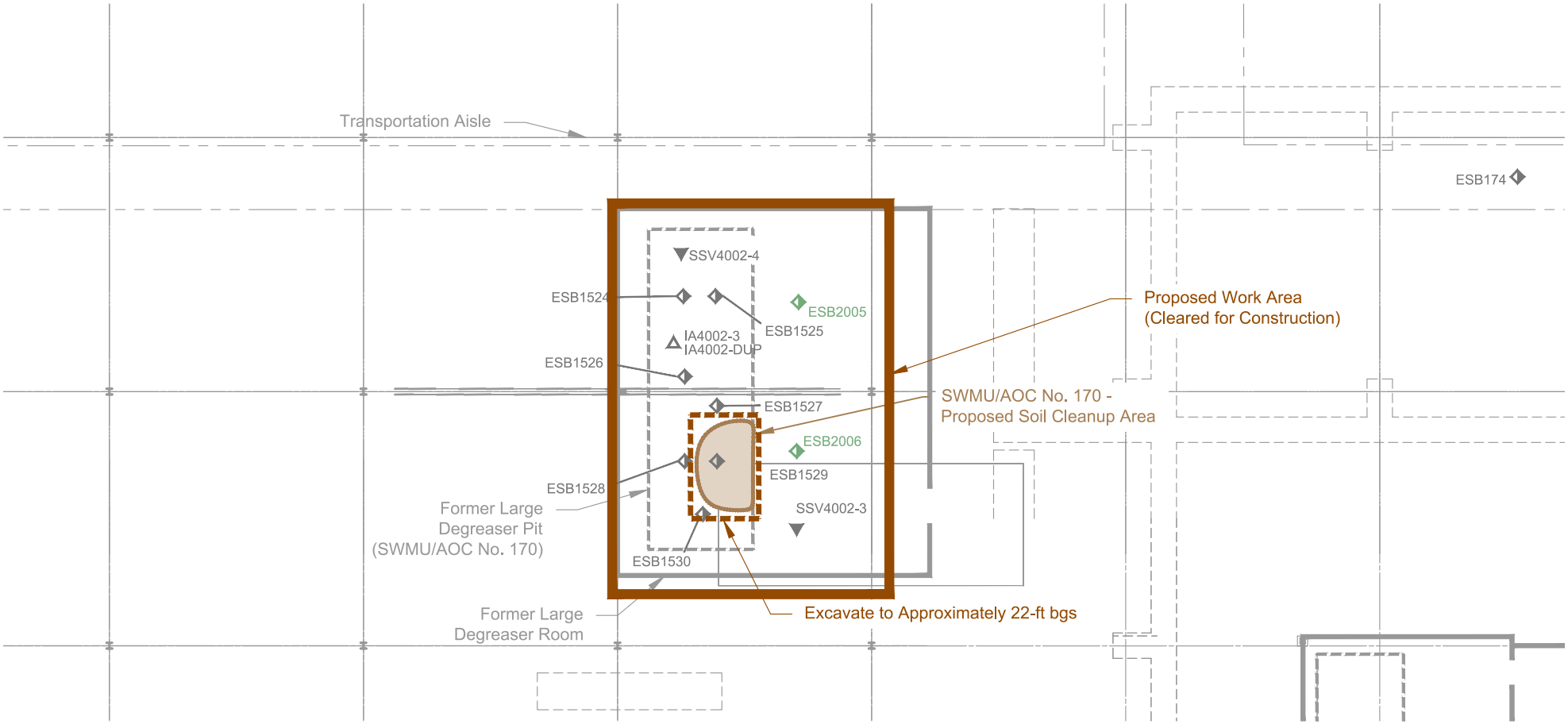
Boeing Commercial Airplanes, Everett Plant
FEASIBILITY STUDY REPORT



Legend

- Subsurface Utility Trench
- Historical Indoor Air Sample
- Historical Soil Boring
- Historical Soil Gas or Sub-Slab Vapor Sample
- FS Soil Boring
- Estimated Area of Soil Contamination (Dashed Where Inferred)

Alternative Legend

- Proposed Excavation Limits

0 15 30
SCALE IN FEET

Figure 6-11b

Building 40-02, Former Large Vapor Degreaser (SWMU/AOC No. 170)
Cleanup Alternatives 3 and 4 - Maintain Containment and Future and Near-Term Excavation

AECOM

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Boeing Commercial Airplanes, Everett Plant
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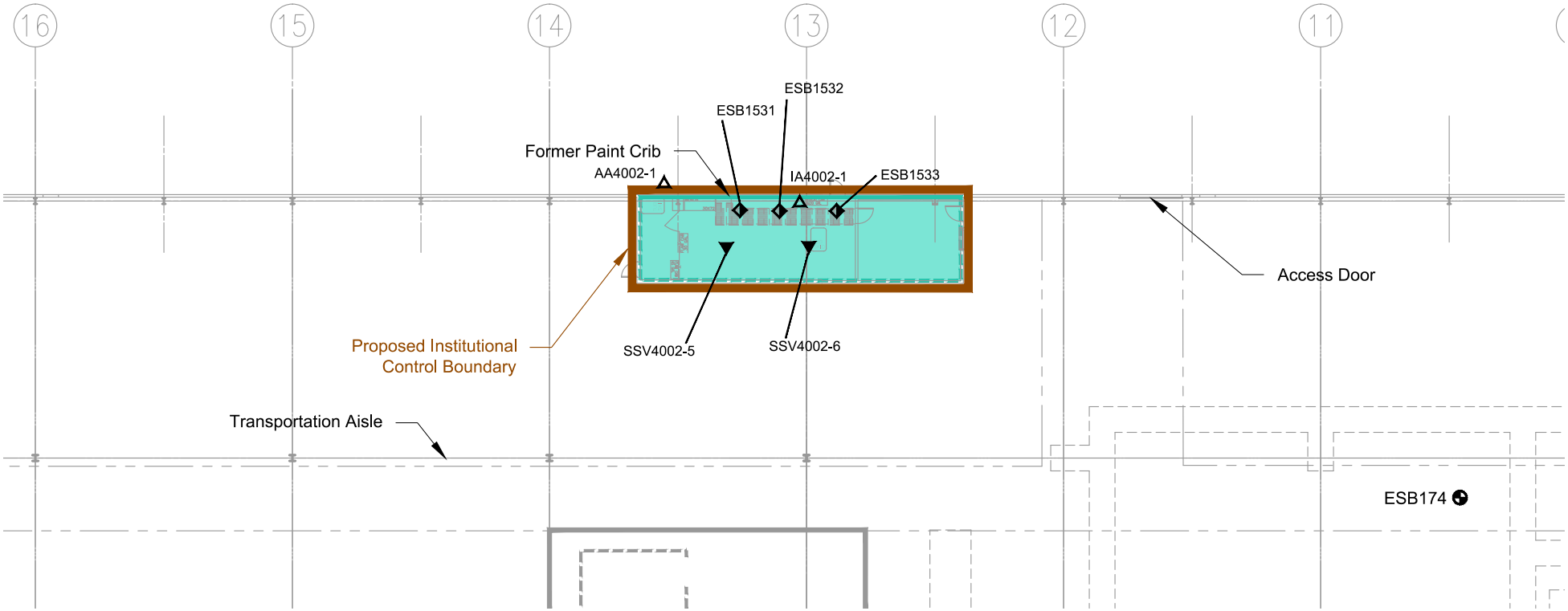

Legend

- Subsurface Utility Trench
- Groundwater Monitoring Well
- Historical Indoor Air Sample
- Historical Soil Boring
- Historical Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Sub-Slab Vapor Exceeding a Method C Screening Level (Dashed where Inferred) (See Note 1)

Notes:

1. At this SWMU, soil concentrations do not exceed proposed cleanup levels and perched groundwater is not present, so sub-slab vapor concentrations were used to define the estimated area of concern.
2. Samples collected by Landau in 2008 were collected below the former concrete pit floor. Samples collected by URS in 2009 were collected below the new slab floor installed over the backfilled pit.

0 15 30
SCALE IN FEET

Figure 6-12
Building 40-02, Former Paint Crib
Cleanup Alternative 1 - Maintain Containment

AECOM

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Boeing Commercial Airplanes, Everett Plant
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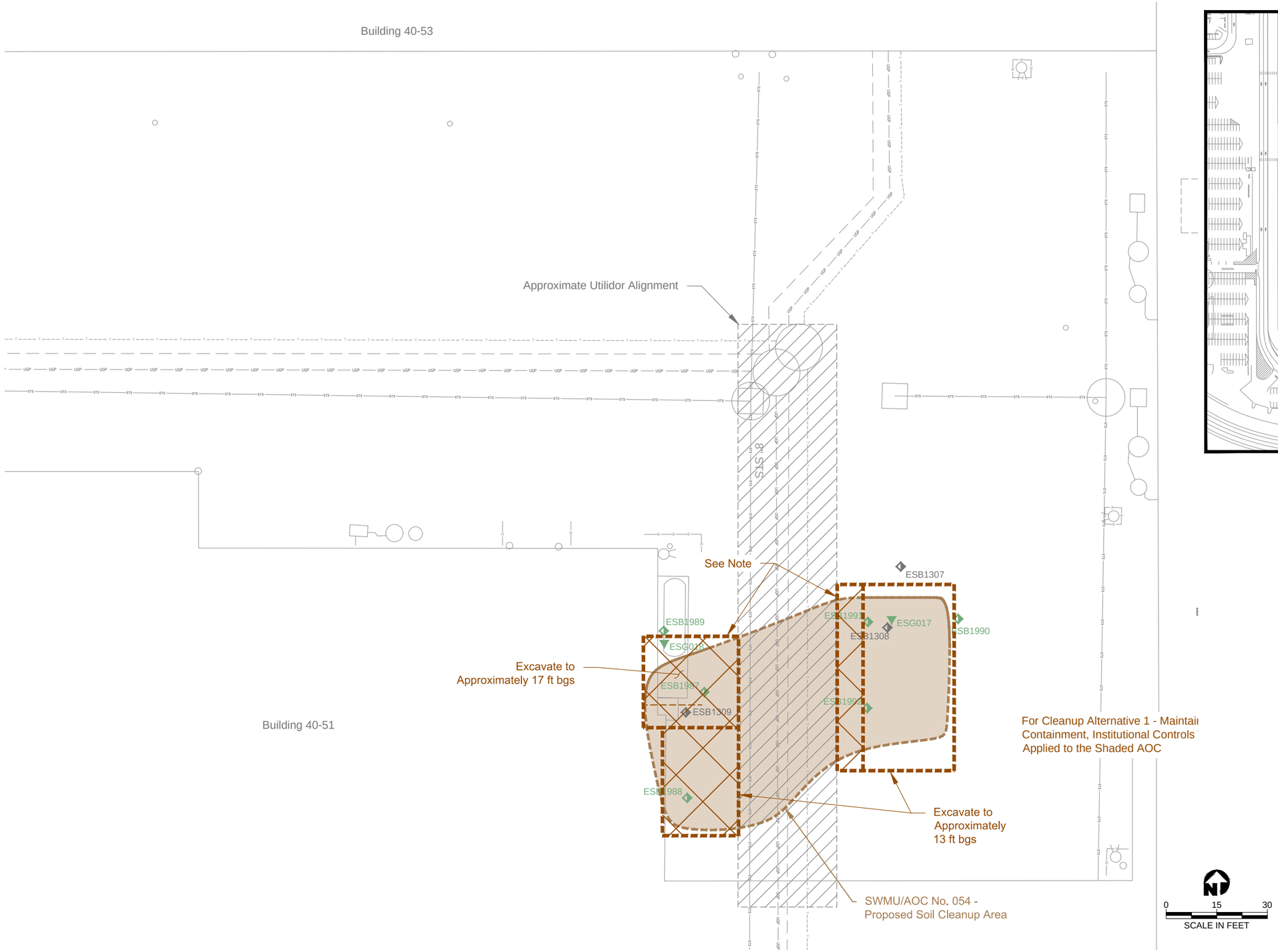
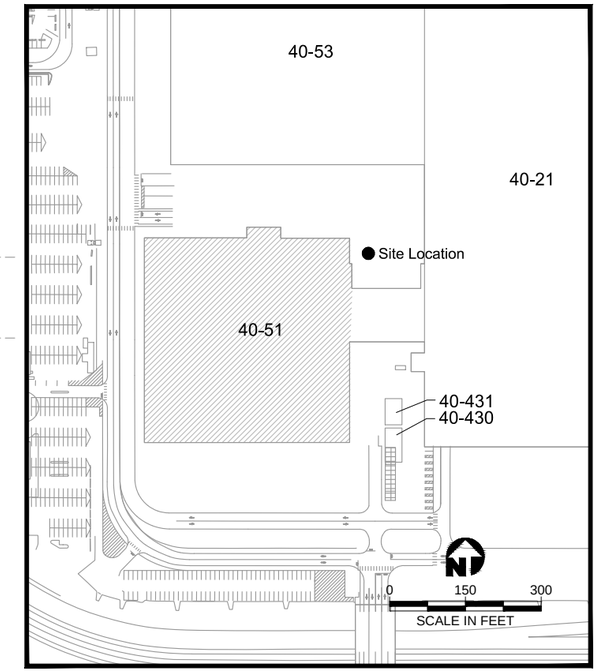




Legend

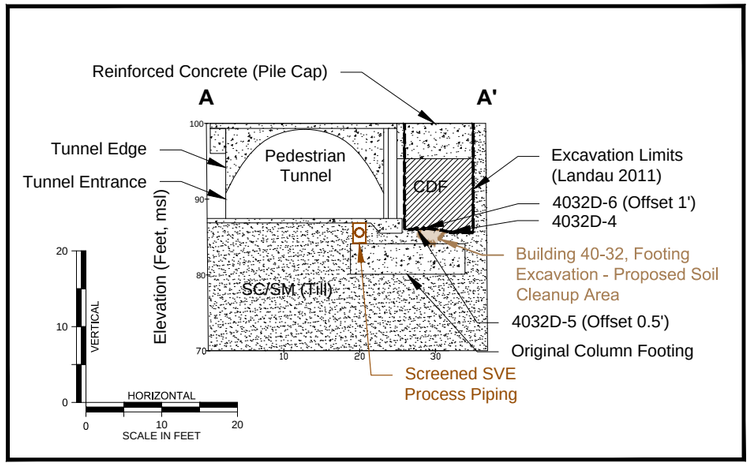
- Historical Soil Boring
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)

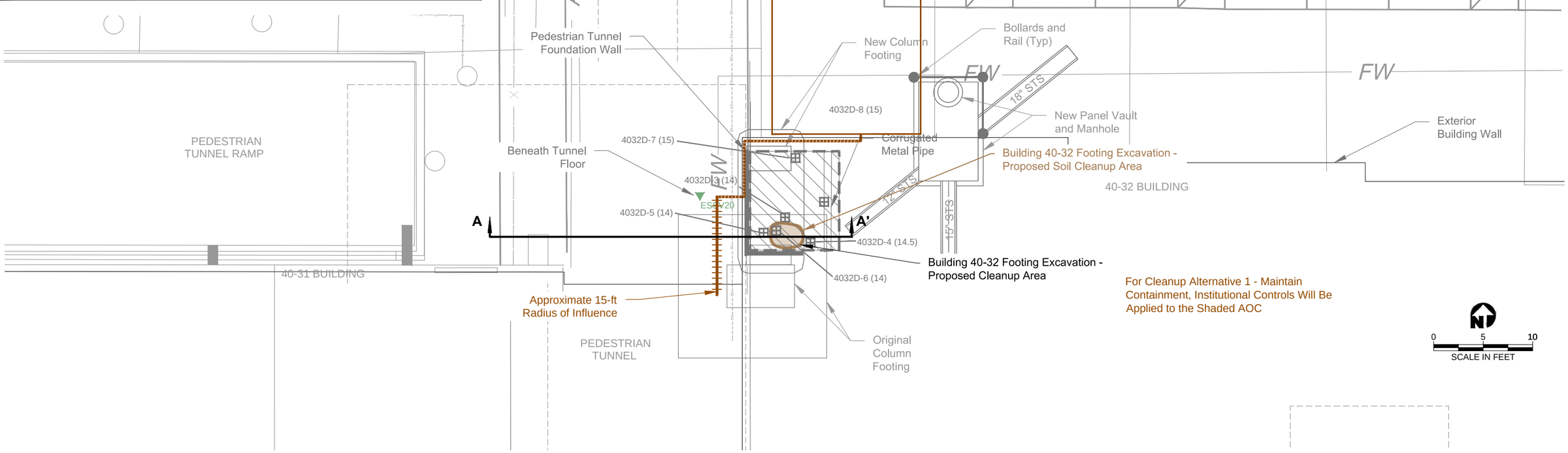
Alternative Legend

- Proposed Excavation Limits

Note:
Use trenching or shoring in excavations adjacent to the utilidor and building edge.

Figure 6-13
Building 40-51, Former Waste Water AST (SWMU No. 054)
Cleanup Alternatives 1, 2, and 3 - Maintain Containment and Future and Near-Term Excavation





Legend

- Historical Excavation Sample (Landau 2011)
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Concrete Footing or Foundation Bordering Excavation
- Concrete Cut and Removal Area
- Estimated Excavation Extent (Filled by Concrete [Footing] and CDF Backfill) (Landau 2011)

Alternative Legend

- Proposed Solid SVE Conveyance Piping
- Proposed Screened SVE Process Piping

Figure 6-14

Building 40-32 Footing Excavation

Cleanup Alternatives 1 and 2 - Maintain Containment and Soil Vapor Extraction

AECOM

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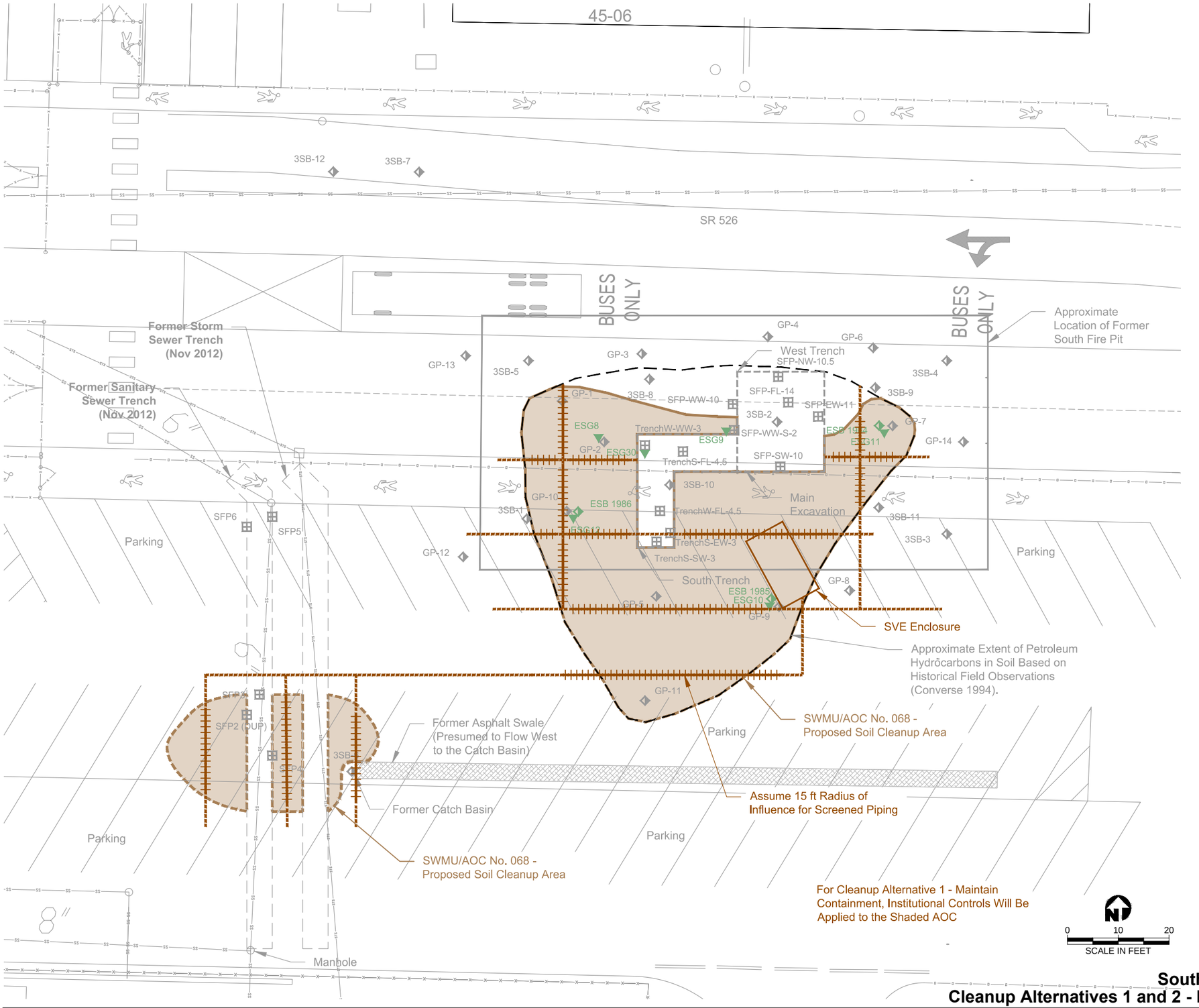
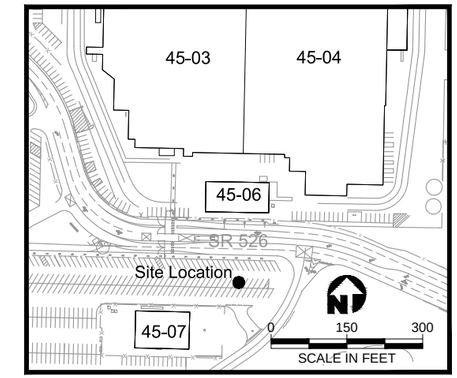


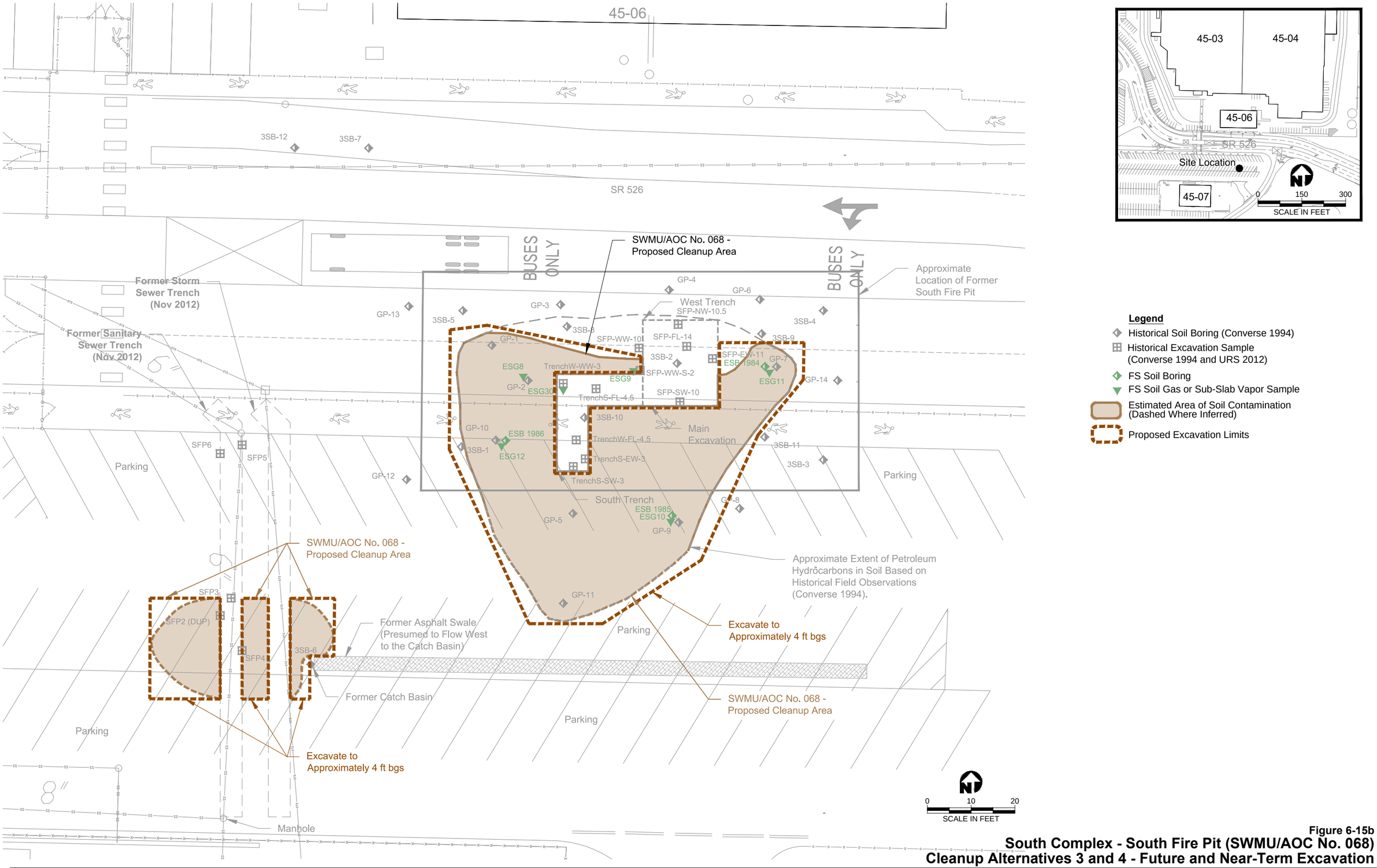


Legend

- Historical Soil Boring (Converse 1994)
- Historical Excavation Sample (Converse 1994 and URS 2012)
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Proposed Solid SVE Conveyance Piping
- Proposed Screened SVE Conveyance Piping

Note:
SVE conveyance and process piping represents conceptual piping and screening locations. Multiple pipes may be present to facilitate system operation and screening may change based on pre-design sampling and field observations conducted while trenching.

Figure 6-15a
South Complex - South Fire Pit (SWMU/AOC No. 068)
Cleanup Alternatives 1 and 2 - Maintain Containment and Soil Vapor Extraction



Legend

- Historical Soil Boring (Converse 1994)
- Historical Excavation Sample (Converse 1994 and URS 2012)
- FS Soil Boring
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Proposed Excavation Limits

Figure 6-15b

South Complex - South Fire Pit (SWMU/AOC No. 068)
Cleanup Alternatives 3 and 4 - Future and Near-Term Excavation

AECOM

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 6\Fig 6-15b (Former S Fire Pit SWMU 68).dwg
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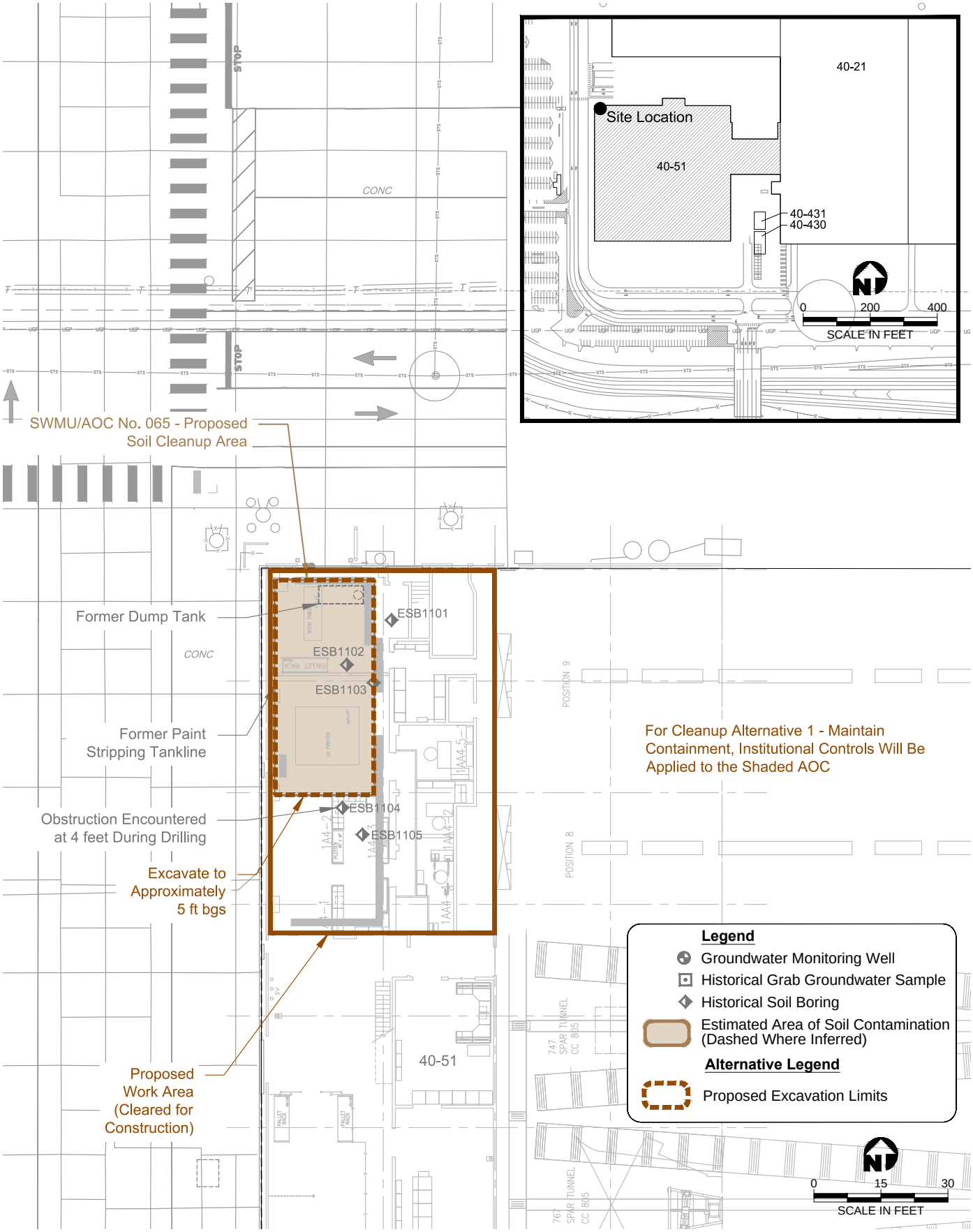

Figure 6-16

Building 40-51, Former Paint Stripping Tankline (SWMU/AOC No. 065)
Cleanup Alternatives 1, 2, and 3 - Maintain Containment and Future and Near-Term Excavation

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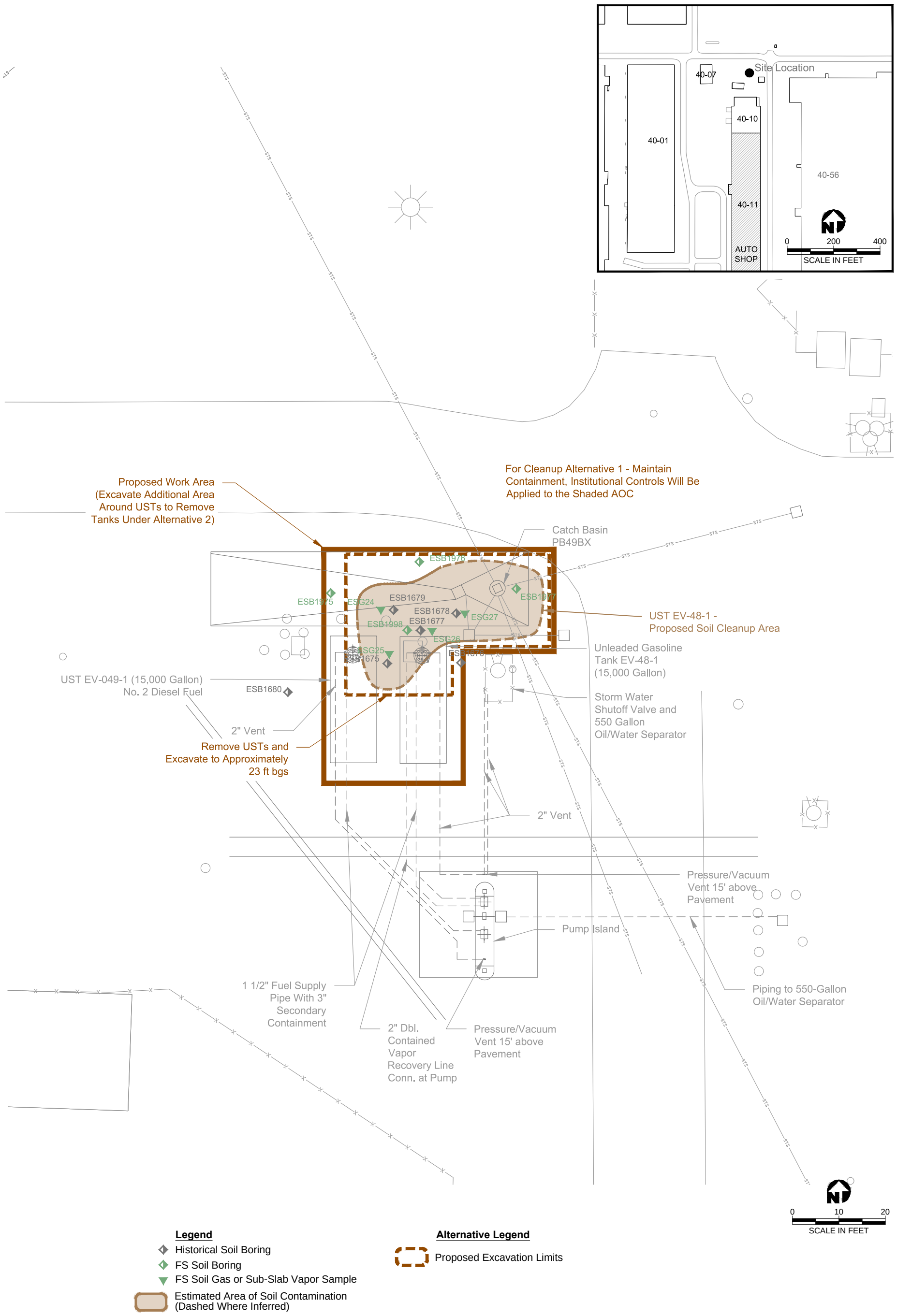

Figure 6-17

Building 40-11, UST EV-48-1

Cleanup Alternatives 1, 2 and 3 - Maintain Containment, Future and Near-Term Excavation

AECOM

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Boeing Commercial Airplanes, Everett Plant
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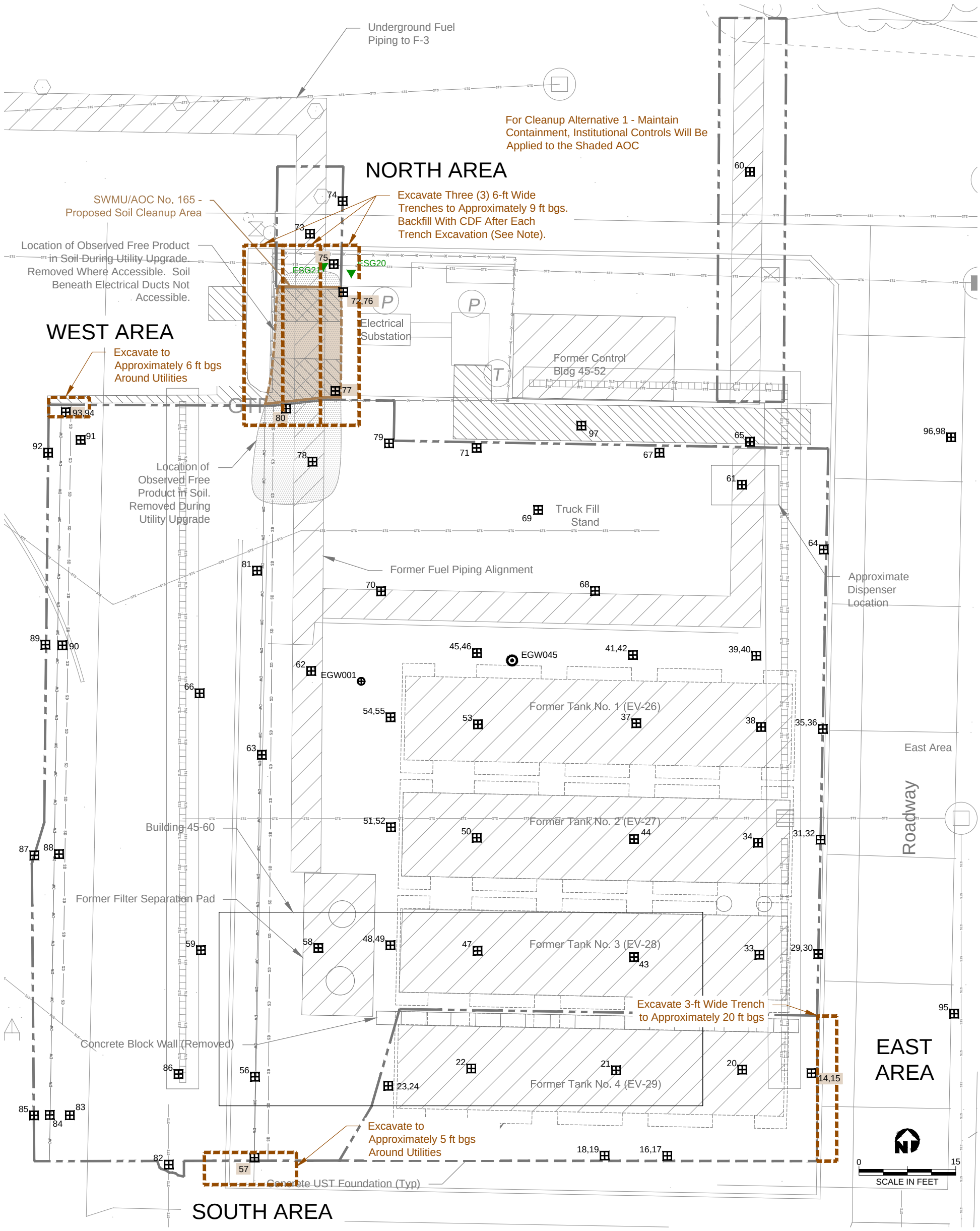

Legend

- Abandoned Groundwater Monitoring Well
- Abandoned Groundwater Recovery Well
- Historical Excavation Sample
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- 2008 Excavation Outline
- 2007 Excavation Outline
- SD Storm Drain Line
- DW Water Line
- Electrical Duct

Alternative Legend

- Proposed Excavation Limits

Note:
Alternative 1 consists of limited excavation and containment. It includes excavation of the area where free product was observed and containment of the remaining areas.

Figure 6-18a

Building 45-52, Former Fuel Farm USTs (SWMU/AOC No. 165)

Cleanup Alternatives 1, 2, and 3 - Limited Excavation and Containment, Future and Near-Term Excavation

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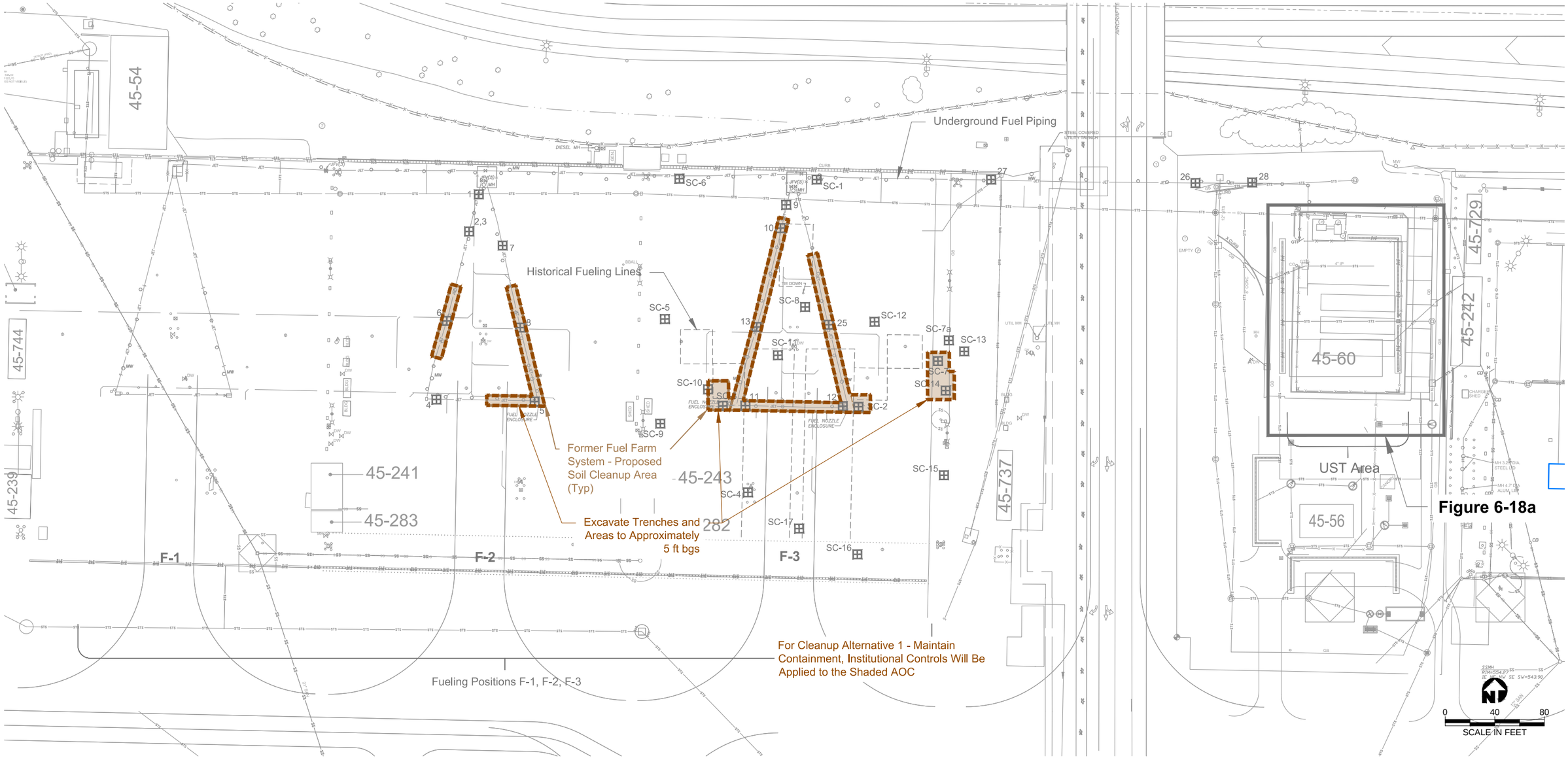

Legend

- Historical Excavation Sample
- F-1 Fueling Position
- Estimated Area of Soil Contamination (Dashed Where Inferred)

Alternative Legend

- Proposed Excavation Limits

Figure 6-18b

Former Fuel Farm System

Cleanup Alternatives 1, 2, and 3 - Maintain Containment, Future and Near-Term Excavation

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Boeing Commercial Airplanes, Everett Plant
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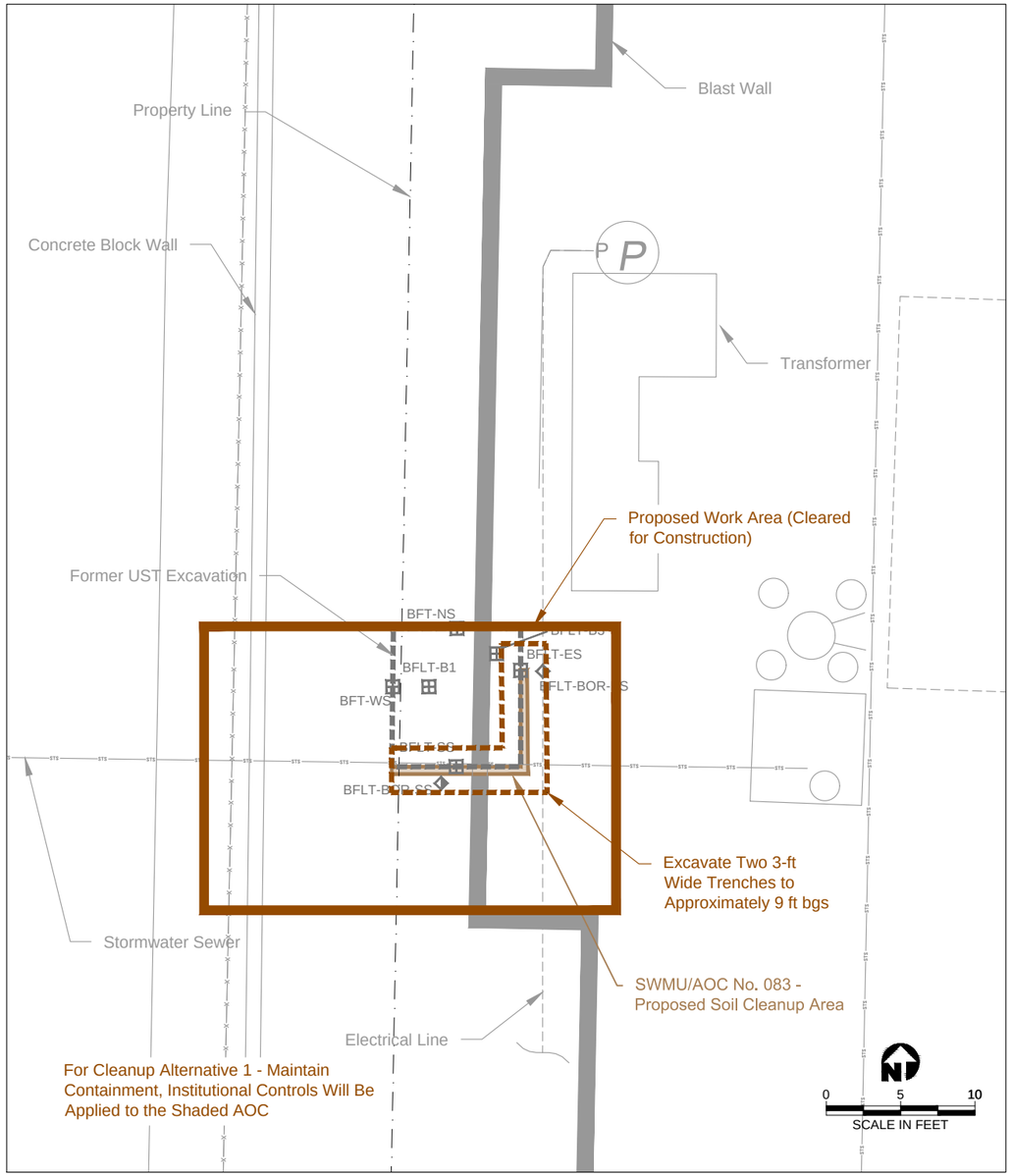
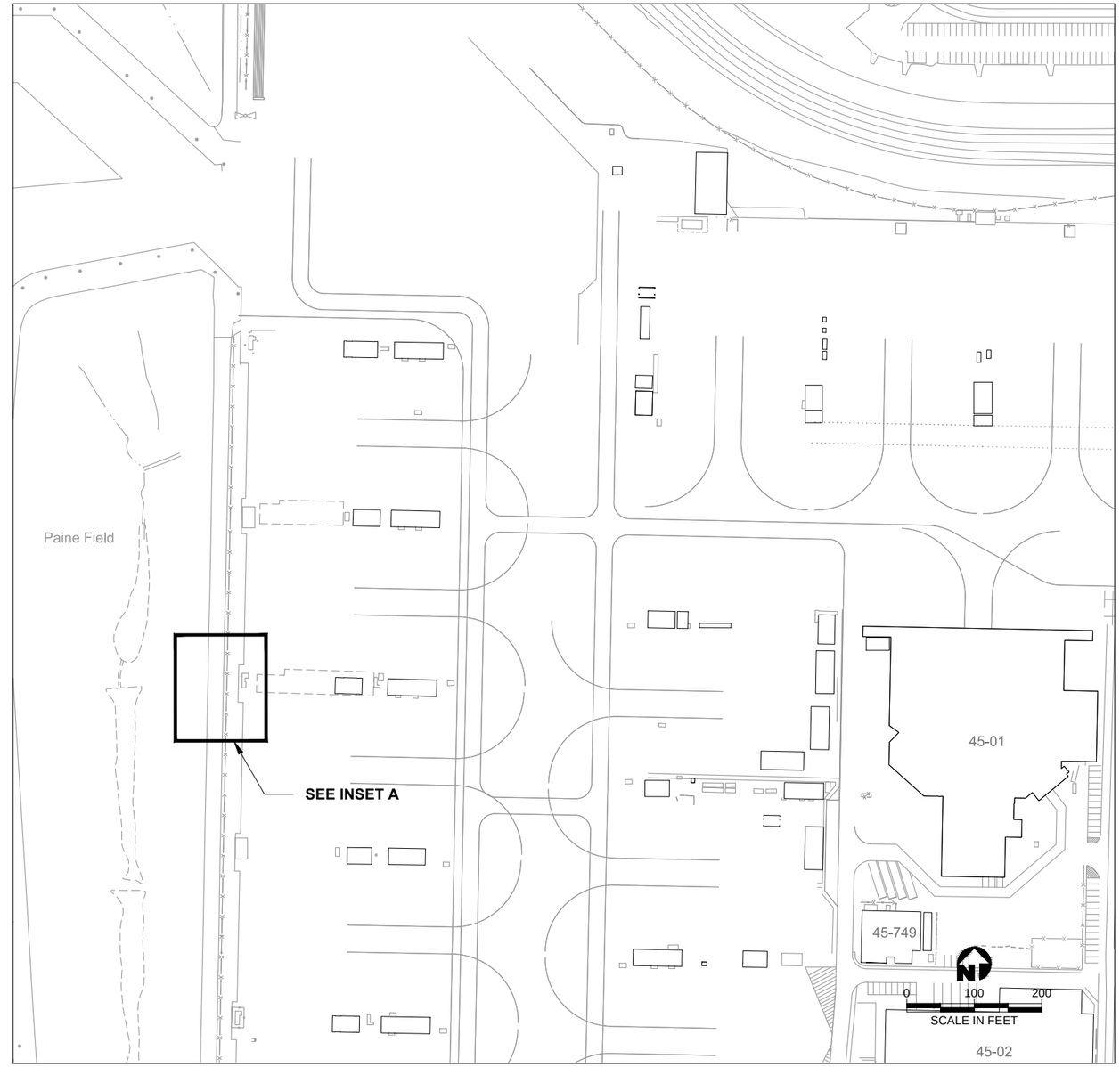


Inset A



Legend

- Historical Soil Boring (O'Sullivan Omega 1994)
- Historical Excavation Sample (O'Sullivan Omega 1994)
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Edge of Former Excavation

Alternative Legend

- Proposed Excavation Limits

Figure 6-19

Flightline, Former UST EV-15 (SWMU/AOC No. 083)
Cleanup Alternatives 1 and 2 - Maintain Containment and Future Excavation

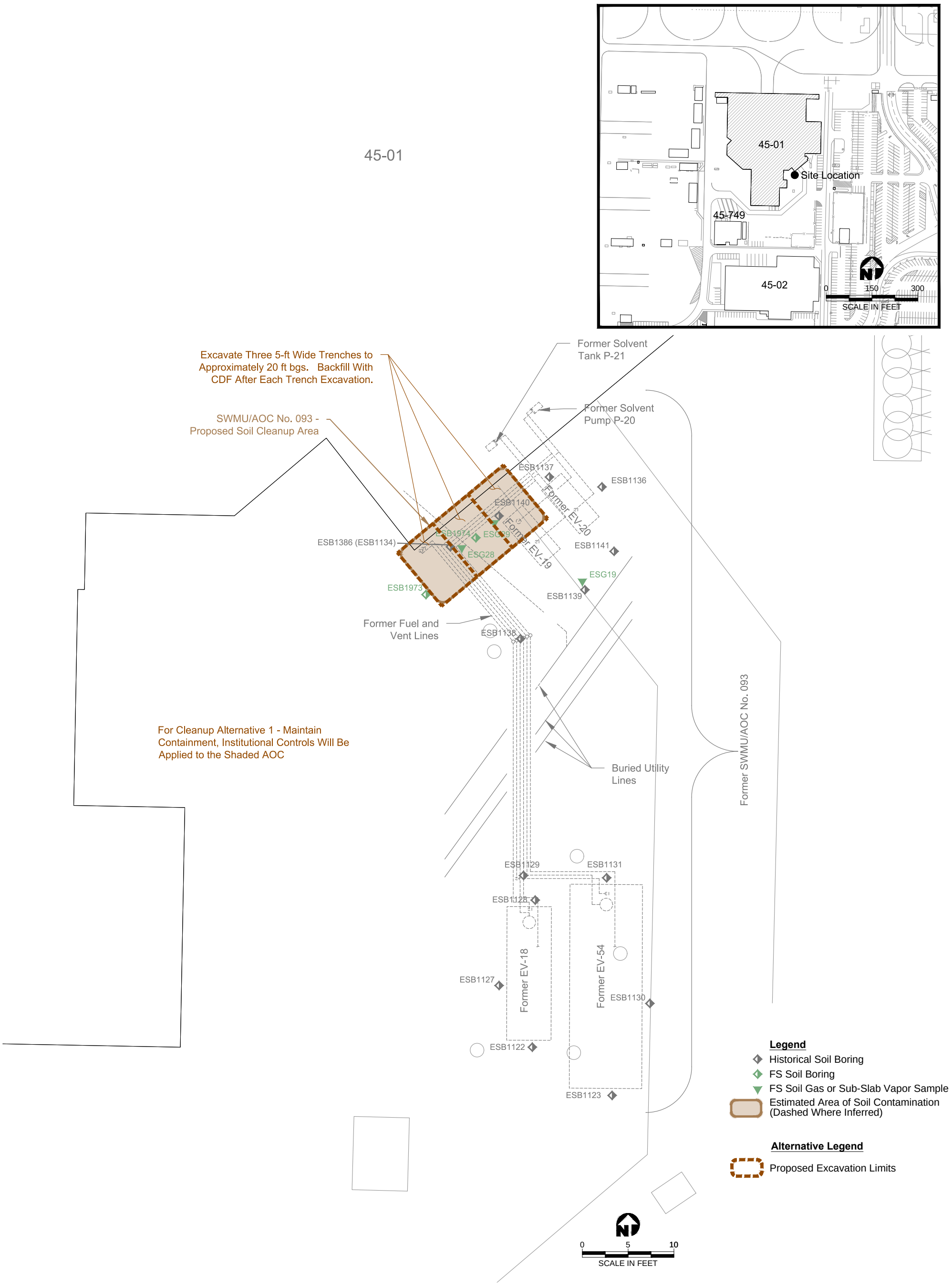


Figure 6-20

Building 45-01, Former Solvent Tanks (SWMU/AOC No. 093)
Cleanup Alternatives 1 and 2 - Maintain Containment and Near-Term Excavation

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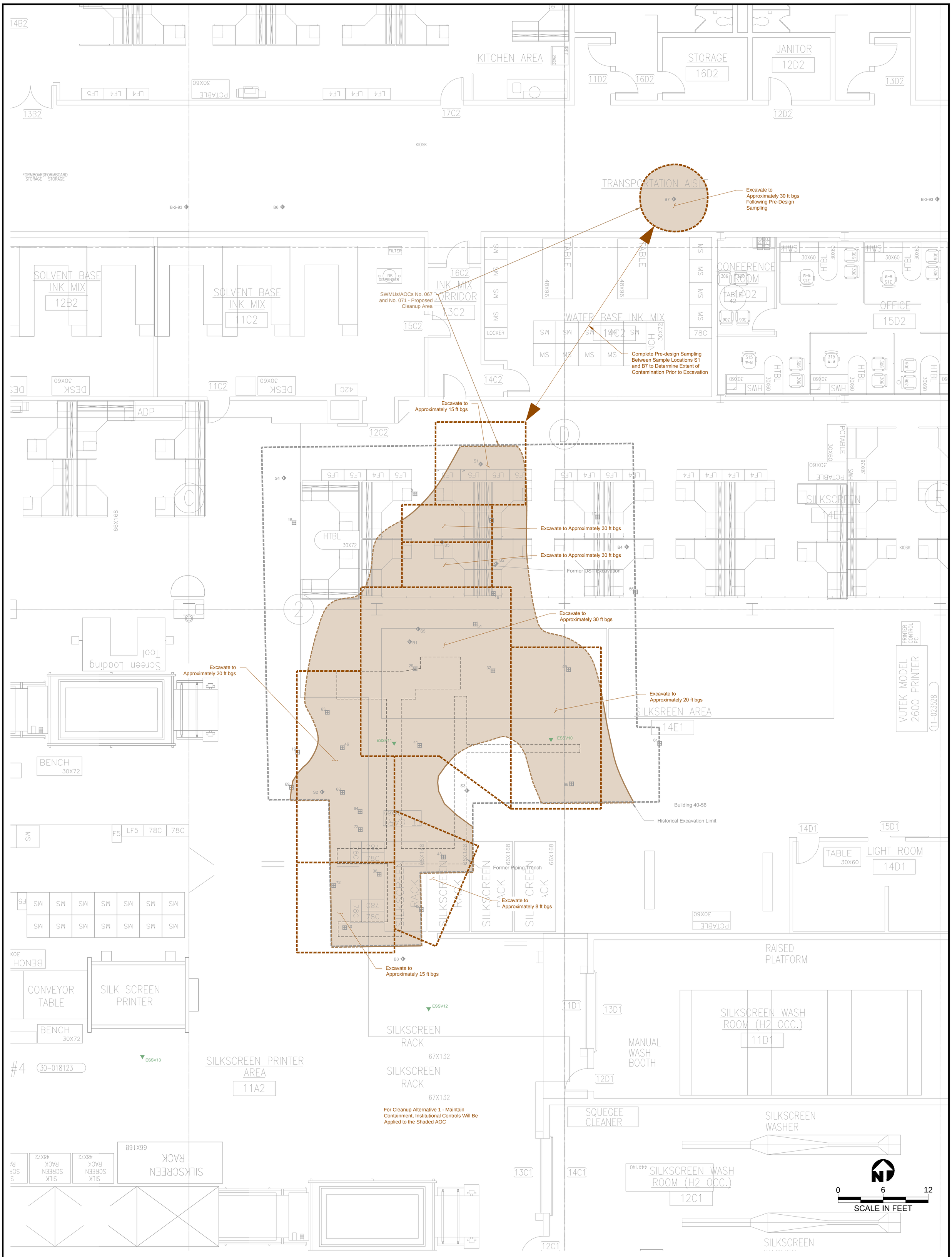

Legend

- Historical Soil Boring
- Historical Excavation Sample
- FS Soil Gas or Sub-Slab Vapor Sample
- Estimated Area of Soil Contamination (Dashed Where Inferred)
- Proposed Excavation Limits

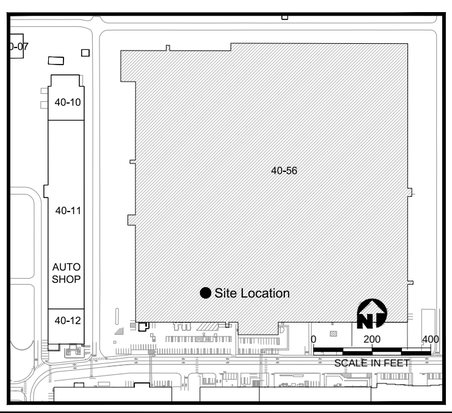

Figure 6-21
Building 40-56, Former Recycling Unit and UST EV-153 (SWMUs/AOCs No. 067 and No. 071) Cleanup Alternatives 1, 2, and 3 - Maintain Containment and Future and Near-Term Excavation

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FEASIBILITY STUDY REPORT

J:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 6\Fig 6-21 (40-56 SWMU 67-71).dwg
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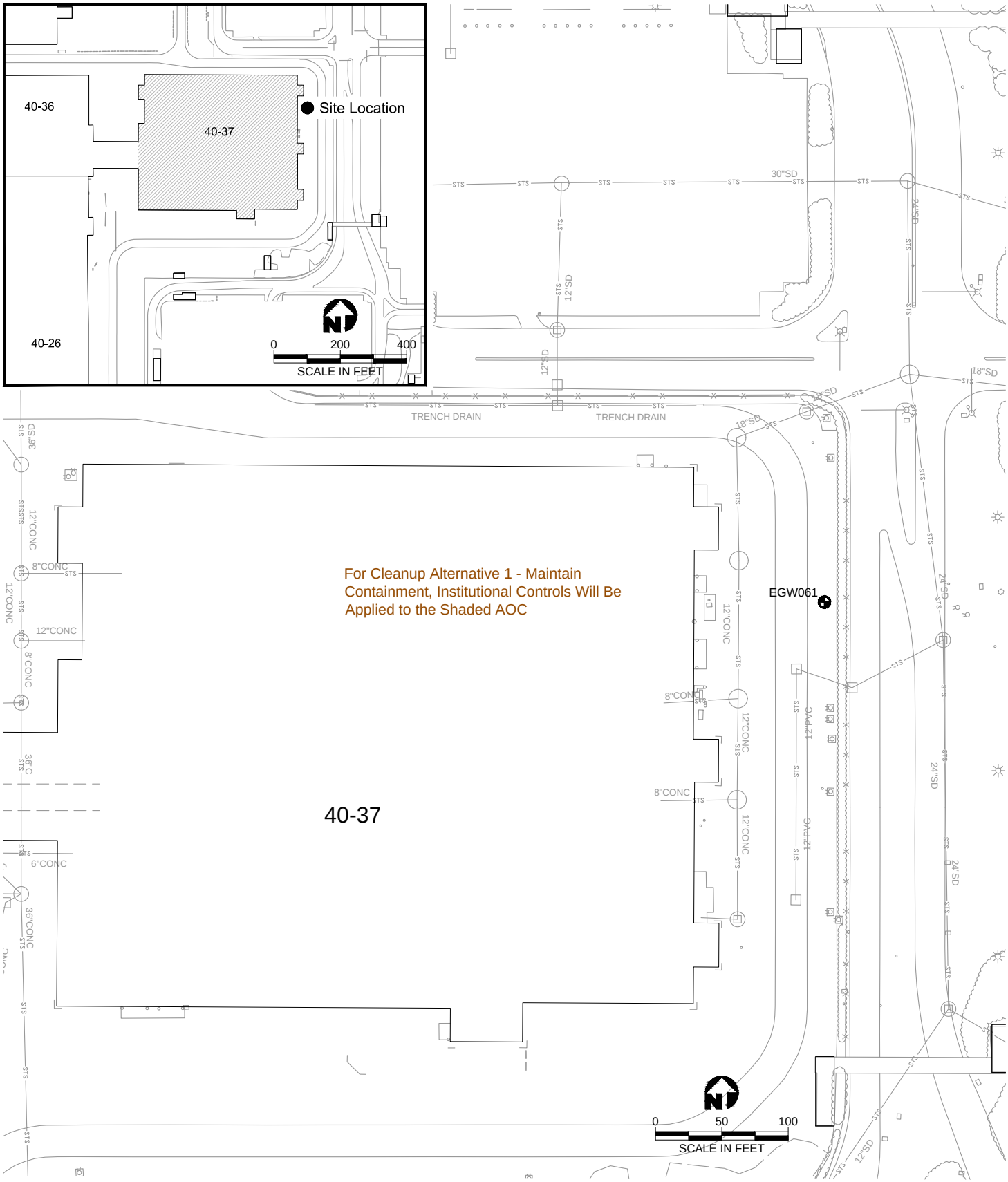

Legend:

Groundwater Monitoring Well

Figure 6-22

Esperance Sand
Cleanup Alternative 1 - Maintain Containment

AECOM

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Boeing Commercial Airplanes, Everett Plant
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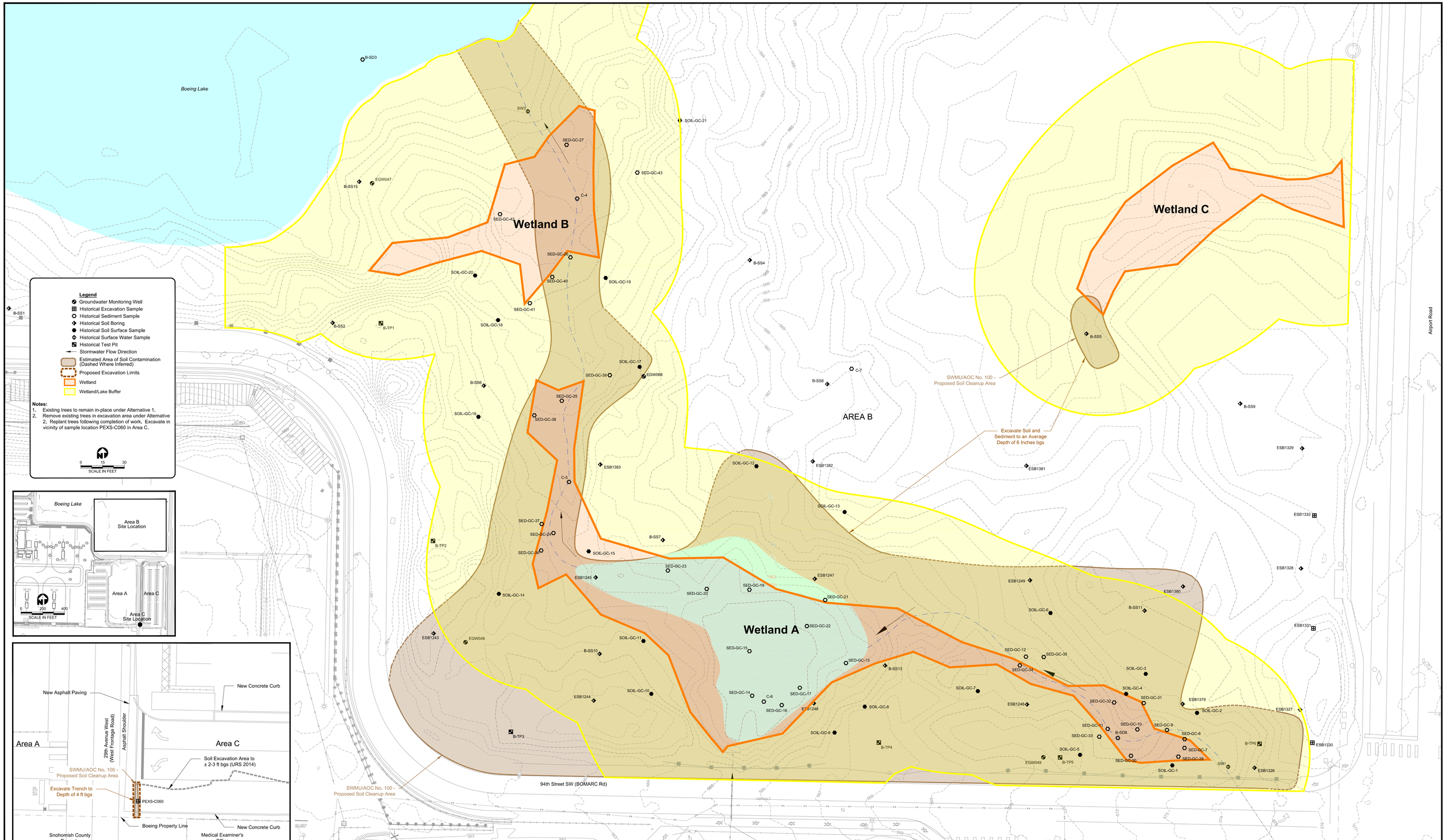

Figure 6-23
South Complex - Former Gun Club (SWMU/AOC 100)
Cleanup Alternatives 1 and 2 - Limited and Comprehensive Excavation

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FEASIBILITY STUDY REPORT

I:\GIS\Projects\Boeing\Everett\FEASIBILITY STUDY\Reports\Upland\FS Report\Section 6\Fig 6-23 (Former Gun Club SWMU 100 Sed-Soil).dwg
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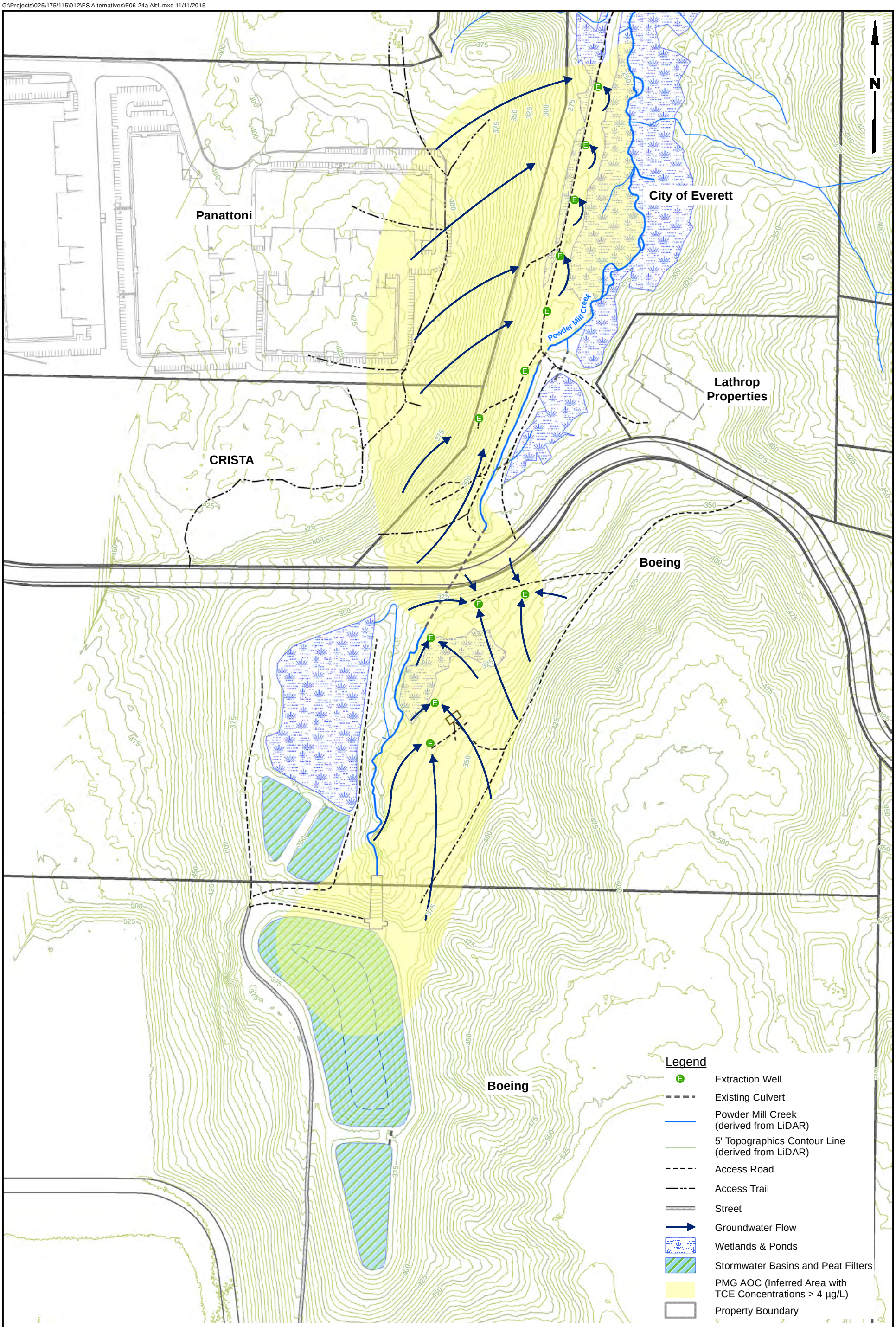

Base Map Sources: URS 2005; City of Everett 2005
LiDAR Data Source: URS 2005 (Data Collected November 2005)

0 250 500
Scale in Feet

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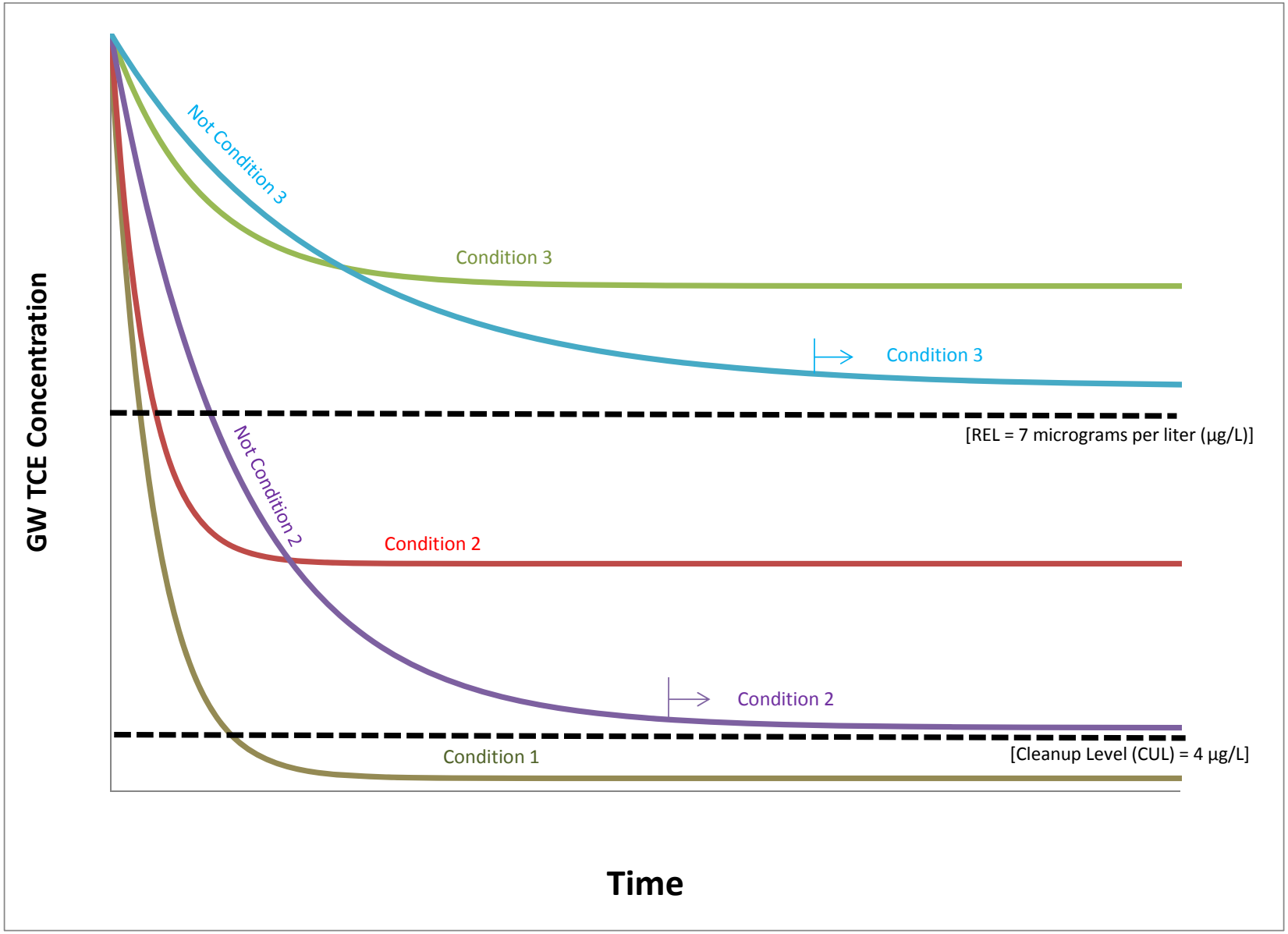
Boeing Commercial Airplanes
Everett, Washington

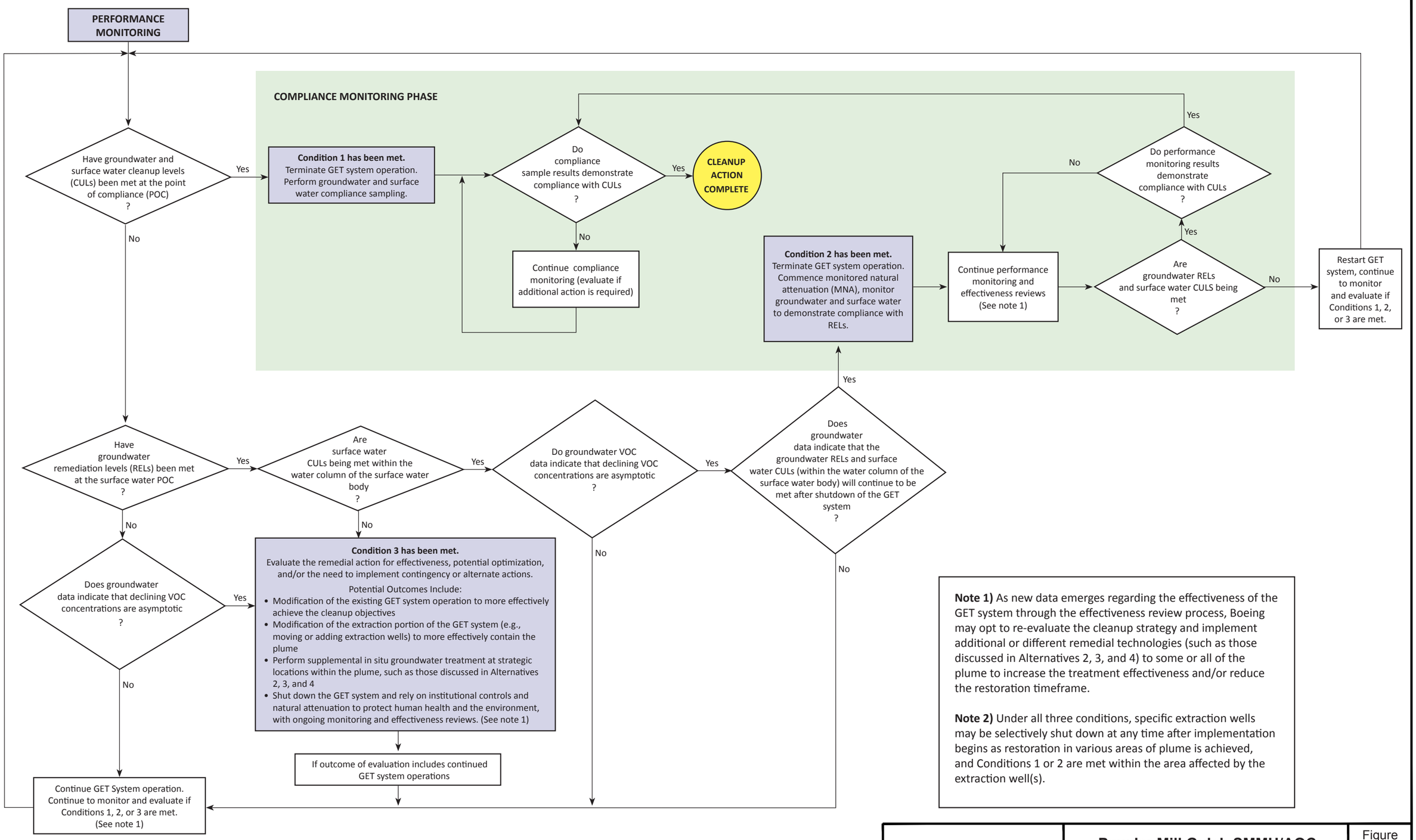
Powder Mill Gulch SWMU/AOC
Alternative 1: Continued GET System Operations and ICs

Figure
6-24a



LANDAU ASSOCIATES	Boeing Commercial Airplanes Everett, Washington	**Powder Mill Gulch SWMU/AOC** **Potential TCE GW Concentration Trends with Corresponding GET System Termination Conditions**

Figure
6-24b



Note 1) As new data emerges regarding the effectiveness of the GET system through the effectiveness review process, Boeing may opt to re-evaluate the cleanup strategy and implement additional or different remedial technologies (such as those discussed in Alternatives 2, 3, and 4) to some or all of the plume to increase the treatment effectiveness and/or reduce the restoration timeframe.

Note 2) Under all three conditions, specific extraction wells may be selectively shut down at any time after implementation begins as restoration in various areas of plume is achieved, and Conditions 1 or 2 are met within the area affected by the extraction well(s).

Landau Associates Inc. | G:\Projects\025\175\115\012\FS Alternatives\F06-24c PMG GET System Matrix.indd | 11/11/2015

LANDAU ASSOCIATES

Boeing Commercial Airplanes Everett, Washington	**Powder Mill Gulch SMMU/AOC GET System Decision Making Matrix**	Figure 6-24c

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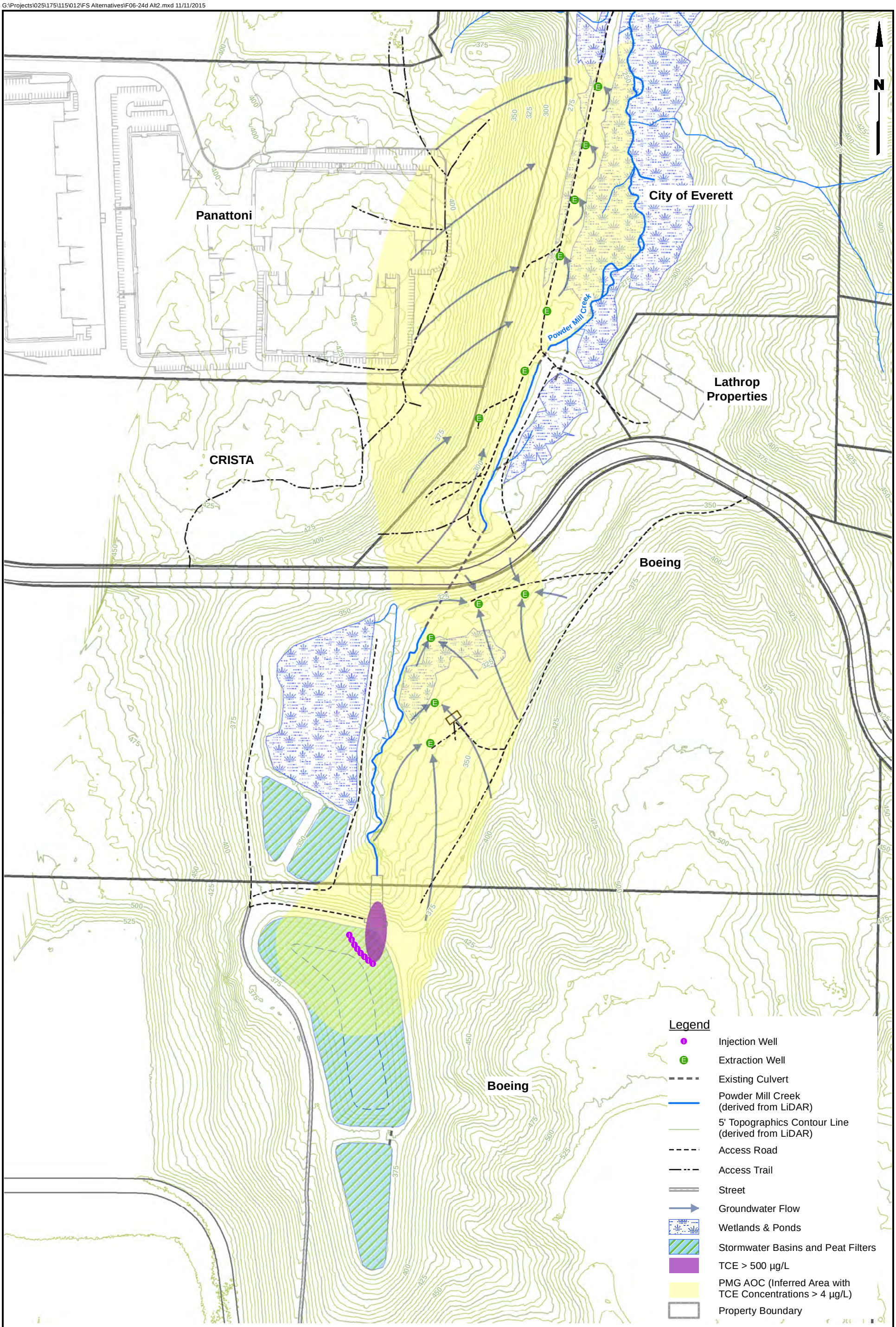

Base Map Sources: URS 2005; City of Everett 2005
LiDAR Data Source: URS 2005 (Data Collected November 2005)

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Scale in Feet

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Everett, Washington

Powder Mill Gulch SWMU/AOC
Alternative 2: Source Area Bioremediation, GET System, and ICs

Figure
6-24d

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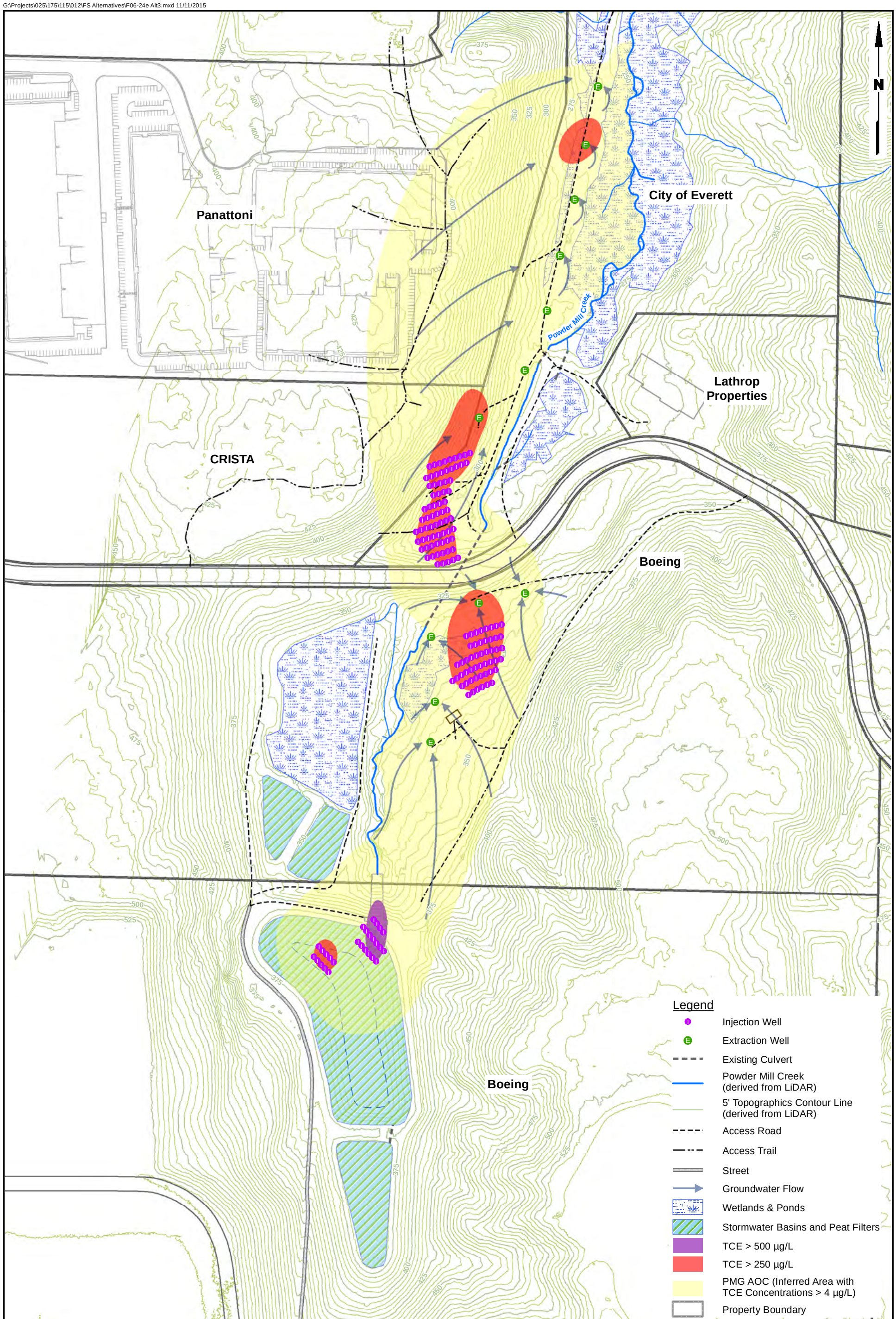

Base Map Sources: URS 2005; City of Everett 2005
LiDAR Data Source: URS 2005 (Data Collected November 2005)

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Scale in Feet

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Everett, Washington

Powder Mill Gulch SWMU/AOC
Alternative 3: Focused ISCO, GET Systems, and ICs

Figure
6-24e

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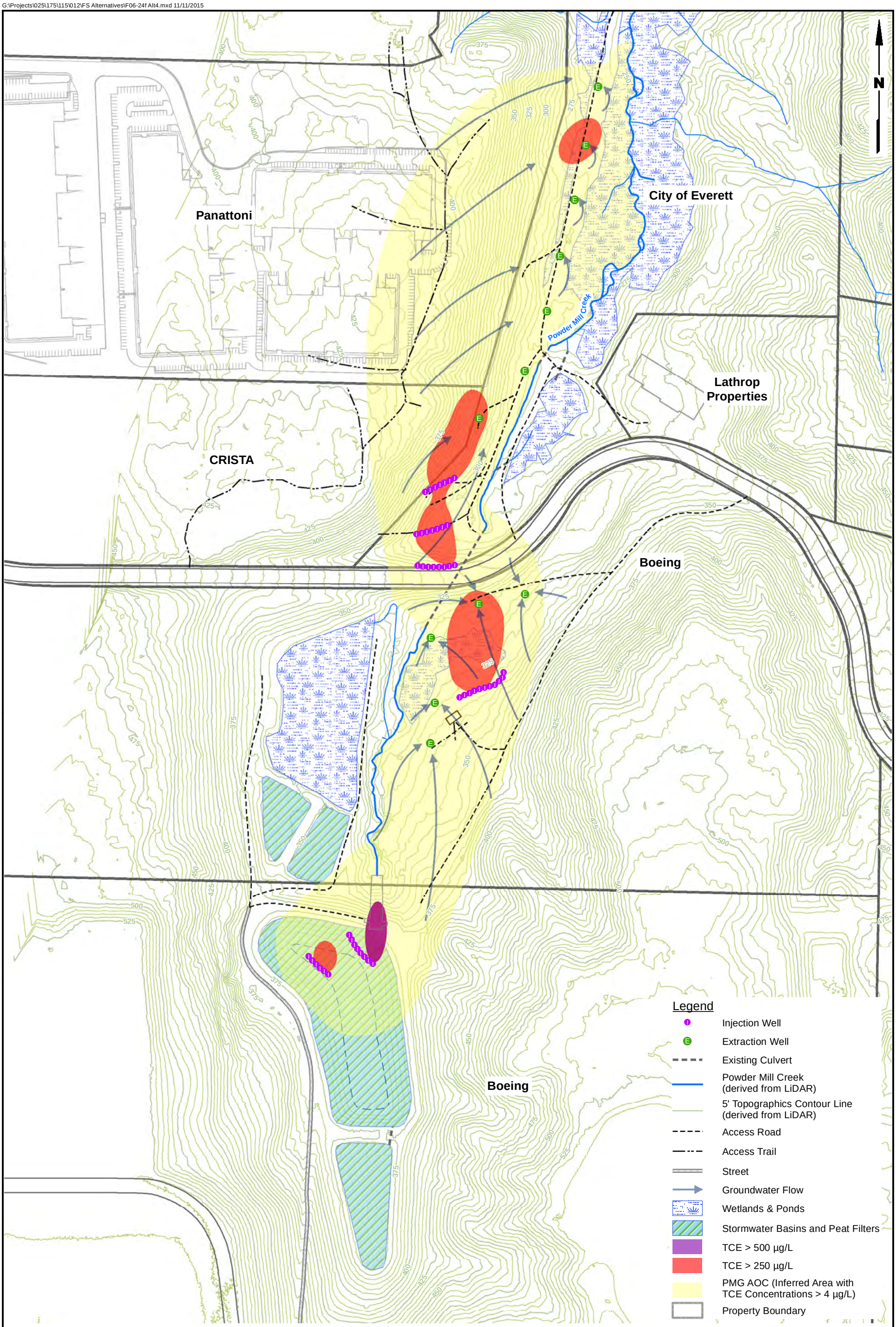

Base Map Sources: URS 2005; City of Everett 2005
LiDAR Data Source: URS 2005 (Data Collected November 2005)

0 250 500
Scale in Feet

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Everett, Washington

Powder Mill Gulch SWMU/AOC Alternative 4: Focused EISB, GET System, and ICs

Figure
6-24f

Table 6-1
Summary of Cleanup Action Alternatives
Exposure Pathway Model A

Cleanup Alternative and Components	SWMU/AOC No. 090, Building 40-51, Former UST EV-11	SWMU/AOC No. 112, Building 40-11, Oil/Water Separator	SWMU/AOC No. 151, Building 40-51, Southern Air Scrubber Pump
SUMMARY OF SITE CONTAMINATION			
Contaminated Media	Perched GW, SG	Perched GW, SG	NA
Primary COCs Exceeding Proposed CULs	TCE	TPH	NA
MAINTAIN CONTAINMENT	**Alt 1**	**Alt 1**	**Alt 1**
Sitewide Plan & Annual Inspection and Reporting	●	●	●
Duration of Monitoring	30 years	30 years	30 years
Total Present-Worth Cost	$0.17 Million	$0.16 Million	$0.09 Million
IN SITU TREATMENT (INJECTIONS)	**Alt 2**	**Alt 2**	NA
Sitewide Plan & Annual Inspection and Reporting	●	●	
Treatment Type	In-situ chemical reduction	In-situ sorption and bioremediation	
Number of Injection Events	2 events	2 events	
Number of Injection Points	4	8	
Target Injection Depth	4 FT to 8 FT	14 FT to 16 FT	
Estimated Area of Influence	610 SF	580 SF	
Duration of Monitoring (Groundwater and ICs)	2 years	2 years	
Closeout Groundwater Monitoring	●	●	
Total Present-Worth Cost	$0.37 Million	$0.46 Million	
GROUNDWATER EXTRACTION	**Alt 3**	**Alt 3**	NA
Sitewide Plan & Annual Inspection and Reporting	●	●	
Frequency of Groundwater Extraction	Periodic (Monthly)	Continuous	
Estimated Duration of OMM	5 years	5 years	
Estimated Area of Influence	610 SF	580 SF	
Number of Extraction Points/Number of New Points Installed	1/1	2/1	
Depth of Extraction Points	8 FT	15 to 16 FT	
Total Present-Worth Cost	$0.51 Million	$0.48 Million	
NEAR-TERM EXCAVATION AND DEWATERING	NA	**Alt 4**	NA
Potential Disruption of Area and/or Operations		●	
Equipment or Structure Removal and/or Replacement		●	
Specialty Shoring System Required		○	
Potential Impact to Building Structure or Foundation		NA	
Area of Excavation		1,600 SF	
Depth of Excavation		16 FT	
Non-hazardous Soil Disposal		1,300 TN	
Hazardous Soil Disposal		NA	
Total Present-Worth Cost		$0.93 Million	

Notes:

● - Included
○ - Not Included
COCs - Contaminants of Concern
CULs - Cleanup Levels
FT - Feet
*Long-term implementation of IC Plan Required

GW - Groundwater
NA - Not Applicable
OMM - Operation, Maintenance, and Monitoring
SG - Soil Gas
SF - Square Feet
TCE - Trichloroethene

TPH - Total Petroleum Hydrocarbons
UST - Underground Storage Unit
VC - Vinyl Chloride

Table 6-2
Summary of Cleanup Action Alternatives
Exposure Pathway Model B

Cleanup Alternative and Components	SWMU/AOC Nos. 086, 089,094, Building 40-56, Former USTs
SUMMARY OF SITE CONTAMINATION	
Contaminated Media	Soil, Perched GW, SG
Primary COCs Exceeding Proposed CULs	BTEX
MAINTAIN CONTAINMENT	**Alt 1**
Sitewide Plan & Annual Inspection and Reporting	●
Duration of Monitoring	30 years
Total Present-Worth Cost	$0.19 Million
SOIL VAPOR AND GROUNDWATER EXTRACTION	**Alt 2**
Sitewide Plan & Annual Inspection and Reporting	●
Number of SVE Wells	18 wells
SVE Well Depth	15 FT
Total Length of SVE Buried Horizontal Screened Piping	NA
Frequency of Groundwater Extraction	Continuous
Estimated Area of Groundwater Influence	2,700 SF
Number of Groundwater Extraction Points/Number of New Points Installed	5/0
Depth of Groundwater Extraction Points	Average 15 FT
Number of New Monitoring Wells Installed	1 well
Non-hazardous Soil Disposal	NA
Hazardous Soil Disposal	180 TN
Duration of OMM	5 years (SVE) to 20 years (GW Extraction)
Total Present-Worth Cost	$2.9 Million
NEAR-TERM EXCAVATION AND DEWATERING	**Alt 3**
Potential Disruption of Area and/or Operations	●
Equipment or Structure Removal and/or Replacement	○
Specialty Shoring System Required	●
Potential Impact to Building Structure or Foundation	●
Will Contaminated Soil Remain on Site?*	●
Area of Excavation	2,700 SF
Depth of Excavation	13 to 43 FT
Non-hazardous Soil Disposal	NA
Hazardous Soil Disposal	4,400 TN
Total Present-Worth Cost	$4.9 Million

Notes:
● - Included
○ - Not Included
COCs - Contaminants of Concern
CULs - Cleanup Levels
FT - Feet
GW - Groundwater
OMM - Operation, Maintenance, and Monitoring
SF - Square Feet
SG - Soil Gas
SVE - Soil Vapor Extraction
TN - Tons

Table 6-3
Summary of Cleanup Action Alternatives
Exposure Pathway Model C

Cleanup Alternative and Components	SWMU/AOC No. 166, Building 45-53, Former UST EV-110-1
SUMMARY OF SITE CONTAMINATION	
Contaminated Media	Perched GW
Primary COCs Exceeding Proposed CULs	TPH
MAINTAIN CONTAINMENT	**Alt 1**
Sitewide Plan & Annual Inspection and Reporting	●
Duration of Monitoring	30 years
Total Present-Worth Cost	$0.16 Million
PERIODIC GROUNDWATER EXTRACTION	**Alt 2**
Sitewide Plan & Annual Inspection and Reporting	●
Frequency of Groundwater Extraction	Periodic
Estimated Area of Groundwater Influence	NE
Number of Extraction Points/Number of New Points Installed	1/0
Depth of Groundwater Extraction Points	14 FT
Non-hazardous Soil Disposal	NA
Hazardous Soil Disposal	NA
Duration of OMM	5 years
Total Present-Worth Cost	$0.31 Million

Notes:
● - Included
○ - Not Included
COCs - Contaminants of Concern
CULs - Cleanup Levels
FT - Feet
GW - Groundwater
OMM - Operation, Maintenance, and Monitoring
NA - Not Applicable
NE - Not Determined
TPH - Total Petroleum Hydrocarbons
UST - Underground Storage Unit

Table 6-4
Summary of Cleanup Action Alternatives
Exposure Pathway Model D

Cleanup Alternative and Components	SWMU/AOC Nos. 055 and 168, Building 40-24, Utility Trenches and Sumps
SUMMARY OF SITE CONTAMINATION	
Contaminated Media	Soil, Perched GW
Primary COCs Exceeding Proposed CULs	TBP
MAINTAIN CONTAINMENT	**Alt 1**
Sitewide Plan & Annual Inspection and Reporting	●
Duration of Monitoring	30 years
Total Present-Worth Cost	$0.17 Million
PERIODIC GROUNDWATER EXTRACTION	**Alt 2**
Sitewide Plan & Annual Inspection and Reporting	●
Frequency of Groundwater Extraction	Periodic
Estimated Duration of OM&M	22 years
Estimated Area of Influence	4,200 SF
Number of Extraction Points/Number of New Points Installed	4/0
Depth of Extraction Points	9 to 12.5 FT
Total Present-Worth Cost	$1.3 Million
CONTINUOUS GROUNDWATER EXTRACTION	**Alt 3**
Sitewide Plan & Annual Inspection and Reporting	●
Frequency of Groundwater Extraction	Continuous
Estimated Duration of OM&M	22 years
Estimated Area of Influence	4,200 SF
Number of Extraction Points/Number of New Points Installed	5/0
Depth of Extraction Points	9 to 12.5 FT
Total Present-Worth Cost	$1.1 Million
NEAR-TERM EXCAVATION AND DEWATERING	**Alt 4**
Sitewide Plan & Annual Inspection and Reporting	●
Estimated Duration of Institutional Controls	30 years
Potential Disruption of Area and/or Operations	○
Equipment or Structure Removal and/or Replacement	●
Specialty Shoring System Required	●
Potential Impact to Building Structure or Foundation	○
Will Contaminated Soil Remain on Site?*	●
Area of Excavation	1,400 SF
Depth of Excavation	24 FT
Non-hazardous Soil Disposal	1,200 TN
Hazardous Soil Disposal	NA
Total Present-Worth Cost	$1.8 Million

Notes:
● - Included
○ - Not Included
COCs - Contaminants of Concern
CULs - Cleanup Levels
FT - Feet
*Long-term implementation of IC Plan Required
GW - Groundwater
NA - Not Applicable
SF - Square Feet
TBP - Tributyl Phosphate
TN - Tons

Table 6-5
Summary of Cleanup Action Alternatives
Exposure Pathway Model E

Cleanup Alternative and Components	SWMU/AOC No. 171, Building 40-31, Former Bluestreak Vapor Degreaser	SWMU/AOC No. 097, Building 40-11, Former Vapor Degreaser	SWMU/AOC No. 098, Building 40-53, Former Mock-up Degreaser	SWMU/AOC No. 170, Building 40-02, Former Large Vapor Degreaser	SWMU/AOC No. 169, Building 40-02, Former Small Vapor Degreaser	Building 40-02, Former Paint Crib	SWMU/AOC No. 054, Building 40-51, Former Wastewater AST	Building 40-32, Footing Excavation
SUMMARY OF SITE CONTAMINATION								
Contaminated Media	Soil, SSV	Soil, SSV	Soil, SSV	Soil, SSV	SSV	SSV	Soil, SG	Soil, SSV
Primary COCs Exceeding Proposed CULs	TCE	TCE	TCE	TCE	TCE, Freon 12	TCE	TCE	TCE, TPH, Ethylbenzene, Xylenes
MAINTAIN CONTAINMENT	**Alt 1**	**Alt 1**	**Alt 1**	**Alt 1**	**Alt 1**	**Alt 1**	**Alt 1**	**Alt 1**
Sitewide Plan & Annual Inspection and Reporting	●	●	●	●	●	●	●	●
Duration of Monitoring	30 years	30 years	30 years	30 years	30 years	30 years	30 years	30 years
Total Present-Worth Cost	$0.09 Million	$0.09 Million	$0.09 Million	$0.09 Million	$0.09 Million	$0.09 Million	$0.09 Million	$0.09 Million
SOIL VAPOR EXTRACTION	**Alt 2**	NA	NA	**Alt 2**	NA	NA	NA	**Alt 2**
Sitewide Plan & Annual Inspection and Reporting	●			●				●
Number of SVE Wells	15 wells			2 wells				NA
SVE Well Depth	25 FT			10 FT				NA
Total Length of Buried Horizontal Screened Piping	NA			NA				10 FT
Non-hazardous Soil Disposal	80 TN			14 TN				20 TN
Hazardous Soil Disposal	20 TN			NA				NA
Duration of OMM	5 years			5 years				5 years
Total Present-Worth Cost	$1.1 Million			$2.5 Million				$0.58 Million
FUTURE EXCAVATION	**Alt 3**	**Alt 2**	**Alt 2**	**Alt 3**	NA	NA	**Alt 2**	NA
Sitewide Plan & Annual Inspection and Reporting	●	●	●	●			●	
Estimated Duration of Institutional Controls	30 years	15 years	30 years	15 years			30 years	
Equipment or Structure Removal and/or Replacement	○	○	○	○			○	
Specialty Shoring System Required	●	○	●	○			●	
Potential Impact to Building Structure or Foundation	●	○	○	○			○	
Will Contaminated Soil Remain on Site?*	●	○	●	○			●	
Area of Excavation	2,400 SF	20 SF	3,600 SF	280 SF			3,400 SF	
Depth of Excavation	18 to 26 FT	3 FT	10 to 33 FT	10 FT			13 to 18 FT	
Non-hazardous Soil Disposal	700 TN	NA	NA	NA			3,100 TN	
Hazardous Soil Disposal	2,400 TN	6 TN	4,400 TN	170 TN			NA	
Total Present-Worth Cost	$2.4 Million	$0.20 Million	$3.6 Million	$0.48 Million			$1.4 Million	
NEAR-TERM EXCAVATION	**Alt 4**	**Alt 3**	**Alt 3**	**Alt 4**	NA	NA	**Alt 3**	NA
Sitewide Plan & Annual Inspection and Reporting	●	○	●	○			●	
Estimated Duration of Institutional Controls	30 years	NA	30 years	NA			30 years	
Potential Disruption of Area and/or Operations	●	●	●	●			○	
Equipment or Structure Removal and/or Replacement	○	○	○	○			○	
Specialty Shoring System Required	●	○	●	○			●	
Potential Impact to Building Structure or Foundation	●	○	○	○			○	
Will Contaminated Soil Remain on Site?*	●	○	●	○			●	
Area of Excavation	2,400 SF	20 SF	3,600 SF	280 SF			3,400 SF	
Depth of Excavation	18 to 26 FT	3 FT	10 to 33 FT	10 FT			13 to 18 FT	
Non-hazardous Soil Disposal	700 TN	NA	NA	NA			3,100 TN	
Hazardous Soil Disposal	2,400 TN	6 TN	4,200 TN	170 TN			NA	
Total Present-Worth Cost	$2.7 Million	$0.24 Million	$3.6 Million	$60 Million			$1.6 Million	

Notes:

● - Included
○ - Not Included
COCs - Contaminants of Concern
*Long-term implementation of IC Plan Required

CUL - Cleanup Levels
CY - Cubic Yards
FT - Feet
NA - Not Applicable

OMM - Operation, Maintenance, and Monitoring
SF - Square Feet
SG - Soil Gas

SSV - Sub-slab Vapor
TCE - Trichloroethene
TN - Tons
TPH - Total Petroleum Hydrocarbons

Table 6-6
Summary of Cleanup Action Alternatives
Exposure Pathway Model F

Cleanup Alternative and Components	SWMU/AOC No. 068, South Complex, South Fire Pit
SUMMARY OF SITE CONTAMINATION	
Contaminated Media	Soil
Primary COCs Exceeding Proposed CULs	TPH
MAINTAIN CONTAINMENT	**Alt 1**
Sitewide Plan & Annual Inspection and Reporting	●
Duration of Monitoring	30 years
Total Present-Worth Cost	$0.09 Million
SOIL VAPOR EXTRACTION	**Alt 2**
Sitewide Plan & Annual Inspection and Reporting	●
Number of SVE Wells	NA
SVE Well Depth	NA
Total Length of Buried Horizontal Screened Piping	1,050 LF
Non-hazardous Soil Disposal	260 TN
Hazardous Soil Disposal	NA
Duration of OMM	5 years
Total Present-Worth Cost	$0.98 Million
FUTURE EXCAVATION	**Alt 3**
Sitewide Plan & Annual Inspection and Reporting	●
Estimated Duration of Institutional Controls	15 years
Equipment or Structure Removal and/or Replacement	○
Specialty Shoring System Required	○
Potential Impact to Building Structure or Foundation	○
Will Contaminated Soil Remain on Site?*	○
Area of Excavation	4,000 SF
Depth of Excavation	4 FT
Non-hazardous Soil Disposal	980 TN
Hazardous Soil Disposal	NA
Total Present-Worth Cost	$0.73 Million
NEAR-TERM EXCAVATION	**Alt 4**
Sitewide Plan & Annual Inspection and Reporting	○
Estimated Duration of Institutional Controls	NA
Potential Disruption of Area and/or Operations	●
Equipment or Structure Removal and/or Replacement	○
Specialty Shoring System Required	○
Potential Impact to Building Structure or Foundation	○
Will Contaminated Soil Remain on Site?*	○
Area of Excavation	4,000 SF
Depth of Excavation	4 FT
Non-hazardous Soil Disposal	980 TN
Hazardous Soil Disposal	NA
Total Present-Worth Cost	$0.82 Million

Notes:
● - Included
○ - Not Included
COCs - Contaminants of Concern
CUL - Cleanup Levels
CY - Cubic Yards
OMM - Operation, Maintenance, and Monitoring
FT - Feet
*Long-term implementation of IC Plan Required

NA - Not Applicable
SG - Soil Gas
SF - Square Feet
SSV - Sub-slab Vapor
TN - Tons
TPH - Total Petroleum Hydrocarbons

Table 6-7
Summary of Cleanup Action Alternatives
Exposure Pathway Model G

Cleanup Alternative and Components	SWMU/AOC No. 065, Building 40-51, Former Paint Stripping Tankline	Building 40-11, UST EV-48-1	SWMU/AOC No. 165, Building 45-52, Former Fuel Farm USTs and Fuel Stall Piping	SWMU/AOC No. 083, Former UST EV-15
SUMMARY OF SITE CONTAMINATION				
Contaminated Media	Soil	Soil	Soil	Soil
Primary COCs Exceeding Proposed CULs	Chromium, Cadmium, Lead	BTEX, TPH-Gx	TPH, BTEX	TPH-Dx
MAINTAIN CONTAINMENT/LIMITED EXCAVATION AND MAINTAIN CONTAINMENT [(1)]	**Alt 1**	**Alt 1**	**Alt 1**	**Alt 1**
Sitewide Plan & Annual Inspection and Reporting	●	●	●	●
Duration of Monitoring	30 years	30 years	30 years	30 years
Remove Portion of the Building or Structure	NA (Containment Only)	NA (Containment Only)	●	NA (Containment Only)
Relocate Operations, Office Space, and/or Equipment			●	
Use Trenching or Install Shoring for Excavation			●	
Remove Soil under the Building, Utilidor, or Other Structure			●	
Will Contaminated Soil Remain on Site*			●	
Area of Excavation			500 SF	
Depth of Excavation			9 FT	
Non-hazardous Soil Disposal			270 TN	
Hazardous Soil Disposal			NA	
Total Present-Worth Cost	$0.09 Million	$0.09 Million	$0.68 Million	$0.09 Million
FUTURE EXCAVATION	**Alt 2**	**Alt 2**	**Alt 2**	**Alt 2**
Sitewide Plan & Annual Inspection and Reporting	●	●	●	●
Estimated Duration of Institutional Controls	15 years	15 years	15 years	15 years
Potential Disruption of Area and/or Operations	○	○	●	●
Remove Portion of the Building or Structure	○	○	●	●
Relocate Operations, Office Space, and/or Equipment	○	○	○	○
Specialty Shoring System Required	○	○	●	●
Potential Impact to Adjacent Building	●	○	●	○
Will Contaminated Soil Remain on Site?*	○	○	○	○
Area of Excavation	1,100 SF	1,100 SF	6,600 SF	50 SF
Depth of Excavation	5 FT	23 FT	5 to 20 FT	9 FT
Non-hazardous Soil Disposal	NA	1,200 TN	2,000 TN	36 TN
Hazardous Soil Disposal	200 TN	NA	442 TN	100 TN
Total Present-Worth Cost	$0.40 Million	$0.73 Million	$2.5 Million	$0.33 Million
NEAR-TERM EXCAVATION	**Alt 3**	**Alt 3**	**Alt 3**	NA
Sitewide Plan & Annual Inspection and Reporting	○	○	○	
Estimated Duration of Institutional Controls	NA	NA	NA	
Potential Disruption of Area and/or Operations	●	●	●	
Remove Portion of the Building or Structure	○	●	●	
Relocate Operations, Office Space, and/or Equipment	●	●	●	
Specialty Shoring System Required	○	○	●	
Potential Impact to Adjacent Building	○	●	●	
Will Contaminated Soil Remain on Site?*	○	○	○	
Area of Excavation	1,100 SF	1,720 SF	6,600 SF	
Depth of Excavation	5 FT	23 FT	5 to 20 FT	
Non-hazardous Soil Disposal	NA	1,600 TN	2,000 TN	
Hazardous Soil Disposal	200 TN	NA	442 TN	
Total Present-Worth Cost	$0.87 Million	$1.5 Million	$4.6 Million	

Notes:

● - Included
○ - Not Included
CY - Cubic Yards
NA - Not Applicable
*Long-term implementation of IC Plan Required
FT - Feet
lbs - Pounds
SF - Square Feet
BTEX - Benzene, Toluene, Ethylbenzene, and Xylenes
TN - Tons
TPH - Total Petroleum Hydrocarbons
TPH-Dx - Total Petroleum Hydrocarbons (Diesel-Range)
[(1)] Limited Excavation is a component of Cleanup Alternative 1 - Containment for SWMU/AOC 165.

Table 6-8
Summary of Cleanup Action Alternatives
Exposure Pathway Model H

Cleanup Alternative and Components	SWMU/AOC No. 093, Building 45-01, Former Solvent USTs	SWMU/AOC Nos. 067 and 071, Building 40-56, Former Recycling Unit and UST EV-153
SUMMARY OF SITE CONTAMINATION		
Contaminated Media	Soil	Soil
Primary COCs Exceeding Proposed CULs	MEK	TEX
MAINTAIN CONTAINMENT	**Alt 1**	**Alt 1**
Sitewide Plan & Annual Inspection and Reporting	●	●
Duration of Monitoring	30 years	30 years
Total Present-Worth Cost	$0.09 Million	$0.09 Million
FUTURE EXCAVATION		**Alt 2**
Sitewide Plan & Annual Inspection and Reporting		●
Estimated Duration of Institutional Controls		15 years
Potential Disruption of Area and/or Operations		○
Remove Portion of the Building or Structure		○
Relocate Operations, Office Space, and/or Equipment		○
Specialty Shoring System Required	NA	○
Potential Impact to Adjacent Building		○
Will Contaminated Soil Remain on Site?*		○
Area of Excavation		1,900 SF
Depth of Excavation		8 to 30 FT
Non-hazardous Soil Disposal		390 TN
Hazardous Soil Disposal		2,600 TN
Total Present-Worth Cost		$2.3 Million
NEAR-TERM EXCAVATION	**Alt 2**	**Alt 3**
Sitewide Plan & Annual Inspection and Reporting	○	●
Estimated Duration of Institutional Controls	NA	30 years
Potential Disruption of Area and/or Operations	●	●
Remove Portion of the Building or Structure	○	○
Relocate Operations, Office Space, and/or Equipment	○	●
Specialty Shoring System Required	○	○
Potential Impact to Adjacent Building	●	○
Will Contaminated Soil Remain on Site?*	○	●
Area of Excavation	120 SF	1,900 SF
Depth of Excavation	20 FT	8 to 30 FT
Non-hazardous Soil Disposal	150 TN	390 TN
Hazardous Soil Disposal	NA	1,700 TN
Total Present-Worth Cost	$0.39 Million	$22 Million

Notes:

● - Included
○ - Not Included
CULs - Cleanup Levels
CY - Cubic Yards
FT - Feet
*Long-term implementation of IC Plan Required

MEK - 2-Butanone (Methyl Ethyl Ketone)
NA - Not Applicable
SF - Square Feet
TEX - Toluene, Ethylbenzene, and Xylenes
TN - Tons

Table 6-9
Summary of Cleanup Action Alternatives
Exposure Pathway Model I

Cleanup Alternative and Components	South Complex, Esperance Sand Well EGW061
SUMMARY OF SITE CONTAMINATION	
Contaminated Media	GW
Primary COCs Exceeding Proposed CULs	Arsenic
INSTITUTIONAL CONTROLS	**Alt 1**
Sitewide Plan & Annual inspection and Reporting	●
Duration of Monitoring	30 years
Total Present-Worth Cost	$0.38 Million

Notes:
● - Included
○ - Not Included
CULs - Cleanup Levels
GW - Groundwater

Table 6-10
Summary of Cleanup Action Alternatives
Exposure Pathway Model J

Cleanup Alternative and Components	SWMU/AOC No. 100, South Complex Former Gun Club
SUMMARY OF SITE CONTAMINATION	
Contaminated Media	Soil and Sediment
Primary COCs Exceeding Proposed CULs	Lead, PAHs
LIMITED EXCAVATION	**Alt 3**
Sitewide Plan & Annual Inspection and Reporting	●
Estimated Duration of Institutional Controls	30 years
Wetland Mitigation and Restoration Plan	●
Potential Disruption of Area and/or Operations	●
Equipment or Structure Removal and/or Replacement	○
Specialty Shoring System Required	○
Potential Impact to Building Structure or Foundation	○
Will Contaminated Soil or Sediment Remain on Site?*	●
Area of Excavation	102,00 SF
Depth of Excavation	Average 0.5 FT
Non-hazardous Soil Disposal	2,500 TN
Hazardous Soil Disposal	2,700 TN
Total Present-Worth Cost	$5.0 Million
COMPREHENSIVE EXCAVATION	**Alt 4**
Sitewide Plan & Annual Inspection and Reporting	○
Estimated Duration of Institutional Controls	NA
Wetland Mitigation and Restoration Plan	●
Potential Disruption of Area and/or Operations	●
Equipment or Structure Removal and/or Replacement	●
Specialty Shoring System Required	○
Potential Impact to Building Structure or Foundation	○
Will Contaminated Soil or Sediment Remain on Site?*	○
Area of Excavation	130,000 SF
Depth of Excavation	1 to 3 ft
Non-hazardous Soil Disposal	4,100 TN
Hazardous Soil Disposal	3,000 TN
Total Present-Worth Cost	$4.3 Million

Notes:
● - Included
○ - Not Included
COCs - Contaminants of Concern
CULs - Cleanup Levels
PAHs - Polycyclic Aromatic Hydrocarbons
*Long-term implementation of IC Plan Required

FT - Feet
GW - Groundwater
NA - Not Applicable
SF - Square Feet
TN - Tons

Table 6-11
Selection of PMG Representative Process Options Summary

Cleanup Technology	Process Option	Process Option Description	Process Option Selection Considerations	Included in Alternative(s)?
Institutional/engineering controls	Restrictive environmental covenant	One or a combination of environmental covenants, deed restrictions, administrative controls and/or engineered controls to prevent contact with or disturbance of contaminated media.	• Cannot prevent discharge of contaminated groundwater to surface water. • Cleanup actions cannot rely primarily on institutional controls per the Washington Administrative Code (WAC). • Can be used in conjunction with other remedies with longer restoration time frames	YES
	Conclusions: • Institutional controls cannot be used as a standalone cleanup alternative. • Institutional controls will be carried forward as an element of cleanup alternatives used to administratively prevent or appropriately limit intrusive activities that could expose construction workers to contaminated groundwater and prevent groundwater and surface water from being used as a drinking water source, and limit human contact with and/or recreational use of surface water.			
In situ biological treatment	Monitored natural attenuation (MNA)	Describes a reduction of contaminant toxicity, volume, concentration, mobility, and/or bioavailability through natural physical, chemical, or biological processes that occur without human intervention.	• Unlikely that MNA on its own would be effective in cleaning up the groundwater in reasonable restoration time frame as demonstrated by already long-term presence of plume concentrations. • Can be used as polishing step after completion of more aggressive cleanup action	YES
	Enhanced bioremediation	Involves enhancement or stimulation of naturally occurring biological processes through the introduction of electron donors and necessary nutrients to increase degradation rates.	• Has successfully been employed in the source area and demonstrated to achieve contaminant reduction. • Should not be implemented within the vicinity of the creek or wetlands due to the potential discharge of donor substrates to surface water. • The steep slopes and wetlands onsite would likely limit the area of coverage possible with an injection well network. • Injection of electron donor has the potential to foul the existing groundwater extraction and treatment (GET) system wells and treatment system. • CRISTA and Panattoni (former Intermec) would likely have concerns about an extensive injection well network installed on their property. • It would be necessary to clear a large number of trees on Lot 9 to construct a network of injection wells. As the site is deed-restricted for recreation purposes, both the City and the general public would likely object to such a large site impact. • The injection of a large amount of substrate has the potential to destabilize slopes. • Could be used for treatment where site restrictions indicated above are not limiting factors.	YES
	Phytoremediation	High water usage trees are planted so that the root zone intercepts and treats the groundwater plume through respiration and biological treatment.	• Requires a shallow plume (4 to 6 feet [ft] below ground surface [bgs]) for the roots to achieve adequate penetration of the plume. The PMG plume is 10 to 15 ft bgs at the shallowest portions of the plume (and over 60 ft of saturated thickness at deepest). • The Site does not have significant area available for planting as most of the site is already forested. • Due to high groundwater velocities, a grove of trees would need to be thousands of feet wide to achieve adequate treatment.	NO
	Conclusions: • All three process options in the in situ biological treatment technology group have limitations that would not allow them to function as standalone and/or sitewide cleanup alternatives for Powder Mill Gulch (PMG). • Both MNA and enhanced in situ bioremediation (EISB) could be used separately as different components of a cleanup alternative and will be carried forward as representative process options. • MNA could be used as a polishing option, once contaminants have mostly been remediated. • EISB could be used as a biological treatment process option to provide “hotspot” treatment, which would be used to reduce relatively higher contaminant concentrations at select locations.			

Table 6-11 (Continued)
Selection of PMG Representative Process Options Summary

Cleanup Technology	Process Option	Process Option Description	Process Option Selection Considerations	Included in Alternative(s)?
In Situ Physical/Chemical Treatment	Air sparging/soil vapor extraction (AS/SVE)	Air sparging/soil vapor extraction (AS/SVE) involves injecting compressed air below the groundwater table to strip volatile constituents out of groundwater followed by the extraction of the volatilized contaminant constituents from the subsurface.	• Difficult to achieve uniform air distribution in target treatment zone. • Preferential flow paths can limit the treatment effectiveness. • As the radius of influence using AS/SVE is minimal near the bottom of the wells due to the inverted treatment cone, AS/SVE would not be able to treat portions of the plume that are proximate to the silt interbed. • AS/SVE requires extensive above-ground infrastructure, which private property owners, the City, and the general public are likely to object to. • The steep slopes and wetlands on site would likely limit the constructability of an AS/SVE system at many locations on site.	NO
	Bioslurping/dual-phase extraction (DPE)	Extracts soil gas, groundwater, and/or free product to treat the saturated and unsaturated zones.	• DPE is generally used at sites that have liquid-phase product and require cleanup of a combination of contaminated media (i.e., soil vapor, groundwater, and soil). PMG just requires treatment of groundwater. Accordingly, DPE would be an inefficient remediation solution. • Requires extensive above-ground infrastructure, which private property owners, the City, and the general public are likely to object to. • The steep slopes and wetlands on site would likely limit the constructability of a DPE system at many locations on site.	NO
	Chemical oxidation (ISCO)	Describes a group of process options that involve various oxidants (e.g., permanganate, ozone, peroxide, and persulfate) and delivery techniques (e.g., injection, soil mixing) to mineralize organic compounds.	**General chemical oxidation:** • The steep slopes and wetlands on site would likely limit the area of coverage possible with an injection well network. • CRISTA and Panattoni (former Intermec) would likely have concerns about an extensive injection well network installed on their property. • It would be necessary to clear a large number of trees on Lot 9 to construct a network of injection wells. As the site is deed-restricted for recreation purposes, both the City and the public are likely to object to such a large site impact. • The injection of a large amount of substrate has the potential to destabilize slopes. • Could be used for treatment where site restrictions indicated above are not limiting factors. **Permanganate (not carried forward for consideration):** • Long-lived and lower oxidation potential compared to other oxidants; better suited for lower permeability formations, unlike PMG. • Permanganate will turn the groundwater purple and could result in the discharge of purple oxidant solution to Powder Mill Creek. • Should not be implemented within the vicinity of the creek or wetlands dues to potential discharge to surface water. **Ozone (not carried forward for consideration):** • Short-lived with high oxidation potential, but continuously injected. • Requires sparging for implementation. • As the radius of influence using ozone sparging is minimal near the bottom of the wells due to the inverted treatment cone, ozone would not be able to treat portions of the plume that are proximate to the silt interbed. • Requires energy intensive ozone generators and extensive above-ground infrastructure, which private property owners, the City, and the general public are likely to object to. **Peroxide/Fenton's Reagent (not carried forward for consideration):** Short-lived with high oxidation potential. • Better suited high-permeability/granular formations, unlike PMG.	YES (persulfate)

Table 6-11 (Continued)
Selection of PMG Representative Process Options Summary

Cleanup Technology	Process Option	Process Option Description	Process Option Selection Considerations	Included in Alternative(s)?
			• Must be activated through the presence of transition metal catalyst (e.g., ferrous iron), which has the potential to foul the existing GET system wells and treatment system. **Persulfate (carried forward for consideration):** • Not possible within the vicinity of the creek or wetlands due to the potential for sulfate to seep into the creek/wetland and violate the state and federal secondary water quality criteria. • Must be activated through high pH, high groundwater temperatures, or the presence of a transition metal catalyst (e.g., ferrous iron). • Injection of iron has the potential to foul the existing GET system wells and treatment system.	
	Thermal treatment	Thermal treatment involves heating of an aquifer or vadose zone to boil, mobilize, or carry off aqueous-phase and sorbed-phase contaminants, collecting contaminant vapors in the vadose zone, and treating the vapors.	• Has successfully been employed in the source area and demonstrated to achieve contaminant reduction. • Typically applied in source zone areas where high contaminant concentrations result in a favorable ratio of mass removed per unit of energy consumed (i.e., not typically used for treatment of dissolved-phase plumes). • Requires extensive above-ground infrastructure, which private property owners, the City, and the general public are likely to object to. • The steep slopes and wetlands on site would likely limit the constructability of a thermal treatment system at many locations on site.	NO
	In-well air stripping/recirculation wells	Achieved by injecting air into the bottom of a well that is constructed with two screens, one at the bottom of the well and the other just above the water table. Air injection at the bottom of the well decreases the density of the water column within the well casing, causing it to rise inside the well. As aerated water moves upward in the well casing, volatile contaminants (e.g., trichloroethene [TCE]) are transferred from the aqueous phase to the vapor phase. When water in the casing reaches the upper screen at the water table, treated water is discharged back into the aquifer and contaminant vapors are recovered under vacuum for ex situ treatment.	• Only treats water that comes in direct contact with the well. • Requires dense well network. • Requires extensive above ground infrastructure, which private property owners, the City, and the general public are likely to object to. • The steep slopes and wetlands on site would likely limit the constructability of a thermal treatment system at many locations on site.	NO
	Permeable reactive barrier	Designed to intercept the flow of contaminated groundwater and are filled with media that reacts with dissolved contamination, allowing treated groundwater to flow freely downgradient.	• A previous site study found that a permeable reactive barrier (PRB) would likely have constructability issues due to the fact that it would need to be 60-ft deep and between 9 and 40 ft thick to provide an adequate treatment zone and residence time for the contaminated groundwater. • The steep slopes and wetlands on site would likely limit the constructability of a PRB at many locations on site.	NO
	Conclusions: • All of the in situ physical/chemical treatment process options, except for a PRB, require extensive sitewide infrastructure for implementation. • As the plume is located on four separate properties with different owners, including Boeing, the City, and a public right-of-way, it is unlikely that a cleanup alternative that has extensive above-ground infrastructure and requires significant disturbance to the native environment would be acceptable to any of the other property owners. • In situ chemical oxidation (ISCO [persulfate]) and thermal treatment have the potential to be used as a component of a cleanup alternative, in which they are used to treat "hotspots." • Comparing ISCO and thermal treatment, ISCO is a more appropriate representative process option for this site, as electrical resistance heating (ERH) requires extensive above-ground infrastructure, is not intended for lower concentration dissolved-phase plumes, and is significantly more expensive than ISCO. • ISCO (persulfate) will be used as the representative in situ physical/chemical treatment process option for a component of a cleanup alternative.			

Table 6-11 (Continued)
Selection of PMG Representative Process Options Summary

Cleanup Technology	Process Option	Process Option Description	Process Option Selection Considerations	Included in Alternative(s)?
Containment	Physical containment – slurry walls, sheetpiles, and flexible membranes	Used to prevent the spread or further migration of contaminated groundwater, or to protect specific receptors or pathways by installing a barrier to groundwater flow around the affected area or between the affected area and a specific receptor.	• Likely to pose constructability issues due to the required depth of approximately 60 feet, similar to a PRB. • Would not provide any contaminant mass removal or destruction. • No practical benefits as replacement for existing hydraulic containment (GET) system.	NO
	Hydraulic containment – extraction wells, interceptor trench, and groundwater infiltration	Used to limit the migration of contaminated groundwater by modifying the existing groundwater gradients and, thus, changing the flow paths of the plume to a more desirable outcome.	**Extraction wells (carried forward for consideration):** • Has successfully been employed at the Site and demonstrated to achieve control and minimization of contaminated groundwater migration. • The effectiveness of extraction wells for treatment of chlorinated solvent plumes is limited for chlorinated VOCs due to low-aqueous solubility and preferential partitioning of mass to solid-phase organic matter, resulting in slow desorption/dissolution of sorbed mass to groundwater extracted for treatment. • Treatment of a plume with a GET system can take decades, if not longer. **Interceptor trench (not carried forward for consideration):** • Same limitations as extraction wells. • Requires more intrusive construction techniques than extraction wells. • The depth and thickness of the plume would increase the difficulty of implementing an interceptor trench. • No practical benefits as replacement for existing hydraulic containment (GET) system. **Groundwater infiltration (not carried forward for consideration):** • Could potentially cause unpredictable changes to groundwater flow and plume migration characteristics. • There are many locations throughout PMG in which the groundwater table is relatively close to the surface, which would limit the potential use of groundwater infiltration at these locations. • Subsurface injections in areas of steep topography in PMG could destabilize the slopes and cause landslides. • Would not provide any contaminant mass removal or destruction.	YES
	Conclusions: • Significant issues and risks associated with construction and implementability of interception trenches, physical barriers, and hydraulic barriers through infiltration make these process options technically infeasible. • Extraction wells are the only containment process option discussed, which could feasibly provide hydraulic containment and provide some degree of ex situ treatment of the plume. • As a component to a cleanup alternative, extraction wells will be used to provide both containment of the plume and long-term restoration via flushing.			

7.0 ANALYSIS OF CLEANUP ACTION ALTERNATIVES

This section evaluates each of the cleanup action alternatives developed for SWMUs/AOC s in Section 6 using the criteria established by MTCA. WAC 173-340-360 requires first that all alternatives evaluated meet the following four threshold requirements:

1. Protect human health and the environment.
2. Comply with cleanup standards (WAC 173-340-700 through 760).
3. Comply with applicable state and federal laws (WAC 173-340-710).
4. Provide for compliance monitoring (WAC 173-340-410 and 720 through 760).

This section documents that cleanup action alternatives selected for evaluation meet these threshold criteria. The analysis in this section satisfies AO Section VI(7)(B)(iii).

MTCA also requires that cleanup action alternatives that fulfill the threshold requirements be evaluated against the following "other requirements" (WAC 173-340-360[2][b]):

5. Use permanent solutions to the maximum extent practicable by evaluating specific elements described in WAC 173-340-360(3).
6. Provide for a reasonable restoration time frame (WAC 173-340-360[4]) (see also AO Section VI[7][F]).
7. Consider public concerns (WAC 173-340-600).

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]) (Criteria). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Public participation and consideration of public concern (Criteria 7) is an integral part of the cleanup process under MTCA. If deemed necessary by Ecology, a draft of this FS report will be issued for public comment and the comments will be considered prior to finalizing this report. A public comment period will occur for the draft CAP, prior to selection of the final cleanup action, as specified in WAC 173-340-380.

This FS evaluation presumes that a majority of the public in the vicinity of the project site either work for Boeing or for a Boeing supplier. Such individuals typically express a preference for alternatives that provide protection without interrupting production (which can affect employment). For similar cleanup actions that involve excavation and off-site disposal, local

businesses and residents sometimes express concern over truck traffic on roadways and the disruptive nature of construction activities, including noise. In some cases, the public expresses the opinion that contaminants for which there is no current exposure remain contained in place to avoid construction inconveniences. These concerns will be considered during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

No alternative is eliminated from the FS evaluation process in this Section 7. Instead, this section describes how each alternative being considered meets the seven criteria listed above. Sections 7.1.1 through 7.1.10 evaluate alternatives for all upland SWMUs/AOCs. Section 7.2 evaluates alternatives for Powder Mill Gulch. Comparative analysis of alternatives against one another is performed in Section 8.

7.1 EXPOSURE PATHWAY MODELS A-J

This section evaluates the cleanup action alternatives developed for SWMUs/AOCs included in EPMs A-J. The cleanup action alternatives developed for EPM K (Esperance Sand in PMG) are evaluated separately in Section 7.2.

This section is organized by alternative, rather than by EPM or by SWMU/AOC. This method of presentation is meant to minimize the repetition of text.

7.1.1 Maintaining Containment

Maintaining containment is a cleanup alternative that is evaluated in this FS for all SWMUs/AOCs. In the case of SWMU/AOC No. 165 this alternative also includes limited excavation and is discussed separately in Section 7.2. In the case of SWMU/AOC No. 151, this alternative consists solely of institutional controls associated with the use of MTCA Method C cleanup levels for indoor air. At this SWMU/AOC, there are no exceedances of the proposed cleanup levels for any environmental media.

Protection of Human Health and The Environment

Maintaining containment for all upland SWMUs/AOCs would protect human health and the environment by preventing exposures to chemical constituents. Institutional controls for SWMU/AOC No. 151 would prevent residential exposure to sub-slab vapors exceeding the cleanup levels in the currently outdoor area by using industrial land restrictions that require continued industrial use. Institutional controls for Esperance Sand well EGW061 would prevent use of groundwater in the vicinity of the EGW061 well as drinking water. Under the maintain containment alternative, leaching of contaminants to groundwater would be prevented by a requirement to maintain the pavement or flooring that prevents infiltration and by institutional controls. Modeling results based on conservative assumptions indicate that on-site containment

will protect the aquifer for hundreds of years, which is consistent with the design life of engineered RCRA and Comprehensive Environmental Response, Compensation, and Liability Act cover systems.

Comply with Cleanup Standards

Maintaining containment would meet cleanup standards as defined under WAC 173-340-355(2) by meeting the requirements of WAC 173-340-740 (6)(f), as described below:

- The containment alternative will only be selected in the CAP if it meets the requirements for being permanent to the maximum extent practicable under WAC 173-340-360 (see Section 8 for this analysis).
- The containment alternative would be protective of human health as discussed in the preceding section.
- The containment alternative would be protective of ecological receptors because the SWMUs/AOCs are located at a fully developed industrial facility meeting the exclusion requirements under WAC 173-340-7491.
- Institutional controls would be established through a restrictive environmental covenant to prevent disturbance of the remedy or additional cleanup action if disturbance is necessary.
- Compliance monitoring, consisting of groundwater/perched groundwater monitoring, and 5-year reviews, are included in the cleanup alternative.
- The types, levels, and amount of hazardous substances remaining on site and the measures that will be used to prevent migration and contact with those substances will be specified in the draft CAP.

Comply with ARARs

Maintaining containment complies with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for implementation of these remedies.

Provide for Compliance Monitoring

The maintain containment alternatives provide for compliance monitoring by including routine site inspections.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

The maintain containment alternatives provide for a reasonable restoration time frame by establishing containment and institutional controls immediately following Ecology approval of the Institutional Controls Management Plan.

Refer to Sections 2 and 3 for descriptions of potential exposure pathways and specific maximum concentrations in comparison to the proposed cleanup levels protective of human health and the environment.

Consider Public Concerns

As described in Section 7, public concerns will be considered further during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.2 Limited Excavation and Maintaining Containment

Limited excavation and maintaining containment is a cleanup alternative that is applicable to SWMU/AOC No. 165, Building 45-52 (EPM G). The alternative consists of near-term excavation in one area of soil exceedances where free product was observed during previous site work and maintaining containment of the other soil exceedances in the SWMU/AOC.

Protection of Human Health and the Environment

Limited excavation would protect human health and the environment by removing soil contaminated with free product in the near term. Maintaining containment of the remaining soil exceedances would prevent leaching of contaminants to groundwater by requiring maintenance of the pavement that prevents infiltration and institutional controls.

Comply with Cleanup Standards

Limited excavation would comply with cleanup standards by removing contaminated soil in one of the areas of exceedances at SWMU/AOC No. 165. Soil cleanup levels would be met at the standard point of compliance for this area. For the remaining areas of exceedances within the SWMU/AOC, maintaining containment of these areas would prevent exposure and contaminant migration. The maintain containment component of this alternative would meet the cleanup standards as defined by WAC 173-340-355(2) by meeting the requirements of WAC 173-340-740 (6)(f), as described in Section 7.1.2.

Comply with ARARs

Limited excavation and maintaining containment would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for implementation of the remedy, including those pertaining to excavation, disposal, and site restoration.

Provide for Compliance Monitoring

The limited excavation component of this alternative includes post-excavation sampling to demonstrate that soil remaining on site in the area of excavation meets the cleanup standards. For any soil remaining on site that exceeds cleanup levels, the maintain containment component provides for compliance monitoring by including routine site inspections.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

The limited excavation component of this alternative would provide for a relatively short restoration time frame. The implementation time frame would most likely depend on the logistics of interrupting manufacturing operations to perform excavation. The maintain containment component of this alternative would also have a short restoration time frame by establishing containment immediately following Ecology approval of the Institutional Controls Management Plan.

Consider Public Concerns

As described, public concerns will be considered during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.3 In Situ Treatment (Injections)

In situ treatment alternatives, which consist of either in situ chemical reduction or in situ sorption and bioremediation, are applicable to the following two SWMUs/AOCs with perched groundwater:

- SWMU/AOC No. 90, Building 40-51 (EPM A)
- SWMU/AOC No. 112, Building 40-11 (EPM A)

Protection of Human Health and the Environment

Cleanup alternatives consisting of in situ treatment using injections would protect human health and the environment. Until perched groundwater concentrations were reduced to below cleanup levels, institutional controls would protect human health and the environment in the near term by preventing leaching of contaminants to groundwater.

Comply with Cleanup Standards

In situ treatment alternatives using injections would reduce contaminant concentrations in perched groundwater over time to below proposed cleanup standards. Institutional controls preventing exposure and contaminant migration would be established until soil cleanup levels were met, or for the duration of monitoring in cases where contaminated media was not reduced below cleanup levels. Perched groundwater cleanup levels would eventually be met at the standard point of compliance for most SWMUs/AOCs.

Comply with ARARs

In situ treatment would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for site work and site restoration.

Provide for Compliance Monitoring

In situ treatment alternatives include periodic perched groundwater sampling and post-cleanup action sampling to demonstrate that perched groundwater remaining on site following implementation of the action meets cleanup standards. Site inspections would also be completed as part of monitoring for the institutional controls and maintaining containment that would implemented in the interim.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

The restoration time frame for in situ treatment alternatives will depend on the efficiency of the action at each SWMU/AOC. Therefore the restoration time frame for these alternatives could be lengthy. However, institutional controls would be in place until injections were performed and cleanup standards were met.

Refer to Sections 2 and 3 for descriptions of potential exposure pathways and specific maximum concentrations in comparison to the proposed cleanup levels protective of human health and the environment.

Consider Public Concerns

As described in Section 7, public concerns will be considered further during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.4 Periodic or Continuous Groundwater Extraction

Groundwater extraction alternatives, which consist of either periodic or continuous removal, are applicable to SWMUs/AOCs with perched or Esperance Sand groundwater. These cleanup alternatives are applicable to the following SWMUs/AOCs:

- SWMU/AOC No. 90, Building 40-51 (EPM A)
- SWMU/AOC No. 112, Building 40-11 (EPM A)
- SWMU/AOC No. 166, Building 45-53 (EPM C)
- SWMU/AOC Nos. 55 and 168, Building 40-24 (EPM D)
- Esperance Sand Well EGW061 (EPM I)

The equivalent cleanup alternative for SWMU/AOC Nos. 86, 89, and 94 (EPM B) includes both soil vapor and groundwater extraction technologies and is therefore evaluated separately in Section 7.5.

Protection of Human Health and the Environment

Groundwater extraction alternatives would protect human health and the environment by removing groundwater containing COCs and treating it at the on-site industrial wastewater treatment plant. Until cleanup levels were met throughout the groundwater, institutional controls would be in place to prevent leaching of contaminants to groundwater.

Comply with Cleanup Standards

Groundwater extraction alternatives would reduce contaminant concentrations in perched or Esperance Sand groundwater over time to below proposed cleanup standards. Institutional controls would prevent exposure and contaminant migration until cleanup levels were met, or be continued in cases where all contaminated media cannot be removed. Perched groundwater cleanup levels would eventually be met at the standard point of compliance for most SWMUs/AOCs.

Comply with ARARs

Groundwater extraction alternatives would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for site work and restoration.

Provide for Compliance Monitoring

Groundwater extraction alternatives will include periodic groundwater sampling and post-cleanup action sampling to demonstrate that the action meets cleanup standards following implementation of the action. Site inspections would also be completed as part of monitoring for institutional controls that would be implemented in the interim.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

The restoration time frame for groundwater extraction alternatives will depend on the efficiency of the action at each SWMU/AOC. Therefore the restoration time frame for these alternatives

could be lengthy. However, the institutional controls would be in place until groundwater extraction could be implemented and cleanup levels were achieved.

Refer to Sections 2 and 3 for descriptions of potential exposure pathways and specific maximum concentrations in comparison to the proposed cleanup levels protective of human health and the environment.

Consider Public Concerns

As described, public concerns will be considered during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.5 Soil Vapor and Groundwater Extraction

Soil vapor and groundwater extraction is a cleanup alternative that is applicable to SWMU/AOC Nos. 86, 89, and 94, Building 40-56 (EPM B). This alternative consists of concurrent vapor extraction of contaminants in soil and continuous groundwater extraction of perched groundwater.

Protection of Human Health and the Environment

Soil vapor and perched groundwater extraction would protect human health and the environment at SWMU/AOC Nos. 86, 89, and 94 by removing and treating soil vapor and perched groundwater containing COCs exceeding the proposed cleanup levels. The majority of contaminants would be removed by SVE, with additional contaminant removal in perched groundwater using continuous pumping. Until cleanup standards were met, institutional controls would be in place to protect human health and the environment, and would be continued if cleanup levels could not be achieved.

Comply with Cleanup Standards

Soil vapor and perched groundwater extraction alternatives would reduce contaminant concentrations in soil and perched groundwater over time to below proposed cleanup standards. Institutional controls to prevent exposure and contaminant migration would be implemented until soil cleanup levels were met, or for the duration of monitoring in cases where all contaminated media cannot be removed. Perched groundwater cleanup levels would eventually be met at the standard point of compliance at SWMU/AOC Nos. 86, 89, and 94.

Comply with ARARs

The soil vapor and perched groundwater extraction alternative would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific

ARARs (i.e., cleanup levels), and complying with those ARARs for site work and site restoration.

Provide for Compliance Monitoring

The soil vapor and perched groundwater extraction alternative includes SVE system vapor monitoring, periodic perched groundwater sampling, and post-cleanup action sampling to demonstrate that soil and perched groundwater remaining on site meets cleanup standards following implementation of the action. Site inspections would also be completed as part of monitoring for institutional controls.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

The restoration time frame for the soil vapor and perched groundwater extraction alternative will depend on the efficiency of each extraction component at SWMU/AOC Nos. 86, 89, and 94. Because both soil and perched groundwater cleanup levels will need to be achieved, the restoration time frame could be lengthy. However, institutional controls would be implemented prior to meeting cleanup standards.

Refer to Sections 2 and 3 for descriptions of potential exposure pathways and specific maximum concentrations in comparison to the proposed cleanup levels protective of human health and the environment.

Consider Public Concerns

As described, public concerns will be considered further during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.6 Near-Term Excavation and Dewatering

Near-term excavation and dewatering alternatives consist of excavation of SWMUs/AOCs with perched groundwater and dewatering of the excavation to remove contaminants. This cleanup alternative is applicable to the following SWMUs/AOCs:

- SWMU/AOC No. 112, Building 40-11 (EPM A)
- SWMU/AOC Nos. 86, 89, and 94, Building 40-56 (EPM B)
- SWMU/AOC Nos. 55 and 168, Building 40-24 (EPM D)

Protection of Human Health and the Environment

Near-term excavation and dewatering would protect human health and the environment by removing perched groundwater exceeding cleanup levels in the near term.

Comply with Cleanup Standards

Near-term excavation and dewatering alternatives would comply with cleanup standards by removing contaminants in perched groundwater through excavation of saturated soil and dewatering of any remaining water in the open excavation.

Comply with ARARs

Near-term excavation and dewatering alternatives would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for excavation, soil and water disposal, and site restoration.

Provide for Compliance Monitoring

Near-term excavation and dewatering includes post-excavation sampling to demonstrate that perched groundwater remaining on site meet the cleanup standards following implementation of the action. For SWMUs/AOCs in which all contaminated soil cannot be removed, site inspections wills be completed as part of institutional controls.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the

disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

Near-term excavation with dewatering would provide for a relatively short restoration time frame. The implementation time frame would most likely depend on the logistics of interrupting manufacturing operations to perform the excavation activities.

Refer to Sections 2 and 3 for descriptions of potential exposure pathways and specific maximum concentrations in comparison to the proposed cleanup levels protective of human health and the environment.

Consider Public Concerns

As described, public concerns will be considered further during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.7 Soil Vapor Extraction

SVE alternatives are applicable to the following SWMUs/AOCs:

- SWMU/AOC No. 171, Building 40-21 (EPM E)
- SWMU/AOC No. 98, Building 40-53 (EPM E)
- SWMU/AOC No. 170, Building 40-02 (EPM E)
- Footing Excavation, Building 40-32 (EPM E)
- SWMU/AOC No. 68, South Fire Pit (EPM F)

The cleanup alternatives for SWMU/AOC Nos. 86, 89, and 94 (EPM B) consist of vapor extraction of contaminants in soil.

Protection of Human Health and the Environment

SVE alternatives would protect human health and the environment. Institutional controls would also protect human health and the environment in the near term, until soil COC concentrations were reduced below screening levels.

Comply with Cleanup Standards

SVE would comply with cleanup standards by removing the majority of contaminants from soil over a period of time or in the near term. Soil cleanup levels would eventually be met at the standard point of compliance under both alternatives for the majority of the SWMUs/AOCs.

Institutional controls would be established to prevent exposure and contaminant migration for all SWMUs/AOCs in the interim and permanently for SWMUs/AOCs where contaminant concentrations could not be reduced below cleanup levels.

Comply with ARARs

SVE would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for excavation, disposal, and site restoration.

Provide for Compliance Monitoring

SVE alternatives include SVE system vapor monitoring and post-extraction sampling to demonstrate that soil remaining on site following implementation of the action meets the cleanup standards. Site inspections would also be completed as part of monitoring institutional controls.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

The restoration time frame using SVE will depend on the efficiency of the system at each SWMU/AOC. Therefore, there is the potential for a long-term restoration time frame. However, institutional controls would be implemented until soil concentrations were reduced to below cleanup levels.

Refer to Sections 2 and 3 for descriptions of potential exposure pathways and specific maximum concentrations in comparison to the proposed cleanup levels protective of human health and the environment.

Consider Public Concerns

As described, public concerns will be considered further during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.8 Future Excavation

Future excavation alternatives consist of soil excavation at a future time when contaminated soil within the SWMU/AOC is accessible based on Site redevelopment, infrastructure upgrades or changes in building use. This alternative includes institutional controls until such construction work could occur and is applicable to the following SWMUs/AOCs:

- SWMU/AOC No. 171, Building 40-31 (EPM E)
- SWMU/AOC No. 97, Building 40-11 (EPM E)
- SWMU/AOC No. 98, Building 40-53 (EPM E)
- SWMU/AOC No. 170, Building 40-02 (EPM E)
- SWMU/AOC No. 54, Building 40-51 (EPM E)
- SWMU/AOC No. 68, South Fire Pit (EPM F)
- SWMU/AOC No. 65, Building 40-51 (EPM G)
- UST EV-48-1, Building 40-11 (EPM G)
- SWMU/AOC No. 165, Building 45-52 (EPM G)
- SWMU/AOC No. 83, Former UST EV-11 (EPM G)
- SWMU/AOC Nos. 67 and 71, Former Recycling Unit and UST EV-153 (EPM H)

Protection of Human Health and the Environment

Future excavation would protect human health and the environment by removing soil containing chemical contaminants. Institutional controls would protect human health and the environment in the near term until an infrastructure project provided an opportunity for excavation.

At some SWMUs/AOCs, future excavation will not result in the removal of all contaminated soil; in these cases, continued institutional controls would provide protection of human health and the environment. In addition to reconstructing and maintaining the existing pavement or flooring following site work, excavations would be backfilled with CDF, which would provide an additional barrier to infiltration and leaching of contaminants to groundwater.

Comply with Cleanup Standards

Future excavation would comply with cleanup standards by removing contaminants from soil at a future date, at which soil cleanup levels would eventually be met at the standard point of compliance. Institutional controls would be established to prevent exposure and contaminant migration until excavation and would be continued in cases where all contaminated media cannot be removed.

Comply with ARARs

Future excavation would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for excavation, disposal, and site restoration.

Provide for Compliance Monitoring

Future excavation alternatives include post-excavation sampling to demonstrate that soil remaining on site following implementation of the action meet the cleanup standards, as well as site inspections as part of institutional controls.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

The restoration time frame for future excavation is dependent on future site renovations that are not currently planned. Therefore the restoration time frame for future excavation could be long-term. However, institutional controls would be in place until excavation could be performed.

Refer to Sections 2 and 3 for descriptions of potential exposure pathways and specific maximum concentrations in comparison to the proposed cleanup levels protective of human health and the environment.

Consider Public Concerns

As described, public concerns will be considered further during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.9 Near-Term Excavation

Near-term excavation alternatives consist of soil excavation in the near-term. This cleanup alternative is applicable to the following SWMUs/AOCs:

- SWMU/AOC No. 171, Building 40-31 (EPM E)
- SWMU/AOC No. 97, Building 40-11 (EPM E)
- SWMU/AOC No. 98, Building 40-53 (EPM E)
- SWMU/AOC No. 170, Building 40-02 (EPM E)
- SWMU/AOC No. 54, Building 40-51 (EPM E)
- SWMU/AOC No. 68, South Fire Pit (EPM F)
- SWMU/AOC No. 65, Building 40-51 (EPM G)
- UST EV-48-1, Building 40-11 (EPM G)
- SWMU/AOC No. 165, Building 45-52 (EPM G)
- SWMU/AOC No. 93, Former Solvent USTs (EPM H)
- SWMU/AOC Nos. 67 and 71, Former Recycling Unit and UST EV-153 (EPM H)

Protection of Human Health and the Environment

Near-term excavation would protect human health and the environment by removing much of the soil containing contaminants in the near term. At some SWMUs/AOCs, near-term excavation will not result in the removal of all contaminated soil, and institutional controls would be required to provide continued protection of human health and the environment. In addition to reconstruction and maintenance of the existing pavement or flooring following site work, excavations backfilled with CDF would provide an additional barrier to infiltration and leaching of contaminants to groundwater.

Comply with Cleanup Standards

Near-term excavation would comply with cleanup standards by removing contaminants from soil, at which point soil cleanup levels would eventually be met at the standard point of compliance. For cases where all of the contaminated media cannot be removed, institutional controls would prevent exposure and contaminant migration.

Comply with ARARs

Near-term excavation would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for excavation, disposal, and site restoration.

Provide for Compliance Monitoring

Near-term excavation alternatives includes post-excavation sampling to demonstrate that soil remaining on site following implementation of the action meet the cleanup standards. For cases where all of the contaminated media cannot be removed, near-term excavation alternatives also include site inspections as part of monitoring for institutional controls.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

Near-term excavation would provide for a relatively short restoration time frame. The implementation time frame would most likely depend on the logistics of interrupting manufacturing operations to perform excavation

Consider Public Concerns

As described, public concerns will be considered during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.1.10 Limited and Comprehensive Excavation

Limited excavation and comprehensive excavation are cleanup alternatives that apply to SWMU/AOC No. 100, Former Gun Club (EPM J). Under the limited excavation alternative, soil and sediment would be left in-place around established trees in Area B and residual contamination in Area C would be contained. Under comprehensive excavation, all soil and sediment would be removed from Area B and residual contamination in Area C would be excavated.

Protection of Human Health and the Environment

Excavation would protect human health and the environment by removing the majority of the soil and sediment containing contaminants in the near term. Under the limited excavation alternative, maintaining containment in Area C would prevent exposure and leaching of contaminants to groundwater.

Comply with Cleanup Standards

Excavation would comply with cleanup standards by removing the majority of contaminants in soil and sediment under the limited excavation alternative, and by removing all contaminants in soil and sediment under the comprehensive alternative. For the limited excavation alternative, maintaining containment in Area C would be implemented. For both alternatives, perched

groundwater institutional controls would be established. Maintaining containment and institutional controls would meet cleanup standards as defined by WAC 173-340-355(2) by meeting the requirements of WAC 173-340-740 (6)(f), as described in Section 7.1.2.

Comply with ARARs

The excavation, maintain containment, and/or institutional controls components of both limited and comprehensive alternatives would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for implementation, including those pertaining to excavation, disposal, and site restoration.

Provide for Compliance Monitoring

The excavation component of both alternatives include post-excavation sampling to demonstrate that soil and sediment remaining on site following implementation of the action meet the cleanup standards.

The maintain containment component of the limited excavation alternative provide for compliance monitoring by including routine inspections.

Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

Provide for a Reasonable Restoration Time Frame

Excavation would provide for a relatively short restoration time frame, with implementation most likely depending on the logistics of site interruptions. Institutional controls and maintaining containment would also have short time frames because they could be implemented immediately following Ecology approval of the Institutional Controls Management Plan.

Consider Public Concerns

As described, public concerns will be considered during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

7.2 EXPOSURE PATHWAY MODEL K

This section evaluates the cleanup action alternatives developed for the SWMU/AOC included in EPM K (Esperance Sand in PMG). Based on the nature of the cleanup alternatives developed for this SWMU/AOC, this section is organized differently from Section 7.1. In this section, all of the cleanup alternatives are compared against each MTCA criterion.

7.2.1 Protection of Human Health and the Environment

Each of the four alternatives is protective of human health and the environment. Under current site conditions, there is negligible opportunity for exposure to contaminated groundwater or surface water at concentrations that represent a chronic or acute exposure risk. There is currently no known usage of PMG SWMU groundwater. Surface water concentrations of TCE are below all ecological or human health hazard concentrations, except for human consumption of surface water as drinking water. However, there is no known current or likely future use of surface water from PMC as drinking water. Soil vapor monitoring (see Section 2.19.3) has demonstrated that the groundwater to indoor air pathway is not a pathway of concern. Each alternative provides measures to maintain and/or monitor protection of human health and the environment and further improve water quality. During the time frame that active treatment components of each alternative are operating to restore the aquifer to beneficial use, institutional controls would be in place to prevent exposure.

7.2.2 Comply with Cleanup Standards

Each of the four alternatives complies with the cleanup standards. Alternative 1 achieves the groundwater cleanup standards through active groundwater extraction and treatment, hydraulic control, and institutional controls. Alternatives 2, 3, and 4 achieve the groundwater cleanup standards through in situ biological or chemical oxidation treatment technologies, in conjunction with the elements of Alternative 1.

7.2.3 Comply with ARARs

Each of the four alternatives would comply with state and federal laws by identifying ARARs as part of the action, complying with chemical-specific ARARs (i.e., cleanup levels), and complying with those ARARs for site work and site restoration.

7.2.4 Provide for Compliance Monitoring

Each of the four alternatives includes compliance monitoring, which includes ongoing groundwater and surface water monitoring to evaluate progress in achieving cleanup and remediation levels. Compliance monitoring also includes monitoring of groundwater treatment system operations to ensure compliance with treatment goals and regulatory discharge limits.

Health and safety monitoring is also included under the procedures of the site-specific health and safety plan.

7.2.5 Use Permanent Solutions

MTCA requires that, when selecting a cleanup action, preference is given to permanent solutions to the maximum extent practical (WAC 173-340-360[3]). Permanent solutions are cleanup actions that meet the cleanup standards without further action being required at the site (WAC 173-340-200). For some sites, determining whether a cleanup action uses permanent solutions to the maximum extent practicable, a DCA is required (WAC 173-340-360[3][e]). In this FS, the disproportionate cost analysis is presented in a separate report section because of its complexity (see Section 8).

7.2.6 Provide for a Reasonable Restoration Time Frame

The restoration time frame was estimated for each of the four alternatives using two estimating models, the batch flushing model (USEPA 1988) and the BIOCHLOR Natural Attenuation Decision Support System model (BIOCHLOR, Version 2.2, 2002 release).

The batch flushing model makes several simplifying assumptions (USEPA 1994) including the following:

- Zero-concentration influent water displaces contaminated ground water from the contamination zone by simple advection with no dispersion.
- The clean groundwater equilibrates instantaneously with the remaining adsorbed contaminant mass.
- The sorption isotherm is linear.
- Chemical reactions do not affect the sorption process.

Therefore, the estimated restoration time frames using the batch flushing model are assumed to be for ideal conditions and are best case scenarios (i.e., quickest restoration time).

BIOCHLOR accounts for dispersion, linear adsorption and desorption processes, and varying rates of biotransformation processes. Using conservatively low first-order decay constants for biotransformation of TCE and daughter products (based on limited evidence of natural or anthropogenic donor products) results in more conservative restoration time frames than the Batch Flushing model.

However, because of the linear sorption assumption used by both models, there is significant uncertainty in the accuracy of each. Restoration time frames at the PMG SWMU could potentially be significantly longer than predicted by either model due to diffusion limited desorption processes and asymptotic concentration declines that are often observed at sites where pump and treat technologies are applied. Therefore, the predicted restoration time frames from these models should be considered to represent the range of best case scenarios.

For the purposes of this FS, the restoration time frame for each alternative is assumed to be the average between the two model results. Based on the analytical modeling evaluation, the following can be concluded:

- Alternative 1 will achieve restoration of surface water to the cleanup level and groundwater to the remediation level at the standard points of compliance within 27 to 49 years (average 38 years). For groundwater restoration to the cleanup level, the restoration time frame may be 55 years or longer.

- Alternative 2 would likely achieve a shorter restoration time frame, relative to Alternative 1 based on reduction of mass in the source area. Assuming source area treatment reduces TCE concentrations to 100 µg/L or lower, restoration of surface water to the cleanup level and groundwater to the remediation level at the standard point of compliance would be achieved within 27 to 41 years (average 34 years). However, this would only occur after source area treatment is performed (approximately 3 years), so the total restoration time frame is also estimated at 37 years. For groundwater restoration to the cleanup level, the restoration time frame may be 46 years or longer.

- Alternatives 3 and 4 would likely achieve a shorter restoration time frame, relative to the other alternatives. Assuming treatment reduces TCE concentrations to 100 µg/L or lower in the source area and other TCE focus areas, restoration of surface water to the cleanup level and groundwater to the remediation level at the standard point of compliance would be achieved within 18 to 27 years (average 22 years) after treatment of the source area and other TCE focus areas is performed (approximately 3 years and total of 25 years). For groundwater restoration to the cleanup level, the restoration time frame may be 32 years or longer.

The estimated restoration time frame for each of the Alternatives would be considered reasonable, based on the following MTCA restoration time frame evaluation factors:

- **Potential risks to human health and the environment**: Complete exposure pathways are known to exist at the PMG SWMU, as described in Section 3.2.11, that present a potential risk to human and ecological receptors. Therefore, each of

the four alternatives contains measures to address the exposure pathways and/or provide administrative or engineering controls to minimize exposure risk.

- **Practicability of achieving shorter restoration time frame**: Based on analytical models (Batch Flushing model and BIOCHLOR), each of the four alternatives will achieve cleanup or RELs, as applicable, within a reasonable restoration time frame. Accounting for the limitations of the SWMU (i.e., physical and administrative) and the technologies employed under these alternatives, it is not considered practicable to achieve shorter restoration time frames.

- **Current and future use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site:** The current use of the Boeing portion of the PMG SWMU is open space on an industrial property; the current use of the PMG SWMU north of Seaway Boulevard is office/industrial park and open space. Most of the site is located in areas with steep slopes, wetlands, or surface water (or associated buffer zones) and is unlikely or unable to be developed due to regulatory restrictions and setbacks for development in an around slopes and surface water bodies. Boeing is unlikely to develop the portion of the PMG SWMU on its property. The City-owned property is deed restricted for use as open space for municipal and recreational purposes. The office/industrial park areas of the PMG SWMU are currently being developed with new business spaces and are unlikely to change. PMG SWMU utility work (e.g., for underground power, sewer, and water) could encounter contaminated groundwater, but proper use and implementation of institutional controls can adequately manage this potential risk. Human contact and ecological contact/ingestion of contaminated water in PMC, and associated seeps, represents the greatest risk for current and future exposure. Surface water concentrations are below ecological or human health hazard concentrations except for those protective of human consumption of surface water as drinking water. However, there is no known current usage for drinking water and future use as such is unlikely.

- **Availability of alternate water supplies**: The PMG SWMU and surrounding area is currently supplied by a municipal water supply.

- **Likely effectiveness and reliability of institutional controls**: The institutional controls that are to be included in each alternative are expected to be effective at preventing future groundwater use and direct contact with contaminated groundwater. Institutional controls related to surface water may be less effective; however, under each alternative, surface water cleanup levels are expected to be achieved relatively quickly.

- **Ability to control and monitor migration of hazardous substances from the site**: Monitoring data indicates that the groundwater plume is stable or shrinking. The PMG downgradient plume IA is significantly reducing migration of hazardous substances at the PMG SWMU off Boeing property and into PMC. There is a substantial monitoring network in place and each alternative includes performance and compliance monitoring to verify that this condition remains unchanged.

- **Toxicity of hazardous substances at the site**: The main COCs at the PMG SWMU are chlorinated solvents. The toxicity of these constituents at the levels present is moderate; the concentrations of COCs present and the likely exposure scenarios for complete exposure pathways that would be likely to occur for human or ecological receptors provide minimal risk for adverse impacts.

- **Natural processes that reduce concentrations of hazardous substances and have been documented to occur at the site or under similar site conditions:** PMG SWMU data indicates that natural processes are slowly degrading and dispersing PMG SWMU groundwater and surface water contamination and that IAs performed have greatly enhanced these processes.

In summary, each of the four alternatives will restore the PMG SWMU in a reasonable time frame. Alternatives 3 and 4 will likely achieve remediation levels at the standard point of compliance that will be protective of human and ecological receptors in a shorter time frame than the other two alternatives, and Alternative 2 will achieve cleanup in a similar, but slightly shorter time frame than Alternative 1.

7.2.7 Consider Public Concerns

As described in Section 7, public concerns will be considered further during alternative selection and, if applicable, addressed during public review of the draft FS (if deemed necessary by Ecology) and CAP.

8.0 COMPARISON OF CLEANUP ACTION ALTERNATIVES

This FS report compares the cleanup alternatives for each group of SWMUs/AOCs to one another using the DCA specified in WAC 173-340-360(3)(e). The MTCA DCA is used to evaluate which of the alternatives that meets the threshold requirements is permanent to the maximum extent practicable. This analysis involves comparing the costs and benefits of alternatives and selecting the alternative whose incremental costs are not disproportionate to the incremental benefits. The evaluation criteria for the DCA include the following:

- **Protectiveness** – Overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on-site and off-site risks resulting from implementing the alternative, and improvement of the overall environmental quality.

- **Permanence** – The degree to which the alternative permanently reduces the toxicity, mobility or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment process, and the characteristics and quantity of treatment residuals generated.

- **Effectiveness over the long term** – Long-term effectiveness includes the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, and the effectiveness of controls required to manage treatment residues or remaining wastes. The following types of cleanup action components may be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness: reuse or recycling; destruction or detoxification; immobilization or solidification; on-site or off-site disposal in an engineered, lined, and monitored facility; on-site isolation or containment with attendant engineering controls; and institutional controls and monitoring.

- **Management of short-term risks** – The risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of measures that will be taken to manage such risks.

- **Technical and administrative implementability** – Ability to be implemented including consideration of whether the alternative is technically possible,

availability of necessary off-site facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential cleanup actions.

- **Consideration of public concerns** – Whether the community has concerns regarding the alternative and, if so, the extent to which the alternative addresses those concerns. This process includes concerns from individuals, community groups, local governments, tribes, federal and state agencies, or any other organization that may have an interest in or knowledge of the site. It should be noted that public concerns will be identified and addressed through the public participation process that is an integral part of MTCA. The public will be provided the opportunity to review and comment on this draft FS report (if deemed necessary by Ecology) and the CAP (developed by Ecology) that selects the final cleanup action for each EPM/SWMU. For the purposes of the DCA, assumptions were made based on public input on previous projects at the Everett Plant or other known concerns from neighborhood groups for SWMUs outside of the main plant (i.e., PMG SWMU).

- **Cost** – The cost to implement the alternative, including the cost of construction, the net present value of any long-term costs, and agency oversight costs that are cost recoverable. Long-term costs include operation and maintenance costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls. Cost estimates for treatment technologies shall describe pretreatment, analytical, labor, and waste management costs. The design life of the cleanup action shall be estimated and the cost of replacement or repair of major elements shall be included in the cost estimate.

The comparison of benefits relative to costs using the above criteria may be quantitative, but will often be qualitative and require the use of best professional judgment. When possible for this FS, quantitative factors such as mass of contaminant contained or removed, or percentage of area of impacts remaining, were compared to costs for the alternatives evaluated. However, many of the benefits associated with the criteria described below were evaluated qualitatively by necessity. The cost estimate approach, assumptions used, and the individual cost estimates for each alternative are presented in Appendix D.

As required in the Ecology-approved FSWP (URS and Landau 2012), this FS report applies a weighting factor to each of the criteria listed above. Ecology has provided informal guidance (Myers 2010) during review of FS reports for other sites regarding the selection of these weighting factors, and the weighting factors used in this FS report are those recommended informally by Ecology. The weighting factors result in higher importance being placed on the first three criteria, which are associated with environmentally-based benefits, relative to the other

three non-environmental criteria. Costs are disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the other lower cost alternative (WAC 173-340-360(e)(i)). The term "disproportionate" implies that the degree of exceedance of incremental costs to incremental benefits must be substantial. MTCA further clarifies the disproportionate cost analysis as follows: "Where two or more alternatives are equal in benefits, the department shall select the less costly alternative provided that the requirements of subsection (2) of this section are met (WAC 173-340-360[3][e][ii][C])." Each of the MTCA criteria used in the DCA, together with the rationale for the selected weighting factor for each criterion, is described in Appendix D.

A relative numerical score for each alternative was calculated by assigning a value (i.e., raw score) on a scale from 1 to 10, where 10 is the highest benefit/value, for each criterion, multiplying each value by the criterion-specific weighting factor, and summing the weighted scores to determine an overall weighted benefit score for each alternative. Assignment of scores was based on quantitative and qualitative information using best professional judgment. The numerical scores were also rated as either Poor (1 or 2), Fair (3 or 4), Good (5 or 6), Excellent (7 or 8) and Superior (9 or 10).

Once the overall weighted benefit scores were established, the cost-to-benefit ratio was determined for each alternative by dividing the cost of the alternative by the calculated overall weighted benefit score. The alternative with the highest relative benefit to cost ratio (lowest cost-to-benefit score) is the alternative that is "permanent to the maximum extent practicable." A graph of the DCA results for each SWMU/AOC showing the relative benefit and cost for each alternative is presented in Figures 8-1 through 8-23. Alternatives with higher benefit to cost are clearly identified, because they show a larger benefit bar (blue) area than the others. Alternatives with lower benefit to cost ratios show an increased cost bar (red) than the others. Graphs are included for sites with only one alternative for consistency of presentation.

8.1 EXPOSURE PATHWAY MODEL A

This section summarizes the results of the comparative DCA analysis for the three SWMUs/AOCs (Nos. 90, 112, and 151) included in EPM A. The discussion is organized according to the DCA criteria presented in MTCA. EPM A SWMUs/AOCs exhibit fill soils with perched groundwater and VOC contamination. As discussed in the CSM for this EPM (Section 3.2.1), the currently complete exposure pathway consists only of potential construction worker exposure to perched groundwater. Concrete flooring or pavement currently prevents direct contact by factory workers, and restricts water infiltration that could cause leaching to deep Esperance Sand groundwater. Volatile constituent concentrations in soil gas exceed the industrial MTCA screening levels at two of these SWMU/AOCs. However, both are located

outside of existing buildings. Perched groundwater at EPM A SWMUs/AOCs is nonpotable (see Section 5.1.4).

Based on the CSM elements summarized above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM A SWMUs/AOCs include:

1. Maintaining the existing containment to prevent future exposures and leaching, with continued perched groundwater monitoring

2. Treating perched groundwater in situ with either chemical reduction or bioremediation

3. Extracting perched groundwater for treatment at the on-site industrial wastewater treatment plant

4. Excavating the area while removing perched groundwater and backfilling the excavation with an impermeable to material to exclude water in the future

Not all of these alternatives are applicable to all SWMUs/AOCs within EPM A (see Section 6).

Cleanup alternatives are not developed for SWMU/AOC 151, because concentrations of chemical constituents detected at this SWMU/AOC do not exceed the cleanup levels proposed in this FS. Because MTCA Method C cleanup levels are proposed for indoor air, however, institutional controls would be required at this SWMU/AOC to maintain the use of the property as industrial.

Tables 8-1a through 8-3a summarize the ranking criteria for each alternative and indicate the preferred alternative based on the DCA. Tables 8-1b through 8-3b present the relative benefits ranking and scores used to calculate the overall weighted benefit score for each alternative.

Protectiveness

The comparative protectiveness of the EPM A cleanup alternatives is evaluated in this section and considers the degree to which site risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks during implementation, and improvement of overall environmental quality.

For the EPM A SWMUs/AOCs, the only current complete exposure pathway is construction worker exposure to perched groundwater. Because all of the alternatives evaluated would include institutional controls to prevent this exposure, as well as future leaching of COCs to deep Esperance Sand groundwater, all of the alternatives are equally protective. Institutional controls

would be relied upon until COC concentrations either decline naturally, or until removal technologies reduce COC concentrations to below the cleanup levels.

Permanence

Permanence is the degree of reduction in toxicity, mobility, and volume of hazardous substances, including the reduction or elimination of hazardous substance releases and sources of releases, and the irreversibility of treatment processes. The treatment process considered by the perched groundwater cleanup alternatives in EPM A include, in decreasing order of relative irreversibility (decreasing permanence), the following:

- Degradation of contaminants from perched groundwater by ISCR or bioremedation
- Perched groundwater extraction and on-site treatment by the on-site industrial wastewater treatment plant
- Maintaining containment

Alternatives 2, 3, and 4 are considered the most irreversible (and therefore most permanent) because they involve active treatment/degradation of COCs in the perched groundwater. Alternative 2 relies on degradation of COCs using in situ treatment. For Alternatives 3 and 4, extracted or removed perched groundwater will be treated by the on-site industrial wastewater treatment system. Alternative 1 is considered to be more easily reversed than the other alternatives because it does not include active treatment of COCs in perched groundwater.

Effectiveness Over the Long Term

The long-term effectiveness ratings are based on (a) the certainty that the alternatives will be successful in destroying, disposing of, or containing COCs and (b) the reliability of the alternative during the period of time that COCs remain on site at concentrations exceeding cleanup levels. While some alternatives may have a lower ranking for effectiveness, the reliability may rank highest, and vice versa. Based on the combined ratings for the two components of long-term effectiveness, Alternatives 2, 3, and 4 for EPM A are considered to be excellent over the long-term. The long-term effectiveness for Alternative 1 is rated as good. Alternatives 2, 3, and 4 are rated as slightly more effective over the long term than Alternative 1 because they remove or treat COCs in perched groundwater. The order of individual rankings for the two components is summarized below:

- Comparative effectiveness, based on the DCA criteria descriptions presented in Appendix E, shown in descending order:

- Alternative 2 – ISCR or bioremediation via injection of applicable reagents (destroys contaminants in situ)
- Alternatives 4 – Dewatering during Excavation (removes contaminants and transports them to the on-site treatment facility where they are treated)
- Alternatives 3 – Groundwater Extraction (removes contaminants via wells and transports them to the on-site treatment facility where they are treated)
- Alternative 1 – Containment (contains COCs in place)

- Comparative degree of reliability, shown in descending order:
  - Alternative 4 –Dewatering during Excavation
  - Alternatives 2 – Injections
  - Alternatives 3 – Groundwater Extraction
  - Alternative 1 – Maintain Containment

For effectiveness, Alternative 2 rates highest because it uses in situ degradation technology to remove COCs within perched groundwater. Alternative 4 is ranked second because it relies on the on-site industrial wastewater treatment plant to treat perched groundwater (although it was not designed specifically for this purpose). Similar to Alternative 4, Alternative 3 is ranked third for effectiveness because it also relies on perched groundwater treatment by the on-site wastewater treatment plant; it ranks third compared to Alternative 4, however, because groundwater extraction is anticipated to remove less volume than dewatering during open excavation. Alternative 1 is ranked fourth because it relies on site containment and institutional controls without active treatment or removal of COCs.

Alternative 4 is considered to have excellent reliability because it relies on physical removal of perched groundwater during open excavation, during which the perched water can be allowed to drain into the excavation for complete removal. Alternatives 2 and 3 rate second and third for reliability. Alternative 2 relies on achieving good contact between COCs and in situ chemical and biological agents to degrade COCs. Alternative 3 relies on the ability and efficiency of groundwater extraction by continuous or periodic pumping to recover dissolved and sorbed COCs. Removal of COCs through pumped extraction has been demonstrated at many sites to be slower at achieving cleanup levels when compared to in situ technologies. Alternative 1 rates similarly to Alternatives 2 and 3 but fourth numerically because containment results in the longest estimated restoration time frame.

Management of Short-Term Risks

The management of short-term risks includes the risk to human health and the environment during construction and implementation and the effectiveness of measures to manage the risk.

The comparative evaluation of short-term risks for the EPM A cleanup alternatives is shown below by listing the alternatives in decreasing order. Individual rankings for each SWMU/AOC are shown in Tables 8-1b through 8-3b.

- Alternative 1 – Maintain Containment
- Alternative 3 – Groundwater Extraction
- Alternatives 2 and 4 – Injections and Excavation with Dewatering

Alternative 1 is ranked highest for this criterion because with no active construction elements, there are no significant risks. Alternative 3 has slightly higher short-term risk, because drillers installing the extraction wells will have potential exposure to COCs and because of the inherent risks of drilling. Alternatives 2 and 4 have the highest short-term risks because of potential exposure to COCs during drilling and excavation activities, as well as higher construction hazards associated with either reagent chemicals or excavation and tank installation. Short-term risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan, but the risks remain higher for active construction than for an alternative with no active construction elements. Short-term risks from Alternatives 2, 3, and 4 also include potential releases to the environment during construction, of either perched groundwater containing COCs, or reagent. These risks can typically be managed effectively through careful design and implementation, however the risks are present.

Technical and Administrative Implementability

Technical and administrative implementability includes the technical feasibility of each alternative and the ability to comply with administrative and regulatory requirements. The comparative evaluation of implementability of the EPM A cleanup alternatives is summarized below by listing the alternatives in decreasing order. Individual rankings for each SWMU/AOC are shown in Tables 8-1b through 8-3b.

- Alternative 1 – Maintain Containment
- Alternative 3 – Groundwater Extraction
- Alternative 2 – Injections
- Alternative 4 – Excavation with Dewatering

Alternative 1 is the most implementable because it includes only the development and legal recording of documents, periodic visual inspections, continuation of perched groundwater monitoring that is already being performed, and reporting. Alternative 3 is the next most implementable (with an excellent rating) because, although it adds installation of perched groundwater extraction wells and pipe for continuous pumping or periodic pumping, these are routine construction activities that do not require specialized contractors or permits. Alternative 2 is rated good to excellent, depending on the SWMU/AOC, because previous pilot injection testing has shown that although it is possible to implement injection at these

SWMUs/AOCs, the implementation is challenging in close proximity to utilities and other sub-surface infrastructure. Alternative 4 ranks fourth because it would require a significantly complex construction effort (i.e., removing and replacing the existing oil/water separator tank at SWMU 112) and may cause temporary disruptions to the adjacent automobile maintenance shop.

Consideration of Public Concerns

The criteria for consideration of public concerns include whether the community has concerns and the extent to which those concerns are addressed. This criterion will be fully evaluated following receipt of any comments from the public. However, initial rankings were made based on public input on previous projects at the Everett Plant. All of the EPM A alternatives are rated as excellent in regard to public concerns.

Alternative 1, 2, and 3 rank the highest. These alternatives address contaminants at the site with negligible impact to the public (including Boeing employees). Alternative 4 was rated excellent in regard to public concerns, but slightly lower numerically than the other alternatives because it involves the highest degree of construction activity that could potentially impact site operations.

Cost

The estimated cost to implement each alternative in EPM A ranges from $0.09 to $0.93 million and is summarized in Table 6-1, with backup materials in Appendix D. The range of alternative costs for each individual SWMU/AOC is shown below.

- SWMU/AOC No. 090, Building 40-51: $0.17 to $0.51 million
- SWMU/AOC No. 112, Building 40-11: $0.16 to $0.93 million
- SWMU/AOC No. 151, Building 40-51: $0.09 million

For all SWMUs/AOCs in EPM A, Alternative 1 (Maintain Containment or Institutional Controls) is the lowest cost alternative.

Results of Disproportionate Cost Analysis

Based on the comparison of overall benefits to the costs for each of the four alternatives for the EPM A SWMUs/AOCs, the DCA indicates that the incremental cost of Alternatives 2, 3, and 4, in comparison to Alternative 1, are considered disproportionate to their incremental degree of benefits as defined under WAC 173-340-360(3)(e)(i). Therefore, Alternative 1 is the alternative considered permanent to the maximum extent practicable for the EPM A SWMUs/AOCs. This is because, with the exposures controlled, the substantial cost to perform active treatment is disproportionate to the small additional benefit gained.

8.2 EXPOSURE PATHWAY MODEL B

This section summarizes the results of the comparative DCA analysis for a group of SWMUs/AOCs (Nos. 086, 089, and 094) included in EPM B and historically discussed as a single AOC. The discussion is organized according to the DCA criteria presented in MTCA. EPM B includes a group of SWMUs/AOCs in the vicinity of former USTs and piping outside of Building 40-56 and exhibiting fill soils with perched groundwater and BTEX contamination. As discussed in the CSM for this EPM (Section 3.2.2), the currently complete exposure pathway consists only of potential construction worker exposure to perched groundwater. Pavement currently prevents direct contact by factory workers, and restricts water infiltration that could cause leaching to deep Esperance Sand groundwater. VOCs in the sub-slab vapor samples exceed air screening levels but are located outside of Building 40-56. Perched groundwater at EPM B SWMUs/AOCs is nonpotable (see Section 5.1.4).

Based on the CSM elements summarized above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM B SWMUs/AOCs include the following:

1. Maintaining the existing containment to prevent future exposures and leaching, with continued perched groundwater monitoring, but no continued perched groundwater recovery using the existing IA pump

2. Treating perched groundwater in situ using a combination of soil vapor extraction and perched groundwater extraction and treatment at the on-site industrial wastewater treatment plant

3. Excavating the area while removing perched groundwater and backfilling the excavation with an impermeable material to exclude water in the future

Table 8-4a summarizes the ranking criteria for each alternative and indicates the preferred alternative based on the DCA. Table 8-4b presents the relative benefits ranking and scores used to calculate the overall weighted benefit score for each alternative.

Protectiveness

The comparative protectiveness of the EPM B cleanup alternatives is evaluated in this section and considers the degree site risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks during implementation, and improvement of overall environmental quality.

For the EPM B SWMU/AOC, the only current complete exposure pathway is construction worker exposure to soil or perched groundwater. Because all of the alternatives evaluated would

include institutional controls to prevent this exposure, as well as future leaching of COCs to deep Esperance Sand groundwater, all of the alternatives are equally protective. Institutional controls would be relied upon until COC concentrations either decline naturally, or until removal technologies reduce COC concentrations to below the cleanup levels.

Permanence

Permanence is the degree of reduction in toxicity, mobility, and volume of hazardous substances, including the reduction or elimination of hazardous substance releases and sources of releases, and the irreversibility of treatment processes. The treatment technologies considered by the soil and perched groundwater cleanup alternatives in EPM B include the following in decreasing order of relative irreversibility:

- Soil vapor and perched groundwater extraction (which removes contaminants and allows them to be destroyed off site or treated on site)
- Excavation with landfill disposal (which contains contaminants off site in an engineered, lined, and monitored facility)
- Maintaining containment

Because each of the three alternatives evaluated for EPM B include institutional controls as part of the cleanup action, the alternatives are rated similarly. Alternative 2 includes the most irreversible technology of the alternatives (SVE), and is expected to eventually meet the numeric cleanup levels at the point of compliance. The selective excavation and dewatering under Alternative 3 would be somewhat more reversible than SVE, because excavation would not be able to reach all of the soil containing COCs. Alternative 1 is considered to be more easily reversed than the other alternatives because it does not include active treatment of COCs.

Alternative 2 is considered to be as permanent overall as Alternative 3 because a similar quantity of COCs is assumed to be removed in the long term for portions of the SWMU/AOC that are inaccessible to excavation.

Effectiveness Over the Long Term

The long-term effectiveness ratings are based on (a) the certainty that the alternatives will be successful in destroying, disposing of, or containing COCs and (b) the reliability of the alternative during the period of time that COCs remain on site at concentrations exceeding cleanup levels. While some alternatives may have a lower ranking for effectiveness, the reliability may rank highest, and vice versa. Based on the combined ratings for the two components of long-term effectiveness, Alternatives 2 and 3 are rated highest and Alternative 1 is rated slightly lower. Individual rankings for the two components are summarized below:

- Comparative effectiveness, based on the DCA criteria descriptions presented in Appendix E, shown in descending order :

  - Alternative 2 – Soil Vapor and Groundwater Extraction
  - Alternative 3 – Excavation with Dewatering
  - Alternative 1 – Maintain Containment

- Comparative degree of reliability, shown in descending order:

  - Alternative 3 – Excavation with Dewatering
  - Alternative 2 – Soil Vapor and Groundwater Extraction
  - Alternative 1 – Maintain Containment

Alternatives 2 and 3 rate the highest for effectiveness. For contaminated soil, Alternative 2 uses destructive technology to remove COCs adsorbed onto the granular activated carbon and then thermally desorbed at an off-site facility; for perched groundwater, it uses the on-site industrial wastewater treatment plant. Alternative 3 rates similarly to Alternative 2 for effectiveness; however, in addition to on-site industrial wastewater treatment, it relies on off-site disposal of contaminated soil. Alternative 1 is ranked third because it has the longest estimated restoration time frame.

Alternative 3 is considered to have excellent reliability because it relies on physical removal of perched groundwater from an open excavation. Alternative 2 rates second for reliability because it relies on the ability and efficiency of soil vapor and perched groundwater extraction via wells. Extraction from wells is typically slower and less uniform that removal of water from an open excavation. Alternative 1 rates similarly to Alternative 2 for reliability, but third numerically, because it has the longest estimated restoration time frame.

Management of Short-Term Risks

The management of short-term risks includes the risk to human health and the environment during construction and implementation and the effectiveness of measures to manage the risk. The comparative evaluation of short-term risks for the EPM B cleanup alternatives is shown below by listing the alternatives in decreasing order. Individual rankings are shown in Table 8-4b.

- Alternative 1 – Maintain Containment
- Alternative 3 – Soil Vapor and Groundwater Extraction
- Alternative 2 – Excavation with Dewatering

Alternative 1 is ranked highest for this criterion because with no active construction elements, there are no significant risks. Alternative 3 has slightly higher short-term risk because drillers

installing the soil vapor and groundwater extraction wells will have potential exposure to COCs. Alternative 3 has the highest short-term risk because of potential exposure to COCs during excavation and dewatering activities, as well as higher construction hazards associated with excavation. Short-term risks can be minimized by using experienced work crews working under the guidance of a site-specific health and safety plan, but the risks remain higher for active construction than for an alternative with no active construction elements. Short-term risks from Alternatives 2 and 3 also include potential releases to the environment during construction, of either perched groundwater containing COCs, or soil vapor. These risks can typically be managed effectively through careful design and implementation, however the risks are present.

Technical and Administrative Implementability

Technical and administrative implementability includes the technical feasibility of each alternative and the ability to comply with administrative and regulatory requirements. The comparative evaluation of implementability of the EPM B cleanup alternatives is shown below by listing the alternatives in decreasing order. Individual rankings are shown in Table 8-4b.

- Alternative 1 – Maintain Containment
- Alternative 2 – Soil Vapor and Groundwater Extraction
- Alternative 3 – Excavation with Dewatering

Alternative 1 is the most implementable, because it includes only the development and legal recording of documents, periodic visual inspections, continuation of perched groundwater monitoring that is already being performed, and reporting. Alternative 2 is the next most implementable because construction and operation of an SVE system is comparatively straightforward, without significant disruptions to on-site activities. Alternative 3 ranks third because it would require the most construction effort to complete excavation and dewatering in an area with complex subsurface infrastructure (utility tunnels and numerous individual utilities).

Consideration of Public Concerns

The criteria for consideration of public concerns include whether the community has concerns and the extent to which those concerns are addressed. This criterion will be fully evaluated following receipt of any comments from the public. However, initial rankings were made based on public input on previous projects at the Everett Plant. Individual rankings are shown below by listing the alternatives in decreasing order:

- Alternatives 1 and 2 – Maintain Containment and Soil Vapor and Groundwater Extraction

- Alternative 3 – Excavation with Dewatering

Alternatives 1 and 2 are estimated to rank the highest. These alternatives address contaminants at the site without significant impact to the public. Alternative 3 is slightly lower because it involves the highest degree of construction activity, which could potentially impact site operations and temporary increased traffic.

Cost

The estimated cost to implement each alternative in EPM B for SWMU/AOC Nos. 086, 089, and 094 is summarized in Table 6-2, with backup materials in Appendix D. The range of alternative costs for SWMU/AOC Nos. 086, 089, and 094, Building 40-56, is $0.19 to $4.9 million.

For EPM B, Alternative 1 (Maintain Containment) is the lowest cost alternative.

Results of Disproportionate Cost Analysis

Based on the comparison of overall benefits to the costs for each of the three alternatives for the EPM B SWMUs/AOCs, the DCA indicates that the incremental cost of Alternatives 2 and 3 in comparison to Alternative 1, are considered disproportionate to their incremental degree of benefits as defined under WAC 173-340-360(3)(e)(i). Therefore, Alternative 1 is the alternative considered permanent to the maximum extent practicable for the EPM B SWMUs/AOCs. This is because, with the exposures controlled, the substantial cost to perform active treatment is disproportionate to the small additional benefit gained. However, in Section 9, a more permanent remedy (Alternative 2) is recommended based on the presence of NAPL at this SWMU/AOC.

8.3 EXPOSURE PATHWAY MODEL C

This section summarizes the results of the comparative DCA analysis for one SWMU/AOC (No. 166, Building 45-53) included in EPM C. The discussion is organized according to the DCA criteria presented in MTCA. EPM C includes one SWMU/AOC in the vicinity of a former UST and exhibiting fill soils with perched groundwater and TPH contamination. As discussed in the CSM for this EPM (Section 3.2.3), the currently complete exposure pathway consists only of potential construction worker exposure to perched groundwater. Pavement currently prevents direct contact by factory workers, and restricts water infiltration that could cause leaching to deep Esperance Sand groundwater. Perched groundwater at the EPM C SWMU/AOC is nonpotable (see Section 5.1.4). At the time of preparation of this FS report, TPH concentrations in the most recent perched groundwater samples at this SWMU/AOC had dropped below the cleanup levels proposed in this FS.

Based on the CSM elements summarized above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such

alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for the EPM C SWMU/AOC include the following:

1. Maintaining the existing containment to prevent future exposures and leaching, with continued perched groundwater monitoring

2. Periodically extracting perched groundwater for transport to, and treatment by, the on-site industrial wastewater treatment plant

Table 8-5a summarizes the ranking criteria for each alternative and indicates the preferred alternative based on the DCA. Table 8-5b presents the relative benefits ranking and scores used to calculate the overall weighted benefit score for each alternative.

Protectiveness

The comparative protectiveness of the EPM C cleanup alternatives is evaluated in this section and considers the degree to which site risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks during implementation, and improvement of overall environmental quality.

For the EPM C SWMU/AOC, the only current complete exposure pathway is construction worker exposure to perched groundwater. Because both alternatives evaluated would include institutional controls to prevent this exposure, as well as future leaching of COCs to deep Esperance Sand groundwater, each alternative is equally protective. Institutional controls would be relied upon until COC concentrations either decline naturally, or until removal technologies reduce COC concentrations to below the cleanup levels.

Permanence

Permanence is the degree of reduction in toxicity, mobility, and volume of hazardous substances, including the reduction or elimination of hazardous substance releases and sources of releases, and the irreversibility of treatment processes. The treatment technologies considered by the perched groundwater cleanup alternatives in EPM C include the following in decreasing order of relative irreversibility:

- Groundwater extraction and on-site treatment by the on-site industrial wastewater treatment plant

- Maintaining containment

Alternative 2 is considered the most irreversible because it results in perched groundwater treatment at the on-site industrial wastewater treatment plant. Alternative 1 is considered more

reversible, because it does not include active treatment of COCs in perched groundwater and therefore has the longest estimated restoration time frame.

Effectiveness Over the Long Term

The long-term effectiveness ratings are based on (a) the certainty that the alternatives will be successful in destroying, disposing of, or containing COCs and (b) the reliability of the alternative during the period of time that COCs remain on site at concentrations exceeding cleanup levels. While some alternatives may have a lower ranking for effectiveness, the reliability may rank highest and vice versa. Based on the combined ratings for the two components of long-term effectiveness, Alternatives 1 and 2 are both rated as good, with similar numerical ratings. Individual rankings for the two components are summarized below:

- Comparative effectiveness, based on the DCA criteria descriptions presented in Appendix E, shown in descending order:
  - Alternative 2 – Periodic Groundwater Extraction
  - Alternative 1 – Containment
- Comparative degree of reliability, shown in descending order:
  - Alternative 2 – Periodic Groundwater Extraction
  - Alternative 1 – Maintain Containment

Although both alternatives are rated similarly, Alternative 2 rates higher numerically. For effectiveness, Alternative 2 treats extracted perched groundwater at the industrial wastewater plant. Alternative 1 is ranked second because it has the longest estimated restoration time frame.

In regard to the degree of reliability, Alternative 2 is ranked numerically higher because it uses extraction wells and the on-site industrial wastewater treatment plant, which are currently already used reliably on site.

Management of Short-Term Risks

The management of short-term risks includes the risk to human health and the environment during construction and implementation and the effectiveness of measures to manage the risk. The comparative evaluation of short-term risks for the EPM C cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings are shown in Table 8-5b.

- Alternative 1 – Maintain Containment
- Alternative 2 – Periodic Groundwater Extraction

Alternative 1 is ranked highest for this criterion because with no active construction elements, there are no significant risks. Alternative 2 has slightly higher short-term risk because of potential exposure to COCs and operational hazards during perched groundwater extraction, when O&M staff would be exposed to inhalation and splash hazards while removing and handling extracted perched groundwater. Short term risks are also inherent to construction and drilling activities during initial implementation of Alternative 2. Short-term risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan, but the risks remain higher for active construction than for an alternative with no active construction elements. Short-term risks from Alternative 2 also include potential releases to the environment during construction, of either perched groundwater containing COCs. These risks can typically be managed effectively through careful design and implementation, however the risks are present.

Technical and Administrative Implementability

Technical and administrative implementability includes the technical feasibility of each alternative and the ability to comply with administrative and regulatory requirements. The comparative evaluation of implementability of the EPM C cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings are shown in Table 8-5b.

- Alternative 1 – Maintain Containment
- Alternative 2 – Periodic Groundwater Extraction

Alternative 1 is the most implementable because it includes only the development and legal recording of documents, periodic visual inspections, continuation of perched groundwater monitoring that is already being performed, and reporting. Alternative 2 is ranked lower because it requires that perched groundwater be periodically pumped out and properly disposed of at the on-site industrial wastewater treatment plant, which is logistically more complex than Alternative 1.

Consideration of Public Concerns

The criteria for consideration of public concerns include whether the community has concerns and the extent to which those concerns are addressed. This criterion will be fully evaluated following receipt of any comments from the public. However, initial rankings were made based on public input on previous projects at the Everett Plant. Both of the EPM C alternatives are rated as excellent, as they address contaminants at the site without significant impact to the public.

Cost

The estimated cost to implement each alternative in EPM C for SWMU/AOC No. 166 is summarized in Table 6-3, with backup materials in Appendix D. The range of alternative costs for SWMU/AOC No. 166, Building 45-53, is $0.16 to $0.31 million.

For EPM C, Alternative 1 (Maintain Containment) is the lowest cost alternative.

Results of Disproportionate Cost Analysis

Based on the comparison of overall benefits to the costs for the two alternatives for the EPM C SWMU/AOC, the DCA indicates that the incremental costs of Alternative 2, in comparison to Alternative 1, are considered disproportionate to their incremental degree of benefits as defined under WAC 173-340-360(3)(e)(i). Therefore, Alternative 1 is the alternative considered permanent to the maximum extent practicable for the EPM A SWMUs/AOCs. This is because, with the exposures controlled, the substantial cost to perform active treatment is disproportionate to the small additional benefit gained.

8.4 EXPOSURE PATHWAY MODEL D

This section summarizes the results of the comparative DCA analysis for two SWMUs/AOCs (Nos. 055 and 168, Building 40-24), which are commonly discussed together as one AOC, and are included in EPM D. The discussion is organized according to the DCA criteria presented in MTCA. EPM D includes areas around existing utility trenches and sumps both inside and outside of Building 40-24, exhibiting fill soils with perched groundwater and hydraulic fluid contamination. As discussed in the conceptual site model for this EPM (Section 3.2.4), the currently complete exposure pathway consists only of potential construction worker exposure to perched groundwater, NAPL, and soil. Concrete flooring or pavement currently prevents direct contact by factory workers, and restricts water infiltration that could cause leaching to deep Esperance Sand groundwater. Perched groundwater at EPM D SWMUs/AOCs is nonpotable (see Section 5.1.4).

Based on the CSM elements described above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM D SWMUs/AOCs include:

1. Maintaining the existing containment to prevent future exposures and leaching

2. Periodically extracting perched groundwater for transport to, and treatment by, the on-site industrial wastewater treatment plant

3. Continuously extracting perched groundwater, with transport through conveyance piping to the on-site industrial wastewater treatment plant

4. Excavating the portion of the SWMU/AOC outside of Building 40-24 (the Vault E area) while removing perched groundwater and backfilling the excavation with an impermeable to material to exclude water in the future. This alternative also includes periodic removal of remaining perched groundwater from utilidor backfill beneath the building

The alternatives developed do not include excavation of soil containing hydraulic fluid in utilidor backfill beneath Building 40-24. Such excavation is screened out as clearly disproportionately costly per WAC 173-240-350(8)(b)(i) because of the active airplane manufacturing in this building.

Table 8-6a summarizes the ranking criteria for each alternative and indicates the preferred alternative based on the DCA. Table 8-6b presents the relative benefits ranking and scores used to calculate the overall weighted benefit score for each alternative.

Protectiveness

The comparative protectiveness of the EPM D cleanup alternatives is evaluated in this section and considers the degree to which site risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks during implementation, and improvement of overall environmental quality.

For the EPM D SWMU/AOC, the only current complete exposure pathway is construction worker exposure to soil and/or perched groundwater and free product. Because all of the alternatives evaluated would include institutional controls to prevent this exposure, as well as future leaching of COCs to deep Esperance Sand groundwater, all of the alternatives are equally protective. Institutional controls would be relied upon until COC concentrations either decline naturally, or until removal technologies reduce COC concentrations to below the cleanup levels.

Permanence

Permanence is the degree of reduction in toxicity, mobility, and volume of hazardous substances, including the reduction or elimination of hazardous substance releases and sources of releases, and the irreversibility of treatment processes. The treatment technologies considered by the soil and perched groundwater cleanup alternatives in EPM D include the following in decreasing order of relative irreversibility:

- Excavation and landfill disposal (which contains contaminants off site in an engineered, lined, and monitored facility)

- Groundwater extraction and on-site treatment by the on-site industrial wastewater treatment plant

- Maintaining containment

Alternative 4 is considered the most irreversible of the alternatives because it involves selective excavation of soil as well as dewatering and treatment of perched groundwater. Because not all COCs will be removed, Alternative 4 still also relies in part on institutional controls to contain remaining COCs. Alternatives 1, 2, and 3 are rated similarly for permanence as each of these alternatives have a longer estimated restoration time frame, as perched groundwater extraction eventually succeeds in meeting the cleanup levels.

Effectiveness Over the Long Term

The long-term effectiveness ratings are based on (a) the certainty that the alternatives will be successful in destroying, disposing of, or containing COCs and (b) the reliability of the alternative during the period of time that COCs remain on site at concentrations exceeding cleanup levels. While some alternatives may have a lower ranking for effectiveness, the reliability may rank highest and vice versa. Based on the combined ratings for the two components of long-term effectiveness, Alternative 4 is rated as excellent. Alternatives 2 and 3 are rated as good, while Alternative 1 is also rated as good, with a slightly lower numerical score. Individual rankings for the two components are summarized below:

- Comparative effectiveness, based on the DCA criteria descriptions presented in Appendix E, shown in descending order:

  - Alternative 4 – Excavation with Dewatering
  - Alternatives 2 and 3 – Periodic or Continuous Groundwater Extraction
  - Alternative 1 – Maintain Containment

- Comparative degree of reliability, shown below in descending order:

  - Alternative 4 – Excavation with Dewatering
  - Alternatives 2 and 3 – Periodic or Continuous Groundwater Extraction
  - Alternative 1 – Maintain Containment

Alternative 4 rates the highest for effectiveness because it targets COCs in both soil and perched groundwater for either off-site disposal or treatment at the on-site industrial wastewater treatment plant. Alternatives 2 and 3 rate second and third for effectiveness because they remove and treat perched groundwater. Alternative 1 is ranked fourth because it has the longest estimated restoration time frame.

Alternative 4 is also ranked the highest in reliability because it physically removes both contaminated soil and perched groundwater from the accessible portions of the SWMU/AOC during open excavation, when perched groundwater can be allowed to drain into the excavation and then be completely removed. Alternatives 2 and 3 are rated as good for reliability because they primarily rely on the ability to extract perched groundwater by pumping from the permeable backfill, which is likely to be a relatively slow and incomplete method of removal. Alternative 1 is ranked similarly to Alternatives 2 and 3, but fourth numerically, because has the longest estimated restoration time frame.

Management of Short-Term Risks

The management of short-term risks includes the risk to human health and the environment during construction and implementation and the effectiveness of measures to manage the risk. The comparative evaluation of short-term risks for the EPM D cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings for the SWMU/AOC are shown in Table 8-6b.

- Alternative 1 – Maintain Containment
- Alternatives 2 and 3 – Periodic or Continuous Groundwater Extraction
- Alternative 4 – Excavation with Dewatering

Alternative 1 is ranked highest for this criterion because with no active construction elements, there are no significant risks. Alternatives 2 and 3 have slightly higher short-term risks because of potential exposure to COCs during periodic extraction events or installation of continuous well pumping equipment and wastewater line connection to the on-site industrial wastewater treatment plant. Alternative 4 has the highest short-term risk because of potential exposure to COCs during excavation and dewatering activities, as well as higher construction hazards associated with excavation equipment. Short-term risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan, but the risks remain higher for active construction than for an alternative with no active construction elements. Short-term risks from Alternatives 2, 3, and 4 also include potential releases to the environment during construction, of perched groundwater containing COCs. These risks can typically be managed effectively through careful design and implementation, however the risks are present.

Technical and Administrative Implementability

Technical and administrative implementability include the technical feasibility of each alternative and the ability to comply with administrative and regulatory requirements. The comparative evaluation of implementability of the EPM D cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings for each SWMU/AOC are shown in Table 8-6b.

- Alternative 1 – Maintain Containment
- Alternatives 2 and 3 – Periodic and Continuous Groundwater Extraction
- Alternative 4 – Excavation with Dewatering

Alternative 1 is the most implementable because it includes only the development and legal recording of documents, periodic visual inspections, continuation of perched groundwater monitoring that is already being performed, and reporting. Alternatives 2 and 3 are the next most implementable because any required construction and operation and maintenance would be minimal. Alternative 4 is ranked fourth because it would require a significant complex construction effort to complete excavation and dewatering, including removal of the existing vault and wells.

Consideration of Public Concerns

The criteria for consideration of public concerns includes whether the community has concerns and the extent to which those concerns are addressed. This criterion will be fully evaluated following receipt of any comments from the public. However, initial rankings were made based on public input on previous projects at the Everett Plant. All of the EPM D alternatives are rated as excellent in regard to public concerns.

Alternatives 1 and 3 are ranked the highest because they address contaminants at the site without significant impact to the public. Alternatives 2 and 4 are ranked similarly, but slightly lower numerically, because of potential concerns related to periodic operation and maintenance or construction activity that could impact site operations over a long period. Continuous groundwater extraction (Alternative 3) is expected to operate with minimal disruptions to site operations, so is ranked higher.

Cost

The estimated cost to implement each alternative in EPM D for SWMU/AOC Nos. 055 and 168 is summarized in Table 6-4, with backup materials in Appendix D. The range of alternative costs for SWMU/AOC Nos. 055 and 168, Building 40-24, is $0.17 to $1.8 million.

For EPM D, Alternative 1 (Maintain Containment) is the lowest cost alternative.

Results of Disproportionate Cost Analysis

Based on the comparison of overall benefits to the costs for each of the four alternatives for the EPM D SWMUs/AOCs, the DCA indicates that the incremental cost of Alternatives 2, 3, and 4 in comparison to Alternative 1, are considered disproportionate to their incremental degree of benefits as defined under WAC 173-340-360(3)(e)(i). Therefore, Alternative 1 is the alternative

considered permanent to the maximum extent practicable for the EPM D SWMUs/AOCs. This is because, with the exposures controlled, the substantial cost to perform active treatment is disproportionate to the small additional benefit gained. However, in Section 9, a more permanent remedy (Alternative 4) is recommended based on the presence of NAPL at this SWMU/AOC.

8.5 EXPOSURE PATHWAY MODELS E-F

This section summarizes the results of the comparative DCA analysis for the nine SWMUs/AOCs included in EPMs E and F. The discussion is organized according to the DCA criteria presented in MTCA. EPM E-F includes the following SMWUs/AOCs:

- SWMU/AOC No. 171, Building 40-31
- SWMU/AOC No. 97, Building 40-11
- SWMU/AOC No. 98, Building 40-53
- SWMU/AOC No. 170, Building 40-02
- SWMU/AOC No. 169, Building 40-02
- Former Paint Crib, Building 40-02
- SWMU/AOC No. 54, Building 40-51
- Footing Excavation, Building 40-32
- SWMU/AOC No. 68, Former South Fire Pit (EPM F)

These SWMUs/AOCs exhibit fill soils without perched groundwater and either VOC or TPH contamination. As discussed in the CSM for these EPMs (Section 3.2.5 and 3.2.6), the only complete exposure pathway at these SWMUs/AOCs is a potential construction worker exposure to soil at some SWMUs/AOCs. Where chemical constituents are present in soil above a concentration protective of the direct contact pathway, concrete flooring or pavement currently prevents direct contact by factory workers. Where volatile constituent concentrations in sub-slab vapor exceed the industrial MTCA screening levels, the concentrations are not a current risk to industrial indoor air, either based on Boeing's industrial hygiene evaluation of the interior work spaces, or because the sub-slab vapor detections are outside of existing structures. The EPM E and F SWMUs/AOCs are located in areas without perched groundwater and modeling demonstrates that leaching to the Esperance Sand aquifer will not occur with the building or pavement in place.

Based on the CSM elements described above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM E and F SWMUs/AOCs include:

1. Maintaining the existing containment to prevent future exposures and leaching

2. Soil vapor extraction
3. Future excavation during other site development at the SWMU/AOC
4. Near-term excavation, performed shortly after execution of the CAP

Not all cleanup alternatives in this section are applicable to all SWMUs/AOCs. Limitations are detailed within each alternative description in Section 6.3.5.

Tables 8-7a through 8-15a summarize the ranking criteria for each alternative and indicate the preferred alternative based on the DCA. Tables 8-7b through 8-15b present the relative benefits ranking and the scores used to calculate the overall weighted benefit score for each alternative.

Protectiveness

The comparative protectiveness of the EPMs E-F cleanup alternatives is evaluated in this section and considers the degree to which site risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks during implementation, and improvement of overall environmental quality.

For EPMs E-F SWMUs/AOCs, the only current complete exposure pathway is construction worker exposure to soil. Because all of the alternatives evaluated would include institutional controls to prevent this exposure, as well as future leaching of COCs to deep Esperance Sand groundwater, all of the alternatives are equally protective. Institutional controls would be relied upon until COC concentrations either decline naturally, or until removal technologies reduce COC concentrations to below the cleanup levels.

Permanence

Permanence is the degree of reduction in toxicity, mobility, and volume of hazardous substances, including the reduction or elimination of hazardous substance releases and sources of releases, and the irreversibility of treatment processes. The treatment technologies considered by the soil cleanup alternatives in EPM E-F include, in decreasing order of relative irreversibility, the following:

- Excavation and landfill disposal (which contains contaminants off site in an engineered, lined, and monitored facility)
- SVE (which removes contaminants and allows them to be destroyed or disposed of off site)
- Maintaining containment

The least reversible cleanup alternatives are excavation (with off-site landfill disposal, Alternatives 3 and 4) and SVE (Alternative 2). Excavation alternatives are rated higher than

SVE alternatives because they are expected to remove more COCs from the site than SVE. Alternative 1, Maintain Containment, is rated fourth for permanence, because it does not include active treatment of COCs.

Some SWMUs/AOCs rank SVE alternatives the same as excavation alternatives where inaccessible soil cannot be completely removed by excavation.

Effectiveness Over the Long Term

The long-term effectiveness ratings are based on (a) the certainty that the alternatives will be successful in destroying, disposing of, or containing COCs and (b) the reliability of the alternative during the period of time that COCs remain on site at concentrations exceeding cleanup levels. While some alternatives may have a lower ranking for effectiveness, the reliability may rank highest and vice versa. Based on the combined ratings for the two components of long-term effectiveness, Alternatives 3 and 4 for EPMs E-F are rated as excellent. Overall long-term effectiveness for Alternatives 1 and 2 are good, with Alternative 1 ranking slightly lower than Alternative 2. Individual rankings for the two components are discussed below:

- Comparative effectiveness, based on the DCA criteria descriptions presented in Appendix E, shown in descending order:
    - Alternative 2 – SVE
    - Alternative 4 – Near-Term Excavation
    - Alternative 3 – Future Excavation
    - Alternative 1 – Maintain Containment
- Comparative degree of reliability, shown in descending order:
    - Alternatives 3 and 4 – Future or Near-Term Excavation
    - Alternative 1 – Maintain Containment
    - Alternative 2 – SVE

Alternative 2 rates the highest for effectiveness because it uses destructive technology to remove COCs adsorbed onto the granular activated carbon and then thermally desorbed at an off-site facility. Alternatives 3 and 4 rate slightly lower because they involve off-site disposal of COCs, rather than destruction of COCs, with Alternative 4 ranking higher than Alternative 3 because it has a shorter restoration time frame. Alternative 1 is ranked fourth because it has the longest estimated restoration time frame.

Alternatives 3 and 4 are considered to have excellent degrees of reliability. Although they require significant construction effort, the alternatives rely on the physical removal of at least the accessible contaminants from the site. Alternative 1 is rated third for reliability because it has

the longest estimated restoration time frame. Alternative 2 rates the lowest for reliability, because of the expected poor performance of this technology in glacial soils.

Management of Short-Term Risks

The management of short-term risks includes the risk to human health and the environment during construction and implementation and the effectiveness of measures to manage the risk. The comparative evaluation of short-term risks for the EPMs E-F cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings for each SWMU/AOC are shown in Tables 8-7b through 8-15b.

- Alternative 1 – Maintain Containment
- Alternative 2 – SVE
- Alternative 3 – Future Excavation
- Alternative 4 – Near-Term Excavation

Alternative 1 is ranked highest for this criterion because with no active construction elements, there are no significant risks. Alternative 2 has slightly higher short-term risk than Alternative 1 because drillers installing the SVE wells will have potential exposure to COCs. Alternatives 3 and 4 have the highest short-term risks because of higher potential exposure to COCs during excavation activities, as well as higher construction hazards than the other alternatives. Alternative 4 (Near-Term Excavation) was ranked numerically lower than Alternative 3 (Future Excavation) because the cleanup work will be complicated by working within an operational manufacturing facility, likely under an expedited schedule, which will introduce additional risks from the human tendency to hurry under time pressure. Short-term risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan, but the risks remain higher for active construction than for an alternative with no active construction elements. Short-term risks from Alternatives 2, 3, and 4 also include potential releases to the environment during construction, of either soil or soil vapor containing COCs. These risks can typically be managed effectively through careful design and implementation, however the risks are present.

Technical and Administrative Implementability

Technical and administrative implementability includes the technical feasibility of each alternative and the ability to comply with administrative and regulatory requirements. The comparative evaluation of implementability of the EPMs E-F cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings for each SWMU/AOC are shown in Tables 8-7b through 8-15b.

- Alternative 1 – Maintain Containment
- Alternative 2 – SVE

- Alternative 3 – Future Excavation
- Alternative 4 – Near-Term Excavation

Alternative 1 is the most implementable because it includes only the development and recording of documents, periodic visual inspections, and reporting. Alternative 2 is the next most implementable because construction and operation of an SVE system is comparatively straightforward without significant disruptions to on-site activities. Alternative 3 is rated similar for implementatibility in general because it is assumed to be implemented during a change of operational conditions at the SWMUs/AOCs. For SWMU/AOC No. 170, implementatiblity for future excavation was rated lower than other SWMUs/AOCs because of current floor reconstruction for a critical shop. The new floor will have a very fine grading tolerance and will support an assembly line, which will make replacement difficult in the future if the area were to be excavated. Conversely, Alternative 4 ranks the lowest because it would require significant disruptions to manufacturing operations and require complicated logistics to complete the work. For both excavation alternatives (3 and 4), the implementation ratings are further reduced for SWMUs/AOCs where there are or would be in the future equipment or structural obstacles to site work.

Consideration of Public Concerns

The criteria for consideration of public concerns include whether the community has concerns and the extent to which those concerns are addressed. This criterion will be fully evaluated following receipt of any comments from the public. However, initial rankings were made based on public input on previous projects at the Everett Plant. All of the EPMs E-F alternatives are rated as excellent in regard to public concerns.

Alternatives 1, 2, and 3 rank the highest because they address contaminants at the site without significant impacts to the public. Alternative 4 (Near-Term Excavation) was ranked slightly lower numerically because of potential temporary impacts to traffic and site operations.

Cost

The estimated cost to implement each alternative in EPMs E-F ranges from $0.09 to $79 million and is summarized in Tables 6-5 and 6-6, with backup materials in Appendix D. The range of alternative costs for each individual SWMU/AOC is shown below:

- SWMU/AOC No. 171, Building 40-31: $0.09 to $2.7 million
- SWMU/AOC No. 097, Building 40-11: $0.09 to $0.24 million
- SWMU/AOC No. 098, Building 40-53: $0.09 to $3.6 million
- SWMU/AOC No. 170, Building 40-02: $0.09 to $60 million
- SWMU/AOC No. 169, Building 40-02: $0.09 million
- Former Paint Crib, Building 40-02: $0.09 million

- SWMU/AOC No. 054, Building 40-51: $0.09 to $1.6 million
- Footing Excavation, Building 40-32: $0.09 to $0.58 million
- SWMU/AOC No. 068, South Fire Pit (EPM F): $0.09 to $0.82 million

For all SWMUs/AOCs in EPMs E-F, Alternative 1 (Maintain Containment) is the lowest cost alternative.

Results of Disproportionate Cost Analysis

Based on the comparison of overall benefits to the costs for each of the four alternatives for the EPM E-F SWMUs/AOCs, the DCA indicates that the incremental cost of Alternatives 2, 3, and 4, in comparison to Alternative 1, are considered disproportionate to their incremental degree of benefits as defined under WAC 173-340-360(3)(e)(i). Therefore, Alternative 1 is the alternative considered permanent to the maximum extent practicable for the EPM E-F SWMUs/AOCs. This is because, with the exposures controlled, the substantial cost to perform active treatment is disproportionate to the small additional benefit gained. However, for the reasons discussed in Section 9, Boeing is recommending more permanent remedies for SWMUs/AOCs 097 and 068 (Alternative 4).

8.6 EXPOSURE PATHWAY MODELS G-H

This section summarizes the results of the comparative DCA analysis for the six SWMUs/AOCs included in EPMs G-H. The discussion is organized according to the DCA criteria presented in MTCA. EPMs G-H includes the following SMWUs/AOCs in the vicinity of former USTs or piping:

- SWMU/AOC No. 65, Building 40-51
- UST EV-48-1, Building 40-11
- SWMU/AOC 165, Fuel Farm
- SWMU/AOC No. 83, Former UST EV-15
- SWMU/AOC No. 93, Building 45-01
- SWMU/AOC Nos. 67 and 71, Building 40-56

These SWMUs/AOCs exhibit fill soils without perched groundwater and either VOC, TPH, or metals contamination. As discussed in the CSM for these EPMs (Section 3.2.7 and 3.2.8), the only complete exposure pathway at these SWMUs/AOCs is a potential construction worker exposure to soil at some SWMUs/AOCs. Where chemical constituents are present in soil above a concentration protective of the direct contact pathway, concrete flooring or pavement currently prevents direct contact by factory workers. Where volatile constituents are detected in sub-slab vapor, they do not exceed the industrial MTCA screening levels. The EPM G and H SWMUs/AOCs are located in areas without perched groundwater and modeling demonstrates

that leaching to the Esperance Sand aquifer will not occur with the building or pavement in place.

Based on the CSM elements described above, cleanup technologies retained in the Ecology-approved FSWP were grouped into cleanup alternatives meeting the MTCA criteria for such alternatives (WAC 173-240-350[c][i]). Specific alternatives developed for EPM E and F SWMUs/AOCs include the following:

1. Maintaining the existing containment to prevent future exposures and leaching
2. Future excavation during other site development at the SWMU/AOC
3. Near-term excavation, performed shortly after execution of the CAP

Not all of these alternatives are applicable to all SWMUs/AOCs within EPMs G-H (see Section 6).

Tables 8-16a through 8-21a summarize the ranking criteria for each alternative and indicate the preferred alternative based on the DCA. Tables 8-16b through 8-21b present the relative benefits ranking and scores used to calculate the overall weighted benefit score for each alternative.

Protectiveness

The comparative protectiveness of the EPMs G-H cleanup alternatives is evaluated in this section and considers the degree to which site risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks during implementation, and improvement of overall environmental quality.

For the EPMs G-H SWMUs/AOCs, the only current complete exposure pathway is construction worker exposure to soil. Because all of the alternatives evaluated would include institutional controls to prevent this exposure, as well as future leaching of COCs to deep Esperance Sand groundwater, all of the alternatives are equally protective. Institutional controls would be relied upon until COC concentrations either decline naturally, or until removal technologies reduce COC concentrations to below the cleanup levels.

Permanence

Permanence is the degree of reduction in toxicity, mobility, and volume of hazardous substances, including the reduction or elimination of hazardous substance releases and sources of releases, and the irreversibility of treatment processes. The treatment technologies considered by the soil cleanup alternatives in EPMs G-H include, in decreasing order of relative irreversibility, the following:

- Excavation and landfill disposal (which contains contaminants off site in an engineered, lined, and monitored facility)

- Maintaining containment

Alternatives 2 and 3 (Future or Near-Term Excavation), which rely on off-site landfill disposal for all or the majority of the target volume, are the most irreversible. Alternative 1 (Maintain Containment or Limited Excavation and Maintain Containment for SWMU/AOC No. 165) is considered the least irreversible (i.e., most reversible), because it has the longest estimated restoration time frame.

Effectiveness Over the Long Term

The long-term effectiveness ratings are based on (a) the certainty that the alternatives will be successful in destroying, disposing of, or containing COCs and (b) the reliability of the alternative during the period of time that COCs remain on site at concentrations exceeding cleanup levels. While some alternatives may have a lower ranking for effectiveness, the reliability may rank highest and vice versa. Based on the combined ratings for the two components of long-term effectiveness, Alternatives 2 and 3 for EPMs G-H are rated as excellent. Overall long-term effectiveness for Alternative 1 is rated as good. Individual rankings for the two components are summarized below.

- Comparative effectiveness, based on the DCA criteria descriptions presented in Appendix E, shown in descending order:
    - Alternative 3 – Near-Term Excavation
    - Alternative 2 – Future Excavation
    - Alternative 1 – Maintain Containment
- Comparative degree of reliability, shown in descending order:
    - Alternatives 2 and 3 – Future or Near-Term Excavation
    - Alternative 1 – Maintain Containment

Alternatives 2 and 3 rate the highest for effectiveness because they involve off-site disposal of COCs. Alternative 2 (Future Excavation) is rated slightly lower than Alternative 3 (Near-Term Excavation) because Alternative 3 would be implemented as soon as practical after execution of the CAP. Alternative 1 is ranked third for effectiveness because it has the longest estimated restoration time frame. The effectiveness of Alternative 1 for SWMU/AOC 15, Fuel Farm is scored lower than for other SWMUs/AOCs because of the likelihood that free product may extend beneath inaccessible areas.

Alternatives 2 and 3 are considered to have excellent reliability. Although they involve a significant construction effort, these alternatives result in physical removal of contaminants from the site. Alternative 1 is ranked third for reliability because it has the longest estimated restoration time frame.

Management of Short-Term Risks

The management of short-term risks includes the risk to human health and the environment during construction and implementation and the effectiveness of measures to manage the risk. The comparative evaluation of short-term risks for the EPMs G-H cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings for each SWMU/AOC are shown in Tables 8-16b through 8-21b.

- Alternative 1 – Maintain Containment
- Alternative 2 – Future Excavation
- Alternative 3 – Near-Term Excavation

Alternative 1 is ranked highest for this criterion because with no active construction elements, there are no significant risks. Alternatives 2 and 3 have the highest short-term risks because of higher potential exposure to COCs during excavation activities, as well as higher construction hazards than the other alternatives. Alternative 3 (Near-Term Excavation) was ranked numerically lower than Alternative 2 because the cleanup work will be complicated by working within an operational manufacturing facility, likely under an expedited schedule, which will introduce additional risks.

SWMU/AOC No. 165 does not have a maintain containment alternative (typically Alternative 1). Instead, Alternative 1 for SWMU/AOC No. 165 (Limited Excavation and Maintain Containment) includes components of both Alternatives 1 and 3 as developed for other SWMUs/AOCs. The rating for short-term risks for this alternative is considered to be excellent, as it requires excavation in only one area of the site and low-risk institutional controls for the remaining SWMUs/AOCs. Short-term risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan, but the risks remain higher for active construction than for an alternative with no active construction elements. Short-term risks from Alternatives 2 and 3 also include potential releases to the environment during construction, of either soil or soil vapor containing COCs. These risks can typically be managed effectively through careful design and implementation, however the risks are present.

Technical and Administrative Implementability

Technical and administrative implementability includes the technical feasibility of each alternative and the ability to comply with administrative and regulatory requirements. The comparative evaluation of implementability of the EPMs G-H cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings for each SWMU/AOC are shown in Tables 8-16b through 8-21b.

- Alternative 1 – Maintain Containment
- Alternative 2 – Future Excavation

- Alternative 3 – Near-Term Excavation

Alternative 1 is the most implementable because it includes only the development and legal recording of documents, periodic visual inspections, and reporting. Alternative 2 is rated as excellent because it is assumed to be implemented during a change of operational conditions at the SWMUs/AOCs. Conversely, Alternative 3 ranks the lowest because it would require significant disruptions to manufacturing operations and require complicated logistics to complete the work. For both excavation alternatives (2 and 3), the implementation ratings are further reduced for SWMUs/AOCs where there are or would be in the future equipment or structural obstacles to site work.

For SWMU/AOC No. 165, implementability for Alternative 1 (Limited Excavation and Maintain Containment) is rated as good. The work would be completed in conjunction with future substation upgrades, which would allow better access for excavation and would also likely prevent the need to work around high, live voltages.

Consideration of Public Concerns

The criteria for consideration of public concerns include whether the community has concerns and the extent to which those concerns are addressed. This criterion will be fully evaluated following receipt of any comments from the public. However, initial rankings were made based on public input on previous projects at the Everett Plant. Individual rankings are shown from highest to lowest:

- Alternatives 1 and 2 – Maintain Containment and Future Excavation
- Alternative 3 – Near-Term Excavation

Alternatives 1 and 2 rank the highest because they address contaminants at the site without significant impact to the public. Alternative 3 was ranked slightly lower because of potential disruptions to site operations and temporary traffic on and off site.

For SWMU/AOC No. 165, Alternative 1 (Limited Excavation and Maintain Containment) is assumed to rate excellent in regard to public concerns. While the area would be temporarily impacted by construction, the cleanup excavation would be completed concurrently with other site redevelopment work.

Cost

The estimated cost to implement each alternative in EPMs G-H ranges from $0.09 to $22 million and is summarized in Tables 6-7 and 6-8, with backup materials in Appendix D. The range of alternative costs for each individual SWMU/AOC is shown below:

- SWMU/AOC No. 065, Building 40-51: $0.09 to $0.87 million

- Building 40-11, UST EV-48-1: $0.09 to $1.5 million
- SWMU/AOC No. 165, Building 45-52: $0.68 to $4.6 million
- SWMU/AOC No. 083, Former UST EV-15: $0.09 to $0.33 million
- SWMU/AOC No. 093, Building 45-01 (EPM H): $0.09 to $0.39 million
- SWMU/AOC Nos. 067 and 071, Building 40-56 (EPM H): $0.09 to $22 million

For all SWMUs/AOCs in EPMs G-H, Alternative 1 (Maintain Containment or, for SWMU/AOC 165, Limited Excavation and Maintain Containment) is the lowest cost alternative.

Results of Disproportionate Cost Analysis

Based on the comparison of overall benefits to the costs for each of the three alternatives for the EPM G-H SWMUs/AOCs, the DCA indicates that the incremental cost of Alternatives 2 and 3, in comparison to Alternative 1, are considered disproportionate to their incremental degree of benefits as defined under WAC 173-340-360(3)(e)(i). Therefore, Alternative 1 is the alternative considered permanent to the maximum extent practicable for the EPM G-H SWMUs/AOCs. This is because, with the exposures controlled, the substantial cost to perform active treatment is disproportionate to the small additional benefit gained. However, for the reasons discussed in Section 9, Boeing is recommending more permanent remedies for Building 40-11, UST EV-48-1 (Alternative 2).

8.7 EXPOSURE PATHWAY MODEL I

This section summarizes the results of the comparative DCA analysis for Esperance Sand Well EGW061, which exhibits elevated arsenic in deep Esperance Sand groundwater. As discussed in the CSM for this SWMU/AOC, the relatively higher arsenic concentrations in the native Esperance Sand aquifer materials in this area may be a natural condition and not the result of a release. The only complete exposure pathway for this AOC is future drinking water.

The Esperance Sand aquifer is known to be highly productive, as demonstrated locally by the relatively high pumping rates at the GET system currently operating in PMG. On this basis, pumping of groundwater from the vicinity of well EGW061 for the purposes of containing or treating groundwater exhibiting elevated arsenic would likely generate very large volumes of water. The benefits of pumping groundwater at this SWMU/AOC would be minimal, because there is no currently or likely future exposure pathway.

Treatment of groundwater at this SWMU/AOC is screened out as clearly disproportionately costly per WAC 173-240-350(8)(b)(i). Because only a single alternative (institutional controls and continued groundwater monitoring) was considered for this SWMU/AOC, no DCA was performed. The alternative cost for Esperance Sand Well EGW061 is approximately $0.38 million.

8.8 EXPOSURE PATHWAY MODEL J

This section summarizes the results of the comparative DCA analysis for SWMU/AOC No. 100, Former Gun Club, included in EPM J. The discussion is organized according to the DCA criteria presented in MTCA. EPM J is located outside of the fenced portion of the facility and exhibits cPAHs and lead in shallow soil and sediment (typically the upper 6 inches of soil). The currently complete exposure pathways consist of human direct contact with soil, sediment, and perched groundwater, as well as ecological exposures. Perched groundwater at EPM J SWMUs/AOCs is nonpotable (see Section 5.1.4), and concentrations of chemical constituents in the perched groundwater do not exceed the risk-based cleanup levels proposed in this FS for nonpotable perched groundwater.

The alternatives developed in this FS consider that most of the remaining contaminated area at the Former Gun Club consists of an undeveloped, mature, forested wetland, with some of the cleanup area within the buffer of the Boeing Lake mitigation wetland. In situ technologies were considered as part of cleanup level development (such as in situ stabilization), but were rejected because they could not be implemented without destroying the wetland characteristics of the soil. The two cleanup alternatives developed were variants of excavation:

1. Limited excavation with containment and institutional controls, which would attempt to preserve the larger trees in the mature forest in place

2. Comprehensive excavation

Table 8-23a summarizes the ranking criteria for each alternative and indicates the preferred alternative based on the DCA. Table 8-23b presents the relative benefits ranking and scores used to calculate the overall weighted benefit score for each alternative.

Protectiveness

The comparative protectiveness of the EPM J cleanup alternatives is evaluated in this section and considers the degree to which site risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks during implementation, and improvement of overall environmental quality.

For the EPM J SWMU/AOC, the current complete exposure pathways are ecological exposure to soil and sediment or construction worker exposure to soil and sediment. The alternatives evaluated for this SWMU/AOC include either institutional controls and excavation, or excavation alone to prevent these exposures. Both alternatives are therefore equally protective. Under Alternative 1, the majority of soil and sediment exceeding cleanup levels would be excavated and disposed of off site, and institutional controls would be relied upon for soil left in place. Under Alternative 2, all soil and sediment exceeding cleanup levels would be excavated.

Permanence

Permanence is the degree of reduction in toxicity, mobility, and volume of hazardous substances, including the reduction or elimination of hazardous substance releases and sources of releases, and the irreversibility of treatment processes. The treatment technologies considered by the soil cleanup alternatives in EPM J include, in decreasing order of relative irreversibility, the following:

- Excavation and landfill disposal (which contains contaminants off site in an engineered, lined, and monitored facility)
- Maintaining containment and institutional controls

Alternative 2, comprehensive excavation, is the most irreversible because it would remove all COCs in soil and sediment. Alternative 1, limited excavation with institution controls, is considered more reversible, because it relies on on-site containment and institutional controls for all COCs exceeding the cleanup levels in soil and sediment following partial excavation.

Effectiveness Over the Long Term

The long-term effectiveness ratings are based on (a) the certainty that the alternatives will be successful in destroying, disposing of, or containing COCs and (b) the reliability of the alternative during the period of time that COCs remain on site at concentrations exceeding cleanup levels. Based on the combined ratings for the two components of long-term effectiveness, the two EPM J alternatives are rated as excellent. Individual rankings are summarized below:

- The comparative effectiveness is based on the DCA criteria descriptions presented in Appendix E. Both Alternatives 1 and 2 are considered to have an excellent degree of effectiveness based on their ability to remove the majority of COCs for off-site disposal.
- The degree of reliability for both alternatives is also considered excellent. While each alternative requires a considerable construction effort in addition to containment and/or institutional controls, both Alternatives 1 and 2 are likely to have a high degree of reliability in the long-term.

Management of Short-Term Risks

The management of short-term risks includes the risk to human health and the environment during construction and implementation and the effectiveness of measures to manage the risk. The comparative evaluation of short-term risks for the EPM J cleanup alternatives rates similarly for Alternatives 1 and 2. Individual rankings are shown in Table 8-23b.

The short-term risks for Alternatives 1 and 2 are largely based on the active construction that each alternative includes. While the containment and institutional components are not considered to impose any significant short-term risks, there is risk associated with the excavation activities exposing workers to COCs and heavy equipment. The overall short-term risks for both alternatives are therefore rated as good. Limited excavation has a lower numerical score because of hazards associated with working around the trees and root systems that will remain in place during the work. Short-term risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan, but the risks remain higher for active construction than for an alternative with no active construction elements. Short-term risks from Alternatives 1and 2 also include potential releases to the environment during construction, of soil containing COCs. These risks can typically be managed effectively through careful design and implementation, however the risks are present.

Technical and Administrative Implementability

Technical and administrative implementability includes the technical feasibility of each alternative and the ability to comply with administrative and regulatory requirements. The comparative evaluation of implementability of the EPM J cleanup alternatives is shown below by listing the alternatives in descending order. Individual rankings are shown in Table 8-23b.

- Alternative 2 – Comprehensive Excavation
- Alternative 1 – Limited Excavation

Alternative 2 is the most implementable because it involves conventional excavation and backfilling. Alternative 1 also involves excavation and backfill. However, the work would be executed in a way that would preserve the majority of large established trees throughout Area B. The ability to work around the trees without disturbing their immediate root zone would therefore be more difficult to implement than conventional excavation, where larger and more efficient equipment could be used. Both alternatives would also involve wetland and forest restoration work that would require careful implementation.

Consideration of Public Concerns

The criteria for consideration of public concerns include whether the community has concerns and the extent to which those concerns are addressed. This criterion will be fully evaluated following receipt of any comments from the public. However, initial rankings were made based on public input on previous projects at the Everett Plant.

Alternatives 1 and 2 are considered to rate as excellent in regard to public concerns. Both alternatives address contaminants at the site, while also causing temporary disruptions to traffic on and off site during excavation work. While Alternative 2 involves slightly more excavation

work, including excavation in the Area C parking lot, the overall magnitude of excavation is similar for both alternatives.

Cost

The estimated cost to implement each alternative in EPM J for SWMU/AOC No. 100 is summarized in Tables 6-10, with backup materials in Appendix D. The range of alternative costs for SWMU/AOC No. 100, Former Gun Club, is $4.3 to $5.0 million.

For EPM J, Alternative 2 (Comprehensive Excavation) is the lowest cost alternative.

Results of Disproportionate Cost Analysis

Based on the comparison of overall benefits to the costs for the two alternatives for SWMU/AOC 100, Former Gun Club, the DCA indicates that the incremental cost of the most permanent alternative, Alternative 2, is not disproportionate to Alternative 1.

8.9 EXPOSURE PATHWAY MODEL K

This section summarizes the results of the comparative DCA analysis for the PMG SWMU included in EPM K. The discussion is organized according to the DCA criteria presented in MTCA. EPM K includes one SWMU with VOCs in groundwater and surface water and has potential human and ecological receptors. Four alternatives were developed for EPM K.

Table 8-24a summarizes the ranking criteria for each alternative and indicates the preferred alternative based on the DCA. Table 8-24b presents the relative benefits ranking and the scores used to calculate the overall weighted benefit score for each alternative.

The scores of all four alternatives are similar because all the alternatives incorporate continued operation of the GET system as a primary cleanup component supplemented with institutional controls. Alternatives 2, 3, and 4 provide additional cleanup measures, using bioremediation or ISCO at specific areas within the plume, to potentially enhance the benefits of GET system operation. As reflected by the scores for Alternatives 2, 3, and 4, there is uncertainty in the optimal configuration and application of bioremediation or ISCO in these alternatives, and hence uncertainty regarding the relative benefit of ISCO or bioremediation as a supplement to GET system operation. There is also uncertainty regarding the potential for ISCO or bioremediation to create conditions that decrease the effectiveness of the GET system, such as biofouling of well screens or the treatment system or increased downgradient migration of degradation products. These uncertainties are discussed within the context for each of the DCA criteria.

Protectiveness

The comparative protectiveness of the EPM K cleanup alternatives is evaluated in this section and considers the degree to which site risks are reduced, the time required to reduce risk at the facility and attain cleanup standards, risks during implementation, and improvement of overall environmental quality. For the EPM K/PMG SWMU, the only current complete exposure pathway is ecological exposure to surface water. Potential exposure pathways also include human exposure through use of groundwater as drinking water and human exposure through consumption of organisms from surface water. All of the alternatives evaluated for this SWMU include engineered systems and institutional controls to prevent these exposures. The overall protectiveness and associated considerations for each alternative are as follows:

- Alternative 1: Excellent

  The already low site risks will continue to be reduced through the gradual reduction in contaminant concentrations from operating the GET system. The improvement in overall environmental quality (restoration time frame) under this alternative will be slow because of the long duration of the remedy; however, long restoration time frames are anticipated for all the alternatives due to the size of the plume and the diffusion limited processes that are inherent to the restoration process. Since source area remediation has already been conducted and the elements of the GET system for this alternative have already been constructed and are operating as a part of the IAs, contaminant concentrations are already being reduced through these actions. Therefore, the reduction of risk during implementation of this alternative will primarily be through implementation of the institutional controls.

- Alternative 2: Excellent

  Alternative 2, though similar to Alternative 1, differs in that EISB will be applied in the source area to address contamination remaining under the detention basin at concentrations greater than 500 µg/L. This additional treatment is anticipated to reduce the anticipated restoration time frame in some areas of the plume, but sitewide cleanup of the entire plume under Alternative 2 will still be gradual and slow. Additionally, source area treatment will not significantly reduce risk to human health and the environment. As with Alternative 1, most of the risk reduction will be through implementation of the institutional controls.

- Alternative 3: Excellent

  Alternative 3 would be similar to Alternative 1 with additional remediation provided via application of ISCO to a focused area. If an appropriate area could

be identified for ISCO, this alternative would provide significant reduction of the time required to reduce risk and achieve cleanup standards, compared to Alternatives 1 and 2, since cleanup would be predicted to take approximately half the time, as chemical oxidation will be used to treat contaminants in TCE focus areas. Alternative 3 has slightly higher implementation risks than Alternatives 1 and 2 because of the potential to discharge injection fluids to wetlands or PMC. However, appropriate implementation methods (i.e., keeping injection locations sufficiently distant from surface water discharge locations and monitoring) would be used to minimize this risk.

- Alternative 4: Excellent

  Alternative 4 would be similar to Alternative 3 with additional focused remediation provided via EISB rather than ISCO. The protectiveness of Alternative 4 is very similar to Alternative 3, as both treat the source area and TCE focus areas and reduce the total restoration time frame, if an appropriate area for application could be determined for using EISB. Though different injection fluids are used for EISB than for ISCO, there is still the potential for fluids to discharge to the surface in wetlands or PMC. Like Alternative 3, appropriate implementation methods would be used to minimize this risk.

Permanence

Permanence is the degree of reduction in toxicity, mobility, and volume of hazardous substances, including the reduction or elimination of hazardous substance releases and sources of releases, and the irreversibility of treatment processes. The overall permanence and associated considerations for each alternative are as follows:

- Alternative 1: Good

  Alternative 1 provides a moderate level of permanence because, though it requires ex situ treatment of groundwater, it eventually results in the permanent reduction and removal of contaminant mass from the aquifer, while simultaneously inhibiting plume mobility.

- Alternative 2: Excellent

  Alternative 2 is slightly more permanent than Alternative 1, as it provides additional in situ contaminant destruction of remaining mass in the source area. The in situ treatment process using the stimulation of biological reductive dechlorination through EISB is irreversible, ultimately degrading the contaminants down to benign breakdown products. Additionally, like

Alternative 1, mass from the rest of the plume will be removed and immobilized using the GET system.

- Alternative 3: Excellent

  Alternative 3 provides a high level of permanence as the contaminant source area and TCE focus areas will be targeted with chemical oxidation through ISCO for permanent destruction of contaminant mass into innocuous breakdown products, reducing the overall plume toxicity and mobility. Like the other alternatives, contaminant mass from the rest of the plume will be removed and immobilized using the GET system.

- Alternative 4: Excellent

  Alternative 4 provides an equally high level of permanence as Alternative 3. However, contaminant mass located in the source area and TCE focus areas will be destroyed using biologically stimulated reductive dechlorination through EISB, instead of chemical oxidation.

Effectiveness Over the Long-Term

The long-term effectiveness ratings are based on (a) the certainty that the alternatives will be successful in destroying, disposing of, or containing COCs and (b) the reliability of the alternative during the period of time that COCs remain on site at concentrations exceeding cleanup levels. The rankings for effectiveness over the long-term and associated considerations for each alternative for EPM K are summarized below:

- Alternative 1: Good

  Alternative 1 has a good degree of certainty that the remedy will be successful based on current GET system trends and contaminant concentrations. Some uncertainty exists regarding the time frame that will be required for aquifer flushing to reach cleanup levels. GET system operation has already proven to be reliable, with minimal shutdowns required, and involves minimal risk to operate. There are established protocols in place to ensure proper disposal of treated groundwater and contaminated granular activated carbon being used to sorb the TCE, and its degradation byproducts, after the contaminant mass is removed from the aquifer. Remaining residual risk will be managed through institutional controls, which can be applied and monitored across the properties owned by Boeing and the City. While ecological contact with/ingestion of surface water in PMC and potential human consumption of organisms from PMC may be difficult to enforce and control, the risk of short term and infrequent exposure under these

scenarios is very low. While the ability to implement, monitor and enforce the institutional controls may not be possible at the Panattoni and CRISTA Ministries properties, it is unlikely that drinking water wells would be installed (i.e., that a complete exposure pathways would be created) due to the commercial nature of activities on these properties and availability of a municipal water supply.

- Alternative 2: Excellent

  Alternative 2 has slightly more certainty of success than Alternative 1 in certain areas of the plume, but with creased potential for possible adverse effects downgradient, like greater occurrence of degradation products. This is because the high TCE concentrations in the source area will be treated using EISB to reduce ongoing contributions of contamination to the plume. However, incomplete biodegradation may create more vinyl chloride downgradient. Also, EISB is a technology that has s success for source area treatment when implemented appropriately. Like Alternative 1, the reliability of the GET system and protocols in place for GAC disposal provide a high degree of confidence in the operation of the GET system. Additionally, the effectiveness and the related risk of the institutional controls for Alternatives 1 and 2 are essentially equal, except that the duration that the institutional controls are necessary would likely be reduced if EISB is applied appropriately and no adverse downgradient impacts were created.

- Alternative 3: Excellent

  Alternative 3 could provide an increased effectiveness as compared to Alternatives 1 and 2, because it will oxidize groundwater contaminants located in the source area and TCE focus areas and reduce ongoing sources of contamination to the plume. Like the rest of the alternatives, Alternative 3 relies significantly on the existing GET system, which has proven to be reliable and has effective protocols in place to manage risk and waste. However, this alternative has some risk of fouling the extraction well screens with the iron activation agent, or through stimulation of increased biological activity and impacting the effectiveness of the GET system. Additionally, Alternative 3 also relies upon these institutional controls used in the other alternatives, with the same certainties and limitations described under Alternatives 1 and 2, except that the duration that the institutional controls are necessary will be further reduced.

- Alternative 4: Excellent

  Alternative 4 provides a similar level of effectiveness over the long term and similar potential problems as Alternative 3. Though Alternative 4 is very similar

to Alternative 3 in this category, EISB has already been proven effective in the source area at the site and should be effective in other areas of implemented appropriately. Additionally, sodium persulfate, the selected oxidant for Alternative 3, has a shorter treatment duration than potential EISB injection fluids, and, accordingly, ISCO may not provide as much residual treatment for contaminants desorbing from silts and clays in TCE focus area locations. However, there is a slightly higher risk associated with this alternative than for Alternative 3 for fouling the well screens of the GET system extraction wells with electron donor solution and organic material associated biological growth, and consequently impacting the effectiveness of the GET system.

Management of Short-Term Risks

The management of short-term risks includes the risk to human health and the environment during construction and implementation and the effectiveness of measures to manage the risk. The management of short-term risks and associated considerations for each alternative are as follows:

- Alternative 1: Superior

  The ability to manage short-term risks associated with Alternative 1 is high because the infrastructure required for this alternative has already been constructed, and the risk related to long-term O&M is minimal.

- Alternative 2: Superior

  The ability to manage short-term risks associated with Alternative 2 is relatively high because of the low risks associated with worker safety during injection well drilling and electron donor injection events, which include the injection of nontoxic and nonhazardous substances. Though both drilling and injection events have some inherent risks, these risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan.

- Alternative 3: Good

  The ability to manage short-term risks associated with Alternative 3 is moderate because of the quantity of risks associated with the work required to construct and implement Alternative 3. These risks are associated with clearing paths and drilling on steep, forested slopes; installation of a relatively high number of injection wells; and transportation, handling, and injection of chemical oxidants, which can be highly reactive. Drilling and injection events have some inherent risks, which are increased with volume and the nature of the oxidants. However,

these risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan.

- Alternative 4: Excellent

  The ability to manage short-term risks for Alternative 4 is moderately high. Though Alternative 4 requires construction and implementation tasks similar to that of Alternative 3, it has less risk for the following reasons:

  - Significantly fewer injection wells will be required for EISB, which results in less drilling and site preparation activities (i.e., fewer paths will need to be cleared).
  - The injection fluids that will be used for EISB are not reactive and do not pose the same risks to workers as those used for ISCO.
  - It is likely that EISB will require approximately half the number of injection events as ISCO to achieve the same treatment levels, thus further reducing the risk to workers.

  Again, drilling and injection events have some inherent risks. However, these risks can be minimized by experienced work crews working under the guidance of a site-specific health and safety plan.

Technical and Administrative Implementability

Technical and administrative implementability includes the technical feasibility of each alternative and the ability to comply with administrative and regulatory requirements. All four cleanup alternatives would be technically and administratively implementable for EPM K. The overall level of implementability and associated considerations for each alternative are as follows:

- Alternative 1: Superior

  As the infrastructure required for Alternative 1 has already been constructed, there is no additional technical work to be completed. No significant hurdles are anticipated for implementation of the institutional controls proposed for Alternative 1. This is primarily because the plume is largely located on Boeing and City properties. Since the water table is over 100 feet deep on the Panattoni and CRISTA Ministries properties, the only potentially relevant exposure pathway for these properties is the use of groundwater as a drinking water source. However, use of a shallow well for drinking water in the City of Everett is not a common practice as the City provides municipal water service to residential and

commercial customers within the City limits. Thus, administration of the institutional controls for these two properties should not be necessary.

- Alternative 2: Excellent

  Like Alternative 1, much of the infrastructure required for Alternative 2 has already been constructed. However, additional work will be required to install the injection wells and complete the source area injections that make the technical implementability of Alternative 2 more difficult than for Alternative 1. The primary technical (and worker safety) challenge for this alternative is the need to install injection wells or donor borings in an active stormwater detention basin that will require dewatering and the need to quickly vacate the basin if precipitation begins during construction or during an injection event. Construction will also require installation of injection wells/donor borings on the steep side slopes of the detention basin. Though all of these challenges are manageable, the cumulative effect is to reduce the technical implementability of Alternative 2 relative to Alternative 1.

  The administrative implementation of Alternative 2 is essentially identical as that for Alternative 1, with the added requirement of obtaining underground injection control permits, which is not anticipated to pose any obstacles.

- Alternative 3: Good

  Like the other alternatives, a large portion of the infrastructure required for Alternative 3 has already been implemented as a part of the downgradient plume IA. However, Alternative 3 will require the installation of approximately 157 injection wells, many located on steep, forested slopes. The installation of these wells will require clearing trees and grading to allow a drill rig access to the injection well locations. Though completion of this work is technically feasible, a significant number of technical challenges should be anticipated during the implementation of Alternative 3. Like Alternative 2, there is the potential to encounter some obstacles during the actual injection events. Because of the number of injection locations required for this alternative, the use of a reactive substance that requires an activating agent, and that ISCO will likely require more injection events than EISB, it should be expected that the number of technical challenges encountered for the Alternative 3 injection events would be higher than for Alternative 2.

  The administrative challenges anticipated for Alternative 3 are similar to those for Alternative 2, with the added requirement of obtaining a clearing and grading permit. This permit would be to construct the drilling paths and should be

obtained relatively easily, though the City may be resistant to the degree of clearing that will be necessary on Lot 9 to install the injection wells.

- Alternative 4: Good

  Technical: Alternative 4 has similar technical hurdles as Alternative 3. However, as Alternative 4 is expected to require fewer injection wells as Alternative 3, the difficulty in implementing Alternative 4 is expected to be reduced. Also, as EISB will likely require fewer injections than required for ISCO, and utilizes nonreactive, nontoxic substances, it is reasonable to anticipate fewer issues for the implementation of this portion of the alternative.

  Administrative: Administrative challenges for Alternative 4 are similar to those expected for Alternative 3, but to a lesser degree because of the reduction of site disturbance activities.

Consideration of Public Concerns

The criteria for consideration of public concerns include whether the community has concerns and the extent to which those concerns are addressed. This criterion will be fully evaluated following receipt of any comments from the public. However, initial rankings for each alternative were made based on the impact each alternative would have on the following issues that have been previously expressed by the BBNC:

- Impact to vegetation and wildlife on the City property and how it would affect recreational enjoyment of the property
- Access and availability of the City property for recreational use
- Risk to people and pets coming into contact with contaminated surface water

Accordingly, each alternative has been ranked relative to its impact on vegetation on City property, use and access to the property, and risk to people and pets as follows:

- Alternative 1: Superior

  There will be no additional impact to vegetation on City property, use of the City property will not be further restricted because of construction activities, and risk to people and pets will be further reduced with time. Administrative controls on the City property should not significantly reduce use and enjoyment of the property.

- Alternative 2: Superior

  Similar to Alternative 1, there will be no additional impact to vegetation on City property, use of the City property will not be further restricted because of construction activities, and risk to people and pets will be further reduced with time. Administrative controls on the City property should not significantly reduce use and enjoyment of the property.

- Alternative 3: Excellent

  There will be a fair amount of clearing and grading required for the installation of injection wells and limited restricted access because of construction and injection activities. However, risks to people and pets should be reduced with time. Administrative controls on the City property should not significantly reduce use and enjoyment of the property.

- Alternative 4: Superior

  There will be some clearing and grading required on City property for the installation of injection wells and limited restricted access because of construction and injection activities. However, risks to people and pets should be reduced with time. Administrative controls on the City property should not significantly reduce use and enjoyment of the property.

Cost

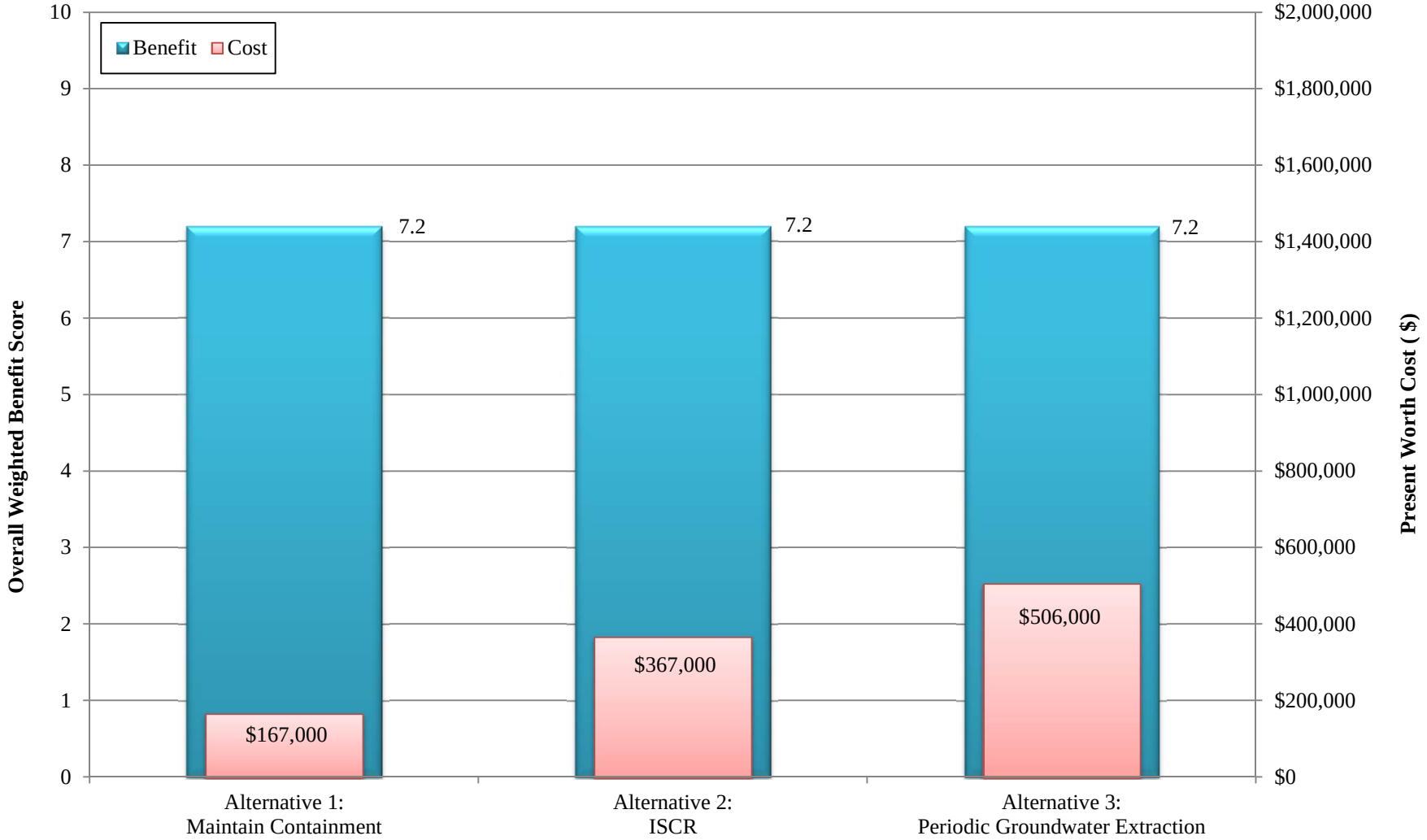
The estimated cost to implement each alternative in EPM K for the PMG SWMU is summarized in Table D-11 in Appendix D. The range of alternative costs is $10.7 to $16.9 million.

For EPM K, Alternative 1 (GET with Institutional Controls) is the lowest cost alternative.

Results of Disproportionate Cost Analysis

Based on the comparison of overall benefits to the costs for each of the four alternatives for the PMG SWMU, the DCA indicates that the incremental cost of Alternatives 2, 3, and 4, in comparison to Alternative 1, are considered disproportionate to their incremental degree of benefits as defined under WAC 173-340-360(3)(e)(i). Therefore, Alternative 1 is the alternative considered permanent to the maximum extent practicable for the PMG SWMU.

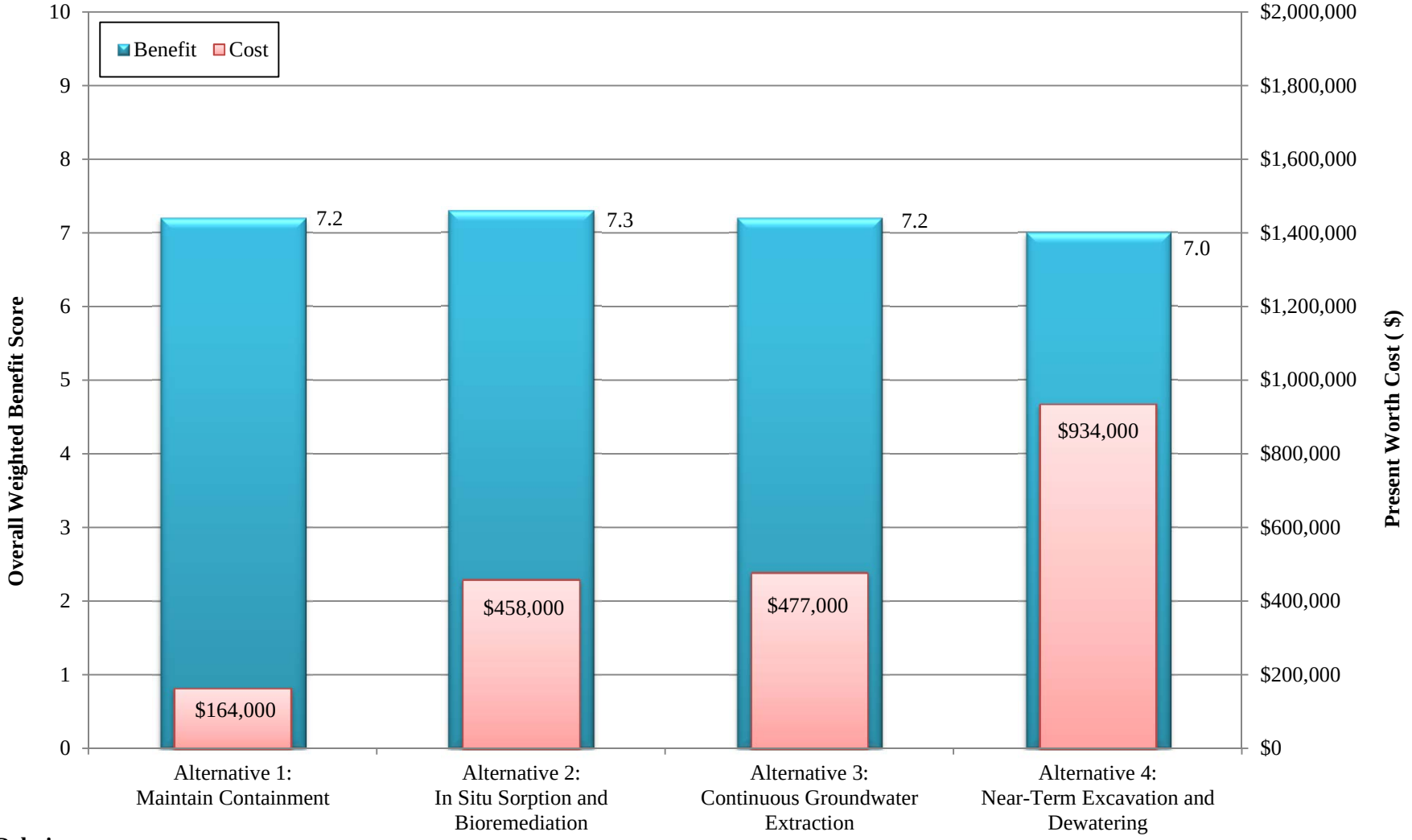
Figure 8-1
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 090, Building 40-51, Former UST EV-11



Relative Benefit/Cost Ratio:	**7.2**	**3.3**	**2.4**

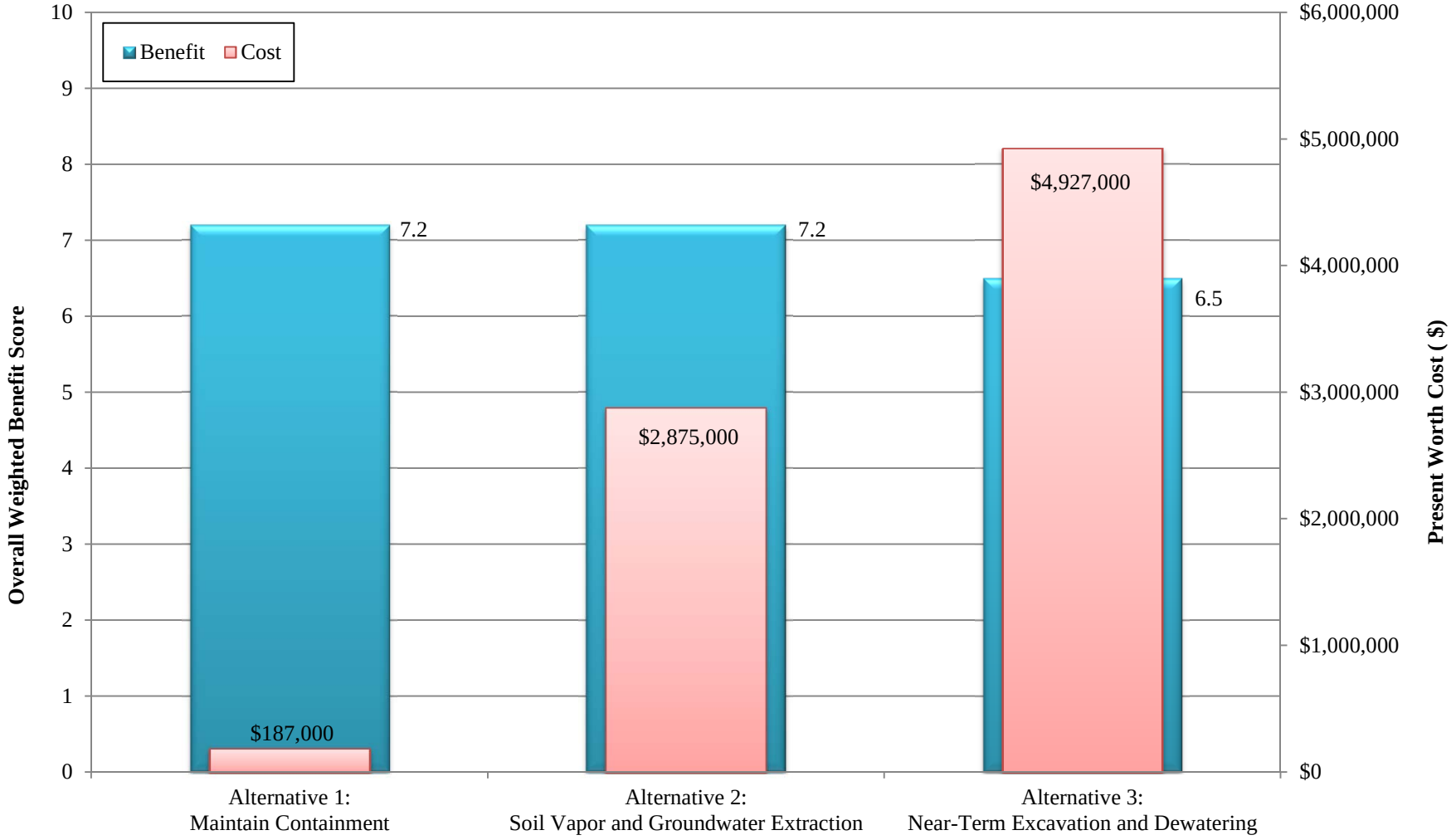
Cleanup Alternative

Figure 8-2
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 112, Building 40-11, Oil/Water Separator



Relative Benefit/Cost Ratio:	**7.2**	**2.6**	**2.5**	**1.2**

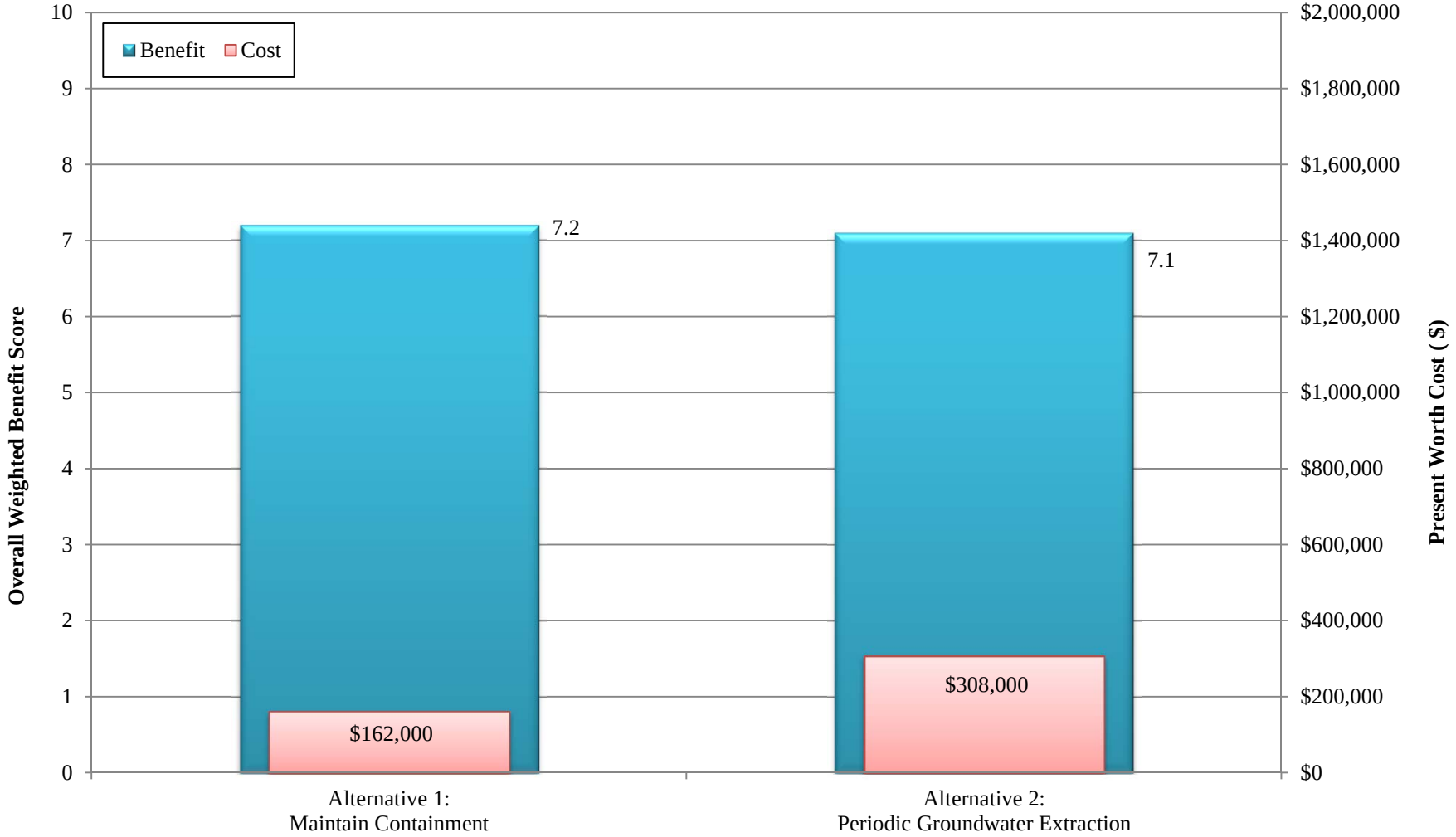
Figure 8-3
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC Nos. 086, 089, 094, Building 40-56, Former USTs



Relative Benefit/Cost Ratio:	**7.2**	**0.5**	**0.2**

Cleanup Alternative

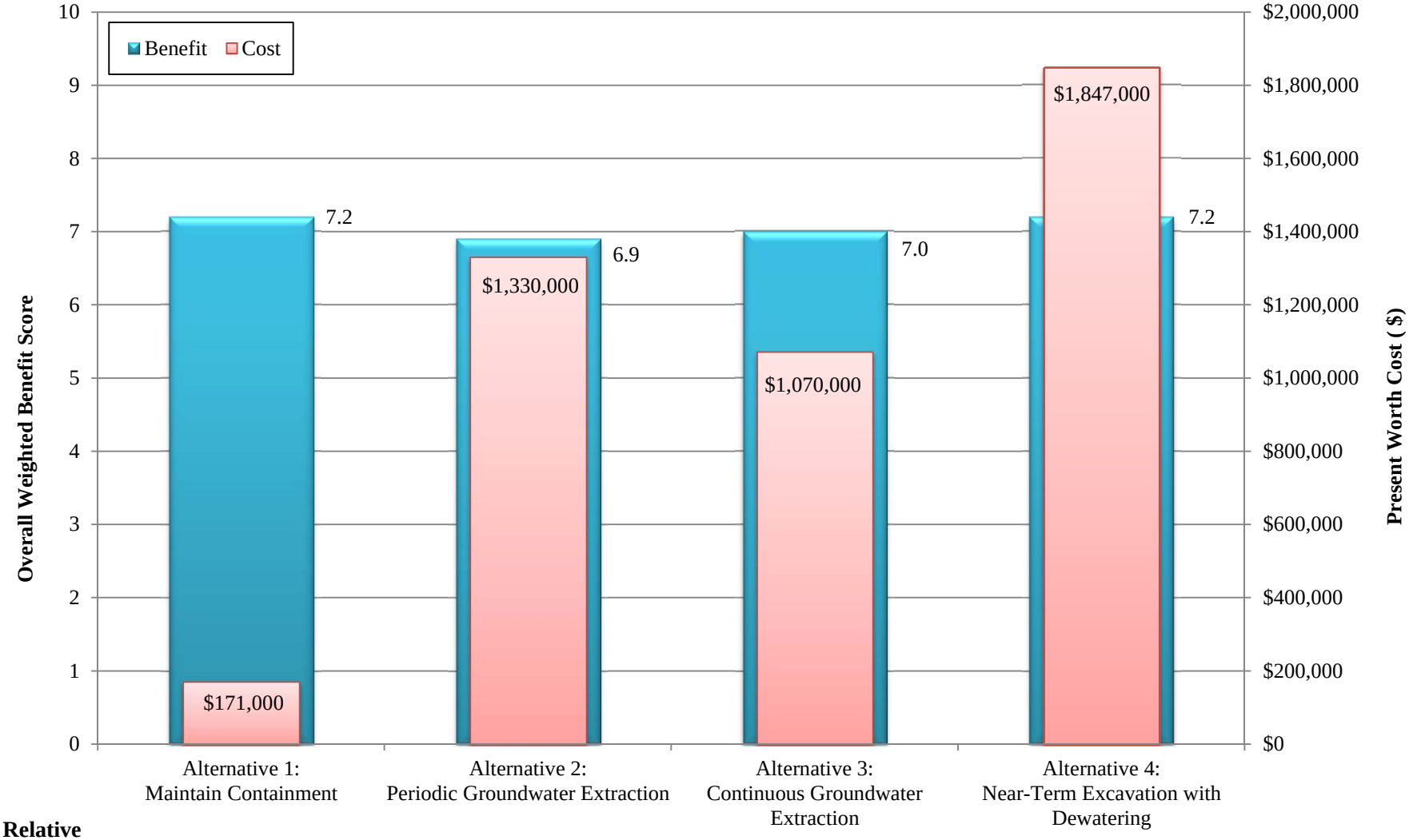
Figure 8-4
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 166, Building 45-53, Former UST EV-110-1



Relative Benefit/Cost Ratio:	**7.2**	**3.7**

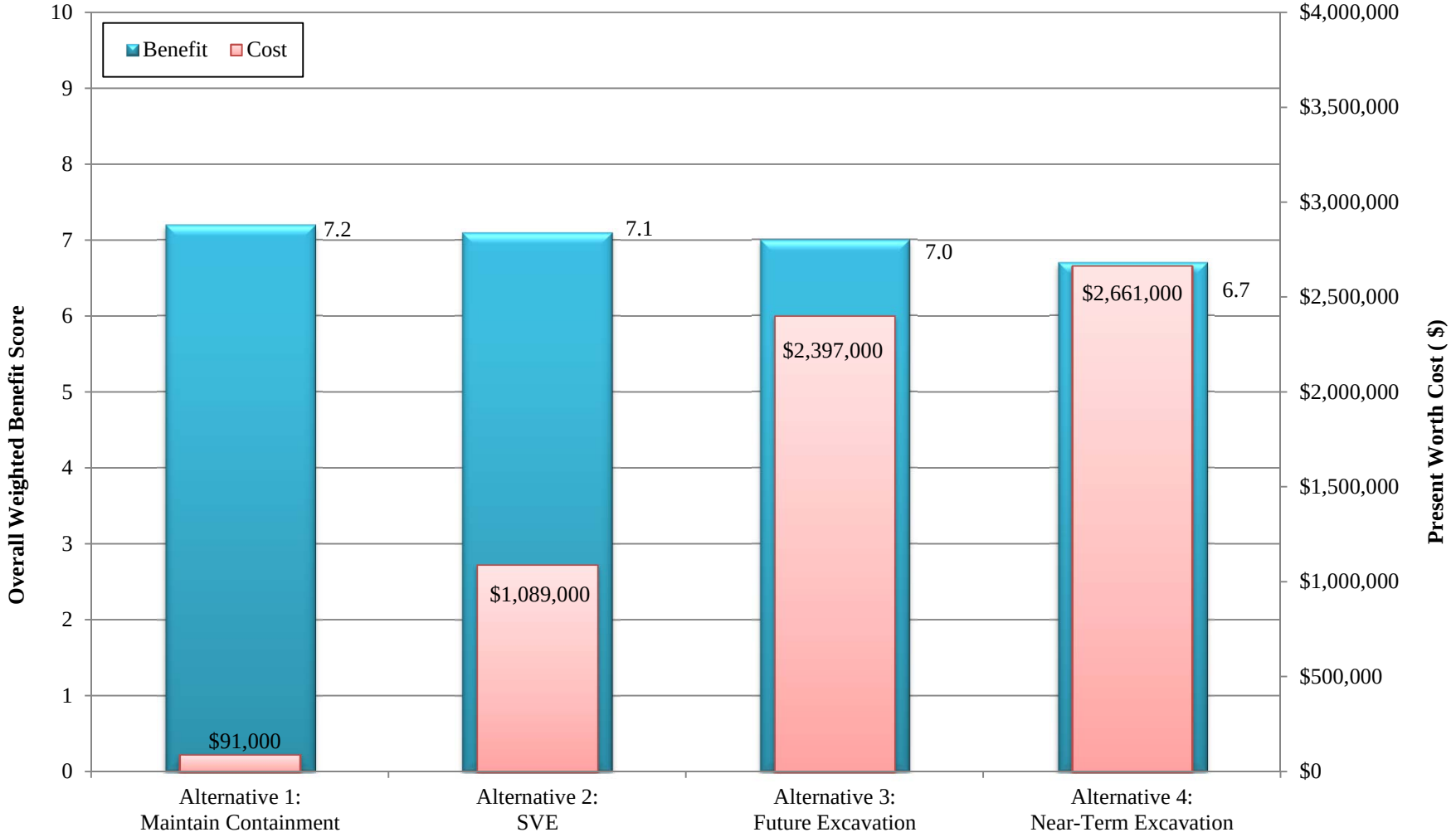
Cleanup Alternative

Figure 8-5
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC Nos. 055 and 168, Building 40-24, Utility Trenches and Sumps



Relative Benefit/Cost Ratio:	**7.2**	**0.9**	**1.1**	**0.7**

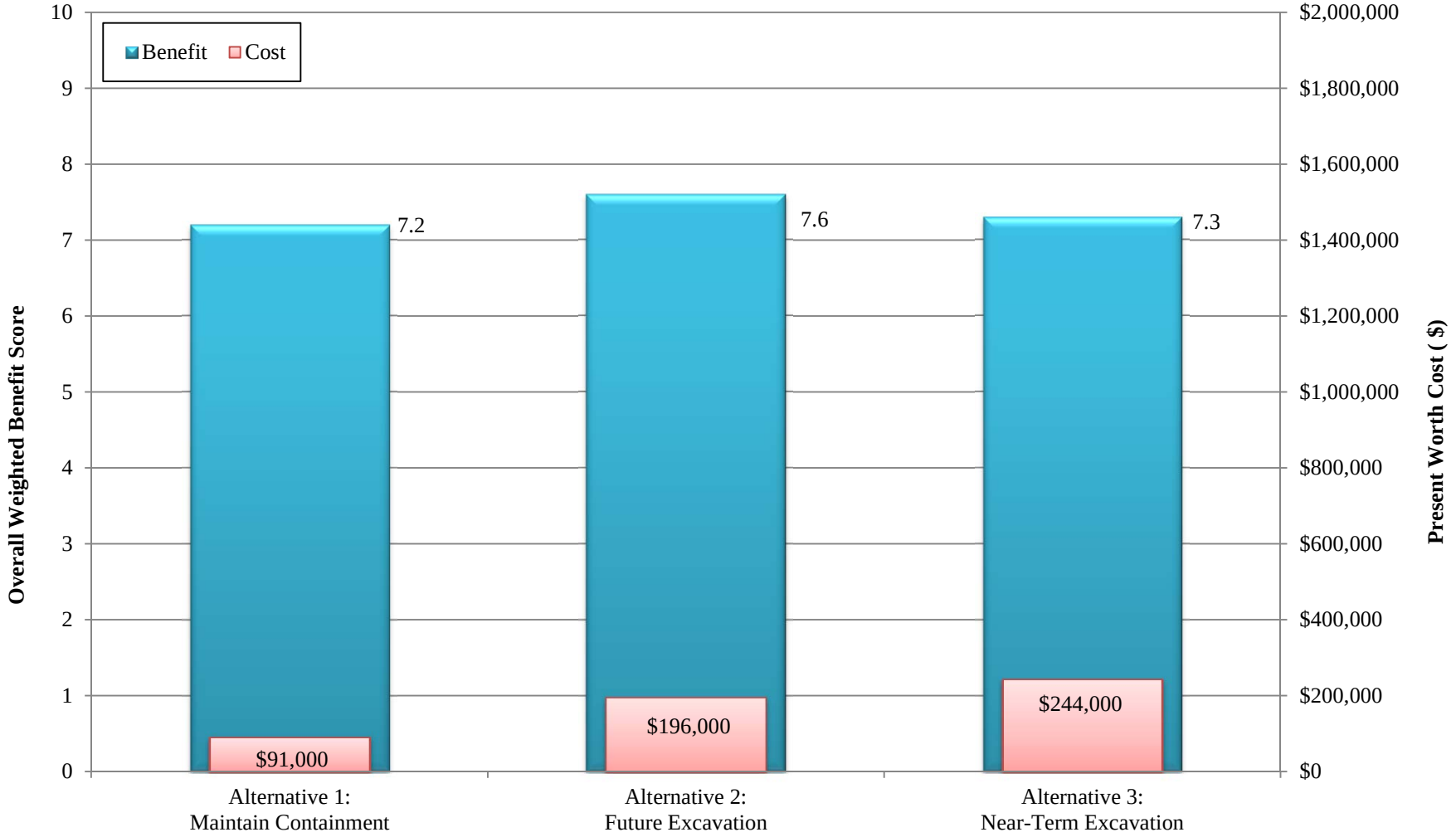
Figure 8-6
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 171, Building 40-31, Former Bluestreak Vapor Degreaser



Relative Benefit/Cost Ratio:	**7.2**	**0.6**	**0.3**	**0.2**

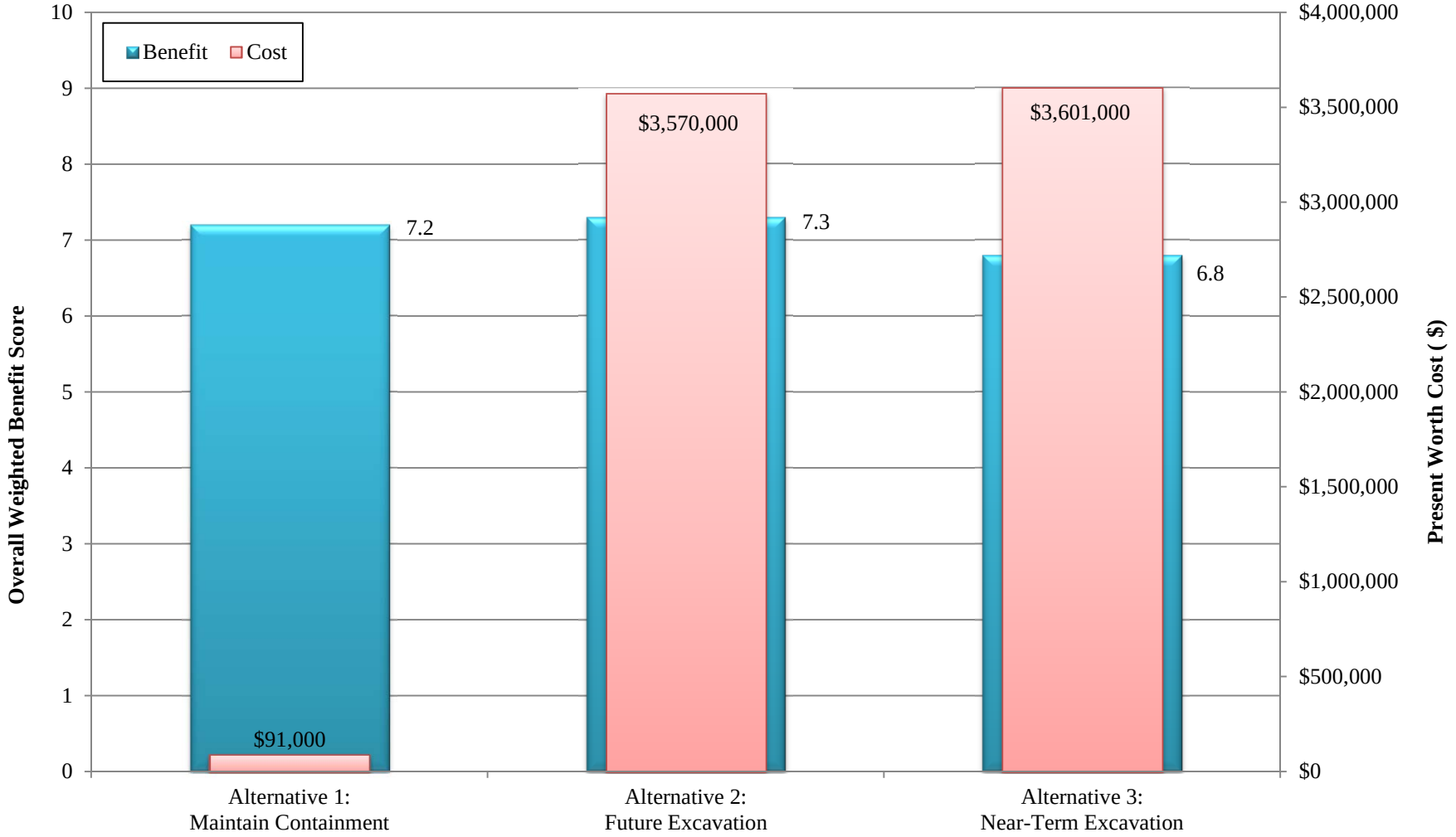
Cleanup Alternative

Figure 8-7
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 097, Building 40-11, Former Vapor Degreaser



Relative Benefit/Cost Ratio:	**7.2**	**3.5**	**2.7**

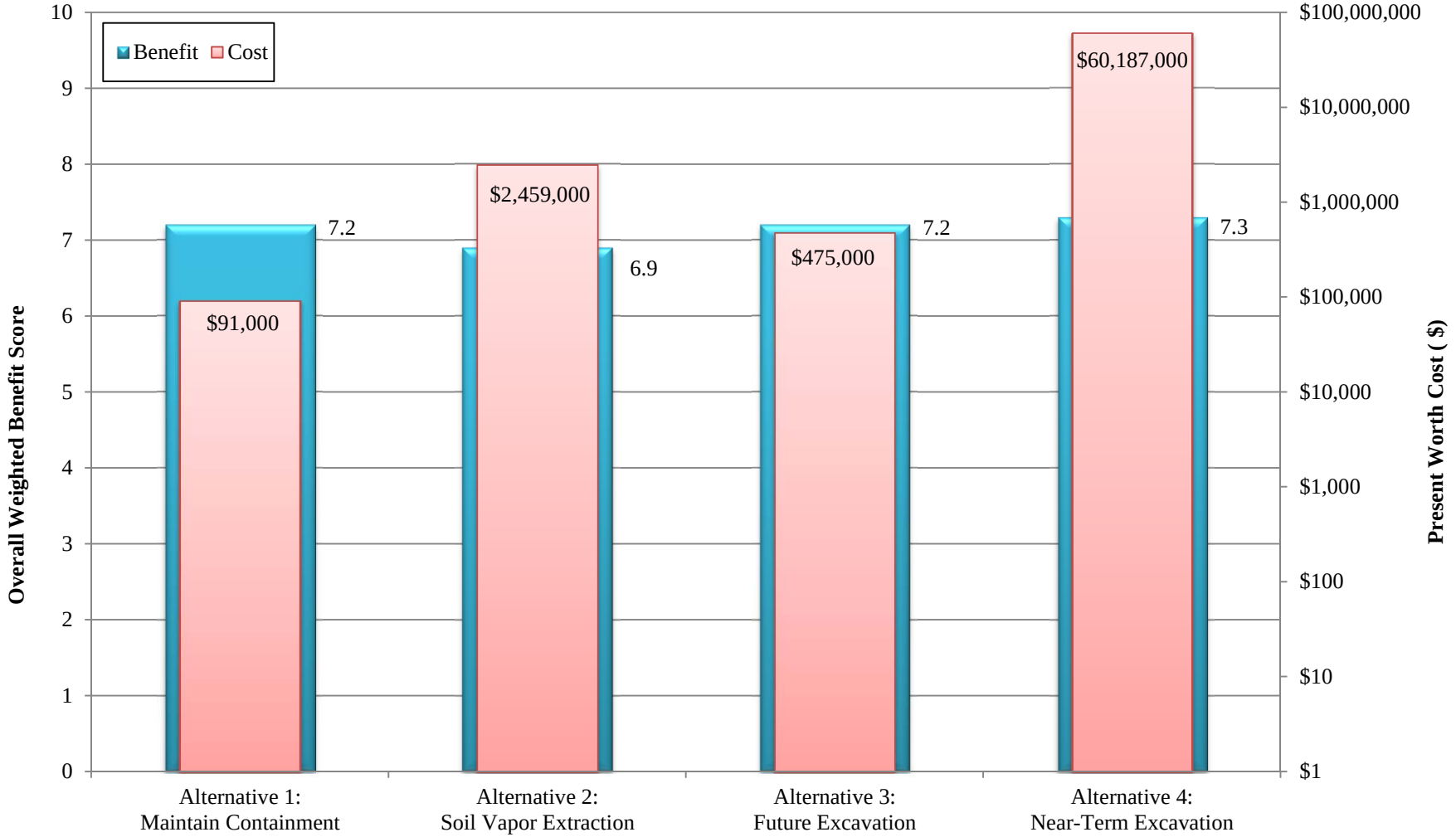
Figure 8-8
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 098, Building 40-53, Former Mock-Up Degreaser



Relative Benefit/Cost Ratio:	**7.2**	**0.2**	**0.2**

Cleanup Alternative

Figure 8-9
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 170, Building 40-02, Former Large Vapor Degreaser

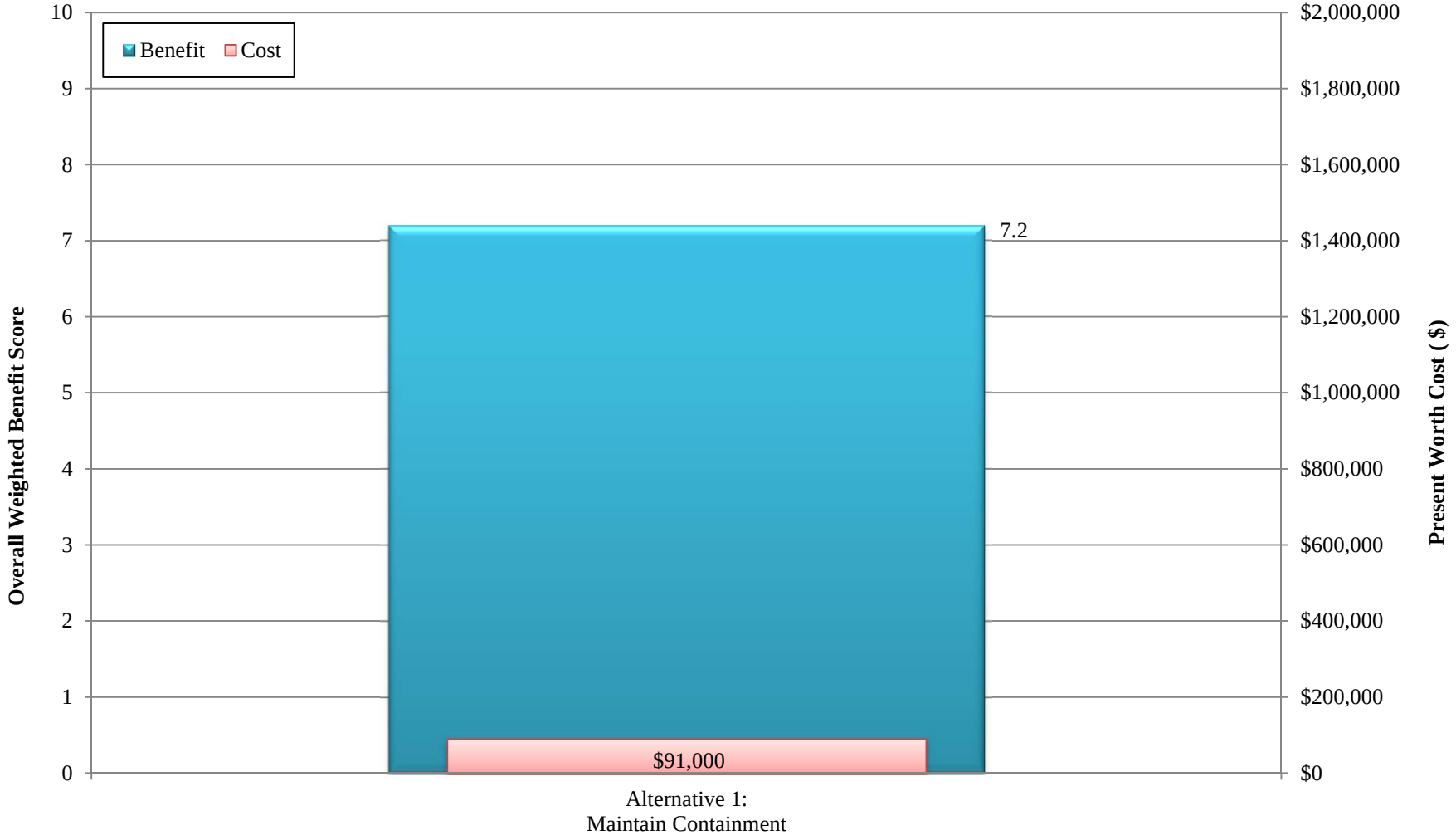


Relative Benefit/Cost Ratio:	**7.2**	**0.3**	**1.4**	**0.01**

Note: Present-Worth shown in log scale to display all alternative costs.

Cleanup Alternative

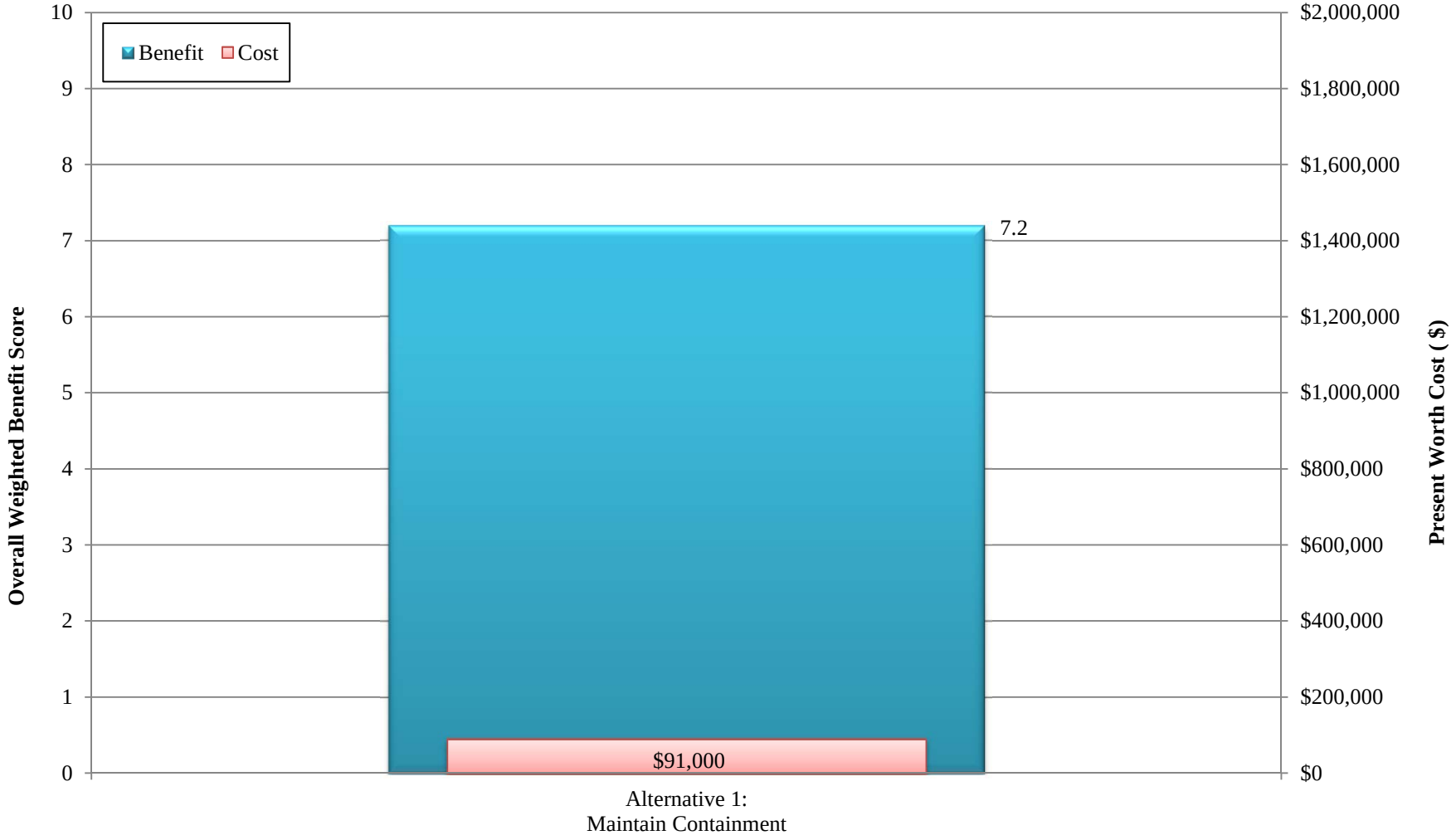
Figure 8-10
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 169, Building 40-02, Former Small Vapor Degreaser



Relative Benefit/Cost Ratio: **7.2**

Cleanup Alternative

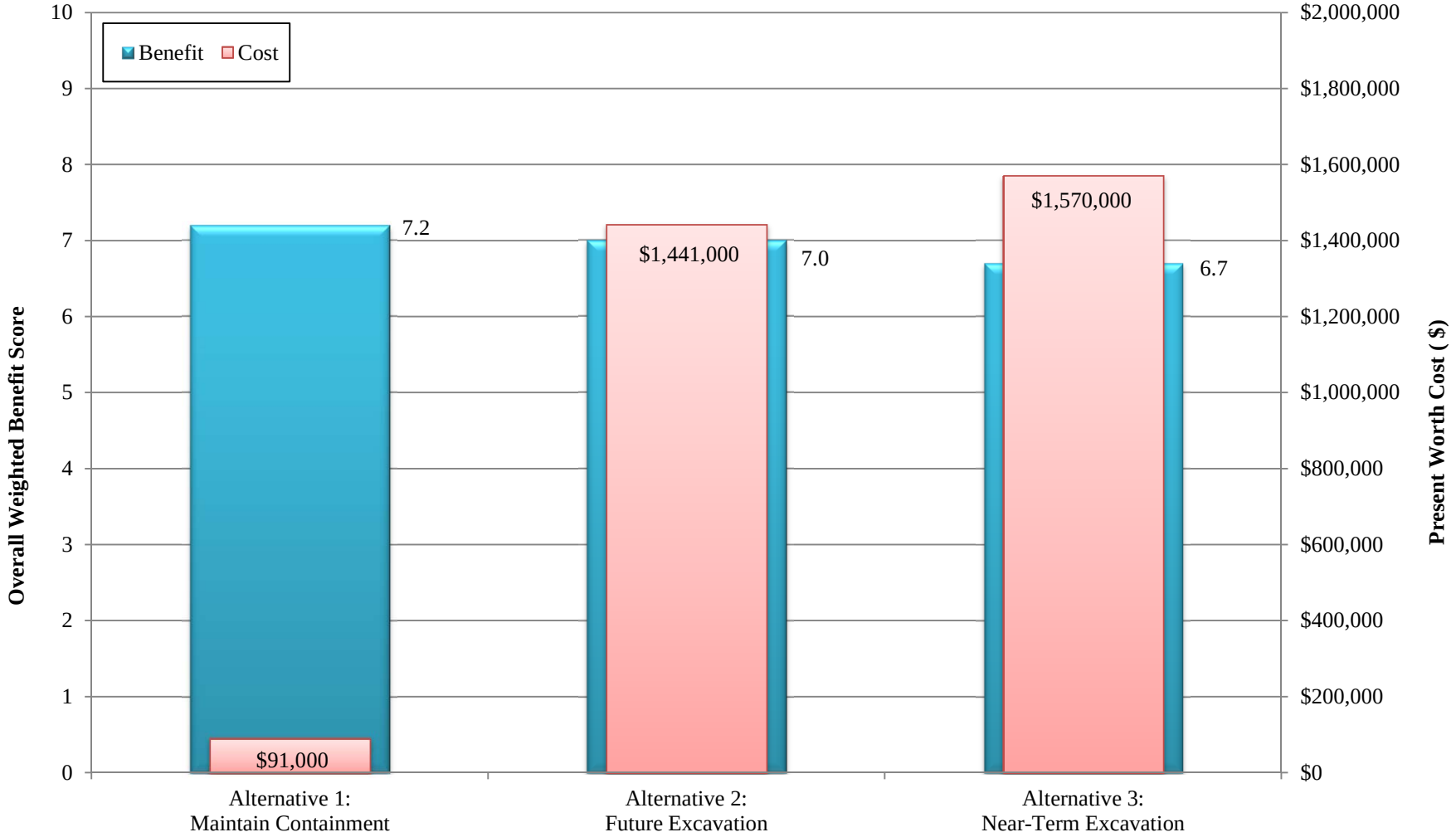
Figure 8-11
Present Worth Cost vs. Overall Weighted Benefit
Building 40-02, Former Paint Crib



Relative Benefit/Cost Ratio: **7.2**

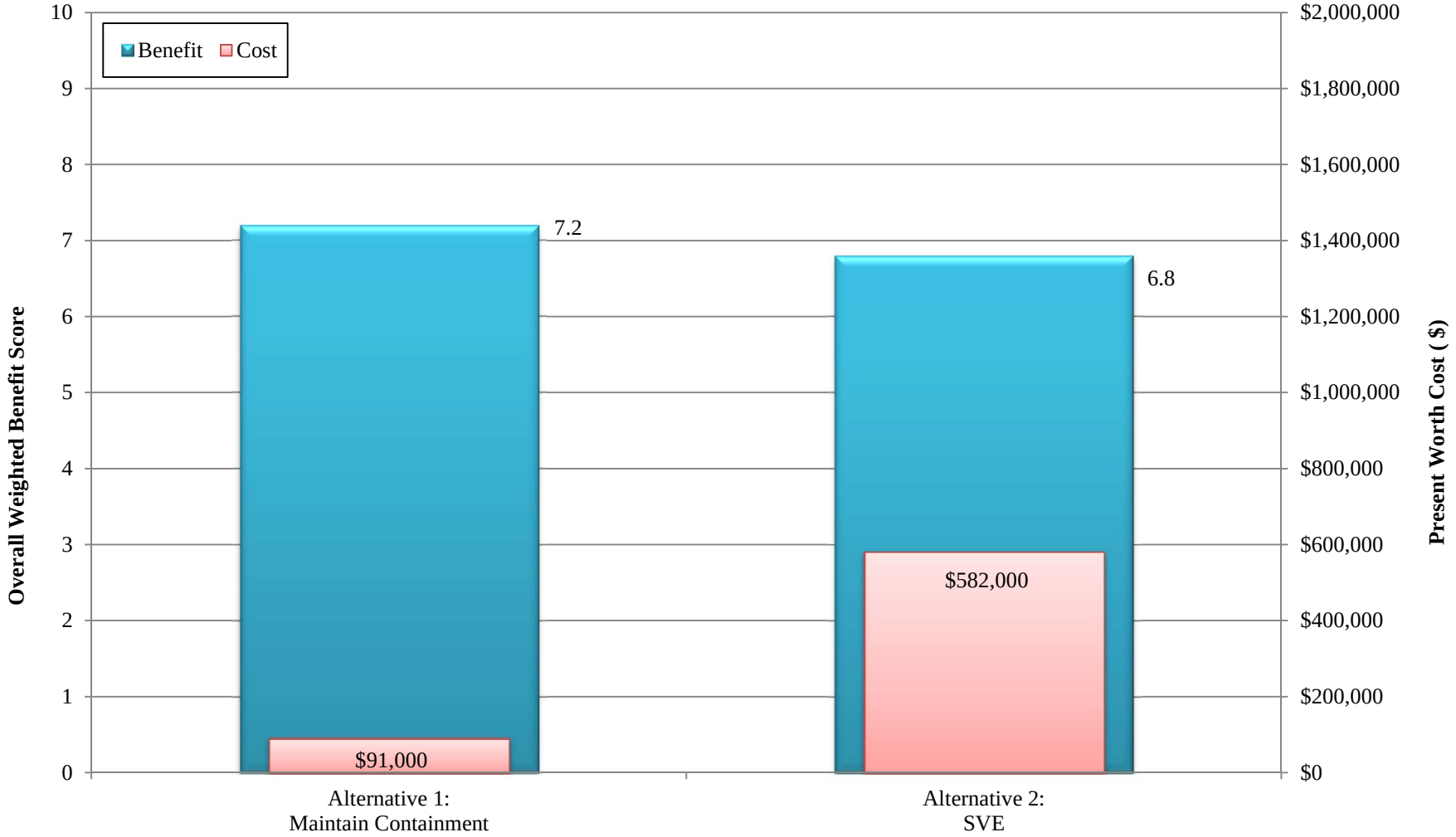
Cleanup Alternative

Figure 8-12
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 054, Building 40-51, Former Wastewater AST



Relative Benefit/Cost Ratio:	**7.2**	**0.4**	**0.4**

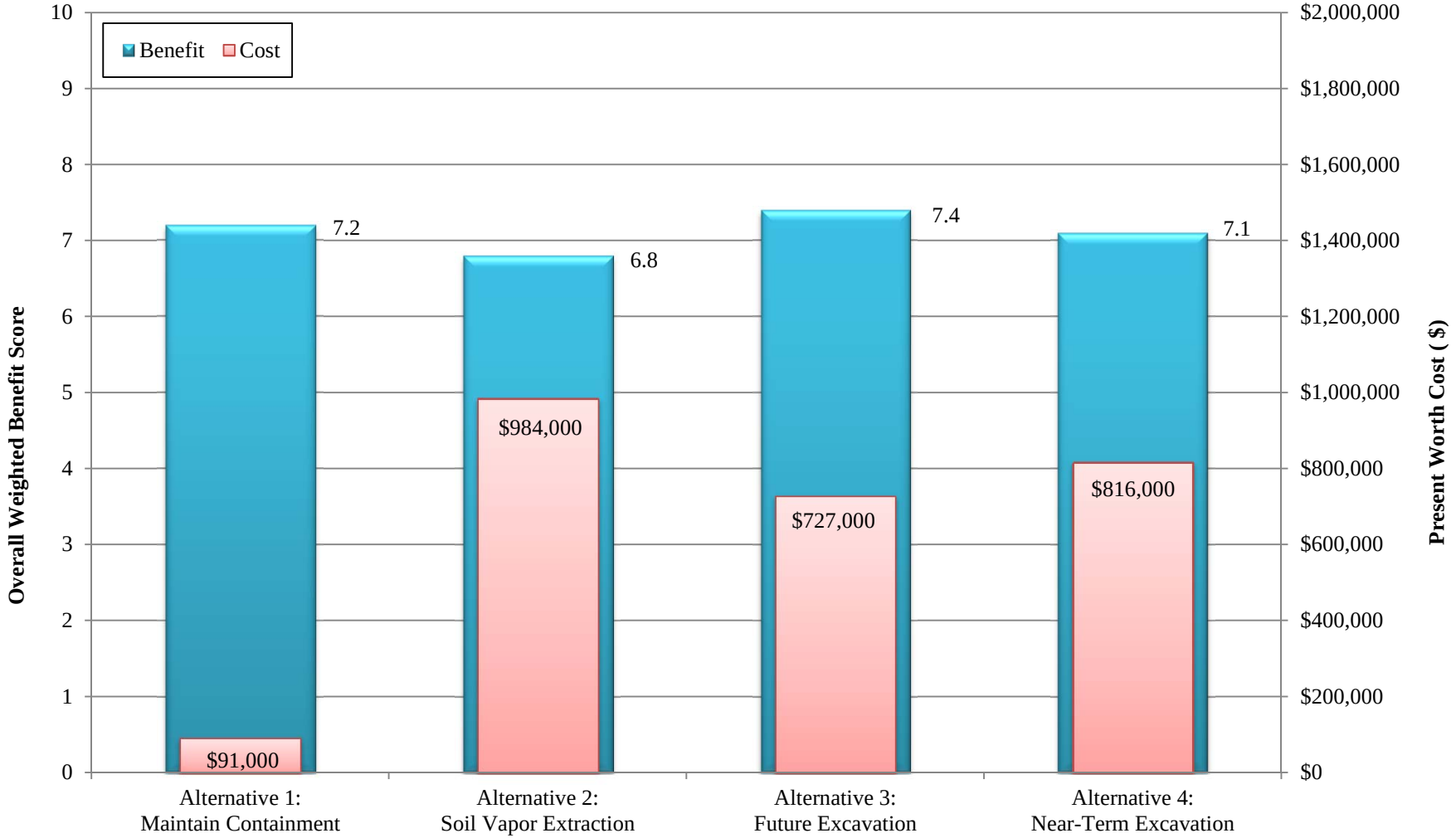
Figure 8-13
Present Worth Cost vs. Overall Weighted Benefit
Building 40-32, Footing Excavation



Relative Benefit/Cost Ratio:	**7.2**	**1.1**

Cleanup Alternative

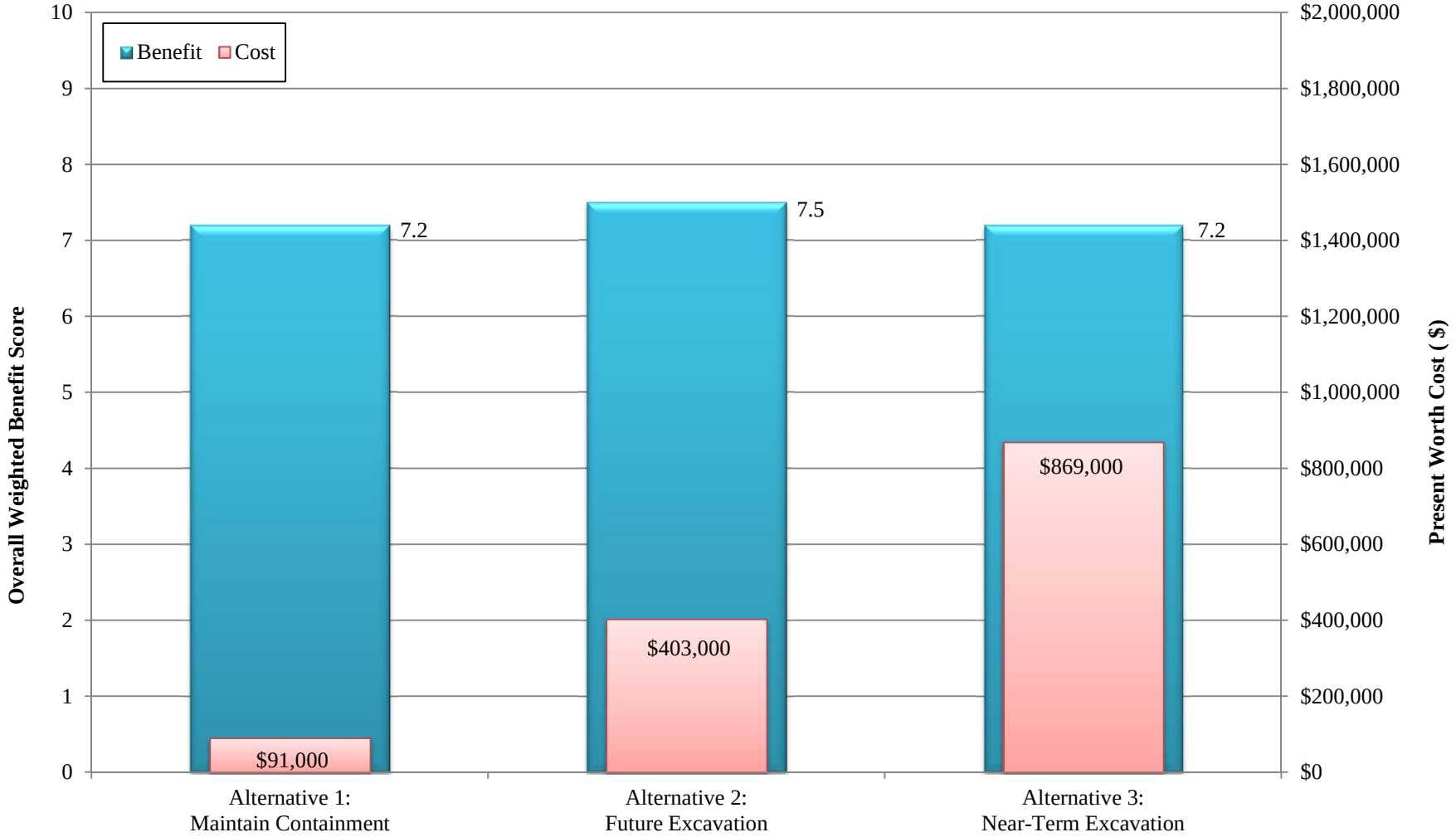
Figure 8-14
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 068, South Complex, South Fire Pit



Relative Benefit/Cost Ratio:	**7.2**	**0.6**	**0.9**	**0.8**

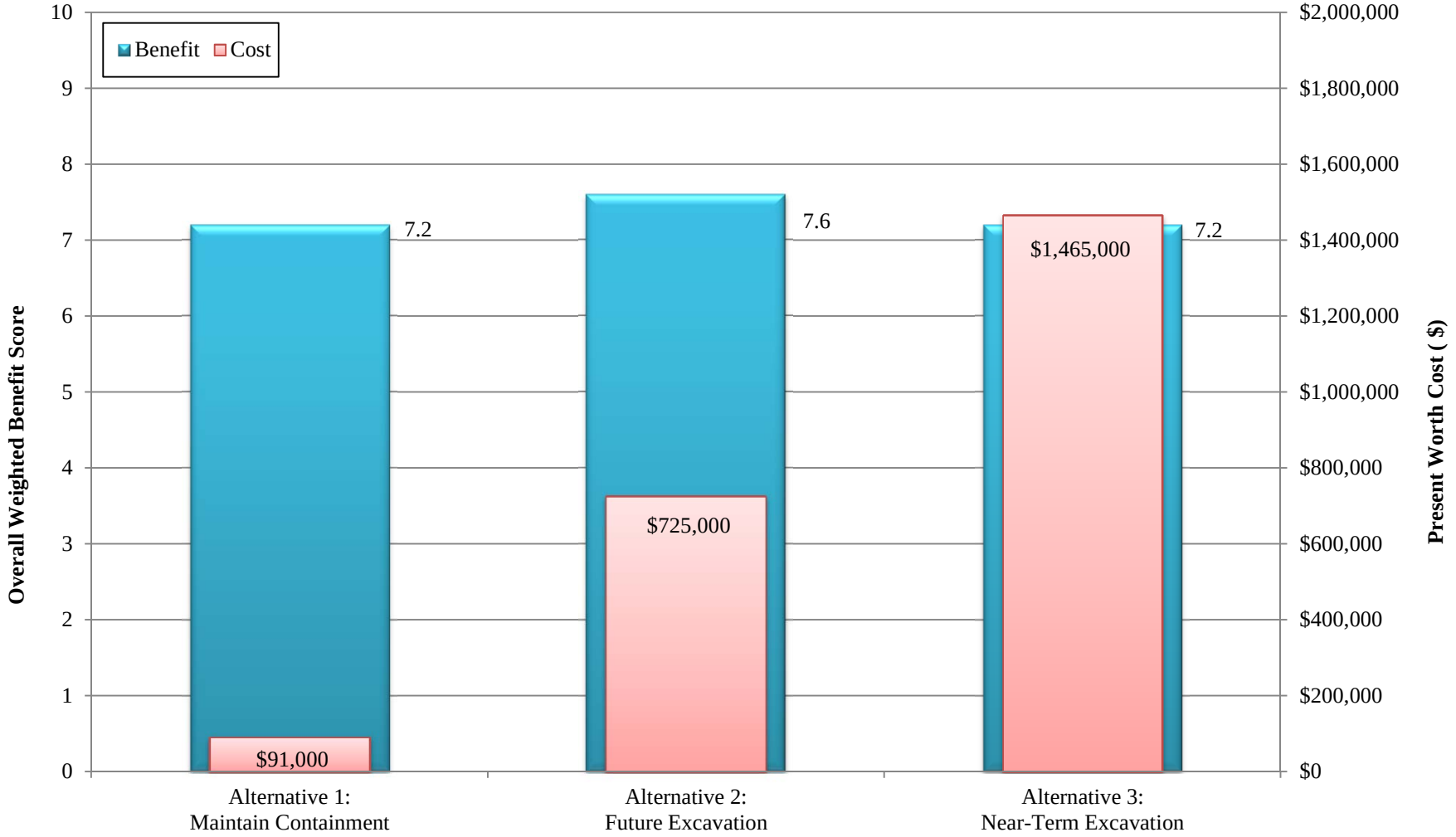
Cleanup Alternative

Figure 8-15
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 065, Building 40-51, Former Paint Stripping Tankline



Relative Benefit/Cost Ratio:	**7.2**	**1.7**	**0.8**

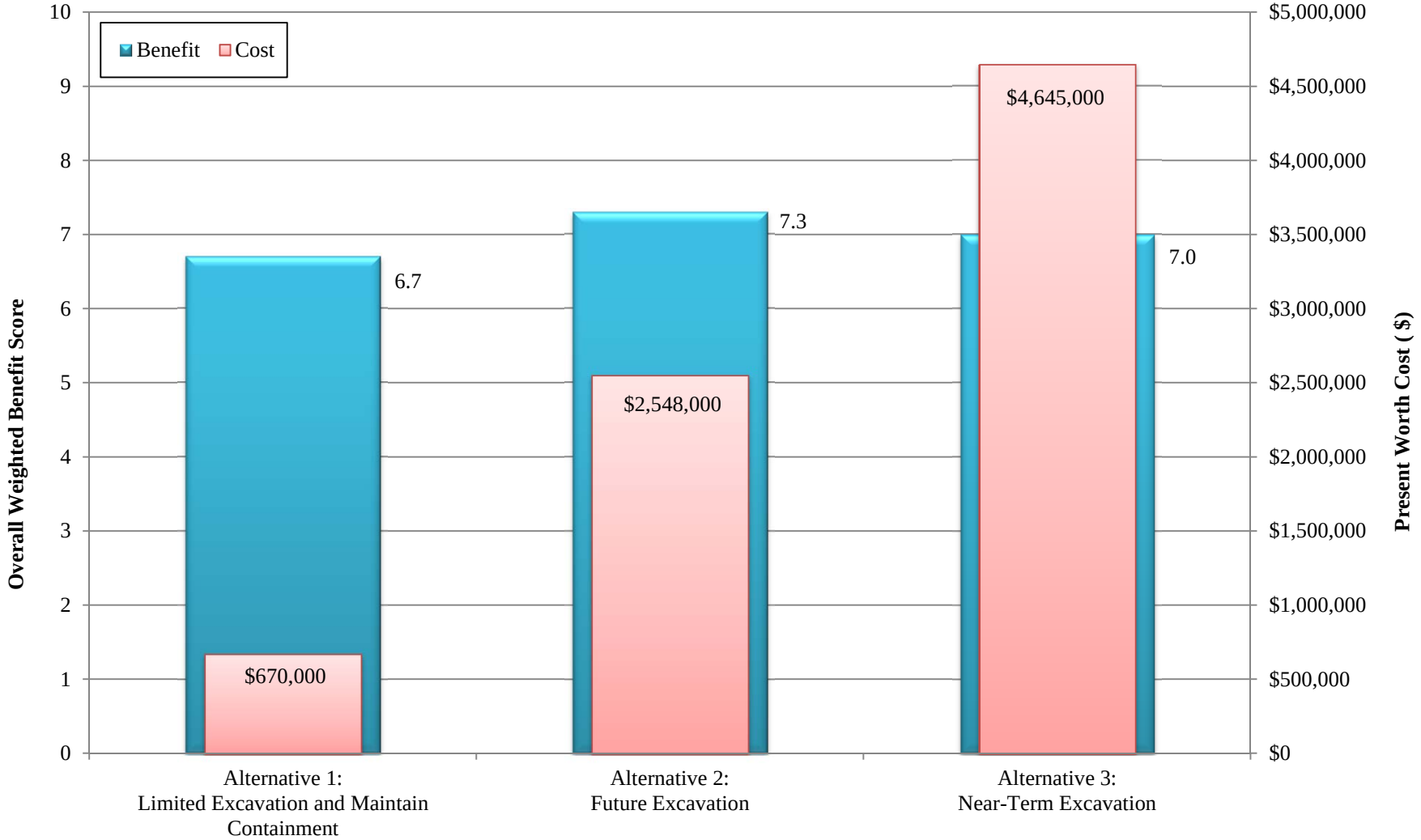
Figure 8-16
Present Worth Cost vs. Overall Weighted Benefit
Building 40-11, UST EV-48-1



Relative Benefit/Cost Ratio:	**7.2**	**1.0**	**0.4**

Cleanup Alternative

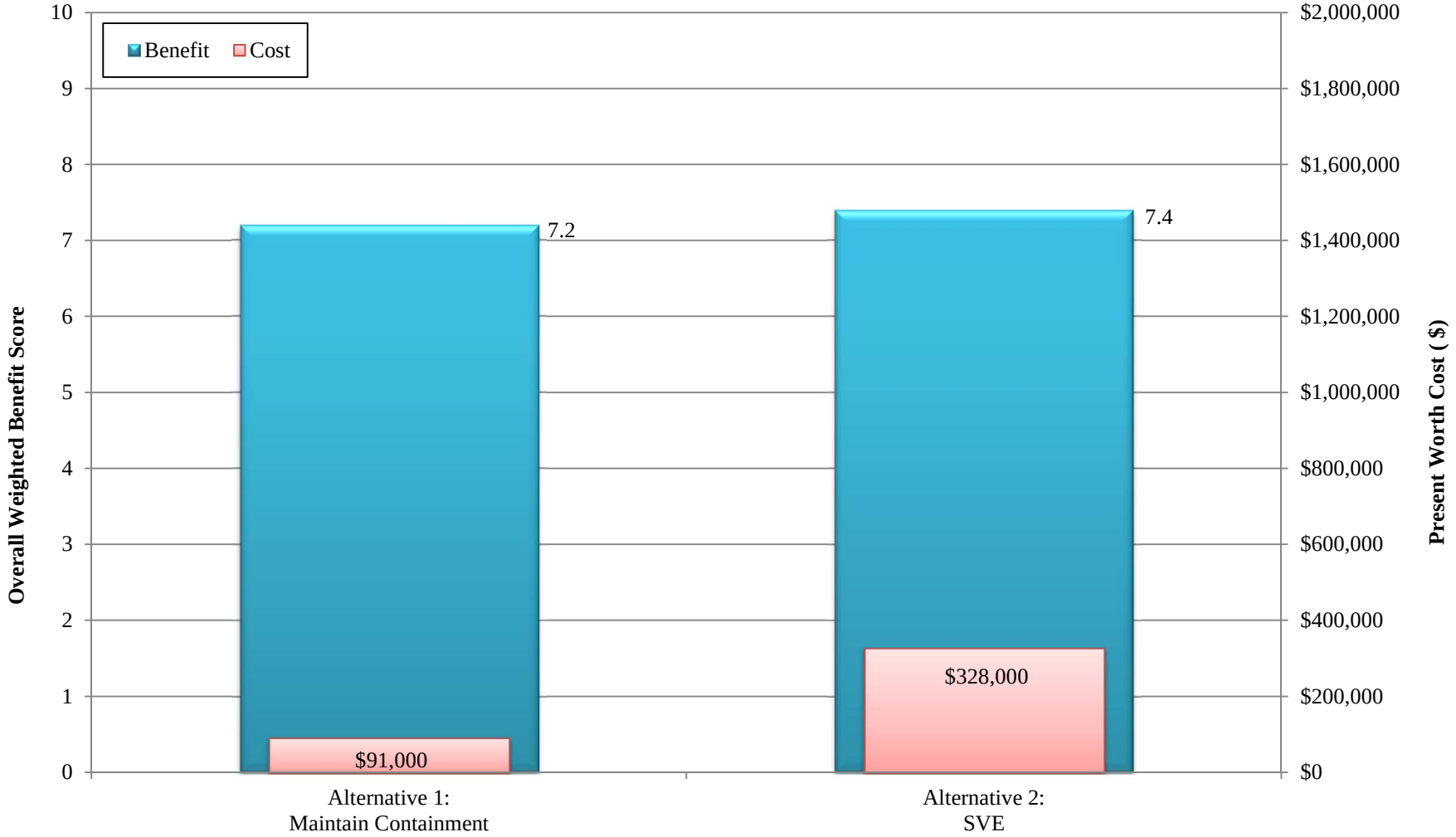
Figure 8-17
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 165, Building 45-52, Former Fuel Farm and Fuel Stall Piping



Relative Benefit/Cost Ratio:	**6.7**	**1.9**	**1.0**

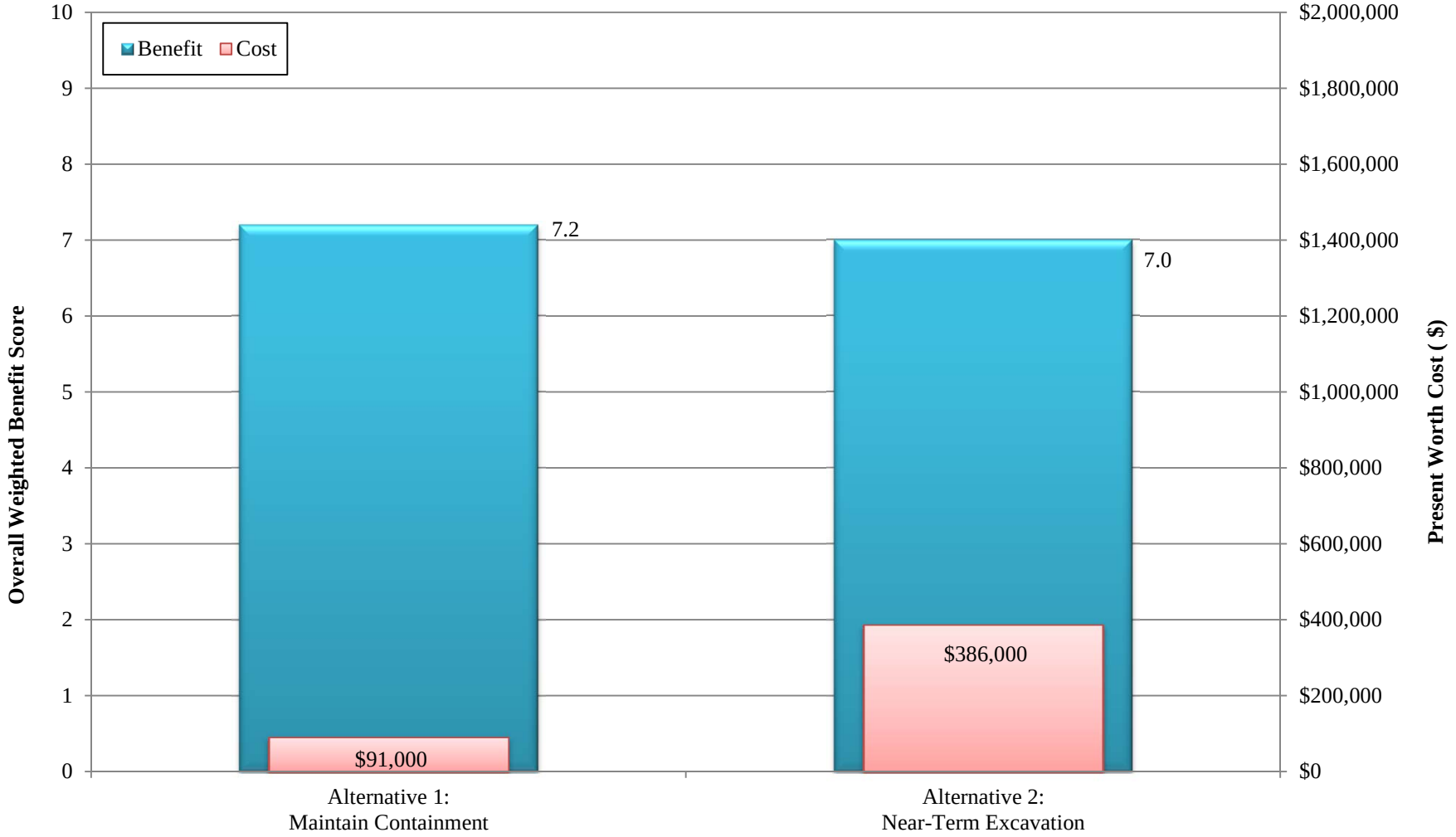
Cleanup Alternative

Figure 8-18
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 083, Flightline, Former UST EV-15



Relative Benefit/Cost Ratio:	**7.2**	**2.1**

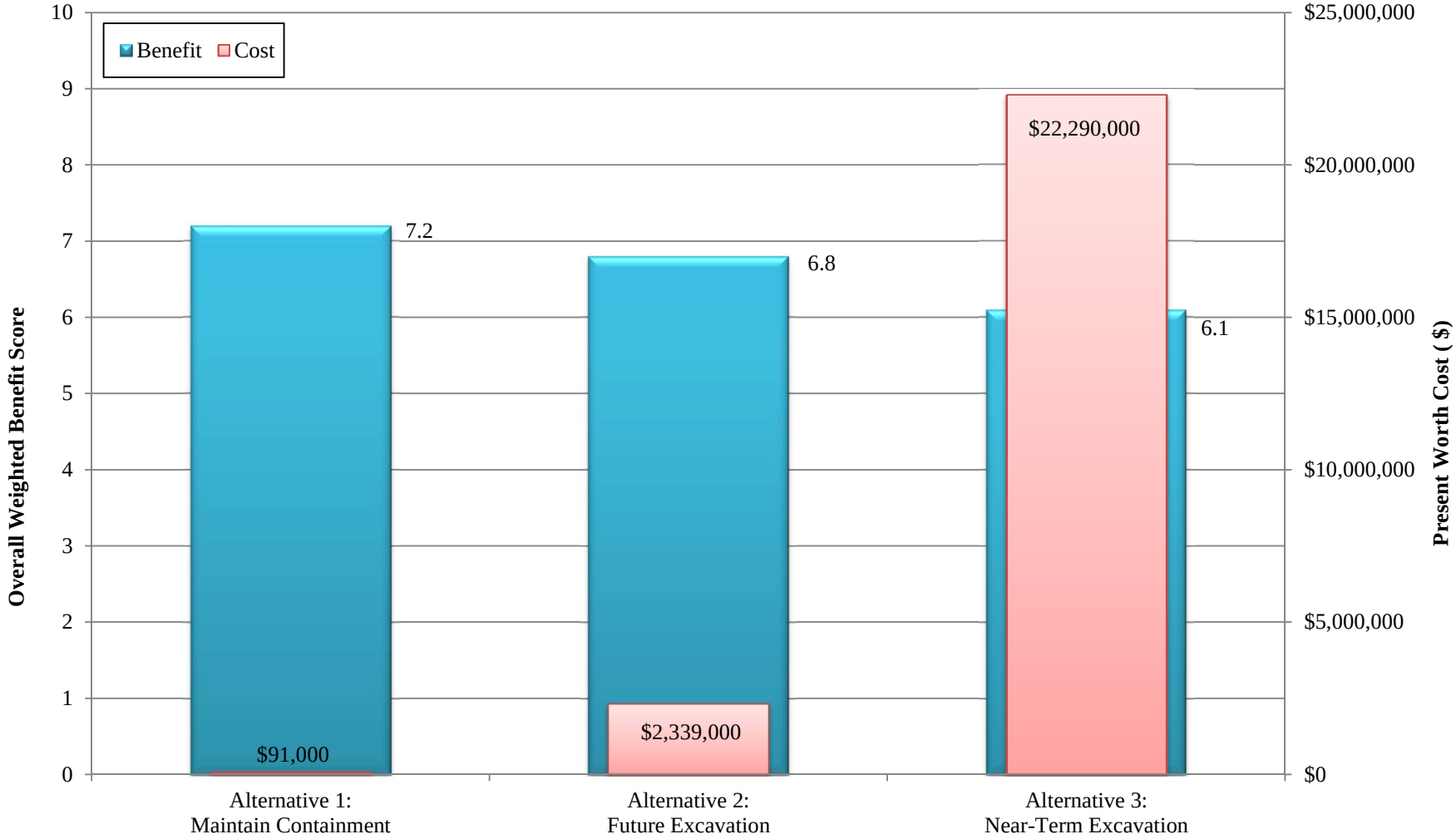
Figure 8-19
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 093, Building 45-01, Former Solvent USTs



Relative Benefit/Cost Ratio:	**7.2**	**1.7**

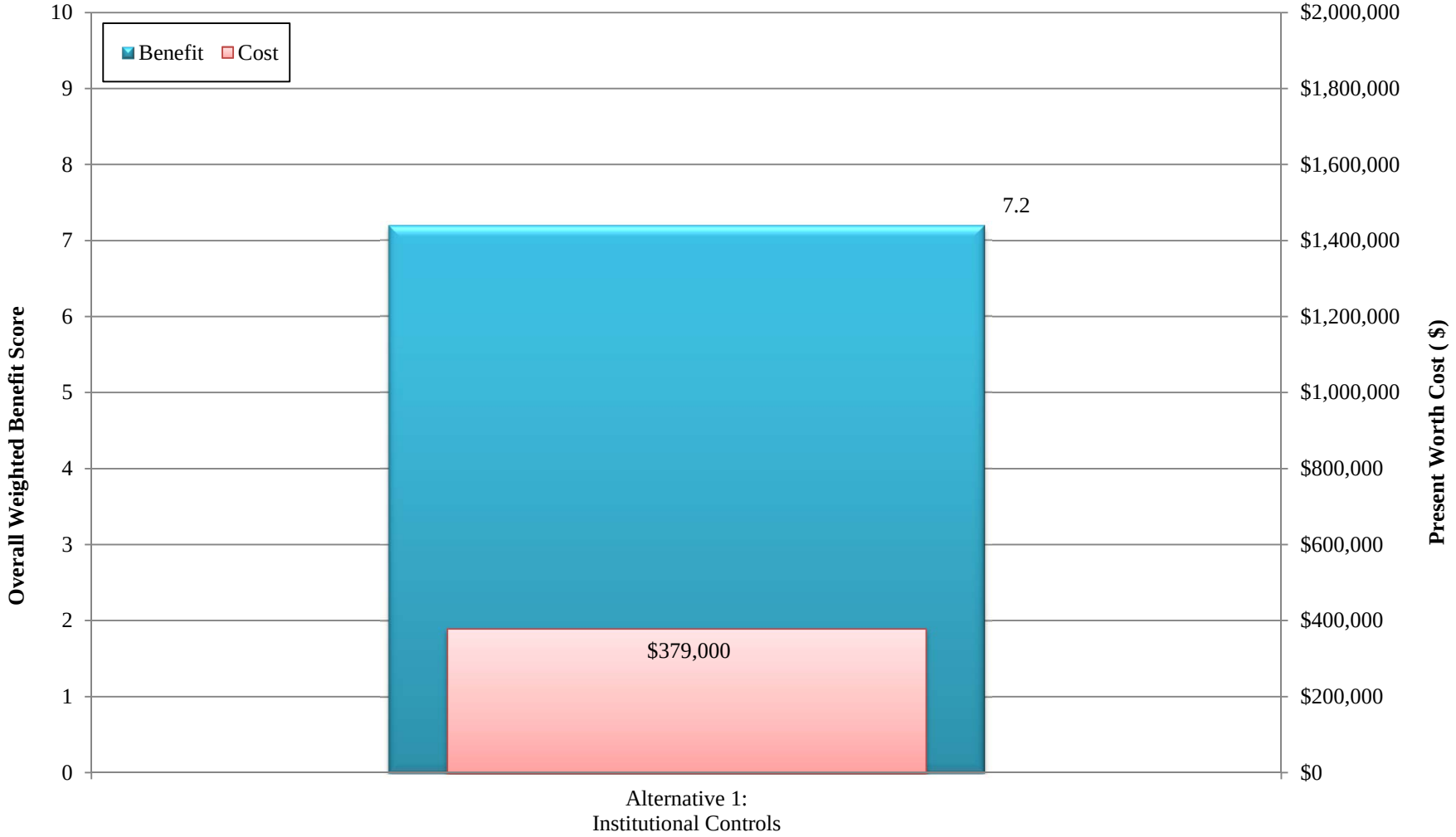
Cleanup Alternative

Figure 8-20
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC Nos. 067 and 071, Building 40-56, Former Recycling Unit and UST EV-153



Relative Benefit/Cost Ratio:	**7.2**	**0.3**	**0.02**

Figure 8-21
Present Worth Cost vs. Overall Weighted Benefit
Esperance Sand Well EGW061



Relative Benefit/Cost Ratio: **7.2**

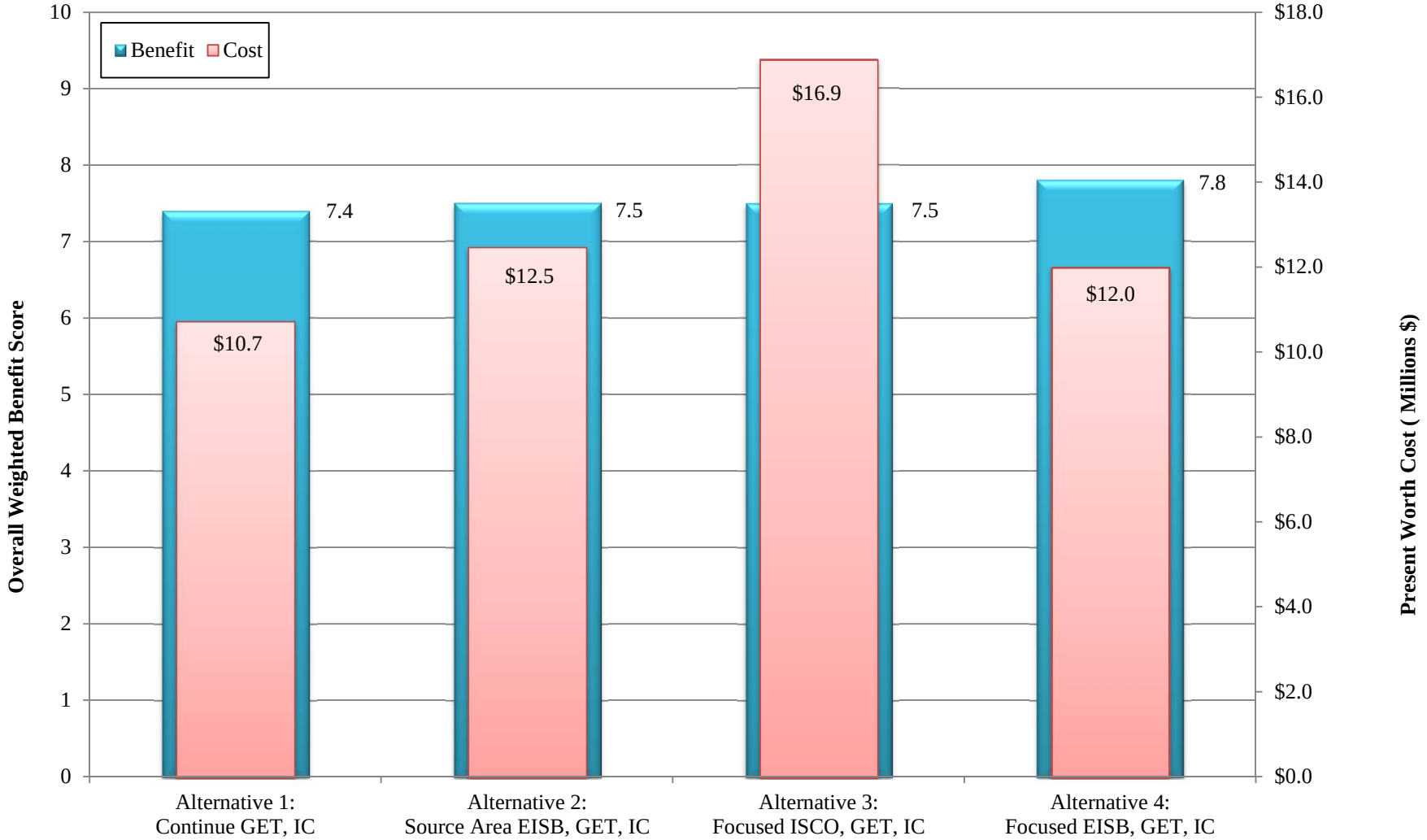
Cleanup Alternative

Figure 8-22
Present Worth Cost vs. Overall Weighted Benefit
SWMU/AOC No. 100, South Complex, Former Gun Club

Relative Benefit/Cost Ratio:	**5.8**	**7.5**

Cleanup Alternative

Figure 8-23
Presenet Worth Cost vs. Overall Weighted Benefit
Powder Mill Gulch SWMU



Relative Benefit/Cost Ratio:	**7.4**	**6.5**	**4.8**	**7.0**

Cleanup Alternative

Table 8-1a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model A
SWMU/AOC No. 090, BUILDING 40-51, FORMER UST EV-11

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: In Situ Chemical Reduction	Alternative 3: Periodic Groundwater Extraction
Alternative Description	Containment of the AOC by maintaining asphalt/concrete. Routine inspection and reporting of containment. Periodic groundwater sampling of existing monitoring wells.	Use of ISCR in the utility trench backfill using two injection events consisting of 5 points each. Groundwater sampling at the existing monitoring wells for COCs and performance monitoring.	Extraction of perched groundwater in the utility backfill on a periodic basis using a newly installed extraction well and portable equipment. Groundwater sampling at the existing monitoring wells.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall weighted benefit score (from Table 8-1b)	7.2	7.2	7.2
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	Approximately 5 years	Approximately 5 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	High	High	High
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$167,000	$367,000	$506,000
- Highest ranked overall benefit	**Yes**	No	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	7.2	3.3	2.4
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	0%	0%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	120%	203%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($167,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-1.

Table 8-1b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model A
SWMU/AOC No. 090, BUILDING 40-51, FORMER UST EV-11

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: In Situ Chemical Reduction**				**Alternative 3: Periodic Groundwater Extraction**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Good	6	0.2	1.2
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	6	0.1	0.6	Excellent	7	0.1	0.7
- Implementability	Superior	9	0.1	0.9	Good	6	0.1	0.6	Excellent	7	0.1	0.7
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8
Overall Weighted Benefit Score				**7.2**				**7.2**				**7.2**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-2a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model A
SWMU/AOC No. 112, BUILDING 40-11, OIL/WATER SEPARATOR

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: In Situ Sorption and Bioremediation	Alternative 3: Continuous Groundwater Extraction	Alternative 4: Near-Term Excavation and Dewatering
Alternative Description	Containment of the AOC by maintaining asphalt/concrete. Routine inspection and reporting of containment. Periodic groundwater sampling at existing monitoring and recovery wells. Continued pumping at the existing recovery well.	Two injection events consisting of 8 points each using a biological reagent and micro carbon particles. Groundwater sampling at the existing monitoring and recovery wells for COCs and performance monitoring. Continued pumping at the existing recovery well.	Continuous extraction of perched groundwater using a newly installed recovery well that discharges to the industrial wastewater line. Groundwater sampling at existing monitoring and recovery wells. Continued pumping at the existing recovery well.	Excavation of the oil/water separator and surrounding soils and removal of any remaining water in excavation. Replacement using a new separator.
Individual Ranking Criteria				
1 Meets Remedial Action Objectives	Yes	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]				
- Protect human health and the environment	Yes	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
- Overall Weighted Benefit Score (from Table 8-2b)	7.2	7.3	7.2	7.0
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	Approximately 5 years	Approximately 5 years	Approximately 2 years
- Potential risk to human health and environment[a]	Low	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate	Moderate	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)				
- Estimated remedy cost (including interim action)	$164,000	$458,000	$477,000	$934,000
- Highest ranked overall benefit	No	**Yes**	No	No
- Lowest cost alternative	**Yes**	No	No	No
- Relative benefit/cost ratio[b]	7.2	2.6	2.5	1.2
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-1%	0%	-1%	-4%
- Incremental increase/decrease in cost compared to highest ranked alternative	-64%	0%	4%	104%
- Costs disproportionate to incremental benefits	No	Yes	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($164,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-2.

Table 8-2b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model A
SWMU/AOC No. 112, BUILDING 40-11, OIL/WATER SEPARATOR

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: In Situ Sorption and Bioremediation**				**Alternative 3: Continuous Groundwater Extraction**				**Alternative 4: Near-Term Excavation and Dewatering**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]																
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Good	6	0.2	1.2	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	6	0.1	0.6	Excellent	7	0.1	0.7	Good	5	0.1	0.5
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Excellent	7	0.1	0.7	Good	6	0.1	0.6
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.3**				**7.2**				**7.0**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-3a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model A
SWMU/AOC No. 151, BUILDING 40-51, SOUTHERN AIR SCRUBBER SUMP

Alternative Number and Name	Alternative 1: Institutional Controls
Alternative Description	Establishment of institutional controls to maintain the use of the property as industrial.
Individual Ranking Criteria	
1 Meets Remedial Action Objectives[b]	Yes
2 Compliance With MTCA Threshold Criteria[b] [WAC 173-340-360(2)(a)]	
- Protect human health and the environment	Yes
- Comply with cleanup standards	Yes
- Comply with applicable state/federal laws	Yes
- Provide for compliance monitoring	Yes
3 Relative Benefits Ranking for DCA[b] [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]	Not Applicable
4 Restoration Time Frame[b] [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years
- Potential risk to human health and environment	Not Applicable
- Practicability of achieving shorter restoration time	Not Applicable
- Current use of site, surrounding area, and resources	Commercial - Unrestricted Land Use
- Future use of site, surrounding area, and resources	Commercial - Unrestricted Land Use
- Availability of alternative water supplies	Yes
- Likely effectiveness/reliability of institutional controls[a]	High
- Ability to monitor migration of hazardous substances	Not Applicable
- Toxicity of hazardous substances at the site	None
- Natural processes that reduce concentrations	Not Applicable
- Overall reasonable restoration time frame	Not Applicable
5 Disproportionate Cost Analysis (DCA)[b]	
- Estimated remedy cost (including interim action)	$91,000
- Highest ranked overall benefit	Not Applicable
- Lowest cost alternative	Not Applicable
- Relative benefit/cost ratio	Not Applicable
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	Not Applicable
- Incremental increase/decrease in cost compared to highest ranked alternative	Not Applicable
- Costs disproportionate to incremental benefits	No
Remedy Permanent to the Maximum Extent Practicable?	Yes
Preferred Alternative	**Yes**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Cleanup alternatives are not developed for SWMU/AOC No. 151 because concentrations of dangerous constituents detected at this SWMU/AOC do not exceed the cleanup levels proposed in this FS. Because MTCA Method C cleanup levels are proposed for indoor air, however, institutional controls would be required at this SWMU/AOC to maintain the use of the property as industrial.

Table 8-3b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model A
SWMU/AOC No. 151, BUILDING 40-51, SOUTHERN AIR SCRUBBER SUMP

Alternative Number and Name	**Alternative 1: Institutional Controls**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
Comparative Overall Benefit	Comparative Benefit Rating [a]	Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4
- Permanence	Fair	4	0.2	0.8
- Long Term Effectiveness	Good	5	0.2	1.0
- Manageability of Short Term Risk	Superior	10	0.1	1.0
- Implementability	Superior	9	0.1	0.9
- Consideration of Public Concerns	Excellent	8	0.1	0.8
Overall Weighted Benefit Score				**6.9**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-4a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model B
SWMU/AOC Nos. 086, 089, and 094, BUILDING 40-56, FORMER USTs

Alternative Number and Name	**Alternative 1: Maintain Containment**	**Alternative 2: Soil Vapor and Groundwater Extraction**	**Alternative 3: Near-Term Excavation and Dewatering**
Alternative Description	Containment of the SWMU/AOC by maintaining asphalt/concrete. Routine inspection and reporting of containment. Periodic groundwater sampling of existing monitoring wells.	Extraction of soil vapor using new SVE wells and extraction of perched groundwater on a continuous basis using existing groundwater wells. Periodic groundwater sampling at existing wells and SVE maintenance and monitoring. Institutional controls throughout O&M.	Excavation around existing utilities to remove contaminated soil. Excavation will be dewatered during work to remove contaminated perched groundwater. Backfill of areas with CDF. Institutional controls and periodic groundwater sampling.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall Weighted Benefit Score (from Table 8-4b)	7.2	7.2	6.5
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	Approximately 20 years	30 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	High	High	High
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$187,000	$2,875,000	$4,927,000
- Highest ranked overall benefit	**Yes**	**Yes**	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	7.2	0.5	0.2
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	0%	-10%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	1437%	2535%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($187,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-3.

Table 8-4b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model B
SWMU/AOC Nos. 086, 089, and 094, BUILDING 40-56, FORMER USTs

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Soil Vapor and Groundwater Extraction**				**Alternative 3: Near-Term Excavation and Dewatering**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Good	6	0.2	1.2
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	6	0.1	0.6	Fair	4	0.1	0.4
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	5	0.1	0.5
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7	Good	6	0.1	0.6
Overall Weighted Benefit Score				**7.2**				**7.2**				**6.5**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-5a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model C
SWMU/AOC No. 166, BUILDING 45-53, FORMER UST EV-110-1

Alternative Number and Name	**Alternative 1: Maintain Containment**	**Alternative 2: Periodic Groundwater Extraction**
Alternative Description	Containment of the AOC by maintaining asphalt/concrete. Routine inspection and reporting of containment. Periodic groundwater sampling of existing monitoring wells.	Extraction of perched groundwater on a periodic basis using existing monitoring well. Periodic groundwater sampling and institutional controls.
Individual Ranking Criteria		
1 Meets Remedial Action Objectives	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]		
- Protect human health and the environment	Yes	Yes
- Comply with cleanup standards	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes
- Provide for compliance monitoring	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]		
- Overall Weighted Benefit Score (from Table 8-5b)	7.2	7.1
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	Approximately 5 years
- Potential risk to human health and environment[a]	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High
- Ability to monitor migration of hazardous substances[a]	High	High
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes
5 Disproportionate Cost Analysis (DCA)		
- Estimated remedy cost (including interim action)	$162,000	$308,000
- Highest ranked overall benefit	**Yes**	No
- Lowest cost alternative	**Yes**	No
- Relative benefit/cost ratio[b]	7.2	3.7
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	-1%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	90%
- Costs disproportionate to incremental benefits	No	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($162,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-4.

Table 8-5b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model C
SWMU/AOC No. 166, BUILDING 45-53, FORMER UST EV-110-1

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Periodic Groundwater Extraction**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]								
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4
- Long Term Effectiveness	Good	5	0.2	1.0	Good	6	0.2	1.2
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Excellent	7	0.1	0.7
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.1**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-6a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model D
SWMU/AOC Nos. 055 and 168, Building 40-24, UTILITY TRENCHES AND SUMPS

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Periodic Groundwater Extraction	Alternative 3: Continuous Groundwater Extraction	Alternative 4: Near-Term Excavation with Dewatering
Alternative Description	Containment of the AOC by maintaining asphalt/concrete. Routine inspection and reporting of containment. Periodic groundwater sampling of existing monitoring wells.	Extraction of perched groundwater from existing wells on a periodic basis. Periodic groundwater sampling and institutional controls.	Extraction of perched groundwater from existing wells on a continuous basis. Excavation of existing concrete vault and surrounding soil. Periodic groundwater sampling and institutional controls.	Excavation of existing vault and surrounding soil. Perched groundwater extraction on a periodic basis. Reconstruction of new vault, periodic groundwater sampling, and institutional controls.
Individual Ranking Criteria				
1 Meets Remedial Action Objectives	Yes	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]				
- Protect human health and the environment	Yes	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
- Overall Weighted Benefit Score (from Table 8-6b)	7.2	6.9	7.0	7.2
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	30 years	30 years	30 years
- Potential risk to human health and environment[a]	Low	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate	Moderate	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High	High
- Ability to monitor migration of hazardous substances[a]	High	High	High	High
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)				
- Estimated remedy cost (including interim action)	$171,000	$1,330,000	$1,070,000	$1,847,000
- Highest ranked overall benefit	**Yes**	No	No	**Yes**
- Lowest cost alternative	**Yes**	No	No	No
- Relative benefit/cost ratio[b]	7.2	0.9	1.1	0.7
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	-4%	-3%	0%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	678%	526%	980%
- Costs disproportionate to incremental benefits	No	Yes	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($171,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-5.

Table 8-6b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model D
SWMU/AOC Nos. 055 and 168, Building 40-24, UTILITY TRENCHES AND SUMPS

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Periodic Groundwater Extraction**				**Alternative 3: Continuous Groundwater Extraction**				**Alternative 4: Near-Term Excavation with Dewatering**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]																
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Good	6	0.2	1.2	Good	6	0.2	1.2	Excellent	7	0.2	1.4
- Long Term Effectiveness	Good	5	0.2	1.0	Good	6	0.2	1.2	Good	6	0.2	1.2	Excellent	8	0.2	1.6
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Excellent	7	0.1	0.7	Good	6	0.1	0.6
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Excellent	7	0.1	0.7	Good	5	0.1	0.5
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**6.9**				**7.0**				**7.2**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-7a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model E
SWMU/AOC No. 171, BUILDING 40-31, FORMER BLUESTREAK VAPOR DEGREASER

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Soil Vapor Extraction	Alternative 3: Future Excavation	Alternative 4: Near-Term Excavation
Alternative Description	Containment of the SWMU/AOC by maintaining concrete cover. Routine inspection and reporting of containment.	SVE system consisting of 15 screened wells within the SWMU/AOC. Routine inspection and reporting of containment during SVE operation. Routine SVE O&M.	Excavation of contaminated soils to the extent possible when site development allows construction access. Contaminated soils in inaccessible areas (i.e., beneath utilidors) will remain in-place. Containment of remaining contamination with routine inspection.	Excavation of contaminated soils to the extent possible. Construction access will be made possible by relocating current operations and equipment. Contaminated soils in inaccessible areas (i.e., beneath utilidors) will remain in-place. Containment of remaining contamination with routine inspection.
Individual Ranking Criteria				
1 Meets Remedial Action Objectives	Yes	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]				
- Protect human health and the environment	Yes	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
- Overall Weighted Benefit Score (from Table 8-7b)	7.2	7.1	7.0	6.7
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	Approximately 5 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)				
- Estimated remedy cost (including interim action)	$91,000	$1,089,000	$2,397,000	$2,661,000
- Highest ranked overall benefit	**Yes**	No	No	No
- Lowest cost alternative	**Yes**	No	No	No
- Relative benefit/cost ratio[b]	7.2	0.6	0.3	0.2
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	-1%	-3%	-7%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	1097%	2534%	2824%
- Costs disproportionate to incremental benefits	No	Yes	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-6.

Table 8-7b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 171, BUILDING 40-31, FORMER BLUESTREAK VAPOR DEGREASER

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Soil Vapor Extraction**				**Alternative 3: Future Excavation**				**Alternative 4: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]																
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Long Term Effectiveness	Good	5	0.2	1.0	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	7	0.1	0.7	Good	6	0.1	0.6	Good	5	0.1	0.5
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Fair	4	0.1	0.4	Fair	3	0.1	0.3
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.1**				**7.0**				**6.7**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-8a
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 097, BUILDING 40-11, FORMER VAPOR DEGREASER

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	Excavation of contaminated soil in the SWMU/AOC at a time when site development makes the area accessible for construction. Backfill of the excavation with CDF and restoration of area. Institutional controls prior to excavation.	Excavation of contaminated soil in the SWMU/AOC. Relocate operations for construction to complete work. Backfill of the area with CDF and restoration of area and operations.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall Weighted Benefit Score (from Table 8-8b)	7.2	7.6	7.3
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$91,000	$196,000	$244,000
- Highest ranked overall benefit	No	**Yes**	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	7.2	3.5	2.7
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-5%	0%	-4%
- Incremental increase/decrease in cost compared to highest ranked alternative	-54%	0%	24%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-7.

Table 8-8b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 097, BUILDING 40-11, FORMER VAPOR DEGREASER

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Future Excavation**				**Alternative 3: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Excellent	8	0.2	1.6
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	6	0.1	0.6
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Fair	4	0.1	0.4
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.6**				**7.3**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-9a
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 098, BUILDING 40-53, FORMER MOCK-UP DEGREASER

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	Excavation of contaminated soil within SWMU/AOC at a time when site development makes the area accessible for construction. Institutional controls prior to excavation and after for contaminated soil that cannot be excavated.	Excavation of contaminated soil within SWMU/AOC. Relocation of operations to complete work. Backfill of area with CDF and restoratin of area and operations. Continued institutional controls for contaminated soil that cannot be excavated.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall Weighted Benefit Score (from Table 8-9b)	7.2	7.3	6.8
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$91,000	$3,570,000	$3,601,000
- Highest ranked overall benefit	No	**Yes**	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	7.2	0.2	0.2
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-1%	0%	-7%
- Incremental increase/decrease in cost compared to highest ranked alternative	-97%	0%	1%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:

[a] Ratings used: Low, Moderate, or High.

[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-8.

Table 8-9b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 098, BUILDING 40-53, FORMER MOCK-UP DEGREASER

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Future Excavation**				**Alternative 3: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	6	0.1	0.6
- Implementability	Superior	9	0.1	0.9	Good	6	0.1	0.6	Fair	3	0.1	0.3
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.3**				**6.8**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-10a
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 170, BUILDING 40-02, FORMER LARGE VAPOR DEGREASER

Alternative Number and Name	**Alternative 1: Maintain Containment**	**Alternative 2: Soil Vapor Extraction**	**Alternative 3: Future Excavation**	**Alternative 4: Near-Term Excavation**
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	Soil vapor extraction using SVE wells installed within SWMU/AOC. Routine SVE monitoring and institutional controls throughout O&M period.	Excavation of contaminated soil at a future time when site redevelopment makes the area accessible for construction. Restoration of area using CDF backfill. Routine inspection and reporting of institutional controls prior to excavation.	Excavation of contaminated soil and restoration using CDF backfill. Operations will be permanently moved to a new building to perform excavation.
Individual Ranking Criteria				
1 Meets Remedial Action Objectives	Yes	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]				
- Protect human health and the environment	Yes	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
- Overall Weighted Benefit Score (from Table 8-10b)	7.2	6.9	7.2	7.3
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	5 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)				
- Estimated remedy cost (including interim action)	$91,000	$2,459,000	$475,000	$60,187,000
- Highest ranked overall benefit	No	No	No	**Yes**
- Lowest cost alternative	**Yes**	No	No	No
- Relative benefit/cost ratio[b]	7.2	0.0	1.4	0.01
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-1%	-5%	-1%	0%
- Incremental increase/decrease in cost compared to highest ranked alternative	-100%	-96%	-99%	0%
- Costs disproportionate to incremental benefits	No	Yes	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-9.

Table 8-10b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 170, BUILDING 40-02, FORMER LARGE VAPOR DEGREASER

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Soil Vapor Extraction**				**Alternative 3: Future Excavation**				**Alternative 4: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]																
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	6	0.2	1.2	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6
- Long Term Effectiveness	Good	5	0.2	1.0	Good	6	0.2	1.2	Good	6	0.2	1.2	Excellent	8	0.2	1.6
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Excellent	7	0.1	0.7	Good	6	0.1	0.6
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	5	0.1	0.5	Fair	4	0.1	0.4
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**6.9**				**7.2**				**7.3**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-11a
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 169, BUILDING 40-02, FORMER SMALL VAPOR DEGREASER

Alternative Number and Name	Alternative 1: Maintain Containment
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.
Individual Ranking Criteria	
1 Meets Remedial Action Objectives	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]	
- Protect human health and the environment	Yes
- Comply with cleanup standards	Yes
- Comply with applicable state/federal laws	Yes
- Provide for compliance monitoring	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]	
- Overall Weighted Benefit Score (from Table 8-11b)	7.2
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years
- Potential risk to human health and environment[a]	Low
- Practicability of achieving shorter restoration time[a]	Low
- Current use of site, surrounding area, and resources	Industrial
- Future use of site, surrounding area, and resources	Industrial
- Availability of alternative water supplies	Yes
- Likely effectiveness/reliability of institutional controls[a]	High
- Ability to monitor migration of hazardous substances[a]	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate
- Natural processes that reduce concentrations	Yes
- Overall reasonable restoration time frame	Yes
5 Disproportionate Cost Analysis (DCA)[b]	
- Estimated remedy cost (including interim action)	$91,000
- Highest ranked overall benefit	Not Applicable
- Lowest cost alternative	Not Applicable
- Relative benefit/cost ratio	7.2
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	Not Applicable
- Incremental increase/decrease in cost compared to highest ranked alternative	Not Applicable
- Costs disproportionate to incremental benefits	No
Remedy Permanent to the Maximum Extent Practicable?	Yes
Preferred Alternative	**Yes**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Soil concentrations at this SWMU/AOC are below MTCA Method B Protection of Groundwater cleanup levels. Because only a single alternative (maintain containment) was considered for this SWMU/AOC, no DCA was performed.

Table 8-11b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 169, BUILDING 40-02, FORMER SMALL VAPOR DEGREASER

Alternative Number and Name	**Alternative 1: Maintain Containment**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2
- Long Term Effectiveness	Good	5	0.2	1.0
- Manageability of Short Term Risk	Superior	9	0.1	0.9
- Implementability	Superior	9	0.1	0.9
- Consideration of Public Concerns	Excellent	8	0.1	0.8
Overall Weighted Benefit Score				**7.2**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-12a
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model EPM E
BUILDING 40-02, FORMER PAINT CRIB

Alternative Number and Name	**Alternative 1: Maintain Containment**
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.
Individual Ranking Criteria	
1 Meets Remedial Action Objectives	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]	
- Protect human health and the environment	Yes
- Comply with cleanup standards	Yes
- Comply with applicable state/federal laws	Yes
- Provide for compliance monitoring	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]	
- Overall Weighted Benefit Score (from Table 8-12b)	7.2
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years
- Potential risk to human health and environment [a]	Low
- Practicability of achieving shorter restoration time [a]	Low
- Current use of site, surrounding area, and resources	Industrial
- Future use of site, surrounding area, and resources	Industrial
- Availability of alternative water supplies	Yes
- Likely effectiveness/reliability of institutional controls [a]	High
- Ability to monitor migration of hazardous substances [a]	Moderate
- Toxicity of hazardous substances at the site [a]	Moderate
- Natural processes that reduce concentrations	Yes
- Overall Reasonable Restoration Time Frame	Yes
5 Disproportionate Cost Analysis (DCA)[b]	
- Estimated Remedy Cost (including interim action)	$91,000
- Highest Ranked Overall Benefit	Not Applicable
- Lowest Cost Alternative	Not Applicable
- Relative Benefit/Cost Ratio	7.2
- Incremental Increase/Decrease in Relative Benefit to Highest Ranked Alternative	Not Applicable
- Incremental Increase/Decrease in Cost Compared to Highest Ranked Alternative	Not Applicable
- Costs Disproportionate to Incremental Benefits	No
Remedy Permanent to the Maximum Extent Practicable?	Yes
Preferred Alternative	**Yes**

Notes:

[a] Ratings used: Low, Moderate, or High.

[b] Soil concentrations at this SWMU/AOC are below MTCA Method B Protection of Groundwater cleanup levels. Because only a single alternative (maintain containment) was considered for this SWMU/AOC, no DCA was performed.

Table 8-12b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model EPM E
BUILDING 40-02, FORMER PAINT CRIB

Alternative Number and Name	**Alternative 1: Maintain Containment**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2
- Long Term Effectiveness	Good	5	0.2	1.0
- Manageability of Short Term Risk	Superior	9	0.1	0.9
- Implementability	Superior	9	0.1	0.9
- Consideration of Public Concerns	Excellent	8	0.1	0.8
Overall Weighted Benefit Score				**7.2**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-13a
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 054, BUILDING 40-51, FORMER WASTEWATER AST

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	Excavation of contaminated soil at a future time when site redevelopment makes the area accessible for construction. Institutional controls implemented prior to excavation and after due to inaccessible soils beneath the utilidor. Routine inspection and reporting of containment.	Excavation of contaminated soil to the extent possible in the near-term. Institutional controls will be implemented after excavation due to inaccessible soils beneath the utilidor. Routine inspection and reporting of containment.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall Weighted Benefit Score (from Table 8-13b)	7.2	7.0	6.7
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$91,000	$1,441,000	$1,570,000
- Highest ranked overall benefit	**Yes**	No	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	7.2	0.4	0.4
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	-3%	-7%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	1484%	1625%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-12.

Table 8-13b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model E
SWMU/AOC No. 054, BUILDING 40-51, FORMER WASTEWATER AST

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Future Excavation**				**Alternative 3: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Good	6	0.2	1.2	Good	6	0.2	1.2
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	6	0.1	0.6	Good	6	0.1	0.6
- Implementability	Superior	9	0.1	0.9	Good	6	0.1	0.6	Good	4	0.1	0.4
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.0**				**6.7**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-14a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model EPM E
BUILDING 40-32, FOOTING EXCAVATION

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Soil Vapor Extraction
Alternative Description	Containment of the AOC by maintaining asphalt, concrete, and CDF. Routine inspection and reporting of containment.	SVE system consisting of screened underground piping below the pedestrian tunnel floor, adjacent to the AOC. Routine inspection and reporting of containment during SVE operation.
Individual Ranking Criteria		
1 Meets Remedial Action Objectives	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]		
- Protect human health and the environment	Yes	Yes
- Comply with cleanup standards	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes
- Provide for compliance monitoring	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]		
- Overall Weighted Benefit Score (from Table 8-14b)	7.2	6.8
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	Approximately 5 years
- Potential risk to human health and environment[a]	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes
5 Disproportionate Cost Analysis (DCA)		
- Estimated remedy cost (including interim action)	$91,000	$582,000
- Highest ranked overall benefit	**Yes**	No
- Lowest cost alternative	**Yes**	No
- Relative benefit/cost ratio[b]	7.2	1.1
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	-6%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	540%
- Costs disproportionate to incremental benefits	No	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-13.

Table 8-14b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model EPM E
BUILDING 40-32, FOOTING EXCAVATION

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Soil Vapor Extraction**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]								
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Good	6	0.2	1.2
- Long Term Effectiveness	Good	5	0.2	1.0	Good	6	0.2	1.2
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	6	0.1	0.6
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7
- Consideration of Public Concerns	Superior	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**6.8**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-15a
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model F
SWMU/AOC No. 068, SOUTH COMPLEX, FORMER SOUTH FIRE PIT

Alternative Number and Name	**Alternative 1: Maintain Containment**	**Alternative 2: Soil Vapor Extraction**	**Alternative 3: Future Excavation**	**Alternative 4: Near-Term Excavation**
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	SVE system consisting of screened underground piping at the SWMU/AOC. Routine inspection and reporting of institutional controls during SVE operation.	Excavation of the contaminated soil at a time when site redevelopment makes area accessible for construction. Restoration of area using CDF backfill.	Excavation of the contaminated soil. Restoration of area using CDF backfill.
Individual Ranking Criteria				
1 Meets Remedial Action Objectives	Yes	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]				
- Protect human health and the environment	Yes	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
- Overall Weighted Benefit Score (from Table 8-15b)	7.2	6.8	7.4	7.1
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	5 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)				
- Estimated remedy cost (including interim action)	$91,000	$984,000	$727,000	$816,000
- Highest ranked overall benefit	No	No	**Yes**	No
- Lowest cost alternative	**Yes**	No	No	No
- Relative benefit/cost ratio[b]	7.2	0.6	0.9	0.8
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-3%	-8%	0%	-4%
- Incremental increase/decrease in cost compared to highest ranked alternative	-87%	35%	0%	12%
- Costs disproportionate to incremental benefits	No	Yes	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-14.

Table 8-15b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model F
SWMU/AOC No. 068, SOUTH COMPLEX, FORMER SOUTH FIRE PIT

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Soil Vapor Extraction**				**Alternative 3: Future Excavation**				**Alternative 4: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]																
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Good	6	0.2	1.2	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6
- Long Term Effectiveness	Good	5	0.2	1.0	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	8	0.2	1.6
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	6	0.1	0.6	Good	6	0.1	0.6	Fair	4	0.1	0.4
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	6	0.1	0.6	Fair	4	0.1	0.4
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**6.8**				**7.4**				**7.1**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-16a
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model G
SWMU/AOC No. 065, BUILDING 40-51, FORMER PAINT STRIPPING TANKLINE

Alternative Number and Name	**Alternative 1: Maintain Containment**	**Alternative 2: Future Excavation**	**Alternative 3: Near-Term Excavation**
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	Removal of the contaminated sand within the concrete pit and cleaning of the pit to removal residual contamination. Work would occur when site redevelopment makes the area accessible for construction. Restoration of area using CDF backfill within the pit.	Temporary relocation of operations and equipment in the SWMU/AOC footprint. Demolition of the existing blockhouse in the area to access floor. Removal of the contaminated sand within the concrete pit and pit cleaning to remove residual contamination. Relocation of operations, reconstruction of blockhouse, and restoration of area uisng CDF backfill within the pit.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall Weighted Benefit Score (from Table 8-16b)	7.2	7.5	7.2
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$91,000	$403,000	$869,000
- Highest ranked overall benefit	No	**Yes**	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	7.2	1.7	0.8
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-4%	0%	-4%
- Incremental increase/decrease in cost compared to highest ranked alternative	-77%	0%	116%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-15.

Table 8-16b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model G
SWMU/AOC No. 065, BUILDING 40-51, FORMER PAINT STRIPPING TANKLINE

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Future Excavation**				**Alternative 3: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Excellent	8	0.2	1.6
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	5	0.1	0.5
- Implementability	Superior	9	0.1	0.9	Good	6	0.1	0.6	Fair	4	0.1	0.4
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.5**				**7.2**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-17a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model G
BUILDING 40-11, UST EV-48-1

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	Excavation of contaminated soil during removal or replacement of the USTs as part of site equipment upgrades. Backfill of the remedial excavation with CDF.	Removal of the USTs to access SWMU/AOC and excavation of contaminated soils. Partial backfill of the excavation with CDF. Installation of new USTs as replacements.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall Weighted Benefit Score (from Table 8-17b)	7.2	7.6	7.2
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$91,000	$725,000	$1,465,000
- Highest ranked overall benefit	No	**Yes**	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	7.2	1.0	0.4
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-5%	0%	-5%
- Incremental increase/decrease in cost compared to highest ranked alternative	-87%	0%	102%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-16.

Table 8-17b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model G
BUILDING 40-11, UST EV-48-1

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Future Excavation**				**Alternative 3: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	6	0.1	0.6
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	5	0.1	0.5
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.6**				**7.2**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-18a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model G
SWMU/AOC No. 165, BUILDING 45-52, FORMER FUEL FARM USTs AND FUEL STALL PIPING

Alternative Number and Name	Alternative 1: Limited Excavation and Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
Alternative Description	Excavation of one area where free product was observed, up to the edge of the substation concrete pad. Containment of other areas in SWMU/AOC by maintaining concrete, asphalt, and/or CDF. Routine inspection and reporting of containment.	Excavation of all contaminated soil in the SWMU/AOC at a future time when site redevelopment makes the area accessible for construction. Excavation of contaminated soil at the fueling positions during upgrade or removal of fuel lines. Backfill of the excavations with CDF and restoration of areas.	Excavation of all contaminated soil in the SWMU/AOC. A new substation will be constructed outside the area so that the existing substation can be shut down and removed. Excavation of soil around the fuel lines using a method to prevent damaging the piping.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall Weighted Benefit Score (from Table 8-18b)	6.7	7.3	7.0
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$670,000	$2,548,000	$4,645,000
- Highest ranked overall benefit	No	**Yes**	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	6.7	1.9	1.0
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-8%	0%	-4%
- Incremental increase/decrease in cost compared to highest ranked alternative	-74%	0%	82%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($684,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-17.

Table 8-18b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model G
SWMU/AOC No. 165, BUILDING 45-52, FORMER FUEL FARM USTs AND FUEL STALL PIPING

Alternative Number and Name	**Alternative 1: Limited Excavation and Maintain Containment**				**Alternative 2: Future Excavation**				**Alternative 3: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	5	0.2	1.0	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6
- Long Term Effectiveness	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	8	0.2	1.6
- Manageability of Short Term Risk	Excellent	7	0.1	0.7	Good	6	0.1	0.6	Good	5	0.1	0.5
- Implementability	Good	6	0.1	0.6	Good	5	0.1	0.5	Poor	2	0.1	0.2
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**6.7**				**7.3**				**7.0**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-19a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model EPM G
SWMU/AOC No. 083, FLIGHTLINE, FORMER UST EV-15

Alternative Number and Name	**Alternative 1: Maintain Containment**	**Alternative 2: Future Excavation**
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	Excavation of contaminated soils at a future time when site redevelopment makes the flightline accessible for construction. Preparation of the site by temporarily removing the blast wall and soil berm. Backfill of excavation with CDF and restoration of area.
Individual Ranking Criteria		
1 Meets Remedial Action Objectives	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]		
- Protect human health and the environment	Yes	Yes
- Comply with cleanup standards	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes
- Provide for compliance monitoring	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]		
- Overall Weighted Benefit Score (from Table 8-19b)	7.2	7.4
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years
- Potential risk to human health and environment[a]	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Low
- Current use of site, surrounding area, and resources	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes
5 Disproportionate Cost Analysis (DCA)		
- Estimated remedy cost (including interim action)	$91,000	$328,000
- Highest ranked overall benefit	No	**Yes**
- Lowest cost alternative	**Yes**	No
- Relative benefit/cost ratio[b]	7.2	2.1
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-3%	0%
- Incremental increase/decrease in cost compared to highest ranked alternative	-72%	0%
- Costs disproportionate to incremental benefits	No	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-18.

Table 8-19b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model EPM G
SWMU/AOC No. 083, FLIGHTLINE, FORMER UST EV-15

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Future Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]								
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	8	0.2	1.6
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	8	0.2	1.6
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Excellent	7	0.1	0.7
- Implementability	Superior	9	0.1	0.9	Fair	4	0.1	0.4
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.4**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-20a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model H
SWMU/AOC No. 093, BUILDING 45-01, FORMER SOLVENT USTs

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Near-Term Excavation
Alternative Description	Containment of the SWMU/AOC by maintaining asphalt/concrete. Routine inspection and reporting of containment.	Excavation of contaminated soil, with potential contamination/excavation below the building edge. Backfill of the remedial excavation with CDF and restoration of the area.
Individual Ranking Criteria		
1 Meets Remedial Action Objectives	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]		
- Protect human health and the environment	Yes	Yes
- Comply with cleanup standards	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes
- Provide for compliance monitoring	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]		
- Overall Weighted Benefit Score (from Table 8-20b)	7.2	7.0
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years
- Potential risk to human health and environment[a]	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes
5 Disproportionate Cost Analysis (DCA)		
- Estimated remedy cost (including interim action)	$91,000	$386,000
- Highest ranked overall benefit	**Yes**	No
- Lowest cost alternative	**Yes**	No
- Relative benefit/cost ratio[b]	7.2	1.7
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	-3%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	324%
- Costs disproportionate to incremental benefits	No	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-19.

Table 8-20b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model H
SWMU/AOC No. 093, BUILDING 45-01, FORMER SOLVENT USTs

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]								
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	6	0.1	0.6
- Implementability	Superior	9	0.1	0.9	Good	5	0.1	0.5
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7
Overall Weighted Benefit Score				**7.2**				**7.0**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-21a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model H
SWMU/AOC Nos. 067 and 071, BUILDING 40-56, FORMER RECYCLING UNIT AND UST EV-153

Alternative Number and Name	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
Alternative Description	Containment of the SWMU/AOC by maintaining concrete. Routine inspection and reporting of containment.	Excavation of contaminated soil in the SWMU/AOC at a time when site redevelopment makes the area accessible for construction. Backfill of the excavation with CDF and restoration of area.	Permanent relocation of Silk Screen Shop operations and excavation of contaminated soil beneath the building floor. Containment and routine inspection and reporting will apply to contaminated soil remaining in-place around foundations.
Individual Ranking Criteria			
1 Meets Remedial Action Objectives	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]			
- Protect human health and the environment	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]			
- Overall Weighted Benefit Score (from Table 8-21b)	7.2	6.8	6.1
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years	15 to 20 years	2 years
- Potential risk to human health and environment[a]	Low	Low	Low
- Practicability of achieving shorter restoration time[a]	Low	Low	Moderate
- Current use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Future use of site, surrounding area, and resources	Industrial	Industrial	Industrial
- Availability of alternative water supplies	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes	Yes
5 Disproportionate Cost Analysis (DCA)			
- Estimated remedy cost (including interim action)	$91,000	$2,339,000	$22,290,000
- Highest ranked overall benefit	**Yes**	No	No
- Lowest cost alternative	**Yes**	No	No
- Relative benefit/cost ratio[b]	7.2	0.3	0.02
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	0%	-6%	-15%
- Incremental increase/decrease in cost compared to highest ranked alternative	0%	2470%	24395%
- Costs disproportionate to incremental benefits	No	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes	Yes
Preferred Alternative Based on DCA	**Yes**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($91,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-20.

Table 8-21b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model H
SWMU/AOC Nos. 067 and 071, BUILDING 40-56, FORMER RECYCLING UNIT AND UST EV-153

Alternative Number and Name	**Alternative 1: Maintain Containment**				**Alternative 2: Future Excavation**				**Alternative 3: Near-Term Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]												
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Good	6	0.2	1.2
- Long Term Effectiveness	Good	5	0.2	1.0	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Superior	9	0.1	0.9	Good	5	0.1	0.5	Fair	4	0.1	0.4
- Implementability	Superior	9	0.1	0.9	Fair	4	0.1	0.4	Poor	1	0.1	0.1
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	7	0.1	0.7	Good	6	0.1	0.6
Overall Weighted Benefit Score				**7.2**				**6.8**				**6.1**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-22a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model I
ESPERANCE SAND WELL EGW061

Alternative Number and Name	**Alternative 1: Institutional Controls**
Alternative Description	Institutional controls to prohibit groundwater in the vicinity of EGW061 as a source of drinking water. Long-term monitoring of the AOC, including routine inspection and reporting of ICs and periodic groundwater sampling.
Individual Ranking Criteria	
1 Meets Remedial Action Objectives	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]	
- Protect human health and the environment	Yes
- Comply with cleanup standards	Yes
- Comply with applicable state/federal laws	Yes
- Provide for compliance monitoring	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]	
- Overall Weighted Benefit Score (from Table 8-22b)	7.2
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	30 years
- Potential risk to human health and environment[a]	Low
- Practicability of achieving shorter restoration time[a]	Low
- Current use of site, surrounding area, and resources	Industrial
- Future use of site, surrounding area, and resources	Industrial
- Availability of alternative water supplies	Yes
- Likely effectiveness/reliability of institutional controls[a]	High
- Ability to monitor migration of hazardous substances[a]	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate
- Natural processes that reduce concentrations	Yes
- Overall reasonable restoration time frame	Yes
5 Disproportionate Cost Analysis (DCA)[b]	
- Estimated remedy cost (including interim action)	$379,000
- Highest ranked overall benefit	Not Applicable
- Lowest cost alternative	Not Applicable
- Relative benefit/cost ratio	7.2
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	Not Applicable
- Incremental increase/decrease in cost compared to highest ranked alternative	Not Applicable
- Costs disproportionate to incremental benefits	No
Remedy Permanent to the Maximum Extent Practicable?	Yes
Preferred Alternative	**Yes**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Treatment of groundwater at this SWMU/AOC is screened out as clearly disproportionately costly per WAC 173-240-350(8)(b)(i). Because only a single alternative (institutional controls and continued groundwater monitoring) was considered for this SWMU/AOC, no DCA was performed.

Table 8-22b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model I
ESPERANCE SAND WELL EGW061

Alternative Number and Name	**Alternative 1: Maintain Containment**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2
- Long Term Effectiveness	Good	5	0.2	1.0
- Manageability of Short Term Risk	Superior	9	0.1	0.9
- Implementability	Superior	9	0.1	0.9
- Consideration of Public Concerns	Excellent	8	0.1	0.8
Overall Weighted Benefit Score				**7.2**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix

Table 8-23a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model J
SWMU/AOC No. 100, SOUTH COMPLEX, FORMER GUN CLUB

Alternative Number and Name	Alternative 1: Limited Excavation	Alternative 2: Comprehensive Excavation
Alternative Description	Partial excavation of soil/sediment around existing trees in Area B. Restoration of area and affected wetlands. Containment of remaining contamination in Area C. Routine inspection and reporting of containment.	Complete excavation of soil/sediment around existing trees in Area B. Restoration of area and affected wetlands. Excavation and restoration of contaminated soils in Area C.
Individual Ranking Criteria		
1 Meets Remedial Action Objectives	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]		
- Protect human health and the environment	Yes	Yes
- Comply with cleanup standards	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes
- Provide for compliance monitoring	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]		
- Overall Weighted Benefit Score (from Table 8-23b)	6.7	7.5
4 Restoration Time Frame [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	2 years	2 years
- Potential risk to human health and environment[a]	Low	Low
- Practicability of achieving shorter restoration time[a]	Moderate	Moderate
- Current use of site, surrounding area, and resources	Open Space (Forested)	Open Space (Forested)
- Future use of site, surrounding area, and resources	Open Space (Forested)	Open Space (Forested)
- Availability of alternative water supplies	Yes	Yes
- Likely effectiveness/reliability of institutional controls[a]	High	High
- Ability to monitor migration of hazardous substances[a]	Moderate	Moderate
- Toxicity of hazardous substances at the site[a]	Moderate	Moderate
- Natural processes that reduce concentrations	Yes	Yes
- Overall reasonable restoration time frame	Yes	Yes
5 Disproportionate Cost Analysis (DCA)		
- Estimated remedy cost (including interim action)	$4,961,000	$4,322,000
- Highest ranked overall benefit	No	**Yes**
- Lowest cost alternative	No	**Yes**
- Relative benefit/cost ratio[b]	5.8	7.5
- Incremental increase/decrease in relative benefit to highest Ranked Alternative	-11%	0%
- Incremental increase/decrease in cost compared to highest ranked alternative	15%	0%
- Costs disproportionate to incremental benefits	No	Yes
Remedy Permanent to the Maximum Extent Practicable?	Yes	Yes
Preferred Alternative Based on DCA	**No**	**Yes**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled by the lowest cost alternative ($4,961,000) in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-22.

Table 8-23b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model J
SWMU/AOC No. 100, SOUTH COMPLEX, FORMER GUN CLUB

Alternative Number and Name	**Alternative 1: Limited Excavation**				**Alternative 2: Comprehensive Excavation**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]								
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	8	0.3	2.4	Superior	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	8	0.2	1.6
- Long Term Effectiveness	Excellent	7	0.2	1.4	Excellent	7	0.2	1.4
- Manageability of Short Term Risk	Good	5	0.1	0.5	Good	6	0.1	0.6
- Implementability	Fair	4	0.1	0.4	Excellent	7	0.1	0.7
- Consideration of Public Concerns	Excellent	8	0.1	0.8	Excellent	8	0.1	0.8
Overall Weighted Benefit Score				**6.7**				**7.5**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10). Refer to Appendix E for criteria descriptions and explanation of weighting factors.

Table 8-24a
Summary of MTCA Alternatives Evaluation and Disproportionate Cost Alternatives Ranking
Exposure Pathway Model K
Powder Mill Gulch SWMU

Alternative Number **Alternative Name**	**Alternative 1** **Continued GET System Operation and Institutional Controls**	**Alternative 2** **EISB Source Area Treatment w/GET System and Institutional Controls**	**Alternative 3** **Focused ISCO Treatment w/GET System and Institutional Controls**	**Alternative 4** **Focused EISB Treatment w/GET System and Institutional Controls**
Alternative Description	Continued operation of GET system for hydraulic control of chlorinated solvents in groundwater, minimizing migration of cholinated solvents in groundwater to surface water, groundwater flushing and restoration, and protection of human and ecological receptors.	Injection of electron donor for enhanced bioremediation of groundwater in detention basin source area (TCE > 500 ug/L) in combination with Continued operation of GET system for hydraulic control of chlorinated solvents in groundwater, minimizing migration of cholinated solvents in groundwater to surface water, groundwater flushing and restoration, and protection of human and ecological receptors.	Injection of chemical oxidant (sodium persulfate) for contaminant oxidation in groundwater in TCE focus areas (TCE > 250 ug/L) in in combination with Continued operation of GET system for hydraulic control of chlorinated solvents in groundwater, minimizing migration of cholinated solvents in groundwater to surface water, groundwater flushing and restoration, and protection of human and ecological receptors.	Injection of electron donor for enhanced bioremediation of groundwater in TCE focus areas (TCE > 250 ug/L) in combination with Continued operation of GET system for hydraulic control of chlorinated solvents in groundwater, minimizing migration of cholinated solvents in groundwater to surface water, groundwater flushing and restoration, and protection of human and ecological receptors.
Individual Ranking Criteria				
1 Meets Remedial Action Objectives	Yes	Yes	Yes	Yes
2 Compliance With MTCA Threshold Criteria [WAC 173-340-360(2)(a)]				
- Protect human health and the environment	Yes	Yes	Yes	Yes
- Comply with cleanup standards	Yes	Yes	Yes	Yes
- Comply with applicable state/federal laws	Yes	Yes	Yes	Yes
- Provide for compliance monitoring	Yes	Yes	Yes	Yes
3 Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]				
- Overall Weighted Benefit Score (from Table 8-24b)	7.4	7.5	7.5	7.8
4 Restoration Timeframe [WAC 173-340-360(2)(b)(ii) and WAC 173-340-360(4)]	Approximately 38 years	Approximately 37 years	Approximately 22 years	Approximately 22 years
- Potential risk to human health and environment [a]	Low	Low	Low	Low
- Practicability of achieving shorter restoration time	See DCA below	See DCA below	See DCA below	See DCA below
- Current use of site, surrounding area, and resources	Onsite: Industrial Offsite: Open Space, Recreational Purposes, Office and Industrial Park	Onsite: Industrial Offsite: Open Space, Recreational Purposes, Office and Industrial Park	Onsite: Industrial Offsite: Open Space, Recreational Purposes, Office and Industrial Park	Onsite: Industrial Offsite: Open Space, Recreational Purposes, Office and Industrial Park
- Future use of site, surrounding area, and resources	Onsite: Industrial Offsite: Open Space, Recreational Purposes, Office and Industrial Park	Onsite: Industrial Offsite: Open Space, Recreational Purposes, Office and Industrial Park	Onsite: Industrial Offsite: Open Space, Recreational Purposes, Office and Industrial Park	Onsite: Industrial Offsite: Open Space, Recreational Purposes, Office and Industrial Park
- Availability of alternative water supplies	Yes	Yes	Yes	Yes
- Likely effectiveness/reliability of institutional controls [a]	High	High	High	High
- Ability to monitor migration of hazardous substances [a]	High	High	High	High
- Toxicity of hazardous substances at the site [a]	Moderate to High	Moderate to High	Moderate to High	Moderate to High
- Natural processes that reduce concentrations	Yes	Yes	Yes	Yes
- Overall Reasonable Restoration Timeframe	Yes	Yes	Yes	Yes
5 Disproportionate Cost Analysis				
Overall Weighted Benefit Score	7.4	7.5	7.5	7.8
Estimated Remedy Cost (including interim action)	$10,720,000	$12,460,000	$16,880,000	$11,980,000
Most Permanent Solution	No	No	No	**Yes**
Lowest Cost Alternative	**Yes**	No	No	No
Relative Benefit/Cost Ratio [b]	7.4	6.5	4.8	7.0
Incremental Increase/Decrease in Relative Benefit to Most Permanent Alternative	-5%	-4%	-4%	0%
Incremental Increase/Decrease in Relative Benefit to Next Most Expensive Alternative	-1%	0%	-4%	4%
Incremental Increase/Decrease in Cost Compared to Most Permanent Alternative	-11%	4%	41%	0%
Incremental Increase/Decrease in Cost Compared to Next Most Expensive Alternative	-14%	-26%	41%	0%
Costs Disproportionate to Incremental Benefits	No	Yes	Yes	Yes
Remedy Permanent to the Maximum Extent Practicable?	**Yes**	No	No	No
Preferred Alternative	**Yes**	**No**	**No**	**No**

Notes:
[a] Ratings used: Low, Moderate, or High.
[b] Benefit/Cost Ratio scaled (divided) by lowest cost alternative in order to compare ranges similar in scale to comparative overall benefit, as presented on Figure 8-24:

Lowest Cost Alternative	$10,720,000
Highest Ranked Alternative	7.8
Cost of Highest Ranked Alternative	$16,880,000

DCA - Disprop
EISB - enhanced in situ bioremediation
GET - groundv
ISCO - in situ chemical oxidation
µg/L - microgr
MTCA - Model Toxics Control Act
TCE - trichloroethene

Table 8-24b
Summary of MTCA Alternatives Relative Benefits Ranking
Exposure Pathway Model K
Powder Mill Gulch SWMU

Alternative Number and Name	**Alternative 1**				**Alternative 2**				**Alternative 3**				**Alternative 4**			
	Continued GET System Operations and Institutional Controls				**EISB Source Area Treatment w/GET System and Institutional Controls**				**Focused ISCO Treatment w/GET System and Institutional Controls**				**Focused EISB Treatment w/GET System and Institutional Controls**			
Relative Benefits Ranking for DCA [WAC 173-340-360(2)(b)(i) and WAC 173-340-36093)(f)]																
Comparative Overall Benefit [a]		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score		Score	Weighting Factor	Weighted Score
- Overall Protectiveness	Excellent	7	0.3	2.1	Excellent	7	0.3	2.1	Excellent	8	0.3	2.4	Excellent	8	0.3	2.4
- Permanence	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Superior	8	0.2	1.6	Superior	8	0.2	1.6
- Long-Term Effectiveness	Good	6	0.2	1.2	Excellent	7	0.2	1.4	Excellent	8	0.2	1.6	Excellent	8	0.2	1.6
- Manageability of Short-Term Risk	Superior	10	0.1	1	Superior	9	0.1	0.9	Good	6	0.1	0.6	Excellent	7	0.1	0.7
- Implementability	Superior	9	0.1	0.9	Excellent	7	0.1	0.7	Good	5	0.1	0.5	Good	6	0.1	0.6
- Consideration of Public Concerns	Superior	10	0.1	1	Superior	10	0.1	1	Excellent	8	0.1	0.8	Superior	9	0.1	0.9
Overall Weighted Benefit Score				**7.4**				**7.5**				**7.5**				**7.8**

Notes:
[a] Ratings used: Poor (1-2), Fair (3-4), Good (5-6), Excellent (7-8), and Superior (9-10).

MTCA = Model Toxics Control Act
DCA = Disproportionate Cost Alternative
GET = groundwater extraction and treatment
µg/L = micrograms per liter
TCE = trichloroethene
ISCO = *in situ* chemical oxidation
EISB = enhanced *in situ* bioremediation

9.0 RECOMMENDATION OF PREFERRED CLEANUP ALTERNATIVE

This section summarizes the basis and evaluation from the preceding sections of this FS and then draws conclusions and recommends a preferred cleanup action for each EPM (summarized in Table 9-1) and associated SWMU/AOC for consideration in the CAP. For many of the upland SWMUs/AOCs within the fenced portion of the facility, the DCA process established by MTCA shows that maintaining containment is the preferred alternative. This is because, with the exposures controlled, the substantial cost to perform active treatment is clearly disproportionate to the small additional benefit gained. For some SWMUs/AOCs, the DCA results indicate that containment should be selected, but an intrusive cleanup action is instead recommended in this FS. This is the case in the following situations:

1. At SWMUs/AOCs where free-phase contaminants (LNAPL or DNAPL) have recently been observed or are likely to still be present, intrusive cleanup is recommended in compliance with WAC 173-340-360(2)(c)(ii)(A).

2. At SWMUs/AOCs outside of buildings and not in critical production areas, where contaminated media are accessible, could be completely removed by intrusive cleanup, and where site development is reasonably likely in the near future

3. At SWMUs/AOCs inside of buildings and not in critical production areas, where contaminated media are accessible and could be completely removed by intrusive cleanup

Overall, intrusive cleanup actions are recommended at 8 of the 24 SWMUs/AOCs evaluated in this FS (see Table 9-1).

A very large environmental data set is available for the Boeing Everett Plant, which is used in this FS as a basis for evaluation and decision making. The data have been generated through the following:

- Proactive and independent investigations and IAs starting as early as the 1980s
- The RIs performed under the AO
- IAs performed under the AO
- Additional investigation and pilot testing performed under the FS

Data are available for soil, sediment, surface water, shallow perched groundwater, deep Esperance Sand groundwater, soil gas, sub-slab vapor, and indoor air. Surface water and groundwater data are available from ongoing monitoring programs that have generated hundreds

of thousands of data records spanning 20 years of quarterly or semiannual sampling. Also informing this FS are the results of models developed to simulate potential leaching of shallow contaminants to the deep Esperance Sand aquifer, transport, and hydraulic capture/control of TCE in PMG groundwater, and potential vapor intrusion.

During past work by Boeing, either as proactive and independent actions or as IAs under the AO, the original source and majority of the contaminant mass originally present at nearly all of the SWMUs/AOCs evaluated in this FS were removed. These removals took the following forms:

- Decommissioning of USTs and vapor degreasers, with overexcavation of contaminated soil as part of the decommissioning work
- Excavation of contaminated soil identified during building renovations, utility upgrades, and /or site redevelopment construction projects
- Installation and operation of groundwater recovery pumps at two upland area SWMUs/AOCs
- IAs at the PMG source area, including electrical resistance heating and follow-on bioremediation
- Installation and operation of the PMG GET system
- Soil excavation actions at SWMUs/AOCs such as the Former Gun Club Areas A and C and the former South Fire Pit (SWMU 68)

Following these actions, the remaining contamination at most of the SWMUs/AOCs evaluated in this FS represents residual contamination, with the primary source (e.g., a leaking UST or a vapor degreaser) previously removed. At some SWMUs/AOCs, the historical IA met the cleanup standards at the time of the action, but the cleanup standards have now changed, resulting in these SWMUs/AOCs now being included in this FS.

The data summarized in Section 2 of this FS are representative of current conditions at each SWMU/AOC and were used to assess the nature and extent of contamination remaining at each SWMU/AOC that warrants evaluation in this FS.

Section 3 of this FS summarizes the CSM for the site, groups the SWMUs/AOCs according to similar characteristics, and evaluates the current and future exposure pathways. For many of the upland SWMUs/AOCs, the industrial nature of the facility, together with the ubiquitous pavement, flooring, and buildings, limits the potential exposures to future construction workers only—individuals who might penetrate the pavement or floor slab. The results of the leaching model show that the pavement, flooring, and buildings also prevent leaching of contaminants to the deep Esperance Sand groundwater by greatly reducing the potential infiltration of

precipitation. Evaluation of the shallow perched groundwater present at several SWMUs/AOCs shows that this water is nonpotable and therefore not reasonably considered a future source of drinking water.

Using the data presented in Section 2 and the CSMs developed in Section 3, Section 5 develops proposed cleanup standards for each SWMU/AOC. These cleanup standards include consideration of the ARARs summarized in Section 4 and are developed in Section 5 as follows:

- MTCA Method B soil cleanup levels for protection of groundwater are most appropriate for soil at most SWMUs/AOCs to ensure protection of the deep Esperance Sand groundwater if pavement or flooring is permanently removed (which could allow potential increased leaching)

- In cases where Method B cleanup levels are not available (e.g., for TPH or lead), MTCA Method A cleanup levels are proposed

- Based on the industrial nature of the site, MTCA Method C cleanup levels are presented for indoor air throughout the facility

- For the undeveloped Former Gun Club Area B, which is outside of the fenced portion of the facility, soil cleanup levels are proposed that also consider the terrestrial ecological exposure pathway. This SWMU/AOC also contains sediment, and cleanup levels for this medium are proposed based on the SMS standards, Puget Sound soil background concentrations, and one site-specific background concentration (for nickel).

- Risk-based cleanup levels are proposed for nonpotable perched groundwater

- The MTCA Method A cleanup level is proposed for arsenic in deep Esperance Sand groundwater beneath the upland areas (well EGW061)

- For Esperance Sand groundwater in PMG, MTCA Method B cleanup levels are proposed based on the protection of groundwater as drinking water and the surface water pathway.

The proposed cleanup levels are a key factor in the development of cleanup alternatives, which are described in Section 6 and evaluated against the MTCA threshold criteria in Section 7. For upland areas within the security-controlled, fenced perimeter of the facility, a containment alternative is included in the list of alternatives evaluated for most SWMUs/AOCs. Together with the containment alternative, one or more in situ and/or excavation alternatives are also evaluated. In many cases, two excavation scenarios are considered—near-term excavation and future excavation. Near-term excavation alternatives account for interrupting facility operations

to perform cleanup, whereas future excavation alternatives assume that cleanup occurs at some time in the future when building renovations, utility upgrades, and/or site redevelopment construction activities are occurring at the SWMU/AOC for other reasons.

At the SWMUs/AOCs outside of the fence line (PMG and Former Gun Club), in situ treatment, ex situ treatment, or excavation alternatives are evaluated. Based on the potential long-term nature of the cleanup alternatives for PMG, institutional controls are also included as an aspect of the proposed cleanup.

In Section 7, a demonstration is made that all of the alternatives developed in Section 6 meet the MTCA threshold criteria. Section 8 then compares the alternatives developed for each SWMU/AOC using the DCA process established under MTCA.

The cleanup actions recommended in the sections below are protective of human health and the environment and are those that result in the most benefit proportionate to the cost. Many of the recommended cleanup alternatives include institutional controls as a primary element of the cleanup action. An example of such institutional controls is a requirement to maintain pavement or flooring above contaminated media to prevent direct-contact exposures and potential leaching to deep groundwater. Institutional controls would be implemented as part of a sitewide restrictive environmental covenant and associated institutional control plan that would include the elements listed in Section 6. Institutional controls are expected to be particularly effective and reliable at this site for the following reasons:

- Access to the facility is already controlled through a robust security program and perimeter fencing
- Additional control requirements can be integrated into existing Boeing planning procedures to require that construction activities involving excavation or that could impact a remedy be reviewed by Boeing EHS personnel against the requirements and limitations of the institutional control plan. The existing Boeing EHS review procedures are already robust and can be strengthened.
- Boeing has been a reliable partner with Ecology for decades, consistently performing required complex monitoring tasks and reporting the results in a timely manner. Future institutional controls inspections and reporting can be expected to be similarly consistent and timely.

9.1 EXPOSURE PATHWAY MODEL A

The preferred cleanup action alternative for EPM A is **Alternative 1, Maintain Containment** or **Institutional Controls**. Under the maintain containment alternative for SWMU/AOC Nos. 090 and 112, perched groundwater exceeding the cleanup levels will be contained below asphalt or

concrete. Under the institutional controls alternative for SWMU/AOC No. 151, land use restrictions will prevent exposure to sub-slab vapors exceeding residential cleanup levels by restricting land use to industrial use only. Annual inspection and reporting of containment and institutional controls will be performed and maintenance completed when necessary throughout the 30-year period evaluated. Institutional controls would be placed on the portion of the site where COCs remain in place above cleanup levels. **Alternative 1** exhibits substantial advantages over the other alternatives evaluated:

- The other alternatives are disproportionately costly compared to **Alternative 1**, when relative benefits and costs are compared.
- **Alternative 1** addresses the exposure pathway to workers during building renovations, utility upgrades and or site redevelopment construction activities, and prohibits future residential use of the site through a restrictive environmental covenant requiring future use of the site consistent with the current industrial zoning.
- **Alternative 1** does not involve the short-term risks (including potential damage to utilities, the hazards associated with construction, and COC exposures during implementation) associated with the other alternatives that utilize injections, perched groundwater extraction, and excavation. It also does not introduce chemical and biological agents at the site nor increase handling, transport, and treatment of perched groundwater containing COCs.
- **Alternative 1** is ranked the highest for technical and administrative implementability.
- **Alternative 1** allows the facility to continue to operate without interruption, eliminating significant economic losses to Boeing, and prevents even greater economic loss to the region because of reduced production.
- **Alternative 1** has the lowest present-worth costs, ranging from $0.09 million to $0.16 million.
- **Alternative 1** has the lowest overall benefit score, but ranks only 1 percent lower than the highest ranked alternatives at 64 percent lower cost.
- For SWMU/AOC No. 090, **Alternative 1** has both the highest ranking and the lowest cost compared to the other alternatives evaluated for this SWMU/AOC.

Alternative 1 would be implemented once the CAP is approved and can be completed quickly with virtually no impact on site operations. **Alternative 1** is protective of human health and the environment.

9.2 EXPOSURE PATHWAY MODEL B

The preferred cleanup action alternative for SWMU/AOC Nos. 086, 089, and 094, Building 40-56, in EPM B is **Alternative 2, Soil Vapor and Groundwater Extraction**.

Under **Alternative 2**, the majority of soil and perched groundwater exceeding cleanup levels will be treated by SVE and continuous groundwater extraction, treatment via the on-site industrial wastewater treatment plant, and discharge of treated water to the sanitary sewer. Although the disproportionate cost analysis indicates **Alternative 2** is disproportionately costly compared to Alternative 1 (Maintain Containment), **Alternative 2** is selected because it addresses the presence of NAPL as required under MTCA. **Alternative 2** would be implemented once the CAP is approved and can be completed quickly with a low impact on site operations. **Alternative 2** is protective of human health and the environment.

9.3 EXPOSURE PATHWAY MODEL C

The preferred cleanup action alternative for SWMU/AOC No. 166, Building 45-53, Former UST EV-110-1, EPM C is **Alternative 1, Maintain Containment**. Under this alternative, perched groundwater exceeding the cleanup levels will be contained below asphalt or concrete. Annual inspection and reporting of containment and institutional controls will be performed and maintenance completed when necessary throughout the 30-year period evaluated. Institutional controls would be placed on the portion of the site where COCs remain in place above cleanup levels. This alternative exhibits substantial advantages over the other alternatives evaluated:

- The other alternatives are disproportionately costly compared to **Alternative 1** when relative benefits and costs are compared.
- **Alternative 1** addresses the exposure pathway to workers during building renovations, utility upgrades, and/or site redevelopment construction activities.
- **Alternative 1** does not involve the short-term construction hazard and COC exposure risks associated with the groundwater extraction alternative. It also does not include the increased handling, transport, and treatment of perched groundwater containing COCs.
- **Alternative 1** is ranked the highest for technical and administrative implementability.

- **Alternative 1** allows the facility to continue to operate uninterrupted, eliminating significant economic losses to Boeing, and prevents even greater economic loss to the region because of reduced production.

- **Alternative 1** has the highest overall benefit score, while also having the lowest present-worth cost at $0.16 million.

Alternative 1 would be implemented once the CAP is approved and can be completed quickly with virtually no impact on site operations. **Alternative 1** is protective of human health and the environment.

9.4 EXPOSURE PATHWAY MODEL D

The preferred cleanup action alternative for SWMU/AOC Nos. 055 and 168, Building 40-24, in EPM D is **Alternative 4, Near-Term Excavation with Dewatering**.

Under **Alternative 4**, the majority of soil and perched groundwater exceeding cleanup levels will be removed by excavation and disposed of at an off-site waste facility or treated by the on-site industrial wastewater plant, shortly after execution of the CAP (i.e., "near term"). Although the disproportionate cost analysis indicates that **Alternative 4** is disproportionately costly compared to Alternative 1 (Maintain Containment), **Alternative 4** is selected because it addresses the presence of NAPL as required under MTCA.

Alternative 4 would be implemented once the CAP is approved and a near-term time frame for completing the work determined. **Alternative 4** is protective of human health and the environment.

9.5 EXPOSURE PATHWAY MODEL E

The preferred cleanup action alternative is **Alternative 1, Maintain Containment** for seven of the eight SWMUs/AOCs in EPM E as listed below:

- SWMU/AOC No. 171, Building 40-31
- SWMU/AOC No. 098, Building 40-53
- SWMU/AOC No. 170, Building 40-02
- SWMU/AOC No. 169, Building 40-02
- Former Paint Crib, Building 40-02
- SWMU/AOC No. 054, Building 40-51
- Footing Excavation, Building 40-32

Under **Alternative 1** for these SWMUs/AOCs, soil exceeding the cleanup levels will be contained below asphalt or concrete. Annual monitoring will be performed and maintenance completed when necessary throughout the 30-year period evaluated. Institutional controls would be placed on the portion of the site where COCs remain in place above cleanup levels. This alternative exhibits substantial advantages over the other alternatives evaluated:

- The other alternatives are disproportionately costly compared to **Alternative 1** when relative benefits and costs are compared.
- **Alternative 1** addresses the exposure pathway to workers during building renovations, utility upgrades, and/or site redevelopment construction activities.
- **Alternative 1** does not involve the short-term construction hazard and COC exposure risks associated with the other alternatives that utilize SVE and excavation technologies nor the increased handling and off-site transport and disposal of soil containing COCs.
- **Alternative 1** is ranked the highest for technical and administrative implementability.
- **Alternative 1** allows the facility to continue to operate uninterrupted, eliminating significant economic losses to Boeing, and prevents even greater economic loss to the region because of reduced production.
- **Alternative 1** has the lowest present-worth cost, at $0.09 million for each SWMU/AOC.
- For most SWMUs/AOCs, **Alternative 1** has the lowest overall benefit score but ranks only 1 percent lower than the highest ranked alternative at 97 to 100 percent lower cost.
- For SWMU/AOC No. 171, SWMU/AOC No. 054, and Building 40-32, Footing Excavation, **Alternative 1** has both the highest ranking and the lowest cost compared to the other alternatives evaluated for these SWMUs/AOCs.

For one SWMU/AOC (No. 097, Building 40-11) in EPM E, the preferred cleanup action alternative is **Alternative 4, Near-Term Excavation** rather than Alternative 1, Maintain Containment, as discussed above.

Under **Alternative 4** for SWMU/AOC No. 097, soil exceeding the cleanup levels will be excavated and disposed of at an off-site waste facility after execution of the CAP, Ecology approval of the engineering design report, and then as soon as access can be practicably

arranged. Although the disproportionate cost analysis indicates **Alternative 4** is disproportionately costly compared to Alternative 1 (Maintain Containment), Boeing believes that it is in Boeing's best interest to select the more permanent, though disproportionately costly, cleanup action at this SWMU/AOC for the following reasons:

- It is not located in a critical production area.
- The contaminated media are shallow and readily accessible.
- The contaminated soil could be removed by intrusive cleanup, thus eliminating future monitoring and institutional control requirements for this area.

Alternative 1 would be implemented at seven of eight EPM E SWMUs/AOCs once the CAP is approved and can be completed quickly with virtually no impact on site operations. **Alternative 4** at SWMU/AOC No. 097 would be implemented once the CAP is approved and can be completed within a relatively short time frame (after access is obtained based on operation constraints) with a low impact on site operations. **Alternatives 1 and 4** are protective of human health and the environment.

9.6 EXPOSURE PATHWAY MODEL F

The preferred cleanup action for the EPM F SWMU/AOC No. 068, South Fire Pit is **Alternative 4, Near-Term Excavation.** Under **Alternative 4** for SWMU/AOC No. 068, soil exceeding the cleanup levels will be excavated and disposed of at an off-site waste facility after execution of the CAP, Ecology approval of the EDR, and then as soon as access can be practicably arranged. Although the disproportionate cost analysis indicates **Alternative 4** is disproportionately costly compared to Alternative 1 (Maintain Containment), Boeing believes that it is in Boeing's best interest to select the more permanent, though disproportionately costly, cleanup action at this SWMU/AOC for the following reasons:

- It is not located in a critical production area and is outside of buildings in a parking/drive area.
- The contaminated media are shallow and readily accessible.
- The contaminated soil could be completely removed by intrusive cleanup.
- Site redevelopment in this area is reasonably likely.

Alternative 4 at SWMU/AOC No. 068 would be implemented once the CAP is approved and can be completed within a relatively short time frame (after access is obtained based on

operation constraints) with a low impact on site operations. **Alternative 4** is protective of human health and the environment.

9.7 EXPOSURE PATHWAY MODELS G-H

The preferred cleanup action alternative is **Alternative 1, Maintain Containment** for five of the seven SWMUs/AOCs in EPMs G-H as listed below:

- SWMU/AOC No. 065, Building 40-51, Former Paint Stripping Tankline
- SWMU/AOC No. 083, Former UST EV-15
- SWMU/AOC No. 093, Building 45-01, Former Solvent USTs
- SWMUs/AOCs Nos. 067 and 071, Building 40-56, Former Recycling Unit and UST EV-153

Under the maintain containment alternative, soil exceeding the cleanup levels will be contained below asphalt or concrete.

For SWMU/AOC No. 165, **Alternative 1, Limited Excavation and Maintain Containment** is the preferred alternative. One area of SWMU/AOC No. 165, will be excavated (the area exhibiting NAPL) in conjunction with future substation upgrades that are currently planned by Site Services. The remainder of the soil exceeding cleanup levels will be contained. Annual inspection and reporting of containment and institutional controls will be performed and maintenance completed when necessary throughout the 30-year period evaluated. Institutional controls would be placed on the portion of the site where COCs remain in place above cleanup levels. **Alternative 1** for these SWMUs/AOCs exhibits substantial advantages over the other alternatives evaluated:

- The other alternatives are disproportionately costly compared to **Alternative 1** when relative benefits and costs are compared.
- **Alternative 1** addresses the exposure pathway to construction workers.
- **Alternative 1** does not involve the short-term construction hazard and COC exposure risks associated with excavation alternatives, particularly the risks associated with deep excavation inside Building 40-56 at SWMU/AOC Nos. 067 and 071. Alternative 1 also does not require the increased handling and off-site transport and disposal of soil containing COCs. For SWMU/AOC No. 165, the short-term risks and soil transport and disposal associated with limited excavation are significantly less than complete excavation under other alternatives.

- **Alternative 1** is ranked the highest for technical and administrative implementability.

- **Alternative 1** allows the facility to continue to operate uninterrupted, eliminating significant economic losses to Boeing, and prevents even greater economic loss to the region because of reduced production.

- For most SWMUs/AOCs, **Alternative 1** has the lowest present-worth cost, at $0.09 million for maintain containment alternatives and $0.67 million for the limited excavation and maintain containment alternative at SWMU/AOC No. 165.

- For most SWMUs/AOCs, **Alternative 1** has the lowest overall benefit score, but ranks only 3 to 8 percent lower than the highest ranked alternative at 72 to 77 percent lower cost.

- For SWMU/AOC No. 093 and SWMU/AOC Nos. 067 and 071, **Alternative 1** has both the highest overall benefit score and the lowest cost compared to the other alternatives evaluated for these SWMUs/AOCs.

For UST EV-48-1 at Building 40-11, **Alternative 2, Future Excavation** is the preferred alternative. Under **Alternative 2**, soil exceeding the cleanup levels will be excavated and disposed of at an off-site waste facility at a future date when the USTs are replaced because they have reached the end of their service life. Although the disproportionate cost analysis indicates **Alternative 2** is disproportionately costly compared to Alternative 1 (Maintain Containment), Boeing believes that it is in Boeing's best interest to select the more permanent, though disproportionately costly cleanup action at this SWMU/AOC for the following reasons:

- The contaminated soil could be completely removed by intrusive cleanup.

- Future UST replacement is likely to occur at some time in the future, and contaminated soil could be removed at that time without disrupting operations.

Alternative 1 for most of the SWMUs would be implemented once the CAP is approved and can be completed within a relatively short time frame (after access is obtained based on operation constraints) with virtually no impact on site operations at most SWMUs/AOCs in EPMs G-H. For SWMU/AOC No. 165, Alternative 1 would be implemented within the next 5 to 10 years based on the current substation upgrade schedule. For this excavation, relatively minimal disruption of site operations will occur compared to complete excavation alternatives because the excavation will be completed during other site development construction in the area. **Alternative 1** is protective of human health and the environment. For UST EV-48-1 at Building 40-11, **Alternative 2** would be implemented in the future, during life-cycle replacement of the

USTs. In the interim, institutional controls would be in place to control exposures and protect human health and the environment.

9.8 EXPOSURE PATHWAY MODEL I

The preferred cleanup action alternative for EPM I is **Alternative 1, Institutional Controls**. Under this alternative, a restrictive environmental covenant and institutional controls will prohibit the installation of drinking wells in the area of well EGW061. Annual inspection and reporting of institutional controls will be performed throughout the 30-year period evaluated. Periodic groundwater monitoring of well EGW061 will continue to monitor arsenic concentration trends in the groundwater. Active treatment of groundwater at this SWMU/AOC was screened out as clearly disproportionately costly per WAC 173-240-350(8)(b)(i).

Alternative 1 would be implemented once the CAP is approved and can be completed within a relatively short time frame with virtually no impact on site operations. **Alternative 1** is protective of human health and the environment.

9.9 EXPOSURE PATHWAY MODEL J

The preferred cleanup action alternative for SWMU/AOC 100, Former Gun Club, in EPM J is **Alternative 2, Comprehensive Excavation**. Under this alternative, COCs exceeding cleanup levels in soil and sediment will be removed from the site and disposed of at a hazardous waste facility. Post-excavation sampling of soil and sediment remaining in place will be completed to ensure removal of COCs on Boeing property. This alternative exhibits substantial advantages over the other alternative evaluated:

- The other alternative is disproportionately costly compared to **Alternative 2** when relative benefits and costs are compared.
- **Alternative 2** addresses the exposure pathway to ecological receptors and prevents direct contact with soil, sediment, and perched groundwater.
- **Alternative 2** is ranked the highest for technical and administrative implementability.
- **Alternative 2** has the lowest present-worth cost at $4.3 million.
- **Alternative 2** has the highest permanence ranking as well as the highest overall benefit score.
- **Alternative 2** eliminates the need for long-term institutional controls.

Alternative 2 would be implemented once the CAP is approved and a near-term time frame for completing the work determined. **Alternative 2** is protective of human health and the environment.

9.10 EXPOSURE PATHWAY MODEL K

The preferred cleanup action alternative for the PMG SWMU/AOC in EPM K is **Alternative 1, Continued Operation of Existing GET System and Institutional Controls.** Under this alternative, operation of the GET system will continue to provide hydraulic containment of the TCE groundwater plume and enhance flushing and groundwater restoration. Institutional controls will be implemented, as appropriate, to protect potential human receptors. Annual groundwater and surface water monitoring will be performed to monitor GET system performance and progress toward meeting the remediation levels and cleanup levels. A long term monitoring and effectiveness review process will be used to evaluate the progress of the cleanup and may be used to determine if it is desirable or necessary to enhance or reduce the restoration time frame of the cleanup through implementation of supplemental cleanup alternatives (such as those described in Alternatives 2, 3, and 4). Use of these supplemental technologies were not selected at the current time because the results of GET system operation may demonstrate that they are unnecessary for mass reduction in areas where higher TCE concentrations currently exist. Additionally, there are significant uncertainties in the relative benefits or potential issues with these supplemental technologies. Operations, maintenance, and monitoring of the GET system will be completed as necessary throughout the system operational period. This alternative exhibits advantages over the other alternatives evaluated:

- **Alternative 1** has the highest benefit-to-cost ratio because it reduces risk and protects human health and the environment, is a permanent remedy that is anticipated to eventually achieve cleanup standards, and has substantially lower costs than the other alternatives.

- **Alternative 1** provides certainty in addressing the exposure pathways for human and ecological receptors.

- **Alternative 1** is ranked the highest for management of short-term risk, implementability, and consideration of public concerns because it introduces the least concerns and potential issues during implementation with minimal short-term risks and potential disruption to the public. It also has similar rankings for overall protectiveness as the other three alternatives.

- **Alternative 1** is protective of human health and the environment.

Alternative 1 would be fully implemented once the CAP is approved. However, GET system operations are already under way and being optimized as part of the PMG downgradient plume IA. Implementation of any supplemental technologies will be based on evaluation of the effectiveness and groundwater conditions resulting from current and future operation of the GET system and ongoing evaluation of the results of the PMG source area IA.

Table 9-1
Summary of Selected Cleanup Alternatives

Recommended Cleanup Action	SWMU/AOC, Building No., and Description	Medium[a]	Primary COCs Exceeding Proposed CULs	Present-Worth Cost	Basis for Recommendation
Exposure Pathway Model A					
Maintain Containment	No. 090, Building 40-51, Former UST EV-11 (Outside)	Perched groundwater, soil gas	TCE	$0.17 Million	• Addresses exposure pathway • Eliminates short-term construction risks • Highest cost-to-benefit ratio
Maintain Containment	No. 112, Building 40-11, Oil/Water Separator (Outside)	Perched groundwater, soil gas	TPH	$0.16 Million	
Institutional Controls	No. 151, Building 40-51, Sumps EV-112 and EV-119 (Inside and Outside)	Soil vapor	None	$0.09 Million	Prevents residential exposure to soil vapor
Exposure Pathway Model B					
Soil Vapor and Groundwater Extraction	Nos. 086, 089, 094, Building 40-56, Former USTs (Outside)	Perched groundwater, soil, soil gas	BTEX	$2.9 Million	• Addresses exposure pathway • Removes residual NAPL occasionally observed in perched groundwater
Exposure Pathway Model C					
Maintain Containment	No. 166, Building 45-53, Former UST EV-110-1 (Outside)	Perched groundwater	TPH	$0.16 Million	• Addresses exposure pathway • Eliminates short-term construction risks and handling of perched groundwater containing COCs • Highest cost-to-benefit ratio
Exposure Pathway Model D					
Near-Term Excavation with Dewatering	Nos. 055 and 168, Building 40-24, Utility Trenches and Sumps (Inside and Outside)	Perched groundwater, soil	TBP	$1.8 Million	• Addresses exposure pathway • Removes residual NAPL occasionally observed in perched groundwater
Exposure Pathway Model E					
Near-Term Excavation	No. 097, Building 40-11, Former Vapor Degreaser (Inside)	Soil, sub-slab vapor	TCE	$0.24 Million	• It is not located in a critical production area • The contaminated media are shallow and readily accessible • The contaminated soil could be completely removed by intrusive cleanup, thus eliminating future monitoring and institutional control requirements for this area
Maintain Containment	No. 054, Building 40-51, Former Wastewater AST (Outside)	Soil, sub-slab vapor	TCE	$0.09 Million	• Addresses exposure pathway • Eliminates short-term construction risks • Allows facility to operate uninterrupted, thereby eliminating significant economics losses due to delayed or reduced production • Highest cost-to-benefit ratios

Table 9-1 (Continued)
Summary of Selected Cleanup Alternatives

Recommended Cleanup Action	SWMU/AOC, Building No., and Description	Medium[a]	Primary COCs Exceeding Proposed CULs	Present-Worth Cost	Basis for Recommendation
	No. 098, Building 40-53, Mock-Up Degreaser (Inside)	Soil, sub-slab vapor	TCE	$0.09 Million	
	No. 169, Building 40-02, Small Vapor Degreaser (Inside)	Sub-slab vapor	TCE and Freon 12	$0.09 Million	
	No. 170, Building 40-02, Large Vapor Degreaser (Inside)	Soil, sub-slab vapor	TCE	$0.09 Million	
	No. 171, Building 40-31, Former Bluestreak Vapor Degreaser (Inside)	Soil, sub-slab vapor	TCE	$0.09 Million	
	Building 40-02, Former Paint Crib (Inside)	Sub-slab vapor	TCE	$0.09 Million	
	Building 40-32, Footing Excavation (Inside)	Soil, sub-slab vapor	Ethylbenzene, xylenes, TPH	$0.09 Million	
Exposure Pathway Model F					
Near-Term Excavation	No. 068, South Complex, South Fire Pit	Soil	TPH	$0. 82 Million	• It is not located in a critical production area, and is outside of buildings in a parking/drive area • The contaminated media are shallow and readily accessible • The contaminated soil could be removed by intrusive cleanup • Site redevelopment in this area is reasonably likely in the near future.
Exposure Pathway Model G					
Maintain Containment and Limited Excavation	No. 165, Building 45-52, Former Fuel Farm USTs	Soil	TPH, benzene, ethylbenzene, xylenes	$0.68 Million	• Addresses exposure pathway • Eliminates short-term construction risks • Allows facility to operate uninterrupted, thereby eliminating significant economics losses due to delayed or reduced production • Highest cost-to-benefit ratios
Maintain Containment	No. 065, Building 40-51, Former Paint Stripping Tankline	Soil	Cadmium, chromium, lead	$0.09 Million	
	No. 083, Former UST EV-15	Soil	TPH	$0.09 Million	
Future Excavation	Building 40-11, UST EV-48-1	Soil	BTEX, TPH	$0.73 Million	• The contaminated soil could be removed by intrusive cleanup • Future UST replacement is likely to occur at some time in the future, and contaminated soil could be removed at that time without disrupting operations

Table 9-1 (Continued)
Summary of Selected Cleanup Alternatives

Recommended Cleanup Action	SWMU/AOC, Building No., and Description	Medium[a]	Primary COCs Exceeding Proposed CULs	Present-Worth Cost	Basis for Recommendation
Exposure Pathway Model H					
Maintain Containment	No. 093, Building 45-01, Former Solvent USTs	Soil	2-Butanone (methyl ethyl ketone)	$0.09 Million	• Addresses exposure pathway • Eliminates short-term construction risks • Allows facility to operate uninterrupted, thereby eliminating significant economics losses due to delayed or reduced production • Highest cost-to-benefit ratios
	Nos. 067 and 071, Building 40-56, Former Recycling Unit and UST EV-153	Soil	TEX	$0.09 Million	
Exposure Pathway Model I					
Institutional Controls	Esperance Sand Well EGW061	Groundwater	Arsenic	$0.38 Million	• Addresses drinking water exposure pathway by preventing installation or use of drinking water wells at well EGW061 • Eliminates short-term risks associated with construction and handling of groundwater containing COCs
Exposure Pathway Model J					
Comprehensive Excavation	No. 100, South Complex, Former Gun Club	Soil, sediment	PAHs, lead	$4.3 Million	• Addresses exposure pathways • Highest implementability and overall benefit • Highest overall benefit and highest cost-to-benefit ratio
Exposure Pathway Model K					
Continued GET System Operation and Institutional Controls	North Complex, Esperance Sand, Powder Mill Gulch	Groundwater	TCE	$10.7 Million	• Addresses exposure pathways • Highest management of short-term risk, implementability, and consideration of public concerns. Reduces risk to human health and the environment • Highest overall cost-to-benefit ratio

[a]Medium listed for each SWMU/AOC has chemical concentrations above a cleanup or screening level.

Notes:
In these alternatives the phrase "near term" is used to mean execution of the cleanup action as soon as practical after Ecology's approval of the final CAP. For near-term excavation, cleanup would be performed after execution of the CAP, Ecology approval of the engineering design report, and then as soon as access can be practicably be arranged. Near term is used in contrast to "future," which refers to some later time, not specifically defined, during which excavation of contaminated soil is linked to some other site development project on the plant.

BTEX - benzene, toluene, ethylbenzene, and xylenes
COC - chemical of concern
CUL - cleanup level
GET – groundwater extraction and treatment
NAPL - nonaqueous-phase liquid
PAH - polycyclic aromatic hydrocarbon
TBP - tributyl phosphate
TCE - trichloroethane
TEX - toluene, ethylbenzene, and xylenes
TPH - total petroleum hydrocarbons
VI - vapor intrusion

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APPENDIX A

Summaries of Work and Data

SUMMARY OF FS SAMPLING AND ANALYSIS PERFORMED ON UPLAND

1.0 INTRODUCTION

Appendix A presents a summary of the soil and sub-slab soil vapor sampling conducted in the upland portion of the Everett facility and the associated chemical analyses and laboratory testing for soil physical parameters performed as part of the Feasibility Study (FS) . The scope implemented was in general accordance with the FS Work Plan for the Upland Areas and Powder Mill Gulch (Rev. 1.0, URS and Landau Associates, 2012), Dual-Phase Extraction Pilot Test Work Plan (Rev. 1, URS and Landau Associates, 2013a), and the Vapor Intrusion Sampling and Analysis Plan, Upland Areas and Powder Mill Gulch (Rev. 2, URS and Landau Associates, 2013b) that were approved by the Washington Department of Ecology (Ecology).

Modifications and additions to the scope were communicated to and approved by Ecology during the implementation of the FS field work. In addition, a site walk was conducted on February 10, 2014 with URS and Boeing personnel and Ecology representative Dean Yasuda. This was done to facilitate discussion on placement of sub-slab soil vapor sample locations based on proximity to external walls and cracks in the concrete. Specific guidance was provided for the placement of sample locations at Building 40-56 (SWMUs 067 and 071), Building 40-11 (SWMU 112) and Building 40-53 (SWMU 098), which will be discussed in the appropriate sections below that describe the scope of sampling performed in these areas. Utility locating and clearance using an air-knife or hand digging was performed prior to intrusive investigation at each location.

Soil borings were drilled using either a rotary sonic drill rig or rotary drill rig equipped with Hollow-Stem-Auger (HSA). Soil samples were collected at 5-foot intervals using a Dames & Moore sampler. Sub-samples were collected for laboratory analysis for chlorinated volatile organic compounds (VOCs) using EPA SW-846 Method 5035A. Soil samples selected for physical testing and Total Organic Carbon (TOC) analysis were collected in clean, 6-inch-long stainless steel rings placed within the sampler.

At each sub-slab vapor (SSV) sampling location, a ¾- to 1-inch-diameter hole was drilled through the concrete slab with a concrete drill (rotohammer, rock drill bit, or coring with a 2-inch bit. The hole was terminated at a typical depth of approximately 6 to 8 inches below the joint between the concrete slab and the underlying base course material. A small-diameter, approximately 6-inch long, screened probe (Sub-slab vapor probe (SSVP)) and tubing were installed through the hole so the probe was below the slab. The hole was then filled with sand around the probe and dry granular bentonite was placed above the sand pack. A minimum of 6-inches of hydrated bentonite was added to the remaining core hole. The tubing was connected to a laboratory-supplied, clean-certified Summa canister and valved to allow purging with a separate air pump prior to sample collection. All sample train tubing was brass or stainless steel, with 0.25-inch Swagelok union valves and new 0.25-inch outside diameter Teflon or Nylaflow

tubing. A flow controller was attached to the Summa canister and be preset by the laboratory (0.1 to 0.2 L/min) to allow for the proper flow rate. SSVPs were either removed or abandoned in place at all locations and the exposed portion of the hole filled with concrete mortar mix.

In addition to the narrative text describing the scope of work completed by SWMU or grouped SWMUs, this appendix includes boring/well construction logs, a table summarizing when/how the upland area soil and soil vapor sample results were previously transmitted to Ecology, and groundwater and surface water monitoring data tables through the 2nd Quarter of 2015. In addition, lab reports for soil at SWMU No. 097 in Building 40-11 and for deep soil gas samples collected by Landau Associates in Powder Mill Gulch that have not been previously submitted to Ecology are attached. Figures showing the sample locations and data analytical tables referenced herein are presented in Section 2.0 of this FS Report.

2.0 SWMU/AOC NO. 171, BUILDING 40-31, FORMER BLUESTREAK VAPOR DEGREASER

2.1 DRILLING AND SOIL SAMPLING

- Sampling Dates: October 26, 2013 and February 15 and 16, 2014
- Borings: ESB1993, ESB1994, ESB2002, and ESB2003

URS monitored drilling of four soil borings inside the Building 40-31 carpet shop area where the former Bluestreak vapor degreaser was located as shown on Figure 2-1a. The soil borings were drilled to a maximum depth of 40 feet bgs using a track-mounted rotary sonic drill rig. Boring ESB1993 encountered refusal at a depth of 30 feet bgs and ESB2003 was subsequently drilled next to it using a more powerful rotary sonic drill rig in order to reach the desired depth. Soil samples were collected for physical logging and selected for laboratory analysis for chlorinated volatile organic compounds (VOCs) and TOC analysis, and physical testing per the FSWP .

Soils encountered in the borings consist of 7 to10 feet of controlled density fill (CDF) overlying glacial till comprised of silty sand with gravel to silty, clayey sand with gravel (Figure 2-1b). Groundwater was not encountered during the investigation.

Selected soil samples were analyzed for the following chemicals:

- Trichloroethene (TCE)
- Vinyl chloride
- 1,1-Dichloroethene (DCE)
- cis-1,2-Dichloroethene (cis-1,2-DCE)
- trans-1,2-Dichloroethene (trans-1,2-DCE)

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-1a in this FS report. Three samples (one soil sample each from borings ESB1993, ESB1994, and ESB2003) were analyzed for TOC and tested for the physical parameters listed in Table A-2. The physical testing results are presented in Appendix B.

2.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: February 12 and 13, 2014
- Samples Collected: ESSV3, ESSV4, ESSV5, ESSV6

Sample locations (Figure 2-1a) were identified during the site walk with Boeing and Ecology based on the best interpretation of the site map shown in the Work Plan with modifications based on site conditions. One proposed location (ESSV4) was too close to the utility vault, so it was moved south.

SSVP installation in Building 40-31 occurred on February 12, 2014. Locations for ESSV4 and ESSV6 were shifted slightly (2 inches west and 2-3 inches to the southeast, respectively) after refusal was encountered due to rebar. All samples were installed in 6-7 inch concrete slabs.

The SSVPs were left to equilibrate for three hours prior to sampling. Successful samples were collected at ESSV4 and ESSV5 on February 12, 2014. Due to timing, ESSV3 and ESSV6 was left in place overnight and successfully sampled on February 13, 2014. Helium tracer gas was detected in the purged vapor at greater than 5% of the helium concentration in the shroud for three separate attempts at ESSV3. URS staff added bentonite clay as a surface sealant around the sub-slab vapor point and successfully sampled. All samples passed the leak and shut-in tests prior to collection. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-1b in this FS report.

3.0 SWMU/AOC NO. 054, BUILDING 40-51, FORMER WASTEWATER AST

3.1 DRILLING AND SOIL SAMPLING

- Sampling Dates: October 23 and 24, 2013
- Borings: ESB1987, ESB1988, ESB1989, ESB1990, ESB1991, and ESB1992

URS monitored drilling of six soil borings adjacent to the northeast corner of Building 40-51, as shown on Figure 2-3a. The soil borings were drilled to total depths ranging from 21 to 31 feet

bgs using a truckmounted hollowstem auger drill rig. Soil samples were collected at 5-foot intervals for laboratory analysis for chlorinated VOCs using a Dames and Moore sampler. Soil samples were collected for physical logging and selected for laboratory analysis for TCE and TOC analysis, and physical testing per the FSWP.

Soils encountered during the investigation consist of glacial till comprised of silty clayey fine to medium sand with trace fine to coarse rounded gravel, silty sand, and silty clay. Groundwater was not encountered during the investigation.

The sample analysis results for TCE were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-3a in this FS report. One soil sample collected from ESB1989 and two samples from ESB1987 were analyzed for TOC and tested for the physical parameters listed in listed in Table A-2. The physical testing results are presented in Appendix B.

3.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: January 23, 2014
- Samples Collected: ESG17, ESG18

SSVPs were installed through 12 inch thick concrete at the locations near SWMU 054 outside of Building 40-51 shown on Figure 2-3a. URS placed both sample locations at maximum distances from joints (4.7 -5 feet), while still remaining close to associated historical borings. No cracks were visible.

The SSVPs were left to equilibrate for three hours prior to sampling. Successful samples were collected at both locations after passing the shut-in and leak tests. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-3b in this FS report.

4.0 SWMU/AOC NO. 151, BUILDING 40-51, SUMPS EV-112 AND EV-119

4.1 DRILLING AND SAMPLING

- Sampling Dates: September 16 and 23, 2013
- Borings: ESB1970, ESB1971, and ESB1972

URS monitored drilling of three soil borings adjacent to the southeast corner of Building 40-51, as shown on Figure 2-2d. The soil borings were drilled to depth of 40 feet bgs using a hollowstem auger drill rig. Soil samples were collected for physical logging and selected for laboratory analysis for chlorinated VOCs and TOC, and physical testing per the FSWP.

Soils encountered during the investigation consist of coarse silty sand and sandy gravel fill overlying glacial till comprised of fine to medium sand with silty clay and gravel. Groundwater was not encountered during the investigation.

Soil samples were analyzed for the following chemicals:

- TCE
- Vinyl chloride
- DCE
- cis-1,2-DCE
- trans-1,2-DCE

The sample analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-4a in this FS report. Three soil samples collected from ESB1972 were also analyzed for TOC and tested for the physical parameters listed in Table A-2. The physical testing results are presented in Appendix B.

4.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: January 22 and May 14, 2014
- Samples Collected: ESG15, ESSV1

Initial SSVP installation and sampling near SWMU 151 at Building 40-51 occurred on January 22, 2014 at the locations shown on Figure 2-2d. Boeing Fire inspected and approved the work area and equipment for use at ESSV1. Glacier Environmental, a subcontractor to URS Corporation, used a pneumatic drill to penetrate the floor slab and allow installation of the SSV point. Per Ecology's request via email on April 3, 2014 (Ecology, 2014), an additional SSVP was installed and sampled at location ESSV1 on May 14, 2014.

The SSVPs were left to equilibrate for three hours prior to sampling. At ESG15, the pressure in the sample train during the shut in test dropped approximately 2 in Hg, but remained greater than 7.5 in Hg. The leak test passed and a sample was collected. ESSV1 passed both shut in and leak tests during both sampling events prior to URS' collection of a sample at this location. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-4b in this FS report.

5.0 SWMU/AOC NO. 093, BUILDING 45-01, FORMER SOLVENT USTS

5.1 DRILLING AND SAMPLING

- Sampling Date: September 25, 2013
- Borings: ESB1973 and ESB1974

URS monitored drilling of two soil borings located on southeast side of Building 45-01, as shown on Figure 2-3. The soil borings were drilled to total depth of 40 feet bgs using a hollowstem auger drill rig. Soil samples were collected for physical logging and selected for laboratory analysis for 2-Butanone (MEK) and TOC, and physical testing per the FSWP.

Soils encountered during the investigation consist of fill consisting of pea gravel and silty sand overlying glacial till comprised of silty to clayey sand with gravel and sand and gravel with silty clay. Groundwater was not encountered during the investigation.

The sample analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-6a in this FS report. Three samples from boring ESB1973 were analyzed for TOC and tested for the physical parameters listed in Table A-2. The physical testing results are presented in Appendix B.

5.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: February 13, 2014 and March 14, 2014
- Samples Collected: ESG19, ESG28, ESG29

SSVP installation and sampling was conducted at three locations near SWMU 093 outside Building 45-01 (Figure 2-3). ESG19 was successfully installed in approximately 1.5 feet deep concrete and sampled on February 13, 2014. ESG19 was left to equilibrate for three hours and passed both the leak and shut-in tests prior to sample collection. Drilling met refusal in concrete between 3 to 4 feet deep at ESG29. URS moved the location about one foot southeast and the rotohammer/bit got stuck in the hole at a similar depth. URS removed the bit and decided to retry these locations at a later date with different equipment.

On March 14, 2014, URS returned with Glacier Environmental to attempt the remaining locations. Both the 3-foot rotohammer and the rock drill bit got stuck in the concrete slab. The wells were successfully installed following coring with a 2-inch bit. A fine pea gravel

(approximately 3-5 mm) was present directly below the 9 inch concrete slab. This material apparently prevented the hole from remaining open and caused the previous installation difficulties. Due to caving pea-gravel, ESG28 and ESG29 were installed only 3-4 inches below the concrete slab. Locations were left to equilibrate for three hours prior to sampling. All samples passed the leak and shut-in tests prior to collection. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-6b in this FS report.

6.0 SWMU/AOC NO. 112, BUILDING 40-11, OIL/WATER SEPARATOR

6.1 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: February 25, 2014 and March 12, 2014
- Samples Collected: ESG22, ESG23

SSVPs installed near SWMU 112 in Building 40-11 are shown on Figure 2-4. ESG22 and ESG23 were installed on February 25, 2014. ESG22 was located at the alternate proposed sample location in the Vapor Intrusion SAP (URS and Landau Associates, 2013) because the original proposed location was too close to manholes and was not cleared with the utility locate. The first attempt drilling ESG23 met refusal approximately 8-10 inches deep. URS relocated approximately 6-8 inches northwest and successfully installed the ESG23 SSVP.

Due to the thick concrete (1.5 feet thick) at this SWMU, the 1-inch diameter coring bit was utilized to increase the overall drilling depth beyond the limit of the 2-inch coring bit. Some cuttings material resting on the shelf between the initial 2-inch diameter corehole and the 1-inch hole sloughed into the hole during SSVPl installation. URS minimized this quantity by placing sand with a cone. Due to the overall length of the drill bit and resulting corehole and base-course soil caving, both SSVPs were installed with approximately 1-2 inches of the screen opposite the concrete slab. The SSVPs were allowed to equilibrate for three hours prior to sampling and URS monitored the helium concentrations in the shroud throughout the duration of testing and sampling both SSVPs. URS successfully tested and collected the sample from ESG22.

ESG23 passed the shut in tests during the initial sampling attempt, but the helium tracer concentration in the shroud exceeded 5% on two attempts. More clay was added to seal the SSVP between the two tests. URS abandoned this location and returned to redrill and sample ESG23 on March 12, 2014. The first drilling attempt met refusal, so the location was moved approximately one foot northwest. The second attempt resulted in a successful installation in an approximately 1-1.5 foot slab. After allowing the SSVP to equilibrate for three hours, ESG23 passed both tests and was successfully sampled.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-7 in this FS report.

7.0 BUILDING 40-11, UST EV-48-1

7.1 DRILLING AND SAMPLING SUMMARY

- Sampling Dates: September 25 and 26, and November 16, 2013
- Borings: ESB1975, ESB1976, ESB1977, and ESB1998

URS monitored drilling of the four soil borings adjacent to UST EV-48-1, which is located north of Building 40-11, as shown on Figure 2-5. Soil borings ESB1975, ESB1976, and ESB1977 were drilled to total depth of 40 feet bgs using a truck-mounted rotary drill rig, equipped with hollowstem auger. Soil boring ESB1998 was drilled to total depth of 40 feet bgs using a track-mounted rotary sonic drill rig. Soil samples were collected for physical logging and selected for laboratory analysis for petroleum hydrocarbons, selected VOCs (BTEX) and TOC and for physical testing per the FSWP.

Soils encountered during the investigation consist of fill of variable depths (10 to 30 feet bgs) and nature that includes silt, sandy gravel, and silt and clay with organics. The fill overlies glacial till that consists of silty and clayey sand with gravel, gravel with silty clay and sand, sand and gravel and cobbles. Groundwater was not encountered during the investigation.

Soil samples were analyzed for the following chemicals:

- Gasoline range petroleum hydrocarbons (TPH-G)
- Volatile petroleum hydrocarbons (VPH)
- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)

The sample results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-8a in this FS report. Three soil samples collected from ESB1975 and one soil sample collected from ESB1998 were also analyzed for TOC and tested for the physical parameters listed in Table A-2. The physical testing results are presented in Appendix B.

7.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: March 11, 2014 and March 12, 2014
- Samples Collected: ESG24, ESG25, ESG26, ESG27

The four SSVPs were installed near SWMU UST EV-48-1 north of Building 40-11 as shown on Figure 2-5. Installation and sampling for ESG24and ESG25 occurred on March 11, 2014. Following some complications with the generator and rotohammer, ESG24 was installed beneath a 9-inch thick concrete slab and ESG25 beneath a 12-inch thick concrete slab. URS successfully tested and collected both samples. ESG26 and ESG27 were installed and sampled on March 12, 2014. Drilling at ESG27 met refusal, so the location was moved approximately one foot southeast and installed beneath a 9-12-inch thick slab. ESG26 was installed beneath a 13" slab. Both samples were successfully tested and collected. URS monitored the helium concentration the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-8b in this FS report.

8.0 SWMU/AOC NO. 097, BUILDING 40-11, FORMER VAPOR DEGREASER

8.1 DRILLING AND SAMPLING SUMMARY

- Sampling Date: May 31, 2014
- Boring: ESB2007

URS monitored drilling of one soil boring in Building 40-11 in the vicinity SWMU 097, a former vapor degreaser, as shown on Figure 2-6a. Soil boring ESB2007 was drilled to total depth of 22 feet bgs using a track-mounted rotary drill rig equipped with hollowstem auger. The boring was terminated below its planned depth of 40 feet bgs due to refusal. Soil samples were collected for physical logging and selected for laboratory analysis for chlorinated VOCs. Inadequate sample recovery at this location prevented the collection of soil samples for physical testing and TOC analysis.

Soils encountered during the investigation consist of glacial till comprised of silty sand (Figure 2-6b). Groundwater was not encountered during the investigation.

Soil samples were analyzed for the following chemicals:

- TCE
- Vinyl chloride
- 1,1-DCE
- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene

The sample results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-9a in this FS report.

8.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: January 24, 2014 and March 19, 2014
- Samples Collected: ESSV2, ESSV19, SSV-DUP3

Following the onsite utility locate and identification of cracks, URS initially decided to install one sample location rather than the proposed two. Relocating sample points to avoid utilities and cracks would place both locations within 3-5 feet of each other. SSVP installation, testing and sampling of ESSV2 successfully occurred on January 24, 2014. URS returned to the SWMU location with Boeing and Ecology personnel during the February 10, 2014 site walk and a second sampling location was mutually agreed upon. Well installation and sampling for ESSV19 and duplicate sample SSV-DUP3 occurred on March 19, 2014. This SSVP was successfully installed, shut-in and leak tested, and sampled. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-1b in this FS report.

9.0 SWMU/AOC NO. 169, BUILDING 40-02, SMALL VAPOR DEGREASER

9.1 DRILLING AND SAMPLING SUMMARY

- Sampling Date: March 29, 2014,
- Boring: ESB2004

URS monitored drilling of the soil boring adjacent to SWMU No. 169, the former small vapor degreaser pit, which is located inside Building 40-02 as shown on Figure 2-7a and 2-7b.

ESB2004 was drilled to total depth of 40 feet bgs using a track-mounted, rotary drill rig equipped with hollowstem auger. Soil samples were collected for physical logging and selected for laboratory analysis for chlorinated VOCs.

Soils encountered during the investigation consist of fine to coarse sand fill overlying glacial till comprised of silt with gravel, sandy clay with gravel and silty sand/sandy silt with gravel. Groundwater was not encountered during the investigation.

Soil samples were analyzed for the following chemicals:

- TCE
- Vinyl chloride
- 1,1-DCE

- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene

The sample results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-10a in this FS report.

10.0 SWMU/AOC NO. 170, BUILDING 40-02, LARGE VAPOR DEGREASER

10.1 DRILLING AND SAMPLING SUMMARY

- Sampling Date: April 19, 2014
- Borings: ESB2005 and ESB2006

URS monitored drilling of two soil borings adjacent to SWMU No. 170, the former large vapor degreaser, located inside Building 40-02 as shown on Figures 2-7a and 2-7c. Soil boring ESB2005 was drilled to total depth of 22 feet bgs and terminated below the planned depth of 40 feet bgs due to refusal. ESB2006 was completed to a total depth of 40.5 feet bgs. The borings were drilled using a track-mounted, rotary drill rig equipped with hollowstem auger. Soil samples were collected for physical logging and selected for laboratory analysis for chlorinated VOCs and TOC and physical testing per the FSWP.

Soils encountered during the investigation consist of glacial till comprised of fine sand with gravel to sandy clay with gravel. Groundwater was not encountered during the investigation.

Soil samples were analyzed for the following chemicals:

- TCE
- Vinyl chloride
- 1,1-DCE
- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene

The sample results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-11a in this FS report. Four samples (one soil sample from boring ESB2005 and three from ESB2006) were analyzed for TOC and tested for the physical parameters listed in Table A-2. The physical testing results are presented in Appendix B.

11.0 SWMU/AOC NO. 086, 089, AND 094, BUILDING 40-56, FORMER USTS

11.1 DRILLING AND SAMPLING SUMMARY

- Sampling Dates: October 30, November 1, and December 6 through 10, 2013
- Borings: ESB1979, ESB1995, ESB1996, ESB1997, ESB2001, EGW208, EGW209, and EGW211

URS monitored drilling of eight soil borings on the south side of Building 40-56, as shown on Figure 2-10a. Soil borings were drilled to total depths ranging from to 17.5 to 40 feet bgs using a truck-mounted, rotary drill rig equipped with hollowstem auger. Soil samples were collected at for laboratory analysis for physical logging and selected for analysis for the complete list of VOCs and TOC, and physical testing. Soil borings ESB1995(EGW207), ESB1996 (EGW212), ESB1997(EGW206), ESB2001(EGW210) were converted to monitoring wells (EGW) per the FSWP and Dual-Phase Extraction Pilot Test Work Plan for this area (URS, 2013a).

Soils encountered during the investigation area variable and consist of granular (sand and gravel) backfill in former UST excavations and along utility corridors and recompacted till fill underlain by glacial till. The glacial till is predominantly comprised of silty fine to medium sand (Figures 2-10d through 2-10h). Perched groundwater was encountered in the lower portion of the fill and uppermost portion of the glacial till during the investigation.

The soil sample results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-14a in this FS report. Three samples (one soil sample each from borings ESB1993, ESB1994, and ESB2003) were analyzed for TOC and tested for the physical parameters listed in Table A-2. The physical testing results are presented in Appendix B.

11.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: January 13, 2014, January 14, 2014 and February 23, 2014
- Samples Collected: ESG1, ESG2, ESG3, ESG4, ESG5, ESG6, ESG7, ESSV14, ESSV15, ESSV16, ESSV17, ESSV18, SSG-DUP1, SSV-DUP2

Twelve SSVPs were installed by URS at the locations shown on Figures 2-10a and 2-10c. Installation and sampling of ESG1, ESG2, and ESG3 occurred on January 13, 2014. ESG1 and ESG3 were installed to a depth of approximately 5 feet bgs and ESG2 was installed at approximately 3 feet bgs. All three locations were left to equilibrate for three hours and then successfully passed the shut in and leak tests prior to sample collection. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

SSVP installation and sampling of ESG4, ESG5, ESG6 and ESG7 occurred on January 14, 2014. ESG4 was installed approximately 5 feet bgs. URS observed moist soil at 4.5 feet bgs at ESG5, so ESG5 was installed at approximately 4 feet bgs. URS relocated ESG6 approximately 2 feet south of the original location because the side walls and concrete caved in during the original attempted installation. ESG6 was installed 3.5 feet bgs. Finally, ESG7 was installed approximately 5 feet bgs. The SSVPs were allowed to equilibrate for three hours prior to sampling. All samples passed the leak and shut-in tests prior to collection. SSG-DUP1 was collected at the same location at ESG7. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

SSVPs ESSV14, ESSV15, ESSV16, ESSV17 and ESSV18 were installed inside Building 40-56 on February 22, 2014 and sampled on February 23, 2014. During the February 10, 2014 site walk with Boeing and Ecology, Ecology provided URS with three options for placement of ESSV16. The first option placed the sample within a taped yellow and black box adjacent to the northern internal wall. This option was not selected because there were some existing utility locate markings visible in this area and existing equipment limited access. The second option was to move the point farther east, while remaining the same distance from the northern wall as represented by the yellow/black square. The third option allowed URS field staff to move the point no more than two feet south of the box. During the utility locate, URS determined that the best sample location would be approximately two feet south of the yellow/black box.

ESSV16 and ESSV17 were located in the Squeegee Room and a hallway, respectively, which allowed the field staff to separate the sample locations from the sensitive Boeing work areas by closing doors to the sensitive spaces. A starter bit was stuck and abandoned in placed during installation of ESSV17. The sample location was moved approximately 3 inches from the original attempt and the SSVP was successfully installed. The two SSVPs were allowed to equilibrate for three hours prior to sampling. All samples passed the leak and shut-in tests prior to collection. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

Samples ESSV14, ESSV15 and ESSV18 were located within the active Silk Screen Shop, which required URS to utilize clean room installation techniques by working in a pressurized tent and covering all sensitive equipment with plastic tarps. The three SSVPs were allowed to equilibrate for three hours prior to sampling. All samples passed the leak and shut-in tests prior to collection. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling. SSV-DUP2 was collected at the same location as ESSV15.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-14b in this FS report.

12.0 SWMU/AOC NO. 067 AND 071, BUILDING 40-56, FORMER RECYCLING UNIT AND UST EV-153

12.1 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: February 23, 2014
- Samples Collected: ESSV10, ESSV11, ESSV12, ESSV13

SSVPs for SWMUs No. 067 and 071 in Building 40-56 were installed at the locations shown on Figure 2-11 on February 22, 2014. All samples were located in the Silk Screen Shop, so URS utilized clean room installation techniques by working in a pressurized tent and covering all sensitive equipment with plastic tarps. The sample locations are within the area where contaminated soil was previously excavated and the excavation backfilled with controlled density fill (CDF). The SSVPs were installed at the depth of the apparent interface between the concrete floor slab and the CDF.

Installation of the planned SSVP location near former soil boring S1 (Figure 2-11) was attempted on February 22, 2014. Drilling at this location met refusal at a depth of 2-3 feet below the floor on the initial attempt when the rotohammer bit stuck and eventually broke. Two additional attempts were made and both met refusal at 6-inches depth. No further drilling attempts were made at this location. The remaining SSVPs were installed at depths of approximately 1.5 feet, where a change in drilling pressure implied that the bottom of the floor slab had been found.

The sampling apparatus at ESSV10 and ESSV11 passed the shut-in leak test, but helium tracer gas was detected in the purged vapor at greater than 5% of the helium concentration in the shroud during multiple separate attempts on the morning of February 23, 2014. Bentonite clay was added as a sealant around the sub-slab vapor points and the samples were reattempted on the afternoon of February 23, 2014. Helium tracer gas was still detected in the purged vapor at concentrations greater than 5% of the helium concentration in the shroud at ESSV10. At ESSV11, the tedlar bag remained empty after pumping at 200 mL/min for 30 minutes, so no additional concentration readings were possible.

During all attempts, purging at 200 mL/min required 30-50 minutes for an acceptable test volume to be obtained in the tedlar bag, indicating very impervious material (i.e., CDF) in the subsurface. The repeated detection of elevated helium concentrations in the purged vapor, combined with the slow purge rate, implies that the subsurface was producing little or no vapor. Instead, it is likely that ambient air from within the shroud was being forced into the sampling apparatus over the long purge time. Boeing and URS did not believe that these samples were representative of sub-slab vapor. Ecology agreed and these samples were not analyzed.

SSVPs ESSV12 and ESSV13 were allowed to equilibrate for three hours prior to sampling. All samples passed the leak and shut-in tests prior to collection. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-15b in this FS report.

13.0 SWMU/AOC NO. 165, BUILDING 45-52, FORMER FUEL FARM USTS AND FUELING POSITIONS

13.1 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: February 21, 2014
- Samples Collected: ESG20, ESG21

SSVPs near SWMU No.165 near Building 45-52 were installed at the locations shown on Figure 2-15a. Prior to SSVP installation, URS contacted Fuel Farm employees to move the fueling vehicles parked near sample locations and also requested a site visit by the Boeing Fire Department to ensure that a hot work permit was not required. ESG20 and ESG21 were installed, allowed to equilibrate for three hours before these were successfully leak and shut-in tested and sampled. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

A third SSVP was planned to be installed south of ESG20 and ESG21, adjacent to the prior soil sample number 77 shown on Figure 2-15a. This location is within the footprint of the former soil excavation which was backfilled with CDF. The initial attempt to install this SSVP encountered refusal around 8 inches bgs in two attempts. This location was on the concrete slab where full fueling vehicles park, which is surrounded by a drain and concrete berm.

URS returned to the site on March 19, 2014 with different equipment to re-drill the third (southernmost) proposed sample location. This location was moved to the north side of the concrete berm following a utility locate. This SSVP was successfully installed in a 1.5 foot deep concrete slab which is underlain by CDF to greater than 3 feet bgs. During sampling, URS was unable to purge into the tedlar bag to perform the leak test following three attempts. The small volume that did fill the bag failed the leak test. Consequently, this location was abandoned.

14.0 SWMU/AOC NO. 098, BUILDING 40-53, MOCK-UP DEGREASER

14.1 DRILLING AND SAMPLING SUMMARY

- Sampling Dates: November 16 and 17, 2013
- Borings: ESB1999 and ESB2000

URS monitored drilling of two soil borings near SWMU No. 098, located in the west-central portion of Building 40-53 as shown on Figure 2-16a. Soil borings were drilled to total depths of 40 feet (ESB1999) and 41 feet (ESB2000) bgs using a track-mounted, rotary sonic drill rig. Soil samples were collected for physical logging and selected for laboratory analysis for chlorinated VOCs. Insufficient sample volume and/or the samples were too disturbed to perform physical testing per the FSWP.

Soils encountered during the investigation consist of sand and gravel fill overlying glacial till comprised principally of silty fine to medium sand with gravel and occasional cobbles and minor silty, clayey sand with gravel (Figure 2-16b). Groundwater was not encountered during the investigation.

Soil samples were analyzed for the following chemicals:

- TCE
- Vinyl chloride
- 1,1-DCE
- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene

The sample results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-19a in this FS report.

14.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: February 14, 2014
- Samples Collected: ESSV7, ESSV8, ESSV9, SSV-DUP1

SSVPs were installed near SWMU No. 098 in Building 40-53 at the locations shown on Figure 2-16a. During the February 10, 2014 site walk with Boeing and Ecology, ESSV9 was moved north away from its planned location and closer to a joint in the concrete. This joint was enclosed by the shroud during sampling. All other points were located at maximum distances from joints and there were no apparent cracks in the slab in the sampling area. All three SSVPs were successfully installed at their marked location. The drill bit got stuck at ESSV7, but was recovered after allowing the bit to cool down.

URS successfully collected all three samples after passing both the shut in and leak tests. SSV-DUP1 was collected at the same location at ESSV7. The helium concentration in the shroud was monitored throughout the duration of testing and sampling. The helium detector used to monitor concentrations in the shroud lost battery during sampling for ESSV9. The detector used to measure concentrations in the Tedlar bags was replaced and read a much higher concentration. This concentration was maintained for the remainder of sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-19b in this FS report.

15.0 SWMU/AOC NO. 068, SOUTH COMPLEX, SOUTH FIRE PIT

15.1 DRILLING AND SAMPLING SUMMARY

- Sampling Date: October 22, 2013
- Borings: ESB1984, ESB1985, and ESB1986

URS monitored drilling of three soil borings in the area of SWMU No. 068, the former South Fire Pit, located in the south-central portion of the plant, as shown on Figure 2-17. Soil borings were drilled to total depths of 30.5 feet (ESB1986) and 31.5 feet (ESB1984 and ESB1985) bgs using a truckmounted, rotary drill rig equipped with hollowstem auger. Soil samples were collected for physical logging and selected for laboratory analysis for petroleum hydrocarbons, BTEX, and TOC and for physical testing per the FSWP.

Soils encountered during the investigation consist of glacial till comprised of well graded sand with silt to silty sand. Groundwater was not encountered during the investigation.

Soil samples were analyzed for the following chemicals:

- TPH-G
- TPH-D (including Jet A)
- TPH-O
- BTEX

The sample results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-20a in this FS report. Three soil samples (two from borings ESB1985 and one from 1986) were analyzed for TOC and tested for the physical parameters listed in Table A-2. The physical testing results are presented in Appendix B.

15.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: January 15 and 16, 2014 and March 27, 2014
- Samples Collected: ESG8, ESG9, ESG10, ESG11, ESG12, ESG30

SSVP installation and sampling of ESG8, ESG9, ESG10 occurred on January 15 and 16, 2014 for ESG11 and ESG12. Glacier Environmental and Cascade Drilling used a geoprobe to install these SSVPs approximately 1.5 feet bgs. Asphalt was present from 0 to 4 inches bgs followed by sandy silt with gravel. These locations were left to equilibrate and then successfully tested and sampled.

SSVP installation and sampling of ESG30 occurred on March 27, 2014. URS installed the probe 1.5 ft bgs using a rotohammer; the asphalt was approximately 4 inches thick. The location was allowed to equilibrate for three hours before it was successfully tested and the sample collected. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-20b in this FS report.

16.0 SWMU/AOC NO. 083, FLIGHTLINE, FORMER UST EV-15

The former UST EV-15 was located on the west side of the flightline near Stall 104 (Figure 2-21) and used to store diesel fuel. It is currently situated beneath the flightline blast wall and the large soil berm supporting the wall on the west side of it. One boring was proposed at this location, however it was not feasible to drill a boring based on the current configuration of the site. Several site walks and utility locating events had been conducted to identify the precise location of the Former EV-15 UST excavation. Careful study of the 1994 UST removal report revealed that the blast wall and soil berm were not present in this area at the time of the UST removal. It was not practicable to remove these features to allow drilling of the single planned boring. Consequently potential cleanup actions were evaluated in this FS using existing data.

17.0 BUILDING 40-32 FOOTING EXCAVATION

17.1 DRILLING AND SAMPLING SUMMARY

- Sampling Date: October 21, 2013
- Boring: ESB1983

URS monitored drilling of one boring located adjacent to the former foundation excavation in the northwest corner of Building 40-32, as shown on Figure 2-19a. The soil boring was drilled to a total depth of 41 feet bgs using a truck-mounted, rotary drill rig equipped with hollowstem auger. Soil samples were collected for physical logging and selected for laboratory analysis for petroleum hydrocarbons, VOCs and TOC and for physical testing.

Soils encountered during the investigation consist of glacial till comprised of silty clayey fine to medium sand with rounded gravel and trace coarse sand underlain by silty and clayey sand with gravel (Figures 2-19b and 2-19c). Groundwater was not encountered during the investigation.

Soil samples were analyzed for the following chemicals:

- TPH-G
- TPH-D (including Jet A
- TPH-O
- VOCs (including BTEX)

The sample results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-22a in this FS report. Three samples were analyzed for TOC and tested for the physical parameters listed in Table A-2. The physical testing results are presented in Appendix B.

17.2 SUB-SLAB SOIL VAPOR SAMPLING

- Sampling Dates: April 3, 2014
- Samples Collected: ESSV20

URS attempted SSVP installation on March 27, 2014 in the pedestrian tunnel adjacent to the footing excavation and Building 40-32 (Figure 2-19a). Drilling met refusal at 8 inches bgs, although no apparent reason was observed. URS attempted to drill three more times and met refusal between 6 and 8 inches. Each drill point was moved in a way that would miss rebar (different diagonals). URS abandoned this location and planned to redrill on a future date with different equipment. A review of the structural plans showed highly reinforced concrete.

The SSVP installation, leak and shut-in testing, and sampling successfully occurred on April 3, 2014. URS used a slightly larger rotohammer and two field staff to drill through the approximately 10 inch, dense concrete. The location was left to equilibrate and successfully tested and sampled. URS monitored the helium concentration in the shroud throughout the duration of testing and sampling.

The sample chemical analysis results were transmitted to Ecology as indicated in Table A-1 and are summarized in Table 2-22b in this FS report.

18.0 REFERENCES

URS Corporation and Landau Associates, 2012, Feasibility Study Work Plan, Upland Areas and Powder Mill Gluch, Revision 1.0, dated December 18, 2012.

URS Corporation, 2013a, Dual-Phase Extraction Pilot Test Work Plan, Upland Areas, Building 40-56, BCA Everett Plant, Revision 1, October 15, 2013

____ , 2013b, Vapor Intrusion Sampling and Analysis Plan, Upland Areas and Powder Mill Gulch, BCA Everett Plant, Everett, Washington, Revision 2, December 3, 2013.

Washington State Department of Ecology (Ecology). *Request to Resample ESSV-1 at Bld 40-51*. April 3, 2014. E-mail.

Data Summary Tables

Table A-1
Summary of Soil and Sub-Slab Soil Vapor Data Package Submittals

Data Package	Date Submitted
SWMUs/AOCs Nos. 054, 093, 151, and 098 Soil Data, Boeing Everett Facility Corrective Action - February Status Report	02/17/14
Building 40-51, SWMU/AOC No. 054, Former Wastewater AST, Vapor Intrusion Data	03/21/14
Building 40-51, SWMU/AOC No. 151, Sumps EV-112 and EV-119 (Southern Air Scrubber), Vapor Intrusion Data	03/21/14
Building 40-51, SWMU/AOC No. 090, Former UST EV-11, Vapor Intrusion Data	03/21/14
Building 40-31, SWMU/AOC No. 171, Former Bluestreak Vapor Degreaser, Vapor Intrusion Data	04/14/14
Building 45-01, SWMU/AOC No. 093, Former Solvent Tanks, Vapor Intrusion Data	04/14/14
SWMU/AOC No. 165, Former Fuel Farm USTs, Vapor Intrusion Data	04/14/14
Building 40-53, SWMU/AOC No. 098, Former Mockup Degreaser, Vapor Intrusion Data	04/14/14
SWMUs/AOCs Nos. 068 and 171, UST EV-48-1, and Building 40-32 Soils Data, Boeing Everett Facility Corrective Action - April Status Report	04/18/14
Building 40-56, SWMU/AOC Nos. 086, 089, and 094, Former USTs, Vapor Intrusion Data	05/02/14
Building 40-56, SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153, Vapor Intrusion Data	05/02/14
Building 40-11, SWMU/AOC No. 112, Oil/Water Separator, Vapor Intrusion Data	05/12/14
Building 40-11, UST EV-48-1, Vapor Intrusion Data	05/12/14
Building 40-11, SWMU/AOC No. 097, Former Vapor Degreaser, Vapor Intrusion Data	05/12/14
SWMU/AOC 068, Former South Fire Pit, Vapor Intrusion Data	05/12/14
Building 40-32 Footing, Vapor Intrusion Data	05/12/14
SWMUs/AOCs Nos. 086, 089, 094, 169, and 171 Soils Data, Boeing Everett Facility Corrective Action - June Status Report	06/14/14
Building 40-51, SWMU/AOC No. 151, Sumps EV-112 and EV-119 (Southern Air Scrubber), Vapor Intrusion Data	07/14/14
Building 40-02, SWMU/AOC No. 170 Soils Data, Boeing Everett Facility Corrective Action - December Status Report	12/15/14

Note: Data packages are listed by individual SWMU/AOC and in order of the date data was submitted to the Department of Ecology.

Table A-2
Summary of Groundwater Analytical Results for Volatile Organic Compounds (ug/L)
2nd Quarter 2015
Building 40-02
Boeing Everett Plant

Sample ID	Sample Date	Acetone	Benzene	Chloroform	Chloromethane	Toluene	Trichloroethene
MTCA Method A or B Groundwater Screening Levels		7,200 (B)	5.0 (A) 0.795 (B)	1.41 (B)	NE	1,000 (A) 640 (B)	5.0 (A) 0.54 (B)
EGW177	2/11/2009	2.5 U	0.2 U	0.1 X	0.2 U	0.4	0.085
	2/11/2009 (DUP)	2.5 U	0.2 U	0.1 X	0.2 U	0.4	0.083
	5/19/2009	2.5 U	0.2 U	0.2 U	0.2	0.2 U	0.18
	5/19/2009 (DUP)	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.18
	7/7/2009	2.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	12/17/2009	2.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	1/26/2010	5.0 UJ	0.2 UJ	0.2 UJ	0.5 UJ	0.2 UJ	0.020 U
	4/1/2010	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	7/6/2010	5.0 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	10/13/2010	5.0 U	0.2 U	0.2 U	0.5 U	0.3*	0.020 U
	1/12/2011	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	4/7/2011	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	7/13/2011	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	10/5/2011	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	1/13/2012	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	4/4/2012	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	4/4/2012 (SIM)	NA	NA	NA	NA	NA	0.020 U
	7/10/2012	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	7/10/2012 (SIM)	NA	NA	NA	NA	NA	0.020 U
	10/9/2012	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	10/9/2012 (SIM)	NA	NA	NA	NA	NA	0.020 U
	1/9/2013	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	1/9/2013 (SIM)	NA	NA	NA	NA	NA	0.020 U
	4/5/2013	5.0 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	4/5/2013 (SIM)	NA	NA	NA	NA	NA	0.020 U
	7/1/2013	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	7/1/2013 (SIM)	NA	NA	NA	NA	NA	0.020 U
	10/11/2013	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	10/11/2013 (SIM)	NA	NA	NA	NA	NA	0.020 U
	1/6/2014	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	0.020 U
	4/7/2014	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	0.020 U
	7/8/2014	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	7/8/2014 (SIM)	NA	NA	NA	NA	NA	0.020 U
	10/15/2014	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	10/15/2014 (SIM)	NA	NA	NA	NA	NA	0.020 U
	1/5/2015	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	1/5/2015 (SIM)	NA	NA	NA	NA	NA	0.020 U
	4/2/2015	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	4/2/2015 (SIM)	NA	NA	NA	NA	NA	0.020 U
EGW178	5/19/2009	2.5 U	0.2 U	0.3 U	0.3	0.2 U	0.13
	7/7/2009	2.5 U	0.2 U	2.0 U	5.0 U	2.0 U	0.020 U
	12/17/2009	2.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	1/26/2010	5.0 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	4/1/2010	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	7/6/2010	5.0 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	10/13/2010	5.0 U	0.2 U	0.2 U	0.5 U	0.3*	0.020 U
	1/12/2011	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	4/7/2011	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	7/13/2011	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	10/5/2011	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	1/13/2012	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U
	4/4/2012	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	4/4/2012 (SIM)	NA	NA	NA	NA	NA	0.020 U
	7/10/2012	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	7/10/2012 (SIM)	NA	NA	NA	NA	NA	0.020 U
	10/9/2012	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	10/9/2012 (SIM)	NA	NA	NA	NA	NA	0.020 U
	1/9/2013	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	1/9/2013 (SIM)	NA	NA	NA	NA	NA	0.020 U
	4/5/2013	5.0 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	4/5/2013 (SIM)	NA	NA	NA	NA	NA	0.020 U
	7/1/2013	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	7/1/2013 (SIM)	NA	NA	NA	NA	NA	0.020 U
	10/11/2013	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	10/11/2013 (SIM)	NA	NA	NA	NA	NA	0.020 U
	1/6/2014	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	0.020 U
	4/7/2014	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	0.020 U
	7/8/2014	3.0 XJ	0.1 X	0.2 U	0.5 U	0.2 U	0.2 U DNR
	7/8/2014 (SIM)	NA	NA	NA	NA	NA	0.020 U
	10/15/2014	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	10/15/2014 (SIM)	NA	NA	NA	NA	NA	0.020 U
	1/5/2015	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	1/5/2015 (SIM)	NA	NA	NA	NA	NA	0.020 U
	4/2/2015	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U DNR
	4/2/2015 (SIM)	NA	NA	NA	NA	NA	0.020 U

Notes:
Model Toxics Control Act (MTCA) Cleanup Regulation, chapter 173-340 WAC; MTCA Method A and B from Ecology website downloaded June 2015 (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
DNR - do not report
DUP - field duplicate
NA - not analyzed
NE - not established
SIM - selected ion monitoring
U - Compound was analyzed for but not detected above the reporting limit shown.
ug/L - microgram per liter
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table A-3
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-11 (Auto Sump)
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	2-Hexanone	4-Methyl-2-Pentanone	Methylene Chloride	1,1,2,2-PCA	PCE	Toluene	1,1,1-TCA	TCE	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	0.00768 (B)	0.4 (B)	0.016 (B)	0.16 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	0.000219 (B)	0.005 (A) 0.0208 (B)	1 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1 (A) 1.6 (B)
EGW046	03/07/95	0.028	NA	0.060	NA	NA	NA	NA	NA	NA	0.0071	NA	0.004	0.005 U	NA	NA	NA	0.001 U	0.001 U	NA	**0.0012**	NA	0.0152
	04/28/95	0.034 J	NA	0.050	NA	NA	NA	NA	NA	NA	0.0032	NA	0.001 U	0.0098	NA	NA	NA	0.001 U	0.001	NA	0.001 U	NA	0.0033
	11/14/95	0.005 U	NA	0.0073	NA	NA	NA	NA	NA	NA	0.0028	NA	0.001 U	0.005 U	NA	NA	NA	0.001 U	0.001	NA	0.001 U	NA	0.001 U
	03/01/96	0.0092	NA	0.012	NA	NA	NA	NA	NA	NA	0.0041	NA	0.001 U	0.005 U	NA	NA	NA	0.001 U	0.001 U	NA	0.001 U	NA	0.001 U
	06/03/96	0.012	NA	0.005 U	NA	NA	NA	NA	NA	NA	0.0052	NA	0.001 U	0.005 U	NA	NA	NA	0.001 U	0.001 U	NA	0.001 U	NA	0.001 U
	08/26/96	0.0077	NA	0.005 U	NA	NA	NA	NA	NA	NA	0.0031	NA	0.001 U	0.005 U	NA	NA	NA	0.001 U	0.0014	NA	0.001 U	NA	0.001 U
	12/09/96	3.30	NA	0.037	NA	NA	NA	NA	NA	NA	0.0017	NA	0.001 U	0.005 U	NA	NA	NA	0.0015	0.001 U	NA	0.001 U	NA	0.001 U
	03/04/97	3.70	NA	0.210	NA	NA	NA	NA	0.0022	NA	0.009	NA	0.001 U	0.005 U	0.0063	NA	NA	0.001 U	0.0034	0.0013	0.001 U	0.002 U	0.0011
	05/27/97	0.300	NA	0.068	NA	NA	NA	NA	0.0036	NA	0.006	NA	0.001 U	0.005 U	0.005 U	NA	NA	0.001 U	0.001	0.001 U	0.001 U	**0.0015**	0.001 U
	08/12/97	0.400	NA	0.034	NA	NA	NA	NA	0.002	NA	0.012	NA	0.001 U	0.005 U	0.005 U	NA	NA	0.001 U	0.0025	0.001 U	0.001 U	**0.0021**	0.002
	11/17/97	0.280	NA	0.0066	NA	NA	NA	NA	0.001 U	NA	0.0084	NA	0.001 U	0.005 U	0.005 U	NA	NA	0.0012	0.0054	0.001 U	**0.0018**	**0.0014**	0.001 U
	03/12/98	0.0087	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0043	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.0018	0.001 U	0.001 U	**0.0028**	**0.0013**	0.001 U
	05/12/98	0.0067 U*	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.008	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.0012	0.001 U	0.001 U	**0.0048**	**0.00014**	0.0017
	08/11/98	0.005 U	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.013	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.0010	0.001 U	0.001 U	**0.0034**	**0.0039**	0.0011
	11/10/98	0.046	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0047	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0022**	0.00001 U	0.001 U
	02/02/99	0.0057	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0041	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0027**	**0.0032**	0.001 U
	05/10/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0025**	**0.0018**	0.001 U
	08/02/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0044	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0028**	**0.0023**	0.001 U
	11/08/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.003	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0020**	**0.0013**	0.001 U
	01/31/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0054	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0038**	**0.0014**	0.001 U
	05/01/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0019	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0015**	**0.0023**	0.001 U
	07/31/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0037	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0015**	**0.0022**	0.001 U
	11/13/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0051	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0020**	**0.0026**	0.001 U
	02/01/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0024	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0018**	**0.00082**	0.001 U
	04/30/01	0.54	0.001 U	0.0076	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0073	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0022**	**0.0059**	0.001 U
	08/07/01	0.010	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0027	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0022**	**0.0016**	0.001 U
	11/13/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0014	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0010**	**0.00066**	0.001 U
	02/04/02	0.11 D	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000038	0.002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	**0.0015**	**0.00067**	0.0004 U
	05/02/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00011	0.0036	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0020**	**0.0025**	0.0004 U
	11/14/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00012	0.005	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0032**	**0.0022**	0.0004 U
	05/06/03	0.041	0.0002 U	0.0012	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000082	0.0047	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0009 UJ	0.0002 U	0.0002 U	0.0002 U	**0.0041**	**0.00083**	0.0004 U
	11/03/03	0.023	0.0002 U	0.0010	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.000037	0.0031	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0026**	**0.00078**	0.0004 U
	04/15/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000058	0.0033	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0032**	**0.001**	0.0004 U
	10/04/04	0.0018 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000065	0.0064 J	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0033 J**	**0.00083**	0.0004 U
	03/29/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0082	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0043**	**0.0083**	0.0004 U
	10/18/05	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0048	0.0002 U	0.0012	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0023**	**0.0072**	0.0004 U
	01/11/06	0.018	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000021	0.0015	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0011 UJ	0.0002 U	0.0002 U	0.0002 U	**0.0010**	**0.0003**	0.0004 U
	07/05/06	0.001	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00018	0.005	0.0002 U	0.0002	0.001 U	0.001 U	0.0003 U	**0.0008**	0.0002 U	0.0002 U	0.0002 U	**0.0021**	**0.008**	0.0004 U
	01/03/07	1.6	0.0002 U	0.049 J	0.0020 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000043	0.0013 J	0.0002 U	0.0002 U	0.003 U	0.0018 J	0.0003 U	0.0002 U	0.00002 U	0.0004 J	0.0002 U	**0.00081**	**0.00048**	0.0004 U
	07/02/07	0.0039	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.0002 U	0.000051	0.0027	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0018**	**0.00069**	0.0004 U
	01/03/08	1.0	0.01 U	0.050 U	0.010 U	0.01 U	0.010 U	0.010 U	0.010 U	0.000041	0.010 U	0.010 U	0.010 U	0.050 U	0.050 U	0.02 U	0.010 U	0.000036	0.010 U	0.010 U	**0.0017**	**0.00028**	0.010 U
	04/23/08	0.0046	0.0002 U	0.0025 U	0.0004	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0033	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0027**	0.00002	0.0002
	07/07/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0018	0.0075	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000033	0.0002 U	0.0002 U	**0.0078**	**0.0011**	0.0004 U
	01/02/09	0.17 D	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0031	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000031	0.0002 U	0.0002 U	**0.0025**	0.00002 U	0.0004 U
	07/06/09	0.0050 U	0.0002 U	0.0050 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.00024	0.0011	0.0002 U	0.0002 U	0.0050 U	0.0050 U	0.0005 U	0.0002 U	0.000030	0.0002 U	0.0002 U	**0.0048**	**0.0025**	0.0004 U
	01/08/10	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.00002 U	0.002	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0009**	**0.00020**	0.0004 U
	01/06/11	0.089	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.00002 U	0.0033	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0021**	**0.00004**	0.0004 U
	07/12/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.000060	0.0039	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0044**	**0.00026**	0.0004 U
	01/13/12	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.00002 U	0.0032	0.0002 U	0.0002 U	0.005 U	0.005 U	0.001 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0026**	**0.000069**	0.0004 U
	07/11/12	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0055	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0036 DNR	0.0003 DNR	0.0005 U
	7/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.000056	NA	NA	NA	NA	NA	NA	NA	0.000025	NA	NA	**0.0031**	**0.00025**	NA
	01/09/13	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.0005 U	0.0002 U DNR	0.003	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0024 DNR	0.0002 X DNR	0.0005 U
	1/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.000036	NA	NA	NA	NA	NA	NA	NA	0.000020	NA	NA	**0.0022**	**0.00015**	NA
	07/01/13	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.0005 U	0.0001 X DNR	0.0090	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0040 DNR	0.0009 DNR	0.0005 U
	7/1/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.00012	NA	NA	NA	NA	NA	NA	NA	0.000021	NA	NA	**0.0034**	**0.00096**	NA
	01/06/14	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.0005 U	0.0001 X DNR	0.0079	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0034 DNR	0.0006 DNR	0.0005 U
	1/6/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.000086	NA	NA	NA	NA	NA	NA	NA	0.000023	NA	NA	**0.0029**	**0.00061**	NA
	01/05/15	0.041	0.0002 U	0.0053	0.0005 U	0.0005 U	**0.0030**	0.0005 U	0.0005 U	0.0002 U DNR	0.0050	0.0002 U	0.0005 U	0.0013 X	0.005 U	0.0014	0.0002 U	0.0002 U DNR	0.0003	0.0005 U	0.0013 DNR	0.0007 DNR	0.0005 U
	1/5/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.000058	NA	NA	NA	NA	NA	NA	NA	0.000029	NA	NA	**0.0011**	**0.00063**	NA

Table A-3
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-11 (Auto Sump)
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	2-Hexanone	4-Methyl-2-Pentanone	Methylene Chloride	1,1,2,2-PCA	PCE	Toluene	1,1,1-TCA	TCE	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	0.00768 (B)	0.4 (B)	0.016 (B)	0.16 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	0.000219 (B)	0.005 (A) 0.0208 (B)	1 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1 (A) 1.6 (B)
EGW054	03/12/98	0.013	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.0012	0.0011	0.001 U	0.001 U	**0.000095**	0.001 U
	05/12/98	0.01 U*	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.0012	0.001 U	0.001 U	0.001 U	**0.0026**	0.001 U
	08/11/98	0.0075	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.0011	0.001 U	0.001	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00021**	0.001 U
	11/10/98	0.37	0.001 U	0.011	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0012	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00018**	0.001 U
	02/02/99	0.015	0.001 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00013**	0.001 U
	05/10/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00014**	0.001 U
	08/02/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00011**	0.001 U
	11/08/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000039**	0.001 U
	01/31/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000049**	0.001 U
	05/01/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000034**	0.001 U
	07/31/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000044**	0.001 U
	11/13/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000049**	0.001 U
	02/01/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000053**	0.001 U
	04/30/01	1.9	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.001 U	0.01 U	0.05 U	0.050 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.000051**	0.01 U
	08/07/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000036**	0.001 U
	11/13/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.000027	0.001 U
	02/04/02	0.059	0.0002 U	0.0013 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0007	0.000034	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.00099 UJ	0.0002 U	0.0002 U	0.0002 U	0.0003	**0.000040**	0.0004 U
	05/02/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.000020 U	0.0004 U
	11/14/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005	0.00002 U	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0006**	0.00002 U	0.0004 U
	05/06/03	1.4 D	0.0002 U	0.046	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0007 UJ	0.0002 U	0.0002 U	0.0002 U	**0.0008**	0.00002 U	0.0004 U
	11/03/03	0.0013 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0006	0.00002 U	0.0005	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0012 UJ	0.0002 U	0.0002 U	0.0002 U	0.0005	0.00002 U	0.0004 U
	04/15/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.00002 U	0.0004 U
	10/04/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 J	0.00002 U	0.0005 J	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 J	**0.000033**	0.0004 U
	03/29/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0007	0.00002 U	0.0006	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000025	0.0004 U
	10/18/05	0.0024 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 J	0.00002 U	0.0006	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 J	0.00002 U	0.0004 U
	01/11/06	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.00002 U	0.0005	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0012 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	07/05/06	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0005	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	**0.0015**	0.0002 U	0.0002 U	0.0002 U	0.0002	0.00002 U	0.0004 U
	01/03/07	2.3	0.0002 U	0.099	0.0003 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 J	0.0002 U	0.0002 U	0.003 U	0.0034 J	0.0003 U	0.0002 U	0.00002 U	0.0003 J	0.0002 U	0.00002 U	0.00002 U	0.0004 U
	07/02/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 J	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.000022	0.0002 U	0.0002 U	0.00019	0.000027	0.0004 U
	01/03/08	3.0 D	0.001 U	0.036	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.000021	0.0036	0.001 U	0.00036	0.00002 U	0.0012
	04/23/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000038	0.0002 U	0.0002 U	0.00015	0.00002 U	0.0004 U
	07/07/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000022	0.0002 U	0.0002 U	0.00013	0.00002 U	0.0004 U
	01/02/09	12 D	0.0002 U	0.0025 U	0.0002 U	0.28 J	0.0002 U	0.0003	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000046	0.0002 U	0.0002 U	0.0003	0.00002 U	0.0004 U
	07/06/09	0.0050 U	0.0002 U	0.0050 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002	0.00002 U	0.0003	0.0002 U	0.0002 U	0.0050 U	0.0050 U	0.0005 U	0.0002 U	0.000029	0.0003	0.0002 U	0.00021	0.00002 U	0.0004 U
	01/08/10	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002	0.00002 U	0.0002	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000020	0.0002 U	0.0002 U	0.00012	0.00002 U	0.0004 U
	07/01/10	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000022	0.0002 U	0.0002 U	0.000096	0.00002 U	0.0004 U
	01/06/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002	0.0002 U	0.0002 U	0.00012	0.00002 U	0.0004 U
	07/12/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000029	0.0002 U	0.0002 U	0.00026	0.00002 U	0.0004 U
	01/13/12	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0001 X	0.00002 U	0.0001 X	0.0002 U	0.0002 U	0.005 U	0.005 U	0.001 U	0.0002 U	0.000031	0.0002 U	0.0002 U	0.00026	0.00002 U	0.0004 U
	07/11/12	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0004	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0008 DNR	0.0002 U DNR	0.0005 U
	7/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000052	NA	NA	**0.00071**	0.00002 U	NA
	01/09/13	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.0001 X	0.0002 U DNR	0.0002 X	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0003 DNR	0.0002 U DNR	0.0005 U
	1/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000031	NA	NA	0.00027	0.00002 U	NA
	07/01/13	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.0001 X	0.0002 U DNR	0.0002 X	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0003	0.0002 U DNR	0.0005 U
	7/1/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000021	NA	NA	0.00024 DNR	0.00002 U	NA
	01/06/14	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0003 DNR	0.0002 U DNR	0.0005 U
	1/6/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000039	NA	NA	0.00028	0.00002 U	NA
	07/08/14	0.15 J	0.0003	0.22	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.0002 X	0.0002 U DNR	0.0002 U	0.0002 U	0.0005 U	0.015	0.0016 XJ	0.0003 X	0.0002 U	0.0002 U DNR	0.0004	0.0005 U	0.0005 DNR	0.0002 DNR	0.0005 U
	7/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000030	NA	NA	**0.00062**	**0.00018**	NA
	09/19/14	0.11	0.0003	0.15	0.0005 U	0.0001 X	0.0002 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0004	0.0002 U	0.0005 U	0.025	0.0014 X	0.0005 U	0.0002 U	0.0002 U DNR	0.0006	0.0005 U	0.0004 DNR	0.0002 U DNR	0.0001 X
	9/19/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000033	NA	NA	0.00041	**0.000084**	NA
	9/19/14 (DUP)	0.12	0.0003	0.15	0.0005 U	0.0001 X	0.0002 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0004	0.0002 U	0.0005 U	0.026	0.0014 X	0.0005 U	0.0002 U	0.0002 U DNR	0.0006	0.0005 U	0.0005 DNR	0.0002 U DNR	0.0001 X
	9/19/14 (SIM DUP)	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000033	NA	NA	0.00043	**0.000090**	NA
	01/05/15	0.016	0.0002 U	0.0041 X	0.0005 U	0.0005 U	**0.0017**	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0002 U	0.0005 U	0.0029 X	0.005 U	0.0003 X	0.0002 U	0.0002 U DNR	0.001	0.0005 U	0.0002 U DNR	0.0002 U DNR	0.0005 U
	1/5/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000019 X	NA	NA	0.000093	0.00002 U	NA

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website
CLARC tables downloaded February 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
* Sample result was qualified as not detected due to method blank contamination.
D - Dilution required to quantitate analyte within linear range of detector.
1,1-DCA - 1,1-dichloroethane
1,1-DCE - 1,1-dichloroethene
cis-1,2-DCE - cis-1,2-dichloroethene
trans-1,2-DCE - trans-1,2-dichloroethene
DNR - do not report

DUP - field duplicate
J - estimated value
mg/L - milligram per liter
NA - not analyzed
SIM - selected ion monitoring
1,1,2,2-PCA - 1,1,2,2-tetrachloroethane
PCE - tetrachloroethene
1,1,1-TCA - 1,1,1-trichloroethane
TCE - trichloroethene
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table A-4
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
2nd Quarter 2015
Building 40-11 (Auto Sump)
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range	Oil-Range	Gasoline-Range
MTCA Method A Groundwater Screening Level		0.5	0.5	0.8 / 1.0 *
EGW046	03/07/95	**63**	**46**	**1,900**
	04/28/95	10 U	25 U	**51**
	11/14/95	**81**	**100**	**1,600**
	03/01/96	10 U	25 U	10 U
	06/03/96	**15**	**4.3**	**2.7**
	08/26/96	**12**	**5.2**	**2.2**
	12/09/96	**21**	**67**	**1.4**
	03/04/97	**13**	0.50 U	**1.6**
	05/27/97	**17**	0.50 U	**3.0**
	08/12/97	**16 J**	**0.52**	**1.3 J**
	11/17/97	**9.0**	**1.2**	**1.4 J**
	03/12/98	**5.4**	0.50 U	0.57 **
	05/12/98	**4.3****	0.50 U	0.41 **
	08/11/98	**4.7****	0.50 U	0.39 **
	11/10/98	**4.5****	**0.84****	0.48 **
	02/02/99	**4.1****	**2.1****	0.48**
	05/10/99	**2.8****	0.50 U	0.51 J**
	08/02/99	**2.6****	**0.72****	0.36**
	11/08/99	**3.0****	**0.70****	0.50 J**
	01/31/00	**3.9****	**5.7****	0.38 J **
	05/01/00	**0.93****	0.50 U	0.45**
	07/31/00	**1.0****	0.50 U	0.42 J **
	11/13/00	**1.6****	**0.63****	0.38**
	02/01/01	**0.84****	0.50 U	0.25 U
	04/30/01	**0.95****	0.50 U	0.25 U
	08/07/01	**0.87****	0.50 U	0.28 **
	11/13/01	**0.96****	**0.95****	0.25 U
	02/04/02	**0.56****	0.50 U	0.25 U
	05/02/02	**0.66****	0.50 U	0.25 U
	11/14/02	**1.2****	**1.8****	0.25 U
	05/06/03	**0.52****	0.50 U	0.25 U
	11/03/03	**0.62****	0.50 U	0.25 U
	04/15/04	**0.50****	0.50 U	0.25 U
	10/04/04	0.25 U	0.50 U	0.25 U
	03/29/05	**0.58****	0.50 U	0.25 U
	10/18/05	0.25 U	0.50 U	NA
	01/11/06	0.28**	0.50 U	NA
	07/05/06	0.29**	0.50 U	NA
	01/03/07	**6.3**	**3.0**	NA
	07/02/07	0.43**	0.50 U	NA
	01/03/08	**3.6****	**1.9****	NA
	04/23/08	**8.6****	**23**	NA
	07/07/08	**0.54****	**0.90**	NA
	01/02/09	0.25 U	0.50 U	NA
	07/06/09	0.49**	0.50 U	NA
	01/08/10	0.25 U	0.50 U	NA
	01/06/11	0.16**	0.20 U	NA
	07/12/11	0.21**	0.20 U	NA
	01/13/12	0.24**	0.26	NA
	07/11/12	0.11**	0.19 X	NA
	01/09/13	0.085 X**	0.13 X	NA
	07/01/13	0.078 X**	0.18 X	NA
	01/06/14	0.14 **	0.41	NA
	01/05/15	**3.7****	**5.2****	0.099 X

Table A-4
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
2nd Quarter 2015
Building 40-11 (Auto Sump)
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range	Oil-Range	Gasoline-Range
MTCA Method A Groundwater Screening Level		0.5	0.5	0.8 / 1.0 *
EGW054	03/12/98	**6.4****	**2.0****	0.46 **
	05/12/98	**5.0****	**0.72****	0.42 **
	08/11/98	**4.8****	0.50 U	0.66 **
	11/10/98	**5.2****	**2.6****	0.62 J **
	02/02/99	**4.9****	**2.3****	0.49**
	05/10/99	**3.8****	0.50 U	0.62 J**
	08/02/99	**2.4****	0.50 U	0.38**
	11/08/99	**2.8****	0.50 U	0.40 J**
	01/31/00	**1.5****	0.50 U	0.36 J**
	05/01/00	**0.86****	0.50 U	0.25 U
	07/31/00	**0.51****	0.50 U	0.28 J **
	11/13/00	**1.5****	**0.64****	0.25 U
	02/01/01	**1.1****	0.50 U	0.25 U
	04/30/01	**1.0****	0.50 U	0.25 U
	08/07/01	**0.91****	0.50 U	0.25 U
	11/13/01	**0.94****	0.50 U	0.25 U
	02/04/02	**0.84****	**0.60****	0.25 U
	05/02/02	**0.53****	0.50 U	0.25 U
	11/14/02	**0.59****	0.50 U	0.25 U
	05/06/03	**0.54****	0.50 U	0.25 U
	11/03/03	0.49**	0.50 U	0.25 U
	04/15/04	0.36**	0.50 U	0.25 U
	10/04/04	0.29**	0.50 U	0.25 U
	03/29/05	**0.64****	0.50 U	0.25 U
	10/18/05	0.26**	0.50 U	NA
	01/11/06	0.26**	0.50 U	NA
	07/05/06	0.27**	0.50 U	NA
	01/03/07	**9.4**	0.50 U	NA
	07/02/07	**2.3****	0.50 U	NA
	01/03/08	**4.4****	0.50 U	NA
	04/23/08	0.25 U	0.50 U	NA
	07/07/08	0.29**	0.50 U	NA
	01/02/09	0.25 U	0.50 U	NA
	07/06/09	**0.50****	0.50 U	NA
	01/08/10	0.27**	0.50 U	NA
	07/01/10	0.16**	0.27	NA
	01/06/11	0.11**	0.20 U	NA
	07/12/11	0.11**	0.20 U	NA
	01/13/12	0.14**	0.20 U	NA
	07/11/12	0.072 X**	0.12 X	NA
	01/09/13	0.064 X**	0.075 X	NA
	07/01/13	0.065 X**	0.24 U	NA
	01/06/14	0.13**	0.32	NA
	07/08/14	30 E DNR	**10 *****	NA
	07/08/14 (DL)	**21*****	12 U DNR	NA
	09/19/14	**5.3****	**5.6****	0.37**
	919/14 (RE)	4.6 DNR	4.5 DNR	NA
	9/19/14 (DUP)	**5.1****	**5.6****	0.37**
	9/19/14 (DUP RE)	4.2 DNR	4.4 DNR	NA
	01/05/15	**0.78****	**1.3****	0.055 X

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA level based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A values are from Ecology website CLARC tables downloaded February 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
DL - dilution
DNR - do not report
DUP - field duplicate
E - Sample concentration exceeded the linear range of the instrument.
J - estimated value
mg/L - milligram per liter
NA - not analyzed
RE - reanalysis
U - Compound was analyzed for but not detected above the reporting limit shown.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.
* The groundwater screening level is 0.8 mg/L if benzene is present and 1.0 mg/L if benzene is not present.
** Pattern profile does not match the standard chromatogram.
*** Pattern profile matches the gasoline standard chromatogram.

Table A-5
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds															
		Acetone	**Benzene**	**Bromoform**	**2-Butanone**	**Carbon Disulfide**	**Chloroethane**	**Chloromethane**	**1,1-Dichloroethane**	**Ethylbenzene**	**Methylene Chloride**	**Styrene**	**Tetrachloroethene**	**Toluene**	**1,1,2-Trichloro-1,2,2-trifluoroethane**	**Trichloroethene**	**Total Xylenes**
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.0055 (B)	4.8 (B)	0.8 (B)	NE	NE	0.00768 (B)	0.7 (A) 0.8 (B)	0.005 (A) 0.0219(B)	1.6 (B)	0.005 (A) 0.0208 (B)	1 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	1.0 (A) 1.6 (B)
EGW055	08/08/02	0.0064 U	0.0002 U	0.0002 U	0.0045 U	0.0016	0.0002 U	0.0002 U	0.0002 U	0.0003	0.0003 U	0.0002 U	0.0002 U	0.036	0.0003	0.0002 U	0.0012
	11/20/2002	0.0025 UJ	0.0002 U	0.0002 U	0.0012 UJ	0.0007	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0003 U	0.0002 U	0.0002 U	0.02 D	0.0002 U	0.0002 U	0.001
	11/20/02 (DUP)	0.0024 UJ	0.0002 U	0.0002 U	0.0015 UJ	0.0006	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0003 U	0.0002 U	0.0002 U	0.02 D	0.0002 U	0.0002 U	0.001
	02/11/03	0.0064 U	0.0006 U	0.0006 U	0.0034 J	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.035	0.0006 U	0.0006 U	0.0012 U
	05/13/03	0.0034 U	0.0006 U	0.0006 U	0.0046	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.028	0.0006 U	0.0006 U	0.0012 U
	07/25/03	0.0055 U	0.0006 U	0.0006 UJ	0.003 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.023	0.0006 U	0.0006 U	0.0012 U
	11/11/03	0.0090 U	0.0006 U	0.0006 U	0.003 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.029	0.0006 U	0.0006 U	0.0012 U
	01/27/04	0.0030 U	0.0006 U	0.0006 U	0.0031 J	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0011 U	0.0006 U	0.0006 U	0.027	0.0006 U	0.0006 U	0.0012 U
	04/26/04	0.0088 U	0.0006 U	0.0006 U	0.0062 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.027	0.0006 U	0.0006 U	0.0018 U
	4/26/04 (DUP)	0.0041 U	0.0002 U	0.0002 U	0.0056 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.0003 U	0.0002 U	0.0002	0.025	0.0003	0.0002 U	0.0013
	07/27/04	0.0068 U	0.0006 U	0.0006 U	0.0030 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.018	0.0006 U	0.0006 U	0.0012 U
	7/27/04 (DUP)	0.0030 U	0.0006 U	0.0006 U	0.0030 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.018	0.0006 U	0.0006 U	0.0012 U
	10/10/04	0.015	0.001 U	0.001 U	0.024	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 U	0.001 U	0.001 U	0.032	0.001 U	0.001 U	0.002 U
	01/18/05	0.011	0.0006 U	0.0006 U	0.0030 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.022	0.0006 U	0.0006 U	0.0012 U
	04/13/05	0.011 U	0.0002 UJ	0.0002 UJ	0.001 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0003 UJ	0.0002 UJ	0.0002 UJ	0.02 D	0.0002 UJ	0.0002 UJ	0.0006 J
	10/25/05	0.0043 U	0.0004 U	0.0004 U	0.0020 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0006 U	0.0004 U	0.0004 U	0.023	0.0004 U	0.0004 U	0.0008 U
	10/25/05 (DUP)	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/18/06	0.0062 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.020	0.0002 U	0.0002 U	0.0005
	1/18/06 (DUP)	0.0043 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.021	0.0002 U	0.0002 U	0.0006
	07/17/06	0.0059 U	0.0004 U	0.0004 U	0.0025 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0006 U	0.0004 U	0.0004 U	0.016	0.0004 U	0.0004 U	0.0008 U
	01/20/07	0.0044	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.020	0.0002 U	0.0002 U	0.0004
	1/20/07 (DUP)	0.006 U	0.0004 U	0.0004 U	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0006 U	0.0004 U	0.0004 U	0.020	0.0004 U	0.0004 U	0.0008 U
	07/09/07	0.006 U	0.0004 U	0.0004 U	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0006 U	0.0004 U	0.0004 U	0.017	0.0004 U	0.0004 U	0.0008 U
	7/9/07 (DUP)	0.0034	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.016 D	0.0002 U	0.0002 U	0.0004
	01/17/08	0.006 U	0.0004 U	0.0004 U	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0006 U	0.0004 U	0.0004 U	0.020	0.0004 U	0.0004 U	0.0012
	1/17/08 (DUP)	0.0033	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0003 U	0.0002 U	0.0002 U	0.018 D	0.0002 U	0.0002 U	0.0017
	07/21/08	0.009 U	0.0006 U	0.0006 U	0.0075 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0015 U	0.0006 U	0.0006 U	0.016	0.0006 U	0.0006 U	0.0012 U
	7/21/08 (DUP)	0.009 U	0.0006 U	0.0006 U	0.0075 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0015 U	0.0006 U	0.0006 U	0.017	0.0006 U	0.0006 U	0.0012 U
	01/07/09	0.0093 U	0.0004 U	0.0004 U	0.005 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.001 U	0.0004 U	0.0004 U	0.014	0.0004 U	0.0004 U	0.0008 U
	01/07/09 (DUP)	0.013 U	0.0004 U	0.0004 U	0.005 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.001 U	0.0004 U	0.0004 U	0.015	0.0004 U	0.0004 U	0.0008 U
	07/09/09	0.0050 U	0.0002 U	0.0002 U	0.0050 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.014	0.0002 U	0.0002 U	0.0005
	01/12/10	0.0074	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.015	0.0002 U	0.0002 U	0.0005
	07/14/10	0.0052	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0085	0.0002 U	0.0003	0.0004 U
	7/14/10 (DUP)	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0086	0.0002 U	0.0002 U	0.0004 U
	01/11/11	0.0056	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.014	0.0002 U	0.0002 U	0.0004
	1/11/11 (DUP)	0.0056	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.015	0.0002 U	0.0002 U	0.0004
	07/11/11	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0077	0.0002 U	0.0002 U	0.0004 U
	7/11/11 (DUP)	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0078	0.0002 U	0.0002 U	0.0004 U
	01/11/12	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0001 X	0.001 U	0.0002 U	0.0001 X	0.014	0.0002 U	0.0002 U	0.0002 X
	1/11/12 (DUP)	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0001 X	0.001 U	0.0002 U	0.0002 U	0.014	0.0002 U	0.0002 U	0.0006 X
	07/18/12	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0001 X	0.011	0.0005 U	0.0002 U	0.0005 U
	7/18/12 (DUP)	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0001 X	0.011	0.0005 U	0.0002 U	0.0005 U
	01/10/13	0.0034 X	0.0002 U	0.0001 XJ	0.001 XJ	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.0005 U	0.0001 X	0.015	0.0005 U	0.0002 U	0.0005 X
	1/10/13 (DUP)	0.25 UJ	0.01 U	0.025 UJ	0.25 UJ	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.01 U	0.013	0.025 U	0.01 U	0.025 U
	1/10/13 (DUP RE)	0.25 U DNR	0.01 U DNR	0.025 U DNR	0.25 U DNR	0.025 U DNR	0.025 U DNR	0.025 U DNR	0.025 U DNR	0.025 U DNR	0.025 U DNR	0.025 U DNR	0.01 U DNR	0.014 DNR	0.025 U DNR	0.01 U DNR	0.025 U DNR
	07/10/13	0.0034 XJ	0.0002 U	0.0005 U	0.0014 X	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.010	0.0005 U	0.0002 U	0.0004 X
	7/10/13 (DUP)	0.005 UJ	0.0002 U	0.0005 U	0.0015 X	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0093	0.0005 U	0.0002 U	0.0003 X
	01/08/14	0.0045 XJ	0.0002 U	0.0005 U	0.0016 XJ	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.0005 U	0.0001 X	0.015	0.0005 U	0.0002 U	0.0005 X
	1/08/14 (DUP)	0.0050 XJ	0.0002 U	0.0005 U	0.0015 XJ	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.0005 U	0.0001 X	0.016	0.0005 U	0.0002 U	0.0005 X
	07/01/14	0.005 U	0.0002 U	0.0005 U	0.0017 X	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0093	0.0005 U	0.0002 U	0.0003 X
	7/1/14 (DUP)	0.004 XJ	0.0002 U	0.0005 U	0.0022 X	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0001 X	0.0097	0.0005 U	0.0002 U	0.0003 X
	01/08/15	0.0033 X	0.0002 U	0.0005 U	0.0019 X	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0003 X	0.0005 U	0.0005 U	0.0001 X	0.012	0.0005 U	0.0002 U	0.0026
	1/8/15 (DUP)	0.0034 X	0.0002 U	0.0005 U	0.0016 X	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 X	0.0005 U	0.0005 U	0.0002 U	0.012	0.0005 U	0.0002 U	0.0025
EGW070	05/02/01	0.019	0.001	0.001 U	0.041	0.0016	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.067	0.002 U	0.001 U	0.001 U
	08/08/01	0.025	0.001 U	0.001 U	0.064	0.0017	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.064	0.002 UJ	0.001 U	0.001 U
	11/14/01	0.027	0.001 U	0.001 U	0.100	0.0019	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.062	0.002 U	0.001 U	0.001 U
	02/12/02	0.016	0.0002	0.0002 U	0.09 D	0.002	0.0014	0.002 U	0.0005	0.001 U	0.0003 U	0.0002 U	0.0002	0.059 D	0.0004	0.001 U	0.0004
	05/09/02	0.015	0.0002	0.0002 U	0.072 D	0.0009	0.0002 U	0.0002	0.0005	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.054 D	0.0002	0.0002 U	0.0004
	08/08/02	0.034 J	0.002 U	0.002 U	0.058	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.003 U	0.002 U	0.002 U	0.065	0.002 U	0.002 U	0.004 U
	11/20/02	0.016	0.0002 U	0.0002 U	0.027	0.0018	0.0002 U	0.0002 UJ	0.0004 J	0.0002	0.0003 U	0.0002 U	0.0002	0.059 D	0.0002 U	0.0002	0.0011
	02/11/03	0.054	0.002 U	0.002 U	0.042	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.003 U	0.002 U	0.002 U	0.065	0.002 U	0.002 U	0.004 U
	05/13/03	0.025 J	0.002 U	0.002 U	0.016	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.003 U	0.002 U	0.002 U	0.053	0.002 U	0.002 U	0.004 U
	07/25/03	0.022	0.001 U	0.001 UJ	0.021	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 U	0.001 U	0.001 U	0.065	0.001 U	0.001 U	0.002 U
	11/11/03	0.039**	0.002 U	0.002 U	0.022**	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.003 U	0.002 U	0.002 U	0.052	0.002 U	0.002 U	0.002
	01/27/04	0.019 U	0.001 U	0.001 U	0.027	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.059	0.002 U	0.001 U	0.001 U
	04/26/04	0.033 U	0.001 U	0.001 U	0.032	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.001 U	0.054	0.002 U	0.001 U	0.001 U
	07/27/04	0.029 U	0.001 U	0.001 U	0.036	0.0016	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 U	0.001 U	0.001 U	0.056	0.001 U	0.001 U	0.002 U
	10/10/04	0.027	0.001 U	0.001 U	0.021	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 U	0.001 U	0.001 U	0.048	0.001 U	0.001 U	0.002 U

Table A-5
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds															
		Acetone	**Benzene**	**Bromoform**	**2-Butanone**	**Carbon Disulfide**	**Chloroethane**	**Chloromethane**	**1,1-Dichloroethane**	**Ethylbenzene**	**Methylene Chloride**	**Styrene**	**Tetrachloroethene**	**Toluene**	**1,1,2-Trichloro-1,2,2-trifluoroethane**	**Trichloroethene**	**Total Xylenes**
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.0055 (B)	4.8 (B)	0.8 (B)	NE	NE	0.00768 (B)	0.7 (A) 0.8 (B)	0.005 (A) 0.0219(B)	1.6 (B)	0.005 (A) 0.0208 (B)	1 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	1.0 (A) 1.6 (B)
EGW070 (continued)	01/18/05	0.030	0.001 U	0.001 U	0.056	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 U	0.001 U	0.001 U	0.064	0.001 U	0.001 U	0.002 U
	04/14/05	0.014 U	0.002 U	0.002 U	0.038	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.003 U	0.002 U	0.002 U	0.064	0.002 U	0.002 U	0.004 U
	10/25/05	0.042	0.002 U	0.002 U	0.046	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.003 U	0.002 U	0.002 U	0.064	0.002 U	0.002 U	0.004 U
	01/18/06	0.022 UJ	0.0002 UJ	0.0002 UJ	0.041 J	0.0022 UJ	0.0002 UJ	0.0002 UJ	0.0004 J	0.0002 J	0.0003 UJ	0.0002 UJ	0.0002 UJ	0.045	0.0002 UJ	0.0002 J	0.0005 J
	07/18/06	0.026	0.001 U	0.001 U	0.053	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0015 U	0.001 U	0.001 U	0.043	0.001 U	0.001 U	0.002 U
	01/20/07	0.017	0.0004 U	0.0004 U	0.027	0.0005	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0006 U	0.0004 U	0.0004 U	0.030	0.0004 U	0.0004 U	0.0008 U
	07/09/07	0.024	0.0006 U	0.0006 U	0.032	0.0014	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.037	0.0006 U	0.0006 U	0.0012 U
	01/17/08	0.021	0.0006 U	0.0006 U	0.025	0.0006	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0009 U	0.0006 U	0.0006 U	0.033	0.0006 U	0.0006 U	0.0022
	07/21/08	0.023	0.0006 U	0.0006 U	0.024	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0015 U	0.0006 U	0.0006 U	0.035	0.0006 U	0.0006 U	0.0012
	01/07/09	0.026 U	0.0006 U	0.0006 U	0.026	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0015 U	0.0006 U	0.0006 U	0.042	0.0006 U	0.0006 U	0.0012 U
	07/09/09	0.014	0.0002 U	0.0002 U	0.037	0.0004	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.037	0.0002 U	0.0002 U	0.0006
	01/12/10	0.016	0.0002 U	0.0002 U	0.019	0.0007	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.036	0.0002 U	0.0002 U	0.0006
	07/14/10	0.019	0.0002 U	0.0002 U	0.032	0.0002	0.0002 U	0.0005 U	0.0002 U	0.0002	0.0005 U	0.0002 U	0.0002 U	0.025	0.0002 U	0.0002 U	0.0004 U
	01/11/11	0.015	0.0002 U	0.0002 U	0.021	0.0003	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.020	0.0002 U	0.0002 U	0.0004 U
	07/11/11	0.014	0.0002 U	0.0002 U	0.046	0.0005	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.024	0.0002 U	0.0002 U	0.0004 U
	01/11/12	0.017	0.0002 U	0.0002 U	0.018	0.0002	0.0002 U	0.0005 U	0.0001 X	0.0002 U	0.001 U	0.0002 U	0.0001 X	0.024	0.0002 U	0.0002 U	0.0005 X
	07/18/12	0.031	0.001 U	0.0025 U	0.082	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.001 U	0.038	0.0025 U	0.001 U	0.0025 U
	01/10/13	0.05 U	0.002 U	0.005 U	0.067 J	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.002 U	0.018	0.005 U	0.002 U	0.005 U
	07/10/13	0.05 UJ	0.002 U	0.005 U	0.048 X	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.002 U	0.021	0.005 U	0.002 U	0.005 U
	01/08/14	0.05 U	0.002 U	0.005 U	0.037 XJ	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.002 U	0.022	0.005 U	0.002 U	0.005 U
	07/01/14	0.034 J	0.0004 U	0.001 U	0.035	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0004 U	0.028	0.001 U	0.0004 U	0.0003 X
	01/08/15	0.02	0.0002 U	0.0005 U	0.051 DNR	0.0005 U	0.0005 U	0.0005 U	0.0001 X	0.0001 X	0.0005 U	0.0005 U	0.0001 X	0.034 E DNR	0.0005 U	0.0002 U	0.0008
	1/8/15 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.065	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.029	0.005 U DNR	0.002 U DNR	0.005 U DNR
EGW071	08/08/02	0.0054 U	0.0002 U	0.0002 U	0.0072 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0008 J	0.0002 U	0.0002 U	0.0004 U
	11/19/02	0.0021 U	0.0002 U	0.0002 U	0.0039	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0004	0.0002 U	0.0002 U	0.0004 U
	02/11/03	0.0034 UJ	0.0002 U	0.0002 U	0.0066	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.0002 U	0.0004 U
	02/11/03 (DUP)	0.0025 U	0.0002 U	0.0002 U	0.0064	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.0002 U	0.0004 U
	05/13/03	0.0029 U	0.0002 U	0.0002 U	0.0056	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.0002 U	0.0004 U
	07/25/03	0.0032 U	0.0002 U	0.0002 UJ	0.0052 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.0002 U	0.0004 U
	11/11/03	0.0051 U	0.0002 U	0.0002 U	0.0026 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	11/11/03 (DUP)	0.0073 U	0.0002 U	0.0002 U	0.0023 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/27/04	0.0021 U	0.0002 U	0.0002 U	0.0019	0.0002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	1/27/04 (DUP)	0.0034 U	0.0002 U	0.0002 U	0.0028 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	04/26/04	0.0027 U	0.0002 U	0.0002 U	0.0011 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/27/04	0.0014 U	0.0002 U	0.0002 U	0.0010 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	10/10/04	0.0021	0.0002 U	0.0002 U	0.0010 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U
	01/18/05	0.0022	0.0002 U	0.0002 U	0.0010 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	04/14/05	0.001 U	0.0002 U	0.0002 U	0.0026	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	10/25/05	0.001 U	0.0002 U	0.0002 U	0.0010 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/18/06	0.0019 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/18/06	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/20/07	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/09/07	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/17/08	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/21/08	0.003 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/07/09	0.003 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/09/09	0.0050 U	0.0002 U	0.0002 U	0.0050 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/12/10	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/14/10	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/11/11	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/11/11	0.005 UJ	0.0002 U	0.0002 UJ	0.005 UJ	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/11/12	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/18/12	0.0032 X	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0001 X	0.0005 U	0.0002 U	0.0005 U
	01/10/13	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	07/10/13	0.005 UJ	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 UJ	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/08/14	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	07/01/14	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/08/15	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U

Table A-5
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds															
		Acetone	Benzene	Bromoform	2-Butanone	Carbon Disulfide	Chloroethane	Chloromethane	1,1-Dichloroethane	Ethylbenzene	Methylene Chloride	Styrene	Tetrachloroethene	Toluene	1,1,2-Trichloro-1,2,2-trifluoroethane	Trichloroethene	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.0055 (B)	4.8 (B)	0.8 (B)	NE	NE	0.00768 (B)	0.7 (A) 0.8 (B)	0.005 (A) 0.0219(B)	1.6 (B)	0.005 (A) 0.0208 (B)	1 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	1.0 (A) 1.6 (B)
EGW072	08/08/02	0.0023 UJ	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0004	0.0002 U	0.0002 U	0.0004 U
	08/08/02 (DUP)	0.001 U	0.0002 U	0.0002 U	0.0019 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0004	0.0002 U	0.0002 U	0.0004 U
	11/19/02	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	02/11/03	0.0016 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	05/13/03	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/25/03	0.0015 U	0.0002 U	0.0002 UJ	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	11/11/03	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003
	01/27/04	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	04/26/04	0.0012 J	0.0002 U	0.0002 U	0.001 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/26/04	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	10/10/04	0.002	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	10/10/04 (DUP)	0.002	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/18/05	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	04/13/05	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	10/24/05	0.0014 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/18/06	0.0016 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/17/06	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/20/07	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/09/07	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/17/08	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/21/08	0.003 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/07/09	0.003 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/09/09	0.0050 U	0.0002 U	0.0002 U	0.0050 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/12/10	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	1/12/10 (DUP)	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/14/10	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/11/11	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/11/11	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/11/12	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/18/12	0.01	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002	0.0005 U	0.0002 U	0.0005 U
	01/10/13	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	07/10/13	0.005 UJ	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/08/14	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	07/01/14	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/08/15	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
EGW073	08/08/02	0.0029 U	0.0002 U	0.0002 U	0.002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0005	0.0002 U	0.0002 U	0.0004 U
	11/19/02	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	02/11/03	0.0013 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	05/13/03	0.0039 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/25/03	0.001 U	0.0002 U	0.0002 UJ	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	11/11/03	0.0020	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003
	01/26/04	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	04/26/04	0.0016 J	0.0002 U	0.0002 U	0.0012 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/26/04	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	10/10/04	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/18/05	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	04/13/05	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	10/24/05	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/17/06	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/17/06	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	7/17/06 (DUP)	0.001 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/20/07	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/09/07	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/17/08	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/21/08	0.003 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/07/09	0.003 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/09/09	0.0050 U	0.0002 U	0.0002 U	0.0050 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	7/9/09 (DUP)	0.0050 U	0.0002 U	0.0002 U	0.0050 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/12/10	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/14/10	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/11/11	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/11/11	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/11/12	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/18/12	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/10/13	0.025 U	0.001 U	0.0025 U	0.025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.001 U	0.001 U	0.0025 U	0.001 U	0.0025 U
	07/10/13	0.005 UJ	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/08/14	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	07/01/14	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 X	0.0005 U	0.0002 U	0.0002 X
	01/12/15	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U

Table A-5
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds															
		Acetone	**Benzene**	**Bromoform**	**2-Butanone**	**Carbon Disulfide**	**Chloroethane**	**Chloromethane**	**1,1-Dichloroethane**	**Ethylbenzene**	**Methylene Chloride**	**Styrene**	**Tetrachloroethene**	**Toluene**	**1,1,2-Trichloro-1,2,2-trifluoroethane**	**Trichloroethene**	**Total Xylenes**
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.0055 (B)	4.8 (B)	0.8 (B)	NE	NE	0.00768 (B)	0.7 (A) 0.8 (B)	0.005 (A) 0.0219(B)	1.6 (B)	0.005 (A) 0.0208 (B)	1 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	1.0 (A) 1.6 (B)
EGW074	08/08/02	0.0052 U	0.0002 U	0.0002 U	0.010 U	0.0010	0.0002 U	0.0004 UJ	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.010	0.0002 U	0.0002 U	0.0004
	11/20/02	0.0031 UJ	0.0002 U	0.0002 U	0.016	0.0002 U	0.0002 U	0.0002 UJ	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0054	0.0002 U	0.0002 U	0.0004
	02/11/03	0.005 UJ	0.0002 U	0.0002 U	0.014	0.0002 U	0.0002 U	0.0002 UJ	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0078	0.0002 U	0.0002 U	0.0008
	05/13/03	0.0038 U	0.0002 U	0.0002 U	0.0078	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0035	0.0002 U	0.0002 U	0.0004 U
	05/13/03 (DUP)	0.0039 U	0.0002 U	0.0002 U	0.0080	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0035	0.0002 U	0.0002 U	0.0004 U
	07/25/03	0.0039 U	0.0002 U	0.0002 UJ	0.0077	0.0002 U	0.0002 U	0.0002	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0048	0.0002 U	0.0002 U	0.0004 U
	11/11/03	0.0030 U	0.0002 U	0.0002 U	0.0067 U	0.0003	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0033	0.0002 U	0.0002 U	0.0004 U
	01/27/04	0.0053 U	0.0002 U	0.0002 U	0.0030	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	04/26/04	0.0023 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0008	0.0002 U	0.0002 U	0.0004 U
	07/27/04	0.0022 U	0.0002 U	0.0002 U	0.0028 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0019	0.0002 U	0.0002 U	0.0004 U
	10/10/04	0.0042	0.0002 U	0.0002 U	0.0055	0.0002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0041	0.0002 U	0.0002 U	0.0004 U
	01/18/05	0.0020	0.0002 U	0.0002 U	0.0017	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.0002 U	0.0004 U
	04/14/05	0.001 U	0.0002 U	0.0002 U	0.0042	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	10/25/05	0.0056 U	0.0002 U	0.0002 U	0.0033	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0007	0.0002 U	0.0002 U	0.0004 U
	01/18/06	0.006 U	0.0002 U	0.0002 U	0.0024	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/18/06	0.0014	0.0002 U	0.0002 U	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/20/07	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/09/07	0.003 U	0.0002 U	0.0002 U	0.0015	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/17/08	0.003 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/21/08	0.003 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/07/09	0.003 U	0.0002 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0002 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/09/09	0.0050 U	0.0002 U	0.0002 U	0.0050 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/12/10	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/14/10	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/11/11	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/11/11	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	01/11/12	0.005 U	0.0002 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004 U
	07/18/12	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/10/13	0.05 U	0.002 U	0.005 U	0.05 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.002 U	0.002 U	0.005 U	0.002 U	0.005 U
	07/10/13	0.005 UJ	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/08/14	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	07/01/14	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U
	01/08/15	0.005 U	0.0002 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U

Notes:

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

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

(A) - MTCA Method A

(B) - MTCA Method B

** Analyte was detected in the associated equipment blank. Sample result was not qualified based on results from previous rounds.

D - Dilution required to quantitate analyte within linear range of detector. This flag was not used prior to August 2001.

DL - dilution

DNR - do not report

DUP - field duplicate

J - estimated value

mg/L - milligram per liter

R - Result is rejected due to serious deficiencies in the ability to meet control criteria for surrogate recovery.

RE - reanalysis

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

UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table A-6
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Semivolatile Organic Compounds																									
		Acenaphthene	Anthracene	Benzo(a) anthracene	Benzo(a) Pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Benzyl Alcohol	Butylbenzyl Phthalate	2-Chlorophenol	Chrysene	Dibenzo (a,h) anthracene (B)	2,4-Dimethylphenol	Dimethylphthalate	2,6-Dinitrotoluene	Bis(2-Ethylhexyl) Phthalate	Fluoranthene	Indeno(1,2,3-cd)pyrene	2-Methylphenol	4-Methylphenol	Naphthalene	3-Nitroaniline	di-n-Octyl Phthalate	Phenanthrene	Phenol	Pyrene
MTCA Method A or B Groundwater Screening Level		0.96 (B)	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	0.8 (B)	0.0461 (B)	0.04 (B)	0.012 (B)	0.000012	0.16 (B)	NE	0.0000583 (B)	0.00625 (B)	0.64 (B)	0.00012	0.4 (B)	0.8 (B)	0.16 (A) 0.16 (B)	NE	0.16 (B)	NE	2.4 (B)	0.48 (B)
EGW055	08/08/02	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	1.7 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	1.7 U	1.3 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	1.7 U	1.3 U	0.33 U	**7.1**	0.33 U
	11/20/2002	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	**8.3**	0.2 U
	11/20/02 (DUP)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	**10**	0.2 U
	02/11/03	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.25	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	**14 D**	0.1 U
	05/13/03	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	**18**	0.3 U
	07/25/03	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	**9.7**	0.1 U
	11/11/03	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.6 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.6 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.6 U	0.12 U	0.12 U	**11 J**	0.12 U
	01/27/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	**7.7**	0.5 U
	04/26/04	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1 U	**18**	1 U
	4/26/04 (DUP)	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.25 U	0.25 U	0.25 U	**17**	0.25 U
	07/27/04	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**6.8**	0.2 U
	7/27/04 (DUP)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**4.6**	0.2 U
	10/10/04	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.335 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.335 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.335 U	0.067 U	0.067 U	**5.1**	0.067 U
	01/18/05	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**9.3**	0.2 U
	04/13/05	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**4.9**	0.2 U
	10/25/05	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2 U	**5.7**	2 U
	10/25/05 (DUP)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	01/18/06	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**6.6**	0.2 U
	1/18/06 (DUP)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	**6.0 D**	0.02 U
	07/17/06	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**5.0**	0.2 U
	01/20/07	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**5.9**	0.2 U
	1/20/07 (DUP)	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	**5.0**	0.005 U
	07/09/07	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**4.2**	0.2 U
	7/9/07 (DUP)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	**4.4 D**	0.02 U
	01/17/08	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**13 J**	0.2 U
	1/17/08 (DUP)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**13 J**	0.2 U
	07/21/08	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ	1.0 UJ	0.2 U	0.2 U	**4.1 J**	0.2 U
	7/21/08 (DUP)	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 UJ	0.05 U	0.01 U	0.01 U	**3.1 J D**	0.01 U
	01/07/09	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**2.8**	0.2 U
	01/07/09 (DUP)	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	**3.1 D**	0.02 U
	07/09/09	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	**3.6**	0.2 U
	01/12/10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 UJ	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ	1.0 UJ	0.2 U	0.2 U	**3.1**	0.2 U
	07/14/10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	1.8	0.2 U
	7/14/10 (DUP)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.55	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	1.6	0.2 U
	01/11/11	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ**	0.75 UJ	0.75 UJ	3.8 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	3.8 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	0.75 UJ	3.8 UJ	0.75 UJ	0.75 UJ	**3.8 J**	0.75 UJ
	1/11/11 (DUP)	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U**	0.12 U	0.12 U	0.62 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.62 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 UJ	0.62 U	0.12 U	0.12 U	**4.1**	0.12 U
	07/11/11	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U**	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	**4.2**	0.1 U
	7/11/11 (DUP)	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U**	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	**3.5**	0.1 U
	01/11/12	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.013	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.013	0.003 U	**10 J**	0.003 U
	1/11/12 (DUP)	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003	0.003 U	**5.2 J**	0.003 U
	07/18/12	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.15 U	0.051 U	0.01 U	0.005 U	0.005 U	0.051 U	0.01 U	0.05 U	0.051 U	0.005 U	0.005 U	0.01 U	0.01 U*	0.005 U	R	0.051 U	0.005 U	4.7 E DNR	0.005 U
	7/18/12 (DL)	0.051 U DNR	0.051 U DNR	0.051 U DNR	0.051 U DNR	0.051 U DNR	0.051 U DNR	0.051 U DNR	1.5 U DNR	0.51 U DNR	0.1 U DNR	0.051 U DNR	0.051 U DNR	0.1 U DNR	0.51 U DNR	0.1 U DNR	0.51 U DNR	0.051 U DNR	0.051 U DNR	0.1 U DNR	0.1 U DNR	0.051 U DNR	R	0.51 U DNR	0.051 U DNR	**4.8 J**	0.051 U DNR
	7/18/12 (DUP)	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.14 U	0.048 U	0.01 U	0.005 U	0.005 U	0.01 U	0.048 U	0.01 U	0.048 U	0.005 U	0.005 U	0.01 U	0.01 U*	0.005 U	R	0.048 U	0.005 U	3.2 E DNR	0.005 U
	7/18/12 (DUP DL)	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	1.4 U DNR	0.48 U DNR	0.095 U DNR	0.048 U DNR	0.048 U DNR	0.095 U DNR	0.48 U DNR	0.095 U DNR	0.48 U DNR	0.048 U DNR	0.048 U DNR	0.095 U DNR	0.095 U DNR	0.048 U DNR	R	0.48 U DNR	0.048 U DNR	**3.3 J**	0.048 U DNR
	01/10/13	0.003	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.071 U	0.024 U	0.005 U	0.002 U	0.002 U	0.005 U	0.024 U	0.005 U	0.011 X	0.002 U	0.002 U	0.005 U	0.004 X	0.005 U	R	0.024 U	0.002 U	4.7 E DNR	0.002 U
	1/10/13 (DL)	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	1.4 U DNR	0.47 U DNR	0.095 U DNR	0.047 U DNR	0.047 U DNR	0.095 U DNR	0.47 U DNR	0.095 U DNR	0.47 U DNR	0.047 U DNR	0.047 U DNR	0.095 U DNR	0.095 U DNR	0.095 U DNR	R	0.47 U DNR	0.047 U DNR	**6.2**	0.047 U DNR
	1/10/13 (DUP)	0.001 X	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.072 U	0.024 U	0.005 U	0.002 U	0.002 U	0.005 U	0.024 U	0.005 U	0.024 U	0.002 U	0.002 U	0.005 U	0.004 X	0.005 U	R	0.024 U	0.002 U	4.7 E DNR	0.002 U
	1/10/13 (DUP DL)	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	1.4 U DNR	0.48 U DNR	0.096 U DNR	0.048 U DNR	0.048 U DNR	0.096 U DNR	0.48 U DNR	0.096 U DNR	0.48 U DNR	0.048 U DNR	0.048 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	R	0.48 U DNR	0.048 U DNR	**5.9**	0.048 U DNR
	7/10/13 (RE)	0.0008 J	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.014 UJ	0.005 UJ	0.0009 UJ	0.0005 UJ	0.0005 UJ	0.0009 UJ	0.005 UJ	0.0009 UJ	0.005 UJ	0.0005 UJ	0.0005 UJ	0.0008 XJ	0.004 J	0.0005 UJ	0.0009 UJ	0.005 UJ	0.0005 UJ	3.8 E DNR	0.0005 UJ
	07/10/13	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.14 U DNR	0.047 U DNR	0.009 U DNR	0.005 U DNR	0.005 U DNR	0.009 U DNR	0.047 U DNR	0.009 U DNR	0.047 U DNR	0.005 U DNR	0.005 U DNR	0.009 U DNR	0.009 U DNR	0.005 U DNR	0.009 U DNR	0.047 U DNR	0.005 U DNR	3.9 E DNR	0.005 U DNR
	7/10/13 (DL)	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	1.4 U DNR	0.47 U DNR	0.095 U DNR	0.047 U DNR	0.047 U DNR	0.095 U DNR	0.47 U DNR	0.095 U DNR	0.47 U DNR	0.047 U DNR	0.047 U DNR	0.095 U DNR	0.095 U DNR	0.047 U DNR	0.095 U DNR	0.47 U DNR	0.047 U DNR	**4.5 J**	0.047 U DNR
	7/10/13 (DUP RE)	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.014 UJ	0.003 XJ	0.001 UJ	0.0005 UJ	0.0005 UJ	0.001 J	0.005 UJ	0.001 UJ	0.017 J	0.0005 UJ	0.0005 UJ	0.0006 XJ	0.003 J	0.0005 UJ	0.001 UJ	0.004 XJ	0.0005 UJ	3.1 E DNR	0.0005 UJ
	7/10/13 (DUP)	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.14 U DNR	0.047 U DNR	0.009 U DNR	0.005 U DNR	0.005 U DNR	0.009 U DNR	0.047 U DNR	0.009 U DNR	0.047 U DNR	0.005 U DNR	0.005 U DNR	0.009 U DNR	0.009 U DNR	0.005 U DNR	0.009 U DNR	0.047 U DNR	0.005 U DNR	3.6 E DNR	0.005 U DNR
	7/10/13 (DUP DL)	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	0.047 U DNR	1.4 U DNR	0.47 U DNR	0.095 U DNR	0.047 U DNR	0.047 U DNR	0.095 U DNR	0.47 U DNR	0.095 U DNR	0.47 U DNR	0.047 U DNR	0.047 U DNR	0.095 U DNR	0.095 U DNR	0.047 U DNR	0.095 U DNR	0.47 U DNR	0.047 U DNR	**3.9**	0.047 U DNR
	01/08/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.015 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.0005 X	0.0005 X	0.0005 U	R	0.005 U	0.0005 U	2.3 E DNR	0.0005 U
	1/8/14 (DL)	0.099 U DNR	0.099 U DNR	0.099 U DNR	0.099 U DNR	0.099 U DNR	0.099 U DNR	0.099 U DNR	3 U DNR	0.99 U DNR	0.2 U DNR	0.099 U DNR	0.099 U DNR	0.2 U DNR	0.99 U DNR	0.2 U DNR	0.99 U DNR	0.099 U DNR	0.099 U DNR	0.2 U DNR	0.2 U DNR	0.099 U DNR	0.2 U DNR	0.99 U DNR	0.099 U DNR	**6.1**	0.099 U DNR
	1/8/14 (DUP)	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.015 U	0.005 U	0.0006 X	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.0007 X	0.003	0.0005 U	R	0.005 U	0.0005 U	2.5 E DNR	0.0005 U
	1/8/14 (DUP DL)	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	3 U DNR	1 U DNR	0.2 U DNR	0.1 U DNR	0.1 U DNR	0.2 U DNR	1 U DNR	0.2 U DNR	1 U DNR	0.1 U DNR	0.1 U DNR	0.2 U DNR	0.2 U DNR	0.1 U DNR	0.2 U DNR	1 U DNR	0.1 U DNR	**7.9**	0.1 U DNR
	07/01/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.0005 X	0.003	0.0005 U	0.001 U	0.005 U	0.0005 U	3.1 E DNR	0.0005 U
	7/1/2014 (DL)	0.096 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	2.9 U DNR	0.96 U DNR	0.19 U DNR	0.096 U DNR	0.096 U DNR	0.19 U DNR	0.96 U DNR	0.19 U DNR	0.96 U DNR	0.096 U DNR	0.096 U DNR	0.19 U DNR	0.19 U DNR	0.096 U DNR	0.19 U DNR	0.96 U DNR	0.096 U DNR	**3.9**	0.096 U DNR
	7/1/2014 (DUP)	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.002	0.0005 U	0.001 U	0.005 U	0.0005 U	2.5 E DNR	0.0005 U
	7/1/14 (DUP DL)	0.096 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	0.096 U DNR	2.9 U DNR	0.96 U DNR	0.19 U DNR	0.096 U DNR	0.096 U DNR	0.19 U DNR	0.96 U DNR	0.19 U DNR	0.96 U DNR	0.096 U DNR	0.096 U DNR	0.19 U DNR	0.19 U DNR	0.096 U DNR	0.19 U DNR	0.96 U DNR	0.096 U DNR	**3.7**	0.096 U DNR
	01/08/15	0.0005 U	0.0005 U	**0.0002 X**	**0.0003 X**	0.0005 U	0.0002 X	0.0005 U	0.019 U	0.005 U	0.0009 U	0.0002 X	**0.0001 X**	0.0009 U	0.005 U	0.0009 U	0.003 X	0.0003 XJ	**0.0002 X**	0.0009 U	0.004	0.0005 U	0.0009 U	0.005 U	0.0005 UJ	0.007 J	0.0001 X
	1/8/15 (RE)	0.0005 U DNR	0.0005 U DNR	0.0001 X DNR	0.0005 U DNR	0.0005 U DNR	0.0002 X DNR	0.0005 U DNR	0.019 U DNR	0.005 U DNR	0.0009 U DNR	0.0001 X DNR	0.0001 X DNR	0.0009 U DNR	0.005 U DNR	0.0009 U DNR	0.003 X DNR	0.0005 U DNR	0.0001 X DNR	0.0009 U DNR	0.004 DNR	0.0005 U DNR	0.0009 U DNR	0.005 U DNR	0.0005 U DNR	0.007 DNR	0.0005 U DNR
	1/8/15 (DUP)	0.0005 U	0.0005 U	0.0005 U	**0.0001 X**	0.0001 X	0.0001 X	0.0001 X	0.019 U	0.005 U	0.001 U	0.0005 U	**0.0001 X**	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0001 X	0.0007 X	0.001 U	0.0005 U	0.001 U	0.005 U	0.0005 U	3.3 E DNR	0.0005 U
	1/8/15 (DUP DL)	0.048 U DNR	0.048 U DNR	0.048 U DNR	0.01 X DNR	0.048 U DNR	0.048 U DNR	0.048 U DNR	1.9 U DNR	0.48 U DNR	0.096 U DNR	0.048 U DNR	0.048 U DNR	0.096 U DNR	0.48 U DNR	0.096 U DNR	0.48 U DNR	0.048 U DNR	0.048 U DNR	0.096 U DNR	0.096 U DNR	0.048 U DNR	0.096 U DNR	0.48 U DNR	0.048 U DNR	**5.1 J**	0.048 U DNR
	4/2/15	0.0006	0.0001 X	**0.0002 X**	**0.0001 X**	0.0001 X	0.0005 U	0.0001 X	0.014 U	0.005 U	0.0009 U	0.0002 X	0.0005 U	0.0009 U	0.005 U	0.0009 U	0.005 U	0.0002 X	0.0005 U	0.0007 X	0.002	0.0005 U	0.0009 U	0.005 U	0.0002 X	1.8 E DNR	0.0003 X
	4/2/15 (DL)	0.024 U DNR	0.0024 U DNR	0.024 U DNR	0.024 U DNR	0.024 U DNR	0.024 U DNR	0.024 U DNR	0.710 U DNR	0.024 U DNR	0.047 U DNR	0.024 U DNR	0.024 U DNR	0.047 U DNR	0.240 U DNR	0.047 U DNR	0.240 U DNR	0.024 U DNR	0.024 U DNR	0.047 U DNR	0.047 U DNR	0.024 U DNR	0.047 U DNR	0.240 U DNR	0.024 U DNR	**4.4**	0.024 U DNR

Table A-6
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Semivolatile Organic Compounds																									
		Acenaphthene	**Anthracene**	**Benzo(a) anthracene**	**Benzo(a) Pyrene**	**Benzo(b) fluoranthene**	**Benzo(g,h,i) perylene**	**Benzo(k) fluoranthene**	**Benzyl Alcohol**	**Butylbenzyl Phthalate**	**2-Chlorophenol**	**Chrysene**	**Dibenzo (a,h) anthracene (B)**	**2,4-Dimethylphenol**	**Dimethylphthalate**	**2,6-Dinitrotoluene**	**Bis(2-Ethylhexyl) Phthalate**	**Fluoranthene**	**Indeno(1,2,3-cd)pyrene**	**2-Methylphenol**	**4-Methylphenol**	**Naphthalene**	**3-Nitroaniline**	**di-n-Octyl Phthalate**	**Phenanthrene**	**Phenol**	**Pyrene**
MTCA Method A or B Groundwater Screening Level		0.96 (B)	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	0.8 (B)	0.0461 (B)	0.04 (B)	0.012 (B)	0.000012	0.16 (B)	NE	0.0000583 (B)	0.00625 (B)	0.64 (B)	0.00012	0.4 (B)	0.8 (B)	0.16 (A) 0.16 (B)	NE	0.16 (B)	NE	2.4 (B)	0.48 (B)
EGW070	05/02/01	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.01 U	0.005 U	0.001 U	0.001 U	1.6 J	0.001 U
	08/08/01	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	**0.32**	0.1 U	0.1 U	0.1 U	0.1 U	1.0 U	0.5 U	0.1 U	0.1 U	**7.7**	0.1 U
	11/14/01	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.036 UJ	0.02 U	0.02 U	0.02 U	R	0.2 U	0.1 U	0.02 U	0.02 U	**4.2 J**	0.02 U
	02/12/02	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.16	1.0 U	0.5 U	0.2 U	0.1 U	**30 D**	0.1 U
	05/09/02	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.11 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.11 U	0.087 U	0.022 U	0.022 U	0.022 U	R	0.22 U	0.11 U	0.087 U	0.022 U	**25 J,D**	0.022 U
	08/08/02	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	4 U	1.0 U	1.0 U	1.0 U	1 U	10 U	5.0 U	4 U	1.0 U	**21**	1.0 U
	11/20/02	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	4 U	1.0 U	1.0 U	1.0 U	1 U	10 U	5.0 U	4 U	1.0 U	**31**	1.0 U
	02/11/03	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2.5 U	1.25 U	0.25 U	0.25 U	**22 D**	0.25 U
	05/13/03	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	3.0 U	1.5 U	0.3 U	0.3 U	**23**	0.3 U
	07/25/03	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	**18**	0.2 U
	11/11/03	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U	5.0 U	1.0 U	1.0 U	**13**	1.0 U
	01/27/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.0 U	2.5 U	0.5 U	0.5 U	**3.8**	0.5 U
	04/26/04	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.50 U	0.50 U	0.5 U	0.5 U	0.50 U	0.50 U	2.5 U	0.50 U	0.5 U	0.5 U	0.50 U	0.50 U	5.0 U	2.5 U	0.50 U	0.5 U	**4.4**	0.5 U
	07/27/04	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	1.7 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	1.7 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	3.3 U	1.7 U	0.33 U	0.33 U	**2.8**	0.33 U
	10/10/04	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.2 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.2 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.4 U	0.2 U	0.04 U	0.04 U	2.3	0.04 U
	01/18/05	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.50 U	0.50 U	0.5 U	0.5 U	0.50 U	0.50 U	0.25 U	0.50 U	0.5 U	0.5 U	0.50 U	0.50 U	5.0 U	0.25 U	0.50 U	0.5 U	**3.5**	0.5 U
	04/14/05	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	**2.6**	0.2 U
	10/25/05	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	20 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U
	01/18/06	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.2	0.2 U
	07/18/06	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.56	0.2 U
	01/20/07	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.2 UJ	0.2 U
	07/09/07	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	01/17/08	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.2 UJ	0.2 U
	07/21/08	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 UJ	0.2 UJ	1.0 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	2.0 UJ	1.0 UJ	0.2 U	0.2 U	0.22 J	0.2 U
	01/07/09	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	07/09/09	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	01/12/10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	2.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	07/14/10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	01/11/11	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ**	2.5 UJ	2.5 UJ	12 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	12 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	25 UJ	12 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
	07/11/11	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U**	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	01/11/12	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U
	07/18/12	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.005 UJ	0.15 UJ	0.049 UJ	0.01 UJ	0.005 UJ	0.005 UJ	0.01 UJ	0.049 UJ	0.01 UJ	0.049 UJ	0.005 UJ	0.005 UJ	0.01 UJ	0.01 UJ*	0.005 UJ	R	0.049 UJ	0.005 UJ	0.084 J	0.005 UJ
	7/18/12 (RE)	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.15 U DNR	0.049 U DNR	0.01 U DNR	0.005 U DNR	0.005 U DNR	0.01 U DNR	0.049 U DNR	0.01 U DNR	0.049 U DNR	0.005 U DNR	0.005 U DNR	0.01 U DNR	0.01 U DNR	0.005 U DNR	R	0.049 U DNR	0.005 U DNR	0.09 DNR	0.005 U DNR
	01/10/13	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005	0.0005 U	0.0005 U	0.001 U	0.0009 X	0.0005 U	R	0.001 U	0.0005 U	0.003	0.0001 X
	7/10/13 (RE)	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.0005 UJ	0.014 UJ	0.005 UJ	0.0009 UJ	0.0005 UJ	0.0005 UJ	0.0009 UJ	0.005 UJ	0.0009 UJ	0.005 UJ	0.0005 UJ	0.0005 UJ	0.0009 UJ	0.005 DNR	0.0005 UJ	0.0009 UJ	0.0005 UJ	0.0005 UJ	0.0009 U DNR	0.0005 UJ
	07/10/13	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.14 U DNR	0.048 U DNR	0.01 U DNR	0.005 U DNR	0.005 U DNR	0.01 U DNR	0.048 U DNR	0.01 U DNR	0.048 U DNR	0.005 U DNR	0.005 U DNR	0.01 U DNR	0.032 J	0.005 U DNR	0.01 U DNR	0.048 U DNR	0.005 U DNR	0.046 J	0.005 U DNR
	01/08/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.015 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	R	0.005 U	0.0005 U	0.028	0.0005 U
	07/01/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.001 U	0.0005 U
	01/08/15	0.0005 U	0.0005 U	**0.0002 X**	**0.0001 X**	**0.0002 X**	0.0002 X	0.0001 X	0.019 U	0.005 U	0.0009 U	0.0002 X	0.0005 U	0.0006 X	0.005 U	0.0009 U	0.005 U	0.0001 X	**0.0002 X**	0.0006 X	0.002	0.0005 U	0.0009 U	0.005 U	0.0005 U	2.9 E DNR	0.0001 X
	1/8/2015 (DL)	0.024 U DNR	0.024 U DNR	0.024 U DNR	0.024 U DNR	0.024 U DNR	0.024 U DNR	0.024 U DNR	0.95 U DNR	0.24 U DNR	0.047 U DNR	0.024 U DNR	0.024 U DNR	0.047 U DNR	0.24 U DNR	0.047 U DNR	0.24 U DNR	0.024 U DNR	0.024 U DNR	0.047 U DNR	0.047 U DNR	0.024 U DNR	0.047 U DNR	0.24 U DNR	0.024 U DNR	**4.9**	0.024 U DNR
	4/2/15	0.0005 U	0.0005 U	**0.0002 X**	0.0005 U	**0.0003 X**	0.0005 U	0.0001 X	0.014 U	0.005 U	0.0009 U	0.0002 X	0.0005 U	0.0009 U	0.005 U	0.0009 U	0.003 X	0.0002 X	0.0005 U	0.0009 U	0.005	0.0005 U	0.0009 U	0.005 U	0.0005 U	0.028	0.0002 X
EGW071	08/08/02	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	0.4 U	0.2 U
	11/19/02	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.85 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.85 U	0.67 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.85 U	0.67 U	0.17 U	0.33 U	0.17 U
	02/11/03	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	02/11/03 (DUP)	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	05/13/03	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	**0.140**	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.86	0.1 U
	07/25/03	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.42	0.05 U
	11/11/03	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.4 U	0.2 U
	11/11/03 (DUP)	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	01/27/04	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	1/27/04 (DUP)	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	04/26/04	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.44	0.1 U
	07/27/04	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.1 U	0.05 U
	10/10/04	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.02 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.02 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.02 U	0.004 U	0.004 U	0.12	0.004 U
	01/18/05	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.039	0.005 U
	04/14/05	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	10/25/05	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	01/18/06	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	07/18/06	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	01/20/07	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 UJ	0.02 U
	07/09/07	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	01/17/08	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 UJ	0.02 U
	07/21/08	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	01/07/09	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	07/09/09	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.024	0.02 U
	01/12/10	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	07/14/10	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.46 J	0.02 U	0.035	0.02 U	0.02 U	0.026	0.02 U	0.1 U	0.020 U	0.02 U	0.02 U	0.056 J	0.12 J	0.02 U	0.76 J	0.020 U	0.02 U	0.059	0.02 U
	01/11/11	R	R	R	R	0.25 U**	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	07/11/11	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U**	0.012 U	0.012 U	0.062 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.062 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.062 U	0.012 U	0.012 U	0.012 U	0.012 U
	01/11/12	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	R	0.003 U	0.003 U	0.0059	0.003 U
	07/18/12	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U*	0.001 U	R	0.005 U	0.0005 U	0.001 U	0.0005 U
	01/10/13	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.001 U	R	0.005 U	0.0005 U	0.007	0.0005 U
	07/10/13	0.0005 U DNR	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.0009 U	0.0005 U	0.0005 U	0.0009 U	0.005 U	0.0009 U	0.005 U	0.0005 U	0.0005 U	0.0009 U	0.0009 U	0.0001 X	R	0.005 U	0.0005 U	0.0009 U DNR	0.0005 U
	7/10/13 (RE)	0.0008 J	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.014 U DNR	0.005 U DNR	0.001 U DNR	0.0005 U DNR	0.0005 U DNR	0.001 U DNR	0.005 U DNR	0.001 U DNR	0.005 U DNR	0.0005 U DNR	0.0005 U DNR	0.001 U DNR	0.001 U DNR	0.0005 U DNR	0.001 U DNR	0.005 U DNR	0.0005 U DNR	0.004 J	0.0005 U DNR
	01/08/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	R	0.005 U	0.0005 U	0.001 U	0.0005 U
	07/01/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.001 U	0.0005 U
	01/08/15	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.019 U	0.005 U	0.0009 U	0.0005 U	0.0005 U	0.0009 U	0.005 U	0.0009 U	0.005 U	0.0005 U	0.0005 U	0.0009 U	0.0009 U	0.0005 U	0.0009 UJ	0.005 U	0.0005 U	0.0009 U	0.0005 U

Table A-6
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Semivolatile Organic Compounds																									
		Acenaphthene	**Anthracene**	**Benzo(a) anthracene**	**Benzo(a) Pyrene**	**Benzo(b) fluoranthene**	**Benzo(g,h,i) perylene**	**Benzo(k) fluoranthene**	**Benzyl Alcohol**	**Butylbenzyl Phthalate**	**2-Chlorophenol**	**Chrysene**	**Dibenzo (a,h) anthracene (B)**	**2,4-Dimethylphenol**	**Dimethylphthalate**	**2,6-Dinitrotoluene**	**Bis(2-Ethylhexyl) Phthalate**	**Fluoranthene**	**Indeno(1,2,3-cd)pyrene**	**2-Methylphenol**	**4-Methylphenol**	**Naphthalene**	**3-Nitroaniline**	**di-n-Octyl Phthalate**	**Phenanthrene**	**Phenol**	**Pyrene**
MTCA Method A or B Groundwater Screening Level		0.96 (B)	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	0.8 (B)	0.0461 (B)	0.04 (B)	0.012 (B)	0.000012	0.16 (B)	NE	0.0000583 (B)	0.00625 (B)	0.64 (B)	0.00012	0.4 (B)	0.8 (B)	0.16 (A) 0.16 (B)	NE	0.16 (B)	NE	2.4 (B)	0.48 (B)
EGW072	08/08/02	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.002 U	0.001 U
	08/08/02 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.002 U	0.001 U
	11/19/02	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.002 U	0.001 U
	02/11/03	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.01 U	0.005 U
	05/13/03	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	07/25/03	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.0021 U	0.001 U
	11/11/03	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.0020 U	0.001 U
	01/27/04	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.034 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.034 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.0067 U	0.034 U	0.0067 U	0.0067 U	0.013 U	0.0067 U
	04/26/04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	07/26/04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	10/10/04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	10/10/04 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/18/05	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.085 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.085 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.085 U	0.017 U	0.017 U	0.017 U	0.017 U
	04/13/05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	10/24/05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.0011	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.0011	0.001 U	0.001 U	0.001 U
	01/18/06	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/17/06	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U
	01/20/07	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	**0.0044**	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U
	07/09/07	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/17/08	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U
	07/21/08	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.02 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/07/09	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/09/09	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/12/10	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	1/12/10 (DUP)	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	07/14/10	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/11/11	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U**	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/11/11	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U**	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/11/12	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/18/12	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.015 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.015 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U*	0.001 U	R	0.0005 U	0.0005 U	0.001 U	0.0005 U
	01/10/13	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.0001 X	0.0005 U	0.0005 U	0.015 U	0.005 U	0.001 U	0.0001 X	0.0005 U	0.001 U	0.005 U	0.015 U	0.005 U	0.0003 X	0.0005 U	0.001 U	0.001 U	0.001 U	R	0.005 U	0.0002 X	0.001	0.0003 X
	07/10/13	0.0005 U	0.0005 U	0.0005 U	**0.0001 X**	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.0009 U	0.0005 U	0.0005 U	0.0009 U	0.005 U	**0.003**	0.005 U	0.0005 U	0.0005 U	0.0009 U	0.0009 U	0.0005 U	0.0009 U	0.005 U	0.0005 U	0.0009 U	0.0005 U
	7/10/13 (RE)	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.014 U DNR	0.005 U DNR	0.001 U DNR	0.0005 U DNR	0.0005 U DNR	0.001 U DNR	0.005 U DNR	0.001 U DNR	0.005 U DNR	0.0005 U DNR	0.0005 U DNR	0.001 U DNR	0.001 U DNR	0.0005 U DNR	0.001 U DNR	0.005 U DNR	0.0005 U DNR	0.001 U DNR	0.0005 U DNR
	01/08/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	R	0.005 U	0.0005 U	0.001 U	0.0005 U
	07/01/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.001 U	0.0005 U
	01/08/15	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.0001 X	0.019 U	0.005 U	0.0009 U	0.0005 U	0.0005 U	0.0009 U	0.005 U	0.0009 U	0.005 U	0.0005 U	0.0005 U	0.0009 U	0.0009 U	0.0005 U	0.0009 U	0.005 U	0.0005 U	0.0009 U	0.0005 U
EGW073	08/08/02	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.002 U	0.001 U
	11/19/02	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.004 U	0.001 U	0.002 U	0.001 U
	02/11/03	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.0037	0.001 U
	05/13/03	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	07/25/03	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	11/11/03	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	01/26/04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	04/26/04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	07/26/04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.002 U	0.001 U
	10/10/04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/18/05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	04/13/05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	10/24/05	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/17/06	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/17/06	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	7/17/06 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/20/07	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	**0.0011**	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U
	07/09/07	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U
	01/17/08	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U
	07/21/08	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/07/09	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/09/09	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	7/9/09 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/12/10	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/14/10	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/11/11	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U**	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/11/11	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U**	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/11/12	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/18/12	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.015 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U*	0.001 U	R	0.0005 U	0.0005 U	0.001 U	0.0005 U
	01/10/13	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.015 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.001 U	R	0.0005 U	0.0005 U	0.001 U	0.0005 U
	07/10/13	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 UJ	0.005 U	0.001 UJ	0.0005 U	0.0005 U	0.001 UJ	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 UJ	0.001 UJ	0.0005 U DNR	0.001 U	0.0005 U	0.0005 U	0.001 U DNR	0.0005 U
	7/10/13 (RE)	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.015 U DNR	0.005 U DNR	0.001 U DNR	0.0005 U DNR	0.0005 U DNR	0.001 U DNR	0.005 U DNR	0.001 U DNR	0.005 U DNR	0.0005 U DNR	0.0005 U DNR	0.001 U DNR	0.001 U DNR	0.0001 XJ	0.001 U DNR	0.005 U DNR	0.0005 U DNR	0.0009 XJ	0.0005 U DNR
	01/08/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0001 X	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	R	0.005 U	0.0005 U	0.001 U	0.0005 U
	07/01/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.0009 U	0.0005 U	0.0005 U	0.0009 U	0.005 U	0.0009 U	0.005 U	0.0005 U	0.0005 U	0.0009 U	0.0009 U	0.0005 U	0.0009 U	0.005 U	0.0005 U	0.0009 U	0.0005 U
	01/12/15	0.0005 U	0.0005 U	0.0005 U	**0.0001 X**	0.0005 U	0.0005 U	0.0005 U	0.019 U	0.005 U	0.0009 U	0.0005 U	0.0005 U	0.0009 U	0.005 U	0.0009 U	0.005 U	0.0005 U	0.0001 X	0.0009 U	0.0009 U	0.0005 U	0.0009 U	0.005 U	0.0005 U	0.0009 U	0.0005 U

Table A-6
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Semivolatile Organic Compounds																									
		Acenaphthene	**Anthracene**	**Benzo(a) anthracene**	**Benzo(a) Pyrene**	**Benzo(b) fluoranthene**	**Benzo(g,h,i) perylene**	**Benzo(k) fluoranthene**	**Benzyl Alcohol**	**Butylbenzyl Phthalate**	**2-Chlorophenol**	**Chrysene**	**Dibenzo (a,h) anthracene (B)**	**2,4-Dimethylphenol**	**Dimethylphthalate**	**2,6-Dinitrotoluene**	**Bis(2-Ethylhexyl) Phthalate**	**Fluoranthene**	**Indeno(1,2,3-cd)pyrene**	**2-Methylphenol**	**4-Methylphenol**	**Naphthalene**	**3-Nitroaniline**	**di-n-Octyl Phthalate**	**Phenanthrene**	**Phenol**	**Pyrene**
MTCA Method A or B Groundwater Screening Level		0.96 (B)	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	0.8 (B)	0.0461 (B)	0.04 (B)	0.012 (B)	0.000012	0.16 (B)	NE	0.0000583 (B)	0.00625 (B)	0.64 (B)	0.00012	0.4 (B)	0.8 (B)	0.16 (A) 0.16 (B)	NE	0.16 (B)	NE	2.4 (B)	0.48 (B)
EGW074	08/08/02	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	0.4 U	0.2 U
	11/20/02	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.8 U	0.2 U	0.4 U	0.2 U
	02/11/03	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	05/13/03	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	05/13/03 (DUP)	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	07/25/03	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.2 U	0.1 U
	11/11/03	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.8 U	0.4 U
	01/27/04	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.25 U	0.25 U	0.25 U	0.5 U	0.25 U
	04/26/04	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.1 U	0.05 U
	07/27/04	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.85 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.85 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.85 U	0.17 U	0.17 U	0.33 U	0.17 U
	10/10/04	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	01/18/05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.079	0.05 U
	04/14/05	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.046	0.02 U
	10/25/05	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U
	01/18/06	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.032	0.02 U
	07/18/06	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.024	0.02 U
	01/20/07	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.033 J	0.02 U
	07/09/07	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	01/17/08	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 UJ	0.02 U
	07/21/08	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	01/07/09	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	07/09/09	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	01/12/10	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 UJ	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U
	07/14/10	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.044	0.02 U
	01/11/11	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ**	0.1 UJ	0.1 UJ	0.5 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.5 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.5 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ
	07/11/11	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U**	0.017 U	0.017 U	0.083 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.083 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.083 U	0.017 U	0.017 U	0.017 U	0.017 U
	01/11/12	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U
	07/18/12	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.015 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.005 U	0.0005 U	0.001 U	0.001 U	0.001 U*	0.001 U	R	0.005 U	0.0005 U	0.001 U	0.0005 U
	01/10/13	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.015 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.005 U	0.0005 U	0.001 U	0.001 U	0.001 U	0.001 U	R	0.005 U	0.0005 U	0.002	0.0005 U
	07/10/13	0.0005 U DNR	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.0009 U	0.0005 U	0.0005 U	0.0009 U	0.005 X	0.0009 U	0.005 U	0.0005 U	0.0005 U	0.0009 U	0.0009 U	0.0005 U	0.0009 U	0.005 U	0.0005 U	0.0009 U DNR	0.0005 U
	7/10/13 (RE)	0.0003 XJ	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.0005 U DNR	0.014 U DNR	0.005 U DNR	0.001 U DNR	0.0005 U DNR	0.0005 U DNR	0.001 U DNR	0.005 U DNR	0.001 U DNR	0.005 U DNR	0.0005 U DNR	0.0005 U DNR	0.001 U DNR	0.001 U DNR	0.0005 U DNR	0.001 U DNR	0.005 U DNR	0.0005 U DNR	0.003 J	0.0005 U DNR
	01/08/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	R	0.005 U	0.0005 U	0.001 U	0.0005 U
	07/01/14	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.014 U	0.005 U	0.001 U	0.0005 U	0.0005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0005 U	0.001 U	0.001 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.001 U	0.0005 U
	01/08/15	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.019 U	0.005 U	0.001 U	0.0005 U	**0.0001 X**	0.001 U	0.005 U	0.001 U	0.005 U	0.0005 U	0.0001 X	0.001 U	0.001 U	0.0005 U	0.001 U	0.005 U	0.0005 U	0.002	0.0005 U

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
*Laboratory was unable to chromatographically separate 3-methylphenol from 4-methylphenol. Results for these analytes were reported as a combined total under 4-methylphenol.
** Analyte was detected in the associated equipment blank. Sample result was not qualified based on results from previous rounds.
D - Dilution required to quantitate analyte within linear range of detector. This flag was not used prior to August 2001.
DL - dilution
DNR - do not report
DUP - field duplicate
J - estimated value
mg/L - milligram per liter
NE - not established
R - Result is rejected due to serious deficiencies in the ability to meet control criteria for surrogate and/or matrix spike recoveries.
RE - reanalysis
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table A-7
Summary of Groundwater Analytical Results for Phosphate-Based Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Tributyl Phosphate	Dibutyl Phenyl Phosphate	Butyl Diphenyl Phosphate	Triphenyl Phosphate	Butylated hydroxytoluene
MTCA Method B Groundwater Screening Level*		4.8*	5.16*	5.52*	5.88*	NE
EGW037	02/15/95	**70**	2.4	1.2 U	1.2 U	NA
	05/01/95	**41**	0.380 E	0.0089	0.005 U	NA
	08/07/95	**49**	0.400 U	1.0 U	1.0 U	NA
	11/13/95	**88 J**	2.0 J	2.0 U	2.0 U	NA
	02/27/96	**71**	2.4	1.0 U	1.0 U	NA
	06/05/96	**73**	1.5	2.5 U	2.5 U	NA
	08/28/96	**15**	0.200 U	0.5 U	0.5 U	NA
	12/04/96	**64**	0.61	0.5 U	0.5 U	NA
	03/05/97	**120**	0.88	1.0 U	1.0 U	NA
	05/21/97	**39**	0.47	0.5 U	0.5 U	NA
	08/13/97	**50 J**	0.020 UJ	0.050 UJ	0.050 UJ	NA
	11/18/97	**59**	0.028	0.025 U	0.025 U	NA
	03/17/98	**65 J**	0.33 UJ	0.83 UJ	0.83 UJ	NA
	05/20/98	**120**	6 U	15 U	15 U	NA
	08/12/98	**8**	0.2 U	0.5 U	0.5 U	NA
	11/16/98	**16**	0.13U	0.33U	0.33U	NA
	02/04/99	**91**	0.4 U	1 U	1 U	NA
	05/13/99	**12**	0.13 U	0.33 U	0.33 U	NA
	08/03/99	**34 J**	0.4 UJ	1 UJ	1 UJ	NA
	11/12/99	**46**	0.44J	1 U	1 U	NA
	02/09/00	**93**	0.26	0.33 U	0.33 U	NA
	05/04/00	**54**	0.4 U	1 U	1 U	NA
	08/01/00	**8.8**	0.04 U	0.1 U	0.1 U	NA
	11/15/00	**48**	0.07	0.015 U	0.015 U	NA
	02/14/01	**86**	0.22	0.05 U	0.50 U	NA
	05/02/01	**55**	0.54	0.05	0.05 U	0.014
	08/08/01	**48 D**	0.19	0.1 U	0.1 U	0.025 U
	11/14/01	**75 JD**	0.1 UJ	0.25 UJ	0.25 UJ	0.05 UJ
	02/13/02	**48 D**	0.5 U	1.2 U	1.2 U	0.25 U
	05/09/02	**40 D**	0.4 U	1.0 U	1U	0.2 U
	08/08/02	**8.2 D**	0.04 U	0.1 U	0.1 U	0.02 U
	11/20/02	**36 D**	0.13 U	0.33 U	0.33 U	0.067 U
	02/12/03	**45 D**	1 U	2.5 U	2.5 U	0.5 U
	05/14/03	**24 D**	0.31	0.12 U	0.12 U	0.025 U
	07/25/03	2.8 D	0.02 U	0.051 U	0.051 U	0.01 U
	11/11/03	**54 D**	0.27 U	0.67 U	0.67 U	0.13 U
	01/26/04	**55 D**	0.8	0.5 U	0.5 U	0.1 U
	04/22/04	**27 D**	0.46	0.5 U	0.5 U	0.1 U
	07/26/04	**18 D**	0.08 U	0.2 U	0.2 U	0.04 U
	10/10/04	**58 D**	0.012	0.008 U	0.008 U	0.008 U
	01/18/05	**58 D**	1.4	0.05 U	0.05 U	0.05 U
	04/14/05	**54 D**	0.95	0.02 U	0.02 U	0.02
	10/25/05	**21 D**	0.2 U	0.2 U	0.2 U	0.2 U
	01/18/06	**46 D**	1.0	0.02 U	0.02 U	0.024
	07/18/06	**12 D**	0.02 U	0.02 U	0.02 U	0.02 U
	01/20/07	**28 D**	0.52	0.02 U	0.02 U	0.02 U
	07/09/07	**13 D**	0.12	0.02 U	0.02 U	0.02 U
	01/17/08	**32 D**	0.36	0.02 U	0.02 U	0.021
	07/21/08	**4.8 J**	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
	01/07/09	**29 D**	0.27	0.02 U	0.02 U	0.02 U
	07/09/09	**7.5 D**	0.021	0.02 U	0.02 U	0.02 U
	01/12/10	**16 D**	0.25	0.02 U	0.02 U	0.02 U
	07/14/10	**11 D**	0.20	0.02 U	0.02 U	0.02 U
	07/11/11	**14 D**	0.21	0.02 U	0.02 U	0.02 U
	01/11/12	2.3 D	0.0084	0.003 U	0.003 U	0.011
	07/18/12	3.8 ES DNR	0.13 DNR	0.03 UJ	0.03 UJ	0.02 X
	7/18/12 (DL)	**22 J**	0.45 J	0.3 U DNR	0.3 U DNR	0.3 U DNR
	01/10/13	3.2 ES DNR	0.19	0.02 U	0.02 U	0.011 X
	1/10/13 (DL)	6.6 ES DNR	0.19 DNR	0.06 U DNR	0.06 U DNR	0.06 U DNR
	1/10/13 (DL2)	**18**	0.6 U DNR	0.6 U DNR	0.6 U DNR	0.6 U DNR
	07/10/13	1.1 ES DNR	0.016	0.002 U	0.002 U	0.017
	7/10/13 (DL)	2.3 ES DNR	0.02 U DNR	0.02 U DNR	0.02 U DNR	0.02 U DNR
	7/10/13 (DL2)	4.5	0.06 U DNR	0.06 U DNR	0.06 U DNR	0.06 U DNR
	01/08/14	1.7 ES DNR	0.043	0.002 U	0.002 U	0.011
	1/08/14 (DL)	**7.4**	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR
	01/15/14 [1]	3.0 E DNR	0.010 U	0.010 U	0.010 U	0.014
	01/15/14 (DL) [1]	**21**	0.5 U DNR	0.5 U DNR	0.5 U DNR	0.5 U DNR
	07/01/14	2.0 ES DNR	0.045	0.013 U	0.013 U	0.0072 X
	7/1/14 (DL)	3.4	0.13 U DNR	0.13 U DNR	0.13 U DNR	0.13 U DNR
	01/08/15	**15**	0.22	0.2 U	0.2 U	0.2 U

Table A-7
Summary of Groundwater Analytical Results for Phosphate-Based Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Tributyl Phosphate	Dibutyl Phenyl Phosphate	Butyl Diphenyl Phosphate	Triphenyl Phosphate	Butylated hydroxytoluene
MTCA Method B Groundwater Screening Level*		4.8*	5.16*	5.52*	5.88*	NE
EGW055	03/17/98	**650 J**	**240 J**	**64 J**	25 UJ	NA
	05/20/98	**22,000**	**9,800**	**2,800**	**15**	NA
	08/12/98	**5,400**	**2,300**	**750**	50 U	NA
	11/16/98	**54,000**	**29,000**	**9,100**	5,000 U	NA
	02/04/99	**1,700**	**660**	**220 J****	5 U	NA
	5/13/99 ***	**41,000**	**14,000**	**4,100**	200 U	NA
	8/3/99 ***	**550 J**	**280 J**	**100 J**	10 UJ	NA
	11/12/99	NA	NA	NA	NA	NA
	02/09/00	NA	NA	NA	NA	NA
	05/04/00	NA	NA	NA	NA	NA
	08/01/00	**170**	**33**	**5.6**	0.02	NA
	11/15/00	NA	NA	NA	NA	NA
	02/06/01	**250**	**40**	**8.1**	2.5 U	NA
	05/02/01	**68**	**22**	1.4	0.05 U	0.037
	08/08/01	**64 D**	**8.6 D**	0.73	0.2 U	0.05 U
	11/14/01	**110 JD**	**6.7 JD**	0.88 JD	0.25 UJ	0.052 JD
	11/14/01 (DUP)	**120 JD**	**7.8 JD**	0.75 JD	0.25 UJ	0.054 JD
	02/12/02	**200 D**	**29**	1.8	1.7 U	0.33 U
	02/12/02 (DUP)	**180 D**	**24**	1.8	1.7 U	0.33 U
	05/09/02	**150 D**	**16 D**	1.5	0.2 U	0.040 U
	08/08/02	**170 D**	**30**	3.3 U	3.3 U	0.67 U
	11/20/02	**100 D**	**16**	2.8	1 U	0.2 U
	11/20/02 (DUP)	**100 D**	**15**	2.2	1 U	0.2 U
	02/11/03	**140**	**31**	10 U	10 U	2 U
	05/13/03	**150 D**	**32**	5 U	5 U	1 U
	07/25/03	**120 D**	**27**	5 U	5 U	1 U
	11/11/03	**110 D**	**21 D**	2.5	0.6 U	0.12 U
	01/27/04	**150 D**	**32**	2.5 U	2.5 U	0.5 U
	04/26/04	**150 D**	**50**	**18**	5 U	1 U
	4/26/04 (DUP)	**200 D**	**84 D**	**22**	1.2 U	3.9
	07/27/04	**100 D**	**22 D**	3.3	1.0 U	0.2 U
	7/27/04 (DUP)	**110 D**	**22 D**	3.1	1.0 U	0.2 U
	10/10/04	**290 D**	**150 D**	**32 D**	0.23	6.2 J
	01/18/05	**170 D**	**61 D**	**14**	0.2 U	2.6
	04/13/05	**100 D**	**27 D**	2.6	0.2 U	0.2 U
	10/25/05	**77**	**20**	2 U	2 U	2 U
	01/18/06	**140 D**	**27 D**	2.8	0.2 U	0.2 U
	1/18/06 (DUP)	**140 D**	**34 D**	2.9 D	0.02 U	0.081
	07/17/06	**92 D**	**14**	1.8	0.2 U	0.2 U
	01/20/07	**95 D**	**19 D**	1.3	0.2 U	0.2 U
	1/20/07 (DUP)	**91 D**	**17 D**	1.2 D	0.005 U	0.067
	07/09/07	**82 D**	**15**	1.6	0.2 U	0.2 U
	7/9/07 (DUP)	**85 D**	**16 D**	1.3	0.02 U	0.059
	01/17/08	**110 D**	**22 D**	1.4	0.2 U	0.2 U
	1/17/08 (DUP)	**110 D**	**22 D**	1.4	0.2 U	0.2 U
	07/21/08	**58 JD**	**14 JD**	0.79 J	0.2 UJ	0.2 UJ
	7/21/08 (DUP)	**74 JD**	**16 JD**	0.98 J	0.2 UJ	0.2 UJ
	01/07/09	**100 D**	**18 D**	1.7	0.2 U	0.2 U
	1/7/09 (DUP)	**110 D**	**20 D**	1.8 J	0.02 U	0.065
	07/09/09	**78 D**	**15**	1.1	0.2 U	0.2 U
	01/12/10	**87 D**	**14**	1.1	0.2 U	0.2 U
	07/14/10	**46 D**	**9.3**	1.2	0.2 U	0.2 U
	7/14/10 (DUP)	**39 D**	**9.0**	1.3	0.2 U	0.2 U
	01/11/11	**92 JD**	**17 J**	1.2 J	0.75 UJ	0.75 UJ
	1/11/11 (DUP)	**97 D**	**17 D**	1.2	0.12 U	0.12 U
	07/11/11	**69 D**	**12 D**	0.87	0.1 U	0.1 U
	7/11/11 (DUP)	**73 D**	**12 D**	0.83	0.1 U	0.1 U
	01/11/12	**72 D**	**23 D**	0.93 D	0.003 U	0.096
	1/11/12 (DUP)	**69 D**	**20 D**	0.94 D	0.003 U	0.095
	07/18/12	**65 J**	**14 J**	1.1 J	1.0 UJ	1.0 UJ
	7/18/12 (DUP)	**60 J**	**12 J**	0.79 X	1.3 UJ	1.3 UJ
	01/10/13	14 ES DNR	6.6 ES DNR	0.8	0.05 U	0.076
	1/10/13 (DL)	**87**	**11**	5 U DNR	5 U DNR	5 U DNR
	1/10/13 (DUP)	13 ES DNR	6.6 ES DNR	0.83	0.05 U	0.07
	1/10/13 (DUP DL)	**96**	**12**	5 U DNR	5 U DNR	5 U DNR
	07/10/13	18 ES DNR	7.8 ES DNR	0.96	0.05 U	0.12
	7/10/13 (DL)	45 E DNR	9.5 DNR	0.50 DNR	0.50 U DNR	0.50 U DNR
	7/10/13 (DL2)	**73**	**10**	1.5 U DNR	1.5 U DNR	1.5 U DNR
	7/10/13 (DUP)	21 ES DNR	8.6 ES DNR	1.2	0.05 U	0.14
	7/10/13 (DUP DL)	44 E DNR	9.5 DNR	0.54 DNR	0.5 U DNR	0.50 U DNR
	7/10/13 (DUP DL2)	**73**	**9.2**	1.5 U DNR	1.5 U DNR	1.5 U DNR

Table A-7
Summary of Groundwater Analytical Results for Phosphate-Based Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Tributyl Phosphate	Dibutyl Phenyl Phosphate	Butyl Diphenyl Phosphate	Triphenyl Phosphate	Butylated hydroxytoluene
MTCA Method B Groundwater Screening Level*		4.8*	5.16*	5.52*	5.88*	NE
EGW055 (continued)	01/08/14	22 ES DNR	8.4 ES DNR	0.84 J	0.05 U	0.12 J
	1/08/14 (DL)	**94 J**	**16 J**	1.5 U DNR	1.5 U DNR	1.5 U DNR
	1/8/2014 (DUP)	180 ES DNR	100 ES DNR	15 ES DNR	0.05 U	3.1 J
	1/08/14 (DUP DL)	1,000 ES DNR	**330 J**	**23 J**	5 U DNR	5 U DNR
	1/08/14 (DUP DL2)	**1,800 J**	310 DNR	25 U DNR	25 U DNR	25 U DNR
	07/01/14	35 ES DNR	**11**	0.63	0.2 U	0.2 U
	7/1/14 (DL)	**55**	9.3 DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR
	7/1/2014 (DUP)	35 ES DNR	**10**	0.56	0.2 U	0.2 U
	7/1/14 (DUP DL)	**56**	9.0 DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR
	01/08/15	120 ES DNR	**18**	0.65	0.50 U	0.50 U
	1/8/15 (DL)	**110**	14 DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR
	1/8/15 (DUP)	120 ES DNR	**16**	1.0 U	1.0 U	1.0 U
	1/8/15 (DUP DL)	**100**	15 DNR	3.0 U DNR	3.0 U DNR	3.0 U DNR
	04/02/15	0.37 ES DNR	0.13 ES DNR	0.0061	0.001 U	0.0006 XJ
	4/2/15 (DL)	0.63	0.12	0.01 U DNR	0.01 U DNR	0.01 U DNR
EGW070	05/02/01	**370 J**	**25 J**	3.1 J	2.5 UJ	0.31
	05/02/01 (DUP)	**260**	**28**	4.3	0.65	0.31
	08/08/01	**250 D**	**12 D**	0.98	0.5 U	0.12 U
	11/14/01	**380 JD**	**30 D**	6.6 D	1.4 D	1.0 D
	02/12/02	**420 D**	**25**	4.1	2.5	0.59
	05/09/02	**360 D**	**16 D**	4.2	0.44	0.61
	08/08/02	**360 D**	**21**	10 U	10 U	2 U
	11/20/02	**510 D**	**43**	16	5 U	2
	02/11/03	**320**	**24**	25 U	25 U	5 U
	05/13/03	**350 D**	**17**	5 U	5 U	1 U
	07/25/03	**280 D**	**17**	10 U	10 U	2 U
	11/11/03	**300 D**	**19**	5 U	5 U	1 U
	01/27/04	**330 D**	**20**	2.5 U	2.5 U	0.5 U
	04/26/04	**250 D**	**17**	2.5 U	2.5 U	0.50 U
	07/27/04	**270 D**	**21**	1.7 U	1.7 U	0.33 U
	10/10/04	**420 D**	**21 D**	1.9	0.26	0.29
	01/18/05	**200 D**	**15**	1.0	0.5 U	0.5 U
	04/14/05	**300 D**	**19 D**	1.1	0.2 U	0.2 U
	10/25/05	**260 D**	**13**	2 U	2 U	2 U
	01/18/06	**300 D**	**16**	0.86	0.2 U	0.2 U
	07/18/06	**330 D**	**9.7**	0.46	0.2 U	0.2 U
	01/20/07	**260 D**	**14**	0.57	0.2 U	0.2 U
	07/09/07	**270 D**	**11**	0.3	0.2 U	0.2 U
	01/17/08	**270 D**	**12**	0.43	0.2 U	0.2 U
	07/21/08	**530 JD**	**68 JD**	**6.5 J**	1.9 J	4.7 J
	01/07/09	**380 D**	**14 D**	0.56	0.2 U	0.2 U
	07/09/09	**330 D**	**12**	0.19 X	0.2 U	0.2 U
	01/12/10	**200 D**	**9.4**	0.25	0.2 U	0.2 U
	07/14/10	**230 D**	**9.3**	0.26	0.2 U	0.2 U
	01/11/11	**300 JD**	**18 J**	2.5 UJ	2.5 UJ	2.5 UJ
	07/11/11	**310 D**	**14**	0.31	0.2 U	0.2 U
	01/11/12	**180 D**	**10 D**	0.3 U	0.027	0.15
	07/18/12	13 ES DNR	3.5 ES DNR	0.4	0.024	0.066
	7/18/12 (DL)	95 ES DNR	**14**	0.67 U DNR	0.67 U DNR	0.67 U DNR
	7/18/12 (DL2)	**270**	12 X DNR	13 U DNR	13 U DNR	13 U DNR
	01/10/13	34 ES DNR	8.2 E DNR	0.26	0.1 U	0.1 U
	1/10/13 (DL)	**280**	**11**	10 U DNR	10 U DNR	10 U DNR
	07/10/13	58 ES DNR	11 ES DNR	0.33	0.10 U	0.10 U
	7/10/13 (DL)	110 ES DNR	9.2 DNR	1 .0 U DNR	1.0 U DNR	1.0 U DNR
	7/10/13 (DL2)	**220**	**9.7**	3.0 U DNR	3.0 U DNR	3.0 U DNR
	01/08/14	87 ES DNR	16 ES DNR	0.45	0.1 U	0.1
	1/08/14 (DL)	**500**	**20**	10 U DNR	10 U DNR	10 U DNR
	07/01/14	70 ES DNR	**12**	0.23	0.2 U	0.2 U
	7/1/14 (DL)	150 ES DNR	12 DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR
	7/1/14 (DL2)	**250**	11 DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR
	01/08/15	420 ES DNR	**17**	2.0 U	2.0 U	2.0 U
	1/8/15 (DL)	**330**	13 DNR	10 U DNR	10 U DNR	10 U DNR
	04/02/15	0.76 ES DNR	0.13 ES DNR	0.0013	0.001 U	0.001 U
	4/2/15 (DL)	3.4	0.11	0.1 U DNR	0.1 U DNR	0.1 U DNR
EGW071	05/02/01	**110**	**24**	3.4	0.1 U	0.075
	08/08/01	**120 D**	**24 D**	3.4	0.2 U	0.076
	11/14/01	**99 JD**	**6.8 JD**	1.8 JD	0.25 UJ	0.12 JD
	02/12/02	**190 D**	**29**	3	1.7 U	0.33 U
	05/09/02	**61 D**	**7.4 D**	1.6	0.05 U	0.12
	08/08/02	**96 D**	**24**	2 U	2 U	0.4 U
	11/19/02	**80 D**	**17**	2	0.83 U	0.17 U

Table A-7
Summary of Groundwater Analytical Results for Phosphate-Based Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Tributyl Phosphate	Dibutyl Phenyl Phosphate	Butyl Diphenyl Phosphate	Triphenyl Phosphate	Butylated hydroxytoluene
MTCA Method B Groundwater Screening Level*		4.8*	5.16*	5.52*	5.88*	NE
EGW071 (continued)	02/11/03	**110 D**	**22 D**	3.4	0.5 U	0.16
	02/11/03 (DUP)	**80**	**15**	10 U	10 U	2 U
	05/13/03	**72 D**	**5.9**	0.65	0.5 U	0.18
	07/25/03	**46**	**6.6**	5 U	5 U	1 U
	11/11/03	**50 D**	**7.1**	1 U	1 U	0.2 U
	11/11/03 (DUP)	**44 D**	**5.8**	0.5 U	0.5 U	0.1 U
	01/27/04	**42 D**	4.4	0.5 U	0.5 U	0.13
	1/27/04 (DUP)	**40 D**	4.1	0.5 U	0.5 U	0.16
	04/26/04	**32 D**	4.7	0.61	0.5 U	0.16
	07/27/04	**22 D**	2.3 D	0.28	0.25 U	0.15
	10/10/04	**44 D**	7.0 D	0.42 J	0.0072	0.17
	01/18/05	**25 D**	2.0 D	0.26	0.0055	0.21
	04/14/05	**27 D**	3.8 D	0.32	0.02 U	0.19
	10/25/05	**15**	2.1	0.2 U	0.2 U	0.2 U
	01/18/06	**22 D**	1.5	0.18	0.02 U	0.26
	07/18/06	**7.3 D**	0.64	0.11	0.02 U	0.19
	01/20/07	**13 D**	1.1	0.099	0.02 U	0.19
	07/09/07	**7.8 D**	1.2	0.12	0.02 U	0.2
	01/17/08	**13 D**	1.1	0.093	0.02 U	0.21
	07/21/08	**15 JD**	1.4 JD	0.2 UJ	0.2 UJ	0.2 J
	01/07/09	**17 D**	0.76	0.057	0.02 U	0.18
	07/09/09	**9.5 D**	0.99	0.060	0.02 U	0.18
	01/12/10	**8.6 D**	0.49	0.035	0.02 U	0.16
	07/14/10	4.0 D	0.36	0.043	0.02 U	0.16
	01/11/11	R	0.46 J	R	R	0.25 UJ
	07/11/11	**6.3 D**	1.0	0.058	0.012 U	0.19 J
	01/11/12	4.5 D	0.33 D	0.027	0.003 U	0.17
	07/18/12	**6.2 J**	0.7 J	0.12 UJ	0.12 UJ	0.16 J
	01/10/13	1.2 ES DNR	0.26	0.032	0.005 U	0.13
	1/10/13 (DL)	**7.4**	0.5 U DNR	0.5 U DNR	0.5 U DNR	0.5 U DNR
	07/10/13	0.94 ES DNR	0.25 ES DNR	0.034	0.002 U	0.18 E DNR
	7/10/13 (DL)	1.9 ES DNR	0.27 DNR	0.02 DNR	0.02 U DNR	0.15 DNR
	7/10/13 (DL2)	3.3	0.25	0.06 U DNR	0.06 U DNR	0.16
	01/08/14	2.0 ES DNR	0.41 ES DNR	0.045	0.002 U	0.21 ES DNR
	1/08/14 (DL)	**9.3**	0.43	0.2 U DNR	0.2 U DNR	0.22
	07/01/14	1.6 ES DNR	0.20	0.012	0.01 U	0.14
	7/1/14 (DL)	2.4	0.15 DNR	0.1 U DNR	0.1 U DNR	0.12 DNR
	01/08/15	4.3	0.20	0.10 U	0.10 U	0.14
EGW072	05/02/01	2.8	0.063	0.005 U	0.005 U	0.027
	08/08/01	0.37 D	0.007	0.0015	0.001 U	0.00095
	08/08/01 (DUP)	0.28 D	0.0041	0.001 U	0.001 U	0.00063
	11/14/01	3.2 JD	0.36 D	0.1 U	0.1 U	0.02 U
	02/12/02	0.0018	0.0021 U	0.0053 U	0.0053 U	0.0011 U
	05/09/02	0.14	0.018	0.010 U	0.010 U	0.002 U
	08/08/02	0.18 D	0.0078	0.0053 U	0.0053 U	0.0013
	08/08/02 (DUP)	0.17 D	0.0076	0.0052 U	0.0052 U	0.0013
	11/19/02	0.42 D	0.0029	0.0051 U	0.0051 U	0.0016
	02/11/03	0.51 D	0.01 U	0.025 U	0.025 U	0.005 U
	05/13/03	0.033	0.002 U	0.005 U	0.005 U	0.0011
	07/25/03	0.16 JD	0.016 J	0.0056 UJ	0.0056 UJ	0.0017 J
	11/11/03	0.81 D	0.012	0.005 U	0.005 U	0.0016
	01/27/04	0.87 D	0.013 U	0.033 U	0.033 U	0.0067 U
	04/26/04	0.0056	0.002 U	0.005 U	0.005 U	0.001
	07/26/04	0.072 D	0.002 U	0.005 U	0.005 U	0.0017
	10/10/04	0.098 D	0.001 U	0.001 U	0.001 U	0.001 U
	10/10/04 (DUP)	0.11 D	0.001 U	0.001 U	0.001 U	0.001 U
	01/18/05	0.074	0.017 U	0.017 U	0.017 U	0.017 U
	04/13/05	0.071	0.0016	0.001 U	0.001 U	0.001 U
	10/24/05	0.032	0.0023	0.001 U	0.001 U	0.001 U
	01/18/06	0.0055	0.001 U	0.001 U	0.001 U	0.001 U
	07/17/06	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/20/07	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/09/07	0.066	0.012	0.0024	0.001 U	0.001 U
	01/17/08	0.15 D	0.001 U	0.001 U	0.001 U	0.001 U
	07/21/08	0.11 JD	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	01/07/09	2.8 D	0.026	0.0011	0.001 U	0.0014
	07/09/09	0.096 D	0.0028	0.001 U	0.001 U	0.001 U
	01/12/10	0.24 D	0.0061 J	0.001 U	0.001 U	0.001 U
	1/12/10 (DUP)	0.29	0.2 UJ	0.2 U	0.2 U	0.2 U
	07/14/10	0.072	0.014	0.0028	0.001 U	0.001 U

Table A-7
Summary of Groundwater Analytical Results for Phosphate-Based Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Tributyl Phosphate	Dibutyl Phenyl Phosphate	Butyl Diphenyl Phosphate	Triphenyl Phosphate	Butylated hydroxytoluene
MTCA Method B Groundwater Screening Level*		4.8*	5.16*	5.52*	5.88*	NE
EGW072 (continued)	01/11/11	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/11/11	0.0012	0.001 U	0.001 U	0.001 U	0.001 U
	01/11/12	0.036	0.001 U	0.001 U	0.001 U	0.001 U
	07/18/12	0.11 ES DNR	0.028	0.0031	0.001 U	0.001
	7/18/12 (DL)	0.16	0.025 DNR	0.0024 X DNR	0.003 U DNR	0.003 U DNR
	01/10/13	0.2 ES DNR	0.03	0.0055	0.002 U	0.002 U
	1/10/13 (DL)	0.41	0.032 DNR	0.0052 X DNR	0.006 U DNR	0.006 U DNR
	07/10/13	0.14 ES DNR	0.028	0.0029	0.001 U	0.001 U
	7/10/13 (DL)	0.26	0.02 DNR	0.01 U DNR	0.01 U DNR	0.01 U DNR
	01/08/14	0.32 ES DNR	0.014	0.001 U	0.001 U	0.001 U
	1/08/14 (DL)	0.81 E DNR	0.012 DNR	0.01 U DNR	0.01 U DNR	0.01 U DNR
	1/08/14 (DL2)	0.84	0.025 U DNR	0.025 U DNR	0.025 U DNR	0.025 U DNR
	07/01/14	0.0025	0.001 U	0.001 U	0.001 U	0.001 U
	01/08/15	0.41 ES DNR	0.0047	0.001 U	0.001 U	0.001 U
	1/8/15 (DL)	0.51	0.01 U DNR	0.01 U DNR	0.01 U DNR	0.01 U DNR
EGW073	05/02/01	0.57	0.0078	0.005 U	0.005 U	0.0011
	08/08/01	0.18 D	0.026 D	0.006	0.0011 U	0.00044
	11/14/01	0.8 JD	0.13 D	0.05 U	0.05 U	0.01 U
	02/12/02	0.14 D	0.019	0.0053 U	0.0053 U	0.0011 U
	05/09/02	0.069	0.012	0.010 U	0.010 U	0.002 U
	08/08/02	0.042 J	0.0085	0.0053 U	0.0053 U	0.0011 U
	11/19/02	0.0029	0.002 U	0.005 U	0.005 U	0.001 U
	02/11/03	0.05	0.0083	0.005 U	0.005 U	0.001 U
	05/13/03	0.001 U	0.002 U	0.005 U	0.005 U	0.001 U
	07/25/03	0.098 J	0.0180	0.005 U	0.005 U	0.0015
	11/11/03	0.0012	0.002 U	0.005 U	0.005 U	0.001 U
	01/26/04	0.0130	0.0022	0.005 U	0.005 U	0.001 U
	04/26/04	0.001 U	0.002 U	0.005 U	0.005 U	0.001 U
	07/26/04	0.002	0.002 U	0.005 U	0.005 U	0.001 U
	10/10/04	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/18/05	0.0036	0.0010	0.001 U	0.001 U	0.001 U
	04/13/05	0.0011	0.001 U	0.001 U	0.001 U	0.001 U
	10/24/05	0.0110	0.0014	0.001 U	0.001 U	0.001 U
	01/17/06	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/17/06	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	7/17/06 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/20/07	0.0018	0.001 U	0.001 U	0.001 U	0.001 U
	07/09/07	0.033	0.0062	0.0011	0.001 U	0.001 U
	01/17/08	0.022	0.0029	0.001 U	0.001 U	0.001 U
	07/21/08	0.001 J	0.001 UJ	0.001 UJ	0.001 UJ	0.001 UJ
	01/07/09	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	07/09/09	0.010	0.0014	0.001 U	0.001 U	0.001 U
	7/9/09 (DUP)	0.015	0.0020	0.001 U	0.001 U	0.001 U
	01/12/10	0.022	0.0033	0.001 U	0.001 U	0.001 U
	07/14/10	0.046	0.0080	0.0015	0.001 U	0.001 U
	01/11/11	0.0023	0.001 U	0.001 U	0.001 U	0.001 U
	07/11/11	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
	01/11/12	0.0032	0.001 U	0.001 U	0.001 U	0.001 U
	07/18/12	0.092 ES DNR	0.023	0.0027	0.001 U	0.001 U
	7/18/12 (DL)	0.14	0.021 DNR	0.0022 X DNR	0.003 U DNR	0.003 U DNR
	01/10/13	0.037	0.0067	0.0014	0.001 U	0.001 U
	07/10/13	0.14 ES DNR	0.039	0.0057	0.001 U	0.001 U
	7/10/13 (DL)	0.22	0.025 DNR	0.01 U DNR	0.01 U DNR	0.01 U DNR
	01/08/14	0.0032	0.001 U	0.001 U	0.001 U	0.001 U
	07/01/14	0.0014	0.001 U	0.001 U	0.001 U	0.001 U
	01/12/15	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
EGW074	05/02/01	**140**	**13**	0.92	0.1 U	0.042
	08/08/01	**180 D**	**11 D**	1	0.2 U	0.05 U
	11/14/01	**340 JD**	10 UJ	0.69 JD	0.25 UJ	0.05 UJ
	02/12/02	**320 D**	**11**	1.7 U	1.7 U	0.33 U
	05/09/02	**200 D**	**6 JD**	0.31	0.200 U	0.037 J
	05/09/02 (DUP)	**190 D**	**7 JD**	0.36	0.1 U	0.036
	08/08/02	**240 D**	**15**	2 U	2 U	0.4 U
	11/20/02	**220 D**	**9.5**	5 U	5 U	1 U
	02/11/03	**200 D**	**17**	10 U	10 U	2 U
	05/13/03	**140 D**	**9.8**	0.78	0.5 U	0.1 U
	05/13/03 (DUP)	**150 D**	**7.8**	5 U	5 U	1 U
	07/25/03	**130 D**	**8.6**	5 U	5 U	1 U
	11/11/03	**110 D**	**5.3**	2 U	2 U	0.4 U

Table A-7
Summary of Groundwater Analytical Results for Phosphate-Based Compounds, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Tributyl Phosphate	Dibutyl Phenyl Phosphate	Butyl Diphenyl Phosphate	Triphenyl Phosphate	Butylated hydroxytoluene
MTCA Method B Groundwater Screening Level*		4.8*	5.16*	5.52*	5.88*	NE
EGW074 (continued)	01/27/04	**60 D**	3.8	1.2 U	1.2 U	0.25 U
	04/26/04	**69 D**	**5.9**	0.25 U	0.25 U	0.05
	07/27/04	**72 D**	**6.3**	0.83 U	0.83 U	0.17 U
	10/10/04	**170 D**	**7.9 D**	0.3	0.027	0.062
	01/18/05	**60 D**	2.9	0.11	0.05 U	0.054
	04/14/05	**72 D**	**5.6 D**	0.27	0.026	0.061
	10/25/05	**100 D**	**6.2**	0.21	0.2 U	0.2 U
	01/18/06	**47 D**	2.1 D	0.11	0.02 U	0.059
	07/18/06	**46 D**	1.6	0.084	0.02 U	0.065
	01/20/07	**28 D**	2.0	0.053	0.02 U	0.050
	07/09/07	**37 D**	2.7 D	0.062	0.02 U	0.062
	01/17/08	**43 D**	2.0 D	0.050	0.02 U	0.079
	07/21/08	**25 JD**	1.6 J	0.2 UJ	0.2 UJ	0.2 UJ
	01/07/09	**18 D**	1.3	0.035	0.02 U	0.054
	07/09/09	**22 D**	1.4	0.022	0.02 U	0.041
	01/12/10	**7.7 D**	0.24	0.02 U	0.02 U	0.02 U
	07/14/10	**7.9 D**	0.94	0.030	0.02 U	0.034
	01/11/11	**6.6 J**	0.48 J	0.1 UJ	0.1 UJ	0.1 UJ
	07/11/11	**8.0 D**	0.50	0.017 U	0.017 U	0.032
	01/11/12	**13 D**	1.6 D	0.020	0.003 U	0.082
	07/18/12	**6.8 J**	0.29 J	0.12 UJ	0.12 UJ	0.12 UJ
	01/10/13	0.12 ES DNR	0.001 U	0.001 U	0.001 U	0.022
	1/10/13 (DL)	0.23	0.003 U DNR	0.003 U DNR	0.003 U DNR	0.024 DNR
	07/10/13	1.2 ES DNR	0.19 ES DNR	0.0064	0.002 U	0.049
	7/10/13 (DL)	2.2 ES DNR	0.16 DNR	0.02 U DNR	0.02 U DNR	0.038 DNR
	7/10/13 (DL2)	4.4	0.16	0.06 U DNR	0.06 U DNR	0.06 U DNR
	01/08/14	1.8 ES DNR	0.59 ES DNR	0.022	0.002 U	0.10
	1/08/14 (DL)	**9.6**	0.91	0.2 U DNR	0.2 U DNR	0.2 U DNR
	07/01/14	1.3 ES DNR	0.33	0.0058 X	0.008 U	0.031
	7/1/14 (DL)	2.2	0.29 DNR	0.08 U DNR	0.08 U DNR	0.08 U DNR
	01/08/15	0.001 U	0.001 U	0.001 U	0.001 U	0.021

Notes:
Values in**bold** font indicate that the result reported meets or exceeds the calculated screening level.
D - Dilution required to quantitate analyte within linear range of detector. This flag was not used prior to August, 2001.
DUP - field duplicate
DNR - do not report
E - Sample concentration exceeded the linear range of the instrument.
ES - Sample concentration exceeded the linear range of the instrument and saturated the detector.
J - estimated value
mg/L - milligram per liter
NA - Not sampled and analyzed due to DNAPL in well or not analyzed.
NE - not established
R - Result is rejected due to serious deficiencies in the ability to meet control criteria for surrogate and/or matrix spike recoveries.
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.
[1] Sample collected after step-drawdown pumping test
*Value calculated by Boeing consistent with 1996 MTCA Method B methodology.
**Result reported is an estimated value, as the result was outside of the calibration range of the instrument. The dilution performed indicated a value of <250 mg/L.
***Dense non-aqueous phase hydraulic fluid present in well.

Table A-8
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Mercury		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.002 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW055	08/08/02	**0.010**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/20/02	**0.010**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/20/02 (DUP)	**0.009**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/11/03	**0.007**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/13/03	**0.010**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/25/03	**0.006**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/11/03	**0.008**	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/27/04	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/04	**0.009**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	4/26/04 (DUP)	**0.009**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/27/04	**0.008**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/27/04 (DUP)	**0.008**	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/04	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/05	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/13/05	**0.007**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/25/05	**0.009**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/06	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/18/06 (DUP)	**0.008**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/17/06	**0.007**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/20/07	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/20/07 (DUP)	**0.009**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/07	**0.008**	**0.006**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/9/07 (DUP)	**0.010**	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/17/08	**0.007**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/17/08 (DUP)	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/21/08	**0.008**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/21/08 (DUP)	**0.008**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/07/09	**0.007**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/7/09 (DUP)	**0.007**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/09	**0.0078**	**0.0072**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/12/10	**0.0068**	**0.0068**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/14/10	**0.0079**	**0.0078**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/14/10 (DUP)	**0.0082**	**0.0077**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/11	**0.0074**	**0.0094**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/11/11 (DUP)	**0.0074**	**0.0099**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/11/11	**0.0085**	**0.0082**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/11/11 (DUP)	**0.0084**	**0.0083**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/12	**0.0070**	**0.0069**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/11/12 (DUP)	**0.0068**	**0.0076**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/12	**0.0074**	**0.0070**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/18/12 (DUP)	**0.0071**	**0.0077**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/10/13	**0.0065**	**0.0102**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/10/13 (DUP)	**0.0067**	**0.0097**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/10/13	**0.0069**	**0.0082**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/10/13 (DUP)	**0.0073**	**0.0075**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/14	**0.0080**	**0.0073**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/8/14 (DUP)	**0.0078**	**0.0077**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/01/14	**0.0083**	**0.0078**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/1/14(DUP)	**0.0086**	**0.0081**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/15	**0.0061**	**0.0066**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/8/2015 (DUP)	**0.0061**	**0.0064**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-8
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Mercury		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.002 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW070	05/02/01	**0.029**	**0.031**	0.006	0.005	0.002 U	0.002 U	0.005 U	0.005 U	0.003	0.002 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.01 U	0.01 U	0.01 U	0.01 U	0.003 U	0.003 U	0.139	0.135	0.007	0.007
	08/08/01	**0.024**	**0.020**	0.006	0.006	0.002 U	0.002 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.01	0.01 U	0.01 U	0.004 U	0.003 U	0.003 U	0.195	0.204	0.016	0.006
	11/14/01	**0.028**	**0.032**	0.006	0.006	0.002 U	0.002 U	0.005 U	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.177	0.24	0.017	0.006
	02/12/02	**0.01**	**0.012**	0.011	0.010	0.006	0.002 U	0.010	0.006	0.004	0.002 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.366	0.329	0.031	0.006 U
	05/09/02	**0.016**	**0.011**	0.005	0.007	0.002U	0.002 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.202	0.251	0.014	0.006 U
	08/08/02	**0.014**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/20/02	**0.01**	**0.017**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/11/03	**0.006**	**0.006**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/13/03	**0.008**	**0.005**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/25/03	0.005 U	**0.005**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/11/03	**0.003**	**0.004**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/27/04	**0.008**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/04	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/27/04	**0.016**	**0.015**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/04	**0.010**	**0.012**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/05	**0.012**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/14/05	**0.008**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/25/05	**0.020**	**0.014**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/06	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/06	**0.014**	**0.013**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/20/07	**0.020**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/07	**0.020**	**0.018**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/17/08	**0.010**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/21/08	**0.070**	**0.013**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/07/09	**0.013**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/09	**0.0153**	**0.0155**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/12/10	**0.012**	**0.0106**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/14/10	**0.0119**	**0.0123**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/11	**0.0096**	**0.0086**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/11/11	**0.0117**	**0.0095**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/12	**0.0136**	**0.0120**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/12	**0.0104**	**0.0075**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/10/13	**0.0084**	**0.0065**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/10/13	**0.0105**	**0.0127**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/14	**0.0120**	**0.0103**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/01/14	**0.0146**	**0.0147**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/15	**0.0148**	**0.0135**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-8
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Mercury		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.002 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW071	08/08/02	**0.017**	**0.016**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/02	**0.014**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/11/03	**0.014**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/11/03 (DUP)	**0.012**	**0.012**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/13/03	**0.016**	**0.020**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/25/03	**0.016**	**0.017**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/11/03	**0.006**	**0.005**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/11/03 (DUP)	**0.005**	**0.004**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/27/04	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/27/04 (DUP)	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/04	**0.012**	**0.013**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/27/04	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/04	**0.012**	**0.014**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/05	**0.007**	**0.006**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/14/05	**0.009**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/25/05	**0.007**	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/06	**0.006**	**0.006**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/06	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/20/07	**0.005**	**0.005**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/07	**0.009**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/17/08	**0.004**	**0.005**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/21/08	**0.007**	**0.006**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/07/09	**0.005**	**0.006**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/09	**0.0062**	**0.0056**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/12/10	**0.0044**	**0.0040**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/14/10	**0.0085**	**0.0087**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/11	**0.0047**	**0.0043**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/11/11	**0.0078**	**0.0078**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/12	**0.0022**	**0.0024**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/12	**0.0057**	**0.0069**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/10/13	**0.0054**	**0.0055**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/10/13	**0.0091**	**0.0094**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/14	**0.0032**	**0.0034**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/01/14	**0.0086**	**0.0081**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/15	**0.0076**	**0.0078**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-8
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Mercury		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.002 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW072	08/08/02	**0.042**	**0.050**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/08/02 (DUP)	**0.050**	**0.050**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/02	**0.010 ***	**0.042**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/11/03	**0.024**	**0.024**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/13/03	**0.027**	**0.034**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/25/03	**0.037**	**0.036**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/11/03	**0.032**	**0.036**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/27/04	**0.020**	**0.024**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/04	**0.026**	**0.030**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/26/04	**0.033**	**0.030**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/04	**0.031**	**0.033**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/04 (DUP)	**0.025**	**0.033**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/05	**0.050**	**0.048**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/13/05	**0.040**	**0.038**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/24/05	**0.044**	**0.036**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/06	**0.040**	**0.042**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/17/06	**0.046**	**0.039**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/20/07	**0.053**	**0.043**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/07	**0.035**	**0.034**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/17/08	**0.027**	**0.033**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/21/08	**0.033**	**0.029**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/07/09	**0.023**	**0.025**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/09	**0.0281**	**0.0255**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/12/10	**0.0315**	**0.0316**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/12/10 (DUP)	**0.0307**	**0.0291**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/14/10	**0.0326**	**0.0314**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/11	**0.0316**	**0.0290**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/11/11	**0.0299**	**0.0296**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/12	**0.0281**	**0.0264**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/12	**0.0344**	**0.0244**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/10/13	**0.0309**	**0.0295**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/10/13	**0.0268**	**0.0214**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/14	**0.0239**	**0.0221**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/01/14	**0.0209**	**0.0204**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/15	**0.0248**	**0.0236**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-8
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Mercury		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.002 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW073	08/08/02	**0.008**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/19/02	**0.012**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/11/03	**0.012**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/13/03	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/25/03	**0.007**	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/11/03	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/26/04	**0.011**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/04	**0.009**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/26/04	**0.010**	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/04	**0.008**	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/05	**0.011**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/13/05	**0.010**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/24/05	**0.010**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/17/06	**0.011**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/17/06	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/17/06 (DUP)	**0.009**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/20/07	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/07	**0.011**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/17/08	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/21/08	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/07/09	**0.007**	**0.007**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/09	**0.0064**	**0.0063**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/9/09 (DUP)	**0.0065**	**0.0062**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/12/10	**0.0082**	**0.0077**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/14/10	**0.0077**	**0.0073**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/11	**0.0080**	**0.0072**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/11/11	**0.0067**	**0.0069**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/12	**0.0073**	**0.0069**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/12	**0.0040**	**0.0048**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/10/13	**0.0062**	**0.0063**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/10/13	**0.0062**	**0.0060**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/14	**0.0079**	**0.0076**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/01/04	**0.0051**	**0.0052**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/12/15	**0.0071**	**0.0068**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-8
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-24
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Copper		Lead		Mercury		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.002 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW074	08/08/02	**0.019**	**0.020**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/20/02	**0.020**	**0.020**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/11/03	**0.012**	**0.015**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/13/03	**0.013**	**0.011**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/13/03 (DUP)	**0.013**	**0.013**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/25/03	**0.010**	**0.008**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/11/03	**0.022**	**0.020**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/27/04	**0.010**	**0.014**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/26/04	**0.007**	**0.009**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/27/04	**0.014**	**0.021**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/04	**0.014**	**0.015**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/05	**0.009**	**0.014**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/14/05	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/25/05	**0.012**	**0.013**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/18/06	**0.014**	**0.017**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/06	**0.020**	**0.023**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/20/07	**0.009**	**0.015**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/07	**0.009**	**0.013**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/17/08	**0.010**	**0.010**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/21/08	**0.016**	**0.018**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/07/09	**0.017**	**0.017**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/09/09	**0.0079**	**0.0083**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/12/10	**0.0069**	**0.0083**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/14/10	**0.0062**	**0.0066**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/11	**0.0046**	**0.0073**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/11/11	**0.0061**	**0.0061**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/11/12	**0.0041**	**0.0042**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/18/12	**0.0052**	**0.0048**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/10/13	**0.0049**	**0.0049**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/10/13	**0.0058**	**0.0085**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/14	**0.0038**	**0.0042**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	07/01/14	**0.0061**	**0.0066**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/08/15	**0.0059**	**0.0058**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

(A) - MTCA Method A

(B) - MTCA Method B

DUP - field duplicate

mg/L - milligram per liter

NA - not analyzed

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

*Total arsenic result for 4th Quarter 2002 appears anomolous.

Table A-9
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-51 (Southern Air Scrubber Sump)
Boeing Everett Plant

Well ID	Sample Date	Acetone	2-Butanone	Chloroform	Chloromethane	1,1-DCE	Ethylbenzene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	4.8 (B)	0.00141 (B)	NE	0.4 (B)	0.7 (A) 0.8 (B)	1.0 (A) 0.64 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW057	08/12/98	0.005 U	0.005 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	**0.0044**	0.002 U	0.001 U
	11/16/98	0.005 U	0.005 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	**0.0056**	0.002 U	0.001 U
	02/03/99	0.005 U	0.005 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	**0.0039 J**	0.000010 U	0.001 U
	05/12/99	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0038**	0.00002 U	0.001 U
	08/04/99	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0036**	0.00002 U	0.001 U
	11/10/99	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0040**	0.00002 U	0.001 U
	02/09/00	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	05/03/00	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0035**	0.00002 U	0.001 U
	08/02/00	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0028**	0.00002 U	0.001 U
	11/15/00	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0029**	0.00002 U	0.001 U
	02/06/01	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0035**	0.00002 U	0.001 U
	05/04/01	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0032**	0.00002 U	0.001 U
	08/09/01	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0033**	0.00002 U	0.001 U
	11/14/01	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0042**	0.00002 U	0.001 U
	02/06/02	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0031**	0.00002 U	0.0004 U
	05/07/02	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0039**	0.00002 U	0.0004 U
	11/15/02	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0035**	0.00002 U	0.0004 U
	05/07/03	0.0014 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0034**	0.00002 U	0.0004
	11/05/03	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	**0.0043**	0.00002 U	0.0011
	04/15/04	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0044**	0.00002 U	0.0004 U
	10/05/04	0.0016 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0043**	0.00002 U	0.0004 U
	03/29/05	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0044**	0.00002 U	0.0004 U
	10/18/05	0.0016	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0046**	0.00002 U	0.0004 U
	04/17/06	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0034**	0.00002 U	0.0004 U
	10/19/06	0.003 U	0.001 U	0.0009	0.0002 U	0.00002	0.0002 U	0.0002 U	**0.0042**	0.00002 U	0.0004 U
	04/04/07	0.003 U	0.001 U	0.0002	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0034**	0.00002 U	0.0007
	10/26/07	0.003 U	0.001 U	0.0002 U	0.0002 U	0.000025	0.0002 U	0.0002 U	**0.0036**	0.00002 U	0.0004 U
	04/03/08	0.003 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0030**	0.00002 U	0.0004 U
	10/08/08	0.003 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0030**	0.00002 U	0.0004 U
	04/07/09	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 UJ	0.0002 U	0.0002 U	**0.0030 J**	0.00002 UJ	0.0004 U
	10/28/09	0.0054	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	**0.0011**	0.00002 U	0.0004 U
	04/07/10	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	**0.0013**	0.00002 U	0.0004 U
	10/13/10	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002*	**0.0018**	0.00002 U	0.0004 U
	04/07/11	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	**0.00092**	0.00002 U	0.0004 U
	10/06/11	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	**0.0019**	0.00002 U	0.0004 U
	04/03/12	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0018 DNR	0.0002 U DNR	0.0005 U
	04/3/12 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0016**	0.00002 U	NA
	10/04/12	0.005 U	0.005 U	0.0002 U	0.0005 UJ	0.0002 U DNR	0.0005 U	0.0002 U	**0.0022**	0.0002 U DNR	0.0005 U
	10/4/12 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.0018 DNR	0.00002 U	NA
	04/08/13	0.005 U	0.005 U	0.0006	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0022 DNR	0.0002 U DNR	0.0005 U
	04/8/13 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0018**	0.00002 U	NA
	10/09/13	0.005 U	0.005 U	0.0002	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0031 DNR	0.0002 U DNR	0.0005 U
	10/09/13 (SIM)	NA	NA	NA	NA	0.000016 X	NA	NA	**0.0027**	0.00002 U	NA
	01/14/14 [1]	NA	NA	NA	NA	NA	NA	NA	**0.0046**	0.0002 U	NA
	01/23/14 [1]	NA	NA	NA	NA	0.0002 U DNR	NA	NA	**0.0043**	0.0002 U DNR	NA
	01/23/14 (SIM) [1]	NA	NA	NA	NA	0.00002 U	NA	NA	0.0027 DNR	0.00002 U	NA
	04/16/14	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0026 DNR	0.0002 U DNR	0.0005 U
	04/16/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0024**	0.00002 U	NA
	08/27/14 [1]	NA	NA	NA	NA	0.0002 U DNR	NA	NA	0.0030 DNR	0.0002 U DNR	NA
	08/27/14 (SIM) [1]	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0028**	0.00002 U	NA
	08/27/14 (DUP) [1]	NA	NA	NA	NA	0.0002 U DNR	NA	NA	0.0034 DNR	0.0002 U DNR	NA
	08/27/14 (DUP SIM) [1]	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0030**	0.00002 U	NA
	10/16/14	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	**0.0039**	0.0002 U DNR	0.0005 U
	10/16/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.003 DNR	0.00002 U	NA
	12/04/14 [1]	NA	NA	NA	NA	0.0002 U DNR	NA	NA	0.0026 DNR	0.0002 U DNR	NA
	12/04/14 (SIM) [1]	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0023**	0.00002 U	NA
	12/04/14 (DUP) [1]	NA	NA	NA	NA	0.0002 U DNR	NA	NA	0.0027 DNR	0.0002 U DNR	NA
	12/04/14 (DUP SIM) [1]	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0022**	0.00002 U	NA
	04/02/15	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0028 DNR	0.0002 U DNR	0.0005 U
	04/02/15 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0024**	0.00002 U	NA

Table A-9
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-51 (Southern Air Scrubber Sump)
Boeing Everett Plant

Well ID	Sample Date	Acetone	2-Butanone	Chloroform	Chloromethane	1,1-DCE	Ethylbenzene	Toluene	Trichloroethene	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	4.8 (B)	0.00141 (B)	NE	0.4 (B)	0.7 (A) 0.8 (B)	1.0 (A) 0.64 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW058	08/13/98	0.013	0.010	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U
	11/17/98	0.005 U	0.005 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U
	02/03/99	0.005 U	0.005 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000037**	0.001 U
	05/12/99	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/04/99	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/10/99	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/09/00	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0036**	0.00002 U	0.001 U
	05/03/00	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/02/00	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/15/00	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/06/01	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	05/04/01	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/09/01	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/14/01	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/06/02	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0040**	0.00002 U	0.0004 U
	05/07/02	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0004 U
	11/15/02	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0003	0.00002 U	0.0004 U
	05/07/03	0.0017 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0004 U
	11/05/03	0.001 U	0.001 U	0.0002 U	0.0002	0.00002 U	0.0038	0.0002 U	0.0002 U	0.00002 U	0.0185
	04/15/04	0.0015	0.0016 J	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/05/04	0.0024 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0004 U
	03/29/05	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0003	0.00002 U	0.0004 U
	10/18/05	0.001 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/17/06	0.0014	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/19/06	0.0030 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000062	0.00002 U	0.0004 U
	04/04/07	0.0030 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000072	0.00002 U	0.0006
	10/26/07	0.0030 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000037	0.00002 U	0.0004 U
	04/03/08	0.0030 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0010	0.0002	0.000053	0.00002 U	0.0125
	10/08/08	0.0030 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000060	0.00002 U	0.0004 U
	04/07/09	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000046	0.00002 U	0.0004 U
	10/28/09	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.000044	0.00002 U	0.0004 U
	04/07/10	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.000029	0.00002 U	0.0004 U
	10/13/10	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0003*	0.000031	0.00002 U	0.0004 U
	04/07/11	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.000026	0.00002 U	0.0004 U
	10/06/11	0.005 U	0.005 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.000036	0.00002 U	0.0004 U
	04/03/12	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U DNR	0.0005 U
	04/3/12 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.000040	0.00002 U	NA
	10/04/12	0.005 U	0.005 U	0.0002 U	0.0005 UJ	0.0002 U DNR	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U DNR	0.0003 X
	10/4/12 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.000029	0.00002 U	NA
	04/08/13	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U DNR	0.0005 U
	04/8/13 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.000024	0.00002 U	NA
	10/09/13	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U DNR	0.0001 X
	10/09/13 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.000023	0.00002 U	NA
	04/16/14	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U DNR	0.0005 U
	04/16/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.000026	0.00002 U	NA
	10/16/14	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U DNR	0.0005 U
	10/16/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.000025	0.00002 U	NA
	04/02/15	0.005 U	0.005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U DNR	0.0005 U
	04/02/15 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	0.000028	0.00002 U	NA

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B

1,1-DCE - 1,1-dichloroethene
DNR - do not report
DUP - field duplicate
J - estimated value
mg/L - milligram per liter
NA - not analyzed
SIM - selected ion monitoring
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result is between the method detection limit and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.
[1] Sample collected as part of follow-up monitoring after step-drawdown pumping test conducted in January 2014.
* Results are suspect due to potential laboratory contamination.

Table A-10
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-51 (Southern Air Scrubber Sump)
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Lead		Manganese		Mercury		Selenium		Silver		Strontium	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.015 (A)		0.75 (B)		0.002 (A)		0.08 (B)		0.08 (B)		9.6 (B)	
EGW057	08/12/98	**0.014**	NA	0.139	NA	0.002 U	NA	**0.055**	NA	**0.035**	NA	NA	NA	0.0001 U	NA	0.001 U	NA	0.003 U	NA	NA	NA
	11/16/98	**0.014**	**0.008**	0.265	0.008	0.002 U	0.002 U	**0.115**	0.005 U	0.011	0.001 U	NA	NA	0.0001 U	0.0001 U	0.005 U	0.001	0.003 U	0.003 U	NA	NA
	02/03/99	**0.007**	**0.006**	0.064	R	0.002 U	0.002 U	0.025	0.005 U	0.003	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002 U	0.001 U	0.003 U	0.003 U	0.227	0.195
	05/12/99	**0.005**	**0.005**	0.012	0.009	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002	0.001	0.003 U	0.003 U	0.180	0.170
	08/04/99	**0.006**	**0.005**	0.013	0.011	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0002 U	0.0001 U	0.001	0.001 U	0.003 U	0.003 U	0.204	0.202
	11/10/99	**0.005**	**0.005**	0.012	0.013	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002 U	0.002 U	0.003 U	0.003 U	0.174	0.168
	02/09/00	**0.006**	**0.006**	0.012	0.012	0.002 U	0.002 U	0.005 U	0.005 U	0.001	0.001 U	NA	NA	0.0001 U	0.0001 U	0.003	0.003	0.003 U	0.003 U	0.180	0.192
	05/03/00	**0.007**	**0.006**	0.013	0.01	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002 U	0.002 U	0.003 U	0.003 U	0.178	0.177
	08/02/00	**0.006**	**0.005**	0.012	0.013	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002	0.002 U	0.003 U	0.003 U	0.181	0.195
	11/15/00	**0.007**	**0.006**	0.014	0.012	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002 U	0.002 U	0.003 U	0.003 U	0.179	0.178
	02/06/01	**0.007**	**0.006**	0.011	0.011	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002 U	0.002 U	0.003 U	0.003 U	0.149	0.165
	05/04/01	**0.006**	**0.005**	0.010	0.010	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002 U	0.002	0.003 U	0.003 U	0.157	0.167
	08/09/01	**0.005**	**0.005**	0.011	0.010	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.002 U	0.002 U	0.003 U	0.003 U	0.158	0.167
	11/14/01	**0.005**	**0.005**	0.009	0.009	0.002 U	0.002 U	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.05 U	0.05 U	0.003 U	0.003 U	0.145	0.150
	02/06/02	**0.006**	**0.006**	0.010	0.005	0.002 U	0.002 U	0.015	0.013	0.002	0.001 U	NA	NA	0.0001 U	0.0001 U	0.05 U	0.05 U	0.003 U	0.003 U	0.114	0.109
	05/07/02	**0.005**	**0.005**	0.009	0.010	0.002 U	0.002 U	0.009	0.008	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.05 U	0.05 U	0.003 U	0.003 U	0.135	0.149
	11/15/02	**0.005**	**0.005**	NA	NA	NA	NA	0.007	0.006	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/07/03	**0.005**	**0.004**	NA	NA	NA	NA	0.009	0.010	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/05/03	**0.005**	**0.005**	NA	NA	NA	NA	0.008	0.006	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/15/04	**0.004**	**0.005**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/05/04	**0.006**	**0.006**	NA	NA	NA	NA	0.005 U	0.005 U	0.001	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/29/05	**0.005**	**0.005**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/18/05	**0.005**	**0.005**	NA	NA	NA	NA	0.005 U	0.005 U	0.001	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/17/06	**0.005**	**0.005**	NA	NA	NA	NA	0.005 U	0.005 U	0.001	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/19/06	**0.007**	**0.007**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/07	**0.005**	**0.005**	NA	NA	NA	NA	0.006	0.006	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/26/07	**0.013**	**0.06**[a]	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/08	**0.006**	**0.006**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/08/08	**0.007**	**0.006**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/07/09	**0.0054**	**0.0052**	NA	NA	NA	NA	0.006	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/28/09	**0.0069**	**0.0072**	NA	NA	NA	NA	0.010	0.011	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/07/10	**0.0084**	**0.0083**	NA	NA	NA	NA	0.009	0.0087	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/13/10	**0.0062**	**0.0063**	NA	NA	NA	NA	0.0107	0.0106	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/07/11	**0.0084**	**0.0085**	NA	NA	NA	NA	0.021	0.019	0.0002	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/06/11	**0.0058**	**0.0055**	NA	NA	NA	NA	0.005 U	0.005 U	0.0003	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/12	**0.0036**	**0.0039**	NA	NA	NA	NA	0.0070	0.0073	0.0010 U	0.00012 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/04/12	**0.0056**	**0.0054**	NA	NA	NA	NA	0.0022 X	0.0028 X	0.00022 X	0.00084 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/08/13	**0.0057**	**0.0059**	NA	NA	NA	NA	0.0058	0.0058	0.00030 X	0.00049 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/09/13	**0.0073**	**0.0070**	NA	NA	NA	NA	0.0037 X	0.0054	0.00035 X	0.0011 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/14/14 [1]	**0.0082**	NA	NA	NA	NA	NA	0.0043 X	NA	NA	NA	0.0052 X	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/23/14 [1]	**0.0071**	**0.0071**	NA	NA	NA	NA	0.0046 X	0.0041 X	NA	NA	0.0162	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA
	04/16/14	**0.0054**	**0.0054**	NA	NA	NA	NA	0.0048	0.0051	0.0020 U	0.00042 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/27/14 [1]	**0.0069**	**0.0056**	NA	NA	NA	NA	0.0016 X	0.0300 U	NA	NA	0.0711 J	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA
	08/27/14 (DUP) [1]	**0.0061**	**0.0065**	NA	NA	NA	NA	0.0300 U	0.0300 U	NA	NA	0.0176 J	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA
	10/16/14	**0.0064**	**0.0058**	NA	NA	NA	NA	0.0028 X	0.0028 X	0.00031 X	0.00022 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/14 [1]	**0.0076**	**0.0063**	NA	NA	NA	NA	0.0064 X	0.0068 X	NA	NA	0.0024 X	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA
	12/04/14 (DUP) [1]	**0.0067**	**0.0069**	NA	NA	NA	NA	0.0063 X	0.0063 X	NA	NA	0.0021 X	0.0100 U	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/15	**0.0055**	**0.0056**	NA	NA	NA	NA	0.0035 X	0.0034 X	0.0020 U	0.00025 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-10
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-51 (Southern Air Scrubber Sump)
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Lead		Manganese		Mercury		Selenium		Silver		Strontium	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.015 (A)		0.75 (B)		0.002 (A)		0.08 (B)		0.08 (B)		9.6 (B)	
EGW058	08/13/98	**0.050**	NA	1.17	NA	0.002	NA	**0.642**	NA	**0.057**	NA	NA	NA	0.0002	NA	0.005 U	NA	0.003	NA	NA	NA
	11/17/98	**0.024**	**0.019**	0.714	0.431	0.002 U	0.002 U	**0.398**	0.005	**0.025**	0.001 U	NA	NA	0.0002 U	0.0001 U	0.005 U	0.001 U	0.003 U	0.003 U	NA	NA
	02/03/99	**0.021**	**0.018**	0.246	R	0.002 U	0.002 U	**0.118**	0.005	0.009	0.001 U	NA	NA	0.0001 U	0.0001 U	0.005 U	0.001 U	0.003 U	0.003 U	0.247	0.075
	05/12/99	**0.018**	**0.014**	0.190	0.009	0.002 U	0.002 U	**0.099**	0.005 U	0.007	0.001 U	NA	NA	0.0001 U	0.0001 U	0.005 U	0.001 U	0.003 U	0.003 U	0.186	0.064
	08/04/99	**0.021**	**0.014**	0.278	0.011	0.002 U	0.002 U	**0.144**	0.005 U	0.008	0.001 U	NA	NA	0.0002 U	0.0001 U	0.005 U	0.001 U	0.003 U	0.003 U	0.265	0.068
	11/10/99	**0.019**	**0.018**	0.166	0.329	0.002 U	0.002 U	**0.073**	0.005 U	0.006	0.001 U	NA	NA	0.0001 U	0.0001 U	0.01 U	0.002 U	0.003 U	0.003 U	0.169	0.066
	02/09/00	**0.019**	**0.021**	0.090	0.370	0.002 U	0.002 U	0.041	0.005 U	0.005	0.002	NA	NA	0.0001 U	0.0001 U	0.002 U	0.002 U	0.003 U	0.003 U	0.141	0.082
	05/03/00	**0.021**	**0.018**	0.085	0.012	0.002 U	0.002 U	0.031	0.005 U	0.002	0.001 U	NA	NA	0.0001 U	0.0001 U	0.01 U	0.002 U	0.003 U	0.003 U	0.124	0.074
	08/02/00	**0.021**	**0.016**	0.125	0.014	0.002 U	0.002 U	**0.052**	0.005 U	0.005	0.001	NA	NA	0.0001 U	0.0001 U	0.01 U	0.002 U	0.003 U	0.003 U	0.146	0.082
	11/15/00	**0.017**	**0.016**	0.084	0.013	0.002 U	0.002 U	0.027	0.005 U	0.002	0.001 U	NA	NA	0.0001 U	0.0001 U	0.004 U	0.002 U	0.003 U	0.003 U	0.148	0.102
	02/06/01	**0.018**	**0.017**	0.084	0.012	0.002 U	0.002 U	0.032	0.005 U	0.001 U	0.001 U	NA	NA	0.0001 U	0.0001 U	0.01 U	0.002 U	0.003 U	0.003 U	0.134	0.092
	05/04/01	**0.016**	**0.017**	0.072	0.010	0.002 U	0.002 U	0.026	0.005 U	0.002	0.001 U	NA	NA	0.0001 U	0.0001 U	0.004 U	0.002 U	0.003 U	0.003 U	0.134	0.082
	08/09/01	**0.023**	**0.015**	0.312	0.011	0.002 U	0.002 U	**0.109**	0.005 U	0.01	0.001 U	NA	NA	0.0001	0.0001 U	0.004 U	0.002 U	0.003 U	0.003 U	0.34	0.102
	11/14/01	**0.018**	**0.016**	0.083	0.011	0.002 U	0.002 U	0.030	0.005 U	0.003	0.001 U	NA	NA	0.0001 U	0.0001 U	0.05 U	0.05 U	0.003 U	0.003 U	0.152	0.100
	02/06/02	**0.020**	**0.014**	0.145	0.012	0.002 U	0.002 U	**0.068**	0.005 U	0.007	0.001 U	NA	NA	0.0001 U	0.0001 U	0.05 U	0.05 U	0.003 U	0.003 U	0.244	0.131
	05/07/02	**0.020**	**0.014**	0.080	0.012	0.002 U	0.002 U	0.027	0.005 U	0.004	0.001 U	NA	NA	0.0001 U	0.0001 U	0.05 U	0.05 U	0.003 U	0.003 U	0.158	0.114
	11/15/02	**0.020**	**0.021**	NA	NA	NA	NA	0.007	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	05/07/03	**0.014**	**0.014**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/05/03	**0.022**	**0.022**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/15/04	**0.026**	**0.024**	NA	NA	NA	NA	0.006	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/05/04	**0.016**	**0.016**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	03/29/05	**0.014**	**0.015**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/18/05	**0.025**	**0.025**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/17/06	**0.021**	**0.022**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/19/06	**0.024**	**0.024**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/07	**0.021**	**0.021**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/26/07	**0.005**	**0.006**	NA	NA	NA	NA	0.024	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/08	**0.018**	**0.021**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/08/08	**0.021**	**0.023**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/07/09	**0.0214**	**0.0206**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/28/09	**0.0206**	**0.0212**	NA	NA	NA	NA	0.005 U	0.005 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/07/10	**0.0218**	**0.0214**	NA	NA	NA	NA	0.0054	0.0021	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/13/10	**0.0190**	**0.0186**	NA	NA	NA	NA	0.0033	0.0013	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/07/11	**0.0170**	**0.0183**	NA	NA	NA	NA	0.009	0.005 U	0.002	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/06/11	**0.0067**	**0.0067**	NA	NA	NA	NA	0.007	0.005 U	0.0008	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/12	**0.0102**	**0.0089**	NA	NA	NA	NA	0.0080	0.0011 X	0.0023	0.0010 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/04/12	**0.0114**	**0.0114**	NA	NA	NA	NA	0.0035 X	0.0017 X	0.0015 X	0.000055 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/08/13	**0.0126**	**0.0121**	NA	NA	NA	NA	0.0013 X	0.00099 X	0.00044 X	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/09/13	**0.0156**	**0.0158**	NA	NA	NA	NA	0.00077 X	0.00079 X	0.00014 X	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/16/14	**0.0163**	**0.0160**	NA	NA	NA	NA	0.0057	0.0014 X	0.0014 X	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/16/14	**0.0142**	**0.0128**	NA	NA	NA	NA	0.0021 X	0.0034 X	0.00058 X	0.00022 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/15	**0.0144**	**0.0144**	NA	NA	NA	NA	0.00079 X	0.0015 X	0.00014 X	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

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

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

(A) - MTCA Method A

(B) - MTCA Method B

DUP - field duplicate

J - estimated value

mg/L - milligram per liter

NA - not analyzed

R - Data rejected during validation. Dissolved result substantially greater than total result.

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

X - Result is between the method detection limit and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.

[1] Sample collected as part of follow-up monitoring after step-drawdown pumping test conducted in January 2014.

[a] The result appears anomalous but a specific error was not identified.

Table A-11
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-51 (Former UST EV-11)
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	2-Butanone	Chloroethane	Chloroform	Chloromethane	1,1-DCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	2-Hexanone	4-Methyl-2-Pentanone	Methylene Chloride	Styrene	Tetrachloroethene	Toluene	1,1,2-Trichloro-1,2,2-trifluoroethane	Trichloroethene	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	4.8 (B)	NE	0.00141 (B)	NE	0.4 (B)	0.016 (B)	0.16 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW030	01/26/95	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0046**	0.002 U	NA
	05/02/95	NA	NA	NA	NA	NA	NA	NA	0.0012	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0051**	0.002 U	NA
	08/02/95	NA	NA	NA	NA	NA	NA	NA	0.0015	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0074**	0.002 U	NA
	11/08/95	NA	NA	NA	NA	NA	NA	NA	0.0016	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0069**	0.002 U	NA
	02/27/96	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0045**	0.002 U	NA
	05/29/96	NA	NA	NA	NA	NA	NA	NA	0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0065**	0.002 U	NA
	08/21/96	NA	NA	NA	NA	NA	NA	NA	**11**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0081**	**0.0021**	NA
	08/21/96 (DUP)	NA	NA	NA	NA	NA	NA	NA	0.0016	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0082**	**0.0021**	NA
	11/25/96	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0058**	0.002 U	NA
	03/05/97	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0042**	0.002 U	NA
	03/05/97 (DUP)	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0041**	0.002 U	NA
	05/28/97	NA	NA	NA	NA	NA	NA	NA	0.0012	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0058**	**0.0016**	NA
	08/14/97	NA	NA	NA	NA	NA	NA	NA	0.0015	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0077**	**0.0013**	NA
	11/18/97	NA	NA	NA	NA	NA	NA	NA	0.0016	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0091**	**0.0015**	NA
	03/11/98	0.005 U	0.001 U	0.005 U	0.0002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0043**	**0.00033**	0.002 U
	05/13/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0062**	**0.0013**	0.0012
	08/12/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0060**	0.002 U	0.001 U
	11/10/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0065**	**0.0031**	0.001 U
	02/03/99	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0037 J**	**0.00023**	0.001 U
	02/03/99 (DUP)	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0032 J**	**0.00039**	0.001 U
	05/12/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0043**	**0.00037**	0.001 U
	05/12/99 (DUP)	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0014**	**0.00047**	0.001 U
	08/04/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0054**	**0.00039**	0.001 U
	11/10/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0045**	**0.00031 J**	0.001 U
	02/01/00	0.005 U	NA	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	NA	NA	0.001 U	NA	0.001 U	0.001 U	0.002 U	**0.0043**	**0.00041**	0.001 U
	05/03/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0036**	**0.00073**	0.001 U
	08/01/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0043**	**0.00049**	0.001 U
	11/15/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0044**	**0.00055**	0.001 U
	02/06/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0038**	**0.00037**	0.001 U
	05/03/01	0.0077 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0040**	**0.00073**	0.001 U
	08/09/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0045**	**0.00044 J**	0.001 U
	11/13/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0041**	**0.00024 J**	0.001 U
	02/06/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000028	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0034**	**0.00028 J**	0.0004 U
	05/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000035	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0029**	**0.00033**	0.0004 U
	08/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0006	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0047**	**0.0006**	0.0004 U
	11/15/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000046	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0041**	**0.00034**	0.0004 U
	02/05/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000044 J	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0033**	**0.00057 J**	0.0004 U
	05/07/03	0.0014 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000051	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0036**	**0.00046**	0.0004 U
	07/23/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000081	0.0006	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0045**	**0.00099**	0.0004 U
	11/05/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000042	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0046**	**0.00041**	0.0004 U
	01/19/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000033	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0037**	**0.00036**	0.0004 U
	04/18/04	0.001 U	0.0002 U	0.0012 J	0.0002 U	0.0002 U	0.0002 U	0.000044	0.0005	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0036**	**0.00045**	0.0004 U
	07/14/04	0.0012 J	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000078	0.0007	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0053**	**0.00074**	0.0004 U
	7/14/04 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000062	0.0006	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0051**	**0.00062**	0.0004 U
	10/06/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000050	0.0006	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0052**	**0.00068**	0.0004 U
	01/13/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0035**	**0.00028**	0.0004 U
	04/09/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0033**	**0.000094**	0.0004 U
	10/18/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000024	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0055**	**0.00018**	0.0009
	04/18/06	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000028	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0036**	**0.00019**	0.0004 U
	10/18/06	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000058	0.0005	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0047**	**0.00035 J**	0.0004 U
	10/18/06 (DUP)	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000045	0.0006	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0048**	**0.00020 J**	0.0004 U
	04/04/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000058	0.0005	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0034**	**0.00074**	0.0004 U
	10/26/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000046	0.0004	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0045**	**0.00071**	0.0004 U
	10/26/07 (DUP)	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000052	0.0005	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0043**	**0.00066**	0.0004 U
	04/03/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.000054	0.0005	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0032**	**0.0010**	0.0004 U
	10/08/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.000040	0.0005	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0041**	**0.00040**	0.0004 U
	04/07/09	0.0025 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.000021	0.0002	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0027**	**0.00010**	0.0004 U
	10/28/09	0.0093	0.0002 U	0.005 U	0.0002 U	0.0004	0.0005 U	0.00002 U	0.0004	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0050**	**0.000029**	0.0004 U
	04/07/10	0.005 UJ	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 UJ	0.000034	0.0002	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 UJ	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0027**	**0.00018 J**	0.0004 U
	10/13/10	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.000044	0.0005	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0040**	**0.0003**	0.0004 U
	04/07/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.000044	0.0005	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0027**	**0.00068**	0.0004 U
	04/07/11 (DUP)	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.000046	0.0005	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0028**	**0.00070**	0.0004 U
	10/06/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.000048	0.0007	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0029**	**0.0004**	0.0004 U
	10/06/11 (DUP)	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.000051	0.0007	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0030**	**0.00035**	0.0004 U
	04/03/12	0.012	0.0002 U	0.74 E DNR	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0011	0.0002 U	0.0005 U	0.005 U	0.0039 X	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0038 DNR	0.0005 DNR	0.0005 U
	04/03/12 (DL)	0.05 U DNR	0.002 U DNR	0.7	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.003 DNR	0.002 U DNR	0.005 U DNR
	04/03/12 (SIM)	NA	NA	NA	NA	NA	NA	0.000069	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0035**	**0.00047**	NA
	04/03/12 (DUP)	0.014	0.0002 U	0.88 E DNR	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0011	0.0002 U	0.0005 U	0.005 U	0.0036 X	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0005 U	0.0038 DNR	0.0005 DNR	0.0005 U
	04/03/12 (DUP DL)	0.05 U DNR	0.002 U DNR	0.7	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.0031 DNR	0.002 U DNR	0.005 U DNR
	04/03/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	0.000068	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0034**	**0.00047**	NA
	07/12/12	1.3	0.004 U	27 E DNR	0.01 U	0.004 U	0.01 U	0.004 U DNR	0.0028 X	0.004 U	0.01 U	0.1 U	0.095 X	0.01 U	0.01 U	0.004 U DNR	0.044	0.01 U	0.01 DNR	0.004 U DNR	0.010 U
	07/12/2012 (DL)	1.2 DNR	0.04 U DNR	**22**	0.1 U DNR	0.04 U DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.04 U DNR	0.1 U DNR	1.0 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.047 DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.1 U DNR
	07/12/2012 (SIM)	NA	NA	NA	NA	NA	NA	0.00016	NA	NA	NA	NA	NA	NA	NA	0.000036	NA	NA	**0.01**	**0.0004**	NA
	10/04/12	0.011 J	0.0001 X	0.014	0.0005 U	0.0002 U	0.0005 U	0.0001 X DNR	0.0078	0.0001 X	0.0003 X	0.005 U	0.015	0.0005 U	0.0005 U	0.0002 U DNR	0.0018	0.0005 U	0.0017 DNR	0.0003 DNR	0.0009
	10/4/12 (SIM)	NA	NA	NA	NA	NA	NA	0.00013	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0014**	**0.00033**	NA

Table A-11
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-51 (Former UST EV-11)
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	2-Butanone	Chloroethane	Chloroform	Chloromethane	1,1-DCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	2-Hexanone	4-Methyl-2-Pentanone	Methylene Chloride	Styrene	Tetrachloroethene	Toluene	1,1,2-Trichloro-1,2,2-trifluoroethane	Trichloroethene	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	4.8 (B)	NE	0.00141 (B)	NE	0.4 (B)	0.016 (B)	0.16 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW030 (continued)	04/05/13	0.23 J	0.0003	0.72 E DNR	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0048	0.0001 X	0.0008	0.005 U	0.11	0.0005 U	0.0005 U	0.0002 U DNR	0.093 E DNR	0.0005 U	**0.0008**	**0.0056**	0.0035
	04/05/13 (DL)	0.17 DNR	0.002 U DNR	0.60 J	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.0039 DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.07 DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.072	0.005 U DNR	0.002 U DNR	0.0041 DNR	0.0029 X DNR
	04/05/13 (SIM)	NA	NA	NA	NA	NA	NA	0.000006	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00054 DNR	0.0043 DNR	NA
	04/05/13 (DUP)	0.20 J	0.0003	0.67 E DNR	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0047	0.0002 U	0.0007	0.005 U	0.088	0.0005 U	0.0005 U	0.0002 U DNR	0.085 E DNR	0.0005 U	**0.0007**	**0.0053**	0.0033
	04/05/13 (DUP DL)	0.18 DNR	0.002 U DNR	0.64 J	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.0043 DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.076 DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.075	0.005 U DNR	0.002 U DNR	0.0042 DNR	0.0029 X DNR
	04/05/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	0.000058	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00051 DNR	0.0043 DNR	NA
	10/09/13	0.005 U	0.0001 X	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 DNR	0.0009	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0005 U	0.0005 DNR	0.002 DNR	0.0004 X
	10/09/13 (SIM)	NA	NA	NA	NA	NA	NA	0.0002	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00043	**0.0023**	NA
	11/22/13[1]	NA	NA	NA	NA	NA	NA	0.0002 X DNR	0.0006	0.0002 U	NA	NA	NA	NA	NA	0.0002 U DNR	NA	NA	0.0003 DNR	0.0015 DNR	NA
	11/22/13 (SIM)[1]	NA	NA	NA	NA	NA	NA	0.00025	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.00062**	**0.0018**	NA
	04/04/14	0.0086	0.0002 X	0.090	0.0005 U	0.0002 U	0.0005 U	0.0002 X DNR	0.0016	0.0002 U	0.0002 X	0.005 U	0.0027 X	0.0005 U	0.0005 U	0.0002 U DNR	0.0021	0.0005 U	0.0018 DNR	0.0014 DNR	0.0004 X
	04/04/14 (SIM)	NA	NA	NA	NA	NA	NA	0.00016	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0015**	**0.0013**	NA
	10/15/14	0.0051	0.0003	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0001 X DNR	0.0011	0.0002 U	0.0001 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0003	0.0005 U	0.0002 DNR	0.0018 DNR	0.0005 X
	10/15/14 (SIM)	NA	NA	NA	NA	NA	NA	0.00010	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00020	**0.0015**	NA
	04/07/15	0.005 U	0.0002 X	0.005 U	0.0001 X	0.0002 U	0.0005 U	0.0002 U DNR	0.0006	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0003 DNR	0.0006 DNR	0.0003 X
	04/07/15 (SIM)	NA	NA	NA	NA	NA	NA	0.00011	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00029	**0.00057**	NA
EGW031	01/26/95	NA	NA	NA	NA	NA	NA	NA	0.014	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.022**	0.002 U	NA
	01/26/95 (DUP)	NA	NA	NA	NA	NA	NA	NA	0.012	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.023**	0.002 U	NA
	05/02/95	NA	NA	NA	NA	NA	NA	NA	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.019**	0.002 U	NA
	08/02/95	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.020**	0.002 U	NA
	11/08/95	NA	NA	NA	NA	NA	NA	NA	0.014	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.017**	0.002 U	NA
	02/27/96	NA	NA	NA	NA	NA	NA	NA	0.0086	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.010**	**0.0027**	NA
	05/29/96	NA	NA	NA	NA	NA	NA	NA	0.013	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.012**	0.002 U	NA
	08/21/96	NA	NA	NA	NA	NA	NA	NA	**0.018**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.018**	**0.0025**	NA
	11/25/96	NA	NA	NA	NA	NA	NA	NA	0.012	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.010**	0.002 U	NA
	03/05/97	NA	NA	NA	NA	NA	NA	NA	0.011	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0095**	0.002 U	NA
	05/28/97	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.016**	**0.0014**	NA
	08/14/97	NA	NA	NA	NA	NA	NA	NA	**0.023**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.021**	**0.0012 J**	NA
	11/18/97	NA	NA	NA	NA	NA	NA	NA	**0.023**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.019**	**0.0041**	NA
	03/11/98	0.005 U	0.001 U	0.005 U	0.0002 U	0.001 U	0.001 U	0.001 U	0.015	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.013**	**0.0014**	0.002 U
	05/13/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	**0.016**	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.011**	**0.0028**	0.0013
	05/13/98 (DUP)	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	**0.016**	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.011**	**0.0028**	0.001
	08/12/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	**0.021**	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.013**	**0.0026**	0.001 U
	11/10/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	**0.021**	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.014**	**0.00033**	0.001 U
	02/03/99	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.011	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0085**	**0.0037 J**	0.001 U
	05/12/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.010	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0085**	**0.0017**	0.001 U
	08/04/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.016**	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.014**	**0.0024**	0.001 U
	08/04/99 (DUP)	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.016**	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.013**	**0.0022**	0.001 U
	11/10/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.010**	**0.00069**	0.001 U
	02/01/00	0.005 U	NA	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013	0.001 U	0.001 U	NA	NA	0.001 U	NA	0.001 U	0.001 U	0.002 U	**0.0086**	**0.002**	0.0016
	05/03/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0075	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0077**	**0.0014**	0.001 U
	08/01/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.011	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0086**	**0.0017**	0.001 U
	11/15/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.018**	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0090**	**0.0023**	0.001 U
	02/06/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0089**	**0.0015**	0.001 U
	05/03/01	0.007 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0068	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0092**	**0.0013**	0.001 U
	08/09/01	0.0052 [A]	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.012	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.011**	**0.0022**	0.001 U
	11/13/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.010	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0089**	**0.00032**	0.001 U
	02/06/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000089	0.010	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.011**	**0.0015**	0.0004 U
	05/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000032	0.00053	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0089**	**0.00075**	0.0004 U
	08/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0085	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.011**	**0.0018**	0.0004 U
	11/15/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00014	0.014	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0078**	**0.0013**	0.0004 U
	02/05/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00012 J	0.012	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0069**	**0.0018 J**	0.0004 U
	05/07/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000071	0.0073	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0072**	**0.00085**	0.0004 U
	07/23/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000083	0.0073	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0063**	**0.0014**	0.0004 U
	11/05/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00010	0.012	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0060**	**0.0019**	0.0004 U
	01/19/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000067	0.0073	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0055**	**0.00057**	0.0004 U
	04/18/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000082	0.0074	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0069**	**0.0014**	0.0004 U
	04/18/04 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000084	0.0073	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0069**	**0.0015**	0.0004 U
	07/14/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000113	0.013	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0074**	**0.0021**	0.0004 U
	10/06/04	0.0011	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00007	0.0081	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0052**	**0.0016**	0.0004 U
	01/13/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000074	0.011	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0050**	**0.00094**	0.0004 U
	04/09/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000049	0.0051	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0052**	**0.00089**	0.0004 U
	10/18/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00017	0.012	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0037**	**0.0040**	0.0004 U
	04/18/06	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000099	0.0079	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0021**	**0.0014**	0.0004 U
	10/18/06	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000072	0.0077	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0016**	**0.00061**	0.0004 U

Table A-11
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-51 (Former UST EV-11)
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	2-Butanone	Chloroethane	Chloroform	Chloromethane	1,1-DCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	2-Hexanone	4-Methyl-2-Pentanone	Methylene Chloride	Styrene	Tetrachloroethene	Toluene	1,1,2-Trichloro-1,2,2-trifluoroethane	Trichloroethene	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	4.8 (B)	NE	0.00141 (B)	NE	0.4 (B)	0.016 (B)	0.16 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW031 (continued)	04/04/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00011	0.0079	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0023**	**0.0012**	0.0006
	10/26/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000091	0.0075	0.0002 U	0.0003	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0016**	**0.0012**	0.0004
	04/03/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.000077	0.0056	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0015**	**0.00089**	0.0004 U
	10/08/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00015 J	0.010	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 UJ	0.0002 U	0.0002 U	**0.00083 J**	**0.0021 J**	0.0004 U
	04/07/09	0.0025 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.000039	0.0025	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0011**	**0.00083**	0.0004 U
	10/28/09	0.0064	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.000094	0.0078	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0008**	**0.0010**	0.0004 U
	04/07/10	0.005 UJ	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 UJ	0.000058	0.0029	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00058**	**0.0005**	0.0004 U
	10/13/10	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00011	0.011	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0013**	**0.0012**	0.0004 U
	04/07/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00013	0.0051	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0019**	**0.00064**	0.0004 U
	10/06/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00010	0.0051	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0013**	**0.00088**	0.0004 U
	04/03/12	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0001 X DNR	0.0082	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0003	0.0005 U	0.0032 DNR	0.0019 DNR	0.0001 X
	04/03/12 (SIM)	NA	NA	NA	NA	NA	NA	0.00013	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0030**	**0.0016**	NA
	07/12/12	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0037	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.002 DNR	0.0006 DNR	0.0005 U
	07/12/2012 (SIM)	NA	NA	NA	NA	NA	NA	0.000054	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0017**	**0.00064**	NA
	10/04/12	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 UJ	0.0002 X DNR	0.014	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0040 DNR	0.0028 DNR	0.0005 U
	10/4/12 (SIM)	NA	NA	NA	NA	NA	NA	0.00014	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0035**	**0.0033**	NA
	10/4/12 (DUP)	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 UJ	0.0002 X DNR	0.014	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0038 DNR	0.0029 DNR	0.0005 U
	10/4/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	0.00015	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0034**	**0.0034**	NA
	04/05/13	0.005 UJ	0.0002 U	0.005 UJ	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0046	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0034 DNR	0.0012 DNR	0.0005 U
	04/05/13 (SIM)	NA	NA	NA	NA	NA	NA	0.000063	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0029**	**0.0010**	NA
	10/09/13	0.0049 X	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 X DNR	0.013	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0046 DNR	0.0028 DNR	0.0005 U
	10/09/13 (SIM)	NA	NA	NA	NA	NA	NA	0.00017	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0039**	**0.0034**	NA
	04/04/14	0.095 DNR	0.0007	1.8 E DNR	0.0005 U	0.0002 X	0.0005 U	0.0004 DNR	0.028 E DNR	0.0003	0.0005 U	0.0012 X	0.005 U	0.0004 X	0.0005 U	0.0002 U DNR	0.0003	0.0005 U	0.025 E DNR	**0.0043**	0.0001 X
	04/04/14 (DL)	0.15	0.004 U DNR	1.4	0.01 U DNR	0.004 U DNR	0.01 U DNR	0.004 U DNR	0.023	0.004 U DNR	0.01 U DNR	0.1 U DNR	0.1 U DNR	0.01 U DNR	0.01 U DNR	0.004 U DNR	0.004 U DNR	0.01 U DNR	0.020 DNR	0.0038 X DNR	0.01 U DNR
	04/04/14 (SIM)	NA	NA	NA	NA	NA	NA	0.00034	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	**0.018**	0.0032 DNR	NA
	10/15/14	0.0047 X	0.0003	0.0018 X	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0004	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0003	0.0005 U	0.0001 X DNR	0.0005 DNR	0.0002 X
	10/15/14 (SIM)	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00012	**0.00050**	NA
	10/15/14 (DUP)	0.0048 X	0.0003	0.0019 X	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0004	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002	0.0005 U	0.0002 U DNR	0.0005 DNR	0.0002 X
	10/15/14 (SIM DUP)	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00012	**0.00047**	NA
	04/07/15	0.005 U	0.0003	0.005 U	0.0002 X	0.0002 U	0.0005 U	0.0002 U DNR	0.0003	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0007	0.0005 U	0.0002 U DNR	0.0003 DNR	0.0006
	04/07/15 (SIM)	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000089	**0.00025**	NA
EGW032	11/25/95	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0021**	0.002 U	NA
	05/02/95	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0017**	0.002 U	NA
	08/02/95	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0029**	0.002 U	NA
	11/08/95	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0020**	0.002 U	NA
	02/27/96	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0020**	0.002 U	NA
	05/29/96	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0030**	0.002 U	NA
	05/29/96 (DUP)	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0027**	0.002 U	NA
	08/21/96	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0033**	0.002 U	NA
	11/25/96	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0024**	0.002 U	NA
	11/25/96 (DUP)	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0024**	0.002 U	NA
	03/05/97	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0021**	0.002 U	NA
	05/28/97	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0026**	**0.00096**	NA
	05/28/97 (DUP)	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0026**	**0.00089**	NA
	08/14/97	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0030**	**0.00081**	NA
	11/18/97	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0027**	**0.00058**	NA
	03/11/98	0.005 U	0.001 U	0.005 U	0.0002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0026**	**0.0003**	0.002 U
	03/11/98 (DUP)	0.005 U	0.001 U	0.005 U	0.0002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0021**	**0.00033**	0.002 U
	05/13/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0012**	**0.00057**	0.0018
	08/12/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0011**	0.002 U	0.001 U
	08/12/98 (DUP)	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0010**	0.002 U	0.001 U
	11/10/98	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0016**	0.00001 UJ	0.001 U
	11/10/98 (DUP)	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0015**	**0.0003 J**	0.001 U
	02/03/99	0.005 U	0.001 U	0.005 U	0.002 U	0.001 U	0.002 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0018**	**0.0002**	0.001 U
	05/12/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0014**	**0.00048**	0.001 U
	08/04/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0016**	**0.00065**	0.001 U
	11/10/99	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.001**	**0.00024**	0.001 U
	11/10/99 (DUP)	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.001**	**0.00032**	0.001 U
	02/01/00	0.005 U	NA	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	NA	NA	0.001 U	NA	0.001 U	0.001 U	0.002 U	**0.0017**	**0.00023**	0.001 U
	02/01/00 (DUP)	0.005 U	NA	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	NA	NA	0.001 U	NA	0.001 U	0.001 U	0.002 U	**0.0019**	**0.00022**	0.001 U
	05/03/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0012**	**0.00065**	0.001 U
	08/01/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0011**	**0.00072**	0.001 U
	11/15/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0017**	**0.00018**	0.001 U
	02/06/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0014**	**0.00028**	0.001 U
	05/03/01	0.0057 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0015**	**0.00071**	0.001 U
	08/09/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0013**	**0.00060**	0.001 U
	08/09/01 (DUP)	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0016**	**0.00066**	0.001 U
	11/13/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0016**	**0.00013**	0.001 U
	02/06/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00025	**0.0018**	0.00002 U	0.0004 U
	05/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0016**	**0.00021**	0.0004 U
	08/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0014**	**0.00100**	0.0004 U
	11/15/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.001**	**0.00062**	0.0004 U
	02/05/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 UJ	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0017**	0.00002 UJ	0.0004 U
	05/07/03	0.0011 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0022**	0.000021	0.0004 U
	07/23/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0017**	**0.00077**	0.0004 U
	07/23/03 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0016**	**0.00064**	0.0004 U
	11/05/03	0.0016 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0016**	**0.00025**	0.0004 U
	11/05/03 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0017**	**0.00019**	0.0004 U

Table A-11
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-51 (Former UST EV-11)
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	2-Butanone	Chloroethane	Chloroform	Chloromethane	1,1-DCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	2-Hexanone	4-Methyl-2-Pentanone	Methylene Chloride	Styrene	Tetrachloroethene	Toluene	1,1,2-Trichloro-1,2,2-trifluoroethane	Trichloroethene	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	4.8 (B)	NE	0.00141 (B)	NE	0.4 (B)	0.016 (B)	0.16 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW032 (continued)	01/19/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0021**	0.00002 U	0.0004 U
	04/18/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	**0.0023**	**0.000074**	0.0004 U
	07/14/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0014**	**0.00056**	0.0004 U
	10/06/04	0.002	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0016**	**0.00068**	0.0004 U
	01/13/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	**0.0020**	0.00002 U	0.0004 U
	04/09/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0019**	0.00002 U	0.0004 U
	10/18/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	**0.0037**	0.000025	0.0004 U
	10/18/05 (DUP)	0.0017 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	**0.0036**	0.000025	0.0004 U
	04/18/06	0.0015 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	**0.0022**	0.00002 U	0.0004 U
	10/18/06	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0016**	**0.00047**	0.0004 U
	04/04/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0018**	0.000022	0.001
	10/26/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0023**	**0.00019**	0.0004 U
	04/03/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0017**	0.00002 U	0.0004 U
	10/08/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0017**	**0.00017**	0.0004 U
	04/07/09	0.0025 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0001 X	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0018**	0.000024	0.0004 U
	10/28/09	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0006	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0003	**0.0026**	0.00002 U	0.0004 U
	04/07/10	0.005 UJ	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 UJ	0.00002 U	0.0002	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0015**	**0.000048**	0.0004 U
	10/13/10	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0024**	0.00002 U	0.0004 U
	04/07/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0015**	0.00002 U	0.0004 U
	10/06/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	**0.0010**	**0.000068**	0.0004 U
	04/03/12	0.045 X	0.002 U	4.5 E DNR	0.005 U	0.002 U	0.005 U	0.002 U DNR	0.002 U	0.002 U	0.005 U	0.05 U	0.01 X	0.005 U	0.005 U	0.002 U DNR	0.002 U	0.005 U	0.0019 X DNR	0.002 U DNR	0.005 U
	04/03/12 (DL)	0.5 U DNR	0.02 U DNR	4.4	0.05 U DNR	0.02 U DNR	0.05 U DNR	0.02 U DNR	0.02 U DNR	0.02 U DNR	0.05 U DNR	0.5 U DNR	0.5 U DNR	0.05 U DNR	0.05 U DNR	0.02 U DNR	0.02 U DNR	0.05 U DNR	0.02 U DNR	0.02 U DNR	0.05 U DNR
	04/03/12 (SIM)	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0022**	0.00002 U	NA
	07/12/12	1.8	0.01 U	75 E DNR	0.025 U	0.01 U	0.025 U	0.01 U DNR	0.01 U	0.01 U	0.025 U	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	0.01 U	0.025 U	0.011 DNR	0.01 U DNR	0.025 U
	07/12/12 (DL)	2.4 X DNR	0.1 U DNR	**84**	0.25 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.25 U DNR	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.25 U DNR
	07/12/12 (SIM)	NA	NA	NA	NA	NA	NA	0.000075	NA	NA	NA	NA	NA	NA	NA	0.000055	NA	NA	**0.011**	**0.000077**	NA
	10/04/12	0.0083 J	0.0002 U	0.014	0.0005 U	0.0002 U	0.0005 UJ	0.0002 U DNR	0.0007	0.0002 U	0.0005 U	0.005 U	0.0018 XJ	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0005 U	0.0029 DNR	0.0002 U DNR	0.0005 U
	10/4/12 (SIM)	NA	NA	NA	NA	NA	NA	0.000059	NA	NA	NA	NA	NA	NA	NA	0.000010 X	NA	NA	**0.0025**	**0.00011**	NA
	04/05/13	0.005 UJ	0.0002 U	0.005 UJ	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0011	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0005 U	0.0019 DNR	**0.0006**	0.0005 U
	04/05/13 (SIM)	NA	NA	NA	NA	NA	NA	0.000067	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0016**	0.00048 DNR	NA
	10/09/13	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0012	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0016 DNR	0.0017 DNR	0.0005 U
	10/09/13 (SIM)	NA	NA	NA	NA	NA	NA	0.00010	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0014**	**0.0020**	NA
	10/09/13 (DUP)	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0012	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0017 DNR	0.0016 DNR	0.0005 U
	10/09/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	0.00010	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	**0.0014**	**0.0020**	NA
	04/04/14	0.0038 X	0.0003	0.006	0.0005 U	0.0002 U	0.0005 U	0.0001 X DNR	0.001	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 X	0.0005 U	0.0014 DNR	0.0009 DNR	0.0005 U
	04/04/14 (SIM)	NA	NA	NA	NA	NA	NA	0.00014	NA	NA	NA	NA	NA	NA	NA	0.000020 U	NA	NA	**0.0013**	**0.00079**	NA
	10/15/14	0.005 U	0.0002 X	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0021	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 X	0.0005 U	0.0003 DNR	0.0016 DNR	0.0002 X
	10/15/14 (SIM)	NA	NA	NA	NA	NA	NA	0.000075	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00025	**0.0015**	NA
	04/07/15	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0008	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0005 DNR	0.0010 DNR	0.0003 X
	04/07/15 (SIM)	NA	NA	NA	NA	NA	NA	0.000062	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00042	**0.00092**	NA
	04/07/15 (DUP)	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0009	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0006	0.0010 DNR	0.0002 X
	04/07/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	0.000076	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00048 DNR	**0.00099**	NA
EGW065	06/27/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.00002 U	0.001 U
	08/01/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.00002 U	0.001 U
	11/15/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0013**	0.00002 U	0.001 U
	02/06/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.001**	0.00002 U	0.001 U
	05/03/01	0.0061 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0011**	0.00002 U	0.001 U
	08/09/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0015**	0.00002 U	0.001 U
	11/13/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	0.00002 U	0.001 U
	02/06/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005	0.00002 U	0.0004 U
	05/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0006**	0.00002 U	0.0004 U
	08/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.0002 U	**0.0013**	0.0002 U	0.0004 U
	08/07/02 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.0002 U	**0.0013**	0.0002 U	0.0004 U
	11/15/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0009**	**0.00003**	0.0004 U
	02/05/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 UJ	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0007**	0.00002 UJ	0.0004 U
	05/07/03	0.0019 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.001**	0.00002 U	0.0004 U
	07/23/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0012**	0.00002 U	0.0004 U
	11/05/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0018**	0.00002 U	0.0004 U
	01/19/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	0.00002 U	0.0004 U
	1/19/04 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	0.00002 U	0.0004 U
	04/18/04	0.0013 J	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0011**	0.00002 U	0.0004 U
	07/14/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0018**	0.00002 U	0.0004 U
	10/06/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0016**	0.00002 U	0.0004 U
	10/06/04 (DUP)	0.0017	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0016**	0.00002 U	0.0004 U
	01/13/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0009**	0.00002 U	0.0004 U
	1/13/05 (DUP)	0.0014 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0009**	0.00002 U	0.0004 U
	04/09/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0006**	0.00002 U	0.0004 U
	10/18/05	0.0018 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0013**	0.00002 U	0.0004 U
	04/18/06	0.0010 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0007**	0.00002 U	0.0004 U
	04/18/06 (DUP)	0.0015 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0007**	0.00002 U	0.0004 U
	10/18/06	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.000052	0.0002 U	0.0002 U	**0.00099**	0.00002 U	0.0004 U
	04/04/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.000040	0.0002 U	0.0002 U	0.00051	0.00002 U	0.0004 U
	10/26/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.000038	0.0002 U	0.0002 U	**0.00071**	0.00002 U	0.0005
	04/03/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.000034	0.0002 U	0.0002 U	**0.00054**	0.00002 U	0.0004 U
	04/03/08 (DUP)	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.000035	0.0002 U	0.0002 U	**0.00055**	0.00002 U	0.0004 U
	10/08/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.000045	0.0002 U	0.0002 U	**0.00096**	0.00002 U	0.0004 U
	10/8/08 (DUP)	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.000047	0.0002 U	0.0002 U	**0.00098**	0.00002 U	0.0004 U

Table A-11
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-51 (Former UST EV-11)
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	2-Butanone	Chloroethane	Chloroform	Chloromethane	1,1-DCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	2-Hexanone	4-Methyl-2-Pentanone	Methylene Chloride	Styrene	Tetrachloroethene	Toluene	1,1,2-Trichloro-1,2,2-trifluoroethane	Trichloroethene	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	4.8 (B)	NE	0.00141 (B)	NE	0.4 (B)	0.016 (B)	0.16 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW065 (continued)	04/07/09	0.0025 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00003	0.0002 U	0.0002 U	0.00037	0.00002 U	0.0004 U
	10/28/09	0.0054	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000028	0.0002 U	0.0002 U	**0.00070**	0.00002 U	0.0004 U
	04/07/10	0.005 UJ	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 UJ	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000025	0.0002 U	0.0002 U	0.00044	0.00002 U	0.0004 U
	10/13/10	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000039	0.0002 U	0.0002 U	**0.0007**	0.00002 U	0.0004 U
	10/13/10 (DUP)	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000038	0.0002 U	0.0002 U	**0.0006**	0.00002 U	0.0004 U
	04/07/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00021	0.00002 U	0.0004 U
	10/06/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000024	0.0002 U	0.0002 U	0.00051	0.00002 U	0.0004 U
	04/03/12	0.31 E DNR	**0.001**	0.02	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0002 U	0.0002 X	0.0021 X	0.0031 X	0.0005 U	0.0002 X	0.0002 U DNR	0.0019	0.0005 U	0.0005 DNR	0.0002 U DNR	0.001
	04/03/2012 (DL)	0.32 J	0.002 U DNR	0.02 X DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.0016 X DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR
	04/03/2012 (SIM)	NA	NA	NA	NA	NA	NA	0.000065	NA	NA	NA	NA	NA	NA	NA	0.000016 X	NA	NA	0.00042	0.000025	NA
	07/12/12	0.95 E DNR	0.0004	0.014	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0002 U	0.0005 U	0.005 U	0.0022 X	0.0005 U	0.0005 U	0.0002 U DNR	0.0005	0.0005 U	**0.0008**	0.0002 U DNR	0.0005 U
	07/12/12 (DL)	0.96	0.002 U DNR	0.015 X DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR
	07/12/12 (SIM)	NA	NA	NA	NA	NA	NA	0.000078	NA	NA	NA	NA	NA	NA	NA	0.000038	NA	NA	0.0006 DNR	0.000024	NA
	10/04/12	0.31 E DNR	0.0001 X	0.0024 X	0.0005 U	0.0001 X	0.0005 UJ	0.0002 U DNR	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0005 U	0.0005	0.0002 U DNR	0.0001 X
	10/4/12 (DL)	0.29 J	0.002 U DNR	0.05 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR
	10/4/12 (SIM)	NA	NA	NA	NA	NA	NA	0.000056	NA	NA	NA	NA	NA	NA	NA	0.000037	NA	NA	0.00039 DNR	0.000010 X	NA
	04/05/13	0.005 XJ	0.0002 U	0.005 UJ	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 DNR	0.0002 U DNR	0.0005 U
	04/05/13 (SIM)	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	0.000026	NA	NA	0.00018	0.00002 U	NA
	10/09/13	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	04/04/14	0.52 E DNR	0.0003	0.0017 X	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002	0.0005 U	0.0002 DNR	0.0002 U DNR	0.0004 X
	04/04/14 (DL)	0.55	0.002 U DNR	0.05 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR
	04/04/14 (SIM)	NA	NA	NA	NA	NA	NA	0.000026	NA	NA	NA	NA	NA	NA	NA	0.000017 X	NA	NA	0.00019	0.000011 X	NA
	10/16/14	0.0040 X	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0005 U	0.0002 DNR	0.0002 U DNR	0.0005 X
	10/16/14 (SIM)	NA	NA	NA	NA	NA	NA	0.000017 X	NA	NA	NA	NA	NA	NA	NA	0.000019 X	NA	NA	0.00021	0.00002 U	NA
	04/07/15	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0003	0.0002 U DNR	0.0003 X
	04/07/15 (SIM)	NA	NA	NA	NA	NA	NA	0.000034	NA	NA	NA	NA	NA	NA	NA	0.000021	NA	NA	0.00024 DNR	0.000011 X	NA
EGW066	06/27/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00023**	0.001 U
	08/01/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00019**	0.001 U
	08/01/00 (DUP)	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00021**	0.001 U
	11/15/00	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00034**	0.001 U
	11/15/00 (DUP)	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00035**	0.001 U
	02/06/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00017**	0.001 U
	05/03/01	0.0073 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00013**	0.001 U
	05/03/01 (DUP)	0.0064 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.001**	**0.00015**	0.001 U
	08/09/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00016**	0.001 U
	11/13/01	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00013**	0.001 U
	11/13/01 (DUP)	0.005 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.001 U	**0.00011**	0.001 U
	02/06/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0003	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0007**	**0.000066**	0.0019
	05/07/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	**0.00016**	0.0004 U
	08/07/02	0.001	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0009**	**0.00040**	0.0006
	11/15/02	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00006	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0002 U	**0.0006**	**0.0004**	0.0004 U
	11/15/02 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00005	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005	**0.00037**	0.0004 U
	02/05/03	0.0012 J	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 UJ	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	**0.000041 J**	0.0004 U
	02/05/03 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 UJ	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0009**	**0.00005 J**	0.0004 U
	05/07/03	0.0014 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	**0.000044**	0.0004 U
	05/07/03 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	**0.000054**	0.0004 U
	07/23/03	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000031	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0009**	**0.00030**	0.0004 U
	11/05/03	0.0015 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0017**	0.00002 U	0.0004
	01/19/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0014**	0.00002 U	0.0004 U
	04/18/04	0.0012 J	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0012**	0.000024	0.0004 U
	07/14/04	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0016**	**0.00052**	0.0004 U
	10/06/04	0.0019	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000023	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.001**	**0.00018**	0.0004 U
	01/13/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	**0.000051**	0.0004 U
	04/09/05	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	**0.000099**	0.0004 U
	04/09/05 (DUP)	0.001 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	**0.000086**	0.0004 U
	10/18/05	0.0011 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0008**	**0.00022**	0.0004 U
	04/18/06	0.0013 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0007**	**0.000054**	0.0004 U
	10/18/06	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.000028	0.0002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.000081	0.0002 U	0.0002 U	**0.00062**	**0.00013**	0.0004 U
	04/04/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.000081	0.0002 U	0.0002 U	**0.00072**	**0.000043**	0.0007
	04/04/07 (DUP)	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.000085	0.0002 U	0.0002 U	**0.00068**	**0.000039**	0.0007
	10/26/07	0.003 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0002 U	0.0002 U	0.000079	0.0002 U	0.0002 U	**0.00069**	**0.00004**	0.001
	04/03/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.000077	0.0002 U	0.0002 U	**0.00055**	**0.000052**	0.0004 U
	10/08/08	0.003 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.00012	0.0002 U	0.0002 U	**0.00059**	**0.00012**	0.0004 U
	04/07/09	0.0025 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.000071	0.0002 U	0.0002 U	**0.00056**	0.000026	0.0004 U
	04/07/09 (DUP)	0.0025 U	0.0002 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0002 U	0.0002 U	0.000074	0.0002 U	0.0002 U	**0.00059**	0.000026	0.0004 U
	10/28/09	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000062	0.0002 U	0.0002 U	**0.00080**	0.00002 U	0.0004 U
	10/28/09 (DUP)	0.0083	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000066	0.0002 U	0.0002 U	**0.00080**	0.00002 U	0.0004 U
	04/07/10	0.005 UJ	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 UJ	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000075	0.0002 U	0.0002 U	0.00046	**0.000041**	0.0004 U
	04/07/10 (DUP)	0.005 UJ	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 UJ	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000066	0.0002 U	0.0002 U	0.00045	**0.000037**	0.0004 U
	10/13/10	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000075	0.0002 U	0.0002 U	**0.0011**	0.00002 U	0.0004 U
	04/07/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000052	0.0002 U	0.0002 U	0.00047	0.00002 U	0.0004 U
	10/06/11	0.005 U	0.0002 U	0.005 U	0.0002 U	0.0002 U	0.0005 U	0.00002 U	0.0002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000072	0.0002 U	0.0002 U	0.00051	**0.000065**	0.0004 U

Table A-11
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-51 (Former UST EV-11)
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	2-Butanone	Chloroethane	Chloroform	Chloromethane	1,1-DCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Ethylbenzene	2-Hexanone	4-Methyl-2-Pentanone	Methylene Chloride	Styrene	Tetrachloroethene	Toluene	1,1,2-Trichloro-1,2,2-trifluoroethane	Trichloroethene	Vinyl Chloride	Total Xylenes
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	4.8 (B)	NE	0.00141 (B)	NE	0.4 (B)	0.016 (B)	0.16 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	240 (B)	0.005 (A) 0.00054 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW066 (continued)	04/03/12	0.12	0.0001 X	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0004	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 X	0.0005 U	0.0011 DNR	0.0002 U DNR	0.0005 U
	04/03/12 (SIM)	NA	NA	NA	NA	NA	NA	0.000022	NA	NA	NA	NA	NA	NA	NA	0.000057	NA	NA	**0.00098**	**0.000050**	NA
	07/12/12	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0002	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	**0.0008**	0.0002 X DNR	0.0005 U
	07/12/2012 (DUP)	0.0035 X	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0003	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0008 DNR	0.0001 X DNR	0.0005 U
	07/12/2012 (SIM)	NA	NA	NA	NA	NA	NA	0.000039	NA	NA	NA	NA	NA	NA	NA	0.000096	NA	NA	0.00064 DNR	**0.00013**	NA
	07/12/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	0.000041	NA	NA	NA	NA	NA	NA	NA	0.000092	NA	NA	**0.00069**	**0.00013**	NA
	10/04/12	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 UJ	0.0002 U DNR	0.0002 X	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0001 X DNR	0.0001 X	0.0005 U	**0.0006**	0.0002 U DNR	0.0002 X
	10/4/12 (SIM)	NA	NA	NA	NA	NA	NA	0.000047	NA	NA	NA	NA	NA	NA	NA	0.00013	NA	NA	0.00046 DNR	**0.00011**	NA
	04/05/13	0.005 UJ	0.0002 U	0.005 UJ	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0006 DNR	0.0003 DNR	0.0005 U
	04/05/13 (SIM)	NA	NA	NA	NA	NA	NA	0.000018 X	NA	NA	NA	NA	NA	NA	NA	0.000071	NA	NA	0.00051	**0.00026**	NA
	10/09/13	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0003	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0001 X	0.0001 X DNR	0.0002 X	0.0005 U	0.0004	0.0013 DNR	0.0004 X
	10/09/13 (SIM)	NA	NA	NA	NA	NA	NA	0.000043	NA	NA	NA	NA	NA	NA	NA	0.000100	NA	NA	0.0003 DNR	**0.0014**	NA
	04/04/14	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0002	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0004	0.0016 DNR	0.0005 U
	04/04/14 (SIM)	NA	NA	NA	NA	NA	NA	0.000030	NA	NA	NA	NA	NA	NA	NA	0.000077	NA	NA	0.00032 DNR	**0.0014**	NA
	04/04/14 (DL)	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0002	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0004	0.0016 DNR	0.0005 U
	04/04/14 (DL SIM)	NA	NA	NA	NA	NA	NA	0.000031	NA	NA	NA	NA	NA	NA	NA	0.000076	NA	NA	0.00032 DNR	**0.0014**	NA
	10/15/14	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0004	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0001 X DNR	0.0001 X	0.0005 U	0.0004 DNR	0.0013 DNR	0.0001 X
	10/15/14 (SIM)	NA	NA	NA	NA	NA	NA	0.000060	NA	NA	NA	NA	NA	NA	NA	0.00012	NA	NA	0.00036	**0.0012**	NA
	04/07/15	0.005 U	0.0002 U	0.005 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0001 X	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0007 DNR	**0.0002**	0.0005 U
	04/07/15 (SIM)	NA	NA	NA	NA	NA	NA	0.000049	NA	NA	NA	NA	NA	NA	NA	0.000090	NA	NA	**0.00063**	0.00015 DNR	NA

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
1,1-DCE - 1,1-dichloroethene
DL - dilution
DNR - do not report
DUP - field duplicate
J - estimated value
mg/L - milligram per liter
NA - not available or not analyzed
SIM - selected ion monitoring
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
X - Result is between the method detection limit and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.
[1] Sample collected after step-drawdown pumping test.
[A] Suspected laboratory contaminant

Table A-12
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 40-51 (EV 11)
Boeing Everett Plant

Well ID	Sample Date	Arsenic	
		Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)	
EGW030	04/07/15	**0.0192 J**	**0.0179 J**
EGW031	04/07/15	**0.0159**	**0.0148**
EGW032	04/07/15	**0.0143**	**0.0161**
	04/07/15 (DUP)	**0.0139**	**0.0144**
EGW065	04/07/15	**0.0022 X**	0.0040 U
EGW066	04/07/15	**0.0420**	**0.0414**

Notes:

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

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340.
MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015.
(https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B

DUP - field duplicate
J - estimated value
mg/L - milligram per liter
U - Parameter was analyzed for but not detected above the reporting limit shown.
X - Result is between the method detection limit and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW002	02/02/95	1.6	0.001 U	NA	NA	0.002 U	3.9	0.001 U	0.15	0.001 U	0.002 U	NA	**0.044**	NA	0.001 U	0.001 U	**2.4**	0.005 U	**130**	0.002 U	NA	NA	**1.9**	NA	NA	NA	0.002 U	**32.5**
	05/01/95	0.005 U	**0.0092**	NA	NA	0.002 U	0.35	0.001 U	0.16	0.001 U	0.002 U	4 U	**0.012**	NA	0.001 U	0.001 U	**2.9**	0.005 U	**72**	0.0038	NA	NA	**1.1**	NA	NA	NA	0.002 U	**18.4**
	08/11/95	0.25 U	0.05 U	NA	NA	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U	5 U	0.05 U	NA	0.05 U	0.05 U	**2.9**	0.25 U	**5.1**	0.01 U	NA	NA	0.24	NA	NA	NA	0.1 U	**22.2**
	11/09/95	0.5 U	0.1 U	NA	NA	0.2 U	0.5 U	0.1 U	0.2 U	0.1 U	0.2 U	10 U	0.1 U	NA	0.1 U	0.1 U	**3.0**	0.5 U	0.5 U	0.02 U	NA	NA	0.1 U	NA	NA	NA	0.2 U	**21.5**
	02/29/96	0.9 U	0.18 U	NA	NA	0.36 U	0.9 U	0.18 U	0.36 U	0.18 U	0.36 U	18 U	0.18 U	NA	0.18 U	0.18 U	**3.9**	0.9 U	**6.3**	0.36 U	NA	NA	0.18 U	NA	NA	NA	0.36 U	**25.84**
	05/30/96	1 U	0.2 U	NA	NA	0.4 U	1 U	0.2 U	0.4 U	0.2 U	0.4 U	20 U	0.2 U	NA	0.2 U	0.2 U	**3.3**	1 U	**4.7**	0.4 U	NA	NA	0.2 U	NA	NA	NA	0.4 U	**22.43**
	08/27/96	1 U	0.2 U	NA	NA	0.4 U	1 U	0.2 U	0.4 U	0.2 U	0.4 U	20 U	0.2 U	NA	0.2 U	0.2 U	**3.6**	1 U	**7.7**	0.4 U	NA	NA	0.2 U	NA	NA	NA	0.4 U	**23.49**
	12/03/96	3.5	0.2 U	NA	NA	0.4 U	2.4	0.2 U	0.4 U	0.2 U	0.4 U	20 U	0.2 U	NA	0.2 U	0.2 U	**3.5**	1 U	**41**	0.4 U	NA	NA	0.54	NA	NA	NA	0.4 U	**25.6**
	03/10/97	1 U	0.2 U	NA	NA	0.4 U	1 U	0.2 U	0.4 U	0.2 U	0.4 U	20 U	0.2 U	NA	0.2 U	0.2 U	**4.0**	1 U	**28**	0.4 U	NA	NA	0.43	NA	NA	NA	0.4 U	**25.6**
	05/22/97	1 U	0.2 U	NA	NA	0.4 U	1 U	0.2 U	0.4 U	0.2 U	0.4 U	20 U	0.2 U	NA	0.2 U	0.2 U	**4.3**	1 U	**5.3**	0.4 U	NA	NA	0.2 U	NA	NA	NA	**0.00093**	**28.86**
	08/12/97	0.9 U	0.18 U	NA	NA	0.36 U	0.9 U	0.18 U	0.36 U	0.18 U	0.36 U	18 U	0.18 U	NA	0.18 U	0.18 U	**4.3**	0.9 U	0.9 U	0.36 U	NA	NA	0.18 U	NA	NA	NA	0.36 U	**23.26**
	11/17/97	0.5 U	0.1 U	NA	NA	0.2 U	0.5 U	0.1 U	0.2 U	0.1 U	0.2 U	10 U	0.1 U	NA	0.1 U	0.1 U	**3.0**	0.5 U	0.5 U	0.2 U	NA	NA	0.1 U	NA	NA	NA	0.001 U	**14.17**
	03/10/98	0.25 U	0.05 U	0.05 U	0.05 U	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	**2.1**	0.25 U	0.25 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.1 U	0.0005 U	**9.57**
	05/13/98	2.5 U	0.5 U	0.5 U	0.5 U	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**15**	2.5 U	2.5 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.001 U	**65**
	08/10/98	0.5 U	0.1 U	0.1 U	0.1 U	0.2 U	0.5 U	0.1 U	0.2 U	0.1 U	0.2 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**2.2**	0.5 U	**1.4**	0.2 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.2 UJ	0.001 U	**9.8**
	11/10/98	0.75 U	0.15 U	0.15 U	0.15 U	0.3 U	0.75 U	0.15 U	0.3 U	0.15 U	0.3 U	15 U	0.15 U	0.15 U	0.15 U	0.15 U	**0.82**	0.75 U	0.75 U	0.3 U	0.3 U	0.15 U	0.15 UJ	0.15 U	0.15 UJ	0.3 UJ	**0.00053**	**12**
	02/01/99	0.25 U	0.05 U	0.05 U	0.05 U	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.19	0.25 U	0.25 U	0.1 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.1 U	**0.00083**	**7.3**
	05/11/99	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.34	0.5 U	**2**	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	**0.0004**	**14.2**
	08/02/99	0.005 U	**0.0067**	0.001 U	0.001 U	0.001 U	0.005 U	0.0022	0.057	0.001 U	0.001 U	0.1 U	**0.019**	0.001 U	0.001 U	0.001 U	0.27	0.005 U	**0.86**	0.002 U	0.001 U	0.001 U	0.0072	0.001 U	0.001 U	0.001 U	0.0005 U	**18**
	11/09/99	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	**1.6 J**	0.25 U	**3.2 J**	0.1 U	0.05 U	0.05 U	0.13 J	0.05 U	0.05 U	0.05 U	**0.00026**	**23.9**
	01/31/00	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.19	0.25 U	0.25 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.00032**	**19.1**
	05/02/00	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	**0.00028 J**	**13**
	07/31/00	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U	6 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.12 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.0006 U	**11**
	11/13/00	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.044	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.14	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.00028**	**4.4**
	02/05/01	0.25 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.25 UJ	0.05 UJ	0.064 J	0.05 UJ	0.05 UJ	5 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.25 UJ	0.25 UJ	0.1 UJ	0.05 UJ	0.05UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	**0.00035**	**7.4**
	05/01/01	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.056	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.22	0.25 U	0.26	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.00030**	**11.1**
	08/06/01	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.25 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.00018**	**6.6**
	11/12/01	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.052	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.25 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.00012**	**2.7**
	02/05/02	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.029	0.005 U	0.005 U	0.5 U	0.005 U	0.005 U	0.00002 U	0.005 U	0.018	0.025 U	0.025 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.00026**	**1.3**
	05/06/02	0.12 U	0.025 U	0.025 U	0.025 U	0.025 U	0.12 U	0.025 U	0.025 U	0.025 U	0.025 U	2.5 U	0.025 U	0.025 U	0.00002 U	0.025 U	0.025 U	0.12 U	0.12 U	0.05 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	**0.00019**	**3.5**
	08/06/02	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	0.15 U	0.03 U	0.030 U	0.03 U	0.03 U	3 U	0.03 U	0.03 U	0.00002 U	0.03 U	0.03 U	0.15 U	0.15 U	0.06 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	**0.00017 J**	**3.2**
	11/16/02	0.01 U	**0.0035**	0.002 U	0.002 U	0.002 U	0.01 U	0.002 U	0.025	0.002 U	0.002 U	0.2 U	0.002 U	0.002 U	0.00002 U	0.002 U	0.002 U	0.01 U	0.01 U	0.004 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	**0.00018**	0.35
	11/16/02 (DUP)	0.015 U	**0.0035**	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.024	0.003 U	0.003 U	0.3 U	0.003 U	0.003 U	0.00002 U	0.003 U	0.003 U	0.015 U	0.015 U	0.006 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	**0.00017**	0.38
	02/04/03	0.015 U	**0.0033**	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.027	0.003 U	0.003 U	0.3 U	0.003 U	0.003 U	0.00002 U	0.003 U	0.003 U	0.015 U	0.015 U	0.0045 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	**0.00018**	0.32
	05/05/03	0.005 U	**0.0039**	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.028	0.001 U	0.001 U	0.1 U	0.0015	0.001 U	0.00002 U	0.001 U	0.0054	0.005 U	0.046	0.0029	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00018**	**1.6 D**
	07/22/03	0.015 U	**0.0033**	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.024	0.003 U	0.003 U	0.3 U	0.003 U	0.003 U	0.00002 U	0.003 U	0.003 U	0.015 U	0.015 U	0.006 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	**0.00014**	0.70
	11/04/03	0.0077 U	**0.0022**	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.018	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00012**	0.076
	01/21/04	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.021	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00002 U	0.02 U	0.02 U	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	**0.00019**	0.97
	04/14/04	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.018	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.01	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.00012**	**2.0**
	04/14/04 (DUP)	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.010 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.12	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.000087**	**1.32**
	07/13/04	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.027	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.01 U	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.000098**	**1.2**
	10/01/04	0.005 U	**0.0028**	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.026	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.0062	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00011**	0.18
	01/12/05	0.002 J	**0.0023 J**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.022 D	0.0002 U	0.0002 U	0.04 U	0.0005 J	0.0002 J	0.00002 U	0.0004 J	0.0003 J	0.001 U	0.0044 J	0.0006 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.000073**	0.0126 J
	01/12/05 (DUP)	0.0022 J	**0.0023 J**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.022 D	0.0002 U	0.0002 U	0.04 U	0.0006 J	0.0002 U	0.00002 U	0.0004 J	0.0004 J	0.001 U	0.0049 J	0.0006 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.000075**	0.0126 J
	04/11/05	0.0093	**0.0023**	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.022	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.001 U	0.005 U	0.0076	0.0044**	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000072**	0.096
	07/12/05	0.005 U	**0.0022**	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.019	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.001 U	0.005 U	0.023	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.000088**	0.074
	10/17/05	0.0034 U	**0.0024**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.015	0.0002 U	0.0002 U	0.075 U	0.0006	0.00020	0.00002 U	0.0003	0.0004	0.001 U	0.019	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.000044**	0.0075
	01/12/06	0.0055	**0.0025**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.019	0.0002 U	0.0002 U	0.04 U	0.001	0.00020	0.00002 U	0.0004	0.006	0.001 U	0.013	0.0006	0.0002 U	0.0002 U	0.0025	0.0002 U	0.0002 U	0.0002 U	**0.000052**	0.746
	04/19/06	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.019	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.055	0.05 U	0.05 U	**0.044****	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.000057**	**2.3**
	07/05/06	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.015	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.031	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	**0.000055**	**1.8**
	10/17/06	0.005 U	**0.0017**	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.010	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.00002 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.000028 J	0.012
	01/04/07	0.003 U	**0.0018**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0082	0.0002 U	0.0002 U	0.04 U	0.001	0.0002 U	0.00002 U	0.0003	0.0003	0.003 U	0.0017	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.000026	0.0038
	1/4/07 (DUP)	0.003 U	**0.0018**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0079	0.0002 U	0.0002 U	0.04 U	0.001	0.0002 U	0.00002 U	0.0003	0.0002 U	0.003 U	0.0019	0.0003	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.000028	0.0030
	04/03/07	0.003 U	**0.0016**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0077	0.0002 U	0.0002 U	0.04 U	0.0007	0.0002 U	0.00002 U	0.0004	0.0002 U	0.003 U	0.0027	0.0003	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.000065**	0.0031
	04/3/07 (DUP)	0.003	**0.0015**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0073	0.0002 U	0.0002 U	0.04 U	0.0007	0.0002 U	0.00002 U	0.0004	0.0002 U	0.003 U	0.0030	0.0003	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.000080**	0.0020
	07/02/07	0.003 U	**0.0014**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0062	0.0002 U	0.0002 U	0.04 U	0.0007	0.0002 U	0.00002 U	0.0003	0.0002 U	0.003 U	0.0073	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00003**	0.0023
	10/25/07	0.005	**0.0015**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0078	0.0002 U	0.0002 U	0.04 U	0.001	0.0002 U	0.00002 U	0.0003	0.0002 U	0.003 U	0.0041	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0032
	01/03/08	0.003 U	**0.0012**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0054	0.0002 U	0.0002 U	0.04 U	0.0008	0.0002 U	0.00002 U	0.0003	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0024
	04/01/08	0.027 J	**0.0015 J**	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0064 J	0.0002 U	0.0002 U	0.04 UJ	0.0012 J	0.0002 U	0.00002 U	0.00031	0.0011 J	0.0025 U	0.0039 J	0.0005 U	0.0002 U	0.00002 U	0.0003 J	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.21 D
	04/1/08 (DUP)	0.03 J	**0.0016 J**	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0068 J	0.0002 U	0.0002 U	0.04 UJ	0.0013 J	0.0002 U	0.00002 U	0.00029	0.0011 J	0.0025 U	0.0045 J	0.0005 U	0.0002 U	0.00002 U	0.0003 J	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.20 D
	07/07/08	0.0032	**0.0010**	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0036	0.0002 U	0.0002 U	0.04 U	0.0008	0.0002 U	0.00002 U	0.0003	0.0003	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.000026	0.20
	10/07/08	0.003 U	**0.0010**	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0042	0.0002 U	0.0002 U	0.04 U	0.0006	0.0002 U	0.00002 U	0.0003	0.0003	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.000021	0.0101
	10/7/08 (DUP)	0.003 U	**0.0010**	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0038	0.0002 U	0.0002 U	0.04 U	0.0006	0.0002 U	0.00002 U	0.0002	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0080
	01/05/09	0.0044	**0.0010**	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0036 J	0.0002 U	0.0002 U	0.04 U	0.0006	0.0002 U	0.00002 U	0.0003	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0034
	04/06/09	0.0037	**0.0010**	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.004	0.0002 U	0.0002 U	0.02 U	0.0005	0.0002 U	0.00002 U	0.0002	0.0002	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0028
	07/08/09	0.005 U	**0.0011**	0.0002 U	0.0002 U	0.0005 U	0.0050 U	0.0002 U	0.0035	0.0002 U	0.0005 U	0.02 U	0.0006	0.0002 U	0.00002 U	0.0003	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.000032**	0.0038
	10/27/09	0.005 U	**0.0010**	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0029	0.0002 U	0.0005 U	0.02 U	0.0004	0.0002 U	0.00002 U	0.0002	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0038
	01/13/10	0.005 U	**0.0008**	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0018	0.0002 U	0.0005 U	0.02 U	0.0004	0.0002 U	0.00002 U	0.0002	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0016
	04/06/10	0.005 U	0.0006	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0012	0.0002 U	0.0005 U	0.02 U	0.0004	0.0002 U	0.00002 U	0.0002	0.0003	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0032
	07/15/10	0.0083 J	**0.0010**	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0013	0.0002 U	0.0005 U	0.02 U	0.0004	0.0002 U	0.00002 U	0.0003	0.0016	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0005	0.0002 U	0.00002 U	0.0002 U	0.000022	0.0109
	10/12/10	0.0059	**0.0008**	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0014	0.0002 U	0.0005 U	0.02 U	0.0005	0.0002 U	0.00002 U	0.0003	0.0002	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0046
	01/12/11	0.005 U	0.0006	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0010	0.0002 U	0.0005 U	0.02 U	0.0005	0.0002 U	0.00002 U	0.0003	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0024
	04/11/11	0.005 U	0.0006	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0009	0.0002 U	0.0005 U	0.02 U	0.0005	0.0002 U	0.00002 U	0.0002	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0016
	07/13/11	0.005 U	0.0004	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0007	0.0002 U	0.0005 U	NA	0.0004	0.0002 U	0.00002 U	0.0002	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.002
	10/14/11	0.005 U	0.0004	0.0002 U	0.0002 UJ	0.001 U	0.005 U	0.0002 U	0.0005	0.0002 U	0.0005 U	0.02 U	0.0004	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0015
	01/13/12	0.005 U	0.0004	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0006	0.0002 U	0.0005 U	0.02 U	0.0004	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.001 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0011
	04/05/12	0.005 U	0.0004	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0006	0.0002 U	0.0005 U	0.025 U	0.0005	0.0002 U	0.0002 U DNR	0.0002 X	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0014
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.000013 X	NA
	07/10/12	0.005 U	0.0004	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0006	0.0002 U	0.0005 U	0.025 U	0.0005	0.0002 U	0.0002 U DNR	0.0002 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 X	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0029 U
	07/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.000029**	NA
	10/03/12	0.005 U	0.0004	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005	0.0002 U	0.0005 U	0.025 U	0.0005	0.0002 U	0.0002 U DNR	0.0002	0.0005 U	0.005 U	0.005 U	0.0002 X	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0009
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.000042**	NA

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW002 (continued)	01/13/13	0.05 U	0.002 U	0.005 U	0.005 U	0.005 U	0.05 U	0.005 U	0.005 U	0.002 U	0.005 U	0.25 U	0.005 U	0.002 U	0.002 U DNR	0.002 U	0.005 U	0.05 U	0.05 U	0.005 U	0.005 U	0.002 U DNR	0.002 U	0.005 U	0.002 U DNR	0.005 U	0.002 U DNR	0.0014 X
	1/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.000033**	NA
	04/06/13	0.005 U	0.0004	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 X	0.0002 U	0.0005 U	0.025 U	0.0005 X	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0004 X
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.000025	NA
	07/01/13	0.005 U	0.0004	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005	0.0002 U	0.0005 U	0.025 U	0.0004 X	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0002 X
	07/1/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.000058**	NA
	10/08/13	0.005 U	0.0005	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005	0.0002 U	0.0005 U	0.025 U	0.0004 X	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0001 X
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00013**	NA
	01/10/14	0.005 U	0.0005	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005	0.0002 U	0.0005 U	0.025 U	0.0006	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0002 X
	01/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000039	NA	**0.000068**	NA
	04/03/14	0.005 U	0.0006	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0006	0.0002 U	0.0005 U	0.025 U	0.0006	0.0002 U	0.0002 U DNR	0.0001 X	0.0001 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0008
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.000025	NA
	07/08/14	0.005 U	0.0005	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 X	0.0002 U	0.0005 U	0.025 UJ	0.0004 X	0.0002 U	0.0002 U DNR	0.0001 X	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0006
	07/08/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.000072**	NA
	10/14/14	0.005 U	**0.0009**	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0009	0.0002 U	0.0005 U	0.025 U	0.0007	0.0002 U	0.0002 U DNR	0.0001 X	0.0001 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 X
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.000049**	NA
	01/05/15	0.005 U	0.0005	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.001	0.0002 U	0.0005 U	0.0055 X	0.0008	0.0002 U	0.0002 U DNR	0.0001 X	0.0004 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0007
	1/5/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.000050**	NA
	04/03/15	0.0033 X	0.0004	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 UJ	0.0008	0.0002 U	0.0005 U	0.025 U	0.0009	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0002 X
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.000046**	NA
EGW005	02/02/95	0.25 U	0.05 U	NA	NA	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U	NA	0.05 U	NA	0.05 U	0.05 U	**2.3**	0.25 U	0.35	0.1 U	NA	NA	0.065	NA	NA	NA	0.1 U	**28.9**
	05/01/95	0.034	0.05 U	NA	NA	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U	5 U	0.05 U	NA	0.05 U	0.05 U	**4.6**	0.25 U	**2.3**	0.1 U	NA	NA	0.17	NA	NA	NA	0.1 U	**47.7**
	08/11/95	0.25 U	0.05 U	NA	NA	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U	5 U	0.05 U	NA	0.05 U	0.05 U	**5.1**	0.25 U	0.62	0.1 U	NA	NA	0.14	NA	NA	NA	0.1 U	**41.9**
	11/09/95	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**8.0**	1.2 U	1.2 U	0.5 U	NA	NA	0.25 U	NA	NA	NA	0.5 U	**76.4**
	02/29/96	3.7 U	0.75 U	NA	NA	1.5 U	3.7 U	0.75 U	1.5 U	0.75 U	1.5 U	75 U	0.75 U	NA	0.75 U	0.75 U	**9.7**	3.7 U	3.7 U	1.5 U	NA	NA	0.75 U	NA	NA	NA	1.5 U	**105**
	05/30/96	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**11**	1.2 U	1.2 U	0.5 U	NA	NA	0.34	NA	NA	NA	0.5 U	**106**
	08/27/96	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	250 U	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**8.8**	1.2 U	1.2 U	0.5 U	NA	NA	0.25 U	NA	NA	NA	0.5 U	**111**
	12/03/96	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	250 U	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**8.2**	1.2 U	1.2 U	0.5 U	NA	NA	0.25 U	NA	NA	NA	0.5 U	**79**
	12/03/96 (DUP)	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**7.2**	5 U	5 U	2 U	NA	NA	1 U	NA	NA	NA	2 U	**92**
	03/10/97	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**6.4**	1.2 U	1.2 U	0.5 U	NA	NA	0.25 U	NA	NA	NA	0.5 U	**71.7**
	05/22/97	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**8.7**	1.2 U	1.2 U	0.5 U	NA	NA	0.25 U	NA	NA	NA	**0.00015**	**99.9**
	08/12/97	2.5 U	0.5 U	NA	NA	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**8.7**	2.5 U	2.5 U	1 U	NA	NA	0.5 U	NA	NA	NA	1 U	**88.4**
	11/17/97	1.5 U	0.3 U	NA	NA	0.6 U	1.5 U	0.3 U	0.6 U	0.3 U	0.6 U	30 U	0.3 U	NA	0.3 U	0.3 U	**15**	1.5 U	1.5 U	0.6 U	NA	NA	0.45	NA	NA	NA	0.005 U	**158**
	03/10/98	1.5 U	0.3 U	0.3 U	0.3 U	0.6 U	1.5 U	0.3 U	0.6 U	0.3 U	0.6 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**5.1 J**	1.5 U	1.5 U	0.6 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.6 U	**0.00038**	**60.7 J**
	03/10/98 (DUP)	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**18 J**	5 U	5 U	2 U	2 U	1 U	1 U	1 U	1 U	2 U	**0.00029**	**190 J**
	05/13/98	2.5 U	0.5 U	0.5 U	0.5 U	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**9.2**	2.5 U	2.5 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.01 U	**93**
	08/10/98	2.5 U	0.5 U	0.5 U	0.5 U	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**7.0**	2.5 U	2.5 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ	0.005 U	**55**
	08/10/98 (DUP)	2.5 U	0.5 U	0.5 U	0.5 U	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**7.2**	2.5 U	2.5 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ	0.005 U	**54.1**
	11/10/98	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**7.8**	5 U	5 U	2 U	2 U	1 U	1 UJ	1 U	1 UJ	2 UJ	**0.000092**	**69.3**
	02/01/99	2.5 U	0.5 U	0.5 U	0.5 U	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**4.5**	2.5 U	2.5 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.0005 U	**43.7**
	02/01/99 (DUP)	2.5 U	0.5 U	0.5 U	0.5 U	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**4.7**	2.5 U	2.5 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U	0.001 U	**43.7**
	05/10/99	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**5.4**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.000035**	**58.9**
	08/02/99	0.021	**0.001 J**	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0027	0.001 U	0.001 U	0.1 U	**0.019**	0.001 U	0.001 U	0.001 U	**7.2**	0.005 U	0.12	0.002 U	0.001 U	0.001 U	0.11	0.001 U	0.001 U	0.001 U	0.005 U	**71**
	11/09/99	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**3.0**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.00002	**28.6**
	11/09/99 (DUP)	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**3.6**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.00002 U	**34.1**
	01/31/00	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**2.1**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.0006 U	**19.2**
	05/02/00	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.5**	1 U	1 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.0004 UJ	**28.1**
	05/02/00 (DUP)	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	15 U	0.15 U	0.15 U	0.15 U	0.15 U	**4.2**	0.75 U	0.75 U	0.3 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.002 UJ	**32.6**
	06/27/00	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.5**	1 U	1 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.000045**	**23.1**
	07/31/00	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**2.6**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.0006 U	**23.8**
	07/31/00 (DUP)	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**2.3**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.002 U	**21.6**
	11/13/00	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**2.0**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.00002 U	**15.93**
	02/05/01	1.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	1.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	20 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	**4.4**	1.0 UJ	1.0 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	**0.000033**	**38.6**
	05/01/01	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.8**	1.0 U	1.0 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00002 U	**38.5**
	08/06/01	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**3.3**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.000028	**18.16**
	11/12/01	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	25 U	0.25 U	0.25 U	0.25 U	0.25 U	**5.4**	1.2 U	1.2 U	0.5 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.000022	**43.5**
	02/05/02	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.000051	0.02 U	**1.9**	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.000027	**7.023**
	02/05/02 (DUP)	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.000039	0.02 U	**1.9**	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**6.723**
	05/06/02	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.3 U	0.0033	0.003 U	0.00002 U	0.003 U	0.36	0.015 U	0.015 U	0.006 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.00002 U	0.55
	08/06/02	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00002 U	0.02 U	0.44	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**1.6**
	11/16/02	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.000028 J	0.01 U	**1.1**	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.00002 U	0.951
	02/04/03	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U	6 U	0.06 U	0.06 U	0.000025 J	0.06 U	**1.8**	0.3 U	0.3 U	0.09 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.00002 U	**9.7**
	05/05/03	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.0002 U	0.05 U	**3.1**	0.25 U	0.25 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.0002 U	**16.8**
	05/05/03 (DUP)	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.002 U	0.05 U	**3.2**	0.25 U	0.25 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.002 U	**17.8**
	07/22/03	0.37 U	0.075 U	0.075 U	0.075 U	0.075 U	0.37 U	0.075 U	0.075 U	0.075 U	0.075 U	7.5 U	0.075 U	0.075 U	0.000034	0.075 U	**4.1**	0.37 U	0.37 U	0.15 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.000023 J	**23.4**
	07/22/03 (DUP)	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.000034	0.1 U	**4.2**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.000022 J	**24.4**
	11/04/03	0.37 U	0.075 U	0.075 U	0.075 U	0.075 U	0.37 U	0.075 U	0.075 U	0.075 U	0.075 U	7.5 U	0.075 U	0.075 U	0.000024	0.075 U	**5.1**	0.37 U	0.37 U	0.15 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.00002 U	**48.4 D**
	01/21/04	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	75 U	0.75 U	0.75 U	0.000039	0.75 U	**5.8**	3.7 U	3.7 U	1.5 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.00002 U	**43.8**
	04/14/04	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.000020	0.1 U	**2.0**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.00002 U	**12.1**
	07/13/04	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.000023	0.1 U	**2.4**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.00002 U	**20.17**
	10/01/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.000023	0.2 U	**5.2**	1.0 U	1.0 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00002 U	**48.4**
	01/12/05	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.00002 U	0.1 U	**3.7**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.00002 U	**22.4**
	04/11/05	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.00002 U	0.5 U	**2.1**	2.5 U	2.5 U	**1.6****	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.00002 U	**12.0**
	10/17/05	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.00002 U	0.05 U	**0.77**	0.25 U	0.25 U	0.1 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.00002 U	**14.1**
	04/19/06	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.11	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.00002 U	**1.6**
	10/17/06	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.00002 UJ	0.1 U	0.14	0.5 U	0.5 U	0.2 U	0.1 U	0.00022 UJ	0.1 U	0.1 U	0.00010 J	0.1 U	0.00002 UJ	**7.0**
	04/03/07	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 UJ	0.0016	0.001 U	0.0002 U	0.001 U	0.0087	0.005 U	0.005 U	0.002 U	0.001 U	0.0002 U	0.001 U	0.001 U	0.0002 U	0.001 U	0.0002 U	0.34
	10/25/07	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.5 U	0.005 U	0.005 U	0.00002 U	0.005 U	0.16	0.025 U	0.025 U	0.01 U	0.005 U	0.000069	0.005 U	0.005 U	0.000081	0.005 U	0.00002 U	**2.218 J**
	04/01/08	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	20 UJ	0.01 U	0.01 U	0.0002 U	0.00021	0.55	0.05 U	0.05 U	0.02 U	0.01 U	0.0002 U	0.01 U	0.01 U	0.0002 U	0.01 U	0.0002 U	**6.39 D**
	10/07/08	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.0027	0.001 U	0.00002 U	0.001 U	0.0051	0.005 U	0.005 U	0.002 U	0.001 U	0.000034	0.001 U	0.001 U	0.00005	0.001 U	0.00002 U	0.26
	04/06/09	0.01 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.0026	0.001 U	0.0002 U	0.001 U	0.18	0.005 U	0.005 U	0.002 U	0.001 U	0.00020 U	0.0012	0.001 U	0.00020 U	0.001 U	0.00020 U	**3.715 D**
	10/27/09	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0003	0.0002 U	0.0005 U	0.02 UJ	0.0024	0.0002 U	0.00002 U	0.0002	0.0014	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000024	0.0002 U	0.0002 U	0.000048	0.0002 U	0.00002 U	0.0616
	10/27/09 (DUP)	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0004	0.0002 U	0.0005 U	0.02 U	0.0024	0.0002 U	0.00002 U	0.0002	0.0013	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000024	0.0002 U	0.0002 U	0.000047	0.0002 U	0.00002 U	0.0706
	04/06/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0021	0.0002 U	0.00002 U	0.0002 U	0.0003	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000034	0.0002 U	0.00002 U	0.0034
	10/12/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0024	0.0002 U	0.00002 U	0.0002 U	0.0007	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000032	0.0002 U	0.0002 U	0.000094	0.0002 U	0.00002 U	0.25
	04/11/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0016	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000024	0.0002 U	0.00002 U	0.0069
	10/14/11	0.005 U	0.0002 U	0.0002 U	0.0002 UJ	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0018	0.0002 U	0.00002 U	0.0002 U	0.0064	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000025	0.0002 U	0.00002 U	0.0945

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE
EGW005 (continued)	04/05/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/05/2012 (DUP)	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U
	04/05/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/03/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0004 X	0.0002 U	0.0005 U
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/3/2012 (DUP)	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0003 X	0.0002 U	0.0005 U
	10/3/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0001 X	0.0002 U	0.0005 U
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/08/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.001	0.0002 U	0.0005 U
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0002 X	0.0002 U	0.0005 U
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EGW006	01/31/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U
	05/01/95	0.005 U	0.001 U	NA	NA	0.002 U	0.0087	0.001 U	0.02	0.001 U	0.002 U
	08/11/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.0069	0.013	0.001 U	0.002 U
	11/09/95	0.12 U	0.025 U	NA	NA	0.05 U	0.12 U	0.025 U	0.05 U	0.025 U	0.05 U
	11/09/95 (DUP)	0.005 U	0.025 U	NA	NA	0.002 U	0.005 U	0.001 U	0.012	0.001 U	0.002 U
	02/29/96	0.25 U	0.05 U	NA	NA	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U
	05/30/96	0.1 U	0.02 U	NA	NA	0.04 U	0.1 U	0.02 U	0.04 U	0.02 U	0.04 U
	08/27/96	0.25 U	0.05 U	NA	NA	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U
	12/03/96	0.05 U	0.01 U	NA	NA	0.02 U	0.05 U	0.01 U	0.02 U	0.01 U	0.02 U
	03/07/97	0.05 U	0.01 U	NA	NA	0.02 U	0.05 U	0.01 U	0.02 U	0.01 U	0.02 U
	05/22/97	0.05 U	0.01 U	NA	NA	0.02 U	0.05 U	0.01 U	0.02 U	0.01 U	0.02 U
	08/12/97	0.075 U	0.015 U	NA	NA	0.03 U	0.075 U	0.015 U	0.03 U	0.015 U	0.03 U
	11/17/97	0.075 U	0.015 U	NA	NA	0.03 U	0.075 U	0.015 U	0.03 U	0.015 U	0.03 U
	03/10/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U
	05/12/98	0.075 U	0.015 U	0.015 U	0.015 U	0.03 U	0.075 U	0.015 U	0.03 U	0.015 U	0.03 U
	05/12/98 (DUP)	0.075 U	0.015 U	0.015 U	0.015 U	0.03 U	0.075 U	0.015 U	0.03 U	0.015 U	0.03 U
	08/10/98	0.075 U	0.015 U	0.015 U	0.015 U	0.03 U	0.075 U	0.015 U	0.03 U	0.015 U	0.03 U
	11/09/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.0026	0.001 U	0.002 U
	11/09/98 (DUP)	0.005U	0.001 U	0.001 U	0.001 U	0.002U	0.005U	0.001U	0.0026	0.001U	0.002U
	02/01/99	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U
	05/10/99	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U
	05/10/99 (DUP)	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0033	0.001 U	0.001 U
	08/02/99	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U	0.015 U	0.003 U	0.003 U	0.003 U	0.003 U
	11/08/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0015	0.001 U	0.001 U
	01/31/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0018	0.001 U	0.001 U
	05/01/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0016	0.001 U	0.001 U
	07/31/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0024	0.001 U	0.001 U
	11/13/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	02/01/01	0.0099	0.001 UJ	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	05/01/01	0.0087	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0021	0.001 U	0.001 U
	05/01/01 (DUP)	0.0095	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.002	0.001 U	0.001 U
	08/06/01	0.008	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0022	0.001 U	0.001 U
	11/12/01	0.0074	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.0027	0.001 U	0.001 U
	11/12/01 (DUP)	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U
	02/05/02	0.002 UJ	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0021	0.0002 U	0.0002 U
	05/06/02	0.01	0.0002	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.002	0.0002 U	0.0002 U
	05/06/02 (DUP)	0.007	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0018	0.0002 U	0.0002 U
	08/05/02	0.0045 U	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0022	0.0002 U	0.0002 U
	11/16/02	0.0042 J	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0018	0.0002 U	0.0002 U
	02/04/03	0.0098	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.001	0.0002 U	0.0002 U
	05/05/03	0.0062	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0017	0.0002 U	0.0002 U
	07/22/03	0.0052	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0017	0.0002 U	0.0002 U
	11/04/03	0.0038 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0008	0.0002 U	0.0002 U
	01/21/04	0.0053	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0009	0.0002 U	0.0002 U
	04/14/04	0.012	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0016	0.0002 U	0.0002 U
	07/13/04	0.0068	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0011	0.0002 U	0.0002 U
	07/13/04 (DUP)	0.0088	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0016	0.0002 U	0.0002 U
	10/01/04	0.029	0.0002	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0017	0.0002 U	0.0002 U
	10/01/04 (DUP)	0.026	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0020	0.0002 U	0.0002 U
	01/11/05	0.0092	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0013	0.0002 U	0.0002 U
	04/09/05	0.025	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0009	0.0002 U	0.0002 U
	10/17/05	0.0012 U	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0011	0.0002 U	0.0002 U
	04/19/06	0.0071 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0008	0.0002 U	0.0002 U
	4/19/06 (DUP)	0.0048 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0008	0.0002 U	0.0002 U
	10/17/06	0.0033	0.0002	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0008	0.0002 U	0.0002 U
	10/17/06 (DUP)	0.003 U	0.0003	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0009	0.0002 U	0.0002 U
	04/03/07	0.011	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0004	0.0002 U	0.0002 U
	10/25/07	0.003 U	**0.0019 J**	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0009 J	0.0002 U	0.0002 U
	04/01/08	0.045 U	0.003 U	0.003 U	0.003 U	0.0075 U	0.038 U	0.003 U	0.003 U	0.003 U	0.003 U
	10/07/08	0.018	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
	04/06/09	0.01	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
	10/27/09	0.005 U	0.0003	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0007	0.0002 U	0.0005 U
	04/06/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0003	0.0002 U	0.0005 U
	10/12/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0003	0.0002 U	0.0005 U
	10/12/10 (DUP)	0.014	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0003	0.0002 U	0.0005 U

Well ID	Sample Date	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW005 (continued)	04/05/12	0.025 U	0.0012	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0018
	04/05/12 (SIM)	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000014 X	NA	0.00002 U	NA
	04/05/2012 (DUP)	0.025 U	0.0012	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0015
	04/05/12 (DUP SIM)	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000013 X	NA	0.00002 U	NA
	10/03/12	0.025 U	0.0024	0.0002 U	0.0002 U DNR	0.0001 X	0.0001 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0007
	10/3/12 (SIM)	NA	NA	NA	0.000010 X	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000017 X	NA	0.00002 U	NA
	10/3/2012 (DUP)	0.025 U	0.0024	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0009
	10/3/12 (DUP SIM)	NA	NA	NA	0.000011 X	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000018 X	NA	0.00002 U	NA
	04/06/13	0.025 U	0.0014	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/6/13 (SIM)	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	10/08/13	0.025 U	0.0018	0.0002 U	0.0002 U DNR	0.0001 X	0.0001 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0006
	10/08/13 (SIM)	NA	NA	NA	0.000014 X	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000011 X	NA	0.00002 U	NA
	04/03/14	0.025 U	0.0009	0.0002 U	0.0002 U DNR	0.0002 U	0.0042	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0121
	04/3/14 (SIM)	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	10/14/14	0.025 U	0.0008	0.0002 U	0.0002 U DNR	0.0002 U	0.0007	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0119
	10/14/14 (SIM)	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000012 X	NA	0.00002 U	NA
	04/03/15	0.025 UJ	0.0006	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0024
	04/03/15 (SIM)	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.000013 X	NA	NA	0.00002 U	NA	0.00002 U	NA
EGW006	01/31/95		0.001 U	NA	0.001 U	0.001 U	0.57	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	**3.85**
	05/01/95	0.1 U	0.001 U	NA	0.001 U	0.001 U	**1.2**	0.005 U	0.005 U	0.002 U	NA	NA	0.0015	NA	NA	NA	**0.0029**	**9.27**
	08/11/95	0.1 U	0.007	NA	0.007	0.001 U	**0.8**	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	**3.57**
	11/09/95	2.5 U	0.025 U	NA	0.025 U	0.025 U	**0.99**	0.12 U	0.12 U	0.05 U	NA	NA	0.025 U	NA	NA	NA	0.05 U	**3.7**
	11/09/95 (DUP)	0.1 U	**0.0078**	NA	0.0078	0.001 U	**1.2**	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	**0.003**	**4.71**
	02/29/96	5 U	0.05 U	NA	0.05 U	0.05 U	**0.81**	0.25 U	0.25 U	0.1 U	NA	NA	0.05 U	NA	NA	NA	0.1 U	**3.1**
	05/30/96	2 U	0.02 U	NA	0.02 U	0.02 U	**0.97**	0.1 U	0.1 U	0.04 U	NA	NA	0.02 U	NA	NA	NA	0.04 U	**4.5**
	08/27/96	5 U	0.05 U	NA	0.05 U	0.05 U	**1.2**	0.25 U	0.25 U	0.1 U	NA	NA	0.05 U	NA	NA	NA	0.1 U	**4.6**
	12/03/96	1 U	0.01 U	NA	0.01 U	0.01 U	0.52	0.05 U	0.05 U	0.02 U	NA	NA	0.01 U	NA	NA	NA	0.02 U	**1.4**
	03/07/97	1 U	0.01 U	NA	0.01 U	0.01 U	0.6	0.05 U	0.05 U	0.02 U	NA	NA	0.01 U	NA	NA	NA	0.02 U	**1.2**
	05/22/97	1 U	0.01 U	NA	0.01 U	0.01 U	**0.97**	0.05 U	0.05 U	0.02 U	NA	NA	0.01 U	NA	NA	NA	**0.0024**	**2.8**
	08/12/97	1.5 U	0.015 U	NA	0.015 U	0.015 U	**1.3**	0.075 U	0.075 U	0.03 U	NA	NA	0.015 U	NA	NA	NA	**0.0022**	**3**
	11/17/97	1.5 U	0.015 U	NA	0.015 U	0.015 U	**1.2**	0.075 U	0.075 U	0.03 U	NA	NA	0.015 U	NA	NA	NA	0.00001 U	**2.1**
	03/10/98	0.1 U	0.0037	0.001 U	0.001 U	0.001 U	0.065	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0016**	0.061
	05/12/98	1.5 U	0.015 U	0.015 U	0.015 U	0.015 U	**1.1**	0.075 U	0.075 U	0.03 U	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.03 U	**0.0015**	**2.4**
	05/12/98 (DUP)	1.5 U	0.015 U	0.015 U	0.015 U	0.015 U	**1.1**	0.075 U	0.075 U	0.03 U	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.03 U	**0.0021**	**2.3**
	08/10/98	1.5 U	0.015 U	0.015 U	0.015 U	0.015 U	**1.2**	0.075 U	0.075 U	0.03 U	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.03 UJ	**0.0017**	**2.4**
	11/09/98	0.1 U	0.004	0.001 U	0.001 U	0.001 U	0.54	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.002 UJ	**0.0016**	0.42
	11/09/98 (DUP)	0.1U	0.0038	0.001 U	0.001U	0.001U	0.48	0.005U	0.005 U	0.002U	0.002 U	0.001 U	0.001UJ	0.001 U	0.001 UJ	0.002 UJ	**0.0015**	0.33
	02/01/99	0.1 U	0.0028	0.001 U	0.001 U	0.001 U	0.17	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	**0.0019**	0.13
	05/10/99	0.5 U	0.005 U	0.005 U	0.005 U	0.005 U	0.29	0.025 U	0.025 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.0014**	0.18
	05/10/99 (DUP)	0.1 U	0.0034	0.001 U	0.001 U	0.001 U	0.33	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0014**	0.3
	08/02/99	0.3 U	0.004	0.003 U	0.003 U	0.003 U	0.29	0.015 U	0.015 U	0.006 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	**0.0012**	0.2
	11/08/99	0.1 U	0.0026	0.001 U	0.001 U	0.001 U	0.0035	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0012**	0.001 U
	01/31/00	0.1 U	0.0028	0.001 U	0.001 U	0.001 U	0.0012	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0012**	0.001 U
	05/01/00	0.1 U	0.0023	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0011 J**	0.001 U
	07/31/00	0.1 U	0.0026	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0013 J**	0.001 U
	11/13/00	0.1 U	0.0026	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0012**	0.001 U
	02/01/01	0.1 U	0.0024	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.001 UJ	**0.0012**	0.001 U
	05/01/01	0.1 U	0.0024	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0015**	0.001 U
	05/01/01 (DUP)	0.1 U	0.0025	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.00099**	0.001 U
	08/06/01	0.1 U	0.0024	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.0011**	0.001 U
	11/12/01	0.1 U	0.0026	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	**0.001**	0.001 U
	11/12/01 (DUP)	0.5 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.025 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	**0.00076 J**	0.005 U
	02/05/02	0.02 U	0.0026	0.0002 U	0.000038	0.0003	0.0002 U	0.001 U	0.001 U	0.0005	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0015**	0.0004 U
	05/06/02	0.02 U	0.0024	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0005	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00098**	0.0004 U
	05/06/02 (DUP)	0.02 U	0.0021	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0004	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00075**	0.0004 U
	08/05/02	0.02 U	0.0022	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00074**	0.0004 U
	11/16/02	0.02 U	0.0026	0.0002 U	0.000035	0.0002	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0013**	0.0004 U
	02/04/03	0.02 U	0.0021	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0009**	0.0004 U
	05/05/03	0.02 U	0.0025	0.0002 U	0.000021	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0009**	0.0004 U
	07/22/03	0.02 U	0.0018	0.0002 U	0.000036	0.0002	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00098**	0.0004 U
	11/04/03	0.04 U	0.0024	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00096**	0.0004 U
	01/21/04	0.04 U	0.0021	0.0002 U	0.000023	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.001**	0.0004 U
	04/14/04	0.04 U	0.0019	0.0002 U	0.000028	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00086**	0.0004 U
	07/13/04	0.04 U	0.0020	0.0002 U	0.000024	0.0002	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00080**	0.0004 U
	07/13/04 (DUP)	0.04 U	0.0023	0.0002 U	0.000030	0.0002	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00090**	0.0004 U
	10/01/04	0.04 U	0.0018	0.0002 U	0.000036	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0011**	0.0004 U
	10/01/04 (DUP)	0.04 U	0.0020	0.0002 U	0.000026	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00078**	0.0004 U
	01/11/05	0.04 U	0.0021	0.0002 U	0.000020	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.0014**	0.0004 U
	04/09/05	0.04 U	0.0017	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00098**	0.0004 U
	10/17/05	0.04 U	0.0019	0.0002 U	0.000022	0.0002	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00087**	0.0004 U
	04/19/06	0.04 U	0.0019	0.0002 U	0.00002 U	0.0002	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00077**	0.0004 U
	4/19/06 (DUP)	0.04 U	0.0019	0.0002 U	0.00002 U	0.0002	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**0.00084**	0.0004 U
	10/17/06	0.04 U	0.0017	0.0002 U	0.000031	0.0002	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00075**	0.0004 U
	10/17/06 (DUP)	0.04 U	0.0017	0.0002 U	0.000025 J	0.0002	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00054**	0.0004 U
	04/03/07	0.04 U	0.0012	0.0002 U	0.00002 U	0.0002	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00066**	0.0004 U
	10/25/07	0.04 U	0.0031 J	0.0002 U	0.000046	0.0004 J	0.23	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.022 J	0.0002 U	0.000032	0.0002 U	**0.00074**	**2.81 D**
	04/01/08	0.6 UJ	0.003 U	0.003 U	0.0002 U	0.00025	0.003 U	0.038 U	0.038 U	0.0075 U	0.003 U	0.0002 U	0.003 U	0.003 U	0.0002 U	0.003 U	**0.0008**	0.435 D
	10/07/08	0.1 U	0.0015	0.001 U	0.0002 UJ	0.001 U	0.07	0.005 U	0.005 U	0.002 U	0.001 U	0.0002 UJ	0.001 U	0.001 U	0.0002 UJ	0.001 U	**0.00083 J**	0.102
	04/06/09	0.02 U	0.0014	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00073**	0.0076
	10/27/09	0.02 UJ	0.0016	0.0002 U	0.00002 U	0.0002	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00042**	0.0009
	04/06/10	0.02 U	0.0011	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00040**	0.0005
	10/12/10	0.02 U	0.0013	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00043**	0.0008
	10/12/10 (DUP)	0.02 U	0.0013	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00043**	0.0009

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW006 (continued)	04/11/11	0.014 J	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.000089**	0.0005
	04/11/11 (DUP)	0.039 J	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.000090**	0.0005
	10/15/11	0.005 U	0.0002 U	0.0002 U	0.0002 UJ	0.001 U	0.005 U	0.0002 U	0.0004	0.0002 U	0.0005 U	0.02 U	0.001	0.0002 U	0.00002 U	0.0002 U	0.0003	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	**0.00033**	0.0026
	04/05/12	0.014	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0002 X	0.0002 U	0.0005 U	0.025 U	0.0011	0.0002 U	0.0002 U DNR	0.0001 X	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0004 DNR	0.0018
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00041**	NA
	10/03/12	0.005 U	0.0002	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0004 X	0.0002 U	0.0005 U	0.025 U	0.0013	0.0002 U	0.0002 U DNR	0.0002 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0004 DNR	0.0002 X
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000021	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00040**	NA
	04/06/13	0.0048 X	0.0001 X	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0003 X	0.0002 U	0.0005 U	0.025 U	0.0009	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0003 DNR	0.0005 U
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000016 X	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00031**	NA
	10/08/13	0.005 U	0.0002 X	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0004 X	0.0002 U	0.0005 U	0.025 U	0.0013	0.0002 U	0.0002 U DNR	0.0002 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0005 DNR	0.0005 U
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000019 X	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00050**	NA
	10/08/13 (DUP)	0.0031 X	0.0002	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0004 X	0.0002 U	0.0005 U	0.025 U	0.0013	0.0002 U	0.0002 U DNR	0.0002 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0004 DNR	0.0005 U
	10/08/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000017 X	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00048**	NA
	04/03/14	0.005	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0008	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0004 DNR	0.0001 X
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00033**	NA
	04/3/14 (DUP)	0.0058	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0001 X	0.0002 U	0.0005 U	0.025 U	0.0009	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	**0.00040**	0.0002 X
	04/3/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00031 DNR	NA
	10/14/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0001 X	0.0002 U	0.0005 U	0.025 U	0.0008	0.0002 U	0.0002 U DNR	0.0002 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0004 DNR	0.0004 X
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00033**	NA
	04/02/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0001 X	0.0002 U	0.0005 U	0.025 UJ	0.0008	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0004 DNR	0.0001 X
	04/02/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	**0.00033**	NA
EGW007	02/02/95	0.5 U	0.1 U	NA	NA	0.2 U	**8.6**	0.1 U	0.2 U	0.1 U	0.2 U		0.1 U	NA	0.1 U	0.1 U	**33**	0.5 U	0.5 U	0.2 U	NA	NA	**1.7**	NA	NA	NA	0.2 U	**179**
	05/02/95	0.5 U	0.1 U	NA	NA	0.2 U	**5.9**	0.1 U	0.2 U	0.1 U	0.2 U	10 U	0.1 U	NA	0.1 U	0.1 U	**23**	0.5 U	0.5 U	0.2 U	NA	NA	**1.6**	NA	NA	NA	0.2 U	**111**
	08/11/95	0.25 U	0.05 U	NA	NA	0.1 U	**10**	0.05 U	0.1 U	0.05 U	0.1 U	5 U	0.05 U	NA	0.05 U	0.05 U	**22**	0.25 U	0.25 U	0.1 U	NA	NA	**1.4**	NA	NA	NA	0.1 U	**100**
	11/09/95	2.5 U	0.5 U	NA	NA	1 U	**6.1**	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**29**	2.5 U	2.5 U	1 U	NA	NA	**1.3**	NA	NA	NA	1 U	**130**
	02/29/96	5 U	1 U	NA	NA	2 U	**5.8**	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**28**	5 U	5 U	2 U	NA	NA	**1.2**	NA	NA	NA	2 U	**128**
	02/29/96 (DUP)	0.9 U	0.18 U	NA	NA	0.36 U	3.5	0.18 U	0.36 U	0.18 U	0.36 U	18 U	0.18 U	NA	0.18 U	0.18 U	**32**	0.9 U	0.9 U	0.36 U	NA	NA	**1.3**	NA	NA	NA	0.36 U	**144**
	05/30/96	2.5 U	0.5 U	NA	NA	1 U	3.3	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**26**	2.5 U	2.5 U	1 U	NA	NA	**1.1**	NA	NA	NA	1 U	**126**
	08/27/96	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**24**	5 U	5 U	2 U	NA	NA	1 U	NA	NA	NA	2 U	**111**
	12/03/96	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**25**	5 U	5 U	2 U	NA	NA	1.2 U	NA	NA	NA	2 U	**121**
	03/10/97	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**27**	5 U	5 U	2 U	NA	NA	1 U	NA	NA	NA	2 U	**121**
	03/10/97 (DUP)	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**27**	5 U	5 U	2 U	NA	NA	**1.0**	NA	NA	NA	2 U	**123**
	05/22/97	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	1 U	100 U	1 U	NA	1 U	1 U	**27**	5 U	5 U	2 U	NA	NA	1 U	NA	NA	NA	0.0001 U	**121**
	08/12/97	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**25**	5 U	5 U	2 U	NA	NA	1 U	NA	NA	NA	2 U	**109**
	08/12/97 (DUP)	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**31**	5 U	5 U	2 U	NA	NA	1 U	NA	NA	NA	2 U	**131**
	11/17/97	2.5 U	0.5 U	NA	NA	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**31**	2.5 U	2.5 U	1 U	NA	NA	**1.0**	NA	NA	NA	0.005 U	**129**
	11/17/97 (DUP)	2.5 U	0.5 U	NA	NA	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**31**	2.5 U	2.5 U	1 U	NA	NA	**1.0**	NA	NA	NA	0.005 U	**127**
	03/09/98	0.42	0.05 U	0.05 U	0.05 U	0.1 U	1.6	0.05 U	0.1 U	0.05 U	0.1 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	**25**	0.25 U	0.25 U	0.1 U	0.1 U	0.05 U	**0.99**	0.05 U	0.05 U	0.1 U	0.01 U	**127**
	05/12/98	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**33**	5 U	5 U	2 U	2 U	1 U	**1.0**	1 U	1 U	2 U	0.005 U	**153**
	08/10/98	2.5 U	0.5 U	0.5 U	0.5 U	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**28**	2.5 U	2.5 U	1 U	1 U	0.5 U	**0.88**	0.5 U	0.5 U	1 UJ	0.005 U	**121**
	11/09/98	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**27**	5 U	5 U	2 U	2 U	1 U	**1.0 J**	1 U	1 UJ	2 UJ	**0.00014**	**130**
	02/01/99	5 U	1 U	1 UJ	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**25**	5 U	5 U	2 U	2 U	1 U	**1.0**	1 UJ	1 U	2 UJ	0.001 U	**115**
	05/10/99	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**32**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.81**	0.5 U	0.5 U	0.5 U	0.002 U	**174**
	08/02/99	0.13	**0.015**	0.01 U	0.01 U	0.01 U	0.83	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.01 U	0.01 U	**28 J**	0.05 U	0.061	0.02 U	0.01 U	0.01 U	**1.1**	0.01 U	0.01 U	0.01 U	0.005 U	**140 J**
	11/09/99	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**23**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.00002 U	**112**
	01/31/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**28**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.002 U	**128**
	01/31/00 (DUP)	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**29**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.74**	0.5 U	0.5 U	0.5 U	0.002 U	**129**
	05/02/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**27**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.002 UJ	**122**
	07/31/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**29**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.002 U	**130**
	11/13/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**32**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	**0.00024**	**142**
	02/01/01	5 U	1 UJ	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**28**	5 U	5 U	2 U	1 U	1 U	1 UJ	1 U	1 UJ	1 UJ	**0.00018**	**142**
	05/01/01	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**32**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.86**	0.5 U	0.5 U	0.5 U	**0.000079**	**143**
	08/06/01	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**28**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	**0.00018**	**121**
	08/06/01 (DUP)	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**31**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.93**	0.5 U	0.5 U	0.5 U	**0.000093**	**129**
	11/12/01	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**30**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	**0.00023**	**152**
	02/05/02	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.000021	0.5 U	**33**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.88**	0.5 U	0.5 U	0.5 U	**0.000083**	**187**
	05/06/02	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	150 U	1.5 U	1.5 U	0.00002 U	1.5 U	**29**	7.5 U	7.5 U	3 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	0.00002 U	**140**
	08/06/02	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.00002 U	1 U	**36**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.00002 U	**168**
	11/16/02	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	75 U	0.75 U	0.75 U	0.00002 U	0.75 U	**35**	3.7 U	3.7 U	1.5 U	0.75 U	0.75 U	1.0	0.75 U	0.75 U	0.75 U	**0.00032**	**166**
	02/04/03	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	150 U	1.5 U	1.5 U	0.00002 U	1.5 U	**30**	7.5 U	7.5 U	2.2 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	**0.00024**	**131**
	05/05/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.002 U	0.5 U	**34**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**1**	0.5 U	0.5 U	0.5 U	0.002 U	**145**
	07/22/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**30**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.94**	0.5 U	0.5 U	0.5 U	0.0002 U	**129**
	11/04/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	01/21/04	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	150 U	1.5 U	1.5 U	0.0002 U	1.5 U	**40**	7.5 U	7.5 U	3 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	0.0002 U	**189**
	04/14/04	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**33**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.0002 U	**154**
	07/13/04	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 UJ	1 U	1 U	0.0002 U	1 U	**32**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.0002 U	**141**
	10/01/04	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**40**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**1.1**	0.5 U	0.5 U	0.5 U	0.0002 U	**176**
	01/12/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**27**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.0002 U	**124**
	04/11/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**39**	5 U	5 U	**3.4****	1 U	1 U	**1.2**	1 U	1 U	1 U	0.0002 U	**181**
	04/11/05 (DUP)	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.00002 U	1 U	**28**	5 U	5 U	**4.2****	1 U	1 U	1 U	1 U	1 U	1 U	**0.00003**	**141**
	07/12/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**29**	5 U	5 U	2.0 U	1 U	1 U	1 U	1 U	1 U	1 U	0.0002 U	**141**
	10/17/05	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 UJ	0.5 U	**36**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.89**	0.5 U	0.5 U	0.5 U	0.0002 UJ	**165**
	01/12/06	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 UJ	0.5 U	**28**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.68**	0.5 U	0.5 U	0.5 U	0.0002 UJ	**131**
	04/19/06	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**34**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**0.70**	0.5 U	0.5 U	0.5 U	0.0002 U	**155**
	07/05/06	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 UJ	0.5 U	**32**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.0002 UJ	**171**
	10/17/06	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 UJ	0.5 U	**27**	2.5 U	2.5 U	1 U	0.5 U	0.00095 J	0.5 U	0.5 U	**0.00059 J**	0.5 U	0.0002 UJ	**126**
	01/04/07	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**23**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.0002 U	**119**
	04/03/07	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 UJ	0.5 U	0.5 U	0.0002 U	0.5 U	**25**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.00024**	**117**
	07/02/07	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**23**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.0002 U	**125**
	10/25/07	10 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	200 U	2 U	2 U	0.0002 U	2 U	**28**	10 U	10 U	4 U	2 U	2 U	2 U	2 U	2 U	2 U	0.0002 U	**138**
	01/03/08	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**23**	2.5 U	2.5 U	1 U	0.5 U	0.0006	0.5 U	0.5 U	0.00024	0.5 U	0.0002 U	**116**
	04/01/08	2 U	0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U	0.4 U	20 UJ	0.4 U	0.4 U	0.0002 U	0.0002 U	**23 J**	2 U	2 U	0.8 U	0.4 U	0.00069	0.4 U	0.4 U	0.00035	0.4 U	0.0002 U	**101 J**
	07/07/08	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.002 U	0.2 U	**23**	1 U	1 U	0.4 U	0.2 U	0.2 U	0.24	0.2 U	0.2 U	0.2 U	0.002 U	**104**
	07/7/2008 (DUP)	2 U	0.2 U	0.2 U	0.2 U	0.2 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.002 U	0.2 U	**22**	1 U	1 U	0.4 U	0.2 U	0.002 U	0.23	0.2 U	0.002 U	0.2 U	0.002 U	**103**
	10/07/08	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.001 U	0.5 U	**26**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.001 U	**139**

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW007 (continued)	01/05/09	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**25**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.0002 U	**128**
	1/5/09 (DUP)	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**26**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.0002 U	**138**
	04/06/09	1.0 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.0010 U	0.1 U	**30 D**	0.5 U	0.5 U	0.2 U	0.1 U	0.0013	0.24	0.1 U	**0.0012**	0.1 U	0.0010 U	**152 D**
	07/08/09	10 U	0.4 U	0.4 U	0.4 U	1 U	10 U	0.4 U	0.4 U	0.4 U	1 U	40 U	0.4 U	0.4 U	0.0002 U	0.4 U	**21**	10 U	10 U	1 U	0.4 U	0.00052	0.4 U	0.4 U	0.00026	0.4 U	0.0002 U	**172**
	10/27/09	10 U	0.4 U	0.4 U	0.4 U	1 U	10 U	0.4 U	0.4 U	0.4 U	1 U	40 UJ	0.4 U	0.4 U	0.0002 U	0.4 U	**25**	10 U	10 U	1 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.0002 U	**123**
	01/13/10	0.03 U	0.0012 U	0.0012 U	0.0012 U	0.003 U	0.03 U	0.0012 U	0.0012 U	0.0012 U	0.003 U	0.12 U	0.0012 U	0.0012 U	0.00002 U	0.0012 U	0.0012 U	0.03 U	0.03 U	0.003 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.00002 U	0.4
	04/06/10	0.250 U	0.01 U	0.01 U	0.01 U	0.025 U	0.25 U	0.01 U	0.01 U	0.01 U	0.025 U	1 U	0.01 U	0.01 U	0.0002 U	0.01 U	**20 D**	0.25 U	0.25 U	0.025 U	0.62	0.00045	0.15	0.01 U	0.0002 U	0.01 U	0.0002 U	**103 D**
	07/15/10	5 UJ	0.2 U	0.2 U	0.2 U	1 U	5 U	0.2 U	0.2 U	0.2 U	0.5 U	20 U	0.2 U	0.2 U	0.0002 U	0.2 U	**20**	5 U	5 U	0.5 U	0.2 U	0.2 U	0.34	0.2 U	0.2 U	0.2 U	0.0002 U	**84**
	10/12/10	5 U	0.2 U	0.2 U	0.2 U	1 U	5 U	0.2 U	0.2 U	0.2 U	0.5 U	20 U	0.2 U	0.2 U	0.00002 U	0.2 U	**22**	5 U	5 U	0.5 U	0.2 U	0.00046	0.21	0.2 U	0.00018	0.2 U	0.00002 U	**105**
	01/12/11	5 U	0.2 U	0.2 U	0.2 U	1 U	5 U	0.2 U	0.2 U	0.2 U	0.5 U	20 U	0.2 U	0.2 U	0.0002 U	0.2 U	**20**	5 U	5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.0002 U	**94**
	04/11/11	5 U	0.2 U	0.2 U	0.2 U	1 U	5 U	0.2 U	0.2 U	0.2 U	0.5 U	20 U	0.2 U	0.2 U	0.0002 U	0.2 U	**22**	5 U	5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.0002 U	**103**
	07/13/11	5 U	0.2 U	0.2 U	0.2 U	1 U	5 U	0.2 U	0.2 U	0.2 U	0.5 U	NA	0.2 U	0.2 U	0.0002 U	0.2 U	**19**	5 U	5 U	0.5 U	0.2 U	0.00049	0.2 U	0.2 U	0.0002 U	0.2 U	0.0002 U	**90**
	10/15/11	5 U	0.2 U	0.2 U	0.2 UJ	1 U	5 U	0.2 U	0.2 U	0.2 U	0.5 U	20 U	0.2 U	0.2 U	0.0002 U	0.2 U	**20**	5 U	5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.0002 U	**95**
	01/13/12	5 U	0.2 U	0.2 U	0.2 U	1 U	5 U	0.2 U	0.2 U	0.2 U	0.5 U	20 U	0.2 U	0.2 U	0.0002 U	0.2 U	**18**	5 U	5 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.0002 U	**82**
	04/05/12	1.0 U	0.04 U	0.1 U	0.1 U	0.1 U	1.0 U	0.1 U	0.1 U	0.04 U	0.1 U	5.0 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	11 E DNR	1.0 U	1.0 U	0.1 U	0.1 U	0.04 U	0.12	0.1 U	0.04 U	0.1 U	0.04 U DNR	47 E DNR
	04/05/12 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**16**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**73**
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0021**	NA
	07/10/12	0.5 U	0.02 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U	0.05 U	0.02 U	0.05 U	2.5 U	0.05 U	0.02 U	0.02 U DNR	0.02 U	3.8 E DNR	0.5 U	0.5 U	0.05 U	0.05 U	0.02 U	0.023	0.05 U	0.02 U	0.05 U	0.02 U DNR	15.4 E DNR
	07/10/12 (DL)	5.0 U DNR	0.2 U DNR	0.5 U DNR	0.5 U DNR	0.5 U DNR	5.0 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR	0.5 U DNR	25 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR	0.2 U DNR	**3.5**	5.0 U DNR	5.0 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR	0.5 U DNR	0.2 U DNR	0.5 U DNR	0.2 U DNR	**14.2**
	07/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.002 U	NA
	10/03/12	0.5 U	0.02 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U	0.05 U	0.02 U	0.05 U	2.5 U	0.05 U	0.02 U	0.02 U DNR	0.02 U	7.0 E DNR	0.5 U	0.5 U	0.05 U	0.05 U	0.02 U	0.097	0.05 U	0.02 U	0.05 U	0.02 U DNR	32 E DNR
	10/3/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	250 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	**17**	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**71**
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00040 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.00028 X**	NA
	01/13/13	1.0 U	0.04 U	0.1 U	0.1 U	0.1 U	1.0 U	0.1 U	0.1 U	0.04 U	0.1 U	5.0 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	15 E DNR	1.0 U	1.0 U	0.1 U	0.1 U	0.04 U	0.027 X	0.1 U	0.04 U	0.1 U	0.04 U DNR	60 E DNR
	01/13/13 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**19**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**83**
	01/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U	NA
	04/06/13	0.25 U	0.01 U	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	1.3 U	0.025 U	0.01 U	0.01 U DNR	0.01 U	4.7 E DNR	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U	0.0095 X	0.025 U	0.01 U	0.025 U	0.01 U DNR	19 E DNR
	04/6/13 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**15**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**57.9**
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	07/01/13	1.0 U	0.04 U	0.1 U	0.1 U	0.1 U	1.0 U	0.1 U	0.1 U	0.04 U	0.1 U	5.0 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	11 E DNR	1.0 U	1.0 U	0.1 U	0.1 U	0.04 U	0.04 U	0.1 U	0.04 U	0.1 U	0.04 U DNR	34.4 E DNR
	07/1/13 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**12**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**41.2**
	07/1/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00020 U	NA
	10/08/13	1 U	0.04 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.04 U	0.1 U	5 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	14 E DNR	1 U	1 U	0.1 U	0.1 U	0.04 U	0.1	0.1 U	0.04 U	0.1 U	0.04 U DNR	58 E DNR
	10/08/13 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**20**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**85**
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	01/10/14	1 U	0.04 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.04 U	0.1 U	5 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	13 E DNR	1 U	1 U	0.1 U	0.1 U	0.04 U	0.058	0.1 U	0.04 U	0.1 U	0.04 U DNR	55 E DNR
	01/10/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**20**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**84**
	01/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	04/03/14	1 U	0.04 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.04 U	0.1 U	5 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	13 E DNR	1 U	1 U	0.1 U	0.1 U	0.04 U	0.052	0.1 U	0.04 U	0.1 U	0.04 U DNR	50 E DNR
	04/3/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**18**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**74**
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	07/08/14	1.8 J	0.025 X	0.1 U	0.1 U	0.1 U	0.33 X	0.1 U	0.1 U	0.031 X	0.1 U	5 UJ	0.1 U	0.04 U	0.04 U DNR	0.04 U	12 E DNR	0.3 X	1 U	0.1 U	0.1 U	0.04 U	0.041	0.1 U	0.04 U	0.1 U	0.04 U DNR	41.3 E DNR
	07/08/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**14**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**50.8**
	07/08/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	10/14/14	1 U	0.04 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.04 U	0.1 U	5 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	9.9 E DNR	1 U	1 U	0.1 U	0.1 U	0.04 U	0.021 X	0.1 U	0.04 U	0.1 U	0.04 U DNR	41.1 E DNR
	10/14/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**9.5**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**39.7**
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	10/14/14 (DUP)	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**9.9**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U	0.1 U	0.25 U	0.1 U	0.25 U	0.1 U DNR	40.7 E DNR
	10/14/14 (DUP DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	9.2 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**39.0**
	10/14/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	01/05/15	1 U	0.04 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.04 U	0.1 U	5 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	8.6 E DNR	1 U	1 U	0.1 U	0.1 U	0.04 U DNR	0.04 U	0.1 U	0.04 U DNR	0.1 U	0.04 U DNR	32.2 E DNR
	1/5/15 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**8.9**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**36.9**
	1/5/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	**0.0012**	NA	0.001 U	NA
	04/03/15	1 U	0.04 U	0.1 U	0.1 U	0.1 U	1 U	0.1 UJ	0.1 U	0.04 U	0.1 U	5 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	7.2 E DNR	1 U	1 U	0.1 U	0.1 U	0.04 U DNR	0.04 U	0.1 U	0.04 U DNR	0.1 U	0.04 U DNR	23 E DNR
	04/03/15 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**5.3**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**18**
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	0.00023	NA	NA	0.00014 X	NA	0.0002 U	NA
	04/03/15 (DUP)	0.5 U	0.02 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 UJ	0.05 U	0.02 U	0.05 U	2.5 U	0.05 U	0.02 U	0.02 U DNR	0.02 U	5.7 E DNR	0.5 U	0.5 U	0.05 U	0.05 U	0.02 U DNR	0.014 X	0.05 U	0.02 U DNR	0.05 U	0.02 U DNR	21 E DNR
	04/03/15 (DUP DL)	5 U DNR	0.2 U DNR	0.5 U DNR	0.5 U DNR	0.5 U DNR	5 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR	0.5 U DNR	25 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR	0.2 U DNR	**7.4**	5 U DNR	5 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR	0.5 U DNR	0.2 U DNR	0.5 U DNR	0.2 U DNR	**26**
	04/03/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	0.00022	NA	NA	0.00012 X	NA	0.0002 U	NA
EGW008	01/31/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	NA	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	05/01/95	0.005 U	0.001 U	NA	NA	0.0031	0.005 U	0.001 U	0.002 U	**0.0027**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	08/10/95	0.005 U	0.001 U	NA	NA	**0.016**	0.005 U	0.001 U	0.002 U	**0.0095**	0.0052	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	11/09/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0061**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	02/29/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	05/30/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	05/30/96 (DUP)	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	08/27/96	0.005 U	0.001 U	NA	NA	0.0048	0.005 U	0.001 U	0.002 U	**0.0093**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	12/03/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.003**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	03/10/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	05/21/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0016**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.001 U
	08/12/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0067**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.001 U
	11/17/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.001 U
	03/09/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	05/12/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	**0.0016**	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	08/11/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	**0.0061**	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	11/09/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	**0.0024**	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.002 UJ	0.00001 U	0.001 U
	02/01/99	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	05/10/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/02/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/09/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.0014	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/01/00	0.005 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	05/01/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 UJ	0.001 U
	07/31/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.0057 J**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/14/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.0051 J**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/01/01	0.005 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.001 UJ	0.00002 U	0.001 U
	05/01/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/06/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.0017**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/12/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.0016**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/04/02	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0008	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	05/06/02	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	08/05/02	0.0025 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.0021**	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	11/16/02	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.004**	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.00002 U	0.0004 U

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW008 (continued)	02/04/03	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0011	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	05/05/03	0.0016	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0006	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	07/22/03	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.0032**	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.00002 U	0.0004 U
	11/04/03	0.0017 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.0048**	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	01/21/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.002**	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/14/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0008	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	07/13/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0009	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/01/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.0054**	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005	0.00002 U	0.0004 U
	01/11/05	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0004	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.000021 J	0.0004 U
	04/11/05	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0005	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/17/05	0.0013 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.001	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/19/06	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/17/06	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0008	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.000041	0.0002 U	0.0002 U	0.000097	0.0002 U	0.00002 U	0.0004 U
	04/03/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000022	0.0002 U	0.00002 U	0.0004 U
	10/25/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.0022**	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.000022	0.0002 U	0.0002 U	0.000091	0.0002 U	0.00002 U	0.0004 U
	04/01/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.04 UJ	0.0002 U	0.0002 U	0.00002 U	0.00002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000023	0.0002 U	0.00002 U	0.0004 U
	10/07/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	**0.0022**	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00008	0.0002 U	0.00002 U	0.0004 U
	04/06/09	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00003	0.0002 U	0.00002 U	0.0004 U
	10/27/09	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0005	0.0005 U	0.02 UJ	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000024	0.0002 U	0.0002 U	0.00011	0.0002 U	0.00002 U	0.0004 U
	04/06/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000024	0.0002 U	0.00002 U	0.0004 U
	10/12/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000022	0.0002 U	0.00002 U	0.0004 U
	04/11/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0004 U
	10/15/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 UJ	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000064	0.0002 U	0.00002 U	0.0004 U
	04/05/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0002 X	0.0002 U DNR	0.0005 U
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000017 X	NA	0.00002 U	NA
	10/03/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0009	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0001 X DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000026	NA	NA	NA	NA	NA	NA	0.000016 X	NA	NA	0.00010	NA	0.00002 U	NA
	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000019 X	NA	0.00002 U	NA
	10/08/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 X	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000021	NA	NA	NA	NA	NA	NA	0.000011 X	NA	NA	0.000079	NA	0.00002 U	NA
	04/03/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0008
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000015 X	NA	0.00002 U	NA
	10/14/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000019 X	NA	NA	NA	NA	NA	NA	0.000014 X	NA	NA	0.000086	NA	0.00002 U	NA
	04/02/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 UJ	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/02/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000019 X	NA	0.00002 U	NA
EGW009	01/31/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.072	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.0125
	05/01/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.094	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.0172
	08/10/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.044	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.0193
	11/09/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.052	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.0189
	02/29/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.0087	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.004
	05/30/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.022	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.007
	08/27/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.017	0.005 U	0.005 U	0.002 U	NA	NA	0.001	NA	NA	NA	0.002 U	0.0064
	12/03/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.0079	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.0018
	03/07/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.023	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.0041
	05/22/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.0052	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.0035
	08/12/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.037	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.0135
	11/17/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.016	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.0076
	03/10/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.015	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.0064
	05/12/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0082	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.003
	08/10/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0085	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 UJ	0.00001 U	0.0011
	11/09/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0019	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.002 UJ	0.00001 U	0.001 U
	02/01/99	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	05/10/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/02/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/02/99 (DUP)	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.0021 U
	11/08/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.019	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.0027
	02/01/00	0.005 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0098 J	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.00002 U	0.004
	05/01/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.022	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 UJ	0.0094
	07/31/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.021	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.012
	11/14/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.012	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/01/01	0.005 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.001 UJ	**0.00015**	0.0012
	05/01/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0089	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/06/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.0022
	11/12/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.01	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/05/02	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0004 U
	05/02/02	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0065	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.00002 U	0.0011
	08/05/02	0.0021 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.018 J	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.00002 U	0.0085
	11/16/02	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.04 U	0.0004 U	0.0004 U	0.00002 U	0.0004 U	0.016	0.002 U	0.002 U	0.0006 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.00002 U	0.004
	02/04/03	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.04 U	0.0004 U	0.0004 U	0.00002 U	0.0004 U	0.016	0.002 U	0.002 U	0.0006 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.00002 U	0.0008 U
	05/05/03	0.0015	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.010	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	0.00002 U	0.0004 U
	07/22/03	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.04 U	0.0004 U	0.0004 U	0.00002 U	0.0004 U	0.022	0.002 U	0.002 U	0.0006 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.00002 U	0.0056
	11/04/03	0.003 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.002 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.08 U	0.0004 U	0.0004 U	0.00002 U	0.0004 U	0.023	0.002 U	0.002 U	0.0006 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.00002 U	0.0077
	01/21/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005	0.00002 U	0.0004 U
	04/14/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.015	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0004 U
	07/13/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0094	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.00002 U	0.0004
	10/01/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0034	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0005	0.00002 U	0.0004 U
	01/12/05	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0029	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0003	**0.000079 J**	0.0004 U
	04/09/05	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0031	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.00002 U	0.0013
	10/17/05	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0004	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.015	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0124
	04/19/06	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0009	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0028	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.00002 U	0.0004 U
	10/17/06	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0007	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.017 D	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00016	0.0002 U	0.00002 U	0.0063

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW009 (continued)	04/03/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.0015**	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000051	0.0004	0.00002 U	0.0004 U
	10/25/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.013**	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.000039	0.0002 U	0.0002 U	0.00016	0.0002 U	0.00002 U	0.0006
	04/01/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	**0.0016**	0.0002 U	0.04 UJ	0.0002 U	0.0002 U	0.00002 U	0.00002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000062	0.0002 U	0.0002 U	0.00015	0.0002 U	0.00002 U	0.0004 U
	10/07/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	**0.0026**	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000021	0.0002 U	0.0002 U	0.00011	0.0004	0.00002 U	0.0004 U
	04/06/09	0.0025 U	0.0002 U	0.0004	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	**0.013**	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00005	0.0002 U	0.00002 U	0.0004 U
	10/27/09	0.0051 U	0.0002 U	0.0004	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	**0.015**	0.0005 U	0.02 UJ	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000058	0.0006	0.00002 U	0.0004 U
	04/06/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	**0.0036**	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000084	0.0004	0.00002 U	0.0004 U
	10/12/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0011	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00014	0.0002 U	0.00002 U	0.0004 U
	04/11/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0008	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00015	0.0002 U	0.00002 U	0.0004 U
	10/15/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0008	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 UJ	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000093	0.0002 U	0.00002 U	0.0004 U
	04/05/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0007	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0004 X	0.0002 U DNR	0.0005 U
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000075	NA	0.00002 U	NA
	10/03/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0007	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00014	NA	0.00002 U	NA
	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0002 X	0.0002 U DNR	0.0005 U
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000065	NA	0.00002 U	NA
	10/08/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0012	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0001 X DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.0001	NA	0.00002 U	NA
	04/03/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0002 X	0.0002 U DNR	0.0002 X
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000057	NA	0.00002 U	NA
	10/14/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0015	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0001 X DNR	0.0005 U	0.0002 U DNR	0.0003 X
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00011	NA	0.00002 U	NA
	04/02/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0001 X	0.0005 U	0.025 UJ	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0003 X	0.0002 U DNR	0.0005 U
	04/02/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000053	NA	0.00002 U	NA
EGW010	01/31/95	0.005 U	0.001 U	NA	NA	**0.081**	0.005 U	0.001 U	0.002 U	**0.012**	0.033	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	05/01/95	0.012 J	0.001 U	NA	NA	**0.039**	0.005 U	0.001 U	0.002 U	**0.012**	0.029	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	08/10/95	0.011	0.001 U	NA	NA	**0.06**	0.005 U	0.001 U	0.002 U	**0.01**	0.014	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	11/09/95	0.008	0.001 U	NA	NA	**0.015**	0.005 U	0.001 U	0.002 U	**0.012**	0.021	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	02/29/96	0.0078	0.001 U	NA	NA	0.0084	0.005 U	0.001 U	0.002 U	**0.01**	0.097	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	08/27/96	0.0054	0.001 U	NA	NA	0.0091	0.005 U	0.001 U	0.002 U	**0.012**	0.0041	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	12/03/96	0.0076	0.001 U	NA	NA	**0.019**	0.005 U	0.001 U	0.002 U	**0.01**	0.0039	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	03/10/97	0.005 U	0.001 U	NA	NA	**0.053**	0.005 U	0.001 U	0.002 U	**0.015**	0.01	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	05/22/97	0.007	0.001 U	NA	NA	**0.017**	0.005 U	0.001 U	0.002 U	**0.013**	0.0062	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	**0.00048 J**	0.001 U
	08/12/97	0.0056	0.001 U	NA	NA	0.0073	0.005 U	0.001 U	0.002 U	**0.02**	0.002	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	**0.00048 J**	0.001 U
	11/17/97	0.005 U	0.001 U	NA	NA	**0.012**	0.005 U	0.001 U	0.002 U	**0.017**	0.0052	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.001 U
	03/09/98	0.005 U	0.001 U	0.001 U	0.001 U	0.0029	0.005 U	0.001 U	0.002 U	**0.016**	0.0039	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	05/12/98	0.0071 U*	0.001 U	0.001 U	0.001 U	0.0032	0.005 U	0.001 U	0.002 U	**0.017**	0.0022	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	08/11/98	0.005 U	0.001 U	0.001 U	0.001 U	0.0021	0.005 U	0.001 U	0.002 U	**0.014**	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 UJ	0.00001 U	0.001 U
	11/09/98	0.005 U	0.001 U	0.001 U	0.001 U	0.0022	0.005 U	0.001 U	0.002 U	**0.016**	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.002 UJ	0.00001 U	0.001 U
	02/01/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0052	0.005 U	0.001 U	0.002 U	**0.015**	0.0044	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	05/10/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.016**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/02/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0035	0.005 U	0.001 U	0.001 U	**0.015**	0.0094	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/08/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.014**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0012	0.00002 U	0.001 U
	01/31/00	0.005 U	0.001 U	0.001 U	0.001 U	0.01	0.005 U	0.001 U	0.001 U	**0.015**	0.003	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0014	**0.0017**	0.001 U
	05/01/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.015**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0012	0.00002 UJ	0.001 U
	08/07/00	0.005 U	0.001 U	0.001 U	0.001 U	0.0016	0.005 U	0.0058 J	0.001 U	**0.016**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/13/00	0.005 U	0.001 U	0.001 U	0.001 U	**0.012**	0.005 U	0.0021	0.001 U	**0.018**	0.0028	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/01/01	0.005 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.005 U	0.002	0.001 U	**0.018**	0.0036	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.001 UJ	0.00002 U	0.001 U
	05/01/01	0.005 U	0.001 U	0.001 U	0.001 U	**0.014**	0.005 U	0.001 U	0.001 U	**0.017**	0.0072	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/06/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.015**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/12/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0035	0.005 U	0.001 U	0.001 U	**0.017**	0.0016	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/04/02	0.0011 UJ	0.0002 U	0.0003	0.0002 U	0.0002 U	0.001 U	0.0002	0.0002 U	**0.013**	0.0002 U	0.02 U	0.0002	0.0002 U	0.00002 U	0.0004	0.0002 U	0.001 U	0.001 U	0.0004	0.0002 U	0.0002 U	0.0002 U	0.0003	0.0002	0.0012	0.00002 U	0.0004 U
	05/06/02	0.002	0.0002 U	0.0002	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.014**	0.0002 U	0.02 U	0.0002	0.0002 U	0.00002 U	0.0004	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.0007	0.00002 U	0.0002 U
	08/05/02	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.011**	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0003	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.0005	0.00002 U	0.0002 U
	11/16/02	0.001 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.0084**	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0004	0.00002 U	0.0004 U
	02/04/03	0.0012 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	**0.0027**	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	05/05/03	0.0014	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0006	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	07/22/03	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0007	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	11/04/03	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0007	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	01/21/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0008	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/14/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0005	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	07/13/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0005	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/01/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	01/11/05	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/11/05	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/17/05	0.002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/19/06	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/17/06	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00013	0.0002 U	0.00002 U	0.0004 U
	04/03/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00011	0.0002 U	0.00002 U	0.0004 U
	10/25/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000084	0.0002 U	0.00002 U	0.0004 U
	04/01/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 UJ	0.0002 U	0.0002 U	0.00002 U	0.000054	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00009	0.0002 U	0.00002 U	0.0004 U
	10/07/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00011	0.0002 U	0.00002 U	0.0004 U
	04/06/09	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000073	0.0002 U	0.00002 U	0.0004 U
	10/27/09	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 UJ	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0001	0.0002 U	0.00002 U	0.0004 U
	04/06/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000081	0.0002 U	0.00002 U	0.0004 U
	10/12/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000097	0.0002 U	0.00002 U	0.0004 U
	04/11/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000066	0.0002 U	0.00002 U	0.0004 U
	10/15/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002	0.0002 U	0.005 UJ	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000068	0.0002 U	0.00002 U	0.0004 U
	04/05/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000075	NA	0.00002 U	NA
	10/03/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000090	NA	0.00002 U	NA

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW010 (continued)	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000054	NA	0.00002 U	NA
	10/08/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000075	NA	0.00002 U	NA
	04/03/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000045	NA	0.00002 U	NA
	10/14/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0003	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000070	NA	0.00002 U	NA
	04/03/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 UJ	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000066	NA	0.00002 U	NA
EGW040[2]	02/14/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	04/28/95	0.005 UJ	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	08/02/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	11/14/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	03/06/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	06/05/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	08/21/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	12/02/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	03/04/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	05/22/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.000015	0.001 U
	08/11/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 UJ	0.001 U
	08/11/97 (DUP)	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 UJ	0.001 U
	11/17/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.001 U
	11/17/97 (DUP)	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.001 U
	03/09/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	05/12/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	08/10/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 UJ	0.00001 U	0.001 U
	11/09/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.002 UJ	0.00001 U	0.001 U
EGW043	05/02/95	0.63	**0.0068**	NA	NA	0.002 U	1.7	0.001 U	0.013	0.001 U	0.002	3.50 J	**0.22**	NA	0.22	0.001 U	**5.3**	0.005 U	**4.2**	0.0023	NA	NA	**6.2**	NA	NA	NA	0.002 U	**49.8**
	11/13/95	0.92	**0.0047**	NA	NA	0.002 U	1.4	0.0017	0.0083	0.001 U	0.002 UJ	2	**0.14**	NA	0.14	0.002	**3.8**	0.005 U	**2.2**	0.0036	NA	NA	**3.3**	NA	NA	NA	0.002 UJ	**40.8**
	02/29/96	1	0.18 U	NA	NA	0.36 U	1.6	0.18 U	0.36 U	0.18 U	0.36 U	18 U	0.18 U	NA	0.18 U	0.18 U	**3.3**	0.9 U	**2**	0.36 U	NA	NA	**3.0**	NA	NA	NA	0.36 U	**36.2**
	06/04/96	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**1.8**	1.2 U	1.2 U	0.5 U	NA	NA	**4.0**	NA	NA	NA	0.5 U	**19**
	12/09/96	0.25 U	0.05 U	NA	NA	0.1 U	0.25 U	0.05 U	0.1 U	0.05 U	0.1 U	5 U	0.05 U	NA	0.05 U	0.05 U	0.66	0.25 U	0.25 U	0.1 U	NA	NA	**0.78**	NA	NA	NA	0.1 U	**8.5**
	03/07/97	0.53	0.05 U	NA	NA	0.1 U	1.1	0.05 U	0.1 U	0.05 U	0.1 U	5 U	**0.18**	NA	0.05 U	0.05 U	**5.6**	0.25 U	**2.8**	0.1 U	NA	NA	**4.8**	NA	NA	NA	0.1 U	**51.9**
	05/22/97	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**5.5**	1.2 U	**2.3**	0.5 U	NA	NA	**5.0**	NA	NA	NA	**0.00046**	**57.6**
	08/11/97	0.9 U	0.18 U	NA	NA	0.36 U	0.93	0.18 U	0.36 U	0.18 U	0.36 U	18 U	**0.27**	NA	0.18 U	0.18 U	**5.6**	0.9 U	**2.4**	0.36 U	NA	NA	**6.3**	NA	NA	NA	0.36 U	**52.9**
	11/17/97	0.75 U	0.15 U	NA	NA	0.3 U	0.75 U	0.15 U	0.3 U	0.15 U	0.3 U	15 U	**0.18**	NA	0.15 U	0.15 U	**3.6**	0.75 U	**1.7**	0.3 U	NA	NA	**4.2**	NA	NA	NA	0.002 U	**37.5**
	03/10/98	1.5 U	0.3 U	0.3 U	0.3 U	0.6 U	1.5 U	0.3 U	0.6 U	0.3 U	0.6 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**5.2**	1.5 U	**1.8**	0.6 U	0.6 U	**0.4**	**5.2**	0.3 U	0.3 U	0.6 U	0.0025 U	**56.6**
	05/12/98	2.5 U	0.5 U	0.5 U	0.5 U	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**7.9**	2.5 U	2.5 U	1 U	1 U	0.5 U	**5.8**	0.5 U	0.5 U	1 U	0.005 U	**70.2**
	08/11/98	1.2 U	0.25 U	0.25 U	0.25 U	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U	0.5 U	25 U	0.25 U	0.25 U	0.25 U	0.25 U	**3.1**	1.2 U	1.2 U	0.5 U	0.5 U	0.25 U	**2.5**	0.25 U	0.25 U	0.5 UJ	0.0025 U	**26.7**
	11/10/98	1.5 U	0.3 U	0.3 U	0.3 U	0.6 U	1.5 U	0.3 U	0.6 U	0.3 U	0.6 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**4.0**	1.5 U	1.5 U	0.6 U	0.6 U	0.3 U	**2.8**	0.3 U	0.3 U	0.6 U	**0.00027**	**38.9**
	02/02/99	1.5 U	0.3 U	0.3 U	0.3 U	0.6 U	1.5 U	0.3 U	0.6 U	0.3 U	0.6 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**3.1**	1.5 U	1.5 U	0.6 U	0.6 U	0.3 U	**2.6**	0.3 U	0.3 U	0.6 U	0.0005 U	**29.9**
	05/11/99	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	**1.1**	0.25 U	0.25 U	0.1 U	0.05 U	0.05 U	**0.68**	0.05 U	0.05 U	0.05 UJ	0.0002 U	**13.6**
	08/03/99	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	25 U	0.25 U	0.25 U	0.25 U	0.25 U	**7.0**	1.2 U	**1.5**	0.5 U	0.25 U	0.25 U	**4.4**	0.25 U	0.25 U	0.25 U	0.005 U	**55**
	11/09/99	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**3.4**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	**2.4**	0.3 U	0.3 U	0.3 U	**0.00027**	**35.5**
	02/01/00	1.5 U	0.3 UJ	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 UJ	0.3 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**4.9 J**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	**3.0 J**	0.3 U	0.3 U	0.3 U	0.0006 U	**45.9**
	05/02/00	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**5.2**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	**2.9**	0.3 U	0.3 U	0.3 U	0.0006 UJ	**44.6**
	07/31/00	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**4.2**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	**2.9**	0.3 U	0.3 U	0.3 U	0.00002 U	**45.4**
	11/14/00	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.3 U	0.3 U	**4.7**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	**2.4**	0.3 U	0.3 U	0.3 U	**0.00024**	**42.3**
	02/01/01	1 U	0.2 UJ	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.3**	1 U	1 U	0.4 U	0.2 U	0.2 U	**2.3 J**	0.2 U	0.2 UJ	0.2 UJ	**0.00023**	**46.2**
	05/01/01	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	25 U	0.25 U	0.25 U	0.25 U	0.25 U	**4.6**	1.2 U	1.2 U	0.5 U	0.25 U	0.25 U	**2.1**	0.25 U	0.25 U	0.25 U	**0.00016**	**37.7**
	08/07/01	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**3.4**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	**1.6**	0.1 U	0.1 U	0.1 U	**0.00014**	**25**
	11/13/01	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	25 U	0.25 U	0.25 U	0.25 U	0.25 U	**3.4**	1.2 U	1.2 U	0.5 U	0.25 U	0.25 U	**2.0**	0.25 U	0.25 U	0.25 U	**0.00026**	**36.2**
	02/05/02	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	15 U	0.15 U	0.15 U	0.0019	0.15 U	**1.7**	0.75 U	0.75 U	0.3 U	0.15 U	0.15 U	**0.96**	0.15 U	0.15 U	0.15 U	**0.00013**	**19**
	05/02/02	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	15 U	0.15 U	0.15 U	0.0044	0.15 U	**4.9**	0.75 U	0.75 U	0.3 U	0.15 U	0.15 U	**2.1**	0.15 U	0.15 U	0.15 U	**0.00026**	**46.5**
	08/06/02	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.0032 J	0.3 U	**10**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.0002 U	**49**
	11/16/02	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.00077 J	0.2 U	**1.6**	1 U	1 U	0.4 U	0.2 U	0.2 U	**0.85**	0.2 U	0.2 U	0.2 U	**0.00031**	**21.3**
	02/04/03	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.00091	0.2 U	**1.4**	1 U	1 U	0.3 U	0.2 U	0.2 U	**0.86**	0.2 U	0.2 U	0.2 U	**0.000099**	**18.1**
	05/06/03	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.0018	0.1 U	**4.3**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	**2.0**	0.1 U	0.1 U	0.1 U	0.0004 U	**34.7**
	07/22/03	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	15 U	0.15 U	0.15 U	0.0032	0.15 U	**5.4**	0.75 U	0.75 U	0.3 U	0.15 U	0.15 U	**2.1**	0.15 U	0.15 U	0.15 U	**0.00035**	**42.3**
	11/04/03	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	15 U	0.15 U	0.15 U	0.00059	0.15 U	**2.6**	0.75 U	0.75 U	0.3 U	0.15 U	0.15 U	0.54	0.15 U	0.15 U	0.15 U	**0.00012**	**28.4**
	01/21/04	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.0011	0.2 U	**1.4**	1 U	1 U	0.4 U	0.2 U	0.2 U	**0.66**	0.2 U	0.2 U	0.2 U	**0.000096**	**17.9**
	04/14/04	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.0012	0.1 U	**3.7**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	**1.2**	0.1 U	0.1 U	0.1 U	**0.000090**	**30.9**
	07/13/04	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.0034	0.2 U	**36**	1 U	1 U	0.4 U	0.2 U	0.2 U	**2.1**	0.2 U	0.2 U	0.2 U	**0.00032**	**61.4**
	10/01/04	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.0028	0.3 U	**8.1**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	**2.5**	0.3 U	0.3 U	0.3 U	**0.0004**	**68.6**
	01/12/05	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.0013	0.3 U	**3.4**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	**1.1**	0.3 U	0.3 U	0.3 U	**0.00016**	**28**
	04/11/05	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.00063	0.1 U	**3.1**	0.5 U	0.5 U	**0.41****	0.1 U	0.1 U	**0.96**	0.1 U	0.1 U	0.1 U	**0.000078**	**31.5**
	10/17/05	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	15 U	0.15 U	0.15 U	0.0010 J	0.15 U	**5.0**	0.75 U	0.75 U	0.3 U	0.15 U	0.15 U	**0.94**	0.15 U	0.15 U	0.15 U	**0.00065 J**	**45.4**
	04/19/06	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.0015	0.2 U	**3.7**	1 U	1 U	**0.64****	0.2 U	0.2 U	**1.2**	0.2 U	0.2 U	0.2 U	**0.00023**	**37.5**
	10/17/06	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.00073 J	0.2 U	**3.2**	1 U	1 U	0.4 U	0.2 U	0.00044 J	0.56	0.2 U	**0.0012 J**	0.2 U	**0.00089 J**	**36.0**
	04/18/07	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.00086	0.1 U	**2.4**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	**1.5**	0.1 U	0.1 U	0.1 U	**0.00012**	**29.4**
	10/25/07	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	**0.01**	0.005 U	0.5 U	0.005 U	0.005 U	0.00016	0.005 U	0.4	0.025 U	0.025 U	0.01 U	0.005 U	0.005 U	0.18	0.005 U	0.005 U	0.005 U	0.00002	**2.42 J**
	04/01/08	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	8 UJ	0.02 U	0.02 U	0.00023	0.0002 U	0.02 U	0.1 U	0.1 U	0.04 U	0.02 U	0.0002 U	0.1	0.02 U	0.00039	0.02 U	0.0002 U	**3.24**
	10/07/08	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	3 U	0.03 U	0.03 U	0.0002 U	0.03 U	0.56	0.15 U	0.15 U	0.06 U	0.03 U	0.03 U	0.27	0.03 U	0.03 U	0.03 U	0.0002 U	**6.6**
	04/06/09	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.05 U	5.0 U	0.05 U	0.05 U	0.00020 U	0.05 U	**0.75**	0.25 U	0.25 U	0.1 U	0.05 U	0.00020 U	0.4	0.05 U	0.00033	0.05 U	0.00020 U	**7.9**
	10/27/09	0.1 U	0.004 U	0.004 U	0.004 U	0.01 U	0.1 U	0.004 U	0.004 U	0.004 U	0.01 U	0.4 U	0.004 U	0.004 U	0.00002 U	0.004 U	0.004 U	0.1 U	0.1 U	0.01 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.00002 U	**1.07**
	04/06/10	0.1 U	0.004 U	0.004 U	0.004 U	0.01 U	0.1 U	0.004 U	0.004 U	0.004 U	0.01 U	0.4 U	0.004 U	0.004 U	0.000023	0.004 U	0.13	0.1 U	0.1 U	0.01 U	0.004 U	0.000085	0.11	0.004 U	0.0001	0.004 U	0.00002 U	**3.69 D**
	10/12/10	0.05 U	0.002 U	0.002 U	0.002 U	0.01 U	0.05 U	0.002 U	0.002 U	0.002 U	0.005 U	0.2 U	0.002 U	0.002 U	0.00002 U	0.002 U	0.039	0.05 U	0.05 U	0.005 U	0.002 U	0.000031	0.0049	0.002 U	0.00002 U	0.002 U	0.00002 U	0.543
	04/11/11	0.15 U	0.006 U	0.006 U	0.006 U	0.03 U	0.15 U	0.006 UJ	0.006 U	0.006 U	0.015 U	0.6 U	0.006 U	0.006 U	0.00002 U	0.006 U	0.023	0.15 U	0.15 U	0.015 U	0.006 U	0.006 U	0.041	0.006 U	0.006 U	0.006 U	0.00002 U	**3.09 J**
	10/14/11	0.15 U	0.006 U	0.006 U	0.006 UJ	0.03 U	0.15 U	0.006 U	0.006 U	0.006 U	0.015 U	0.6 U	0.006 U	0.006 U	0.00002 U	0.006 U	0.034	0.15 U	0.15 U	0.015 U	0.012	0.006 U	0.020	0.006 U	0.006 U	0.006 U	0.000027	**2.16**

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW043 (continued)	04/05/12	0.17 X	0.01 U	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	1.3 U	0.025 U	0.01 U	0.01 U DNR	0.01 U	0.055	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U	0.033	0.025 U	0.01 U	0.025 U	0.01 U DNR	0.542
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0021**	NA
	10/03/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 UJ	0.025 U	0.001	0.0002 U	0.0002 U DNR	0.0001 X	0.0013	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0028
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000019 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.000068**	NA
	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0002 X	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0015
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	10/08/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0004 X	0.0002 U	0.0002 U DNR	0.0002 U	0.0016	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0001 X	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0051
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000015 X	NA
	04/03/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0002 X	0.0002 U	0.0002 U DNR	0.0002 U	0.0006	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0027
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	10/15/14	0.25 U	0.01 U	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	1.3 U	**0.012 X**	0.01 U	0.01 U DNR	0.01 U	2.1 E DNR	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U	0.35	0.025 U	0.01 U	0.025 U	0.01 U DNR	12.5 E DNR
	10/15/14 (DL)	2.5 U DNR	0.1 U DNR	0.25 U DNR	0.25 U DNR	0.25 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	13 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	**2.0**	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.36 DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	**16.9**
	10/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00039	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.00040**	NA
	04/03/15	0.1 U	0.004 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 UJ	0.01 U	0.004 U	0.01 U	0.5 U	**0.0089 X**	0.004 U	0.004 U DNR	0.004 U	1.1 E DNR	0.1 U	0.1 U	0.01 U	0.01 U	0.004 U DNR	0.32	0.0021 X	0.004 U DNR	0.01 U	0.004 U DNR	6.7 E DNR
	04/03/15 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**1.5**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.36 X DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**13**
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00033	NA	NA	NA	NA	NA	NA	0.00016 X	NA	NA	0.0004	NA	**0.00015 X**	NA
EGW044	05/02/95	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0052**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.002 U
	11/13/95	0.0056 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0037**	0.002 UJ	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 UJ	0.0012
	02/29/96	0.017	0.001 U	NA	NA	0.002 U	0.027	0.001 U	0.002 U	**0.002**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.0031	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.0021
	06/04/96	0.01	0.001 U	NA	NA	0.002 U	0.0073	0.001 U	0.002 U	**0.005**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	06/04/96 (DUP)	0.0092	0.001 U	NA	NA	0.002 U	0.0058	0.001 U	0.002 U	**0.0058**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	08/28/96	0.0066	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0032**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	12/03/96	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0025**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	03/07/97	0.0062	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0016**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.002 U	0.001 U
	05/22/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0062**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.000015	0.001 U
	05/22/97 (DUP)	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0056**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	**0.00011**	0.001 U
	08/11/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.007**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 UJ	0.001 U
	11/19/97	0.005 U	0.001 U	NA	NA	0.002 U	0.005 U	0.001 U	0.002 U	**0.0032**	0.002 U	0.1 U	0.001 U	NA	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	NA	NA	0.001 U	NA	NA	NA	0.00001 U	0.001 U
	03/10/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	**0.0021**	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	05/12/98	0.0072 U*	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.000015	0.001 U
	08/11/98	0.073	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 UJ	0.00001 U	0.0012
	11/10/98	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	02/02/99	0.005 U	0.001 U	0.001 U	0.001 U	0.002 U	0.005 U	0.001 U	0.002 U	0.001 U	0.002 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002 U	0.00001 U	0.001 U
	05/11/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.00002 U	0.001 U
	08/03/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/09/99	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/01/00	0.005 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	05/02/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 UJ	0.001 U
	07/31/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/14/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/01/01	0.005 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.001 UJ	0.00002 U	0.001 U
	05/01/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	**0.0016**	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	08/07/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	11/13/01	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.001 U
	02/05/02	0.0027	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0005	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	05/02/02	0.0023	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0004	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	08/06/02	0.0021 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	11/16/02	0.0014 UJ	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	02/04/03	0.0016	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	05/06/03	0.0016 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	07/22/03	0.0032	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0023	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0005	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.022
	11/04/03	0.0024 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	01/21/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0007	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/14/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0014	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002	0.00002 U	0.0004 U
	07/13/04	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/01/04	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.001	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0106
	01/12/05	0.0019	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/11/05	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	10/17/05	0.0015 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0004 U
	04/19/06	0.0013 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0004	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0005	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0056
	10/17/06	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0004 U
	04/03/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.000028	0.0004 U
	10/25/07	0.003 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.0002 UJ	0.001 UJ	0.0002 UJ	0.0002 UJ	**0.0016 J**	0.0002 UJ	0.04 UJ	0.0002 UJ	0.0002 UJ	0.00002 U	0.0002 UJ	0.0002 UJ	0.003 UJ	0.001 UJ	0.0003 UJ	0.0002 UJ	0.00002 U	0.0002 UJ	0.0002 UJ	0.00002 U	0.0002 UJ	0.00002 U	0.0004 UJ
	04/01/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002	0.0002 U	0.04 UJ	0.0002 U	0.0002 U	0.00002 U	0.00002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0005
	10/07/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0003	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0004 U
	04/06/09	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0007
	10/27/09	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0029
	04/06/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0004 U
	10/12/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0014
	04/11/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0004 U
	10/15/11	0.005 U	0.0002 U	0.0004	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	**0.0097**	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.005 UJ	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0004 U
	04/05/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0004 X
	04/05/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	10/03/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 UJ	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	10/08/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	04/03/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	10/15/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0013	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0003	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0111
	10/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW050[1]	05/30/96	2.5 U	0.5 U	NA	NA	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**14**	2.5 U	2.5 U	1 U	NA	NA	**2.3**	NA	NA	NA	1 U	**148**
	08/27/96	2.5 U	0.5 U	NA	NA	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**15**	2.5 U	2.5 U	1 U	NA	NA	**2.2**	NA	NA	NA	1 U	**159**
	08/27/96 (DUP)	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**16**	5 U	5 U	2 U	NA	NA	**2.8**	NA	NA	NA	2 U	**159**
	12/09/96	2.5 U	0.5 U	NA	NA	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**14**	2.5 U	2.5 U	1 U	NA	NA	**2.3**	NA	NA	NA	1 U	**147**
	03/07/97	2.5 U	0.5 U	NA	NA	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**17**	2.5 U	2.5 U	1 U	NA	NA	**2.3**	NA	NA	NA	1 U	**149**
	03/07/97 (DUP)	2.5 U	0.5 U	NA	NA	1 U	2.5 U	0.5 U	1 U	0.5 U	1 U	50 U	0.5 U	NA	0.5 U	0.5 U	**18**	2.5 U	2.5 U	1 U	NA	NA	**2.6**	NA	NA	NA	1 U	**160**
	05/22/97	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**18**	5 U	5 U	2 U	NA	NA	**2.5**	NA	NA	NA	**0.00018**	**171**
	08/12/97	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	NA	1 U	1 U	**21**	5 U	5 U	2 U	NA	NA	**2.7**	NA	NA	NA	2 U	**174**
	11/17/97	0.9 U	0.18 U	NA	NA	0.36 U	0.9 U	0.18 U	0.36 U	0.18 U	0.36 U	18 U	0.18 U	NA	0.18 U	0.18 U	**19**	0.9 U	0.9 U	0.36 U	NA	NA	**3.0**	NA	NA	NA	0.005 U	**202**
	03/10/98	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**19**	5 U	5 U	2 U	2 U	1 U	**3.2**	1 U	1 U	2 U	0.00001 U	**204**
	05/13/98	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**22**	5 U	5 U	2 U	2 U	1 U	**2.6**	1 U	1 U	2 U	0.01 U	**183**
	08/11/98	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**18**	5 U	5 U	2 U	2 U	1 U	**2.6**	1 U	1 U	2 UJ	0.01 U	**149**
	11/10/98	7.5 U	1.5 U	1.5 U	1.5 U	3 U	7.5 U	1.5 U	3 U	1.5 U	3 U	150 U	1.5 U	1.5 U	1.5 U	1.5 U	**19**	7.5 U	7.5 U	3 U	3 U	1.5 U	**3 J**	1.5 U	1.5 UJ	3 UJ	**0.000059**	**171**
	02/01/99	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U	2 U	100 U	1 U	1 U	1 U	1 U	**15**	5 U	5 U	2 U	2 U	1 U	**2.6**	1 U	1 U	2 U	0.002 U	**160**
	05/11/99	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**18**	5 U	5 U	2 U	1 U	1 U	**2.7**	1 U	1 U	1 UJ	0.002 U	**182**
	08/02/99	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**21**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**3.4**	0.5 U	0.5 U	0.5 U	0.005 U	**217**
	11/09/99	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**16**	5 U	5 U	2 U	1 U	1 U	**2.5**	1 U	1 U	1 U	**0.000037**	**139**
	02/01/00	5 U	1 UJ	1 U	1 U	1 U	5 U	1 U	1 U	1 UJ	1 U	100 U	1 U	1 U	1 U	1 U	**20 J**	5 U	5 U	2 U	1 U	1 U	**3.0 J**	1 U	1 U	1 U	0.002 U	**183**
	05/02/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**17**	5 U	5 U	2 U	1 U	1 U	**2.6**	1 U	1 U	1 U	0.002 UJ	**150**
	07/31/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**16**	5 U	5 U	2 U	1 U	1 U	**2.5**	1 U	1 U	1 U	0.002 U	**150**
	11/14/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**17**	5 U	5 U	2 U	1 U	1 U	**2.7**	1 U	1 U	1 U	**0.000034**	**162**
	02/05/01	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	1 U	1 U	**20**	5 U	5 U	2 U	1 U	1 U	**2.7**	1 U	1 U	1 U	**0.000033**	**194**
	05/01/01	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**17**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.7**	0.5 U	0.5 U	0.5 U	0.00002 U	**152**
	08/07/01	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**15**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.7**	0.5 U	0.5 U	0.5 U	0.00002 U	**115**
	11/12/01	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	150 U	1.5 U	1.5 U	1.5 U	1.5 U	**14**	7.5 U	7.5 U	3 U	1.5 U	1.5 U	**2.4**	1.5 U	1.5 U	1.5 U	0.00002 U	**148**
	02/05/02	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.00002 U	0.5 U	**15**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.3**	0.5 U	0.5 U	0.5 U	0.00002 U	**180**
	05/06/02	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	150 U	1.5 U	1.5 U	0.000098 J	1.5 U	**14**	7.5 U	7.5 U	3 U	1.5 U	1.5 U	**2.4**	1.5 U	1.5 U	1.5 U	0.00002 U	**148**
	08/06/02	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.00002 U	1 U	**15**	5 U	5 U	2 U	1 U	1 U	**2.5**	1 U	1 U	1 U	0.0002 U	**148**
	11/16/02	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	75 U	0.75 U	0.75 U	0.00013	0.75 U	**16**	3.7 U	3.7 U	1.5 U	0.75 U	0.75 U	**2.8**	0.75 U	0.75 U	0.75 U	0.000023	**161**
	02/04/03	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	150 U	1.5 U	1.5 U	0.000091	1.5 U	**13**	7.5 U	7.5 U	2.2 U	1.5 U	1.5 U	**2.2**	1.5 U	1.5 U	1.5 U	0.00002 U	**137**
	05/05/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0025 U	0.5 U	**19**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**3.0**	0.5 U	0.5 U	0.5 U	0.0025 U	**153**
	07/22/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**15**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.7**	0.5 U	0.5 U	0.5 U	0.0002 U	**140**
	11/04/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**18**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.9**	0.5 U	0.5 U	0.5 U	0.0002 U	**185**
	01/21/04	10 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	200 U	2 U	2 U	0.0002 U	2 U	**20**	10 U	10 U	4 U	2 U	2 U	**3.2**	2 U	2 U	2 U	0.0002 U	**203**
	04/14/04	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**17**	5 U	5 U	2 U	1 U	1 U	**2.6**	1 U	1 U	1 U	0.0002 U	**160**
	07/13/04	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**15**	5 U	5 U	2 U	1 U	1 U	**2.6**	1 U	1 U	1 U	0.0002 U	**148**
	10/01/04	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	75 U	0.75 U	0.75 U	0.0002 U	0.75 U	**21**	3.7 U	3.7 U	1.5 U	0.75 U	0.75 U	**3.3**	0.75 U	0.75 U	0.75 U	0.0002 U	**204**
	01/12/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**16**	5 U	5 U	2 U	1 U	1 U	**2.4**	1 U	1 U	1 U	0.0002 U	**138**
	04/11/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**21**	5 U	5 U	**4****	1 U	1 U	**3.4**	1 U	1 U	1 U	0.0002 U	**217**
	10/17/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 UJ	1 U	**17**	5 U	5 U	2 U	1 U	1 U	**2.7**	1 U	1 U	1 U	0.0002 UJ	**170**
	04/19/06	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.0002 U	1 U	**49**	5 U	5 U	2 U	1 U	1 U	**5.3**	1 U	1 U	1 U	0.0002 U	**453**
	10/17/06	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	75 U	0.75 U	0.75 U	0.0002 UJ	0.75 U	**14**	3.8 U	3.8 U	1.5 U	0.75 U	0.0047 J	**2.1**	0.75 U	**0.012 J**	0.75 U	0.0002 UJ	**156**
	04/03/07	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 UJ	0.5 U	0.5 U	0.0002 U	0.5 U	**14**	2.5 U	2.5 U	1.0 U	0.5 U	0.5 U	**2.2**	0.5 U	0.5 U	0.5 U	0.0002 U	**139**
	10/25/07	10 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	200 U	2 U	2 U	0.0002 U	2 U	**15**	10 U	10 U	4 U	2 U	2 U	**2.6**	2 U	2 U	2 U	0.0002 U	**147**
	04/01/08	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	400 UJ	0.5 U	0.5 U	0.0002 U	0.00028	**14 J**	2.5 U	2.5 U	1 U	0.5 U	0.0025	**2.1 J**	0.5 U	**0.0079**	0.5 U	0.0002 U	**118 J**
	10/07/08	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.001 U	0.5 U	**18**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**3.0**	0.5 U	0.5 U	0.5 U	0.001 U	**186 D**
	04/06/09	5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.001 U	0.5 U	**19**	2.5 U	2.5 U	1.0 U	0.5 U	0.0031	**2.7**	0.5 U	**0.0084**	0.5 U	**0.001**	**207**
	10/27/09	10 U	0.4 U	0.4 U	0.4 U	1 U	10 U	0.4 U	0.4 U	0.4 U	1 U	40 U	0.4 U	0.4 U	0.0002 UJ	0.4 U	**16**	10 U	10 U	1 U	0.4 U	0.4 U	**2.8**	0.4 U	0.4 U	0.4 U	0.0002 UJ	**162**
	04/06/10	10 U	0.4 U	0.4 U	0.4 U	1 U	10 U	0.4 U	0.4 U	0.4 U	1 U	40 U	0.4 U	0.4 U	0.0002 U	0.4 U	**14**	10 U	10 U	1 U	0.4 U	0.0016	**2.1**	0.4 U	**0.0058**	0.4 U	0.0002 U	**161**
	10/12/10	1 U	0.04 U	0.04 U	0.04 U	0.2 U	1 U	0.04 U	0.04 U	0.04 U	0.1 U	4 U	0.04 U	0.04 U	0.0002 U	0.04 U	**1.5**	1 U	1 U	0.1 U	0.04 U	0.0013	0.25	0.04 U	**0.0055**	0.04 U	0.0002 U	**15.1**
	04/11/11	7.5 U	0.3 U	0.3 U	0.3 U	1.5 U	7.5 U	0.3 U	0.3 U	0.3 U	0.75 U	30 U	0.3 U	0.3 U	0.0002 U	0.3 U	**18**	7.5 U	7.5 U	0.75 U	0.3 U	0.3 U	**2.5**	0.3 U	0.3 U	0.3 U	0.0002 U	**177**
	10/15/11	7.5 U	0.3 U	0.3 U	0.3 UJ	1.5 U	7.5 U	0.3 U	0.3 U	0.3 U	0.75 U	30 U	0.3 U	0.3 U	0.0002 U	0.3 U	**15**	7.5 U	7.5 U	0.75 U	0.3 U	0.3 U	**2.3**	0.3 U	0.3 U	0.3 U	0.0002 U	**149**
	04/05/12	1.0 U	0.04 U	0.1 U	0.1 U	0.1 U	1.0 U	0.1 U	0.1 U	0.04 U	0.1 U	5.0 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	9.7 E DNR	1.0 U	1.0 U	0.1 U	0.1 U	0.04 U	**1.8**	0.1 U	0.04 U	0.1 U	0.04 U DNR	58 E DNR
	04/05/12 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**14**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.2 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**161**
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.004 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.0082**	NA
	10/03/12	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	14 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U	**2.2**	0.25 U	0.1 U	0.25 U	0.1 U DNR	96 E DNR
	10/3/12 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**14**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.2 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**139**
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.00077 X**	NA
	04/06/13	0.5 U	**0.013 X**	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U	0.05 U	0.02 U	0.05 U	2.5 U	0.05 U	0.02 U	0.02 U DNR	0.02 U	7.9 E DNR	0.5 U	0.5 U	0.05 U	0.05 U	0.02 U	**2.0**	0.05 U	0.02 U	0.05 U	0.02 U DNR	47 E DNR
	04/6/13 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**13**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.0 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**150**
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	10/08/13	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**12**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U	1.7 DNR	0.25 U	0.1 U	0.25 U	0.1 U DNR	103 E DNR
	10/08/13 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	13 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	**2.1**	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**138**
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	02/26/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 UJ	0.25 U	0.1 U	0.1 U DNR	0.1 U	**11**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U	**1.7**	0.25 U	0.1 U	0.25 U	0.1 U DNR	82 E DNR
	02/26/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	11 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.7 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**116**
	02/26/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	04/01/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 UJ	0.25 U	0.1 U	0.1 U DNR	0.1 U	14 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U	**1.9**	0.25 U	0.1 U	0.25 U	0.1 U DNR	104 E DNR
	04/1/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**13**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.8 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**139**
	04/1/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	04/03/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	14 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U	**1.9**	0.25 U	0.1 U	0.25 U	0.1 U DNR	108 E DNR
	04/3/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**13**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.8 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**139**
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA
	08/25/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	13 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U	**1.8**	0.25 U	0.1 U	0.25 U	0.1 U DNR	120 E DNR
	08/25/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**12**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.8 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**128**
	08/25/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	08/25/14 (DUP)	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	13 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**1.8**	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	115 E DNR
	08/25/14 (DUP DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**12**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.7 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**127**
	08/25/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00040 U	NA	NA	NA	NA	NA	NA	0.0012	NA	NA	**0.0047**	NA	0.00040 U	NA

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)
EGW050[1] (continued)	10/14/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U
	10/14/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/02/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U
	12/02/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/02/14 (DUP)	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U
	12/02/14 (DUP DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR
	12/02/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/15	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 UJ	0.25 U	0.1 U
	04/03/15 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
EGW051[1]	05/30/96	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U
	08/27/96	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U
	12/03/96	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U
	03/07/97	1.2 U	0.25 U	NA	NA	0.5 U	1.2 U	0.25 U	0.5 U	0.25 U
	05/22/97	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U
	08/12/97	5 U	1 U	NA	NA	2 U	5 U	1 U	2 U	1 U
	11/17/97	7.5 U	1.5 U	NA	NA	3 U	7.5 U	1.5 U	3 U	1.5 U
	03/10/98	3.7 U	0.75 U	0.75 U	0.75 U	1.5 U	3.7 U	0.75 U	1.5 U	0.75 U
	05/13/98	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U
	08/11/98	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U
	11/10/98	7.5 U	1.5 U	1.5 U	1.5 U	3 U	7.5 U	1.5 U	3 U	1.5 U
	02/01/99	5 U	1 U	1 U	1 U	2 U	5 U	1 U	2 U	1 U
	05/11/99	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	08/02/99	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	11/09/99	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	02/01/00	5 U	1 UJ	1 U	1 U	1 U	5 U	1 U	1 U	1 UJ
	05/02/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	07/31/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	11/14/00	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	02/05/01	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	05/01/01	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	08/07/01	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	11/12/01	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U
	02/05/02	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	05/06/02	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U
	08/06/02	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	11/16/02	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	3.7 U	0.75 U	0.75 U	0.75 U
	02/04/03	7.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7.5 U	1.5 U	1.5 U	1.5 U
	05/05/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	07/22/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	11/04/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	01/21/04	10 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U
	04/14/04	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	07/13/04	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	10/01/04	3.7 U	0.75 U	0.75 U	0.75 U	0.75 U	3.7 U	0.75 U	0.75 U	0.75 U
	01/12/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	04/11/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	10/17/05	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	04/19/06	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
	10/17/06	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U
	04/03/07	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	10/25/07	10 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U
	04/01/08	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	10/07/08	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	04/06/09	5.0 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U
	10/27/09	10 U	0.4 U	0.4 U	0.4 U	1 U	10 U	0.4 U	0.4 U	0.4 U
	04/06/10	10 U	0.4 U	0.4 U	0.4 U	1 U	10 U	0.4 U	0.4 U	0.4 U
	10/12/10	1 U	0.04 U	0.04 U	0.04 U	0.2 U	1 U	0.04 U	0.04 U	0.04 U
	04/11/11	7.5 U	0.3 U	0.3 U	0.3 U	1.5 U	7.5 U	0.3 U	0.3 U	0.3 U
	10/15/11	7.5 U	0.3 U	0.3 U	0.3 UJ	1.5 U	7.5 U	0.3 U	0.3 U	0.3 U
EGW051A[1]	04/05/12	0.5 U	0.02 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U	0.05 U	0.02 U
	04/05/12 (DL)	5.0 U DNR	0.2 U DNR	0.5 U DNR	0.5 U DNR	0.5 U DNR	5.0 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/03/12	0.5 U	0.02 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U	0.05 U	0.02 U
	10/3/12 (DL)	5.0 U DNR	0.2 U DNR	0.5 U DNR	0.5 U DNR	0.5 U DNR	5.0 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/08/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U
	10/08/13 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/20/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 UJ	0.0002 U
	02/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U
	04/2/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	08/26/14	0.025 U	0.001 U	0.0025 U	0.0025 U	0.0025 U	0.025 U	0.0025 U	0.0025 U	0.001 U
	08/26/14 (DL)	0.25 U DNR	0.01 U DNR	0.025 U DNR	0.025 U DNR	0.025 U DNR	0.25 U DNR	0.025 U DNR	0.025 U DNR	0.01 U DNR
	08/26/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U
	10/14/14 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/02/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 UJ	0.0005 U	0.0002 U
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA

Well ID	Sample Date	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene
MTCA Method A or B Groundwater Screening Level		NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)
EGW050[1] (continued)	10/14/14	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	15 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U	**2.1**
	10/14/14 (DL)	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**14**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.1 DNR
	10/14/14 (SIM)	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	NA	NA
	12/02/14	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	16 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**2.1 J**
	12/02/14 (DL)	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**16**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.2 DNR
	12/02/14 (SIM)	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA	0.0014 X	NA
	12/02/14 (DUP)	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	17 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**2.2 J**
	12/02/14 (DUP DL)	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**16**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.2 DNR
	12/02/14 (DUP SIM)	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA	0.0015 X	NA
	04/03/15	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	13 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**1.7**
	04/03/15 (DL)	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**11**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.5 DNR
	04/03/15 (SIM)	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	0.0015	NA
EGW051[1]	05/30/96	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**10**	1.2 U	1.2 U	0.5 U	NA	NA	**1.8**
	08/27/96	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**14**	1.2 U	1.2 U	0.5 U	NA	NA	**2.0**
	12/03/96	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**14**	1.2 U	1.2 U	0.5 U	NA	NA	**2.3**
	03/07/97	0.5 U	25 U	0.25 U	NA	0.25 U	0.25 U	**16**	1.2 U	1.2 U	0.5 U	NA	NA	**2.3**
	05/22/97	2 U	100 U	1 U	NA	1 U	1 U	**15**	5 U	5 U	2 U	NA	NA	**2.3**
	08/12/97	2 U	100 U	1 U	NA	1 U	1 U	**20**	5 U	5 U	2 U	NA	NA	**2.7**
	11/17/97	3 U	150 U	1.5 U	NA	1.5 U	1.5 U	**16**	7.5 U	7.5 U	3 U	NA	NA	**2.1**
	03/10/98	1.5 U	75 U	0.75 U	0.75 U	0.75 U	0.75 U	**17**	3.7 U	3.7 U	1.5 U	1.5 U	0.75 U	**2.5**
	05/13/98	2 U	100 U	1 U	1 U	1 U	1 U	**23**	5 U	5 U	2 U	2 U	1 U	**2.6**
	08/11/98	2 U	100 U	1 U	1 U	1 U	1 U	**15**	5 U	5 U	2 U	2 U	1 U	**2.0**
	11/10/98	3 U	150 U	1.5 U	1.5 U	1.5 U	1.5 U	**18**	7.5 U	7.5 U	3 U	3 U	1.5 U	**2.6 J**
	02/01/99	2 U	100 U	1 U	1 U	1 U	1 U	**13**	5 U	5 U	2 U	2 U	1 U	**2.2**
	05/11/99	1 U	100 U	1 U	1 U	1 U	1 U	**17**	5 U	5 U	2 U	1 U	1 U	**2.3**
	08/02/99	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**21**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**3.0**
	11/09/99	1 U	100 U	1 U	1 U	1 U	1 U	**14**	5 U	5 U	2 U	1 U	1 U	**2.1**
	02/01/00	1 U	100 U	1 U	1 U	1 U	1 U	**16 J**	5 U	5 U	2 U	1 U	1 U	**2.3 J**
	05/02/00	1 U	100 U	1 U	1 U	1 U	1 U	**15**	5 U	5 U	2 U	1 U	1 U	**2.3**
	07/31/00	1 U	100 U	1 U	1 U	1 U	1 U	**15**	5 U	5 U	2 U	1 U	1 U	**2.2**
	11/14/00	1 U	100 U	1 U	1 U	1 U	1 U	**14**	5 U	5 U	2 U	1 U	1 U	**2.1**
	02/05/01	1 U	100 U	1 U	1 U	1 U	1 U	**17**	5 U	5 U	2 U	1 U	1 U	**2.1**
	05/01/01	1 U	100 U	1 U	1 U	1 U	1 U	**14**	5 U	5 U	2 U	1 U	1 U	**2.0**
	08/07/01	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**15**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.2**
	11/12/01	1.5 U	150 U	1.5 U	1.5 U	1.5 U	1.5 U	**13**	7.5 U	7.5 U	3 U	1.5 U	1.5 U	**1.9**
	02/05/02	0.5 U	50 U	0.5 U	0.5 U	0.00002 U	0.5 U	**13**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**1.9**
	05/06/02	1.5 U	150 U	1.5 U	1.5 U	0.00002 U	1.5 U	**12**	7.5 U	7.5 U	3 U	1.5 U	1.5 U	**1.9**
	08/06/02	1 U	100 U	1 U	1 U	0.00002 U	1 U	**16**	5 U	5 U	2 U	1 U	1 U	**2.8**
	11/16/02	0.75 U	75 U	0.75 U	0.75 U	0.00002 U	0.75 U	**15**	3.7 U	3.7 U	1.5 U	0.75 U	0.75 U	**2.4**
	02/04/03	1.5 U	150 U	1.5 U	1.5 U	0.00002 U	1.5 U	**15**	7.5 U	7.5 U	2.2 U	1.5 U	1.5 U	**2.3**
	05/05/03	0.5 U	50 U	0.5 U	0.5 U	0.003 U	0.5 U	**16**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.3**
	07/22/03	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**14**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.2**
	11/04/03	0.5 U	50 U	0.5 U	0.5 U	0.0002 U	0.5 U	**15**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.2**
	01/21/04	2 U	200 U	2 U	2 U	0.0002 U	2 U	**18**	10 U	10 U	4 U	2 U	2 U	**2.4**
	04/14/04	1 U	100 U	1 U	1 U	0.0002 U	1 U	**14**	5 U	5 U	2 U	1 U	1 U	**2.0**
	07/13/04	1 U	100 U	1 U	1 U	0.0002 U	1 U	**14**	5 U	5 U	2 U	1 U	1 U	**2.0**
	10/01/04	0.75 U	75 U	0.75 U	0.75 U	0.0002 U	0.75 U	**18**	3.7 U	3.7 U	1.5 U	0.75 U	0.75 U	**2.6**
	01/12/05	1 U	100 U	1 U	1 U	0.0002 U	1 U	**14**	5 U	5 U	2 U	1 U	1 U	**2.0**
	04/11/05	1 U	100 U	1 U	1 U	0.0002 U	1 U	**19**	5 U	5 U	**4.4****	1 U	1 U	**2.7**
	10/17/05	1 U	100 U	1 U	1 U	0.0002 UJ	1 U	**15**	5 U	5 U	2 U	1 U	1 U	**2.2**
	04/19/06	1 U	100 U	1 U	1 U	0.0002 U	1 U	**22**	5 U	5 U	2 U	1 U	1 U	**2.9**
	10/17/06	0.6 U	60 U	0.6 U	0.6 U	0.0002 UJ	0.6 U	**13**	3.0 U	3.0 U	1.2 U	0.6 U	0.0026 J	**1.8**
	04/03/07	0.5 U	50 UJ	0.5 U	0.5 U	0.0002 U	0.5 U	**13**	2.5 U	2.5 U	1.0 U	0.5 U	0.5 U	**1.8**
	10/25/07	2 U	200 U	2 U	2 U	0.0002 U	2 U	**12**	10 U	10 U	4 U	2 U	2 U	2 U
	04/01/08	0.5 U	400 UJ	0.5 U	0.5 U	0.0002 U	0.0002 U	**13 J**	2.5 U	2.5 U	1 U	0.5 U	0.0031	**1.8 J**
	10/07/08	0.5 U	50 U	0.5 U	0.5 U	0.001 U	0.5 U	**16**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	**2.4**
	04/06/09	0.5 U	50 U	0.5 U	0.5 U	0.0010 U	0.5 U	**17**	2.5 U	2.5 U	1.0 U	0.5 U	0.0037	**2.5**
	10/27/09	1 U	40 UJ	0.4 U	0.4 U	0.0002 UJ	0.4 U	**14**	10 U	10 U	1 U	0.4 U	0.4 U	**2.1**
	04/06/10	1 U	40 U	0.4 U	0.4 U	0.0002 U	0.4 U	**12**	10 U	10 U	1 U	0.4 U	0.0020	**1.7**
	10/12/10	0.1 U	4 U	0.04 U	0.04 U	0.0002 U	0.04 U	**1.4**	1 U	1 U	0.1 U	0.04 U	0.0017	0.21
	04/11/11	0.75 U	30 U	0.3 U	0.3 U	0.0002 U	0.3 U	**14**	7.5 U	7.5 U	0.75 U	0.3 U	0.3 U	**2.0**
	10/15/11	0.75 U	30 U	0.3 U	0.3 U	0.0002 U	0.3 U	**13**	7.5 U	7.5 U	0.75 U	0.3 U	0.3 U	**1.5**
EGW051A[1]	04/05/12	0.05 U	2.5 U	0.05 U	0.02 U	0.02 U DNR	0.02 U	0.45	0.5 U	0.5 U	0.05 U	0.05 U	0.02 U	0.011 X
	04/05/12 (DL)	0.5 U DNR	25 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR	0.2 U DNR	0.48 X DNR	5.0 U DNR	5.0 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR
	04/05/12 (SIM)	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	NA	NA
	10/03/12	0.05 U	2.5 U	0.05 U	0.02 U	0.02 U DNR	0.02 U	5.3 E DNR	0.5 U	0.5 U	0.05 U	0.05 U	0.02 U	0.11
	10/3/12 (DL)	0.5 U DNR	25 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR	0.2 U DNR	**6.7**	5.0 U DNR	5.0 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR	0.12 X DNR
	10/3/12 (SIM)	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA
	04/06/13	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0022	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0001 X	0.0002 U
	04/6/13 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA
	10/08/13	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.018	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 X	0.0004
	10/08/13 (DL)	0.005 U DNR	0.25 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.016 DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR
	10/08/13 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA
	02/20/14	0.0005 UJ	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0001 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U
	02/20/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/14	0.0005 U	0.025 UJ	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U
	04/2/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/14	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U
	04/3/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA
	08/26/14	0.0025 U	0.13 U	0.0025 U	0.001 U	0.001 U DNR	0.001 U	0.14 E DNR	0.025 U	0.025 U	0.0025 U	0.0025 U	0.001 U	0.001 U
	08/26/14 (DL)	0.025 U DNR	1.3 U DNR	0.025 U DNR	0.01 U DNR	0.01 U DNR	0.01 U DNR	0.12	0.25 U DNR	0.25 U DNR	0.025 U DNR	0.025 U DNR	0.01 U DNR	0.01 U DNR
	08/26/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/14	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.04 E DNR	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 X	0.0002
	10/14/14 (DL)	0.005 U DNR	0.25 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.042	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR
	10/14/14 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA
	12/02/14	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0016 J	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0001 X
	12/02/14 (SIM)	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	0.000039	NA
	04/03/15	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0008	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U
	04/03/15 (SIM)	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.000049	NA

Well ID	Sample Date	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW050[1] (continued)	10/14/14	0.25 U	0.1 U	0.25 U	0.1 U DNR	113 E DNR
	10/14/14 (DL)	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**150**
	10/14/14 (SIM)	NA	NA	NA	0.0004 U	NA
	12/02/14	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	117 E DNR
	12/02/14 (DL)	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**162**
	12/02/14 (SIM)	NA	**0.0076**	NA	0.002 U	NA
	12/02/14 (DUP)	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	114 E DNR
	12/02/14 (DUP DL)	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**172**
	12/02/14 (DUP SIM)	NA	**0.0075**	NA	0.002 U	NA
	04/03/15	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	105 E DNR
	04/03/15 (DL)	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**127**
	04/03/15 (SIM)	NA	**0.0051**	NA	0.0004 U	NA
EGW051[1]	05/30/96	NA	NA	NA	0.5 U	**109**
	08/27/96	NA	NA	NA	0.5 U	**127**
	12/03/96	NA	NA	NA	0.5 U	**139**
	03/07/97	NA	NA	NA	0.5 U	**159**
	05/22/97	NA	NA	NA	0.00001 U	**158**
	08/12/97	NA	NA	NA	2 U	**183**
	11/17/97	NA	NA	NA	0.01 U	**160**
	03/10/98	0.75 U	0.75 U	1.5 U	0.005 U	**192**
	05/13/98	1 U	1 U	2 U	0.01 U	**182**
	08/11/98	1 U	1 U	2 U	0.00001 U	**126**
	11/10/98	1.5 U	1.5 UJ	3 UJ	0.00001 U	**171**
	02/01/99	1 U	1 U	2 U	0.0056 U	**158**
	05/11/99	1 U	1 U	1 UJ	0.002 U	**181**
	08/02/99	0.5 U	0.5 U	0.5 U	0.005 U	**227**
	11/09/99	1 U	1 U	1 U	0.00002 U	**138**
	02/01/00	1 U	1 U	1 U	0.002 U	**171**
	05/02/00	1 U	1 U	1 U	0.002 UJ	**149**
	07/31/00	1 U	1 U	1 U	0.002 U	**160**
	11/14/00	1 U	1 U	1 U	0.00002 U	**160**
	02/05/01	1 U	1 U	1 U	0.00002 U	**182**
	05/01/01	1 U	1 U	1 U	0.00002 U	**149**
	08/07/01	0.5 U	0.5 U	0.5 U	0.00002 U	**120**
	11/12/01	1.5 U	1.5 U	1.5 U	0.00002 U	**158**
	02/05/02	0.5 U	0.5 U	0.5 U	0.00002 U	**189**
	05/06/02	1.5 U	1.5 U	1.5 U	0.00002 U	**146**
	08/06/02	1 U	1 U	1 U	0.0002 U	**148**
	11/16/02	0.75 U	0.75 U	0.75 U	0.00002 U	**160**
	02/04/03	1.5 U	1.5 U	1.5 U	0.00002 U	**171**
	05/05/03	0.5 U	0.5 U	0.5 U	0.003 U	**152**
	07/22/03	0.5 U	0.5 U	0.5 U	0.0002 U	**139**
	11/04/03	0.5 U	0.5 U	0.5 U	0.0002 U	**184**
	01/21/04	2 U	2 U	2 U	0.0002 U	**213**
	04/14/04	1 U	1 U	1 U	0.0002 U	**159**
	07/13/04	1 U	1 U	1 U	0.0002 U	**158**
	10/01/04	0.75 U	0.75 U	0.75 U	0.0002 U	**202**
	01/12/05	1 U	1 U	1 U	0.0002 U	**137**
	04/11/05	1 U	1 U	1 U	0.0002 U	**215**
	10/17/05	1 U	1 U	1 U	0.0002 UJ	**169**
	04/19/06	1 U	1 U	1 U	0.0002 U	**238**
	10/17/06	0.6 U	**0.0033 J**	0.6 U	0.0002 UJ	**157**
	04/03/07	0.5 U	0.5 U	0.5 U	0.0002 U	**138**
	10/25/07	2 U	2 U	2 U	0.0002 U	**147**
	04/01/08	0.5 U	**0.0036**	0.5 U	0.0002 U	**117 J**
	10/07/08	0.5 U	0.5 U	0.5 U	0.001 U	**174 D**
	04/06/09	0.5 U	**0.0042**	0.5 U	0.0010 U	**217**
	10/27/09	0.4 U	0.4 U	0.4 U	0.0002 UJ	**161**
	04/06/10	0.4 U	**0.0023**	0.4 U	0.0002 U	**148**
	10/12/10	0.04 U	**0.0020**	0.04 U	0.0002 U	**15**
	04/11/11	0.3 U	0.3 U	0.3 U	0.0002 U	**151**
	10/15/11	0.3 U	0.3 U	0.3 U	0.0002 U	**149**
EGW051A[1]	04/05/12	0.05 U	0.02 U	0.05 U	0.02 U DNR	11 E DNR
	04/05/12 (DL)	0.5 U DNR	0.2 U DNR	0.5 U DNR	0.2 U DNR	**13.9**
	04/05/12 (SIM)	NA	NA	NA	**0.00076**	NA
	10/03/12	0.05 U	0.02 U	0.05 U	0.02 U DNR	22 E DNR
	10/3/12 (DL)	0.5 U DNR	0.2 U DNR	0.5 U DNR	0.2 U DNR	**48**
	10/3/12 (SIM)	NA	NA	NA	**0.00013 X**	NA
	04/06/13	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0197
	04/6/13 (SIM)	NA	NA	NA	0.00002 U	NA
	10/08/13	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.209 E DNR
	10/08/13 (DL)	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.224
	10/08/13 (SIM)	NA	NA	NA	0.00002 U	NA
	02/20/14	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.001
	02/20/14 (SIM)	NA	NA	NA	0.00002 U	NA
	04/02/14	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0023
	04/2/14 (SIM)	NA	NA	NA	0.00020 U	NA
	04/03/14	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0022
	04/3/14 (SIM)	NA	NA	NA	0.00002 U	NA
	08/26/14	0.0025 U	0.001 U	0.0025 U	0.001 U DNR	0.501 E DNR
	08/26/14 (DL)	0.025 U DNR	0.01 U DNR	0.025 U DNR	0.01 U DNR	0.438
	08/26/14 (SIM)	NA	NA	NA	0.00002 U	NA
	10/14/14	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.155 E DNR
	10/14/14 (DL)	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.167
	10/14/14 (SIM)	NA	NA	NA	0.00002 U	NA
	12/02/14	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0184 J
	12/02/14 (SIM)	NA	0.0002 U	NA	0.0002 U	NA
	04/03/15	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0034
	04/03/15 (SIM)	NA	0.00002 U	NA	0.00002 U	NA

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW062	06/27/00	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.001 U	0.001 U	0.024	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0011	0.00002 U	**0.214**
	07/31/00	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.18	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.002 U	**1.571**
	11/13/00	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.35	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.00002 U	**2.81**
	02/05/01	0.15 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.15 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	3 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.5	0.15 UJ	0.15 UJ	0.06 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.00002 U	**3.9**
	05/01/01	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.5 U	0.005 U	0.005 U	0.005 U	0.005 U	0.38	0.025 U	0.025 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00002 U	**2.77**
	08/06/01	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.02 U	0.02 U	0.48	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**2.947**
	11/12/01	0.12 U	0.025 U	0.025 U	0.025 U	0.025 U	0.12 U	0.025 U	0.025 U	0.025 U	0.025 U	2.5 U	0.025 U	0.025 U	0.025 U	0.025 U	0.45	0.12 U	0.12 U	.05 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.00002 U	**4.06**
	02/05/02	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.42	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.00002 U	**3.4**
	05/06/02	0.075 U	0.015 U	0.015 U	0.015 U	0.015 U	0.075 U	0.015 U	0.015 U	0.015 U	0.015 U	1.5 U	0.015 U	0.015 U	0.00002 U	0.015 U	0.3	0.075 U	0.075 U	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.00002 U	**2.2**
	08/05/02	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00002 U	0.02 U	0.44	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**3.5**
	11/16/02	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00002 U	0.02 U	0.41	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**4.229**
	02/04/03	0.2 U	0.04 U	0.04 U	0.04 U	0.04 U	0.2 U	0.04 U	0.04 U	0.04 U	0.04 U	4 U	0.04 U	0.04 U	0.00002 U	0.04 U	0.24	0.2 U	0.2 U	0.06 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.00002 U	**4.0**
	05/05/03	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00006 U	0.02 U	0.27	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00006 U	**4.4**
	07/22/03	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00002 U	0.02 U	0.099	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**4.3**
	11/04/03	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00002 U	0.02 U	0.02 U	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**2.1**
	01/21/04	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.00002 U	0.1 U	0.1 U	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.00002 U	**6.5**
	04/14/04	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	3 U	0.03 U	0.03 U	0.00002 U	0.03 U	0.03 U	0.15 U	0.15 U	0.06 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.00002 U	**4.4**
	07/13/04	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00002 U	0.02 U	**3.1**	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**4.2**
	10/01/04	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	0.1 U	0.02 U	0.02 U	0.02 U	0.02 U	2 U	0.02 U	0.02 U	0.00002 U	0.02 U	0.02 U	0.1 U	0.1 U	0.04 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.00002 U	**4.6**
	01/12/05	0.075 U	0.015 U	0.015 U	0.015 U	0.015 U	0.075 U	0.015 U	0.015 U	0.015 U	0.015 U	1.5 U	0.015 U	0.015 U	0.00002 U	0.015 U	0.015 U	0.075 U	0.075 U	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.00002 U	**2.6**
	04/11/05	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.01 U	0.05 U	0.05 U	**0.038****	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.00002 U	**3.1**
	07/12/05	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.5 U	0.005 U	0.005 U	0.00002 U	0.005 U	0.005 U	0.025 U	0.025 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00002 U	0.6
	10/17/05	0.05 U	0.010 U	0.010 U	0.010 U	0.010 U	0.05 U	0.010 U	0.010 U	0.010 U	0.010 U	1 U	0.010 U	0.010 U	0.00002 U	0.010 U	0.010 U	0.05 U	0.05 U	0.02 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.00002 U	**2.6**
	01/12/06	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.01 U	0.05 U	0.05 U	0.02 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.00002 U	**2.4**
	04/19/06	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.01 U	0.05 U	0.05 U	**0.024****	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.00002 U	**1.8**
	07/05/06	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.5 U	0.005 U	0.005 U	0.00002 U	0.005 U	0.005 U	0.025 U	0.025 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00002 U	0.83
	10/17/06	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 UJ	0.001 U	0.001 U	0.005 U	0.005 U	0.002 U	0.001 U	0.00002 UJ	0.001 U	0.001 U	0.000050 J	0.001 U	0.00002 UJ	**1.6 D**
	01/04/07	0.050 U	0.010 U	0.010 U	0.010 U	0.010 U	0.050 U	0.010 U	0.010 U	0.010 U	0.010 U	1 U	0.010 U	0.010 U	0.00010 U	0.010 U	0.010 U	0.050 U	0.050 U	0.020 U	0.010 U	0.00010 U	0.010 U	0.010 U	0.00010 U	0.010 U	0.00010 U	**1.4**
	04/03/07	0.050 U	0.010 U	0.010 U	0.010 U	0.010 U	0.050 U	0.010 U	0.010 U	0.010 U	0.010 U	1 UJ	0.010 U	0.010 U	0.00002 U	0.010 U	0.018	0.050 U	0.050 U	0.020 U	0.010 U	0.00002 U	0.010 U	0.010 U	0.000041	0.010 U	**0.000032**	**1.2**
	07/02/07	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.036	0.005 U	0.005 U	0.002 U	0.001 U	0.00002 U	0.001 U	0.001 U	0.000034	0.001 U	0.00002 U	0.484
	10/25/07	0.0033	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.099 D
	01/03/08	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.046	0.005 U	0.005 U	0.002 U	0.001 U	0.00002 U	0.001 U	0.001 U	0.000034	0.001 U	0.00002 U	0.756 D
	04/01/08	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	4 UJ	0.005 U	0.005 U	0.0002 U	0.0002 U	0.14	0.025 U	0.025 U	0.01 U	0.005 U	0.0002 U	0.005 U	0.005 U	0.0002 U	0.005 U	0.0002 U	**1.4**
	07/07/08	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.5 U	0.005 U	0.005 U	0.00002 U	0.005 U	0.097	0.025 U	0.025 U	0.01 U	0.005 U	0.00002 U	0.005 U	0.005 U	0.000066	0.005 U	0.00002 U	**1.7**
	10/07/08	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.0002 U	0.01 U	0.017	0.05 U	0.05 U	0.02 U	0.01 U	0.0002 U	0.01 U	0.01 U	0.0002 U	0.01 U	0.0002 U	**2.4**
	01/05/09	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.041	0.05 U	0.05 U	0.02 U	0.01 U	0.00002 U	0.01 U	0.01 U	0.000056	0.01 U	0.00002 U	**1.9**
	04/06/09	0.1 U	0.01 U	0.01 U	0.01 U	0.01 U	0.05 U	0.01 U	0.01 U	0.01 U	0.01 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.085	0.05 U	0.05 U	0.02 U	0.01 U	0.00002 U	0.01 U	0.01 U	0.000057	0.01 U	0.00002 U	**2.1**
	07/08/09	0.25 U	0.01 U	0.01 U	0.01 U	0.025 U	0.25 U	0.01 U	0.01 U	0.01 U	0.025 U	1 U	0.01 U	0.01 U	0.00002 U	0.01 U	0.01 U	0.25 U	0.25 U	0.025 U	0.01 U	0.00002 U	0.01 U	0.01 U	0.000051	0.01 U	0.00002 U	**2.0**
	10/27/09	0.05 U	0.002 U	0.002 U	0.002 U	0.005 U	0.05 U	0.002 U	0.002 U	0.002 U	0.005 U	0.2 U	0.002 U	0.002 U	0.00002 U	0.002 U	0.002 U	0.05 U	0.05 U	0.005 U	0.002 U	0.00002 U	0.002 U	0.002 U	0.000041	0.002 U	0.00002 U	0.69
	01/13/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0006	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000024	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0107
	04/06/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.011	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000038	0.0002 U	0.00002 U	0.9 D
	07/15/10	0.05 U	**0.0043**	0.002 U	0.002 U	0.01 U	0.05 U	0.002 U	0.002 U	0.002 U	0.005 U	0.2 U	0.002 U	0.002 U	0.00002 U	0.002 U	0.012	0.05 U	0.05 U	0.005 U	0.002 U	0.00002 U	0.0076	0.002 U	0.000031	0.002 U	0.00002 U	0.59
	10/12/10	0.05 U	0.002 U	0.002 U	0.002 U	0.01 U	0.05 U	0.002 U	0.002 U	0.002 U	0.005 U	0.2 U	0.002 U	0.002 U	0.00002 U	0.002 U	0.002 U	0.05 U	0.05 U	0.005 U	0.002 U	0.00002 U	0.002 U	0.002 U	0.000039	0.002 U	0.00002 U	0.87
	01/12/11	0.05 U	0.002 U	0.002 U	0.002 U	0.01 U	0.05 U	0.002 U	0.002 U	0.002 U	0.005 U	0.2 U	0.002 U	0.002 U	0.00002 U	0.002 U	0.0093	0.05 U	0.05 U	0.005 U	0.002 U	0.00002 U	0.002 U	0.002 U	0.000045	0.002 U	0.00002 U	0.92
	04/11/11	0.1 U	0.004 U	0.004 U	0.004 U	0.02 U	0.1 U	0.004 U	0.004 U	0.004 U	0.01 U	0.4 U	0.004 U	0.004 U	0.00002 U	0.004 U	0.03	0.1 U	0.1 U	0.01 U	0.004 U	0.00002 U	0.004 U	0.004 U	0.000035	0.004 U	0.00002 U	0.62
	07/13/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	NA	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.012	0.005 U	0.005 U	0.0005 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.000033	0.0002 U	0.00002 U	0.83 D
	10/14/11	0.05 U	0.002 U	0.002 U	0.002 UJ	0.01 U	0.05 U	0.002 U	0.002 U	0.002 U	0.005 U	0.2 U	0.002 U	0.002 U	0.0002 U	0.002 U	0.036	0.05 U	0.05 U	0.005 U	0.002 U	0.0002 U	0.002 U	0.002 U	0.0002 U	0.002 U	0.0002 U	**1.103**
	01/13/12	0.015 U	0.0006 U	0.0006 U	0.0006 UJ	0.003 U	0.015 U	0.0006 U	0.0006 U	0.0006 U	0.0015 U	0.06 UJ	0.0006 U	0.0006 U	0.00002 U	0.0006 U	0.017	0.015 U	0.015 U	0.003 U	0.0006 U	0.00002 U	0.0006 U	0.0006 U	0.000034	0.0006 U	0.00002 U	0.18
	04/05/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0008	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0412
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000028	NA	0.00002 U	NA
	07/10/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0615 E DNR
	07/10/12 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.25 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.051
	07/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000027	NA	0.00002 U	NA
	10/03/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 UJ	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.029 E DNR	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.17 E DNR
	10/3/12 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.25 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.019	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.25
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000040	NA	0.000012 X	NA
	01/13/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.0004 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0322
	01/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00003	NA	0.00002 U	NA
	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.013
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000026	NA	0.00002 U	NA
	07/01/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0042	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.1801 E DNR
	07/1/13 (DL)	0.25 U DNR	0.01 U DNR	0.025 U DNR	0.025 U DNR	0.025 U DNR	0.25 U DNR	0.025 U DNR	0.025 U DNR	0.01 U DNR	0.025 U DNR	1.3 U DNR	0.025 U DNR	0.01 U DNR	0.01 U DNR	0.01 U DNR	0.025 U DNR	0.25 U DNR	0.25 U DNR	0.025 U DNR	0.025 U DNR	0.01 U DNR	0.01 U DNR	0.025 U DNR	0.01 U DNR	0.025 U DNR	0.01 U DNR	0.22
	07/1/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000036	NA	0.00002 U	NA
	10/08/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.011	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0401
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000035	NA	0.00002 U	NA
	01/10/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 X	0.0028	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0523 E DNR
	01/10/14 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.25 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.0026 X DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.047
	01/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000085	NA	0.00002 U	NA
	04/03/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.0003 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0171 J
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000021	NA	0.00002 U	NA
	07/08/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0176
	07/08/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000029	NA	0.0002 U	NA
	10/14/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.0012	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.056 E DNR
	10/14/14 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.25 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.0321
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000041	NA	0.00002 U	NA
	01/05/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0001 X	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0014
	1/5/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000025	NA	0.00002 U	NA
	04/03/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 UJ	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.012
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.000019 X	NA	0.00002 U	NA

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW063	06/27/00	10 U	2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U	2 U	200 U	2 U	2 U	2 U	2 U	**11**	10 U	10 U	4 U	2 U	2 U	2 U	2 U	2 U	2 U	0.00002 U	**113**
	07/31/00	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**6.5**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.002 U	**85**
	11/13/00	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**5.4**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.18	0.1 U	0.1 U	0.1 U	0.00002 U	**45.7**
	11/13/00 (DUP)	1 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U	0.2 U	20 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.3**	1 U	1 U	0.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.00002 U	**52.7**
	02/05/01	0.75 UJ	0.15 UJ	0.2 UJ	0.2 UJ	0.15 UJ	0.75 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.15 UJ	15 UJ	0.15 UJ	0.2 UJ	0.15 UJ	0.15 UJ	**2.4**	0.75 UJ	0.75 UJ	0.3 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.2 UJ	0.2 UJ	0.15 UJ	0.00002 U	**30.1**
	02/05/01 (DUP)	1 UJ	0.2 UJ	0.15 UJ	0.15 UJ	0.2 UJ	1 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	20 UJ	0.2 UJ	0.15 UJ	0.2 UJ	0.2 UJ	**2.7**	1 UJ	1 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.02 U	0.15 UJ	0.15 UJ	0.2 UJ	0.00002 U	**33.3**
	05/01/01	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.1 U	0.1 U	**5.9**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.1	0.1 U	0.1 U	0.1 U	0.00002 U	**62.7**
	08/06/01	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.5 U	0.5 U	**8.6**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.00002 U	**80**
	11/12/01	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	25 U	0.25 U	0.25 U	0.25 U	0.25 U	**5.0**	1.2 U	1.2 U	0.5 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.00002 U	**66.6**
	02/05/02	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	3 U	0.03 U	0.03 U	0.00002 U	0.03 U	0.2	0.15 U	0.15 U	0.06 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.00002 U	**10.37**
	05/06/02	0.005 U	0.001 U	0.001 U	**0.011**	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.100 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.003	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	**113**
	08/06/02	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.00002 U	0.5 U	**9.2**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.00002 U	**97.2**
	08/06/02 (DUP)	5 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	100 U	1 U	1 U	0.00002 U	1 U	**7.8**	5 U	5 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.00002 U	**84.6**
	11/16/02	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.00002 U	0.5 U	**5.5**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.00002 U	**61.8**
	02/04/03	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	15 U	0.15 U	0.15 U	0.00002 U	0.15 U	0.47	0.75 U	0.75 U	0.22 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.00002 U	**6.37**
	02/04/03 (DUP)	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U	6 U	0.06 U	0.06 U	0.00002 U	0.06 U	0.56	0.3 U	0.3 U	0.09 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.00002 U	**7.23**
	05/05/03	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	3 U	0.03 U	0.03 U	0.0001 U	0.03 U	0.69	0.15 U	0.15 U	0.06 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.0001 U	**6.6**
	07/22/03	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	0.15 U	0.03 U	0.03 U	0.03 U	0.03 U	3 U	0.03 U	0.03 U	0.00002 U	0.03 U	**9.0 D**	0.15 U	0.15 U	0.06 U	0.03 U	0.03 U	0.18	0.03 U	0.03 U	0.03 U	0.00002 U	**84.6 D**
	11/04/03	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.00002 U	0.5 U	**7.0**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.00002 U	**82.2**
	11/4/03 (DUP)	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	0.1 U	0.1 U	0.1 U	0.1 U	10 U	0.1 U	0.1 U	0.00002 U	0.1 U	**8.1**	0.5 U	0.5 U	0.2 U	0.1 U	0.1 U	0.2	0.1 U	0.1 U	0.1 U	0.00002 U	**82 D**
	01/21/04	0.075 U	0.015 U	0.015 U	0.015 U	0.015 U	0.075 U	0.015 U	0.015 U	0.015 U	0.015 U	1.5 U	0.015 U	0.015 U	0.00002 U	0.015 U	0.1	0.075 U	0.075 U	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.00002 U	**1.4**
	01/21/04 (DUP)	0.075 U	0.015 U	0.015 U	0.015 U	0.015 U	0.075 U	0.015 U	0.015 U	0.015 U	0.015 U	1.5 U	0.015 U	0.015 U	0.00002 U	0.015 U	0.099	0.075 U	0.075 U	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.00002 U	**1.28**
	04/14/04	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.000025	0.3 U	**1.0**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.00002 U	**14**
	07/13/04	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	25 U	0.25 U	0.25 U	0.00002 U	0.25 U	**5.3**	1.2 U	1.2 U	0.5 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.00002 U	**55**
	10/01/04	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	30 U	0.3 U	0.3 U	0.00002 U	0.3 U	**8.4**	1.5 U	1.5 U	0.6 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.00002 U	**88**
	01/12/05	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.011	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.105
	04/11/05	0.0036 J	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.002 UJ	0.0004 UJ	0.0004 UJ	**0.0022 J**	0.0004 UJ	0.08 UJ	0.0004 UJ	0.0004 UJ	0.00002 U	0.0004 UJ	0.0014 J	0.002 UJ	0.002 UJ	0.0006 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.0004 UJ	0.00002 U	0.0455 J
	07/12/05	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.00002 U	0.5 U	**3.0**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.00002 U	**34.9**
	10/17/05	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	0.75 U	0.15 U	0.15 U	0.15 U	0.15 U	15 U	0.15 U	0.15 U	0.00002 UJ	0.15 U	**6.8**	0.75 U	0.75 U	0.3 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.00002 UJ	**79.0 D**
	10/17/05 (DUP)	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	50 U	0.5 U	0.5 U	0.00002 UJ	0.5 U	**6.4**	2.5 U	2.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.00002 UJ	**73.1**
	01/12/06	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.025 U	0.005 U	0.005 U	0.005 U	0.005 U	0.5 U	0.005 U	0.005 U	0.00002 U	0.005 U	0.0074	0.025 U	0.025 U	0.01 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.00002 U	0.0704
	04/19/06	0.0026 U	0.0002 U	0.0002 U	0.0011	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0004	0.001 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0087
	07/05/06	1.0 U	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U	0.20 U	0.20 U	0.00002 UJ	0.20 U	**4.8**	1.0 U	1.0 U	0.4 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.00002 UJ	**59.2**
	07/5/06 (DUP)	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	1.2 U	0.25 U	0.25 U	0.25 U	0.25 U	25 U	0.25 U	0.25 U	0.00002 UJ	0.25 U	**4.5**	1.2 U	1.2 U	0.5 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.00002 UJ	**57.9**
	10/17/06	2.5 U	0.50 U	0.50 U	0.50 U	0.50 U	2.5 U	0.50 U	0.50 U	0.50 U	0.50 U	50 U	0.50 U	0.50 U	0.000021 J	0.50 U	**4.4**	2.5 U	2.5 U	1 U	0.50 U	0.0015 J	0.50 U	0.50 U	0.00032 J	0.50 U	0.00002 UJ	**52.3**
	01/04/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0006	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0011	0.003 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0186
	04/03/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0021	0.003 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 J	0.0165
	07/02/07	0.0079	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.059 D	0.003 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.364
	10/25/07	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0032
	10/25/07 (DUP)	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0002 U	0.003 U	0.001 U	0.0003 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0034
	01/03/08	0.0097	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.003 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.12 U	0.0006 U	0.0006 U	0.00002 U	0.0006 U	0.013	0.009 U	0.003 U	0.0011	0.0006 U	0.00004	0.0006 U	0.0006 U	0.00002 U	0.0006 U	0.00002 U	0.044
	04/01/08	0.003 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.04 UJ	0.0002 U	0.0002 U	0.00002 U	0.00002 U	0.0017	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000026	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0352 D
	07/07/08	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.10 U	0.001 U	0.001 U	0.00002 U	0.001 U	**1.3 D**	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.0024	0.001 U	0.001 U	0.001 U	0.00002 U	**12.4 D**
	10/07/08	1.5 U	0.29 U	0.29 U	0.29 U	0.29 U	1.5 U	0.29 U	0.29 U	0.29 U	0.29 U	29 U	0.29 U	0.29 U	0.0002 U	0.29 U	**5.5**	1.5 U	1.5 U	0.59 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.0002 U	**60.4**
	01/05/09	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.1 U	0.001 U	0.001 U	0.00002 U	0.001 U	0.02	0.005 U	0.005 U	0.002 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00002 U	0.145
	04/06/09	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0024	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000028 J	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0406
	04/6/09 (DUP)	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.0025 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0024	0.0025 U	0.0025 U	0.0005 U	0.0002 U	0.000061 J	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0394
	07/08/09	2.5 U	0.1 U	0.1 U	0.1 U	0.25 U	2.5 U	0.1 U	0.1 U	0.1 U	0.25 U	10 U	0.1 U	0.1 U	0.00002 U	0.1 U	**1.9**	2.5 U	2.5 U	0.25 U	0.1 U	0.00056	0.1 U	0.1 U	0.0002	0.1 U	0.00002 U	**44.3 J**
	10/27/09	2.5 U	0.1 U	0.1 U	0.1 U	0.25 U	2.5 U	0.1 U	0.1 U	0.1 U	0.25 U	10 UJ	0.1 U	0.1 U	0.0002 U	0.1 U	**2.7**	2.5 U	2.5 U	0.25 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.0002 U	**27.8**
	01/13/10	2.5 U	0.1 U	0.1 U	0.1 U	0.25 U	2.5 U	0.1 U	0.1 U	0.1 U	0.25 U	10 U	0.1 U	0.1 U	0.00002 U	0.1 U	**20**	2.5 U	2.5 U	0.25 U	0.1 U	0.1 U	0.18	0.1 U	0.1 U	0.1 U	0.00002 U	**99 D**
	04/06/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.019	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000040	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.027
	04/6/10 (DUP)	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.019	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000041	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.026
	07/15/10	0.1 U	0.004 U	0.004 U	0.004 U	0.02 U	0.1 U	0.004 U	0.004 U	0.004 U	0.01 U	0.4 U	0.004 U	0.004 U	0.00002 U	0.004 U	0.058	0.1 U	0.1 U	0.01 U	0.004 U	0.004 U	0.0072	0.004 U	0.004 U	0.004 U	0.00002 U	**1.0**
	10/12/10	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0016	0.005 U	0.005 U	0.0005 U	0.0002 U	0.000043	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.00002 U	0.0179
	01/12/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0004	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.001
	04/11/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.0028	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.0068
	07/13/11	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	NA	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.018	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.165 D
	10/14/11	0.005 U	0.0002 U	0.0002 U	0.0002 UJ	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**2.9 D**	0.005 U	0.005 U	0.0005 U	0.0002 U	0.0004	0.0018	0.0002 U	0.0002 U	0.0002 U	0.0002 U	**25.8 D**
	10/14/11 (DUP)	1.5 U	0.06 U	0.06 U	0.06 UJ	0.3 U	1.5 U	0.06 U	0.06 U	0.06 U	0.15 U	6.0 U	0.06 U	0.06 U	0.0002 U	0.06 U	**2.8**	1.5 U	1.5 U	0.15 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.0002 U	**25.7**
	01/13/12	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.001 U	0.005 U	0.0002 U	0.0002 U	0.0002 U	0.0005 U	0.02 U	0.0002 U	0.0002 U	0.00002 U	0.0002 U	0.015	0.005 U	0.005 U	0.001 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.00002 U	0.196 D
	04/05/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.011	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0104
	04/05/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	07/10/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.037 E DNR	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.202 E DNR
	07/10/12 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.25 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.03	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.238
	07/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	10/03/12	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.0015 X	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.5 E DNR	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0004	0.0013	0.0005 U	0.0003	0.0005 U	0.0002 U DNR	0.97 E DNR
	10/3/12 (DL)	2.5 U DNR	0.10 U DNR	0.25 U DNR	0.25 U DNR	0.25 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.10 U DNR	0.25 U DNR	13 U DNR	0.25 U DNR	0.10 U DNR	0.10 U DNR	0.10 U DNR	**2.5**	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.10 U DNR	0.10 U DNR	0.25 U DNR	0.10 U DNR	0.25 U DNR	0.10 U DNR	**18.0**
	10/3/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00040 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.00026 X**	NA

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW063 (continued)	01/13/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0072
	1/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	04/06/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0004 X	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0004 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0028
	04/6/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	04/6/13 (DUP)	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0004 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0025
	04/6/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	07/01/13	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.11 E DNR	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 X	0.0002 X	0.0005 U	0.0002	0.0005 U	0.0002 U DNR	0.507 E DNR
	07/1/13 (DL1)	0.1 U DNR	0.004 U DNR	0.01 U DNR	0.01 U DNR	0.01 U DNR	0.1 U DNR	0.01 U DNR	0.01 U DNR	0.004 U DNR	0.01 U DNR	0.5 U DNR	0.01 U DNR	0.004 U DNR	0.004 U DNR	0.004 U DNR	0.77 E DNR	0.1 U DNR	0.1 U DNR	0.01 U DNR	0.01 U DNR	0.004 U DNR	0.004 U DNR	0.01 U DNR	0.004 U DNR	0.01 U DNR	0.004 U DNR	4.089 E DNR
	07/1/13 (DL2)	1.0 U DNR	0.04 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.1 U DNR	5.0 U DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.04 U DNR	**0.76**	1.0 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.1 U DNR	0.04 U DNR	0.1 U DNR	0.04 U DNR	**7.689**
	07/1/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	10/08/13	0.1 U	0.004 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.004 U	0.01 U	0.5 U	0.01 U	0.004 U	0.004 U DNR	0.004 U	1.2 E DNR	0.1 U	0.1 U	0.01 U	0.01 U	0.004 U	0.004 U	0.01 U	0.004 U	0.01 U	0.004 U DNR	5.6 E DNR
	10/08/13 (DL1)	1.0 U DNR	0.048 ** DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.1 U DNR	5 U DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.04 U DNR	**1.7**	1.0 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.021 X ** DNR	0.1 U DNR	0.04 U DNR	0.1 U DNR	0.04 U DNR	14.5 E DNR
	10/08/13 (DL2)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	1.8 DNR	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**15.48**
	10/08/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	01/10/14	1 U	0.04 U	0.1 U	0.1 U	0.1 U	1 U	0.1 U	0.1 U	0.04 U	0.1 U	5 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	**2.5**	1 U	1 U	0.1 U	0.1 U	0.04 U	0.04 U	0.1 U	0.04 U	0.1 U	0.04 U DNR	30.1 E DNR
	01/10/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	2.2 DNR	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**26.89**
	01/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	04/03/14	0.0033 X	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0008	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0002 U	0.0005 U	0.0002 U	0.0005 U	0.0002 U DNR	0.0184
	04/3/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA
	07/08/14	0.1 U	0.004 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.004 U	0.01 U	0.5 U	0.01 U	0.004 U	0.004 U DNR	0.004 U	0.86 E DNR	0.1 U	0.1 U	0.01 U	0.0056 X	0.004 U	0.004 U	0.01 U	0.004 U	0.01 U	0.004 U DNR	3.54 E DNR
	07/08/14 (DL)	1.0 U DNR	0.04 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.1 U DNR	5 U DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.04 U DNR	**1.0**	1.0 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.1 U DNR	0.04 U DNR	0.1 U DNR	0.04 U DNR	**8.68**
	07/08/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000013 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	10/14/14	0.1 U	0.004 U	0.01 U	0.01 U	0.01 U	0.1 U	0.01 U	0.01 U	0.004 U	0.01 U	0.5 U	0.01 U	0.004 U	0.004 U DNR	0.004 U	1.6 E DNR	0.1 U	0.1 U	0.01 U	0.01 U	0.004 U	0.0025 X	0.01 U	0.004 U	0.01 U	0.004 U DNR	7.7 E DNR
	10/14/14 (DL)	1.0 U DNR	0.04 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.1 U DNR	5 U DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.04 U DNR	**3.7**	1.0 U DNR	1.0 U DNR	0.1 U DNR	0.1 U DNR	0.04 U DNR	0.04 U DNR	0.1 U DNR	0.04 U DNR	0.1 U DNR	0.04 U DNR	36.2 E DNR
	10/14/14 (DL2)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	3.5 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**46.2**
	10/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA
	01/05/15	0.0052	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0002 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0039
	1/5/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.000034	NA	NA	0.00002 U	NA	0.00002 U	NA
	04/03/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 UJ	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.01 J	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.10 E DNR
	04/03/15 (DL)	0.05 U DNR	0.002 U DNR	0.005 U DNR	0.005 U DNR	0.005 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.25 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.002 U DNR	0.012 DNR	0.05 U DNR	0.05 U DNR	0.005 U DNR	0.005 U DNR	0.002 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.005 U DNR	0.002 U DNR	0.11
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.000048	NA	NA	0.000012 X	NA	0.00002 U	NA
EGW206 [3]	12/16/13	0.25 U	**0.017**	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	NA	0.025 U	0.01 U	0.01 U DNR	0.01 U	3.2 E DNR	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	3 E DNR	0.025 U	0.0078 X DNR	0.025 U	0.01 U DNR	18.8 E DNR
	12/16/13 (DL1)	2.5 U DNR	0.1 U DNR	0.25 U DNR	0.25 U DNR	0.25 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	NA	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	15 E DNR	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	**3.1**	0.25 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	95 E DNR
	12/16/13 (DL2)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	NA	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**13**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.8 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**111**
	12/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.0015	NA	NA	**0.0066**	NA	0.0001 U	NA
	02/26/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 UJ	0.25 U	0.1 U	0.1 U DNR	0.1 U	13 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**2.1**	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	80 E DNR
	02/26/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**14**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.3 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**119**
	02/26/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00079	NA	NA	**0.0054**	NA	0.0001 U	NA
	04/01/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 UJ	0.25 U	0.1 U	0.1 U DNR	0.1 U	13 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**1.9**	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	96 E DNR
	04/1/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**12**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.8 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**116**
	04/1/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00010 U	NA	NA	NA	NA	NA	NA	0.0013	NA	NA	**0.0051**	NA	0.00010 U	NA
	08/25/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**11**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**1.3**	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	96 E DNR
	08/25/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	12 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.4 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**99**
	08/25/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00010 U	NA	NA	NA	NA	NA	NA	0.0010	NA	NA	**0.0043**	NA	0.00010 U	NA
	12/02/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	15 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**1.6**	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	100 E DNR
	12/02/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**14**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.6 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**114**
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	0.00099	NA	NA	**0.0058**	NA	0.0002 U	NA
EGW207 [3]	12/16/13	0.25 U	**0.0056 X**	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	NA	0.025 U	0.01 U	0.01 U DNR	0.01 U	3 E DNR	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	0.029	0.025 U	0.01 U DNR	0.025 U	0.01 U DNR	15.8 E DNR
	12/16/13 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	NA	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**6.5**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**60**
	12/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00021	NA	NA	0.0001 U	NA	0.0001 U	NA
	02/26/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 UJ	0.25 U	0.1 U	0.1 U DNR	0.1 U	**7.3**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.1 U	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	68.9 E DNR
	02/26/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	7.1 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**84.1**
	02/26/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00041	NA	NA	0.00027	NA	0.0001 U	NA
	04/01/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**3.1**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.1 U	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	39 E DNR
	04/1/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	3.2 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**40.9**
	04/1/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00029	NA	NA	0.000093 X	NA	0.0001 U	NA
	04/1/14 (DUP)	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**3.5**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.1 U	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	44.9 E DNR
	04/1/14 (DUP DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	3.1 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**41.1**
	04/1/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00040	NA	NA	0.00010	NA	0.00002 U	NA
	08/25/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**7.8**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.1 U	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	74 E DNR
	08/25/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	7.9 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**72.1**
	08/25/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00046	NA	NA	0.00013	NA	0.0001 U	NA
	12/02/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**8.9**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.1 U	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	75.8 E DNR
	12/02/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	8.6 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**79.2**
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA	0.002 U	NA	NA	0.002 U	NA	0.002 U	NA
EGW208 [3]	12/16/13	0.05 U	0.002 U	0.005 U	0.005 U	0.005 U	0.05 U	0.005 U	0.005 U	0.002 U	0.005 U	NA	0.005 U	0.002 U	0.002 U DNR	0.002 U	0.089 DNR	0.05 U	0.05 U	0.005 U	0.005 U	0.002 U DNR	0.002	0.005 U	0.002 U DNR	0.005 U	0.002 U DNR	1.06 E DNR
	12/16/13 (DL)	0.5 U DNR	0.02 U DNR	0.05 U DNR	0.05 U DNR	0.05 U DNR	0.5 U DNR	0.05 U DNR	0.05 U DNR	0.02 U DNR	0.05 U DNR	NA	0.05 U DNR	0.02 U DNR	0.02 U DNR	0.02 U DNR	0.11	0.5 U DNR	0.5 U DNR	0.05 U DNR	0.05 U DNR	0.02 U DNR	0.02 U DNR	0.05 U DNR	0.02 U DNR	0.05 U DNR	0.02 U DNR	**1.269**
	12/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00004 U	NA	NA	NA	NA	NA	NA	0.00004 U	NA	NA	0.000038 X	NA	0.00004 U	NA
	02/20/14	0.25 U	0.01 U	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 UJ	0.01 U	0.025 UJ	1.3 U	0.025 U	0.01 U	0.01 U DNR	0.01 U	0.6	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	0.01 U	0.025 U	0.01 U DNR	0.025 U	0.01 U DNR	5.1 E DNR
	02/20/14 (DL)	2.5 U DNR	0.1 U DNR	0.25 U DNR	0.25 U DNR	0.25 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	13 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.61 DNR	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	**5.821**
	02/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	0.0002 U	NA	0.0002 U	NA
	04/02/14	0.25 U	0.01 U	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	1.3 U	0.025 U	0.01 U	0.01 U DNR	0.01 U	0.23	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	0.01 U	0.025 U	0.01 U DNR	0.025 U	0.01 U DNR	3 E DNR
	04/2/14 (DL)	2.5 U DNR	0.1 U DNR	0.25 U DNR	0.25 U DNR	0.25 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	13 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.21 X DNR	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	**2.80**
	04/2/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	0.0002 U	NA	0.0002 U	NA
	08/25/14	0.25 U	0.01 U	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	1.3 U	0.025 U	0.01 U	0.01 U DNR	0.01 U	0.57	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	0.0053 X	0.025 U	0.01 U DNR	0.025 U	0.01 U DNR	5.0 E DNR
	08/25/14 (DL)	2.5 U DNR	0.1 U DNR	0.25 U DNR	0.25 U DNR	0.25 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	13 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.6 DNR	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	**5.0**
	08/25/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	0.0002 U	NA	0.0002 U	NA
	12/02/14	0.25 U	0.01 U	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	1.3 U	0.025 U	0.01 U	0.01 U DNR	0.01 U	0.11	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	0.01 U	0.025 U	0.01 U DNR	0.025 U	0.01 U DNR	4.2 E DNR
	12/02/14 (DL)	2.5 U DNR	0.1 U DNR	0.25 U DNR	0.25 U DNR	0.25 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	13 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.11 X DNR	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	**4.106**
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	NA	NA	NA	NA	0.0002 U	NA	NA	0.0002 U	NA	0.0002 U	NA

Table A-13
Summary of Groundwater Analytical Results for Volatile Organic Compounds, (mg/L)
2nd Quarter 2015
Building 40-56
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Chloroethane	Chloroform	Chloromethane	Cyclohexanone	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	Ethylbenzene	2-Hexanone	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	TCE	TCFM	Vinyl Chloride	Total Xylenes[4]
MTCA Method A or B Groundwater Screening Level		7.2 (B)	0.005 (A) 0.000795 (B)	0.000706 (B)	0.0055 (B)	0.0112 (B)	4.8 (B)	0.8 (B)	NE	0.00141 (B)	NE	40 (B)	0.00768 (B)	0.005 (A) 0.000481 (B)	0.4 (B)	0.016 (B)	0.7 (A) 0.8 (B)	NE	0.64 (B)	0.005 (A) 0.0219 (B)	1.6 (B)	0.005 (A) 0.0208 (B)	1.0 (A) 0.64 (B)	0.2 (A) 16 (B)	0.005 (A) 0.00054 (B)	2.4 (B)	0.0002 (A) 0.000029 (B)	1.0 (A) 1.6 (B)
EGW209 [3]	12/16/13	0.25 U	0.01 U	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	NA	0.025 U	0.01 U	0.01 U DNR	0.01 U	3.3 E DNR	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	**1.1**	0.025 U	0.01 U DNR	0.025 U	0.01 U DNR	19.4 E DNR
	12/16/13 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	NA	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**9.4**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1 DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**91**
	12/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00099	NA	NA	**0.0023**	NA	0.0001 U	NA
	02/20/14	1.0 U	0.04 U	0.1 U	0.1 U	0.1 U	1.0 U	0.1 U	0.1 UJ	0.04 U	0.1 UJ	5.0 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	11 E DNR	1.0 U	1.0 U	0.1 U	0.1 U	0.04 U DNR	**0.93**	0.1 U	0.04 U DNR	0.1 U	0.04 U DNR	52.9 E DNR
	02/20/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**12**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.92 DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**97.9**
	02/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	0.00081	NA	NA	**0.0025**	NA	0.0004 U	NA
	04/02/14	1.0 U	0.04 U	0.1 U	0.1 U	0.1 U	1.0 U	0.1 U	0.1 U	0.04 U	0.1 U	5.0 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	8.9 E DNR	1.0 U	1.0 U	0.1 U	0.1 U	0.04 U DNR	**0.66**	0.1 U	0.04 U DNR	0.1 U	0.04 U DNR	44.4 E DNR
	04/2/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**9.2**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.65 DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**79.1**
	04/2/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	0.00080	NA	NA	**0.0021**	NA	0.00040 U	NA
	08/26	1.0 U	0.04 U	0.1 U	0.1 U	0.1 U	1.0 U	0.1 U	0.1 U	0.04 U	0.1 U	5.0 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	8.2 E DNR	1.0 U	1.0 U	0.1 U	0.1 U	0.04 U DNR	0.49	0.1 U	0.04 U DNR	0.1 U	0.04 U DNR	50 E DNR
	08/26/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**8.5**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.55 DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**79.5**
	08/26/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	0.00075	NA	NA	**0.0020**	NA	0.0004 U	NA
	12/02/14	1.0 U	0.04 U	0.1 U	0.1 U	0.1 U	1.0 U	0.1 U	0.1 U	0.04 U	0.1 U	5.0 U	0.1 U	0.04 U	0.04 U DNR	0.04 U	6.8 E DNR	1.0 U	1.0 U	0.1 U	0.1 U	0.04 U DNR	0.45	0.1 U	0.04 U DNR	0.1 U	0.04 U DNR	42.8 E DNR
	12/02/14 (DL)	10 U DNR	0.4 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	50 U DNR	1.0 U DNR	0.4 U DNR	0.4 U DNR	0.4 U DNR	**6.5**	10 U DNR	10 U DNR	1.0 U DNR	1.0 U DNR	0.4 U DNR	0.46 DNR	1.0 U DNR	0.4 U DNR	1.0 U DNR	0.4 U DNR	**58.6**
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA	0.002 U	NA	NA	**0.0026**	NA	0.002 U	NA
EGW210 [3]	12/16/13	0.25 U	**0.005 X**	0.025 U	0.025 U	0.025 U	0.25 U	0.025 U	0.025 U	0.01 U	0.025 U	NA	0.025 U	0.01 U	0.01 U DNR	0.01 U	2.8 E DNR	0.25 U	0.25 U	0.025 U	0.025 U	0.01 U DNR	0.59	0.025 U	0.01 U DNR	0.025 U	0.01 U DNR	17.5 E DNR
	12/16/13 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	NA	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**4.1**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	0.58 X DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**72.3**
	12/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00042	NA	NA	**0.002**	NA	0.0001 U	NA
	02/26/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 UJ	0.25 U	0.1 U	0.1 U DNR	0.1 U	**2.5**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.28	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	43.6 E DNR
	02/26/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	2.6 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**46.3**
	02/26/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	NA	NA	NA	NA	NA	NA	0.00023	NA	NA	**0.0018**	NA	0.0001 U	NA
	04/02/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**0.96**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.1 U	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	29 E DNR
	04/2/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	0.95 X DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**28.28**
	04/2/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	0.00018	NA	NA	**0.0010**	NA	0.001 U	NA
	08/26/14	0.5 U	0.02 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U	0.05 U	0.02 U	0.05 U	2.5 U	0.05 U	0.02 U	0.02 U DNR	0.02 U	**0.96**	0.5 U	0.5 U	0.05 U	0.05 U	0.02 U DNR	0.049	0.05 U	0.02 U DNR	0.05 U	0.02 U DNR	16.22 E DNR
	08/26/14 (DL)	2.5 U DNR	0.1 U DNR	0.25 U DNR	0.25 U DNR	0.25 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	13 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.1 U DNR	0.86 DNR	2.5 U DNR	2.5 U DNR	0.25 U DNR	0.25 U DNR	0.1 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	0.25 U DNR	0.1 U DNR	**15.24**
	08/26/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	0.00011	NA	NA	**0.00058**	NA	0.001 U	NA
	12/02/14	0.5 U	0.02 U	0.05 U	0.05 U	0.05 U	0.5 U	0.05 U	0.05 U	0.02 U	0.05 U	2.5 U	0.05 U	0.02 U	0.02 U DNR	0.02 U	**1.1**	0.5 U	0.5 U	0.05 U	0.05 U	0.02 U DNR	0.036	0.05 U	0.02 U DNR	0.05 U	0.02 U DNR	15.26 E DNR
	12/02/14 (DL)	5.0 U DNR	0.2 U DNR	0.5 U DNR	0.5 U DNR	0.5 U DNR	5.0 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR	0.5 U DNR	25 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR	0.2 U DNR	1.0 DNR	5.0 U DNR	5.0 U DNR	0.5 U DNR	0.5 U DNR	0.2 U DNR	0.2 U DNR	0.5 U DNR	0.2 U DNR	0.5 U DNR	0.2 U DNR	**16.27**
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00004 U	NA	NA	NA	NA	NA	NA	0.00004 U	NA	NA	**0.00052**	NA	0.00004 U	NA
EGW211 [3]	12/16/2013[5]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/20/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 UJ	0.1 U	0.25 UJ	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**8.9**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**0.7**	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	74 E DNR
	02/20/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	9.9 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	0.84 X DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**87**
	02/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	0.00077 X	NA	NA	**0.0022**	NA	0.001 U	NA
	02/20/14 (DUP)	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 UJ	0.1 U	0.25 UJ	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**9.8**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	**0.75**	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	69 E DNR
	02/20/14 (DUP DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	10 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	0.82 X DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**93**
	02/20/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	0.00073 X	NA	NA	**0.0022**	NA	0.001 U	NA
	04/02/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**8.2**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.54	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	71.5 E DNR
	04/2/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	8.7 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	0.58 X DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**84**
	04/2/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	NA	NA	NA	NA	NA	NA	0.0015	NA	NA	**0.0020**	NA	0.001 U	NA
	08/26/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	13 E DNR	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.1	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	93.2 E DNR
	08/26/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	**10**	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**82.1**
	08/26/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	0.00085	NA	NA	**0.0017**	NA	0.0004 U	NA
	12/02/14	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 U	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**11**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.16	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	77.2 E DNR
	12/02/14 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	11 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**83.4**
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.002 U	NA	NA	NA	NA	NA	NA	0.002 U	NA	NA	**0.0022**	NA	0.002 U	NA
	04/03/15	2.5 U	0.1 U	0.25 U	0.25 U	0.25 U	2.5 U	0.25 UJ	0.25 U	0.1 U	0.25 U	13 U	0.25 U	0.1 U	0.1 U DNR	0.1 U	**10**	2.5 U	2.5 U	0.25 U	0.25 U	0.1 U DNR	0.1 U	0.25 U	0.1 U DNR	0.25 U	0.1 U DNR	67 E DNR
	04/03/15 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	130 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	8.2 DNR	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**56**
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0004 U	NA	NA	NA	NA	NA	NA	0.00078	NA	NA	**0.0016**	NA	0.0004 U	NA
EGW212 [3]	08/27/14	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0012 U
	8/27/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	12/02/14	0.005 U	0.00020 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0003 X	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0027
	12/02/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA
	04/03/15	0.005 U	0.0002 U	0.0005 U	0.0005 U	0.0005 U	0.005 U	0.0005 UJ	0.0005 U	0.0002 U	0.0005 U	0.025 U	0.0005 U	0.0002 U	0.0002 U DNR	0.0002 U	0.0005 U	0.005 U	0.005 U	0.0005 U	0.0005 U	0.0002 U DNR	0.0002 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0002 U DNR	0.0005 U
	04/03/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	0.00002 U	NA	NA	0.00002 U	NA	0.00002 U	NA

Notes:

Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015.
(https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
BDCM - bromodichloromethane
D - Dilution required to quantitate analyte within linear range of detector. This flag was not used prior to August 2001.
DL - dilution
DNR - do not report
DUP - field duplicate
1,1-DCA - 1,1-dichloroethane
1,1-DCE - 1,1-dichloroethene
1,2-DCA - 1,2-dichloroethane
cis-1,2-DCE - cis-1,2-dichloroethene
J - estimated value
mg/L - milligram per liter
MIBK - 4-methyl-2-pentanone (methyl isobutyl keton

[1] EGW050 & EGW051 installed in May 1996. EGW051 was decommissioned and replaced with EGW051A in December 20
[2] EGW040 analytical data presented in data summary table for Esperance Sand wells beginning with February 1999 sampling ro
[3] Monitoring wells installed December 2013 in conjuction with the Dual-Phase Extraction pilot test conducted December 17 through December 20, 2
[4] Total Xylenes is the sum of m,p-xylene and o-xylene when reported separately by the laboratory. Refer to the associated data review document for explanation of results qualified 'DNR' and the laboratory packages for individual v
[5] Dry well, unable to collect sample
* Sample result was qualified as not detected due to method blank contamination.
** Sample results are suspected laboratory contamination.
NA - not available (the 1995-1997 data predates the RI and is not included in the project database) or not analyzed.
NE - not established
PCE - tetrachloroethene
SIM - selected ion monitoring
1,1,1-TCA - 1,1,1-trichloroethane
TCE - trichloroethene
TCFM - trichlorofluoromethane
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated va

Table A-14
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
2nd Quarter 2015
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range	Jet A-Range	Motor Oil Range	Gasoline-Range
MTCA Method A Groundwater Screening Level		0.5	0.5	0.5	0.8 / 1.0 [b]
EGW033	01/30/95	0.25 U	NA	NA	NA
	04/28/95	0.25 U	0.50 U	NA	NA
	08/03/95	0.25 U	0.50 U	NA	NA
	11/08/95	**0.51**	**0.50**	NA	NA
	02/26/96	0.34	0.5 U	NA	NA
	06/04/96	0.36	0.5 U	NA	NA
	06/04/96 (DUP)	0.30	0.5 U	NA	NA
	08/26/96	0.46	0.5 U	NA	NA
	11/26/96	**1.0**	**0.74**	NA	NA
	03/06/97	0.25 U	0.50 U	NA	0.25 U
	05/27/97	0.25 U	0.50 U	NA	NA
	05/27/97 (DUP)	0.25 U	0.50 U	NA	NA
	08/13/97	0.25 U	0.50 U	NA	NA
	08/13/97 (DUP)	0.25 U	0.50 U	NA	NA
	11/18/97	0.25 U	0.50 U	NA	NA
	03/12/98	0.48	0.50 U	NA	NA
	05/14/98	0.25 U	0.50 U	NA	NA
	08/13/98	0.28*	0.5 U	NA	NA
	11/11/98	0.25 U	0.50 U	NA	NA
	02/03/99	**0.50****	0.50 U	NA	NA
	05/11/99	0.35**	0.50 U	NA	NA
	08/03/99	0.30**	0.50 U	NA	NA
	11/10/99	0.25 U	0.50 U	0.50 U	NA
	02/03/00	0.25 U	0.50 U	NA	NA
	05/04/00	0.25 U	0.50 U	NA	NA
	08/03/00	0.25 U	0.50 U	NA	NA
	11/16/00	0.25 U	0.50 U	NA	NA
	02/07/01	0.28 **	0.50 U	NA	NA
	05/04/01	0.25 U	0.50 U	NA	NA
	08/02/01	0.25 U	0.50 U	NA	NA
	11/15/01	0.25 U	0.50 U	NA	NA
	02/07/02	0.25 U	0.50 U	NA	NA
	05/08/02	0.25 U	0.50 U	NA	NA
	11/17/02	0.25 U	0.50 U	NA	NA
	05/08/03	0.25 U	0.50 U	NA	NA
	11/06/03	0.25 U	0.50 U	NA	NA
	04/18/04	0.25 U	0.50 U	NA	NA
	10/05/04	0.25 U	0.50 U	NA	NA
	03/28/05	0.25 U	0.25 U	NA	NA
	10/19/05	0.25 U	0.25 U	NA	NA
	01/12/06	0.25 U	0.25 U	NA	NA
	07/07/06	0.25 U	0.25 U	NA	NA
	01/08/07	0.25 U	0.25 U	NA	NA
	07/05/07	0.25 U	0.25 U	NA	NA
	01/04/08	0.25 U	0.25 U	0.50 U	NA
	07/08/08	0.25 U	0.25 U	0.50 U	NA
	01/05/09	0.25 U	0.25 U	0.50 U	NA
	07/06/09	0.25 U	0.25 U	0.50 U	NA
	01/11/10	0.25 U	0.25 U	0.50 U	NA
	07/06/10	0.10 U	0.10 U	0.20 U	NA
	01/10/11	0.10 U	0.10 U	NA	NA
	07/12/11	0.10 U	0.10 U	NA	NA
	01/10/12	0.10 U	0.10 U	0.20 U	NA
	07/19/12	0.096 U	0.096 U	NA	NA
	01/13/13	0.097 U	0.097 U	NA	NA
	07/02/13	0.098 U	0.098 U	NA	NA
	01/07/14	0.095 U	0.095 U	NA	NA
	07/03/14	0.093 U	0.093 U	NA	NA
	01/06/15	0.096 U	0.096 U	NA	NA

Table A-14
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
2nd Quarter 2015
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range	Jet A-Range	Motor Oil Range	Gasoline-Range
MTCA Method A Groundwater Screening Level		0.5	0.5	0.5	0.8 / 1.0 [b]
EGW035	01/30/95	**2.7**	NA	NA	NA
	01/30/95 (DUP)	**2.4**	NA	NA	NA
	04/28/95	**2.7**	**3.8**	NA	NA
	08/03/95	**3.6**	**4.4**	NA	NA
	08/03/95 (DUP)	**2.4**	**3.1**	NA	NA
	11/08/95	**8.4**	**11**	NA	NA
	02/26/96	**0.79**	**1.2**	NA	NA
	06/04/96	**0.75**	**1.3**	NA	NA
	08/26/96	**0.84**	**1.4**	NA	NA
	11/26/96	**0.90**	**1.2**	NA	NA
	03/06/97	**0.85**	**0.89**	NA	NA
	05/27/97	**0.96**	**1.4**	NA	NA
	08/13/97	**0.75**	**0.95**	NA	NA
	11/18/97	**0.6**	**1.1**	NA	NA
	11/18/97 (DUP)	**0.54**	**1.0**	NA	NA
	03/12/98	**1.4**	**2.1**	NA	NA
	05/14/98	**1.3***	**1.6**	NA	NA
	05/14/98 (DUP)	**0.91***	**1.2**	NA	NA
	08/13/98	**1.6***	**1.8**	NA	NA
	11/11/98	**0.62***	**1.2**	NA	NA
	02/03/99	**2.4***	**3.8**	NA	NA
	05/11/99	**5.8***	**11**	NA	NA
	08/03/99	**3.6***	**5.8**	NA	NA
	08/03/99 (DUP)	**1.6***	**3.0**	NA	NA
	11/10/99	**2.2****	**3.6****	0.50 U	NA
	02/03/00	**1.0***	**1.8**	NA	NA
	05/04/00	**0.6***	**1.0**	NA	NA
	08/03/00	**3.0 ***	**4.3**	NA	NA
	11/16/00	**1.7 ***	**2.3**	NA	NA
	02/07/01	**1.6 ****	**2.3 ****	NA	NA
	05/04/01	**1.5 ****	**2.2 ****	NA	NA
	08/02/01	**1.6 ****	**2.1 ****	NA	NA
	11/15/01	**2.2 ***	**2.5**	NA	NA
	02/07/02	**1.5 ****	**2.0 ****	NA	NA
	05/08/02	**1.9 ****	**2.4 ****	NA	NA
	05/08/02 (DUP)	**1.8 ****	**2.4 ****	NA	NA
	11/17/02	**2.2 ****	**2.7 ****	NA	NA
	05/08/03	**2.1 ****	**2.5 ****	NA	NA
	11/06/03	**2.7 ****	**3.0 ****	NA	NA
	04/18/04	**4.2 J ****	**4.8 J ****	NA	NA
	10/05/04	**2.7****	**3.1****	NA	NA
	03/28/05	**3.7****	**4.5****	NA	NA
	3/28/05 (DUP)	**2.9****	**3.4****	NA	NA
	10/19/05	**2.4***	**3.4**	NA	NA
	10/19/05 (DUP)	**3.0***	**4.2**	NA	NA
	01/12/06	**5.6****	**6.9****	NA	NA
	1/12/06 (DUP)	**4.9****	**6.0****	NA	NA
	07/07/06	**2.6**	**3.2**	NA	NA
	7/7/06 (DUP)	**3.3**	**4.3**	NA	NA
	01/08/07	**2.8**	**2.8*****	NA	NA
	1/8/07 (DUP)	**3.0**	**3.0*****	NA	NA
	07/05/07	**2.6**	**3.3*****	NA	NA
	7/5/07 (DUP)	**3.1**	**4.1*****	NA	NA
	01/04/08	**16****	**25***	5.0 U	NA
	1/4/08 (DUP)	**14****	**21***	5.0 U	NA
	07/08/08	**0.78***	**0.93***	0.50 U	NA
	01/05/09	**2.4****	**2.2***	0.50 U	NA
	1/5/09 (DUP)	**2.9****	**2.6***	0.50 U	NA
	07/06/09	**1.5**	**1.3*****	0.50 U	NA
	01/11/10	**1.1***	**1.7***	0.50 U	NA
	1/11/10 (DUP)	**1.2***	**1.7***	0.50 U	NA
	07/06/10	**0.85***	**1.6***	0.20 U	NA

Table A-14
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
2nd Quarter 2015
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range	Jet A-Range	Motor Oil Range	Gasoline-Range
MTCA Method A Groundwater Screening Level		0.5	0.5	0.5	0.8 / 1.0 [b]
EGW035 (continued)	01/10/11	**1.0***	**2.0***	NA	NA
	1/10/11 (DUP)	**0.95***	**1.7***	NA	NA
	07/12/11	**0.91***	**1.1***	NA	NA
	01/10/12	0.20*	0.32*	0.20 U	NA
	07/19/12	0.49	**0.53***	NA	NA
	01/13/13	0.45**	0.48*	NA	NA
	07/02/13	0.36***	0.34**	NA	NA
	01/07/14	0.28*	0.33*	NA	NA
	01/7/14 (DUP)	0.30*	0.35*	NA	NA
	07/03/14	**0.71***	**0.80***	NA	NA
	07/03/14 (DUP)	**0.77***	**0.88***	NA	NA
	01/06/15	**0.50***	**0.59***	NA	NA
	01/06/15 (DUP)	**0.56***	**0.69***	NA	NA
EGW038	01/30/95	0.25 U	NA	NA	NA
	04/28/95	0.25 U	0.50 U	NA	NA
	08/03/95	0.25 U	0.50 U	NA	NA
	11/08/95	0.25 U	0.50 U	NA	NA
	02/26/96	0.25 U	0.50 U	NA	NA
	02/26/96 (DUP)	0.25 U	0.50 U	NA	NA
	06/04/96	0.25 U	0.50 U	NA	NA
	08/26/96	0.25 U	0.50 U	NA	NA
	11/26/96	0.25 U	0.50 U	NA	NA
	03/06/97	0.25 U	0.50 U	NA	0.25 U
	03/06/97 (DUP)	0.25 U	0.50 U	NA	0.25 U
	05/27/97	0.25 U	0.50 U	NA	NA
	08/13/97	0.25 U	0.50 U	NA	NA
	11/18/97	0.25 U	0.50 U	NA	NA
	03/12/98	0.25 U	0.50 U	NA	NA
	05/14/98	0.25 U	0.50 U	NA	NA
	08/13/98	0.25 U	0.50 U	NA	NA
	11/11/98	0.25 U	0.50 U	NA	NA
	11/11/98 (DUP)	0.25 U	0.50 U	NA	NA
	02/03/99	0.25 U	0.50 U	NA	NA
	05/11/99	0.25 U	0.50 U	NA	NA
	08/03/99	0.25 U	0.50 U	NA	NA
	11/10/99	0.25 U	0.50 U	0.50 U	NA
	11/10/99 (DUP)	0.25 U	0.50 U	0.50 U	NA
	02/03/00	0.25 U	0.50 U	NA	NA
	02/03/00 (DUP)	0.25 U	0.50 U	NA	NA
	05/04/00	0.25 U	0.50 U	NA	NA
	08/03/00	0.25 U	0.50 U	NA	NA
	08/03/00 (DUP)	0.25 U	0.50 U	NA	NA
	11/16/00	0.25 U	0.50 U	NA	NA
	11/16/00 (Dup)	0.25 U	0.50 U	NA	NA
	02/07/01	0.25 U	0.50 U	NA	NA
	05/04/01	0.25 U	0.50 U	NA	NA
	05/04/01 (DUP)	0.25 U	0.50 U	NA	NA
	08/02/01	0.25 U	0.50 U	NA	NA
	08/02/01 (DUP)	0.25 U	0.50 U	NA	NA
	11/15/01	0.25 U	0.50 U	NA	NA
	11/15/01 (DUP)	0.25 U	0.50 U	NA	NA
	02/07/02	0.25 U	0.50 U	NA	NA
	05/08/02	0.25 U	0.50 U	NA	NA
	11/17/02	0.25 U	0.50 U	NA	NA
	11/17/02 (DUP)	0.25 U	0.50 U	NA	NA
	05/08/03	0.25 U	0.50 U	NA	NA
	11/06/03	0.25 U	0.50 U	NA	NA
	04/18/04	0.25 U	0.50 U	NA	NA
	4/18/04 (DUP)	0.25 U	0.50 U	NA	NA
	10/05/04	0.25 U	0.50 U	NA	NA

Table A-14
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
2nd Quarter 2015
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range	Jet A-Range	Motor Oil Range	Gasoline-Range
MTCA Method A Groundwater Screening Level		0.5	0.5	0.5	0.8 / 1.0 [b]
EGW038 (continued)	03/28/05	0.25 U	0.25 U	NA	NA
	10/19/05	0.25 U	0.25 U	NA	NA
	01/12/06	0.25 U	0.25 U	NA	NA
	07/07/06	0.25 U	0.25 U	NA	NA
	01/08/07	0.25 U	0.25 U	NA	NA
	07/05/07	0.25 U	0.25 U	NA	NA
	01/04/08	0.25 U	0.25 U	0.50 U	NA
	07/08/08	0.25 U	0.25 U	0.50 U	NA
	01/05/09	0.25 U	0.25 U	0.50 U	NA
	07/06/09	0.25 U	0.25 U	0.50 U	NA
	01/11/10	0.25 U	0.25 U	0.50 U	NA
	07/06/10	0.10 U	0.10 U	0.20 U	NA
	01/10/11	0.10 U	0.10 U	NA	NA
	07/12/11	0.10 U	0.10 U	NA	NA
	01/10/12	0.10 U	0.10 U	0.20 U	NA
	07/19/12	0.094 UJ	0.094 UJ	NA	NA
	01/13/13	0.096 U	0.096 U	NA	NA
	1/13/13 (DUP)	0.096 U	0.096 U	NA	NA
	07/02/13	0.099 U	0.099 U	NA	NA
	7/2/13 (DUP)	0.095 U	0.095 U	NA	NA
	01/07/14	0.095 U	0.095 U	NA	NA
	07/03/14	0.094 U	0.094 U	NA	NA
	01/06/15	0.096 U	0.096 U	NA	NA
EGW052[a]	03/07/97	**4.0**	**3.9**	NA	**9.7**
	05/28/97	**3.6**	**4.7**	NA	NA
	08/13/97	**1.7**	**2.2**	NA	NA
	11/18/97	**2.3**	**4.0**	NA	NA
	03/12/98	**1.3**	**1.7**	NA	NA
	05/14/98	**1.5****	**1.6****	NA	NA
	08/13/98	**1.6***	**1.3**	NA	NA
	11/11/98	**1.9**	**2.8*****	NA	NA
	02/03/99	**3.7***	**4.9**	NA	NA
	05/11/99	**4.8***	**8.2**	NA	NA
	08/03/99	**4.2***	**6.1**	NA	NA
	11/10/99	**7.4****	**10****	**0.68****	NA
	02/03/00	**1.5****	**1.8****	NA	NA
	05/04/00	**1.4**	**1.3*****	NA	NA
	08/03/00	**1.6 ***	**1.9**	NA	NA
	11/16/00	**3.8 ****	**3.4 ****	NA	NA
	02/07/01	**1.4 ****	**1.6 ****	NA	NA
	05/04/01	**1.0 ***	**1.2**	NA	NA
	08/02/01	**1.8 ****	**1.8 ****	NA	NA
	11/15/01	**2.3 ****	**1.9 ****	NA	NA
	02/07/02	0.25 **	0.50 U	NA	NA
	05/08/02	**0.54 ****	**0.64 ****	NA	NA
	11/17/02	**1.4 ****	**1.5 ****	NA	NA
	05/08/03	**0.43 ****	0.50 U	NA	NA
	11/06/03	**1.9 ****	**1.6 ****	NA	NA
	04/18/04	0.25 U	0.50 U	NA	NA
	10/05/04	**0.83****	**0.71****	NA	NA
	03/28/05	0.25 U	0.25 U	NA	NA
	10/19/05	0.25 U	0.25 U	NA	NA
	01/12/06	0.25 U	0.25 U	NA	NA
	07/07/06	0.25 U	0.25 U	NA	NA
	01/08/07	0.25 U	0.25 U	NA	NA
	07/05/07	0.25 U	0.25 U	NA	NA
	01/04/08	0.25 U	0.25 U	0.50 U	NA
	07/08/08	0.25 U	0.25 U	0.50 U	NA
	01/05/09	0.25 U	0.25 U	0.50 U	NA
	07/06/09	0.25 U	0.25 U	0.50 U	NA

Table A-14
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
2nd Quarter 2015
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range	Jet A-Range	Motor Oil Range	Gasoline-Range
MTCA Method A Groundwater Screening Level		0.5	0.5	0.5	0.8 / 1.0 [b]
EGW052[a] (continued)	01/11/10	0.25 U	0.25 U	0.50 U	NA
	07/06/10	0.10 U	0.10 U	0.20 U	NA
	01/10/11	0.10 U	0.10 U	NA	NA
	07/12/11	0.10 U	0.10 U	NA	NA
	01/10/12	0.10 U	0.10 U	0.20 U	NA
	07/19/12	0.096 U	0.096 U	NA	NA
	01/13/13	0.036 X***	0.095 U	NA	NA
	07/02/13	0.099 U	0.099 U	NA	NA
	01/07/14	0.095 U	0.095 U	NA	NA
	07/03/14	0.035 X**	0.10 U	NA	NA
	01/06/15	0.097 U	0.097 U	NA	NA
EGW053[a]	03/06/97	**2.4**	**1.6**	NA	0.25 U
	05/27/97	**1.7**	**1.5**	NA	NA
	08/13/97	**1.7**	**1.5**	NA	NA
	11/18/97	**1.5**	**1.4**	NA	NA
	03/12/98	0.25	0.5 U	NA	NA
	03/12/98 (DUP)	0.38	0.5 U	NA	NA
	05/14/98	**0.62****	0.5 U	NA	NA
	08/13/98	**1.2***	**0.92**	NA	NA
	08/13/98 (DUP)	**1.2***	**0.92**	NA	NA
	11/11/98	**2.4**	**2.0*****	NA	NA
	02/03/99	**0.84****	0.5 U	NA	NA
	02/03/99 (DUP)	**0.80****	0.5 U	NA	NA
	05/11/99	**0.65****	0.5 U	NA	NA
	05/11/99 (DUP)	0.48**	0.5 U	NA	NA
	08/03/99	**0.60****	0.50 U	NA	NA
	11/10/99	**1.4****	**1.1****	0.50 U	NA
	02/03/00	0.28**	0.50 U	NA	NA
	05/04/00	0.25 U	0.50 U	NA	NA
	05/04/00 (DUP)	0.25 U	0.50 U	NA	NA
	08/03/00	0.32 **	0.50 U	NA	NA
	11/16/00	**1.4 ** **	**0.68 ** **	NA	NA
	02/07/01	**0.51 ** **	0.50 U	NA	NA
	02/07/01 (DUP)	**0.52 ** **	0.50 U	NA	NA
	05/04/01	0.25 U	0.50 U	NA	NA
	08/02/01	0.26 **	0.50 U	NA	NA
	11/15/01	**0.56 ** **	0.50 U	NA	NA
	02/07/02	0.25 U	0.50 U	NA	NA
	02/07/02 (DUP)	0.25 U	0.50 U	NA	NA
	05/08/02	0.25 U	0.50 U	NA	NA
	11/17/02	0.27 **	0.5 U	NA	NA
	05/08/03	0.25 U	0.50 U	NA	NA
	05/08/03 (DUP)	0.25 U	0.50 U	NA	NA
	11/06/03	0.25 U	0.50 U	NA	NA
	11/6/2003 (DUP)	0.25 **	0.50 U	NA	NA
	04/18/04	0.25 U	0.50 U	NA	NA
	10/05/04	0.25 U	0.50 U	NA	NA
	10/05/04 (DUP)	0.25 U	0.50 U	NA	NA
	03/28/05	0.25 U	0.25 U	NA	NA
	10/19/05	0.25 U	0.25 U	NA	NA
	01/12/06	0.25 U	0.25 U	NA	NA
	07/07/06	0.25 U	0.25 U	NA	NA
	01/08/07	0.25 U	0.25 U	NA	NA
	07/05/07	0.25 U	0.25 U	NA	NA
	01/04/08	0.25 U	0.25 U	0.50 U	NA
	07/08/08	0.25 U	0.25 U	0.50 U	NA
	07/08/08 (DUP)	0.25 U	0.25 U	0.50 U	NA
	01/05/09	0.25 U	0.25 U	0.50 U	NA
	07/06/09	0.25 U	0.25 U	0.50 U	NA
	7/6/2009 (DUP)	0.25 U	0.25 U	0.50 U	NA

Table A-14
Summary of Groundwater Analytical Results for Total Petroleum Hydrocarbons, (mg/L)
2nd Quarter 2015
Building 45-53 (UST EV-110-1)
Boeing Everett Plant

Well ID	Sample Date	Diesel-Range	Jet A-Range	Motor Oil Range	Gasoline-Range
MTCA Method A Groundwater Screening Level		0.5	0.5	0.5	0.8 / 1.0 [b]
EGW053[a] (continued)	01/11/10	0.25 U	0.25 U	0.50 U	NA
	07/06/10	0.10 U	0.10 U	0.20 U	NA
	7/6/10 (DUP)	0.10 U	0.10 U	0.20 U	NA
	01/10/11	0.10 U	0.10 U	NA	NA
	07/12/11	0.10 U	0.10 U	NA	NA
	7/12/11 (DUP)	0.10 U	0.10 U	NA	NA
	01/10/12	0.10 U	0.10 U	0.20 U	NA
	1/10/12 (DUP)	0.10 U	0.10 U	0.20 U	NA
	07/19/12	0.096 U	0.096 U	NA	NA
	7/19/12 (DUP)	0.096 U	0.096 U	NA	NA
	01/13/13	0.074 X***	0.050 X**	NA	NA
	07/02/13	0.099 U	0.099 U	NA	NA
	01/07/14	0.095 U	0.095 U	NA	NA
	07/03/14	0.093 U	0.093 U	NA	NA
	01/06/15	0.096 U	0.029 X**	NA	NA

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A values are from Ecology website CLARC tables downloaded February 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
DUP - field duplicate
mg/L - milligram per liter
NA - not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.
[a] Well installed in February 1997.
[b] The groundwater screening level is 1.0 mg/L if benzene is not present and 0.8 mg/L if benzene is present.
*Pattern profile is indicative of Jet-A fuel.
**Pattern profile does not match a typical diesel, motor oil, or Jet-A fuel pattern.
***Pattern profile is indicative of diesel range hydrocarbon.

Table A-15
Summary of Groundwater Analytical Results for VOCs and TPH
2nd Quarter 2015
Building 45-70 (BOMARC)
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (ug/L)						Total Petroleum Hydrocarbons (mg/L)		
		Acetone	Benzene	Carbon Disulfide	1,1-Dichloroethane	Ethylbenzene	Total Xylenes	Gasoline-Range	Diesel-Range	Oil-Range
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	7.68 (B)	700 (A) 800 (B)	1,000 (A) 1,600 (B)	0.8 / 1.0 [a] (A)	0.5 (A)	0.5 (A)
EGW179	1/13/2010	5.0 U	0.2 U	0.3	0.5 U	0.2 U	0.4 U	0.25 U	0.43	0.43
	04/26/10	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.25 U	0.50 U
	07/01/10	5.0 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	10/18/10	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	01/04/11	5.0 U	0.2 U	0.4	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	07/01/11	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	01/12/12	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3 X	0.25 U	0.10 U	0.20 U
	07/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.055 X	0.24 U
	01/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.079 X	0.086 X*
	04/03/13	NA	NA	NA	0.5 U	NA	NA	0.25 U	0.083 X*	0.100 X
	07/02/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.045 X*	0.24 U
	01/09/14	5.0 U	0.2 U	0.5 U	0.1 X	0.5 U	0.5 U	0.25 U	0.073 X*	0.24 U
	07/07/14	5.0 U	0.2 U	0.5 U	0.1 X	0.5 U	0.5 U	0.25 U	0.072 X*	0.23 U
	01/07/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.058 X*	0.24 U
EGW180	01/13/10	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.25 U	0.50 U
	04/26/10	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.25 U	0.50 U
	07/01/10	5.0 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	10/18/10	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	01/04/11	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	07/01/11	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	01/12/12	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 X	0.25 U	0.10 U	0.20 U
	07/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.097 U	0.24 U
	01/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.095 U	0.24 U
	04/03/13	NA	NA	NA	0.5 U	NA	NA	0.25 U	0.042 X*	0.24 U
	07/02/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.097 U	0.24 U
	01/09/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.095 U	0.24 U
	07/07/14	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.096 U	0.24 U
	01/07/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.095 U	0.24 U
EGW181	01/13/10	21	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.25 U	0.50 U
	01/13/10 (DUP)	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.25 U	0.50 U
	04/26/10	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.25 U	0.50 U
	07/01/10	5.0 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	10/18/10	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	01/04/11	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	07/01/11	5.0 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4 U	0.25 U	0.10 U	0.20 U
	01/16/12	5.0 U	0.2 U	0.2 U	0.5 U	0.4	2.4	0.25 U	0.10 U	0.20 U
	07/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.096 U	0.24 U
	01/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.11 U	0.26 U
	07/02/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.099 U	0.25 U
	01/09/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.095 U	0.24 U
	07/07/14	3.6 XJ	0.2 X	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.094 U	0.23 U
	01/07/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.25 U	0.094 U	0.24 U

Notes:
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded February 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
DUP - field duplicate
mg/L - milligram per liter
NA - not analyzed
TPH - total petroleum hydrocarbon
ug/L - microgram per liter
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
VOC - volatile organic compound
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.
[a] The groundwater screening level is 1.0 mg/L if benzene is not present and 0.8 mg/L if benzene is present.
*Pattern profile does not match the laboratory standard chromatogram

Table A-16
Summary of Groundwater Analytical Results for PAHs
2nd Quarter 2015
Building 45-70 (BOMARC)
Boeing Everett Plant

Well ID	Sample Date	Polynuclear Aromatic Hydrocarbons (ug/L)																			
		Acenaphthylene	Anthracene	Benzo(a) anthracene[a]	Benzo(a) pyrene[a]	Benzo(b) fluoranthene[a]	Benzo(k) fluoranthene[a]	Total Benzofluoranthenes[b]	Benzo(g,h,i) perylene	Chrysene[a]	Dibenz(a,h) anthracene[a]	Dibenzofuran	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene[a]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[c]
MTCA Method A or B Groundwater Screening Level		NE	4,800 (B)	0.12 (B)	0.1 (A) 0.012 (B)	0.12 (B)	1.2 (B)	NE	NE	12 (B)	0.012 (B)	16 (B)	640 (B)	640 (B)	0.12 (B)	1.51 (B)	32 (B)	160 (A) 160 (B)	NE	480 (B)	0.1 (A) 0.012 (B)
EGW179	1/13/2010	0.013	0.011	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.08	0.044	0.078	0.010 U	0.010 U	0.017	0.023	0.23	0.026	NA
	04/26/10	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.011	0.010 U	0.010 U	NA
	07/01/10	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.079	0.014 J	0.052	0.010 U	0.010 U	0.012	0.013	0.030	0.010 U	NA
	10/18/10	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.011	0.010 U	0.010	0.010 U	0.036 J	0.015 J	0.038	0.010 U	0.010 U	0.010 U	0.014 J	0.056	0.012	0.0012
	01/04/11	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.012	0.010 U	0.012	0.010 U	0.023	0.024	0.029	0.010 U	0.010 U	0.010 U	0.010 U	0.054	0.017	0.0013
	07/01/11	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.012	0.010 U	0.021	0.010 U	0.010 U	0.010 U	0.10	0.032	0.010 U	NA
	01/12/12	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.0054 X	0.010 U	0.010 U	0.010 U	0.075	0.0089 JX	0.010 U	NA
	07/11/12	0.047 U	0.047 U	0.0060 X	0.0095 U	0.0050 X	0.0095 U	0.0050 X	0.010 X	0.0050 X	0.0070 X	0.047 U	0.047 U	0.019 X	0.0070 X	0.026 X	0.047 U	0.047 U	0.034 X	0.047 U	0.00255
	01/15/13	0.047 U	0.047 U	0.012	0.010	0.018	0.0060 X	0.024	0.047 U	0.010 J	0.0095 U	0.047 U	0.013 X	0.047 U	0.0070 X	0.032 X	0.074	0.038 X	0.047 U	0.018 X	**0.014**
	04/03/13	0.051 U	0.051 U	0.011	0.0080 X	0.014	0.010 U	0.014	0.051 U	0.0080 X	0.010 U	0.051 U	0.051 U	0.051 U	0.0070 X	0.051 U	0.051 U	0.051 U	0.051 U	0.011 X	0.011
	07/02/13	0.047 U	0.047 U	0.012	0.0090 X	0.019	0.0070 X	0.026	0.047 U	0.012	0.0094 U	0.047 U	0.047 U	0.047 U	0.0070 X	0.047 U	0.047 U	0.058	0.047 U	0.011 X	**0.014**
	01/09/14	0.047 U	0.047 U	0.0050 X	0.0095 U	0.0050 X	0.0095 U	0.0050 X	0.047 U	0.0095 U	0.0095 U	0.047 U	0.047 U	0.047 U	0.0095 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.001
	07/07/14	0.047 U	0.047 U	0.0060 X	0.0095 U	0.0060 X	0.0095 U	0.0060 X	0.047 U	0.0095 U	0.0095 U	0.047 U	0.047 U	0.047 U	0.0095 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.0012
	01/07/15	0.047 U	0.047 U	0.0060 X	0.011	0.018	0.0060 X	0.024	0.011 X	0.0050 X	0.0094 U	0.047 U	0.047 U	0.047 U	0.0090 X	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	**0.015**
EGW180	01/13/10	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA
	04/26/10	0.010 U	0.010 U	0.011	0.010 U	0.011	0.011	0.022	0.010 U	0.041	0.010 U	0.010 U	0.19	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.070	0.12	0.00371
	07/01/10	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.018	0.014 J	0.016	0.010 U	0.010 U	0.010 U	0.010 U	0.013	0.014	NA
	10/18/10	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.012	0.010 U	0.010 U	0.010 U	0.010 U	0.019 J	0.019	0.010 U	0.010 U	0.010 U	0.014 J	0.042 J	0.018 J	0.0012
	01/04/11	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.013	0.010 U	0.010 U	0.010 U	0.010 U	0.018	0.010 U	NA
	07/01/11	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.11	0.013	0.010 U	NA
	01/12/12	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.020 U	0.010 U	0.0051 X	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.061	0.010 UJ	0.0061 X	0.00005
	07/11/12	0.048 U	0.048 U	0.0070 X	0.0050 X	0.010	0.0095 U	0.010	0.048 U	0.0050 X	0.0095 U	0.048 U	0.048 U	0.048 U	0.0050 X	0.048 U	0.048 U	0.040 X	0.048 U	0.048 U	0.00725
	01/15/13	0.047 U	0.047 U	0.0070 X	0.0060 X	0.014	0.0095 U	0.014	0.047 U	0.0050 XJ	0.0095 U	0.047 U	0.047 U	0.047 U	0.0060 X	0.047 U	0.047 U	0.038 X	0.047 U	0.047 U	0.0088
	04/03/13	0.048 U	0.048 U	0.0050 X	0.0097 U	0.0050 X	0.0097 U	0.0050 X	0.048 U	0.0097 U	0.0097 U	0.048 U	0.048 U	0.048 U	0.0097 U	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	0.0010
	07/02/13	0.047 U	0.047 U	0.0090 X	0.010	0.019	0.0060 X	0.025	0.011 X	0.010	0.0095 U	0.047 U	0.047 U	0.047 U	0.0090 X	0.047 U	0.047 U	0.053	0.047 U	0.047 U	**0.014**
	01/09/14	0.048 U	0.048 U	0.015	**0.018**	0.036	0.011	0.047	0.019 X	0.018	0.0050 X	0.048 U	0.012 X	0.048 U	0.015	0.048 U	0.048 U	0.048 U	0.048 U	0.018 X	**0.026**
	07/07/14	0.047 U	0.047 U	0.0060 X	**0.019**	0.032	0.010	0.042	0.023 X	0.016	0.0050 X	0.047 U	0.047 U	0.047 U	0.018	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	**0.026**
	01/07/15	0.047 U	0.047 U	0.0070 X	**0.016**	0.027	0.0080 X	0.035	0.027 X	0.0070 X	0.0060 X	0.047 U	0.010 X	0.047 U	0.021	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	**0.023**
EGW181	01/13/10	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA
	01/13/10 (DUP)	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA
	04/26/10	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.014	0.010 U	NA
	07/01/10	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.021	0.010 U	0.020	0.010 U	0.010 U	0.010 U	0.010 U	0.013	0.010 U	NA
	10/18/10	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.010 U	0.010 U	0.010	0.010 U	0.010 U	0.023 J	0.017	0.010 U	0.010 U	0.010 U	0.015 J	0.046	0.022 J	0.0001
	01/04/11	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.012	0.010 U	NA
	07/01/11	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010	0.010 U	0.14	0.011	0.010 U	NA
	01/16/12	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.012 U	0.010 U	0.010 U	0.010 U	0.010 U	0.065	0.010 U	0.016 U	NA
	07/11/12	0.048 U	0.048 U	0.0095 U	0.0095 U	0.0095 U	0.0095 U	0.0095 U	0.048 U	0.0095 U	0.0095 U	0.048 U	0.048 U	0.048 U	0.0095 U	0.048 U	0.048 U	0.033 X	0.048 U	0.048 U	NA
	01/15/13	0.050 U	0.050 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.050 U	0.010 UJ	0.010 U	0.050 U	0.050 U	0.050 U	0.010 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	NA
	07/02/13	0.049 U	0.049 U	0.0060 X	0.0097 U	0.0080 X	0.0097 U	0.0080 X	0.049 U	0.0050 X	0.0097 U	0.049 U	0.049 U	0.049 U	0.0040 X	0.049 U	0.049 U	0.039 X	0.049 U	0.049 U	0.0019
	01/09/14	0.047 U	0.047 U	0.014	**0.012**	0.023	0.0070 X	0.030	0.010 X	0.018	0.0095 U	0.047 U	0.022 X	0.047 U	0.0090 X	0.047 U	0.047 U	0.047 U	0.047 U	0.020 X	**0.017**
	07/07/14	0.047 U	0.047 U	0.0050 X	0.0094 U	0.0070 X	0.0094 U	0.0070 X	0.047 U	0.0094 U	0.0094 U	0.047 U	0.047 U	0.047 U	0.0094 U	0.047 U	0.047 U	0.047 U	0.047 U	0.047 U	0.0012
	01/07/15	0.048 U	0.048 U	0.012	**0.012**	0.020	0.014	0.034	0.016 X	0.017	**0.013**	0.048 U	0.048 U	0.048 U	0.016	0.048 U	0.048 U	0.048 U	0.048 U	0.048 U	**0.020**

Notes:
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded February 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations.
[b] Total benzofluoranthenes are the sum of the benzo(b)fluoranthene and benzo(k)fluoranthene isomers.
[c] The MTCA cleanup level for TTEC is based on benzo(a)pyrene

DUP - field duplicate
J - estimated value
NA - not analyzed or not applicable
NE - not established
PAH - polynuclear aromatic hydrocarbon
TTEC - Total Toxicity Equivalent Concentration
ug/L - microgram per liter
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table A-17
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Building 45-70 (BOMARC)
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Cadmium		Chromium		Lead		Selenium	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.005 (A) 0.008 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.015 (A)		0.08 (B)	
EGW179	01/13/10	0.05 U	0.05 U	0.298	0.277	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05
	04/26/10	0.05 U	0.05 U	0.177	0.152	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/01/10	0.05 U	0.05 U	0.122	0.041	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	10/18/10	0.05 U	0.05 U	0.153	0.072	0.002 U	0.002 U	0.009	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	01/04/11	0.05 U	0.05 U	0.093	0.054	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/01/11	0.05 U	0.05 U	0.100	0.086	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	01/12/12	0.05 U	0.05 U	0.096	0.055	0.002 U	0.002 U	0.009	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/11/12	**0.0029 X**	**0.0025 X**	0.0823	0.0720	0.0010 U	0.0010 U	0.0018 X	0.004 U	0.00068 X	0.00011 X	0.0040 U	0.0040 U
	01/15/13	**0.0029 X**	**0.0025 X**	0.0764	0.0303	0.00067 X	0.00028 X	0.0055	0.0007 X	0.0025	0.0020 U	0.0040 U	0.0040 U
	07/02/13	**0.0029 X**	**0.0022 X**	0.0721	0.0389	0.00033 X	0.00025 X	0.0053	0.00071 X	0.0014 X	0.0020 U	0.0040 U	0.0040 U
	01/09/14	**0.0043**	**0.0031 X**	0.0987	0.0558	0.00054 X	0.0010 U	0.0073	0.00074 X	0.0021	0.0020 U	0.0040 U	0.0040 U
	07/07/14	**0.0037 X**	**0.0031 X**	0.0848	0.0572	0.00061 X	0.0010 U	0.0065	0.00077 X	0.0020 U	0.0020 U	0.0040 U	0.0040 U
	01/07/15	**0.0033 X**	**0.0027 X**	0.0612	0.0420	0.00033 X	0.00018 X	0.0014 X	0.00093 X	0.00098 X	0.0020 U	0.0040 U	0.0040 U
EGW180	01/13/10	0.05 U	0.05 U	0.059	0.056	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	04/26/10	0.05 U	0.05 U	0.118	0.047	0.002 U	0.002 U	0.016	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/01/10	0.05 U	0.05 U	0.058	0.007	0.002 U	0.002 U	0.006	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	10/18/10	0.05 U	0.05 U	0.066	0.030	0.002 U	0.002 U	0.006	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	01/04/11	0.05 U	0.05 U	0.043	0.016	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/01/11	0.05 U	0.05 U	0.085	0.022	0.002 U	0.002 U	0.009	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	01/12/12	0.05 U	0.05 U	0.075	0.021	0.002 U	0.002 U	0.007	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/11/12	**0.0033 X**	**0.0029 X**	0.0760	0.0224	0.0010 U	0.0010 U	0.0061	0.004 U	0.0020 U	0.0020 U	0.0040 U	0.0040 U
	01/15/13	**0.0032 X**	**0.0023 X**	0.0745	0.0220	0.0010 U	0.0010 U	0.0040 X	0.004 U	0.0016 X	0.0020 U	0.0040 U	0.0040 U
	07/02/13	**0.0032 X**	**0.0025 X**	0.0477	0.0184	0.0010 U	0.0010 U	0.0023 X	0.004 U	0.00096 X	0.0020 U	0.0040 U	0.0040 U
	01/09/14	**0.0033 X**	**0.0026 X**	0.0698	0.0220	0.0010 U	0.0010 U	0.0030 X	0.0040 U	0.0015 X	0.0020 U	0.0040 U	0.0040 U
	07/07/14	**0.0032 X**	**0.0022 X**	0.0841	0.0286	0.0010 U	0.0010 U	0.0033 X	0.0040 U	0.0020 U	0.0020 U	0.0040 U	0.0040 U
	01/07/15	**0.0023 X**	**0.0026 X**	0.0622	0.0182	0.0010 U	0.0010 U	0.0040 U	0.0040 U	0.0020 U	0.0020 U	0.0040 U	0.0040 U
EGW181	01/13/10	0.05 U	0.05 U	0.053	0.052	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	01/13/10 (DUP)	0.05 U	0.05 U	0.053	0.052	0.002 U	0.002 U	0.005 U	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	04/26/10	0.05 U	0.05 U	0.235	0.032	0.002 U	0.002 U	**0.076**	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/01/10	0.05 U	0.05 U	0.057	0.005	0.002 U	0.002 U	0.007	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	10/18/10	0.05 U	0.05 U	0.123	0.022	0.002 U	0.002 U	0.032	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	01/04/11	0.05 U	0.05 U	0.083	0.016	0.002 U	0.002 U	0.014	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/01/11	**0.07**	0.05 U	0.142	0.019	0.002 U	0.002 U	0.027	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	01/16/12	0.05 U	0.05 U	0.153	0.016	0.002 U	0.002 U	0.042	0.005 U	0.02 U	0.02 U	0.05 U	0.05 U
	07/11/12	**0.0347**	**0.0020 X**	0.0811	0.019	0.000095 X	0.0010 U	0.0144	0.0040 U	0.0017 X	0.0020 U	0.00047 X	0.004 U
	01/15/13	**0.0373**	**0.0018 X**	0.0566	0.0191	0.0010 U	0.0010 U	0.0078	0.0040 U	0.00085 X	0.000082 X	0.0040 U	0.0040 U
	07/02/13	**0.0968**	**0.0018 X**	0.115	0.0142	0.0010 U	0.0010 U	0.0201	0.0040 U	0.0020 X	0.0020 U	0.00059 X	0.0040 U
	01/09/14	**0.0571**	**0.0017 X**	0.0795	0.0192	0.0010 U	0.0010 U	0.0155	0.0040 U	0.0014 X	0.0020 U	0.00058 X	0.0040 U
	07/07/14	**0.0598**	**0.0014 X**	0.112	0.0224	0.0010 U	0.0010 U	0.0253	0.0040 U	0.0022	0.0020 U	0.00054 X	0.0040 U
	01/07/15	**0.0323**	**0.0017 X**	0.0617	0.0201	0.0010 U	0.0010 U	0.0166	0.0040 U	0.00052 X	0.0020 U	0.0040 U	0.0040 U

Notes:

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

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded February 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

(A) - MTCA Method A

(B) - MTCA Method B

Samples were also analyzed for mercury and silver. These metals have not been detected.

DUP - field duplicate

mg/L - milligram per liter

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

X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW016	02/16/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	04/26/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/08/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	02/27/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/29/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/29/96 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/28/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	12/04/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/05/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/21/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/14/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/19/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/17/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/19/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/18/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/12/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/17/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/02	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	05/13/02	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	08/12/02	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	11/18/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/22/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/15/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/14/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/13/05	0.00004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00003 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00002	0.00001 U	0.00001 U	NC
	10/20/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00003 J	0.00001 U	NA	0.00001	0.00001 U	0.00001 U	0.00001 U	NC
	01/17/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000014	0.00001 U	0.00001 U	NC
	01/23/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/05/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000015	0.00001 U	0.00001 U	NC
	01/16/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000016 U	0.00001 U	0.00001 U	NC
EGW016A[2]	07/01/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000035	0.000012	0.00001 U	NC
	01/07/10	0.000013	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/13/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/05/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	1/05/11 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/05/11	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000014	0.00001 U	0.00001 U	NC
	07/16/12	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/16/13	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 UJ	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	07/09/13	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000029 X	0.000047 U	0.000047 U	NC
	01/14/14	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	07/02/14	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/09/15	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW018	02/15/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	04/26/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/08/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	02/27/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	02/27/96 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/29/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/28/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	12/04/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/05/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/21/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/14/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/19/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/18/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/19/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/19/98 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/17/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/12/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/00 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/17/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0002 J	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/14/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/12/02	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	11/18/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/26/04	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	04/20/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	NA	0.00012 U	0.00012 U	0.00012 U	0.00012 U	NC
	01/17/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/12/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	10/20/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/16/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	1/16/06 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/19/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000016	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/15/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/22/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/02/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012 UJ	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/08/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/13/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000035	0.00001 U	0.00001	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012 U	NC
	07/16/12	0.000048 U	0.000048 U	0.000048 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.0000097 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/16/13	0.000049 U	0.000049 U	0.000049 U	0.0000099 U	0.0000099 U	0.0000099 U	0.000049 U	0.0000099 U	0.0000099 U	0.0000099 UJ	0.0000099 U	0.000049 U	0.000049 U	0.000049 U	0.0000099 U	0.000049 U	0.000049 U	0.000049 U	0.000049 U	0.000049 U	NC
	07/09/13	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/14/14	0.000048 U	0.000048 U	0.000048 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.0000097 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
EGW018A [2]	01/10/15	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000032 X	0.000047 U	0.000047 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW024	02/16/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	02/16/95 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	04/26/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	04/26/95 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/07/95 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/07/95 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	02/27/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/29/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/28/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	12/04/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	12/04/96 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/05/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/21/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/21/97 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/14/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/19/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/19/97 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/18/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	3/18/98 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/19/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/17/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/17/98 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/12/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/03/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/11/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/14/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/12/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/18/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/26/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/20/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	0.00012 U	NA	0.00012 U	0.00012 U	0.00012 U	0.00012 U	NC
	01/17/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/12/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001	NC
	10/20/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/16/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/19/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW024 (continued)	01/16/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000014 U	0.00001 U	0.00001 U	NC
	07/22/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000017	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011 U	0.00001 U	0.00001 U	NC
	07/02/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000013 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/08/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/13/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012 U	NC
	07/16/12	0.00005 U	0.00005 U	0.00005 U	0.00001 U	0.00001 U	0.00001 U	0.00005 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00005 U	0.00005 U	0.00005 U	0.00001 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	NC
	7/16/12 (DUP)	0.00005 U	0.00005 U	0.00005 U	0.00001 U	0.00001 U	0.00001 U	0.00005 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00005 U	0.00005 U	0.00005 U	0.00001 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	NC
	01/16/13	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 UJ	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	07/09/13	0.000049 U	0.000049 U	0.000049 U	0.0000098 U	0.0000098 U	0.0000098 U	0.000049 U	0.0000098 U	0.0000098 U	0.0000098 U	0.0000098 U	0.000049 U	0.000049 U	0.000049 U	0.0000098 U	0.000049 U	0.000049 U	0.000049 U	0.000049 U	0.000049 U	NC
	01/14/14	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	07/02/14	0.000048 U	0.000048 U	0.000048 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.0000097 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/10/15	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000052	0.000047 U	0.000047 U	NC
EGW025	02/14/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	04/26/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/07/95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	02/27/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/29/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/28/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	12/04/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/05/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/21/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/14/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/19/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/17/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/19/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/17/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/12/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/03/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/17/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/12/02	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	11/18/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/07/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/06/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/06/03 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	11/10/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/22/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/17/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/12/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	NC
	10/20/05	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/13/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/19/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000015	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW025	01/16/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012 U	0.00001 U	0.00001 U	NC
	07/22/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/02/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/07/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/13/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/05/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/05/11	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001	0.00001 U	0.00001 U	NC
	07/17/12	0.000053 U	0.000053 U	0.000053 U	0.000011 U	0.000011 U	0.000011 U	0.000053 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000053 U	0.000053 U	0.000053 U	0.000011 U	0.000053 U	0.000053 U	0.000053 U	0.000053 U	0.000053 U	NC
	01/16/13	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 UJ	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/14/14	0.000049 U	0.000049 U	0.000049 U	0.0000098 U	0.0000098 U	0.0000098 U	0.000049 U	0.0000098 U	0.0000098 U	0.0000098 U	0.0000098 U	0.000049 U	0.000049 U	0.000049 U	0.0000098 U	0.000049 U	0.000049 U	0.000049 U	0.000049 U	0.000049 U	NC
EGW025A [2]	01/10/15	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000015 X	0.000048 U	0.0000095 U	0.000010 X	0.000013 X	0.000048 U	0.000048 U	0.000048 U	NC
EGW047 [3]	05/09/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/28/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	12/04/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/05/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/21/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/14/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/19/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/18/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/19/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/18/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/12/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/11/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/18/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/06/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/22/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/15/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/14/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/12/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	10/20/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001	0.00001 U	0.00001 U	NC
	01/13/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/19/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	7/3/07 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/16/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000015 U	0.00001 U	0.00001 U	NC
	07/22/08	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	NC
	7/22/08 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000019	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000014 U	0.00001 U	0.00001 U	NC
	07/01/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW047 [3] (continued)	01/07/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/12/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/05/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/05/11	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011	0.00001 U	0.000011 U	NC
	07/17/12	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/16/13	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 UJ	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	07/09/13	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000046 X	0.000048 U	0.000048 U	NC
	01/14/14	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	07/02/14	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/10/15	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000030 X	0.000047 U	0.000047 U	NC
EGW048 [3]	05/09/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/28/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	12/04/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/05/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/21/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/14/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/19/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/18/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/19/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/17/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/12/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/03/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/17/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/11/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/11/02 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/13/02 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/18/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/07/03	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	02/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/22/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/20/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	4/20/04 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	01/17/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/12/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	10/20/05	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/16/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/19/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000016	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/15/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00002 U	0.00001 U	0.00001 U	NC
	07/22/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/01/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/01/09 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW048 [3] (continued)	01/08/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/12/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/16/12	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.00006	0.000048 U	0.000048 U	NC
	01/16/13	0.000049 U	0.000049 U	0.000049 U	0.0000098 U	0.0000098 U	0.0000098 U	0.000049 U	0.0000098 U	0.0000098 U	0.0000098 UJ	0.0000098 U	0.000049 U	0.000049 U	0.000049 U	0.0000098 U	0.000049 U	0.000011 X	0.000049 U	0.000049 U	0.000049 U	NC
	07/09/13	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000032 X	0.000048 U	0.000048 U	NC
	01/14/14	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	07/02/14	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/10/15	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
EGW049 [3]	05/09/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/28/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/28/96 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	12/04/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/05/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/05/97 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	05/21/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/14/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	08/14/97 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	11/19/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
	03/17/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/19/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/17/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/12/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/03/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/17/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/11/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/14/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/12/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/18/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	5/12/03 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/26/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/20/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/17/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/12/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	NC
	10/20/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/16/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/19/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000011	0.00001 U	0.00001 U	NC
	01/15/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000014 U	0.00001 U	0.00001 U	NC
	07/22/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000021	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/02/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001	0.00001 U	0.00001 U	NC
	01/08/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/12/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00002	0.00001 U	0.00001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/16/12	0.000052 U	0.000052 U	0.000052 U	0.00001 U	0.00001 U	0.00001 U	0.000052 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000052 U	0.00001 U	0.000052 U	0.000052 U	0.000052 U	0.000052 U	0.000052 U	0.000052 U	0.000052 U	NC
	01/16/13	0.000012 X	0.000047 U	0.000015 X	0.000019	**0.000016**	0.000016	0.000014 X	0.000015	0.000031	0.000017 J	**0.000015**	0.000014 X	0.000021 X	0.000018 X	0.000015	0.000014 X	0.000017 X	0.000047 U	0.000047 U	0.000018 X	0.000024
	07/09/13	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000035 X	0.000048 U	0.000048 U	NC
	01/14/14	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000004 X	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.0000004
	07/02/14	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/10/15	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW056 [3]	08/18/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/98	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/08/99 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/17/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/99	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/03/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/17/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/17/00 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.00034	0.00008 J	0.0001 U	0.0001 U	NC
	02/12/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/11/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/13/02 (DUP)	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	11/18/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/06/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/26/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/20/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/06/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/17/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/13/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	10/20/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001	0.00001 U	0.00001 U	NC
	01/16/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000011	0.00001 U	0.00001 U	NC
	01/17/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000013	0.00001 U	0.00001 U	NC
	01/15/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000016 U	0.00001 U	0.00001 U	NC
	1/15/08 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000018 U	0.00001 U	0.00001 U	NC
	07/22/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000033	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011 U	0.00001 U	0.00001 U	NC
	1/12/09 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000013	0.00002	0.000017 U	0.00001 U	0.000012	NC
	07/01/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000013	0.00001 U	0.00001 U	NC
	01/07/10	0.000018	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/12/10	0.000019 J	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/05/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000035	0.00001 U	0.00001 U	NC
	01/14/12	0.0000064 X	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000015	0.00001 U	0.00001 U	NC
	07/16/12	0.000053 U	0.000053 U	0.000053 U	0.000011 U	0.000011 U	0.000011 U	0.000053 U	0.000011 U	0.000011 U	0.000011 U	0.000011 U	0.000053 U	0.000053 U	0.000053 U	0.000011 U	0.000053 U	0.000053 U	0.000053 U	0.000053 U	0.000053 U	NC
	01/16/13	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 UJ	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	07/09/13	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/14/14	0.00005 U	0.00005 U	0.00005 U	0.000010 U	0.000010 U	0.000010 U	0.00005 U	0.000010 U	0.000010 U	0.000010 U	0.000010 U	0.00005 U	0.00005 U	0.00005 U	0.000010 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	NC
	07/02/14	0.000048 U	0.000048 U	0.000048 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.0000097 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/09/15	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW064	06/27/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/03/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/17/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/15/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/11/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/18/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/06/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/26/04	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00045	0.00011 U	0.00011 U	NC
	04/20/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	7/19/04 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/06/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/17/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/13/05	0.00001 U	0.00002	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001	0.00001 U	0.00001 U	0.00001 U	NA	0.00012 U	0.00001	0.00003	0.00001 U	NC
	10/20/05	0.00001 J	0.00001	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00002	0.00001 U	0.00001 J	0.00001 U	NA	0.00003	0.00002	0.00001 U	0.00001 U	NC
	10/20/05 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00003	0.00001	0.00001 U	0.00001 U	NC
	01/16/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	7/6/06 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/17/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000026	0.00001 U	0.00001 U	NC
	01/15/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000018 U	0.00001 U	0.00001 U	NC
	07/22/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000024	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012 U	0.00001 U	0.00001 U	NC
	07/01/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001	0.00001 U	0.00001 U	NC
	01/07/10	0.000024	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000012	0.00001 U	0.00001 U	NC
	1/7/10 (DUP)	0.000021 J	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011	0.00001 U	0.00001 U	NC
	07/12/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000014	0.000016	0.000022	0.00001 U	0.00001 U	NC
	7/12/10 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001	0.00001 U	0.00001 U	NC
	01/05/11	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	0.00001 UJ	NC
	07/06/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000043	0.00001 U	0.00001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.0000051 X	0.000015	0.00001 U	0.000011 U	NC
	07/16/12	0.000016 X	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/16/13	0.000026 X	0.000049 U	0.000049 U	0.000007 X	0.0000099 U	0.0000099 U	0.000049 U	0.0000099 U	0.0000099 U	0.0000099 UJ	0.0000099 U	0.000049 U	0.000015 X	0.00001 X	0.0000099 U	0.000024 X	0.000017 X	0.000049 U	0.000049 U	0.000049 U	0.0000006
	07/09/13	0.000014 X	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000048	0.000047 U	0.000047 U	NC
	7/9/13 (DUP)	0.000014 X	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000044 X	0.000047 U	0.000047 U	NC
	01/14/14	0.000049 U	0.000049 U	0.000049 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000049 U	0.0000097 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000049 U	0.000049 U	0.000049 U	0.0000097 U	0.000049 U	0.000049 U	0.000049 U	0.000049 U	0.000049 U	NC
	07/02/14	0.000031 X	0.000048 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000019 X	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/09/15	0.000014 X	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000029 X	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	1/9/15 (DUP)	0.000011 X	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW067	06/27/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/07/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/07/00 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/07/01 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	5/8/01 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/10/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/12/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/12/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/18/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/07/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/12/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/22/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	1/22/04 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/15/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NA	0.00011 U	0.00011 U	0.00011 U	0.00011 U	NC
	01/14/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	1/14/05 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/12/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	4/12/05 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	NC
	10/20/05	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/13/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/19/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000014	0.00001 U	0.00001 U	NC
	1/19/07 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000012	0.00001 U	0.00001 U	NC
	07/05/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/16/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011 U	0.00001 U	0.00001 U	NC
EGW067A[2]	07/01/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000017	0.00001 U	0.00001 U	NC
	01/07/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/13/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/05/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/05/11	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	7/5/11 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011 U	NC
	1/14/12 (DUP)	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/16/12	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/16/13	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 UJ	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.00001 X	0.000047 U	0.000047 U	0.000047 U	NC
	1/16/13 (DUP)	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 UJ	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.00001 X	0.000048 U	0.000048 U	0.000048 U	NC
	07/09/13	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/14/14	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	1/14/14 (DUP)	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	07/02/14	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	07/02/14 (DUP)	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/09/15	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC

Table A-18
Summary of Groundwater Analytical Results for Semivolatile Organic Compounds, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene[1]	Benzo(a) pyrene[1]	Benzo(b) fluoranthene[1]	Benzo(g,h,i) perylene	Benzo(k) fluoranthene[1]	Total Benzo fluoranthenes[4]	Chrysene[1]	Dibenzo(a,h) anthracene[1]	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene[1]	1-Methyl naphthalene	2-Methyl naphthalene	Naphthalene	Phenanthrene	Pyrene	TTEC[5]
MTCA Method A and B Groundwater Screening Level		0.96 (B)	NE	4.8 (B)	0.00012 (B)	0.0001 (A) 0.000012 (B)	0.00012 (B)	NE	0.0012 (B)	NE	0.012 (B)	0.000012 (B)	0.016 (B)	0.64 (B)	0.64 (B)	0.00012 (B)	0.00151 (B)	0.032 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)
EGW068	11/16/00	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	2/12/2001	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/09/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	11/16/01	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/11/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/13/02	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	08/13/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	11/18/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	01/07/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	02/06/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	05/08/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/24/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NC
	11/10/03	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/22/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/19/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	07/15/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	10/07/04 (DUP)	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/14/05	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	04/12/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	10/20/05	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/13/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/06/06	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/19/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.000010	0.00001 U	0.00001 U	NC
	07/03/07	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/16/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000015 U	0.00001 U	0.00001 U	NC
	07/22/08	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000016	0.00001 U	0.00001 U	NC
	01/12/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011 U	0.00001 U	0.00001 U	NC
	07/01/09	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/07/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/12/10	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	01/05/11	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NC
	07/05/11	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NC
	01/14/12	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	NA	0.00002 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000013	0.00001 U	0.00001 U	NC
	07/17/12	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	01/16/13	0.000048 U	0.000048 U	0.000048 U	0.000005 X	0.0000096 U	0.0000096 U	0.000048 U	0.0000096 U	0.0000096 U	0.0000096 UJ	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.0000096 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.0000005
	07/09/13	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000029 X	0.000047 U	0.000047 U	NC
	01/14/14	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC
	07/02/14	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.0000095 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	0.000048 U	NC
	01/10/15	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	0.000047 U	NC

Notes:

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

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded February 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

(A) - MTCA Method A

(B) - MTCA Method B

DUP - field duplicate

DRY - Well was dry at time of sample collection

J - estimated value

mg/L - milligram per liter

NA - not available (1995-1997 data predates the RI) or not applicable

NC - not calculated

NE - not established

TTEC - Total Toxicity Equivalent Concentration

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

UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

[1] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations.

[2] The original wells EGW016 and EGW067 were abandoned and replacement wells were installed in October 2008. EGW018 and EGW025 were abandoned and replacement wells were installed in December 2014.

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

[4] Total benzofluoranthenes are the sum of the benzo(b)fluoranthene and benzo(k)fluoranthene isomers.

[5] The MTCA cleanup level for TTEC is based on benzo(a)pyrene.

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

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

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW016 (continued)	01/17/06	**0.001**	0.001 U	0.001 U	0.001 U
	07/06/06	0.002 U	0.002 U	0.001 U	0.001 U
	01/23/07	0.001 U	**0.001**	0.001	0.001
	07/05/07	0.001 U	0.001 U	0.001 U	0.001 U
	01/16/08	**0.002**	**0.001**	0.001 U	0.001 U
EGW016A [2]	07/01/09	**0.0041**	**0.0035**	0.002	0.001 U
	01/07/10	**0.0034**	**0.0026**	0.002	0.001 U
	07/13/10	**0.0039**	**0.0036**	0.001 U	0.001 U
	01/05/11	**0.0055**	**0.0055**	0.001 U	0.001 U
	1/05/11 (DUP)	**0.0059**	**0.0054**	0.001 U	0.001 U
	07/05/11	**0.0038**	**0.0043**	0.0007	0.0001 U
	01/14/12	**0.0050**	**0.0042**	0.0012	0.0007
	07/16/12	**0.0052**	**0.0047**	0.00096 X	0.002 U
	01/16/13	**0.0055**	**0.0046**	0.0048	0.002 U
	07/09/13	**0.0057**	**0.0041**	0.0022	0.002 U
	01/14/14	**0.0083**	**0.0055**	0.0066	0.00059 X
	07/02/14	**0.0051**	**0.0037 X**	0.0010 X	0.00023 X
	01/09/15	**0.0051**	**0.0042**	0.0037	0.002 U
EGW018	02/15/95	**0.052**	**0.002**	**0.170**	0.004
	04/26/95	NA	NA	NA	0.002
	08/08/95	NA	NA	NA	0.003
	11/07/95	**0.024**	**0.004**	**0.064**	0.002
	02/27/96	**0.047**	**0.003**	**0.085**	0.003
	02/27/96 (DUP)	**0.044**	**0.003**	**0.092**	0.003
	05/29/96	**0.061**	**0.020**	**0.018**	0.002
	08/28/96	**0.064**	**0.021**	**0.036**	0.004
	12/04/96	**0.280**	**0.007**	**0.074**	0.001 U
	03/05/97	**0.100**	**0.023**	**0.015**	0.002
	05/21/97	**0.23**	**0.017**	**0.035**	0.001
	08/14/97	**0.24**	**0.058**	**0.050**	0.003
	11/19/97	**0.16**	**0.012**	**0.053**	0.001 U
	03/18/98	**0.20**	**0.032**	0.010	0.002
	05/19/98	**0.25**	**0.066**	0.013	0.003
	05/19/98 (DUP)	**0.27**	**0.068**	0.012	0.002
	08/17/98	**0.106 J**	**0.094 J**	0.008	0.001
	11/12/98	**0.018**	**0.006**	0.02 U	0.02 U
	02/08/99	**0.006**	**0.004**	0.005	0.003
	05/17/99	**0.008**	**0.004**	0.006	0.002
	08/09/99	**0.010**	**0.005**	0.003	0.001 U
	11/15/99	**0.014**	**0.003**	0.010	0.001
	02/07/00	**0.020**	**0.009**	0.005	0.001 U
	02/07/00 (DUP)	**0.020**	**0.009**	0.004	0.001 U
	05/08/00	**0.130**	**0.086**	0.006	0.003
	05/08/00 (DUP)	**0.128**	**0.090**	0.006	0.003
	08/07/00	**0.19**	**0.058**	**0.028**	0.001 U
	11/17/00	**0.20**	**0.025**	0.008	0.001 U

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW018 (continued)	02/12/01	**0.57**	**0.019**	0.014	0.001
	05/08/01	**0.11**	**0.006**	0.005	0.001
	08/10/01	**0.14**	**0.082**	0.011	0.001 U
	08/10/01 (DUP)	**0.134**	**0.084**	0.009	0.001 U
	11/16/01	**0.18**	**0.016**	**0.022**	0.003
	02/12/02	**0.049**	**0.003**	0.005	0.001 U
	0514/02	**0.047**	**0.011**	0.005	0.001 U
	08/12/02	**0.078**	**0.041**	0.005	0.001 U
	11/18/02	**0.008**	**0.004**	0.003	0.001 U
	02/10/03	**0.004**	**0.002**	0.001	0.001 U
	05/12/03	**0.008**	**0.005**	0.003	0.001 U
	07/24/03	**0.015**	**0.006**	0.005	0.001 U
	11/10/03	**0.014**	**0.002**	0.010	0.001 U
	01/26/04	**0.004**	**0.002**	0.005	0.001 U
	04/20/04	**0.004**	**0.002**	0.003	0.001 U
	07/19/04	**0.013**	**0.011**	0.004	0.001 U
	10/07/04	**0.010**	**0.006**	0.003	0.001 U
	01/17/05	**0.008**	**0.004**	0.005	0.001 U
	04/12/05	**0.016**	**0.004**	0.005	0.001 U
	10/20/05	**0.700**	**0.028**	**0.019**	0.002
	01/16/06	**0.160**	**0.010**	0.014	0.001 U
	1/16/06 (DUP)	**0.140**	**0.006**	0.012	0.001 U
	07/06/06	**0.160**	**0.082**	0.010	0.001
	01/19/07	**0.160**	**0.008**	**0.017**	0.001 U
	07/03/07	**0.042**	**0.024**	0.009	0.001 U
	01/15/08	**0.12**	**0.006**	**0.018**	0.001 U
	07/22/08	**0.10**	**0.046**	0.011	0.001 U
	01/12/09	**0.24**	**0.007**	**0.016**	0.001 U
	07/02/09	**0.246**	**0.0764**	**0.022**	0.001 U
	01/08/10	**0.0383**	**0.0058**	0.003	0.001 U
	07/13/10	**0.0435**	**0.0187**	0.005	0.001 U
	01/10/11	**0.015**	**0.0067**	0.003	0.001 U
	07/06/11	**0.0856**	**0.0256**	0.011	0.0001
	01/14/12	**0.0243**	**0.0052**	0.0017	0.0001
	07/16/12	**0.0832**	**0.0125**	0.0067	0.000049 X
	01/16/13	**0.0467**	**0.0019 X**	0.0116	0.002 U
	07/09/13	**0.0400**	**0.0198**	0.0029	0.002 U
	11/22/13 [3]	**0.0548**	**0.0078**	**0.0175**	0.00038 X
	01/14/14	**0.0273**	**0.0061**	0.0069	0.00011 X
EGW018A [2]	01/10/15	**0.0026 X**	**0.0021 X**	0.0034	0.00012 X

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2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

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

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW024 (continued)	01/26/04	0.001 U	0.001 U	0.001 U	0.001 U
	04/20/04	0.001 U	0.001 U	0.001 U	0.001 U
	07/19/04	**0.006**	**0.006**	0.001 U	0.001 U
	10/07/04	**0.006**	**0.005**	0.001 U	0.001 U
	01/17/05	0.001 U	**0.002**	0.001	0.001 U
	04/12/05	**0.004**	0.001 U	0.002	0.001 U
	10/20/05	**0.004**	**0.003**	0.001	0.002
	01/16/06	**0.002**	0.001 U	0.001	0.001 U
	07/06/06	**0.002**	**0.003**	0.002	0.001 U
	01/19/07	**0.004**	**0.001**	0.003	0.001 U
	07/03/07	**0.003**	**0.003**	0.001 U	0.001 U
	01/16/08	**0.002**	**0.002**	0.006	0.001 U
	07/22/08	**0.003**	**0.002**	0.002	0.001 U
	01/12/09	**0.001**	0.001 U	0.001 U	0.001 U
	07/02/09	**0.0046**	**0.0013**	0.005	0.001 U
	01/08/10	**0.0013**	**0.0007**	0.002	0.001 U
	07/13/10	**0.0021**	**0.0019**	0.001	0.001 U
	01/06/11	**0.0011**	**0.0009**	0.001 U	0.001 U
	07/06/11	**0.0018**	**0.0017**	0.0003	0.0001 U
	01/14/12	**0.0002**	**0.0002**	0.0001	0.0001 U
	07/16/12	**0.0016 X**	**0.0015 X**	0.00037 X	0.002 U
	7/16/2012 (DUP)	**0.0015 X**	**0.0014 X**	0.00077 X	0.000063 X
	01/16/13	**0.0016 X**	**0.00051 X**	0.0046	0.00019 X
	07/09/13	**0.0030 X**	**0.0026 X**	0.00026 X	0.002 U
	01/14/14	**0.0019 X**	**0.00046 X**	0.00092 X	0.002 U
	07/02/14	**0.0026 X**	**0.0022 X**	0.00035 X	0.002 U
	01/10/15	0.004 U	0.004 U	0.00076 X	0.002 U
EGW025	02/14/95	**0.008**	NA	0.010	NA
	04/26/95	NA	NA	NA	0.001 U
	08/07/95	NA	NA	NA	0.001 U
	11/07/95	**0.003**	**0.002**	0.003	0.002
	02/27/96	**0.018**	0.001 U	**0.043**	0.002
	05/29/96	**0.017**	**0.001**	**0.025**	0.001 U
	08/28/96	**0.004**	**0.001**	0.002	0.001 U
	12/04/96	**0.010**	0.001 U	0.012	0.001 U
	03/05/97	**0.006**	0.001 U	0.008	0.001 U
	05/21/97	**0.002**	**0.001**	0.004	0.001 U
	08/14/97	**0.006**	**0.001**	0.007	0.001 U
	11/19/97	**0.008**	0.001 U	0.012	0.001 U
	03/17/98	**0.001**	**0.001**	0.002	0.001 U
	05/19/98	**0.002**	**0.001**	0.001	0.001 U
	08/17/98	0.001 U	0.001 U	0.001 U	0.001 U
	11/12/98	**0.002**	**0.002**	0.02 U	0.02 U

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW025 (continued)	02/08/99	**0.001**	0.001 U	0.001 U	0.001 U
	05/17/99	**0.001**	0.001 U	0.001 U	0.001 U
	08/09/99	0.001 U	0.001 U	0.001 U	0.001 U
	11/15/99	**0.001**	0.001 U	0.001 U	0.001 U
	02/03/00	0.001 U	0.001 U	0.001	0.001 U
	05/08/00	**0.001**	0.001 U	0.001 U	0.001 U
	08/07/00	0.001 U	0.001 U	0.001 U	0.001 U
	11/17/00	**0.002**	0.001 U	0.001 U	0.001 U
	02/07/01	**0.003**	0.001	0.002	0.001 U
	05/08/01	0.001 U	0.001 U	0.001 U	0.001
	08/10/01	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/12/02	**0.001**	0.001 U	0.001 U	0.001 U
	05/13/02	0.001 U	0.001 U	0.002	0.001 U
	08/12/02	**0.002**	0.001 U	0.001 U	0.001 U
	11/18/02	DRY	DRY	DRY	DRY
	01/07/03	**0.001**	0.001 U	0.001 U	0.001 U
	02/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	02/06/03 (DUP)	0.001 U	0.001 U	0.001 U	0.001 U
	05/12/03	0.001 U	**0.002**	0.001 U	0.001 U
	07/24/03	DRY	DRY	DRY	DRY
	11/10/03	DRY	DRY	DRY	DRY
	01/22/04	**0.001**	0.001 U	0.001 U	0.001 U
	04/19/04	0.001 U	0.001 U	0.001 U	0.001 U
	07/19/04	**0.002**	**0.002**	0.001 U	0.001 U
	10/07/04	DRY	DRY	DRY	DRY
	01/17/05	0.001 U	**0.001**	0.001 U	0.001 U
	04/12/05	**0.001**	0.001 U	0.001 U	0.001 U
	10/20/05	DRY	DRY	DRY	DRY
	01/13/06	**0.002**	**0.001**	0.001 U	0.001 U
	07/06/06	0.002 U	**0.002**	0.001 U	0.001 U
	01/19/07	**0.002**	0.001 U	0.001 U	0.001 U
	07/03/07	**0.003**	**0.003**	0.001 U	0.001 U
	01/16/08	0.001 U	0.001 U	0.001 U	0.001 U
	07/22/08	**0.005**	**0.003**	0.001 U	0.001 U
	01/12/09	**0.001**	0.001 U	0.001 U	0.001 U
	07/02/09	**0.0044**	**0.0032**	0.001 U	0.001 U
	01/07/10	**0.0007**	**0.0008**	0.001 U	0.001 U
	07/13/10	**0.0088**	**0.0065**	0.001 U	0.001 U
	01/05/11	**0.0024**	**0.0019**	0.001 U	0.001 U
	07/05/11	**0.0046**	**0.0041**	0.0002	0.0001 U
	01/14/12	**0.0010**	**0.0010**	0.0001 U	0.0001 U
	07/17/12	**0.0056**	**0.0067**	0.000067 X	0.002 U
	01/16/13	**0.00088 X**	**0.00063 X**	0.00027 X	0.002 U
	01/14/14	**0.0011 X**	**0.00069 X**	0.00050 X	0.002 U
EGW025A [2]	01/10/15	**0.0016 X**	0.004 U	0.00075 X	0.002 U

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

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

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW047 [1] (continued)	01/12/09	**0.003**	0.001 U	0.004	0.001 U
	07/01/09	**0.009**	**0.0026**	0.006	0.001 U
	01/07/10	**0.0042**	**0.0014**	0.004	0.001 U
	07/12/10	**0.0124**	**0.0031**	0.007	0.001 U
	01/05/11	**0.0014**	**0.0011**	0.001 U	0.001 U
	07/05/11	**0.0034**	**0.0024**	0.0007	0.0001 U
	01/14/12	**0.0057**	**0.0023**	0.0028	0.0001 U
	07/17/12	**0.0069**	**0.0030 X**	0.0058	0.002 U
	01/16/13	**0.0055**	**0.0018 X**	0.0088	0.0002 X
	07/09/13	**0.0049**	**0.0045**	0.00072 X	0.002 U
	01/14/14	**0.0011 X**	0.004 U	0.0013 X	0.002 U
	07/02/14	**0.0046**	**0.0035 X**	0.00091 X	0.002 U
	01/10/15	**0.0016 X**	0.004 U	0.0036	0.002 U
EGW048 [1]	05/09/96	**0.020**	**0.011**	0.013	0.001 U
	08/28/96	**0.014**	**0.006**	0.001	0.001 U
	12/04/96	**0.025**	0.005	0.006	0.001 U
	03/05/97	**0.019**	**0.007**	0.005	0.001 U
	05/21/97	**0.022**	**0.008**	0.002	0.001 U
	08/14/97	**0.022**	**0.008**	0.001 U	0.001 U
	11/19/97	**0.028**	**0.009**	0.003	0.001 U
	03/18/98	**0.036**	**0.022**	0.001 U	0.001 U
	05/19/98	**0.042**	**0.022**	0.001 U	0.001 U
	08/17/98	**0.018 J**	**0.017 J**	0.001 U	0.001 U
	11/12/98	**0.018**	**0.016**	0.02 U	0.02 U
	02/09/99	**0.011**	**0.011**	0.001 U	0.001 U
	05/17/99	**0.010**	**0.008**	0.001 U	0.001 U
	08/09/99	**0.014**	**0.015**	0.001 U	0.001 U
	08/09/99 (DUP)	**0.014**	**0.015**	0.001 U	0.001 U
	11/15/99	**0.024**	**0.019**	0.001 U	0.001 U
	11/15/99 (DUP)	**0.026**	**0.019**	0.001 U	0.001 U
	02/07/00	**0.011**	**0.011**	0.001 U	0.001 U
	05/08/00	**0.014**	**0.014**	0.001	0.001 U
	08/03/00	**0.016**	**0.018**	0.001 U	0.001 U
	11/17/00	**0.016**	**0.008**	0.001 U	0.001 U
	02/12/01	**0.016**	**0.014**	0.001 U	0.001 U
	05/07/01	**0.014**	**0.012**	0.001 U	0.001 U
	08/10/01	**0.015**	**0.016**	0.001 U	0.001 U
	11/16/01	**0.009**	**0.010**	0.001 U	0.001 U
	11/16/01 (DUP)	**0.010**	**0.009**	0.001 U	0.001 U
	02/11/02	**0.008**	**0.007**	0.001 U	0.001 U
	02/11/02 (DUP)	**0.007**	**0.006**	0.001 U	0.001 U
	05/13/02	**0.006**	**0.006**	0.001 U	0.001 U
	05/13/02 (DUP)	**0.007**	**0.008**	0.001 U	0.001 U
	08/13/02	**0.015**	**0.015**	0.001 U	0.001 U
	11/18/02	DRY	DRY	DRY	DRY

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW048 [1] (continued)	01/07/03	**0.040**	**0.044**	0.002	0.001 U
	02/10/03	**0.008**	**0.008**	0.001 U	0.001 U
	05/12/03	**0.013**	**0.010**	0.001 U	0.001 U
	07/24/03	**0.017**	**0.017**	0.001 U	0.001 U
	07/24/03 (DUP)	**0.017**	**0.017**	0.001 U	0.001 U
	11/10/03	DRY	DRY	DRY	DRY
	01/22/04	**0.011**	**0.010**	0.001 U	0.001 U
	04/20/04	**0.012**	**0.012**	0.001 U	0.001 U
	4/20/04 (DUP)	**0.012**	**0.012**	0.001 U	0.001 U
	07/19/04	**0.015**	**0.016**	0.001 U	0.004
	10/07/04	**0.010**	**0.010**	0.001	0.004
	01/17/05	**0.004**	**0.004**	0.001 U	0.001 U
	04/12/05	**0.005**	**0.005**	0.001 U	0.001 U
	10/20/05	DRY	DRY	DRY	DRY
	01/16/06	**0.004**	**0.004**	0.001	0.001 U
	07/06/06	**0.004**	**0.005**	0.001	0.001 U
	01/19/07	**0.004**	**0.004**	0.001 U	0.001 U
	07/03/07	**0.007**	**0.003**	0.002	0.001 U
	01/15/08	**0.004**	**0.003**	0.002	0.001 U
	07/22/08	**0.004**	**0.003**	0.004	0.001 U
	01/12/09	**0.004**	**0.003**	0.006	0.001 U
	07/01/09	**0.0025**	**0.0032**	0.001 U	0.001 U
	07/01/09 (DUP)	**0.0024**	**0.0025**	0.001 U	0.001 U
	01/08/10	**0.0020**	**0.0017**	0.002	0.001 U
	07/12/10	**0.0026**	**0.0026**	0.002	0.001 U
	01/10/11	**0.0020**	**0.0019**	0.001 U	0.001 U
	07/06/11	**0.0023**	**0.0023**	0.0019	0.0002
	01/14/12	**0.0021**	**0.0020**	0.0007	0.0001 U
	07/16/12	**0.0036 X**	**0.0031 X**	0.0026	0.000048 X
	01/16/13	**0.0032 X**	**0.0015 X**	0.0028	0.002 U
	07/09/13	**0.0026 X**	**0.0025 X**	0.00038 X	0.002 U
	01/14/14	**0.0021 X**	**0.0015 X**	0.0014 X	0.002 U
	07/02/14	**0.0024 X**	**0.0022 X**	0.00046 X	0.002 U
	01/10/15	**0.0021 X**	**0.0013 X**	0.0055	0.00014 X
EGW049 [1]	05/09/96	**0.007**	**0.004**	0.007	0.002
	08/28/96	**0.004**	**0.004**	0.001 U	0.001 U
	08/28/96 (DUP)	**0.005**	**0.004**	0.001 U	0.001 U
	12/04/96	**0.008**	**0.003**	0.007	0.001 U
	03/05/97	**0.005**	**0.002**	0.005	0.001 U
	03/05/97 (DUP)	**0.005**	**0.002**	0.004	0.001 U
	05/21/97	**0.004**	**0.003**	0.003	0.001 U
	08/14/97	**0.004**	**0.004**	0.002	0.001 U
	08/14/97 (DUP)	**0.005**	**0.004**	0.002	0.001 U
	11/19/97	**0.004**	**0.002**	0.002	0.001 U

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2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW049 [1] (continued)	03/17/98	**0.002**	**0.003**	0.001 U	0.001 U
	05/19/98	**0.003**	**0.002**	0.001 U	0.001 U
	08/17/98	**0.003 J**	**0.003 J**	0.001 U	0.001 U
	11/12/98	**0.003**	**0.003**	0.02 U	0.02 U
	02/08/99	**0.003**	**0.002**	0.001 U	0.001 U
	05/17/99	**0.002**	**0.001**	0.001 U	0.001 U
	08/09/99	**0.002**	**0.002**	0.001 U	0.001 U
	11/15/99	**0.003**	**0.002**	0.001 U	0.001 U
	02/03/00	**0.002**	**0.002**	0.001 U	0.001 U
	05/08/00	**0.002**	**0.002**	0.001 U	0.001 U
	08/07/00	**0.003**	**0.002**	0.001 U	0.001 U
	11/17/00	**0.004**	**0.002**	0.001 U	0.001 U
	02/12/01	**0.002**	**0.002**	0.001 U	0.001 U
	05/07/01	**0.001**	**0.001**	0.001 U	0.001 U
	08/10/01	**0.002**	**0.002**	0.001 U	0.001 U
	11/16/01	**0.002**	**0.002**	0.001 U	0.001 U
	02/11/02	**0.002**	**0.001**	0.001 U	0.001 U
	05/14/02	**0.002**	**0.002**	0.001 U	0.001 U
	08/12/02	**0.003**	**0.003**	0.001 U	0.001 U
	11/18/02	**0.003**	**0.002**	0.001 U	0.001 U
	02/10/03	**0.002**	**0.002**	0.001 U	0.001 U
	05/12/03	**0.001**	**0.002**	0.001 U	0.001 U
	5/12/03 (DUP)	**0.001**	**0.003**	0.001 U	0.001 U
	07/24/03	**0.003**	**0.001**	0.001 U	0.001 U
	11/10/03	**0.002**	**0.002**	0.001	0.001 U
	01/26/04	**0.003**	**0.002**	0.001 U	0.001 U
	04/20/04	**0.002**	**0.002**	0.001 U	0.001 U
	07/19/04	**0.003**	**0.003**	0.001 U	0.001 U
	10/07/04	**0.003**	**0.003**	0.001 U	0.001 U
	01/17/05	**0.002**	**0.002**	0.001 U	0.001 U
	04/12/05	**0.002**	**0.002**	0.001 U	0.001 U
	10/20/05	**0.003**	**0.003**	0.001 U	0.002
	01/16/06	**0.002**	**0.002**	0.001 U	0.001 U
	07/06/06	**0.002**	**0.002**	0.001 U	0.001 U
	01/19/07	**0.003**	**0.002**	0.002	0.001 U
	07/03/07	**0.003**	**0.003**	0.001 U	0.001 U
	01/15/08	**0.002**	**0.002**	0.001 U	0.001 U
	07/22/08	**0.003**	**0.002**	0.003	0.001 U
	01/12/09	**0.002**	**0.001**	0.001 U	0.001 U
	07/02/09	**0.0026**	**0.0020**	0.001	0.001 U
	01/08/10	**0.0046**	**0.0023**	0.002	0.001 U
	07/12/10	**0.0046**	**0.0023**	0.003	0.001 U
	01/06/11	**0.0032**	**0.0030**	0.001 U	0.001 U
	07/06/11	**0.0035**	**0.0020**	0.002	0.0001 U
	01/14/12	**0.0020**	**0.0016**	0.0007	0.0001 U
	07/16/12	**0.0032 X**	**0.0022 X**	0.0026	0.002 U

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW049 [1] (continued)	01/16/13	**0.0039 X**	**0.0019 X**	0.0012 X	0.002 U
	07/09/13	**0.0036 X**	**0.0022 X**	0.0016 X	0.002 U
	01/14/14	**0.0023 X**	**0.0017 X**	0.0022	0.002 U
	07/02/14	**0.0025 X**	**0.0027 X**	0.00077 X	0.002 U
	01/10/15	**0.0018 X**	**0.0117**	0.00082 X	0.002 U
EGW056 [1]	08/18/98	**0.023**	**0.002**	**0.023**	0.001 U
	11/16/98	**0.01**	**0.005**	0.008	0.001 U
	02/08/99	**0.015**	**0.007**	**0.016**	0.001 U
	02/08/99 (DUP)	**0.013**	**0.006**	**0.016**	0.001 U
	05/17/99	**0.007**	**0.004**	0.004	0.001 U
	08/09/99	**0.008**	**0.004**	0.005	0.001 U
	11/15/99	**0.005**	**0.004**	0.001 U	0.001 U
	02/07/00	**0.004**	**0.004**	0.003	0.001 U
	05/08/00	**0.010**	**0.010**	0.001	0.001 U
	08/03/00	**0.009**	**0.004**	0.006	0.001 U
	11/17/00	**0.010**	**0.008**	**0.020**	0.001 U
	11/17/00 (Dup)	**0.011**	**0.007**	0.003	0.001 U
	02/12/01	**0.008**	**0.007**	0.003	0.001 U
	05/07/01	**0.007**	**0.004**	0.003	0.001 U
	08/10/01	**0.005**	**0.003**	0.003	0.001 U
	11/15/01	**0.008**	**0.005**	0.005	0.001 U
	02/11/02	**0.007**	**0.005**	0.002	0.001 U
	05/13/02	**0.006**	**0.004**	0.003	0.001 U
	08/13/02	**0.010**	**0.009**	0.001 U	0.001 U
	08/13/02 (DUP)	**0.009**	**0.008**	0.001 U	0.001 U
	11/18/02	**0.007**	**0.005**	0.002	0.001 U
	02/06/03	**0.008**	**0.005**	0.004	0.001 U
	05/12/03	**0.009**	**0.007**	0.002	0.001 U
	07/24/03	**0.009**	**0.010**	0.001 U	0.001 U
	11/10/03	**0.008**	**0.006**	0.001	0.001 U
	01/26/04	**0.008**	**0.007**	0.001 U	0.001 U
	04/20/04	**0.008**	**0.007**	0.001	0.001 U
	07/19/04	**0.009**	**0.008**	0.002	0.001 U
	10/06/04	**0.009**	**0.009**	0.002	0.001
	01/17/05	**0.008**	**0.006**	0.003	0.001 U
	04/13/05	**0.007**	**0.006**	0.003	0.001 U
	10/20/05	**0.006**	**0.005**	0.002	0.001 U
	01/16/06	**0.011**	**0.010**	0.001 U	0.001 U
	07/06/06	**0.008**	**0.008**	0.001 U	0.001 U
	01/17/07	**0.010**	**0.008**	0.001	0.001 U
	07/03/07	**0.011**	**0.007**	0.001 U	0.001 U
	01/15/08	**0.008**	**0.007**	0.003	0.001 U
	1/15/08 (DUP)	**0.008**	**0.006**	0.003	0.001 U
	07/22/08	**0.007**	**0.007**	0.003	0.001 U

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW056 [1] (continued)	01/12/09	**0.010**	**0.007**	0.002	0.001 U
	1/12/09 (DUP)	**0.012**	0.005 U	0.002	0.001 U
	07/01/09	**0.0088**	**0.0073**	0.002	0.001 U
	01/07/10	**0.0048**	**0.0034**	0.001	0.001 U
	07/12/10	**0.0068**	**0.0060**	0.001 U	0.001 U
	01/05/11	**0.0072**	**0.0060**	0.001 U	0.001 U
	07/06/11	**0.0068**	**0.0051**	0.0016	0.0002
	01/14/12	**0.0063**	**0.0059**	0.0006	0.0001
	07/16/12	**0.0064**	**0.0045**	0.0019 X	0.00028 X
	01/16/13	**0.0056**	**0.0047**	0.0015 X	0.0001 X
	07/09/13	**0.0036 X**	**0.0027 X**	0.00051 X	0.002 U
	01/14/14	**0.0082 J**	**0.0078**	0.00062 XJ	0.00017 X
	07/02/14	**0.0061**	**0.0049**	0.00094 X	0.00010 X
	01/09/15	**0.0074**	**0.0065**	0.00019 X	0.000096 X
EGW064	06/27/00	**0.010**	**0.008**	0.002	0.001 U
	08/03/00	**0.013**	**0.012**	0.003	0.001
	11/17/00	**0.018**	**0.015**	0.001	0.001 U
	02/12/01	**0.017**	**0.015**	0.002	0.001 U
	05/07/01	**0.017**	**0.016**	0.002	0.001 U
	08/10/01	**0.017**	**0.014**	0.003	0.001 U
	11/15/01	**0.018**	**0.016**	0.004	0.002 U
	02/11/02	**0.017**	**0.015**	0.003	0.001
	05/13/02	**0.016**	**0.016**	0.002	0.004
	08/13/02	**0.016**	**0.016**	0.001	0.001
	11/18/02	**0.015**	**0.015**	0.001	0.001 U
	02/06/03	**0.019**	**0.020**	0.002	0.001 U
	05/12/03	**0.017**	**0.017**	0.002	0.001 U
	07/24/03	**0.017**	**0.016**	0.001 U	0.001 U
	11/10/03	**0.019**	**0.018**	0.002	0.001 U
	11/10/03 (DUP)	**0.018**	**0.017**	0.003	0.001 U
	01/26/04	**0.018**	**0.016**	0.003	0.001 U
	04/20/04	**0.017**	**0.016**	0.002	0.001
	07/19/04	**0.018**	**0.018**	0.001	0.001 U
	7/19/04 (DUP)	**0.017**	**0.018**	0.001 U	0.001 U
	10/06/04	**0.021**	**0.017**	0.003	0.002
	01/17/05	**0.020**	**0.019**	0.004	0.001 U
	04/13/05	**0.017**	**0.018**	0.004	0.001 U
	10/20/05	**0.020**	**0.018**	0.002	0.001
	10/20/05 (DUP)	**0.022**	**0.019**	0.001 U	0.001 U
	01/16/06	**0.022**	**0.019**	0.002	0.001 U
	07/06/06	**0.018**	**0.014**	0.001	0.001 U
	7/6/06 (DUP)	**0.016**	**0.017**	0.002	0.001 U
	01/17/07	**0.025**	**0.021**	0.003	0.004
	07/03/07	**0.019**	**0.018**	0.001 U	0.001 U

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW064 (continued)	01/15/08	**0.021**	**0.021**	0.003	0.001 U
	07/22/08	**0.024**	**0.019**	0.002	0.001 U
	01/12/09	**0.019**	**0.020**	0.002	0.001 U
	07/01/09	**0.0162**	**0.0143**	0.001	0.001 U
	01/07/10	**0.0146**	**0.0132**	0.001 U	0.001 U
	1/7/10 (DUP)	**0.0143**	**0.0130**	0.001	0.001 U
	07/12/10	**0.0126**	**0.0121**	0.001	0.001 U
	7/12/10 (DUP)	**0.0134**	**0.0116**	0.001	0.001 U
	01/05/11	**0.020**	**0.0172**	0.003	0.001 U
	07/06/11	**0.0139**	**0.0118**	0.0023	0.0001 U
	01/14/12	**0.0131**	**0.0104**	0.0009	0.0001 U
	07/16/12	**0.0152**	**0.0159**	0.00073 X	0.00007 X
	01/16/13	**0.0143**	**0.0133**	0.00045 X	0.002 U
	07/09/13	**0.0171**	**0.0170**	0.00090 X	0.002 U
	7/9/13 (DUP)	**0.0154**	**0.0157**	0.00076 X	0.002 U
	01/14/14	**0.0165**	**0.0153**	0.0010 X	0.002 U
	07/02/14	**0.0159**	**0.0141**	0.00031 X	0.002 U
	01/09/15	**0.0197**	**0.0215**	0.00070 X	0.002 U
	1/9/15 (DUP)	**0.0222**	**0.0188**	0.00078 X	0.002 U
EGW067	06/27/00	**0.004**	**0.004**	0.001 U	0.001 U
	08/07/00	**0.007**	**0.006**	0.001	0.001 U
	08/07/00 (DUP)	**0.007**	**0.006**	0.001	0.001 U
	11/16/00	**0.011**	**0.012**	0.001 U	0.001 U
	02/07/01	**0.012**	**0.010**	0.001	0.001 U
	02/07/01 (DUP)	**0.012**	**0.011**	0.001	0.001 U
	05/08/01	**0.009**	**0.008**	0.001	0.001 U
	05/08/01 (DUP)	**0.009**	**0.007**	0.001	0.001 U
	08/10/01	**0.014**	**0.010**	0.002	0.001 U
	11/16/01	**0.015**	**0.012**	0.001	0.001 U
	02/12/02	**0.014**	**0.012**	0.001 U	0.001 U
	05/13/02	**0.013**	**0.012**	0.002	0.001 U
	08/12/02	**0.016**	**0.014**	0.001 U	0.001 U
	11/18/02	DRY	DRY	DRY	DRY
	01/07/03	**0.016**	**0.015**	0.001 U	0.001 U
	02/10/03	**0.016**	**0.013**	0.001	0.001 U
	05/12/03	**0.015**	**0.013**	0.001 U	0.001 U
	07/24/03	**0.015**	**0.015**	0.001 U	0.001 U
	11/10/03	**0.016**	**0.012**	0.001	0.001 U
	01/22/04	**0.010**	**0.010**	0.001 U	0.001 U
	1/22/04 (DUP)	**0.010**	**0.010**	0.001 U	0.001 U
	04/19/04	**0.009**	**0.010**	0.001 U	0.001 U
	07/15/04	**0.013**	**0.012**	0.001 U	0.001 U
	10/07/04	**0.016**	**0.014**	0.001 U	0.001 U

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW067 (continued)	01/14/05	**0.015**	**0.013**	0.001	0.001 U
	1/14/05 (DUP)	**0.005**	**0.004**	0.002	0.001 U
	04/12/05	**0.009**	**0.008**	0.001 U	0.001 U
	4/12/05 (DUP)	**0.010**	**0.009**	0.001 U	0.001 U
	10/20/05	DRY	DRY	DRY	DRY
	01/13/06	**0.015**	**0.018**	0.001 U	0.001 U
	07/06/06	**0.016**	**0.019**	0.001 U	0.001 U
	01/19/07	**0.015**	**0.014**	0.001 U	0.001 U
	1/19/07 (DUP)	**0.015**	**0.014**	0.001 U	0.001 U
	07/05/07	**0.017**	**0.014**	0.001 U	0.001 U
	01/16/08	**0.015**	**0.015**	0.001 U	0.001 U
EGW067A [2]	07/01/09	**0.0141**	**0.0138**	0.001 U	0.001 U
	01/07/10	**0.0182**	**0.0160**	0.001 U	0.001 U
	07/13/10	**0.0116**	**0.0103**	0.001	0.001 U
	01/05/11	**0.0152**	**0.0144**	0.001 U	0.001 U
	07/05/11	**0.0107**	**0.0097**	0.0002	0.0001 U
	7/5/11 (DUP)	**0.0109**	**0.0111**	0.0002	0.0001 U
	01/14/12	**0.0298**	**0.0302**	0.0007	0.0001 U
	1/14/12 (DUP)	**0.0300**	**0.0268**	0.0008	0.0001 U
	07/16/12	**0.0343**	**0.0291**	0.00072 X	0.000039 X
	01/16/13	**0.0225**	**0.0207**	0.00047 X	0.002 U
	1/16/13 (DUP)	**0.0231**	**0.0197**	0.00055 X	0.002 U
	07/09/13	**0.0167**	**0.0135**	0.00033 X	0.002 U
	01/14/14	**0.0185**	**0.0170**	0.0028	0.0020 U
	1/14/14 (DUP)	**0.0189**	**0.0156**	0.0019 X	0.00012 X
	07/02/14	**0.0181**	**0.0154**	0.00054 X	0.002 U
	7/02/14 (DUP)	**0.0179**	**0.0140**	0.00047 X	0.002 U
	01/09/15	**0.0285**	**0.0264**	0.00043 X	0.00031 X
EGW068	11/16/00	**0.001**	0.001 U	0.001 U	0.001 U
	02/12/01	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/01	0.001 U	0.001 U	0.001 U	0.001 U
	08/09/01	0.001 U	0.001 U	0.001 U	0.001 U
	11/16/01	0.001 U	0.001 U	0.001 U	0.001 U
	02/11/02	0.001 U	0.001 U	0.001 U	0.001 U
	05/13/02	0.001 U	0.001 U	0.001 U	0.001 U
	08/13/02	DRY	DRY	DRY	DRY
	11/18/02	DRY	DRY	DRY	DRY
	01/07/03	**0.001**	0.001 U	0.001 U	0.001 U
	02/06/03	0.001 U	0.001 U	0.001 U	0.001 U
	05/08/03	0.001 U	0.001 U	0.001 U	0.001 U
	07/24/03	DRY	DRY	DRY	DRY
	11/10/03	0.001 U	0.001 U	0.001 U	0.001 U

Table A-19
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Former Gun Club Area
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Lead	
		Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		0.015 (A)	
EGW068 (continued)	01/22/04	**0.002**	0.001 U	0.001 U	0.001 U
	04/19/04	**0.004**	0.001 U	0.001	0.001 U
	07/15/04	**0.002**	0.001 U	0.001 U	0.001 U
	10/07/04	**0.004**	0.001 U	0.001 U	0.001 U
	10/07/04 (DUP)	**0.004**	**0.002**	0.001 U	0.001 U
	01/14/05	**0.004**	0.001 U	0.001	0.001 U
	04/12/05	**0.003**	**0.002**	0.001 U	0.001 U
	10/20/05	0.001 U	0.001 U	0.001	0.002
	01/13/06	0.001 U	0.001 U	0.001 U	0.001 U
	07/06/06	0.002 U	0.002 U	0.001 U	0.001 U
	01/19/07	0.001 U	0.001 U	0.001 U	0.001 U
	07/03/07	0.001 U	0.001 U	0.001 U	0.001 U
	01/16/08	0.001 U	0.001 U	0.001 U	0.001 U
	07/22/08	0.001 U	0.001 U	0.001	0.001 U
	01/12/09	0.001 U	0.001 U	0.001 U	0.001 U
	07/01/09	**0.0003**	**0.0002**	0.001 U	0.001 U
	01/07/10	**0.0003**	**0.0003**	0.001 U	0.001 U
	07/12/10	**0.0010**	**0.0009**	0.001 U	0.001 U
	01/05/11	**0.0004**	**0.0004**	0.001 U	0.001 U
	07/05/11	**0.0003**	**0.0004**	0.0002	0.0001 U
	01/14/12	0.0002 U	**0.0002**	0.0002	0.0004
	07/17/12	0.004 U	0.004 U	0.00027 X	0.002 U
	01/16/13	0.004 U	0.004 U	0.0014 X	0.002 U
	07/09/13	**0.00049 X**	0.004 U	0.00012 X	0.002 U
	01/14/14	0.004 U	0.004 U	0.00046 X	0.002 U
	07/02/14	0.004 U	0.004 U	0.00021 X	0.002 U
	01/10/15	0.004 U	0.004 U	0.00021 X	0.002 U

Notes:

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

Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded February 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

(A) - MTCA Method A

(B) - MTCA Method B

DRY - Well was dry at time of sample collection.

DUP - field duplicate

J - estimated value

mg/L - milligram per liter

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

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

X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

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

[2] The original wells EGW016 and EGW067 were abandoned and replacement wells were installed in October 2008. EGW018 and EGW025 were abandoned and replacement wells were installed in December 2014.

[3] Sample collected after step-drawdown pumping test.

Table A-20
Summary of Groundwater Analytical Results for Organic (VOCs, PAHs, PCBs, Phosphate Compounds, BHT and TPH) and Conventional Analyses
2nd Quarter 2015
Esperance Sand
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (mg/L)				Polynuclear Aromatic Hydrocarbons (PAHs) (mg/L)											Polychlorinated Biphenyls (PCBs) (mg/L)[7]	Phosphate-based Hydraulic Oil Compounds (mg/L)		BHT (mg/L)	Total Petroleum Hydrocarbons[1] (mg/L)	Conventional Analyses (mg/L)	
		Acetone	Chloromethane	TCE	Total Xylenes	Benzo(a) anthracene[a]	Benzo(b) fluoranthene[a]	Benzo(k) fluoranthene[a]	Total Benzofluoranthenes[a,b]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene[a]	Naphthalene	Phenanthrene	Pyrene	TTEC[c]		Tributyl Phosphate	Dibutyl Phenyl Phosphate			Total Dissolved Solids	Total Organic Carbon
MTCA Method A or B Groundwater Screening Level		7.2 (B)	NE	0.005 (A) 0.00054 (B)	1.0 (A) 1.6 (B)	0.00012 (B)	0.00012 (B)	0.0012 (B)	NE	0.64 (B)	0.64 (B)	0.00012 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)	0.0001 (Total) (A) 0.0000438 (Total) (B) 0.0000438 (Aroclor 1260) (B)	4.8[5]	5.16[5]	NE	0.5 (Diesel) (A) NE (Jet-A)	NE	NE
EGW040[2]	11/09/98	0.005 U	0.002 U	0.001 UJ	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	02/02/99	0.005 U	0.002 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	120	1.50 U
	05/13/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	08/04/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	11/11/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	02/07/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	ND	NA	NA
	05/02/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	ND	NA	NA
	08/02/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.001 U	0.002 U	NA	ND	NA	NA
	11/14/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.001 U	0.002 U	NA	ND	NA	NA
	02/05/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.001 U	0.002 U	NA	ND	NA	NA
	05/03/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.001 U	0.002 U	0.00003 U	ND *	NA	NA
	08/01/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/09/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	02/04/02	0.001 U	0.0003[4]	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	05/02/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	08/01/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/11/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 UJ	ND	NA	NA
	02/03/03	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	05/01/03	0.0013[6]	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	07/21/03	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/03/03	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	01/19/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 UJ	0.0005 UJ	0.00025 UJ	ND	NA	NA
	04/12/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	07/12/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/04/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	01/04/05	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/04/05	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/10/05	0.0018 U	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/03/06	0.001[6]	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000015	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/19/06	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000017	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/02/07	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000014	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/24/07	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000010[6]	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/08	0.003 U	0.002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/01/08	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001	0.0002 U	0.0001 U	ND	NA	NA
	04/02/09	0.0025 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/29/09	0.005 U	0.0005 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/05/10	0.005 U	0.0005 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/14/10	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00001 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/06/11	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00001 U	0.00001 U	0.00001 U	NA	0.00001	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/12/11	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00002 U	0.00001 U	0.00001 U	NA	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/12	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/12 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/12 (RE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND DNR	NA	NA	NA	NA	NA	NA
	10/08/12	0.005 U	0.0005 UJ	0.0002 U DNR	0.0001 X	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/8/12 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/13	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	04/4/13 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/13[8]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/06/14	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	01/6/14 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/14	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000097 U	0.0000097 U	0.0000097 U	0.0000097 U	0.000048 U	0.000048 U	0.0000097 U	0.000048 U	0.000048 U	0.000048 U	NA	NA	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	04/02/14 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
	10/13/14	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.0000094 U	0.000033 X	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	10/13/14 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/01/15	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	4/1/15 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-20
Summary of Groundwater Analytical Results for Organic (VOCs, PAHs, PCBs, Phosphate Compounds, BHT and TPH) and Conventional Analyses
2nd Quarter 2015
Esperance Sand
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (mg/L)				Polynuclear Aromatic Hydrocarbons (PAHs) (mg/L)											Polychlorinated Biphenyls (PCBs) (mg/L)[7]	Phosphate-based Hydraulic Oil Compounds (mg/L)		BHT (mg/L)	Total Petroleum Hydrocarbons[1] (mg/L)	Conventional Analyses (mg/L)	
		Acetone	Chloromethane	TCE	Total Xylenes	Benzo(a) anthracene[a]	Benzo(b) fluoranthene[a]	Benzo(k) fluoranthene[a]	Total Benzofluoranthenes[a,b]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene[a]	Naphthalene	Phenanthrene	Pyrene	TTEC[c]		Tributyl Phosphate	Dibutyl Phenyl Phosphate			Total Dissolved Solids	Total Organic Carbon
MTCA Method A or B Groundwater Screening Level		7.2 (B)	NE	0.005 (A) 0.00054 (B)	1.0 (A) 1.6 (B)	0.00012 (B)	0.00012 (B)	0.0012 (B)	NE	0.64 (B)	0.64 (B)	0.00012 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)	0.0001 (Total) (A) 0.0000438 (Total) (B) 0.0000438 (Aroclor 1260) (B)	4.8[5]	5.16[5]	NE	0.5 (Diesel) (A) NE (Jet-A)	NE	NE
EGW060	11/17/98	0.005 U	0.002 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	160	1.50 U
	02/02/99	0.005 U	0.002 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	160	1.50 U
	05/13/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	08/04/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	08/04/99 (DUP)	0.005 U	0.001 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA
	11/11/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	02/07/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	ND	NA	NA
	05/02/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	ND	NA	NA
	08/02/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.017[3]	0.003[3]	NA	ND	NA	NA
	08/23/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U[3]	0.002 U[3]	NA	NA	NA	NA
	11/14/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.001 U	0.002 U	NA	ND	NA	NA
	02/05/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.001 U	0.002 U	NA	ND	NA	NA
	05/03/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.0017	0.002 U	0.00003 U	ND *	NA	NA
	08/01/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/09/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	02/04/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	05/02/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	08/01/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/11/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.00051 U	0.00025 U	ND	NA	NA
	02/03/03	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	05/01/03	0.0015[6]	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	07/21/03	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/03/03	0.0013[6]	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	01/19/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 UJ	0.0005 UJ	0.00025 UJ	ND	NA	NA
	04/12/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	07/12/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/04/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	01/04/05	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/04/05	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/10/05	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/03/06	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/19/06	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/02/07	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000010	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/24/07	0.003 U	0.0002 U	0.0004	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/08	0.003 U	0.002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/01/08	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/09	0.0025 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000018 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/29/09	0.005 U	0.0005 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/05/10	0.005 U	0.0005 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/14/10	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00001	0.000027	0.00001 U	NA	0.000017 J	0.000032	0.000027	0.000001	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/06/11	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00001 U	0.00001 U	0.00001 U	NA	0.000022	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/04/11	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00002 U	0.00001 U	0.00001 U	NA	0.0000077 X	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/12	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/12 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/12 (RE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND DNR	NA	NA	NA	NA	NA	NA
	10/08/12	0.005 U	0.0005 UJ	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000032 X	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/8/12 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/13	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	04/4/13 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/13	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.0000095 U	0.00018	0.000048 U	0.000048 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	10/10/13 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/14	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	NA	NA	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	04/02/14 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
	10/13/14	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000034 X	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	10/13/14 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/01/15	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000052	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	4/1/15 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-20
Summary of Groundwater Analytical Results for Organic (VOCs, PAHs, PCBs, Phosphate Compounds, BHT and TPH) and Conventional Analyses
2nd Quarter 2015
Esperance Sand
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (mg/L)				Polynuclear Aromatic Hydrocarbons (PAHs) (mg/L)											Polychlorinated Biphenyls (PCBs) (mg/L)[7]	Phosphate-based Hydraulic Oil Compounds (mg/L)		BHT (mg/L)	Total Petroleum Hydrocarbons[1] (mg/L)	Conventional Analyses (mg/L)	
		Acetone	Chloromethane	TCE	Total Xylenes	Benzo(a) anthracene[a]	Benzo(b) fluoranthene[a]	Benzo(k) fluoranthene[a]	Total Benzofluoranthenes[a,b]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene[a]	Naphthalene	Phenanthrene	Pyrene	TTEC[c]		Tributyl Phosphate	Dibutyl Phenyl Phosphate			Total Dissolved Solids	Total Organic Carbon
MTCA Method A or B Groundwater Screening Level		7.2 (B)	NE	0.005 (A) 0.00054 (B)	1.0 (A) 1.6 (B)	0.00012 (B)	0.00012 (B)	0.0012 (B)	NE	0.64 (B)	0.64 (B)	0.00012 (B)	0.16 (A) 0.16 (B)	NE	0.48 (B)	0.0001 (A) 0.000012 (B)	0.0001 (Total) (A) 0.0000438 (Total) (B) 0.0000438 (Aroclor 1260) (B)	4.8[5]	5.16[5]	NE	0.5 (Diesel) (A) NE (Jet-A)	NE	NE
EGW061	11/17/98	0.005 U	0.002 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	130	1.50 U
	02/02/99	0.005 U	0.002 U	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	130	1.50 U
	05/13/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	08/04/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	11/11/99	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	ND	ND	NA	ND	NA	NA
	02/07/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	ND	NA	NA
	05/02/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	ND	NA	NA
	08/02/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.0027[3]	0.002 U[3]	NA	ND	NA	NA
	08/23/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U[3]	0.002 U[3]	NA	NA	NA	NA
	11/14/00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.001 U	0.002 U	NA	ND	NA	NA
	02/05/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.001 U	0.002 U	NA	ND	NA	NA
	05/03/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.0011	0.002 U	0.00003 U	ND *	NA	NA
	08/01/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/09/01	0.005 U	0.001 U	0.001 U	0.001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	02/04/02	0.001 U	0.0004[4]	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	05/02/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	08/01/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/11/02	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.00051 U	0.00025 U	ND	NA	NA
	02/03/03	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	05/01/03	0.0018[6]	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	07/21/03	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	11/03/03	0.0015[6]	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	01/19/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00026 J	0.0005 UJ	0.00025 UJ	ND	NA	NA
	04/12/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00025 U	0.0005 U	0.00025 U	ND	NA	NA
	07/12/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/04/04	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	01/04/05	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/04/05	0.001 U	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/10/05	0.0018 U	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/03/06	0.001[(6)]	0.0002 U	0.0002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	10/19/06	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.00010 U	0.0002 U	0.00010 U	ND	NA	NA
	04/02/07	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.000011	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/24/07	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/08	0.003 U	0.002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/01/08	0.003 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/09	0.0025 U	0.0002 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/29/09	0.005 U	0.0005 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/05/10	0.005 U	0.0005 U	0.00002 U	0.0004 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/14/10	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00001 U	0.000030	0.00001 U	NA	0.000018 J	0.000042	0.000029	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/06/11	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00001 U	0.00001 U	0.00001 U	NA	0.000031	0.00001 U	0.00001 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/04/11	0.005 U	0.0005 U	0.00002 U	0.0004 U	NA	NA	NA	0.00002 U	0.00001 U	0.00001 U	NA	0.0000075 X	0.00001 U	0.00001 U	NA	ND **	0.0001 U	0.0002 U	0.0001 U	ND **	NA	NA
	04/02/12	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	04/02/12 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/12 (RE)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND DNR	NA	NA	NA	NA	NA	NA
	10/08/12	0.005 U	0.0005 UJ	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000033 X	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0002 U	0.0001 U	ND	NA	NA
	10/8/12 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/13	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	04/4/13 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/13	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000048 U	0.000048 U	0.0000095 U	0.000048	0.000048 U	0.000048 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	10/10/13 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/14	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000050 X	0.0000095 U	0.000019	0.000019	0.000048 U	0.000027 X	0.0000040 X	0.000048 U	0.000048 U	0.000048 U	0.0000028	NA	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	04/02/14 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/25/14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA
	10/13/14	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000095 U	0.0000095 U	0.0000095 U	0.0000095 U	0.000047 U	0.000047 U	0.0000095 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	10/13/14 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/01/15	0.005 U	0.0005 U	0.0002 U DNR	0.0005 U	0.0000094 U	0.0000094 U	0.0000094 U	0.0000094 U	0.000047 U	0.000047 U	0.0000094 U	0.000047 U	0.000047 U	0.000047 U	NA	ND	0.0001 U	0.0001 U	0.0001 U	ND	NA	NA
	4/1/15 (SIM)	NA	NA	0.00002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

[1] Samples analyzed for diesel-range, gasoline-range, Jet A-range, and/or oil-range hydrocarbons using NWTPH methods, but petroleum hydrocarbons were not detected in any of the samples.

[2] Well EGW040 is located near Building 40-56 and has been sampled since February 1995. See Building 40-56 data summary table for data from February 1995 through August 1998.

[3] Detected compounds in the 8/2/00 sample were suspect. Samples were recollected on 8/23/00 and analyzed for phosphate compounds.

[4] Chloromethane was the only VOC detected during the first quarter 2002 GW sampling. First quarter 2002 was the first time 20-mL purge volumes were used for VOC analysis by EPA Method 8260.

[5] Value calculated by Boeing consistent with 1996 MTCA Method B methodology.

[6] Suspected laboratory contamination

[7] PCBs will be analyzed by the low-level method for each Aroclor (0.00001 mg/L) beginning April 1, 2007.

[8] Sample not collected due to broken pump.

[a] These compounds are considered carcinogenic PAHs (c-PAHs) and are subject to WAC-173-340 Toxicity Equivalent Concentration calculations.

[b] Total benzofluoranthenes are the sum of the benzo(b)fluoranthene and benzo(k)fluoranthene isomers.

[c] TTEC is based on benzo(a)pyrene.

* Samples were not analyzed for Jet-A range petroleum hydrocarbons; however, Jet-A-range TPH is within the diesel- and motor oil-range TPH which were not detected.

** Data qualified as estimated (UJ) due to holding time exceedances. See data validation report for more detail.

Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).

(A) - MTCA Method A
(B) - MTCA Method B
BHT - butylated hydroxytoluene
DNR - do not report
(DUP) - field duplicate
J - estimated value
NA - not analyzed
NE - not established
ND - Compounds analyzed for were not detected above the specific compound reporting limits
(RE) - reanalysis
(SIM) - select ion monitoring
TTEC - Total Toxicity Equivalent Concentration
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.

Table A-21
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Esperance Sand
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Chromium		Copper		Lead		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW040	02/02/99	**0.005**	**0.004**	0.004	0.004	0.007	0.005 U	0.002	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.001 U	0.002 U	0.003 U	0.003 U	0.063	0.063	0.005	0.004 U
	05/13/99	**0.004**	**0.004**	0.004	0.004	0.008	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.001 U	0.001 U	0.003 U	0.003 U	0.058	0.062	0.004 U	0.004 U
	08/04/99	**0.005**	**0.004**	0.005	0.005	0.014	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.001	0.001 U	0.003 U	0.003 U	0.066	0.073	0.004	0.004 U
	11/11/99	**0.003**	**0.004**	0.007	0.007	0.010	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.002 U	0.002 U	0.003 U	0.003 U	0.083	0.086	0.006 U	0.006 U
	02/07/00	**0.004**	**0.003**	0.005	0.005	0.017	0.008	0.002 U	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.002 U	0.002 U	0.003 U	0.009 U	0.082	0.085	0.006 U	0.006 U
	05/02/00	**0.005**	**0.004**	0.006	0.006	0.012	0.007	0.002 U	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.002 U	0.002 U	0.003 U	0.003 U	0.083	0.088	0.006 U	0.006 U
	08/02/00	**0.004**	**0.004**	0.005	0.005	0.019	0.008	0.002 U	0.002 U	0.001 U	0.001 U	0.01	0.010 U	0.002 U	0.002 U	0.003 U	0.003 U	0.082	0.087	0.006 U	0.006 U
	11/14/00	**0.004**	**0.004**	0.006	0.006	0.012	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.082	0.089	0.006 U	0.006 U
	02/05/01	**0.004**	**0.004**	0.005	0.005	0.019	0.009	0.002 U	0.002 U	0.001 U	0.001 U	0.01	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.081	0.083	0.006 U	0.006 U
	05/03/01	**0.004**	**0.003**	0.005	0.005	0.016	0.007	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.079	0.084	0.006 U	0.006 U
	08/01/01	**0.004**	**0.003**	0.005	0.005	0.014	0.008	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.078	0.083	0.006 U	0.006 U
	11/09/01	**0.003**	**0.003**	0.004	0.005	0.020	0.008	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.082	0.083	0.006 U	0.006 U
	02/04/02	**0.003**	**0.003**	0.004	0.005	0.013	0.007	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.074	0.085	0.006 U	0.006 U
	05/02/02	**0.003**	**0.003**	0.005	0.006	0.010	0.007	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 UJ	0.003 U	0.081	0.092	0.006 U	0.006 U
	08/01/02	**0.005**	**0.004**	0.029	0.006	**0.078**	0.010	0.007	0.002 U	0.001 U	0.001 U	0.05	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.102	0.089	0.016	0.006 U
	11/11/02	**0.003**	**0.003**	0.009	0.006	0.031	0.010	0.004	0.002 U	0.001 U	0.001 U	0.03	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.085	0.087	0.006 U	0.006 U
	02/03/03	**0.003**	**0.003**	0.006	0.005	0.016	0.008	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.086	0.087	0.008	0.006 U
	05/01/03	**0.004**	**0.004**	0.005	0.003 U	0.009	0.005	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.079	0.082	0.006	0.006 U
	07/21/03	**0.004**	**0.003**	0.007	0.005	0.024	0.012	0.002 U	0.002 U	0.001 U	0.001 U	0.01	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.083	0.079	0.019	0.006 U
	11/03/03	**0.004**	**0.003**	0.004	0.004	0.009	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.076	0.079	0.006 U	0.006 U
	01/19/04	**0.003**	**0.005**	0.006	0.003	0.016	0.010	0.003	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.074	0.075	0.006 U	0.006 U
	04/12/04	**0.003**	**0.003**	0.004	0.004	0.010	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.077	0.083	0.006 U	0.006 U
	07/12/04	**0.003**	**0.004**	0.004	0.003 U	0.011	0.007	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.070	0.068	0.006 U	0.006 U
	10/04/04	**0.003**	**0.004**	0.003 U	0.003 U	0.025	0.008	0.002 U	0.002 U	0.001 U	0.001 U	0.02	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.071	0.072	0.007	0.006 U
	01/04/05	**0.004**	**0.004**	0.007	0.004	0.022	0.006	0.002	0.002 U	0.002	0.001 U	0.02	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.076	0.076	0.006 U	0.006 U
	04/04/05	**0.003**	**0.004**	0.005	0.004	0.010	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.075	0.077	0.006 U	0.006 U
	10/10/05	**0.005**	**0.003**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/06	**0.004**	**0.003**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/19/06	**0.003**	**0.003**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/07	**0.004**	**0.004**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/24/07	**0.004**	**0.004**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/08	**0.003**	**0.003**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/01/08	**0.003**	**0.003**	NA	NA	NA	NA	NA	NA	0.002 U	0.002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/09	**0.0028**	**0.0028**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/29/09	**0.0027**	**0.0027**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/05/10	**0.0028**	**0.0028**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/10	**0.0029**	**0.0029**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/06/11	**0.0030**	**0.0031**	NA	NA	NA	NA	NA	NA	0.0001 U	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/12/11	**0.0029**	**0.0030**	NA	NA	NA	NA	NA	NA	0.0002	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/12	**0.0031**	**0.0029**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/08/12	**0.0030 X**	**0.0026 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/13	**0.0033 X**	**0.0028 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/13[1]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/06/14	**0.0028 X**	**0.0033 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/14	**0.0028 X**	**0.0029 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/13/14	**0.0029 X**	**0.0030 X**	NA	NA	NA	NA	NA	NA	0.000091 X	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/01/15	**0.0023 X**	**0.0023 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-21
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Esperance Sand
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Chromium		Copper		Lead		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW060	11/17/98	**0.005**	**0.005**	0.008	0.750	**0.157**	0.031	NA	NA	0.001 U	0.001 U	NA	NA	0.001 U	0.001 U	0.003 U	0.003	NA	NA	NA	NA
	02/02/99	**0.004**	**0.003**	0.003 U	0.003 U	0.012	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.001 U	0.002 U	0.003 U	0.003	0.119	0.120	0.004	0.004 U
	05/13/99	**0.003**	**0.003**	0.003 U	0.003 U	0.015	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.010	0.010 U	0.001 U	0.001 U	0.003 U	0.003	0.109	0.114	0.004 U	0.004 U
	08/04/99	**0.004**	**0.004**	0.003 U	0.003 U	0.011	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.010	0.010	0.001 U	0.001 U	0.003 U	0.003	0.108	0.117	0.004 U	0.004 U
	08/04/99 (DUP)	**0.004**	**0.004**	0.003 U	0.003 U	0.011	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.010	0.010	0.002 U	0.002 U	0.003 U	0.003	0.109	0.119	0.026	0.007
	11/11/99	**0.004**	**0.004**	0.003	0.003 U	0.012	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.002 U	0.004 U	0.003 U	0.003	0.104	0.104	0.006 U	0.006 U
	02/07/00	**0.003**	**0.003**	0.004	0.004	0.007	0.005	0.002 U	0.002 U	0.001 U	0.001 U	0.010 U	0.010 U	0.002 U	0.01 U	0.003 U	0.009 U	0.110	0.114	0.006 U	0.006 U
	05/02/00	**0.005**	**0.003**	0.004	0.004	0.006	0.005 U	0.002 U	0.002	0.001 U	0.001 U	0.010 U	0.010 U	0.01 U	0.01 U	0.003 U	0.003	0.105	0.107	0.006 U	0.006 U
	08/02/00	**0.004**	**0.003**	0.004	0.004	0.006	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.004 U	0.003 U	0.003 U	0.106	0.113	0.006 U	0.006 U
	11/14/00	**0.004**	**0.004**	0.006	0.006	0.005 U	0.005 U	0.002 U	0.002 U	0.001	0.001	0.01 U	0.01 U	0.002 U	0.004 U	0.003 U	0.003 U	0.111	0.119	0.006	0.019
	02/05/01	**0.004**	**0.004**	0.005	0.006	0.007	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.107	0.113	0.006 U	0.006 U
	05/03/01	**0.004**	**0.004**	0.006	0.006	0.008	0.005 U	0.002	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.004 U	0.003 U	0.003 U	0.116	0.120	0.006 U	0.006 U
	08/01/01	**0.003**	**0.003**	0.006	0.006	0.010	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.004 U	0.003 U	0.003 U	0.113	0.111	0.007	0.006 U
	11/09/01	**0.004**	**0.004**	0.006	0.006	0.006	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.114	0.114	0.006 U	0.006 U
	02/04/02	**0.005**	**0.004**	0.006	0.007	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.109	0.115	0.006 U	0.006 U
	05/02/02	**0.003**	**0.003**	0.006	0.007	0.006	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 UJ	0.003 U	0.108	0.112	0.006 U	0.006 U
	08/01/02	**0.004**	**0.004**	0.006	0.007	0.006	0.005	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.106	0.112	0.012	0.006 U
	11/11/02	**0.003**	**0.003**	0.008	0.008	0.006	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.102	0.114	0.006 U	0.006 U
	02/03/03	**0.004**	**0.004**	0.008	0.007	0.006	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.114	0.116	0.006 U	0.006 U
	05/01/03	**0.004**	**0.004**	0.006	0.003	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.100	0.106	0.006	0.006 U
	07/21/03	**0.004**	**0.004**	0.008	0.007	0.005 U	0.005	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.104	0.111	0.006 U	0.006 U
	11/03/03	**0.003**	**0.002**	0.006	0.006	0.005 U	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.112	0.114	0.006 U	0.006 U
	01/19/04	**0.004**	**0.004**	0.008	0.007	0.007	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.108	0.114	0.006 U	0.006 U
	04/12/04	**0.003**	**0.003**	0.007	0.006	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.120	0.107	0.006 U	0.006 U
	07/12/04	**0.004**	**0.004**	0.006	0.005	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.099	0.106	0.006 U	0.006 U
	10/04/04	**0.003**	**0.004**	0.006	0.005	0.005	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.112	0.116	0.006 U	0.006 U
	01/04/05	**0.003**	**0.004**	0.008	0.006	0.006	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.114	0.118	0.006 U	0.006 U
	04/04/05	**0.004**	**0.004**	0.007	0.006	0.005 U	0.005 U	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.104	0.114	0.006 U	0.006 U
	10/10/05	**0.004**	**0.004**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/06	**0.004**	**0.003**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/19/06	**0.004**	**0.006**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/07	**0.004**	**0.005**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/24/07	**0.004**	**0.004**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/08	**0.003**	**0.003**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/01/08	**0.003**	**0.003**	NA	NA	NA	NA	NA	NA	0.002 U	0.002 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/09	**0.0030**	**0.0032**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/29/09	**0.0030**	**0.0030**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/05/10	**0.0032**	**0.0033**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/10	**0.0030**	**0.0030**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/06/11	**0.0033**	**0.0033**	NA	NA	NA	NA	NA	NA	0.0001 U	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/04/11	**0.0031**	**0.0030**	NA	NA	NA	NA	NA	NA	0.0001 U	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/12	**0.0033**	**0.0031**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/08/12	**0.0034 X**	**0.0028 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/13	**0.0028 X**	**0.0029 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/13	**0.0033 X**	**0.0032 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/14	**0.0031 X**	**0.0028 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/13/14	**0.0031 X**	**0.0028 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/01/15	**0.0022 X**	**0.0024 X**	NA	NA	NA	NA	NA	NA	0.0020 U	0.00010 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table A-21
Summary of Groundwater Analytical Results for Metals, (mg/L)
2nd Quarter 2015
Esperance Sand
Boeing Everett Plant

Well ID	Sample Date	Arsenic		Barium		Chromium		Copper		Lead		Nickel		Selenium		Silver		Strontium		Zinc	
		Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		0.005 (A) 0.0000583 (B)		3.2 (B)		0.05 (A, total) 24 (Cr^{+3}) (B) 0.048 (Cr^{+6}) (B)		0.32 (B)		0.015 (A)		0.32 (B)		0.08 (B)		0.08 (B)		9.6 (B)		4.8 (B)	
EGW061	11/17/98	**0.010**	**0.010**	0.003 U	0.636	**0.086**	0.032	NA	NA	0.001 U	0.001 U	NA	NA	0.001 U	0.001 U	0.003 U	0.003 U	NA	NA	NA	NA
	02/02/99	**0.010**	**0.009**	0.007	0.003 U	**0.088**	0.008	0.014	0.004	0.001	0.001 U	0.050	0.010 U	0.001 U	0.001 U	0.003 U	0.003 U	0.093	0.089	0.01	0.004 U
	05/13/99	**0.009**	**0.009**	0.004	0.003 U	0.021	0.009	0.006	0.003	0.001 U	0.001 U	0.010	0.010 U	0.001	0.001 U	0.003 U	0.003 U	0.085	0.086	0.004 U	0.004 U
	08/04/99	**0.010**	**0.009**	0.009	0.006	0.026	0.005 U	0.002	0.002 U	0.001 U	0.001 U	0.020	0.010	0.001 U	0.001 U	0.003 U	0.003 U	0.088	0.092	0.013	0.006
	11/11/99	**0.009**	**0.011**	0.008	0.007	0.013	0.006	0.002 U	0.002 U	0.001	0.001 U	0.010 U	0.010 U	0.002 U	0.002 U	0.003 U	0.003 U	0.089	0.091	0.007	0.006 U
	02/07/00	**0.011**	**0.010**	0.005	0.005	0.008	0.008	0.002	0.003	0.001 U	0.001 U	0.010 U	0.010 U	0.002 U	0.002 U	0.003 U	0.009 U	0.088	0.089	0.006 U	0.006 U
	05/02/00	**0.011**	**0.010**	0.005	0.005	0.008	0.008	0.005	0.008	0.001 U	0.001 U	0.010 U	0.010 U	0.002 U	0.002 U	0.003 U	0.003 U	0.085	0.087	0.006 U	0.006 U
	08/02/00	**0.010**	**0.010**	0.005	0.005	0.008	0.005	0.007	0.005	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.087	0.090	0.006 U	0.006 U
	11/14/00	**0.010**	**0.010**	0.005	0.006	0.008	0.006	0.004	0.003	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.081	0.092	0.006 U	0.006 U
	02/05/01	**0.012**	**0.010**	0.005	0.005	0.011	0.006	0.006	0.008	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.004 U	0.003 U	0.003 U	0.083	0.088	0.006 U	0.006 U
	05/03/01	**0.012**	**0.011**	0.005	0.006	0.010	0.007	0.009	0.010	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.084	0.093	0.006 U	0.006 U
	08/01/01	**0.012**	**0.009**	0.005	0.005	0.013	0.008	0.009	0.003	0.001 U	0.001 U	0.01 U	0.01 U	0.002 U	0.002 U	0.003 U	0.003 U	0.083	0.090	0.006 U	0.006 U
	11/09/01	**0.011**	**0.010**	0.005	0.005	0.013	0.007	0.015	0.005	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.088	0.087	0.006 U	0.006 U
	02/04/02	**0.012**	**0.011**	0.005	0.005	0.017	0.009	0.013	0.008	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.081	0.086	0.006 U	0.006 U
	05/02/02	**0.010**	**0.011**	0.006	0.006	0.010	0.009	0.008	0.005	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 UJ	0.003 U	0.082	0.087	0.006 U	0.006 U
	08/01/02	**0.011**	**0.012**	0.005	0.005	0.012	0.009	0.009	0.006	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.082	0.087	0.006 U	0.006 U
	11/11/02	**0.010**	**0.010**	0.006	0.006	0.008	0.007	0.008	0.005	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.083	0.087	0.006 U	0.006 U
	02/03/03	**0.011**	**0.011**	0.005	0.006	0.008	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.086	0.090	0.006 U	0.006 U
	05/01/03	**0.012**	**0.011**	0.005	0.003 U	0.008	0.005	0.002	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.082	0.084	0.006 U	0.006 U
	07/21/03	**0.011**	**0.011**	0.006	0.006	0.008	0.008	0.003	0.002	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.083	0.088	0.006 U	0.006 U
	11/03/03	**0.010**	**0.007**	0.006	0.005	0.009	0.007	0.004	0.002	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.090	0.092	0.008	0.006 U
	01/19/04	**0.010**	**0.011**	0.008	0.005	0.015	0.013	0.004	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.087	0.090	0.011	0.006 U
	04/12/04	**0.010**	**0.010**	0.005	0.005	0.008	0.005	0.002	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.093	0.099	0.006 U	0.006 U
	07/12/04	**0.009**	**0.012**	0.005	0.004	0.010	0.006	0.003	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.077	0.084	0.006 U	0.006 U
	10/04/04	**0.010**	**0.011**	0.005	0.003	0.006	0.006	0.002 U	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.084	0.090	0.006 U	0.006 U
	01/04/05	**0.011**	**0.012**	0.007	0.005	0.007	0.005	0.002	0.002 U	0.001 U	0.001 U	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.089	0.091	0.006 U	0.006 U
	04/04/05	**0.011**	**0.012**	0.005	0.005	0.007	0.005 U	0.002 U	0.002 U	0.001 U	0.001	0.01 U	0.01 U	0.05 U	0.05 U	0.003 U	0.003 U	0.087	0.092	0.007	0.008
	10/10/05	**0.011**	**0.011**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/03/06	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/19/06	**0.011**	**0.010**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/07	**0.011**	**0.012**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/24/07	**0.010**	**0.011**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/08	**0.011**	**0.011**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/01/08	**0.009**	**0.009**	NA	NA	NA	NA	NA	NA	0.005 U	0.005 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/09	**0.0099**	**0.0095**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/29/09	**0.0109**	**0.0100**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/05/10	**0.0105**	**0.0104**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/14/10	**0.0111**	**0.0105**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/06/11	**0.0119**	**0.0121**	NA	NA	NA	NA	NA	NA	0.0001 U	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/04/11	**0.0098**	**0.0094**	NA	NA	NA	NA	NA	NA	0.0002	0.0001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/12	**0.0114**	**0.0116**	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/08/12	**0.0104**	**0.0108**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0001 X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/04/13	**0.0110**	**0.0095**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/10/13	**0.0109**	**0.0113**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/02/14	**0.0109**	**0.0116**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/13/14	**0.0102**	**0.0092**	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	04/01/15	**0.0111**	**0.0102**	NA	NA	NA	NA	NA	NA	0.00010 X	0.0020 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
[1]Sample not collected due to broken pump.
(DUP) - field duplicate
NA - not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
X - Result was reported at a concentration between the method detection limit and the reporting limit. The result is an estimated value.
Samples were analyzed for cadmium and mercury through April 2005, but these metals were not detected above the method reporting limits in any of the samples.

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW075	5/14/03	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.035	0.5	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.6**	**0.033**	0.4 U
	7/23/03	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.045	0.7	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.4**	**0.051**	0.4 U
	11/3/03	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.037	0.6	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.3**	**0.041**	0.4 U
	1/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.033	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.2**	0.027	0.4 U
	4/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.039	0.5	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.0**	**0.033**	0.4 U
	7/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.034	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.5**	0.025	0.4 U
	10/11/04	1.6 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.034	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.8**	0.027	0.4 U
	1/7/05	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.030	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.7**	0.023	0.4 U
	4/4/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.8**	0.020 U	0.4 U
	7/15/05	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.046	0.5	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.4**	**0.031**	0.4 U
	10/10/05	1.9 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.038	0.5	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.1**	0.023	0.4 U
	1/11/06	1.8 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.4 U
	4/5/06	1.9 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/10/06	2.3 *	0.2 U	0.2 U	0.2 U	0.2 U	1.4 *	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.030	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.9**	0.020 U	0.4 U
	10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.025	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	**2.5**	0.020 U	0.4 U
	1/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.62**	0.020 U	0.4 U
	4/5/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.30	0.020 U	0.4 U
	7/12/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	**1.60**	0.022 J	0.4 U
	10/30/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.033	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.1**	0.020 U	0.4 U
	1/8/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.12	0.020 U	0.4 U
	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.1**	0.020 U	0.4 U
	7/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.9**	0.020 U	0.4 U
	10/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.1**	0.020 U	0.4 U
	1/14/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.072	0.020 U	0.4 U
	4/15/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.37	0.020 U	0.4 U
	7/13/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.87**	0.020 U	0.4 U
	10/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.11 J	0.020 U	0.4 U
	1/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.19	0.020 U	0.4 U
	7/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.32	0.020 U	0.4 U
	10/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.50	0.020 U	0.4 U
	10/20/10 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.5	0.020 U	0.4 U
	1/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/11 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/18/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	10/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.5	0.020 U	0.4 U
	1/22/12	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	10/9/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	7/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/16/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U
	7/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/9/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW076	12/3/03	2.8 U	0.2 U	**1.3**	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	12 U	0.2 U	**0.6**	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	**2.5**	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/04	1.3 J	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/4/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW076 (continued)	4/4/06	1.3 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/20/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.033	0.020 U	0.4 U
	10/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.044	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.050	0.020 U	0.4 U
	10/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.039	0.020 U	0.4 U
	10/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.033	0.020 U	0.4 U
	10/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/9/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW077	12/3/03	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/04	1.7 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/04 (DUP)	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/7/05	1.4 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/4/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
EGW078	12/3/03	9.4 U	0.2	0.2 U	0.2 U	0.2 U	2.6	0.2 U	0.2 U	0.2 U	1.1 U	0.2 U	0.2 U	0.2	0.46	**22**	0.7	0.2 U	1.0 U	0.3 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**330**	**0.99**	0.4 U
	12/3/03 (DUP)	12 U	0.2 U	0.2 U	0.2 U	0.2 U	2.9	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.3	0.48	**22**	1.0	0.2 U	1.0 U	0.3 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	**320**	**1.0**	0.4 U
	1/20/04	20 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.80	**29**	4.0 U	4.0 U	20 U	**14**	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**340**	**1.3**	4.0 U
	1/20/04 (DUP)	20 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.74	**30**	4.0 U	4.0 U	20 U	**16**	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**340**	**1.2**	4.0 U
	3/11/04	1.5 J	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.82	**20**	0.5	0.2 U	1.0 U	0.3 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**290**	**1.4**	0.4 U
	4/12/04	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.68	**21**	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**310**	**1.3**	3.0 U
	7/20/04	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.69	**33**	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**420**	**0.88**	5.0 U
	7/20/04 (DUP)	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.81	**30**	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**360**	**1.0**	5.0 U
	10/12/04	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.62	**33**	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**500**	**1.0**	1.2 U
	1/6/05	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.68	**34**	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**520**	**1.5**	5.0 U
	4/6/05	29 J	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.53	**29**	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**350**	**1.1 J**	5.0 U
	7/15/05	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.95	**33**	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**390**	**1.6**	3.0 U
	10/11/05	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.76	**37**	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**480**	**1.2**	5.0 U
	1/11/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.74	**31**	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**520**	**0.81**	5.0 U
	4/4/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.38	15	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**300**	**0.26**	5.0 U
	7/10/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.22	12	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**300**	**0.18**	5.0 U
	11/14/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.29	11	10 U	10 U	50 U	20 U	10 U	0.36	10 U	10 U	10 U	**290**	**0.68**	10 U
	12/13/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	**270**	5.0 U	NA
	1/17/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.72	**26**	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**280**	**1.40**	5.0 U
	2/16/07	3.0 U	0.3	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.2 U	0.5	1.40	**52 J**	2.0	0.2 U	1.0 U	0.3 U	0.2 U	**8.4**	0.4	0.2 U	0.2 U	**3,800**	**0.40**	0.4 U
	3/15/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.82	**37**	5.0 U	5.0 U	25 U	10 U	5.0 U	**7.7**	5.0 U	5.0 U	5.0 U	**4,100 D**	**0.25**	5.0 U
	4/5/07	120 U	25 U	25 U	25 U	25 U	120 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	1.70	25 U	25 U	25 U	120 U	50 U	25 U	25 U	25 U	25 U	25 U	**3,200**	**0.19**	25 U
	5/14/07	150 UJ	30 UJ	30 UJ	30 UJ	30 UJ	150 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	150 UJ	60 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	**2,900 J**	30 UJ	30 UJ
	6/12/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	1.6	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,000**	**0.39**	20 U
	7/12/07	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	1.1	30 U	30 U	30 U	150 U	60 U	30 U	30 U	30 U	30 U	30 U	**1,000**	**0.076**	30 U
	8/21/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.14	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**450**	0.023	5.0 U
	9/25/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**340**	5.0 U	5.0 U
	10/17/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**95**	1.0 U	1.0 U
	10/30/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.12	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.020 U	1.0 U
	11/19/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U
	1/7/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.59	3.4	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**220**	**0.061**	3.0 U
	2/5/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**200**	3.0 U	3.0 U
	3/7/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U
	3/7/08 (DUP)	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U
	4/2/08	3.0 U	0.2	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	2.5	0.3	0.2 U	2.5 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**160 D**	0.2 U	0.4 U
	4/10/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.49	1.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**90**	0.20 U	1.0 U
	5/1/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**87**	1.0 U	1.0 U
	7/9/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.61	3.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**71**	**0.092**	1.0 U
	10/21/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.48	3.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**88**	**0.15**	2.0 U
	1/13/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.42	4.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**70**	**0.20**	2.0 U
	1/13/09 (DUP)	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.45	4.6	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**70**	**0.22**	2.0 U
	4/15/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.80	5.7	0.4	0.2 U	2.5 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**170 D**	**0.36**	0.4 U
	6/9/09	5.0 U	0.1 X	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.3	0.5 U	0.2 U	0.2 U	0.8	6.3	0.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**160 D**	**0.4**	0.4 U
	7/13/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 UJ	1.0 U	1.0 U	1.0 U	5.6	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.15	1.0 U	1.0 U	1.0 U	**150**	**0.33**	2.0 U
	7/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2	0.5 U	0.2 U	0.2 U	0.7	4.8	0.4	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**150 D**	**0.4**	0.4 U
	8/27/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.2	4.4	1.0 U	1.0 U	25 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	2.0 U
	9/14/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.7	4.6	0.4	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**140 D**	**0.3**	0.4 U
	10/22/09	25 U	1.0 U	1.0 U	1.0 U	2.5 UJ	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	4.0	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.14	1.0 U	1.0 U	1.0 U	**120**	**0.32**	2.0 U
	1/14/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	1.3	12	0.6	0.6 U	15 U	1.5 U	0.6 U	0.098	0.6 U	0.6 U	0.6 U	**110**	**0.24**	1.2 U
	4/12/10	15 UJ	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	1.1	8.3	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.083 J	0.6 U	0.6 U	0.6 U	**94**	**0.25 J**	1.2 U
	7/19/10	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	6.2	0.6 U	1.5 UJ	0.6 U	0.6 U	1.5	**34**	0.8	0.6 U	15 U	1.5 U	0.6 U	0.084	0.6 U	0.6 U	0.6 U	**80**	**18**	1.2 U
	10/19/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	3.5	0.6 U	1.5 U	0.6 U	0.6 U	1.1	**60**	1.6	0.6 U	15 U	1.5 U	0.6 U	0.073 J	0.6 U	0.6 U	0.6 U	**89**	**6.2**	1.2 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																										
		Acetone	**Benzene**	**BDCM**	**Bromoform**	**Bromomethane**	**2-Butanone**	**Carbon Disulfide**	**Carbon Tetrachloride**	**Chloroethane**	**Chloroform**	**Chloromethane**	**DBCM**	**1,1-DCA**	**1,1-DCE**	**cis-1,2-DCE**	**trans-1,2-DCE**	**Ethylbenzene**	**MIBK**	**Methylene Chloride**	**Styrene**	**PCE**	**Toluene**	**1,1,1-TCA**	**1,1,2-TCA**	**TCE**	**Vinyl Chloride**	**Xylenes**
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW078 (continued)	1/13/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	2.6	0.6 U	1.5 U	0.6 U	0.6 U	0.8	**37**	1.6	0.6 U	15 U	1.5 U	0.6 U	0.061	0.6 U	0.6 U	0.6 U	**92**	**5.7**	1.2 U
	4/12/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.9	0.6 U	1.5 U	0.6 U	0.6 U	1.2	**35**	1.7	0.6 U	15 U	1.5 U	0.6 U	0.056	0.6 U	0.6 U	0.6 U	**84**	**7.2**	1.2 U
	7/14/11	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 UJ	0.6 U	0.6 U	0.7 J	0.6 U	1.5 U	0.6 U	0.6 U	0.6	**27**	1.1	0.6 U	15 U	1.5 U	0.6 U	0.048	0.6 U	0.6 U	0.6 U	**76**	**3.5**	1.2 U
	10/10/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.5	**17**	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.046	0.2 U	0.2 U	0.2 U	**59**	**1.0**	0.4 U
	1/22/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	0.2 U	0.3	**16**	0.5	0.2 U	5.0 U	1.0 U	0.2 U	0.044	0.2 U	0.2 U	0.2 U	**57**	**0.26**	0.4 U
	4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	0.5 U	0.5 U	0.3	**18**	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	69 E DNR	1.9 DNR	0.5 U
	4/10/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	16 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	1.2 X DNR	5.0 U DNR
	4/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.052	NA	NA	NA	NA	**1.5**	NA
	7/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	0.5 U	0.5 U	0.3	12	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	65 E DNR	1.8 DNR	0.5 U
	7/23/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	9.8 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**47**	1.3 X DNR	5.0 U DNR
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.055	NA	NA	NA	NA	**1.7**	NA
	10/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.3	11	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	54 E DNR	0.3 DNR	0.5 U
	10/10/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	8.7 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**44**	2.0 U DNR	5.0 U DNR
	10/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.041	NA	NA	NA	NA	**0.31**	NA
	1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	7.9	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	45 E DNR	0.2 X DNR	0.5 U
	1/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	7.2 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**38**	2.0 U DNR	5.0 U DNR
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.038	NA	NA	NA	NA	**0.22**	NA
	4/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	6.6	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	43 E DNR	**0.3**	0.5 U
	4/9/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	5.8 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**37**	2.0 U DNR	5.0 U DNR
	4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.044	NA	NA	NA	NA	0.22 DNR	NA
	7/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	5.4	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	35 E DNR	0.2 U DNR	0.5 U
	7/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.7 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**29**	2.0 U DNR	5.0 U DNR
	7/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.038	NA	NA	NA	NA	**0.092**	NA
	10/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	4.9	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	35 E DNR	0.1 X DNR	0.5 U
	10/15/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.5 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**30**	2.0 U DNR	5.0 U DNR
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	**0.17**	NA
	1/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	5.4	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	36 E DNR	0.2 DNR	0.5 U
	1/15/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.6 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**28**	2.0 U DNR	5.0 U DNR
	1/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.037	NA	NA	NA	NA	**0.16**	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	4.5	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	31 E DNR	1.6 DNR	0.1 X
	4/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.8 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	1.3 X DNR	5.0 U DNR
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.030	NA	NA	NA	NA	**1.4**	NA
	7/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.9	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	30 E DNR	**0.7**	0.5 U
	7/9/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.0 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR
	7/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033	NA	NA	NA	NA	0.54 DNR	NA
	10/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	4.1	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	27 E DNR	0.8 DNR	0.5 U
	10/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.7 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR
	10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.028	NA	NA	NA	NA	**0.73**	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.2	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	26 E DNR	0.9 DNR	0.5 U
	1/13/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.6 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.0**	NA
	4/9/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	3.9	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	25 E DNR	1.5 DNR	0.5 U
	4/9/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.2 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**19**	1.2 X DNR	5.0 U DNR
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.4**	NA
EGW079	12/2/03	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/21/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/14/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/8/05	1.9	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/14/05	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05 (DUP)	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/9/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/10/06	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/06	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/15/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/15/07 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/11/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/1/07 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/13/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/14/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	7/14/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/4/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/19/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	12/20/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW079	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
(continued)	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/16/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW080	12/2/03	1.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.4 U
	1/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.9**	0.020 U	0.4 U
	4/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**6.2**	0.020 U	0.4 U
	7/21/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.7**	0.020 U	0.4 U
	10/14/04	1.2	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.5**	0.020 U	0.4 U
	1/10/05	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.3**	0.020 U	0.4 U
	4/8/05	2.1	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.1**	0.020 U	0.4 U
	7/14/05	1.0 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.8**	0.020 U	0.4 U
	10/13/05	2.4 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.8**	0.020 U	0.4 U
	1/9/06	1.8 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.4**	0.020 U	0.4 U
	1/9/06 (DUP)	1.1 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.7**	0.020 U	0.4 U
	4/10/06	2.6 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.4**	0.020 U	0.4 U
	7/13/06	1.8 J *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 *	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.8**	0.020 U	0.4 U
	7/13/06 (DUP)	3.3 J *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.6**	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.7**	0.020 U	0.4 U
	10/24/06 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.7**	0.020 U	0.4 U
	4/5/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.6**	0.020 U	0.4 U
	11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.6**	0.020 U	0.4 U
	1/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**3.2**	0.020 U	0.4 U
	4/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.9**	0.020 U	0.4 U
	7/13/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.6**	0.020 U	0.4 U
	7/13/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.6**	0.020 U	0.4 U
	10/22/08	3.4	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.4**	0.020 U	0.4 U
	4/20/09	3.3	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.0**	0.020 U	0.4 U
	10/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.8 J**	0.020 U	0.4 U
	4/15/10	21	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.7**	0.020 U	0.4 U
	10/28/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**1.9 J**	0.020 UJ	0.4 U
	10/28/10 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**1.9 J**	0.020 UJ	0.4 U
	4/14/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.5**	0.020 U	0.4 U
	10/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.7**	0.020 U	0.4 U
	4/13/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.5**	0.2 U DNR	0.5 U
	4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.5**	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/2012 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.6**	0.2 U DNR	0.5 U
	10/11/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**2.9**	0.2 U DNR	0.5 U
	12/20/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.3**	0.2 U DNR	0.5 U
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	2/12/13	3.2 X	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**2.7**	0.2 U DNR	0.5 U
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.1**	0.2 U DNR	0.5 U
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.0**	0.2 U DNR	0.5 U
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.8**	0.2 U DNR	0.5 U
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.7**	0.2 U DNR	0.5 U
	1/16/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.6**	0.2 U DNR	0.5 U
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.5**	0.2 U DNR	0.5 U
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.3**	0.2 U DNR	0.5 U
	10/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.4**	0.2 U DNR	0.5 U
	10/22/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.5**	0.2 U DNR	0.5 U
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.6**	0.2 U DNR	0.5 U
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW081	12/2/03	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/04	1.3	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/21/04	1.3	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/14/04	3.4	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
EGW082	12/2/03	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/4/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
EGW083	12/2/03	1.7 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**6.6**	0.020 U	0.3
EGW084	12/2/03	610	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.7 J	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 J	0.2 U	0.2 U	**44**	0.020 U	0.4 U
	1/20/04	18	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.3	0.2 U	0.2 UJ	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**9.0**	0.020 U	0.4 U
	4/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.2**	0.020 U	0.4 U
	7/21/04	16	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**22**	0.020 U	1.0 U
	10/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.5	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**22**	0.020 U	0.4 U
	1/19/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.4 U
	4/8/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**6.9**	0.020 U	0.4 U
	7/15/05	1.9 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.4 U
	10/11/05	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.9	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**24**	0.020 U	1.2 U
	1/9/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.3**	0.020 U	0.4 U
	4/10/06	1.6 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.2**	0.020 U	0.4 U
	7/13/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.7	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**28**	0.020 U	0.4 U
	11/2/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**12**	0.020 U	0.4 U
	10/23/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**9.7**	0.020 U	0.4 U
	11/4/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.4 U
	10/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**6.2**	0.020 UJ	0.4 U
	10/13/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**49**	0.020 U	0.4 U
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**7.1**	0.2 U DNR	0.5 U
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	12/27/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	12/27/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/21/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/21/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**5.0**	0.2 U DNR	0.5 U
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**5.0**	0.2 U DNR	0.5 U
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.2**	0.2 U DNR	0.5 U
	1/16/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.2**	0.2 U DNR	0.5 U
	1/16/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.1**	0.2 U DNR	0.5 U
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**6.8**	0.2 U DNR	0.5 U
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**2.4**	0.2 U DNR	0.5 U
	4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW085	3/10/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.044	1.1	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**17**	0.020 U	0.4 U
	4/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.034	0.9	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**16 J**	0.020 U	0.4 U
	7/21/04	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.024	0.8	0.4 U	0.4 U	2.0 U	2.1 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**15**	0.020 U	0.8 U
	10/14/04	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.020 U	0.6	0.4 U	0.4 U	2.0 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**15**	0.020 U	0.8 U
	1/10/05	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.022	0.8	0.4 U	0.4 U	2.0 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**19**	0.020 U	0.8 U
	4/8/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.022	0.7	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**21 D**	0.020 U	0.4 U
	7/14/05	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.030	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**16**	0.020 U	1.0 U
	10/13/05	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.020 U	0.6	0.4 U	0.4 U	2.0 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**18**	0.020 U	0.8 U
	1/9/06	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.033	0.9	0.4 U	0.4 U	2.0 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**24**	0.020 U	0.8 U
	4/10/06	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.077	1.3	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**23**	0.020 U	1.2 U
	7/13/06	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.031	0.8	0.4 U	0.4 U	2.0 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**20**	0.020 U	0.8 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.6	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**22**	0.020 U	0.4 U
	4/11/07	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.091	1.5	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**22**	**0.035**	1.2 U
	11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020	0.5	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**14**	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW085 (continued)	4/14/08	9.0 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.095	1.9	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**22**	**0.029**	1.2 U
	10/23/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.064	1.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**22**	0.020 U	2.0 U
	10/23/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.073	1.4	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**22**	0.020	0.4 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**21**	**0.042**	0.4 U
	11/4/09	5.3	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**19**	0.022	0.4 U
	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**17**	**0.040**	0.4 U
	10/28/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.5	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**16**	**0.034 J**	0.4 U
	4/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.4	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**21**	**0.056**	0.4 U
	4/18/11 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**20**	**0.060**	0.4 U
	10/13/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.4 U
	4/13/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	2.6	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**20**	0.2 U DNR	0.5 U
	4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.038**	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**12**	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.018 X	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.1 X	1.8	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.035**	NA
	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**8.1**	0.2 U DNR	0.5 U
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	3.3	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**15**	0.2 U DNR	0.5 U
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.052**	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	3.5	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**15**	0.2 U DNR	0.5 U
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.039**	NA
	4/10/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	3.4	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**15**	0.2 U DNR	0.5 U
	4/10/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.040**	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.6	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.024	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**8.3**	0.2 U DNR	0.5 U
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**9.6**	0.2 U DNR	0.5 U
	1/16/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.015 X	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	4.0	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**16**	0.2 U DNR	0.5 U
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.047**	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	2.8	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**14**	0.2 U DNR	0.5 U
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.035**	NA
	10/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.0**	0.2 U DNR	0.5 U
	10/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	6.5	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**21**	0.1 X DNR	0.5 U
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.10**	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	5.4	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**15**	0.2 U DNR	0.5 U
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.083**	NA
EGW086	3/10/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.8 U	0.2 U	0.2 U	0.2 U	0.24	**27 J**	1.1	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.3	0.4	**2,200**	**0.050**	0.4 U
	4/13/04	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 UJ	20 U	20 U	0.24	**26**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	**160**	**2,100**	**0.047**	20 U
	4/13/04 (DUP)	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	0.17	30 U	30 U	30 U	150 U	60 U	30 U	30 U	30 U	30 U	30 U	**2,200**	**0.038**	30 U
	7/21/04	500 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	0.22	100 U	100 U	100 U	500 U	200 U	100 U	100 U	100 U	100 U	100 U	**2,300**	**0.040**	100 U
	10/14/04	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.20	**41**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,700**	**0.033**	20 U
	1/10/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.15	**35**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**3,000**	**0.035**	20 U
	1/10/05 (DUP)	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.16	**38**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,500**	**0.036**	20 U
	4/8/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.12	**25 J**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,300**	0.026	20 U
	7/14/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.17	**24**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,500**	**0.030**	20 U
	7/14/05 (DUP)	1.4 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.4 U	0.2 U	0.2 U	0.2 U	0.15	**24 D**	0.3	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	**1,500 D**	**0.029**	0.4 U
	10/13/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.16	**28**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,000**	0.020	20 U
	1/9/06	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	0.14	30 U	30 U	30 U	150 U	60 U	30 U	30 U	30 U	30 U	30 U	**1,500**	0.020 U	30 U
	4/10/06	93	15 U	15 U	15 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	0.19	**22**	15 U	15 U	75 U	30 U	15 U	15 U	15 U	15 U	15 U	**1,300**	**0.029**	15 U
	7/13/06	75 U	15 U	15 U	15 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	0.17	**27**	15 U	15 U	75 U	30 U	15 U	15 U	15 U	15 U	15 U	**1,900**	0.022	15 U
	10/27/06	600 U	40 U	40 U	40 U	40 U	200 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	0.10	40 U	40 U	40 U	200 U	60 U	40 U	0.097	40 U	40 U	40 U	**1,900**	0.020 U	80 U
	4/11/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.092	**26**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,700**	0.022 J	20 U
	11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.13	**19 J**	0.3	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1,400**	0.020 U	0.4 U
	4/14/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U	**23**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,500**	0.20 U	10 U
	10/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2	0.2 U	0.11	**21**	0.2	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	**1,600 D**	0.020 U	0.4 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	**17**	0.3	0.2 U	2.5 U	0.5 U	0.2 U	1.0 UJ	0.2 U	0.2 U	0.2 U	**1,300**	1.0 UJ	0.4 U
	11/4/09	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	14	10 U	10 U	250 U	25 U	10 U	0.057	10 U	10 U	10 U	**1,100**	0.020 U	20 U
	4/15/10	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	15	10 U	10 U	250 U	25 U	10 U	0.20 UJ	10 U	10 U	10 U	**1,100 D**	0.20 UJ	20 U
	4/15/10 (DUP)	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	15	10 U	10 U	250 U	25 U	10 U	0.20 UJ	10 U	10 U	10 U	**1,100 D**	0.20 UJ	20 U
	10/28/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	14	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.20 UJ	0.2 U	0.2 U	0.2 U	**1,100 D**	0.20 UJ	0.4 U
	4/14/11	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	13	10 U	10 U	250 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**1,000**	0.20 U	20 U
	10/13/11	250 U	10 U	10 U	10 UJ	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	12	10 U	10 U	250 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**970**	0.20 U	20 U
	10/13/11 (DUP)	250 U	10 U	10 U	10 UJ	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	11	10 U	10 U	250 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**980**	0.20 U	20 U
	4/13/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	9.3	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	810 E DNR	1.0 U DNR	2.5 U
	4/13/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**910**	10 U DNR	25 U DNR
	4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.063	NA	NA	NA	NA	0.020 U	NA
	10/11/12	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	7.5	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	650 E DNR	2.0 U DNR	5.0 U
	10/11/12 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**760**	20 U DNR	50 U DNR
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.047	NA	NA	NA	NA	0.020 U	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	2.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	260 E DNR	0.2 U DNR	0.5 U
	12/20/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	2.2 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**220**	4.0 U DNR	10 U DNR
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW086 (continued)	1/22/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	390 E DNR	0.2 U DNR	0.5 U
	1/22/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**430**	10 U DNR	25 U DNR
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.037	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	270 E DNR	0.2 U DNR	0.5 U
	2/13/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.3 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**240**	2.0 U DNR	5.0 U DNR
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U
	4/10/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**190**	2.0 U DNR	5.0 U DNR
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.040	NA	NA	NA	NA	0.020 U	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U
	7/24/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.7 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**180**	2.0 U DNR	5.0 U DNR
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.035	NA	NA	NA	NA	0.020 U	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U
	10/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.031	NA	NA	NA	NA	0.020 U	NA
	1/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	120 E DNR	0.2 U DNR	0.5 U
	1/16/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**94**	2.0 U DNR	5.0 U DNR
	1/16/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.035	NA	NA	NA	NA	0.020 U	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	56 E DNR	0.2 U DNR	0.5 U
	4/9/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**47**	2.0 U DNR	5.0 U DNR
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.028	NA	NA	NA	NA	0.020 U	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	39 E DNR	0.2 U DNR	0.5 U
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**31**	2.0 U DNR	5.0 U DNR
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	280 E DNR	0.2 U DNR	0.5 U
	10/22/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**210**	2.0 U DNR	5.0 U DNR
	10/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.031	NA	NA	NA	NA	0.020 U	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	40 E	0.2 U DNR	0.5 U
	1/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**30**	2.0 U DNR	5.0 U DNR
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	33 E DNR	0.2 U DNR	0.5 U
	4/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	5.0 U DNR
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW087	3/10/04	1.5 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.1**	0.020 U	0.4 U
	4/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/21/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/22/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/7/05	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/14/05	1.9 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/9/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/10/06	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/11/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/15/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/11/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/13/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.16	0.020 U	0.4 U
	1/14/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/14/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/2/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/19/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW087 (continued)	1/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/16/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW088	3/10/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.9 U	0.2 U	0.2 U	0.3	0.81	**53**	0.4	0.2 U	1.0 U	0.3 U	0.2 U	1.8	0.2 U	0.4	0.4	**2,500**	**0.48**	0.4 U
	4/12/04	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	0.66	**47**	30 U	30 U	150 U	60 U	30 U	30 U	30 U	30 U	30 U	**2,200**	**0.45**	30 U
	7/20/04	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.57	**36**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,000**	**0.33**	20 U
	10/12/04	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.60	**55**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,200**	**0.44**	20 U
	1/6/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.45	**36**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,900**	**0.29**	20 U
	4/6/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.55	**40**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,400**	**0.42**	20 U
	7/15/05	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.50	**32**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,400**	**0.31**	10 U
	10/11/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.36	**25**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,600**	**0.20**	20 U
	10/11/05 (DUP)	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.33	**25**	5.0 U	5 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**1,300 D**	**0.19**	5.0 U
	1/11/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.24	11	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**850**	**0.059**	5.0 U
	4/4/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.16	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**720**	**0.029**	10 U
	7/10/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.10	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,100**	0.023	10 U
	11/14/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.13	20 U	20 U	20 U	100 U	40 U	20 U	1.3	20 U	20 U	20 U	**1,000**	**0.035**	20 U
	12/13/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,000**	10 U	NA
	1/17/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.40	**22**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,200**	**0.53**	10 U
	2/20/07	3.0 U	0.4	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	1.90	**100**	1.9	0.2 U	1.0 U	0.3 U	0.2 U	1.8	0.2 U	0.2 U	0.2 U	**2,500**	**1.20**	0.4 U
	3/15/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	2.1	**50**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**3,000**	**0.67**	20 U
	4/17/07	120 U	25 U	25 U	25 U	25 U	120 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	1.6	**67**	25 U	25 U	120 U	**120**	25 U	25 U	25 U	25 U	25 U	**2,200**	**0.83**	25 U
	5/14/07	150 UJ	30 UJ	30 UJ	30 UJ	30 UJ	150 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	**65 J**	30 UJ	30 UJ	150 UJ	60 UJ	30 UJ	30 UJ	30 UJ	30 UJ	30 UJ	**2,200 J**	30 UJ	30 UJ
	6/12/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	2.0	**56**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,600**	**1.2**	20 U
	7/12/07	75 U	15 U	15 U	15 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	1.6	**47**	15 U	15 U	75 U	30 U	15 U	15 U	15 U	15 U	15 U	**1,500**	**0.89**	15 U
	8/21/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	1.6	**43**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,500**	**1.1**	20 U
	9/25/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**51**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,700**	20 U	20 U
	10/17/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**29**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,100**	20 U	20 U
	10/30/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.67	**18**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**890**	**0.34**	10 U
	11/19/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	14	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**760**	10 U	10 U
	1/7/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.14	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**420**	0.02	10 U
	2/5/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**480 D**	1.0 U	1.0 U
	3/7/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.2	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**480**	5.0 U	5.0 U
	4/2/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4.8	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.8	0.2 U	0.2 U	0.2 U	**640 D**	0.2 U	0.4 U
	4/10/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.20 U	4.1	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**390**	0.20 U	3.0 U
	4/29/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**410**	5.0 U	5.0 U
	7/9/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**280**	0.20 U	5.0 U
	10/21/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	0.025	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**250**	0.020 U	10 U
	1/13/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	0.020 U	2.0 U
	4/15/09	7.5 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.4 X	0.6 U	0.6 U	0.6 U	**150**	0.6 U	1.2 U
	6/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**110 D**	0.2 U	0.4 U
	7/13/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.18 J	0.6 U	0.6 U	0.6 U	**91**	0.020 UJ	1.2 U
	10/22/09	15 U	0.6 U	0.6 U	0.6 U	1.5 UJ	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.19	0.6 U	0.6 U	0.6 U	**68**	0.020 U	1.2 U
	1/14/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.10	0.2 U	0.2 U	0.2 U	**38**	0.020 U	0.4 U
	4/12/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.085	0.2 U	0.2 U	0.2 U	**30**	0.020 U	0.4 U
	7/19/10	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.098	0.2	0.2 U	0.2 U	**30**	0.020 U	0.4 U
	10/19/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.067 J	0.2 U	0.2 U	0.2 U	**25**	0.020 UJ	0.4 U
	1/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.056	0.2 U	0.2 U	0.2 U	**24**	0.020 U	0.4 U
	4/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.054	0.2 U	0.2 U	0.2 U	**23**	0.020 U	0.4 U
	7/14/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.050	0.2 U	0.2 U	0.2 U	**25**	**0.29**	0.4 U
	10/10/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	1.4	0.2 U	0.5 U	0.2 U	0.2 U	0.4	8.0	0.4	0.2 U	5.0 U	0.5 U	0.2 U	0.060	0.2 U	0.2 U	0.2 U	**26**	**1.4**	0.4 U
	1/22/12	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	1.1	0.2 U	0.5 U	0.2 U	0.2 U	0.6	8.8	0.6	0.2 U	5.0 U	1.0 U	0.2 U	0.068	0.2 U	0.2 U	0.2 U	**27**	**1.4**	0.4 U
	4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	0.5 U	0.5 U	0.6	7.5	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	57 E DNR	0.8 DNR	0.5 U
	4/10/12 (DL)	50 U DNR	1.1 X DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	6.2 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**45**	2.0 U DNR	5.0 U DNR
	4/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	NA	NA	NA	NA	**0.71**	NA
	7/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	3.2	0.2 U	0.5 U	0.5 U	0.5 U	0.7	11	0.9	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	38 E DNR	0.7 DNR	0.5 U
	7/23/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	2.5 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	9.0 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**29**	2.0 U DNR	5.0 U DNR
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.093	NA	NA	NA	NA	**0.67**	NA
	10/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.8	0.2 U	0.5 U	0.5 U	0.5 U	0.4	9.4	1.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	34 E DNR	0.4 DNR	0.5 U
	10/10/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	1.7 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	8.1 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**29**	2.0 U DNR	5.0 U DNR
	10/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.059	NA	NA	NA	NA	**0.36**	NA
	1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	2.2	0.2 U	0.5 U	0.5 U	0.5 U	0.4	8.7	1.1	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	32 E DNR	0.1 X DNR	0.5 U
	1/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	1.9 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	7.9 DNR	1.0 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**28**	2.0 U DNR	5.0 U DNR
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.039	NA	NA	NA	NA	**0.16**	NA
	4/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.7	0.2 U	0.5 U	0.5 U	0.5 U	0.3	6.6	1.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	33 E DNR	0.1 X DNR	0.5 U
	4/9/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	5.7 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	5.0 U DNR
	4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036	NA	NA	NA	NA	**0.082**	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW088	7/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	2.5	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	6.1	1.1	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	28 E DNR	3.3 DNR	0.5 U
(continued)	7/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	2.0 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	5 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.4 DNR	5.0 U DNR
	7/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA	NA	NA	**3.2**	NA
	10/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	3.3	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	7.1	1.0	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	26 E DNR	6.0 DNR	0.5 U
	10/15/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	3.1 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	5.9 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	4.8 DNR	5.0 U DNR
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA	NA	NA	**7.6**	NA
	1/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	3.4	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	8.1	1.1	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**24**	**8.2**	0.5 U
	1/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	5.7 DNR	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.7	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	6.6	0.8	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**18**	2.4 DNR	0.1 X
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**2.0**	NA
	7/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	2.5	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	8.3	0.8	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**14**	**4.5**	0.5 U
	7/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	3.3 DNR	NA
	10/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	9.0	0.8	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**12**	3.8 DNR	0.5 U
	10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**3.2**	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	8.3	0.8	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.7**	1.8 DNR	0.5 U
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.0**	NA
	4/9/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	6.8	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.9**	3.0 DNR	0.5 U
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.5**	NA
EGW089	3/22/04	2.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/20/04	6.9	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4
	10/11/04	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/4/06	2.0 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/20/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/12/11	8.4	0.7	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.6	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/9/12	5.4	0.4	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.3	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.6 X
	10/9/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW090 (100')	5/25/04	17	0.2 U	0.2 U	0.2 U	0.2 U	3.3	0.2 U	0.2 U	0.2 U	**1.9**	0.5 UJ	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	2.3	0.2 U	0.2 U	0.4	0.2 U	0.2 U	**0.7**	0.020 U	0.4 U
(5)	7/26/04	1.1 J	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/04	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	1.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.3**	0.020 U	0.4 U
	1/11/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	1.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.0**	0.020 U	0.4 U
	4/9/05	2.3	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.9**	0.020 U	0.4 U
	7/18/05	1.9 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	9.6	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.4**	0.020 U	0.4 U
	10/14/05	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	11	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.8**	0.020 U	0.4 U
	1/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	9.1	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.2**	0.020 U	0.4 U
	4/12/06	2.6 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	7.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.4 U
	7/12/06	2.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020	13	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.4**	0.020 U	0.4 U
	10/25/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	5.1	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.87**	0.020 U	0.4 U
	4/11/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	9.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.56**	0.019	0.4 U
	11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	8.7	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.54**	0.020 U	0.4 U
	4/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.074	**62 D**	0.5	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.5**	0.021	0.4 U
	10/23/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.035	**28**	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	0.59 U	0.020 U	2.0 U
	4/21/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**17**	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.39	0.020 U	0.4 U
	11/4/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	14	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.1**	0.020 U	0.4 U
	4/19/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	13	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.27	0.020 U	0.4 U
	10/27/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	4.9	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	4/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	11	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	7.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 X	0.020 U	0.4 U
	4/13/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	9.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.1 X
	4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.014 X	NA
	10/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**21**	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.019 X	NA
	12/27/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 UJ	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	32 E DNR	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	12/27/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	**54**	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR
	12/27/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.079**	NA
	1/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	15	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.014 X	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	8.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA
	4/17/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	8.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.010 X	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	6.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	7.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.011 X	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW090 (continued)	**(100')**	1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	13	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	(5)	1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.013 X	NA
		4/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	9.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		4/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.014 X	NA
		7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	13	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
		7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.018 X	NA
		10/28/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	5.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		10/28/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.012 X	NA
		1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	8.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.015 X	NA
		4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	(90')	5/25/04	4.0	0.2 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	0.2 U	**3.1**	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.4	0.2 U	0.2 U	0.4	0.2 U	0.2 U	**2.5**	0.020 U	0.4 U
	(4)	7/26/04	1.4 J	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.4 U
		10/13/04	2.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.5
		1/11/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.5**	0.020 U	0.4 U
		4/9/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.0**	0.020 U	0.4 U
		7/18/05	1.9 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	4.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.4 U
		10/14/05	1.6 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	14	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.1**	0.020 U	0.4 U
		1/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	6.8	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.4 U
		4/12/06	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	3.8	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.4 U
		7/12/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.039	**24 D**	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**6.6**	0.020 U	0.4 U
		10/25/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	3.6	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.71 J**	0.020 U	0.4 U
		4/11/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	4.6	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**3.7**	0.020 U	0.4 U
		11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	2.9	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.59**	0.020 U	0.4 U
		4/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.028	**18 D**	0.2	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**5.9 D**	0.020 U	0.4 U
		10/23/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.032	**24**	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**0.76**	0.020 U	2.0 U
		4/21/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	13	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.90**	0.020 U	0.4 U
		11/4/09	6.3	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**23**	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.8**	0.020 U	0.4 U
		4/19/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	6.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.24	0.020 U	0.4 U
		10/27/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	6.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
		4/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	7.8	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.4	0.020 U	0.4 U
		10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	9.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2	0.020 U	0.4 U
		4/13/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U
		4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**17**	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**0.9**	0.2 U DNR	0.5 U
		10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.010 X	NA
		12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	6.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	0.2 U DNR	0.5 U
		12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		1/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	11	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**0.7**	0.2 U DNR	0.5 U
		1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	14	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**3.2**	0.2 U DNR	0.5 U
		2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/17/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
		4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	30 E DNR	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.2**	0.2 U DNR	0.5 U
		7/24/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	**26**	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR
		7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.018 X	NA
		10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
		10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	11	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
		1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		4/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	12	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
		7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.011 X	NA
		10/28/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**18**	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
		10/28/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.017 X	NA
		1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	6.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	(75')	5/25/04	3.5	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	**3.4**	0.2 U	0.2 U	0.2 U	0.036	0.7	0.2 U	0.2 U	1.0 U	0.4	0.2 U	0.2 U	0.2	0.2 U	0.2 U	**16**	0.020 U	0.4 U
	(3)	7/26/04	1.1 J	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.4 U
		7/26/04 (DUP)	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**15**	0.020 U	0.4 U
		10/13/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	1.2
		1/11/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.4 U
		4/9/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**7.2**	0.020 U	0.4 U
		7/18/05	1.7 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.6	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**9.2**	0.020 U	0.4 U
		10/14/05	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	2.0	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**14**	0.020 U	0.4 U
		1/6/06	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	3.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**15**	0.020 U	0.4 U
		4/12/06	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	1.8	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**9.9**	0.020 U	0.4 U
		7/12/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.16	4.0	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**	**0.031**	0.4 U
		10/25/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	5.9	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.4 U
		4/11/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	1.6	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**7.6**	0.020 U	0.4 U
		11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	3.0	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**6.8**	0.020 U	0.4 U
		4/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	4.9	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**30 D**	0.020 U	0.4 U
		10/23/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	12	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**40**	0.020 U	2.0 U
		4/21/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4.1	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**17**	0.020 UJ	0.4 U
		11/4/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**22**	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**25**	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW090 (75')	4/19/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**18**	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**17**	0.020 UJ	0.4 U
(continued)	10/27/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	12	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**8.9**	0.020 U	0.4 U
(3)	4/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	5.0	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**3.6**	0.020 U	0.4 U
	10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	15	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**12**	0.020 U	0.4 U
	4/13/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	6.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.9**	0.2 U DNR	0.5 U
	4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	9.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**7.0**	0.2 U DNR	0.5 U
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	25 E DNR	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**17**	0.2 U DNR	0.5 U
	12/20/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	17 DNR	2.0 U DNR	5.0 U DNR
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 X	NA
	1/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**16**	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**15**	0.2 U DNR	0.5 U
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	15	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**18**	0.2 U DNR	0.5 U
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/17/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	8.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**6.1**	0.2 U DNR	0.5 U
	4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	5.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.2**	0.2 U DNR	0.5 U
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	8.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.7**	0.2 U DNR	0.5 U
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	13	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.9**	0.2 U DNR	0.5 U
	1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	7.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.8**	0.2 U DNR	0.5 U
	4/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**20**	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.8**	0.2 U DNR	0.5 U
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 X	NA
	10/28/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	13	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.0**	0.2 U DNR	0.5 U
	10/28/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	4.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.4**	0.2 U DNR	0.5 U
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.5**	0.2 U DNR	0.5 U
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
(60')	5/25/04	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.24	**24**	2.0 U	2.0 U	10 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**1,200 D**	**0.039**	2.0 U
(2)	7/26/04	75 U	15 U	15 U	15 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	0.23	**32**	15 U	15 U	75 U	30 U	15 U	15 U	15 U	15 U	15 U	**1,700**	**0.046**	15 U
	10/13/04	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.20	**31**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,500**	**0.040**	20 U
	1/11/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.14	**28**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,800**	**0.042**	20 U
	4/9/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	0.2 U	0.19	**28 D**	0.4	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.3	0.4	**1,600 D**	**0.052**	0.4 U
	7/18/05	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	0.2 U	0.24	**29 D**	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2	0.3	**1,400 D**	**0.038**	0.4 U
	10/14/05	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.16	**24**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,500**	**0.037**	20 U
	1/6/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.17	**21**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,000**	**0.029**	10 U
	4/12/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.21	**22**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**960**	0.027	10 U
	7/12/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.020 U	**27**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,400**	0.020 U	10 U
	10/27/06	450 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	0.20	**30**	30 U	30 U	150 U	45 U	30 U	0.020 U	30 U	30 U	30 U	**1,500**	0.025	60 U
	4/11/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.19	**31**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,400**	**0.031**	20 U
	11/1/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.22	**22**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,000**	0.023	20 U
	4/14/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U	**25**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,200**	0.20 U	10 U
	10/23/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U	**26**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,300**	0.20 U	20 U
	4/21/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	0.2	**24**	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.20 UJ	0.2 U	0.2 J	0.2 U	**1,300 D**	0.2 UJ	0.4 U
	11/4/09	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**23**	10 U	10 U	250 U	25 U	10 U	0.020 U	10 U	10 U	10 U	**1,100**	0.020 U	20 U
	4/19/10	150 U	6.0 U	6.0 U	6.0 UJ	15 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**22**	6.0 U	6.0 U	150 U	15 U	6.0 U	0.20 UJ	6.0 U	6.0 U	6.0 U	**950**	0.20 UJ	12 U
	10/27/10	150 U	6.0 U	6.0 U	6.0 U	30 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**20**	6.0 U	6.0 U	150 U	15 U	6.0 U	0.20 U	6.0 U	6.0 U	6.0 U	**890**	0.2 U	12 U
	4/18/11	150 U	6.0 U	6.0 U	6.0 U	30 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**23**	6.0 U	6.0 U	150 U	15 U	6.0 U	0.20 U	6.0 U	6.0 U	6.0 U	**1,000**	0.20 U	12 U
	10/17/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	**18**	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 U	4.0 U	4.0 U	4.0 U	**910**	0.20 U	8.0 U
	4/13/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**17**	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	820 E DNR	1.0 U DNR	2.5 U
	4/13/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	19 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**960**	10 U DNR	25 U DNR
	4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	NA	NA	NA	NA	0.011 X	NA
	10/16/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**18**	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	810 E DNR	1.0 U DNR	2.5 U
	10/16/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	17 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**770**	10 U DNR	25 U DNR
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA	NA	NA	0.020 U	NA
	12/20/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 UJ	0.4 U	1.0 UJ	1.0 U	1.0 U	0.4 U	9.0	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	400 E DNR	0.4 U DNR	1.0 U
	12/20/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	8.8 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**380**	4.0 U DNR	10 U DNR
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/21/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	5.5	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	440 E DNR	1.0 U DNR	2.5 U
	1/21/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.9 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**440**	10 U DNR	25 U DNR
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.017 X	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	7.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	270 E DNR	0.2 U DNR	0.5 U
	2/13/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	5.9 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**230**	2.0 U DNR	5.0 U DNR
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/17/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U
	4/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.3 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**190**	2.0 U DNR	5.0 U DNR
	4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW090	**(60')**	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	160 E DNR	0.2 U DNR	0.5 U
(continued)	**(2)**	7/24/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR
		7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
		10/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**83**	2.0 U DNR	5.0 U DNR
		10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	80 E DNR	0.2 U DNR	0.5 U
		1/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**68**	2.0 U DNR	5.0 U DNR
		1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	59 E DNR	0.2 U DNR	0.5 U
		4/14/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**54**	2.0 U DNR	5.0 U DNR
		4/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U
		7/24/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.6 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**85**	2.0 U DNR	5.0 U DNR
		7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		10/28/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U
		10/28/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.1 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**75**	2.0 U DNR	5.0 U DNR
		10/28/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	67 E DNR	0.2 U DNR	0.5 U
		1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**49**	2.0 U DNR	5.0 U DNR
		1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	76 E DNR	0.2 U DNR	0.5 U
		4/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.9 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**63**	2.0 U DNR	5.0 U DNR
		4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	(40')	5/25/04	9.5	0.2 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	0.2 U	**1.5**	0.2 U	0.2 U	0.2 U	0.020 U	0.5	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**16 D**	0.020 U	0.4 U
	(1)	7/26/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**15 D**	0.020 U	0.4 U
		10/13/04	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.020 U	0.4 U	0.4 U	0.4 U	2.0 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**18**	0.020 U	0.8 U
		1/11/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.4**	0.020 U	0.4 U
		4/9/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.4**	0.020 U	0.4 U
		7/18/05	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.4 U
		10/14/05	1.5 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**7.3**	0.020 U	0.4 U
		1/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**7.5**	0.020 U	0.4 U
		4/12/06	1.5 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.4 U
		7/12/06	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.3 *	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**8.8**	0.020 U	0.4 U
EGW091		7/22/04	1.6 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	1.8 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		10/12/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		1/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		4/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		7/15/05	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		10/11/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		1/11/06	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		4/4/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		7/10/06	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.4 *	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
		4/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**23 D**	0.020 U	0.4 U
		10/30/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.3**	0.020 U	0.4 U
		4/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.071 J	0.020 U	0.4 U
		10/21/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.22	0.020 U	0.4 U
		4/15/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.34	0.020 U	0.4 U
		11/2/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.37 J	0.020 U	0.4 U
		11/2/09 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.43 J	0.020 U	0.4 U
		4/12/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.14	0.020 U	0.4 U
		10/19/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2	0.020 U	0.4 U
		4/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		10/10/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		4/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		10/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		4/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		4/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		4/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
		4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW092		7/22/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		10/12/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		1/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		1/6/05 (DUP)	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		4/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		10/11/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		4/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
		10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
		4/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
		10/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW092 (continued)	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.02 U	0.4 U
	4/15/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2	0.020 U	0.4 U
	11/3/09	5.1 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW093	7/22/04	1.3 UJ	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/12/04	3.5	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/05	2.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/15/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	11/3/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/15/14	3.4 X	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.1 X	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW094	7/22/04	1.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 UJ	1.0 U	0.3 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/15/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/05	1.8 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/06	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/18/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/18/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW095	7/22/04	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/15/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW095 (continued)	1/10/06	1.4 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/06	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 *	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/18/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/18/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW096	7/23/04	2.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/15/04	2.2	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/15/04 (DUP)	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/14/05	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/14/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/17/06	1.9 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
EGW097	7/23/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/15/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/05	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/7/05 (DUP)	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/14/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/14/05	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	1.1 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/17/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
EGW098	10/22/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/5/05 (DUP)	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/05	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/18/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/18/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW099	10/22/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/7/05 (DUP)	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/14/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/9/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/10/06	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/11/06	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/15/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/11/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/17/07 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW099 (continued)	1/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/13/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/14/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	7/14/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/2/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/19/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/14/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW100	10/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.3**	0.020 U	0.4 U
	1/7/05	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/15/05	2.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/05	1.3 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/11/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/4/06	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	11/14/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	12/13/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2 U	0.2 U	NA
	1/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.025	0.020 U	0.4 U
	2/20/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	0.20 U	0.20 U	0.4 U
	3/15/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.055	0.2 U	0.2 U	0.2 U	**18**	0.020 U	0.4 U
	4/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**8.1**	0.020 U	0.4 U
	5/14/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.9	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U
	6/12/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.025	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.4 U
	7/12/07	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**5.6**	0.020 U	1.2 U
	8/21/07	3.4	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**3.2**	0.020 U	0.4 U
	9/25/07	4.2	0.2 U	0.2 U	0.2 U	0.2 U	2.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.6**	0.2 U	0.4 U
	10/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.8**	0.2 U	0.4 U
	10/30/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**3.7**	0.020 U	0.4 U
	11/19/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U
	1/7/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.038	0.2 U	0.2 U	0.2 U	**15**	0.020 U	0.4 U
	4/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**4.7**	0.020 U	0.4 U
	7/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.0**	0.020 U	0.4 U
	10/21/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.69**	0.020 U	0.4 U
	1/13/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.2**	0.020 U	0.4 U
	4/15/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.43	0.020 U	0.4 U
	6/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U
	7/13/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.4 U
	10/22/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 UJ	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.64**	0.020 U	0.4 U
	1/14/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.21	0.020 U	0.4 U
	4/12/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.074	0.020 U	0.4 U
	7/19/10	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	10/19/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/14/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/10/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/22/12	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW100 (continued)	1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/9/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW101	10/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/05	2.3 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.7 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/8/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	11/3/09	5.2 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW102	10/21/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.4	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4
	1/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	4/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	10/12/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.020 U	0.4 U
	4/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.4 U
	10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.39	0.020 U	0.4 U
	4/18/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.46	0.020 U	0.4 U
	10/29/07	3.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	1.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.020 U	0.2 UJ	0.2 UJ	0.2 UJ	1.0 UJ	0.3 UJ	0.2 UJ	0.020 U	0.2 UJ	0.2 UJ	0.2 UJ	0.52	0.020 U	0.4 UJ
	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.58**	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.46	0.020 U	0.4 U
	4/8/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.38	0.020 U	0.4 U
	11/2/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.31 J	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.31	0.020 U	0.4 U
	10/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.20	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2	0.020 U	0.4 U
	10/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U
	10/9/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	4/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	4/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.1 X	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW103	10/21/04	2.1	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.9	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	1.2
	1/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2
	4/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/12/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/18/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/8/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	11/2/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	109/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW104	10/21/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/7/05	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/7/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/12/05	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/18/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/8/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	11/2/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	109/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW105	10/20/04	2.7 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/6/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/8/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	11/3/09	5.3 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW105 (continued)	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/14/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW106	12/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	2.3 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/06	1.1 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/9/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/10/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/10/07 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02	0.020 U	0.4 U
	1/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/27/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/15/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/23/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.024	0.020 U	0.4 U
	7/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 UJ	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/6/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/21/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/20/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/21/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/18/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/18/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/17/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/17/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW107	12/20/04	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/05	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	1.5 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/06	1.8 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/9/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/10/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/14/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/27/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW107 (continued)	1/15/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/23/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	7/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 UJ	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/15/09 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 UJ	0.020 UJ	0.2 U	0.2 U	0.2 U	0.020 U	0.020 UJ	0.4 U
	11/6/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/21/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/20/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/21/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/18/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/18/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/17/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/17/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW108	4/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/05	1.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/14/05	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/17/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
EGW109	4/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/05	1.1 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/14/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/17/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
EGW110	4/5/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/14/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/05	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/9/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/10/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/13/06	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/15/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/11/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.029 U	0.020 U	0.4 U
	7/18/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/1/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/9/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/13/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/23/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.10 U	0.020 U	0.4 U
	1/14/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/14/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/4/09	6.4	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/19/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/25/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.054	0.020 U	0.4 U
	4/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/13/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/13/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/13/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW127	1/5/06	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	0.89	30 U	30 U	30 U	150 U	60 U	30 U	30 U	30 U	30 U	30 U	**2,900**	**0.052**	30 U
	4/5/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.40	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,900**	**0.45**	20 U
	7/11/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.14	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**790**	**0.12**	10 U
	11/13/06	500 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	0.27	100 U	1.5 U	100 U	500 U	200 U	100 U	2.0	100 U	100 U	100 U	**5,100**	**0.064**	100 U
	1/25/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	0.2 U	0.43	14	0.4	0.2 U	1.0 U	0.3 U	0.2 U	4.7	0.2 U	0.2 U	0.2 U	**2,300**	**0.14**	0.4 U
	4/16/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.081	5.0 U	5.0 U	5.0 U	25 U	**21**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**660**	0.027	5.0 U
	6/14/07	50 U	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**540**	10 U	10 U
	7/23/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**49**	1.0 U	1.0 U
	11/20/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.32	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**36**	0.02 U	1.0 U
	1/7/08	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.19	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**42**	0.020 U	1.2 U
	2/5/08	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**28**	0.6 U	1.2 U
	4/2/08	3.0 U	0.2 U	0.2 U	0.2	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**12**	0.2 U	0.4 U
	4/22/08	3.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.5 UJ	2.5 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.035 J	0.2 UJ	0.2 UJ	0.2 UJ	2.5 UJ	0.5 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	**9.4 J**	0.020 UJ	0.4 UJ
	7/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.18	2.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**110 D**	**0.082**	0.4 U
	10/21/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20	2.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**270 D**	**0.035**	2.0 U
	1/13/09	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.044	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**300**	0.020 U	6.0 U
	4/15/09	12 U	1.0 U	1.0 U	1.0 U	2.5 U	12 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	12 U	2.5 U	1.0 U	0.53 J	1.0 U	1.0 U	1.0 U	**480 D**	0.2 UJ	2.0 U
	6/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**460 D**	0.2 U	0.4 U
	7/13/09	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 UJ	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.46 J	2.0 U	2.0 U	2.0 U	**460**	0.020 UJ	4.0 U
	7/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**450 D**	0.2 U	0.4 U
	8/27/09	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	50 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**450**	2.0 U	4.0 U
	9/14/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**430 D**	0.2 U	0.4 U
	10/22/09	50 U	2.0 U	2.0 U	2.0 U	5.0 UJ	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	2.3	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.71	2.0 U	2.0 U	2.0 U	**440**	0.020 U	4.0 U
	1/14/10	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**17**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.64	2.0 U	2.0 U	2.0 U	**420**	**0.074**	4.0 U
	4/12/10	50 UJ	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	5.8	2.0 U	2.0 U	50 U	5.0 U	2.0 U	1.4 J	2.0 U	2.0 U	2.0 U	**470**	**0.16 J**	4.0 U
	7/19/10	50 UJ	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 UJ	2.0 U	2.0 U	2.0 U	6.7	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.76	2.0	2.0 U	2.0 U	**470**	**0.085**	4.0 U
	10/19/10	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**35**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.47 J	2.0 U	2.0 U	2.0 U	**340**	**7.7 J**	4.0 U
	1/13/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.1	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**31**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20	2.0 U	2.0 U	2.0 U	**280**	**5.1**	4.0 U
	4/12/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**17**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.12	2.0 U	2.0 U	2.0 U	**220**	**2.5**	4.0 U
	7/14/11	50 UJ	2.0 U	2.0 U	2.0 U	10 U	50 UJ	2.0 U	2.0 U	2.5	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**23**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.12	2.0 U	2.0 U	2.0 U	**230**	**5.1**	4.0 U
	10/10/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**18**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.17	2.0 U	2.0 U	2.0 U	**270**	**3.3**	4.0 U
	1/22/12	50 U	2.0 U	2.0 U	2.0 UJ	10 U	50 U	2.0 U	2.0 U	3.7	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**36**	1.5 X	4.6	50 U	10 U	2.0 U	0.21	2.0 U	2.0 U	2.0 U	**390**	**7.5**	24.7
	4/10/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.9	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**30**	1.4	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	360 E DNR	5.6 DNR	2.5 U
	4/10/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	31 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**370**	6.3 X DNR	25 U DNR
	4/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.22	NA	NA	NA	NA	**6.1**	NA
	7/23/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.0 X	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**36**	1.4	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	500 E DNR	5.7 DNR	2.5 U
	7/23/12 (DL)	250 U DNR	10 U DNR	10 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	38 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**500**	6.4 X DNR	25 U DNR
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.20	NA	NA	NA	NA	**6.8**	NA
	10/10/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	0.9 X	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**18**	0.7 X	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	500 E DNR	2.2 DNR	2.5 U
	10/10/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	18 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**490**	10 U DNR	25 U DNR
	10/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.27	NA	NA	NA	NA	**2.8**	NA
	1/17/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	1.1 X	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**18**	0.7 X	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	670 E DNR	2.4 DNR	2.5 U
	1/17/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	19 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**650**	10 U DNR	25 U DNR
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.51	NA	NA	NA	NA	**3.2**	NA
	4/9/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	0.7 X	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	12	1.0 U	2.5 U	25 U	2.5 U	2.5 U	0.6 X DNR	1.0 U	2.5 U	1.0 U	600 E DNR	1.4 DNR	2.5 U
	4/9/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	12 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**610**	10 U DNR	25 U DNR
	4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.64	NA	NA	NA	NA	**1.3**	NA
	7/22/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	0.7 X	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	9.4	1.0 U	2.5 U	25 U	2.5 U	2.5 U	0.6 X DNR	1.0 U	2.5 U	1.0 U	440 E DNR	1.3 DNR	2.5 U
	7/22/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	9.8 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**440**	10 U DNR	25 U DNR
	7/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.52	NA	NA	NA	NA	**1.5**	NA
	10/15/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 UJ	2.5 U	1.0 U	0.9 X	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	12	0.6 X	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	430 E DNR	1.8 DNR	2.5 U
	10/15/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	12 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**420**	10 U DNR	25 U DNR
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.44	NA	NA	NA	NA	**2.7**	NA
	1/15/14	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	0.6 X	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	11	0.6 X	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	360 E DNR	1.5 DNR	2.5 U
	1/15/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	13 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**410**	10 U DNR	25 U DNR
	1/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	NA	NA	NA	NA	**1.5**	NA
	4/8/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	1.0 X	**3.3**	5.0 U	5.0 U	5.0 U	2.0 U	11	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	360 E DNR	1.2 X DNR	5.0 U
	4/8/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	16 X DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	14 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**440**	20 U DNR	50 U DNR
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48	NA	NA	NA	NA	**1.4**	NA
	7/9/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	8.9	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	450 E DNR	1.1 X DNR	5.0 U
	7/9/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**410**	20 U DNR	50 U DNR
	7/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.46	NA	NA	NA	NA	**0.86**	NA
	10/20/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	10	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	400 E DNR	2.0 U DNR	5.0 U
	10/20/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	12 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**410**	20 U DNR	50 U DNR
	10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43	NA	NA	NA	NA	**0.38**	NA
	1/13/15	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	11	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U	2.0 U	5.0 U	2.0 U	440 E DNR	2.0 U DNR	5.0 U
	1/13/15 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	13 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**470**	20 U DNR	50 U DNR
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.78**	NA
	4/9/15	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	8.4	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U	2.0 U	5.0 U	2.0 U	430 E DNR	2.0 U DNR	4.3 X
	4/9/15 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**460**	20 U DNR	50 U DNR
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.44**	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW128	1/5/06	250 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	0.44	50 U	50 U	50 U	250 U	100 U	50 U	50 U	50 U	50 U	50 U	**3,200**	**0.073**	50 U
	4/5/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.16	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,700**	**0.045**	20 U
	7/11/06	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	0.13	**49**	30 U	30 U	150 U	60 U	30 U	30 U	30 U	30 U	30 U	**3,000**	**0.034**	30 U
	11/13/06	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	0.078	30 U	30 U	30 U	150 U	60 U	30 U	2.0	30 U	30 U	30 U	**680**	**0.15**	30 U
	1/25/07	260	0.7	0.2 U	0.2 U	0.2 U	15	0.2	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.75	8.9	2.1	0.2 U	1.0 U	0.3 U	0.2 U	4.4	1.1	0.2 U	0.2 U	**6,200**	0.020	0.7
	4/16/07	270	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.72	20 U	20 U	20 U	100 U	**83**	20 U	20 U	20 U	20 U	20 U	**1,900**	**0.072**	20 U
	6/14/07	160 J	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**730**	10 U	10 U
	7/16/07	150	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**330**	10 U	10 U
	9/25/07	110	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**210**	5.0 U	5.0 U
	12/5/07	35	0.2 U	0.2 U	0.2 U	0.2 U	3.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.0**	0.2 U	0.4 U
	1/7/08	150	0.4	0.2 U	0.2 U	0.2 U	4.9	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.35	1.8	1.0	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**66**	0.020 U	0.4 U
	2/5/08	89	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.8	1.4	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**84**	1.0 U	1.0 U
	2/5/08 (DUP)	89	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.7	1.2	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**78**	1.0 U	1.0 U
	4/1/08	30 U	2.0 U	2.0 U	2.0 U	5.0 U	25 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.1	2.1	2.0 U	25 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**110**	2.0 U	4.0 U
	4/22/08	3.7 J	0.7 J	0.2 UJ	0.2 UJ	0.5 UJ	2.5 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.68 J	3.0 J	1.2 J	0.2 UJ	2.5 UJ	0.5 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	**88 JD**	0.20 UJ	0.4 UJ
	7/9/08	9.0 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.37	1.7	0.8	0.6 U	7.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**37 D**	0.026	1.2 U
	10/21/08	9.0 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.42	1.5	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**44**	**0.037**	1.2 U
	10/21/08 (DUP)	9.0 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.42	1.4	0.6 U	0.6 U	7.5 U	1.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**44**	**0.034**	1.2 U
	1/13/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.33	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**34**	0.025	2.0 U
	4/15/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.8	0.2	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**27**	0.023	0.4 U
	6/8/09	5.0 U	0.2 X	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 X	0.7	0.2 X	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**24**	0.2 U	0.4 U
	7/13/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.3	0.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**22**	0.020 UJ	0.4 U
	10/22/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 UJ	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**18**	0.020 U	0.4 U
	1/14/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**16**	0.020 U	0.4 U
	4/12/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.4 U
	7/19/10	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.3	0.2 U	0.2 U	**6.8**	0.020 U	0.4 U
	10/19/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**5.8**	0.020 U	0.4 U
	1/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**5.6**	0.020 U	0.4 U
	4/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**4.8**	0.020 U	0.4 U
	7/14/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**4.1**	0.020 U	0.4 U
	10/10/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**3.5**	0.020 U	0.4 U
	1/22/12	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**3.3**	0.020 U	0.4 U
	4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.0**	0.2 U DNR	0.5 U
	4/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.4**	0.2 U DNR	0.5 U
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.1**	0.2 U DNR	0.5 U
	10/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.4**	0.2 U DNR	0.5 U
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.1**	0.2 U DNR	0.5 U
	4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.2**	0.2 U DNR	0.5 U
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.9**	0.2 U DNR	0.5 U
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.7**	0.2 U DNR	0.5 U
	10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.4**	0.2 U DNR	0.5 U
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW129	1/5/06	2.0	0.3	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	0.05	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	**33**	0.020 U	0.7
	4/5/06	1.8 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.032	0.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**30**	0.020 U	0.4 U
	4/5/06 (DUP)	12 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.035	1.0 U	1.0 U	1.0 U	5.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**28 D**	0.020 U	2.0 U
	7/11/06	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**30**	0.020 U	1.3
	11/13/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.051	1.0 U	1.0 U	1.0 U	**42**	0.020 U	1.0 U
	12/13/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	**76**	1.0 U	NA
	1/18/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.5	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.12	0.2 U	0.2 U	0.2 U	**100**	0.020 U	0.4 U
	2/16/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.8	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	**110**	0.20 U	0.4 U
	3/15/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.15	1.0 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U
	4/16/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.027	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.14	1.0 U	1.0 U	1.0 U	**130**	0.020 U	1.0 U
	5/14/07	5.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	5.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	5.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	**110 J**	1.0 UJ	1.0 UJ
	6/12/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.030	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.15	1.0 U	1.0 U	1.0 U	**98**	**0.034**	1.0 U
	7/12/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.067 J	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.15 J	1.0 U	1.0 U	1.0 U	**90**	0.026 J	1.0 U
	8/21/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.037	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.12	1.0 U	1.0 U	1.0 U	**94**	0.020 U	1.0 U
	9/25/07	9.6	1.0 U	1.0 U	1.0 U	1.0 U	5.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.9	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**110**	1.0 U	1.0 U
	10/17/07	5.2 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**80**	1.0 U	1.0 U
	10/30/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.039	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.10	1.0 U	1.0 U	1.0 U	**80**	0.020 U	1.0 U
	11/20/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**74**	1.0 U	1.0 U
	1/7/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.2 U	1.0 U	1.0 U	1.0 U	**95**	0.2 U	1.0 U
	4/10/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.13	1.0 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U
	7/9/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**100**	0.20 U	1.0 U
	10/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.7	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.13	0.2 U	0.2 U	0.2 U	**130 D**	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW129 (continued)	1/13/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.11	1.0 U	1.0 U	1.0 U	**110**	0.020 U	2.0 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.11 J	0.2 U	0.2 U	0.2 U	**120**	0.020 UJ	0.4 U
	4/20/09 (DUP)	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.093 J	0.2 U	0.2 U	0.2 U	**110**	0.020 UJ	0.4 U
	6/8/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.2 U	0.2 U	**110 D**	0.2 U	0.4 U
	7/13/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.10 J	0.6 U	0.6 U	0.6 U	**96**	0.020 UJ	1.2 U
	7/13/09 (DUP)	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.10 J	0.6 U	0.6 U	0.6 U	**120**	0.020 UJ	1.2 U
	10/22/09	15 U	0.6 U	0.6 U	0.6 U	1.5 UJ	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.11	0.6 U	0.6 U	0.6 U	**83**	0.020 U	1.2 U
	1/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.097	0.2 U	0.2 U	0.2 U	**87 D**	0.020 U	0.4 U
	4/13/10	10 U	0.4 U	0.4 U	0.4 U	1.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	1.0 U	0.4 U	0.090 J	0.4 U	0.4 U	0.4 U	**69**	0.020 UJ	0.8 U
	4/13/10 (DUP)	10 U	0.4 U	0.4 U	0.4 U	1.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	1.0 U	0.4 U	0.092 J	0.4 U	0.4 U	0.4 U	**67**	0.020 UJ	0.8 U
	7/19/2010	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.098	0.2 U	0.2 U	0.2 U	**58**	0.020 U	0.4 U
	10/21/2010	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.090 J	0.2 U	0.2 U	0.2 U	**59**	0.020 UJ	0.4 U
	10/21/10 (DUP)	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.084 J	0.6 U	0.6 U	0.6 U	**60**	0.020 UJ	1.2 U
	1/17/2011	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.076	0.2 U	0.2 U	0.2 U	**59**	0.020 U	0.4 U
	4/12/2011	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.072	0.2 U	0.2 U	0.2 U	**50**	0.020 U	0.4 U
	7/18/2011	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.093	0.2 U	0.2 U	0.2 U	**74**	0.020 U	0.4 U
	10/11/2011	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.083	0.2 U	0.2 U	0.2 U	**59**	0.020 U	0.4 U
	10/11/2011 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.084	0.2 U	0.2 U	0.2 U	**58**	0.020 U	0.4 U
	1/22/12	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.094	0.2 U	0.2 U	0.2 U	**65 D**	0.020 U	0.4 U
	4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	50 E DNR	0.2 U DNR	0.5 U
	4/10/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**41**	2.0 U DNR	5.0 U DNR
	4/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.082	NA	NA	NA	NA	0.020 U	NA
	7/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	72 E DNR	0.2 U DNR	0.5 U
	7/23/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**56**	2.0 U DNR	5.0 U DNR
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.12	NA	NA	NA	NA	0.020 U	NA
	10/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	64 E DNR	0.2 U DNR	0.5 U
	109/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**54**	2.0 U DNR	5.0 U DNR
	109/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.088	NA	NA	NA	NA	0.020 U	NA
	1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	68 E DNR	0.2 U DNR	0.5 U
	1/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**61**	2.0 U DNR	5.0 U DNR
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.096	NA	NA	NA	NA	0.020 U	NA
	4/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	54 E DNR	0.2 U DNR	0.5 U
	4/9/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**48**	2.0 U DNR	5.0 U DNR
	4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.097	NA	NA	NA	NA	0.020 U	NA
	10/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	56 E DNR	0.2 U DNR	0.5 U
	10/15/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**43**	2.0 U DNR	5.0 U DNR
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.093	NA	NA	NA	NA	0.020 U	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	60 E DNR	0.2 U DNR	0.5 U
	4/9/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**47**	2.0 U DNR	5.0 U DNR
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	NA	NA	NA	NA	0.020 U	NA
	10/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	54 E DNR	0.2 U DNR	0.5 U
	10/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**43**	2.0 U DNR	5.0 U DNR
	10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.087	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	48 E DNR	0.2 U DNR	0.5 U
	4/8/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**40**	2.0 U DNR	5.0 U DNR
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW130	1/5/06	1.6	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/5/06	2.6 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/11/06	1.7 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	11/13/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.048	0.020 U	0.4 U
	12/13/06	NA	NA	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	0.2 U	0.2 U	NA
	12/13/06 (DUP)	NA	NA	NA	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	0.2 U	NA	NA	NA	NA	0.2 U	0.2 U	NA
	1/18/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	2/16/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.4 U
	3/15/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/16/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.032	0.020 U	0.4 U
	5/14/07	3.9	0.2 U	0.2 U	0.2 U	0.2 U	2.2 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U
	5/14/07 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.1 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U
	6/12/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.02 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.084	0.02 U	0.4 U
	7/12/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.14	0.020 U	0.2 U
	8/21/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.29	0.020 U	0.4 U
	9/25/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U
	10/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.0**	0.2 U	0.4 U
	10/30/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.27	0.020 U	0.4 U
	11/20/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.3**	0.2 U	0.4 U
	1/7/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.35	0.020 U	0.4 U
	4/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.38	0.020 U	0.4 U
	7/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.36	0.020 U	0.4 U
	7/9/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.33	0.020 U	0.4 U
	10/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.49	0.020 U	0.4 U
	1/13/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.5**	0.020 U	0.4 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.16	0.020 U	0.4 U
	6/8/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.4 U
	7/13/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.078	0.020 U	0.4 U
	10/22/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 UJ	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.058	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW130 (continued)	1/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.076	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.041	0.020 U	0.4 U
	7/19/10	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2	0.020 U	0.4 U
	10/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.047	0.020 U	0.4 U
	1/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/18/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/22/12	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/9/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW131	1/5/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**13**	0.020 U	0.4 U
	4/5/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.4 U
	10/23/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.046	0.2 U	0.2 U	0.2 U	**8.8**	0.020 U	0.4 U
	1/17/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.053	0.2 U	0.2 U	0.2 U	**8.2**	0.020 U	0.4 U
	4/13/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.052	0.2 U	0.2 U	0.2 U	**7.7**	0.020 U	0.4 U
	4/13/07 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.064	0.2 U	0.2 U	0.2 U	**7.6**	0.020 U	0.4 U
	7/12/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.046	0.2 U	0.2 U	0.2 U	**9.0**	0.020 U	0.4 U
	7/12/07 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.055	0.2 U	0.2 U	0.2 U	**9.1**	0.020 U	0.4 U
	10/30/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.047	0.2 U	0.2 U	0.2 U	**7.5 J**	0.020 U	0.4 U
	10/30/07 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.030	0.2 U	0.2 U	0.2 U	**3.4 J**	0.020 U	0.4 U
	1/8/08	3.2	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.050	0.2 U	0.2 U	0.2 U	**8.1**	0.020 U	0.4 U
	1/8/08 (DUP)	4.8	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.044	0.2 U	0.2 U	0.2 U	**8.3**	0.020 U	0.4 U
	4/9/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.059	0.2 U	0.2 U	0.2 U	**8.8**	0.020 U	0.4 U
	4/9/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.055	0.2 U	0.2 U	0.2 U	**8.5**	0.020 U	0.4 U
	7/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.051	0.2 U	0.2 U	0.2 U	**8.3**	0.020 U	0.4 U
	10/22/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.055	0.2 U	0.2 U	0.2 U	**7.2**	0.020 UJ	0.4
	1/14/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.039	0.2 U	0.2 U	0.2 U	**6.6**	0.020 U	0.4 U
	4/20/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.052	0.2 U	0.2 U	0.2 U	**7.0**	0.020 U	0.4 U
	7/13/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.041	0.2 U	0.2 U	0.2 U	**6.1**	0.020 U	0.4 U
	10/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.038 J	0.2 U	0.2 U	0.2 U	**5.0**	0.020 U	0.4 U
	1/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.041	0.2 U	0.2 U	0.2 U	**4.8**	0.020 U	0.4 U
	4/13/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.037	0.2 U	0.2 U	0.2 U	**4.8**	0.020 U	0.4 U
	7/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.033	0.2 U	0.2 U	0.2 U	**3.6**	0.020 U	0.4 U
	7/20/10 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.032	0.2 U	0.2 U	0.2 U	**3.9**	0.020 U	0.4 U
	10/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.034	0.2 U	0.2 U	0.2 U	**4.1**	0.020 U	0.4 U
	1/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.030	0.2 U	0.2 U	0.2 U	**4.7**	0.020 U	0.4 U
	4/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.034	0.2 U	0.2 U	0.2 U	**5.2**	0.020 U	0.4 U
	7/18/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.029	0.2 U	0.2 U	0.2 U	**4.2**	0.020 U	0.4 U
	7/18/11 (DUP)	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.031	0.2 U	0.2 U	0.2 U	**4.1**	0.020 U	0.4 U
	10/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.024	0.2 U	0.2 U	0.2 U	**3.8**	0.020 U	0.4 U
	1/22/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.030	0.2 U	0.2 U	0.2 U	**3.9**	0.020 U	0.4 U
	4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	**4.1**	0.2 U DNR	0.5 U
	4/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036	NA	NA	NA	NA	0.020 U	NA
	4/11/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.5 U	**4.2**	0.2 U DNR	0.5 U
	4/11/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.035	NA	NA	NA	NA	0.020 U	NA
	7/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.3**	0.2 U DNR	0.5 U
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.035	NA	NA	NA	NA	0.020 U	NA
	10/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.7**	0.2 U DNR	0.5 U
	10/9/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.028	NA	NA	NA	NA	0.020 U	NA
	1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.7**	0.2 U DNR	0.5 U
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.037	NA	NA	NA	NA	0.020 U	NA
	4/10/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.7**	0.2 U DNR	0.5 U
	4/10/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.042	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW131 (continued)	7/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.7**	0.2 U DNR	0.5 U
	7/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	0.020 U	NA
	7/22/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.8**	0.2 U DNR	0.5 U
	7/22/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	0.020 U	NA
	10/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.5**	0.2 U DNR	0.5 U
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.029	NA	NA	NA	NA	0.020 U	NA
	10/15/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.8**	0.2 U DNR	0.5 U
	10/15/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.029	NA	NA	NA	NA	0.020 U	NA
	1/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.4**	0.2 U DNR	0.5 U
	1/16/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.038	NA	NA	NA	NA	0.020 U	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.7**	0.2 U DNR	0.5 U
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036	NA	NA	NA	NA	0.020 U	NA
	4/9/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.7**	0.2 U DNR	0.5 U
	4/9/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.034	NA	NA	NA	NA	0.020 U	NA
	7/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.7**	0.2 U DNR	0.5 U
	7/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.034	NA	NA	NA	NA	0.020 U	NA
	7/9/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.8**	0.2 U DNR	0.5 U
	7/9/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.034	NA	NA	NA	NA	0.020 U	NA
	10/17/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.4**	0.2 U DNR	0.5 U
	10/17/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.029	NA	NA	NA	NA	0.020 U	NA
	10/17/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.4**	0.2 U DNR	0.5 U
	10/17/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.028	NA	NA	NA	NA	0.020 U	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.1**	0.2 U DNR	0.5 U
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/13/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.1**	0.2 U DNR	0.5 U
	1/13/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/8/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.7**	0.2 U DNR	0.5 U
	4/8/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.038	NA	NA	NA	NA	0.020 U	NA
	4/8/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.6**	0.2 U DNR	0.5 U
	4/8/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.037	NA	NA	NA	NA	0.020 U	NA
EGW132 (113')	1/4/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
(7)	4/11/06	2.0 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.099	0.020 U	0.4 U
	11/2/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.4	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.083	0.020 U	0.4 U
	4/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.030	0.020 U	0.4 U
	10/24/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.078	0.020 U	0.4 U
	10/26/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.054	0.020 U	0.4 U
	10/25/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.047	0.020 U	0.4 U
	10/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
(97')	1/4/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
(6)	4/11/06	1.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.11	0.020 U	0.4 U
	11/2/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.15	0.020 U	0.4 U
	4/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.25	0.020 U	0.4 U
	10/24/08	3.2	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.23	0.020 U	0.4 U
	10/26/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.12	0.020 U	0.4 U
	10/25/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.20	0.020 U	0.4 U
	10/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 X	0.020 U	0.4 U
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
(81')	1/4/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
(5)	4/11/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.066	0.020 U	0.4 U
	11/2/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.32	0.020 U	0.4 U
	4/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.34	0.020 U	0.4 U
	10/24/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.27	0.020 U	0.4 U
	10/26/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.15	0.020 U	0.4 U
	10/25/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.19	0.020 U	0.4 U
	10/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2	0.020 U	0.4 U
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
(62')	1/4/06	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**32**	0.020 U	1.2 U
(4)	4/11/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**26**	0.020 U	2.0 U
	4/11/06 (DUP)	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.023	1.0 U	1.0 U	1.0 U	5.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**27**	0.020 U	2.0 U
	10/24/06	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.041	3.5	0.6 U	0.6 U	3.0 U	1.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**110**	0.020 U	1.2 U
	1/26/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.045	2.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**76**	**0.033**	1.0 U
	4/13/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.048	3.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**92**	**0.083**	1.0 U
	7/18/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.077	2.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**61**	**0.061**	1.0 U
	11/2/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.11	3.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**110**	**0.067**	1.0 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW132 (62')	1/8/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.076	3.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U
(continued) (4)	4/15/08	12 U	0.8 U	0.8 U	0.8 U	0.8 U	10 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.20 U	1.5	0.8 U	0.8 U	10 U	2.0 U	0.8 U	0.20 U	0.8 U	0.8 U	0.8 U	**40**	0.20 U	1.6 U
	7/10/08	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.20 U	2.6	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.20 U	0.6 U	0.6 U	0.6 U	**46 D**	0.20 U	1.2 U
	10/24/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.028	2.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**28**	0.020 U	2.0 U
	1/18/09	7.1	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.025	2.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**25**	0.020 U	2.0 U
	4/21/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3.2	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**74 D**	**0.031 J**	0.4 U
	7/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**70**	**0.041 J**	2.0 U
	10/26/09	10 U	0.4 U	0.4 U	0.4 U	1.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 U	0.4 U	0.4 U	0.4 U	9.8	0.4 U	0.4 U	10 U	1.0 U	0.4 U	0.020 U	0.4 U	0.4 U	0.4 U	**170 D**	**0.038**	0.8 U
	1/18/10	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	11	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**210**	0.027	2.0 U
	1/18/10 (DUP)	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	12	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**240**	**0.029**	4.0 U
	4/14/10	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	11	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**450 D**	0.020 UJ	2.0 U
	7/20/10	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 UJ	2.0 U	2.0 U	2.0 U	8.8	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**340**	0.020 U	4.0 U
	10/25/10	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	8.0	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 UJ	2.0 U	2.0 U	2.0 U	**420**	0.20 UJ	4.0 U
	10/25/10 (DUP)	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	8.2	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 U	4.0 U	4.0 U	4.0 U	**430**	0.20 U	8.0 U
	1/17/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	8.0	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**450**	0.20 U	4.0 U
	1/17/11 (DUP)	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	8.6	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**440**	0.020 U	4.0 U
	4/14/11	75 U	3.0 U	3.0 U	3.0 U	15 U	75 U	3.0 U	3.0 U	3.0 U	3.0 U	7.5 U	3.0 U	3.0 U	3.0 U	7.0	3.0 U	3.0 U	75 U	7.5 U	3.0 U	0.20 U	3.0 U	3.0 U	3.0 U	**490**	0.20 U	6.0 U
	7/18/11	50 UJ	2.0 U	2.0 U	2.0 U	10 U	50 UJ	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	5.7	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 U	2.0 U	2.0 U	2.0 U	**210**	0.20 U	4.0 U
	10/18/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	6.2 J	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**230 J**	0.020 U	4.0 U
	1/24/12	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	4.7	2.0 U	2.0 U	50 U	10 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**410**	0.020 U	4.0 U
	4/12/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.6	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	340 E DNR	0.4 U DNR	1.0 U
	4/12/2012 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.7 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**350**	4.0 U DNR	2.9 X DNR
	4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	340 E DNR	0.2 U DNR	0.5 U
	7/26/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	2.7 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**260**	4.0 U DNR	10 U DNR
	7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	5.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	260 E DNR	0.2 U DNR	0.5 U
	1015/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.6 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**210**	2.0 U DNR	5.0 U DNR
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	2.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	200 E DNR	0.2 U DNR	0.5 U
	1/21/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.4 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	8.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	250 E DNR	0.2 U DNR	0.5 U
	4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	7.3 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**200**	2.0 U DNR	5.0 U DNR
	4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U
	7/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.9 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**83**	2.0 U DNR	5.0 U DNR
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	5.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	58 E DNR	0.2 U DNR	0.5 U
	10/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.3 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**49**	2.0 U DNR	5.0 U DNR
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	72 E DNR	0.2 U DNR	0.5 U
	1/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.6 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**60**	2.0 U DNR	5.0 U DNR
	1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	80 E DNR	0.2 U DNR	0.5 U
	4/10/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**63**	2.0 U DNR	5.0 U DNR
	4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	180 E DNR	0.2 U DNR	0.5 U
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**140**	2.0 U DNR	5.0 U DNR
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	90 E DNR	0.2 U DNR	0.5 U
	10/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.5 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**73**	2.0 U DNR	5.0 U DNR
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**82**	2.0 U DNR	5.0 U DNR
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U
	4/10/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR
	4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
(50')	1/4/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.038	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**650**	0.020 U	10 U
(3)	4/11/06	75 U	15 U	15 U	15 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	0.027	15 U	15 U	15 U	75 U	22 U	15 U	15 U	15 U	15 U	15 U	**610**	0.020 U	30 U
	10/31/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.020	10 U	10 U	10 U	50 U	20 U	10 U	0.18	10 U	10 U	10 U	**480**	0.020 U	10 U
	1/26/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.020 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**370**	0.020 U	10 U
	4/13/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.020 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**480**	0.020 U	5.0 U
	7/18/07	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.020 UJ	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**400**	0.020 UJ	3.0 U
	11/2/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.020 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**310**	0.020 U	5.0 U
	1/8/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.020 U	3.1	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**450**	0.020 U	3.0 U
	4/15/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.20 U	3.4	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**480**	0.20 U	3.0 U
	7/10/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**440**	0.20 U	5.0 U
	10/24/08	25	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.025	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**490**	0.024	10 U
	1/18/09	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.030	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**360**	**0.044**	10 U
	4/21/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.400	5.9	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.30	0.2 U	0.2 U	0.2 U	**570 D**	**0.39 J**	0.4 U
	7/14/09	50 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**20**	5.0 U	5.0 U	25 U	10 U	5.0 U	0.18 J	5.0 U	5.0 U	5.0 U	**670**	**0.74 J**	10 U
	10/26/09	150 U	6.0 U	6.0 U	6.0 U	15 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**52**	6.0 U	6.0 U	150 U	15 U	6.0 U	0.50	6.0 U	6.0 U	6.0 U	**1,700**	**0.56**	12 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW132 (50')	1/18/10	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**33**	10 U	10 U	250 U	25 U	10 U	0.39	10 U	10 U	10 U	**1,200**	**0.058**	20 U
(continued) (3)	4/14/10	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**51**	10 U	10 U	250 U	25 U	10 U	0.29 J	10 U	10 U	10 U	**1,000**	0.20 UJ	20 U
	7/20/10	120 U	5.0 U	5.0 U	5.0 U	25 U	120 U	5.0 U	5.0 U	5.0 U	5.0 U	12 UJ	5.0 U	5.0 U	5.0 U	10	5.0 U	5.0 U	120 U	12 U	5.0 U	0.35	5.0 U	5.0 U	5.0 U	**720**	0.026	10 U
	10/25/10	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	13	4.0 U	4.0 U	100 U	10 U	4.0 U	0.26 J	4.0 U	4.0 U	4.0 U	**600**	0.20 UJ	8.0 U
	1/17/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	5.6	4.0 U	4.0 U	100 U	10 U	4.0 U	0.22	4.0 U	4.0 U	4.0 U	**560**	0.20 U	8.0 U
	4/14/11	150 U	6.0 U	6.0 U	6.0 U	30 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	150 U	15 U	6.0 U	0.20 U	6.0 U	6.0 U	6.0 U	**530**	0.20 U	12 U
	7/18/11	50 UJ	2.0 U	2.0 U	2.0 U	10 U	50 UJ	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	3.9	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 U	2.0 U	2.0 U	2.0 U	**370**	0.20 U	4.0 U
	10/18/11	75 U	3.0 U	3.0 U	3.0 U	15 U	75 U	3.0 U	3.0 U	3.0 U	3.0 U	7.5 U	3.0 U	3.0 U	3.0 U	**20 J**	3.0 U	3.0 U	75 U	7.5 U	3.0 U	0.21	3.0 U	3.0 U	3.0 U	**340 J**	0.020 U	6.0 U
	1/24/12	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	3.1	2.0 U	2.0 U	50 U	10 U	2.0 U	0.20	2.0 U	2.0 U	2.0 U	**310**	0.020 U	4.0 U
	4/12/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.6	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	250 E DNR	0.4 U DNR	1.0 U
	4/12/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.2 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**230**	4.0 U DNR	10 U DNR
	4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.22	NA	NA	NA	NA	0.020 U	NA
	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 X DNR	0.2 U	0.5 U	0.2 U	280 E DNR	0.2 U DNR	0.5 U
	7/26/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.9 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**200**	2.0 U DNR	5.0 U DNR
	7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.20	NA	NA	NA	NA	0.020 U	NA
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	9.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 X DNR	0.2 U	0.5 U	0.2 U	210 E DNR	0.2 U DNR	0.5 U
	1015/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	7.1 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.14	NA	NA	NA	NA	0.020 U	NA
	1/21/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 DNR	0.2 U	0.5 U	0.2 U	370 E DNR	0.2 U DNR	0.5 U
	1/21/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**280**	10 U DNR	25 U DNR
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.17	NA	NA	NA	NA	0.020 U	NA
	4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 DNR	0.2 U	0.5 U	0.2 U	290 E DNR	0.2 U DNR	0.5 U
	4/16/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	3.9 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**210**	4.0 U DNR	10 U DNR
	4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.20	NA	NA	NA	NA	0.020 U	NA
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 X DNR	0.2 U	0.5 U	0.2 U	260 E DNR	0.2 U DNR	0.5 U
	7/23/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	3.6 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**200**	4.0 U DNR	10 U DNR
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 X DNR	0.2 U	0.5 U	0.2 U	260 E DNR	0.2 U DNR	0.5 U
	10/16/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	3.7 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**200**	4.0 U DNR	10 U DNR
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	0.020 U	NA
	1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U
	1/20/14 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	3.5 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**170**	4.0 U DNR	10 U DNR
	1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	0.020 U	NA
	4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U
	4/10/14 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	2.4 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**170**	4.0 U DNR	10 U DNR
	4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	NA	NA	NA	NA	0.020 U	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	160 E DNR	0.2 U DNR	0.5 U
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**130**	2.0 U DNR	5.0 U DNR
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U
	10/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.6 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.084	NA	NA	NA	NA	0.020 U	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U
	4/10/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR
	4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
(37')	1/4/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.031	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**640**	0.020 U	10 U
(2)	4/11/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.024	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	0.020 U	5.0 U
	10/31/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.020 U	10 U	10 U	10 U	50 U	20 U	10 U	0.18	10 U	10 U	10 U	**340**	0.020 U	10 U
	1/26/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.020 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**280**	0.020 U	10 U
	4/13/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.020 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**460**	0.020 U	5.0 U
	7/18/07	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.042	3.4	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**460**	0.020 U	3.0 U
	11/2/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.020 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**280**	0.020 U	5.0 U
	1/8/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.031	4.4	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**510**	0.020 U	3.0 U
	4/15/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	5.6	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**510**	0.20 U	5.0 U
	7/10/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	5.3	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**420**	0.20 U	5.0 U
	10/24/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.22	8.1	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**660**	**0.089**	10 U
	1/18/09	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.3	10	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**520**	**0.15**	10 U
	4/21/09	2.5 U	0.4	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	5.3	**35**	0.8	0.2 U	2.5 U	0.5 U	0.2 U	0.8	0.2 U	0.2 U	0.2 U	**1,300**	**0.66 J**	0.4 U
	7/14/09	100 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**31**	10 U	10 U	50 U	20 U	10 U	0.52 J	10 U	10 U	10 U	**1,500**	**0.10 J**	20 U
	10/26/09	300 U	12 U	12 U	12 U	30 U	300 U	12 U	12 U	12 U	12 U	30 U	12 U	12 U	12 U	14	12 U	12 U	300 U	30 U	12 U	0.57	12 U	12 U	12 U	**1,100**	0.020 U	24 U
	1/18/10	150 U	6.0 U	6.0 U	6.0 U	15 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	11	6.0 U	6.0 U	150 U	15 U	6.0 U	0.44	6.0 U	6.0 U	6.0 U	**750**	0.020 U	12 U
	4/14/10	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	9.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.36 J	4.0 U	4.0 U	4.0 U	**730**	0.20 UJ	8.0 U
	7/20/10	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 UJ	4.0 U	4.0 U	4.0 U	8.6	4.0 U	4.0 U	100 U	10 U	4.0 U	0.50	4.0 U	4.0 U	4.0 U	**670**	0.020 U	8.0 U
	10/25/10	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	10	4.0 U	4.0 U	100 U	10 U	4.0 U	0.42 J	4.0 U	4.0 U	4.0 U	**650**	0.20 UJ	8.0 U
	1/17/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.8	4.0 U	4.0 U	100 U	10 U	4.0 U	0.34	4.0 U	4.0 U	4.0 U	**620**	0.20 U	8.0 U
	4/14/11	150 U	6.0 U	6.0 U	6.0 U	30 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	11	6.0 U	6.0 U	150 U	15 U	6.0 U	0.31	6.0 U	6.0 U	6.0 U	**620**	0.20 U	12 U
	7/18/11	100 UJ	4.0 U	4.0 U	4.0 U	20 U	100 UJ	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	7.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.33	4.0 U	4.0 U	4.0 U	**550**	0.20 U	8.0 U
	10/18/11	75 U	3.0 U	3.0 U	3.0 U	15 U	75 U	3.0 U	3.0 U	3.0 U	3.0 U	7.5 U	3.0 U	3.0 U	3.0 U	5.4 J	3.0 U	3.0 U	75 U	7.5 U	3.0 U	0.44	3.0 U	3.0 U	3.0 U	**600 J**	0.020 U	6.0 U
	1/24/12	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	13	4.0 U	4.0 U	100 U	20 U	4.0 U	0.39	4.0 U	4.0 U	4.0 U	**520**	**0.044**	8.0 U
	4/12/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	5.2	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 X DNR	0.4 U	1.0 U	0.4 U	390 E DNR	0.4 U DNR	1.0 U
	4/12/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	5.2 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**390**	4.0 U DNR	10 U DNR
	4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.40	NA	NA	NA	NA	**0.030**	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW132	**(37')**	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	7.6	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.3 DNR	0.2 U	0.5 U	0.2 U	410 E DNR	0.2 DNR	0.5 U
(continued)	**(2)**	7/26/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	7.4 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**400**	10 U DNR	25 U DNR
		7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.40	NA	NA	NA	NA	**0.19**	NA
		10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.1 X	0.5 U	0.5 U	0.5 U	0.2 U	3.7	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.3 DNR	0.2 U	0.5 U	0.2 U	350 E DNR	0.2 U DNR	0.5 U
		1015/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**330**	10 U DNR	25 U DNR
		10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31	NA	NA	NA	NA	**0.087**	NA
		1/21/13	25 UJ	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 UJ	2.5 U	2.5 U	1.0 U	5.6	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	310 E DNR	1.0 U DNR	2.5 U
		1/21/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.5 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**290**	10 U DNR	25 U DNR
		1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.24	NA	NA	NA	NA	**0.33**	NA
		4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2	11	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 X DNR	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U
		4/16/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	8.6 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**170**	4.0 U DNR	10 U DNR
		4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15	NA	NA	NA	NA	**0.071**	NA
		7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.3	9.3	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	230 E DNR	0.1 X DNR	0.5 U
		7/23/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	7.6 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**180**	4.0 U DNR	10 U DNR
		7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	**0.14**	NA
		10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2	8.9	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	250 E DNR	0.2 U DNR	0.5 U
		10/16/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	8.3 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**190**	4.0 U DNR	10 U DNR
		10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.12	NA	NA	NA	NA	**0.034**	NA
		1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2	7.5	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U
		1/20/14 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	6.3 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**170**	4.0 U DNR	10 U DNR
		1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.12	NA	NA	NA	NA	0.020	NA
		4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2	7.3	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X DNR	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U
		4/10/14 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	6.3 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**180**	4.0 U DNR	10 U DNR
		4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	0.022	NA
		7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	6.2	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	200 E DNR	0.2 U DNR	0.5 U
		7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	5.5 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR
		7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.094	NA	NA	NA	NA	0.020	NA
		10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	5.7	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	180 E DNR	0.2 U DNR	0.5 U
		10/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**140**	2.0 U DNR	5.0 U DNR
		10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.081	NA	NA	NA	NA	**0.032**	NA
		1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	5.8	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X	0.2 U	0.5 U	0.2 U	180 E DNR	0.2 U DNR	0.5 U
		1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.8 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**130**	2.0 U DNR	5.0 U DNR
		1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.026	NA
		4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	5.3	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X	0.2 U	0.5 U	0.2 U	170 E DNR	0.2 U DNR	0.5 U
		4/10/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.6 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**140**	2.0 U DNR	5.0 U DNR
		4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 X	NA
	(24')	1/4/06	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.096	12	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**190**	**0.066**	3.0 U
	(1)	4/11/06	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.094	12	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**190**	**0.053**	3.0 U
		10/31/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.068	10	5.0 U	5.0 U	25 U	10 U	5.0 U	0.033	5.0 U	5.0 U	5.0 U	**190**	0.028	5.0 U
		1/26/07	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.059	9.2	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**180**	0.021	3.0 U
		4/13/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.051	14	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**250**	**0.030**	1.0 U
		7/18/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	8.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**190**	0.020 U	1.0 U
		11/2/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.057	7.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.020 U	1.0 U
		1/8/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.057	8.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**180**	0.020 U	1.0 U
		4/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	8.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**180**	0.20 U	1.0 U
		7/10/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	7.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.20 U	1.0 U
		10/24/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.052	9.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**190**	**0.029**	2.0 U
		1/18/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.038	6.6	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	0.022	2.0 U
		4/21/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	7.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 J	0.2 U	0.2 U	0.2 U	**190 D**	**0.040 J**	0.4 U
		7/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.6	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.021 J	1.0 U	1.0 U	1.0 U	**160 J**	**0.042 J**	2.0 U
		10/26/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	7.5	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.032	1.0 U	1.0 U	1.0 U	**160**	0.021	2.0 U
		1/18/10	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	7.0	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.027	1.0 U	1.0 U	1.0 U	**130**	0.020 U	2.0 U
		4/14/10	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	8.7	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.023 J	1.0 U	1.0 U	1.0 U	**140**	0.020 UJ	2.0 U
		7/20/10	25 U	1.0 U	1.0 U	1.0 U	5.0 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 UJ	1.0 U	1.0 U	1.0 U	6.9	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.032	1.0 U	1.0 U	1.0 U	**140**	0.020 U	2.0 U
		10/25/10	25 U	1.0 U	1.0 U	1.0 U	5.0 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	9.0	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.20 UJ	1.0 U	1.0 U	1.0 U	**200**	0.20 UJ	2.0 U
		1/17/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	9.3	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 U	2.0 U	2.0 U	2.0 U	**240**	0.20 U	4.0 U
		4/14/11	30 U	1.2 U	1.2 U	1.2 U	6.0 U	30 U	1.2 U	1.2 U	1.2 U	1.2 U	3.0 U	1.2 U	1.2 U	1.2 U	5.7	1.2 U	1.2 U	30 U	3.0 U	1.2 U	0.20 U	1.2 U	1.2 U	1.2 U	**220**	0.20 U	2.4 U
		7/18/11	25 UJ	1.0 U	1.0 U	1.0 U	5.0 U	25 UJ	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	4.7	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**250**	0.20 U	2.0 U
		10/18/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	7.0 J	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.061	2.0 U	2.0 U	2.0 U	**280 J**	0.012 X	4.0 U
		1/24/12	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	7.8	2.0 U	2.0 U	50 U	10 U	2.0 U	0.062	2.0 U	2.0 U	2.0 U	**300**	0.020 U	4.0 U
		4/12/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.7	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	200 E DNR	0.4 U DNR	1.0 U
		4/12/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.6 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**190**	4.0 U DNR	10 U DNR
		4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.050	NA	NA	NA	NA	0.014 X	NA
		7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	5.1	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	320 E DNR	0.2 U DNR	0.5 U
		7/26/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.2 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**220**	2.0 U DNR	5.0 U DNR
		7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.074	NA	NA	NA	NA	**0.047**	NA
		10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.1 X	0.5 U	0.5 U	0.5 U	0.2 X	4.0	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	270 E DNR	0.2 U DNR	0.5 U
		1015/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.2 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**220**	2.0 U DNR	5.0 U DNR
		10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.067	NA	NA	NA	NA	**0.083**	NA
		1/21/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.1 X	0.5 UJ	0.5 U	0.5 U	0.2 X	4.0	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	270 E DNR	0.1 X DNR	0.5 U
		1/21/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.3 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**220**	2.0 U DNR	5.0 U DNR
		1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.062	NA	NA	NA	NA	**0.12**	NA
		4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U
		4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.7 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR
		4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.037	NA	NA	NA	NA	0.021	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
		Volatile Organic Compounds (VOCs) (ug/L)																										
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW132 (24')	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	2.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U
(continued) (1)	7/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**130**	2.0 U DNR	5.0 U DNR
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.051	NA	NA	NA	NA	0.016 X	NA
	7/23/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	2.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	160 E DNR	0.2 U DNR	0.5 U
	7/23/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.4 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**140**	2.0 U DNR	5.0 U DNR
	7/23/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.049	NA	NA	NA	NA	0.014 X	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U
	10/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.2 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**130**	2.0 U DNR	5.0 U DNR
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.050	NA	NA	NA	NA	0.020 U	NA
	10/16/2013 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	160 E DNR	0.2 U DNR	0.5 U
	10/16/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR
	10/16/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.051	NA	NA	NA	NA	0.020 U	NA
	1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U
	1/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR
	1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.049	NA	NA	NA	NA	0.020 U	NA
	1/20/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U
	1/20/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.9 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR
	1/20/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.049	NA	NA	NA	NA	0.020 U	NA
	4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
	4/10/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**85**	2.0 U DNR	5.0 U DNR
	4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.028	NA	NA	NA	NA	0.020 U	NA
	4/10/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
	4/10/14 (DUP DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**76**	4.0 U DNR	10 U DNR
	4/10/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.026	NA	NA	NA	NA	0.020 U	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.7 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**100**	2.0 U DNR	5.0 U DNR
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.051	NA	NA	NA	NA	0.020 U	NA
	7/23/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U
	7/23/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**100**	2.0 U DNR	5.0 U DNR
	7/23/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.049	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
	10/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**92**	2.0 U DNR	5.0 U DNR
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.047	NA	NA	NA	NA	0.020 U	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	93 E DNR	0.2 U DNR	0.5 U
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**64**	2.0 U DNR	5.0 U DNR
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	88 E DNR	0.2 U DNR	0.5 U
	4/10/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**72**	2.0 U DNR	5.0 U DNR
	4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	84 E DNR	0.2 U DNR	0.5 U
	4/10/15 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**71**	2.0 U DNR	5.0 U DNR
	4/10/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW133 (112.5')	1/3/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
(7)	4/11/06	1.6 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.023	0.020 U	0.4 U
	11/2/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.027	0.020 U	0.4 U
	4/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.040	0.020 U	0.4 U
	10/24/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.024	0.020 U	0.4 U
	4/22/09	3.2	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.024	0.020 U	0.4 U
	11/3/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.037	0.020 U	0.4 U
	10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
(100.5')	1/3/06	1.2	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
(6)	4/11/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/2/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.056	0.020 U	0.4 U
	4/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.054	0.020 U	0.4 U
	10/24/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.12	0.020 U	0.4 U
	4/22/09	2.6	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.056	0.020 U	0.4 U
	11/3/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.044	0.020 U	0.4 U
	10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.032	0.020 U	0.4 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
(88.5')	1/3/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.5**	0.020 U	0.4 U
(5)	4/11/06	1.3 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.7**	0.020 U	0.4 U
	10/24/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.32	0.020 U	0.4 U
	11/2/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.25	0.020 U	0.4 U
	4/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.24	0.020 U	0.4 U
	10/24/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.20	0.020 U	0.4 U
	10/24/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.21	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW133 (continued)	**(88.5') (5)**	4/22/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.16	0.020 U	0.4 U
		11/3/09	9.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.5**	0.020 U	0.4 U
		10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.17	0.020 U	0.4 U
		10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
		10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U
		10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U
		10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U
		10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	(67.5') (4)	1/3/06	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.053 J	3.1	2.0 U	2.0 U	10 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**190**	0.023	2.0 U
		4/11/06	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.038	3.6	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**250**	0.021	3.0 U
		10/31/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.038	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	0.020 U	5.0 U	5.0 U	5.0 U	**220**	0.020 U	5.0 U
		1/26/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.055	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**160**	0.020 U	5.0 U
		4/12/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.050	4.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**150 D**	0.028	0.4 U
		7/18/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.070	4.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	0.02	1.0 U
		11/2/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.13	5.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	0.020 U	1.0 U
		1/9/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.13	7.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.020 U	1.0 U
		4/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.21	9.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.20 U	1.0 U
		7/10/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	9.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.20 U	1.0 U
		10/24/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20	12	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**230 D**	0.020 U	2.0 U
		1/18/09	5.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.18	11	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**180**	0.020 U	6.0 U
		4/22/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	0.20	14	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**220 D**	0.020 UJ	0.4 U
		7/14/09	20 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	14	2.0 U	2.0 U	10 U	4.0 U	2.0 U	0.020 UJ	2.0 U	2.0 U	2.0 U	**230**	0.020 UJ	4.0 U
		11/3/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.4	0.5 U	0.2 U	0.2 U	0.2 U	13	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**320 D**	0.020 U	0.4 U
		1/18/10	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	11	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**270**	0.020 U	4.0 U
		4/14/10	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	12	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 UJ	2.0 U	2.0 U	2.0 U	**290**	0.020 UJ	4.0 U
		7/20/10	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 UJ	2.0 U	2.0 U	2.0 U	10	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 U	2.0 U	2.0 U	2.0 U	**280**	0.20 U	4.0 U
		10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.3	0.5 U	0.2 U	0.2 U	0.2 U	11	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**350 D**	0.2 U	0.4 U
		1/18/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 UJ	2.0 U	2.0 U	2.0 U	12	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 U	2.0 U	2.0 U	2.0 U	**340**	0.20 U	4.0 U
		4/14/11	75 U	3.0 U	3.0 U	3.0 U	15 U	75 U	3.0 U	3.0 U	3.0 U	3.0 U	7.5 U	3.0 U	3.0 U	3.0 U	14	3.0 U	3.0 U	75 U	7.5 U	3.0 U	0.20 U	3.0 U	3.0 U	3.0 U	**420**	0.20 U	6.0 U
		7/19/11	50 UJ	2.0 U	2.0 U	2.0 U	10 U	50 UJ	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	11	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 U	2.0 U	2.0 U	2.0 U	**390**	0.20 U	4.0 U
		10/19/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	10	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**390**	0.020 U	4.0 U
		1/24/12	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	11	2.0 U	2.0 U	50 U	10 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**430**	0.020 U	4.0 U
		4/12/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.2 X	1.0 U	1.0 U	1.0 U	0.4 U	8.8	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	350 E DNR	0.4 U DNR	1.0 U
		4/12/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	8.4 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**350**	4.0 U DNR	10 U DNR
		4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2	0.5 X	0.5 U	0.5 U	0.1 X	12	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.1 X	460 E DNR	0.2 U DNR	0.5 U
		7/26/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	11 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**480**	10 U DNR	25 U DNR
		7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2	0.5 U	0.5 U	0.5 U	0.1 X	11	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.1 X	420 E DNR	0.2 U DNR	0.5 U
		1015/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	9.3 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**450**	10 U DNR	25 U DNR
		10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		1/21/13	25 UJ	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 UJ	2.5 U	2.5 U	1.0 U	5.8	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	410 E DNR	1.0 U DNR	2.5 U
		1/21/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	6.9 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**460**	10 U DNR	25 U DNR
		1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	330 E DNR	0.2 U DNR	0.5 U
		4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.5 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**250**	2.0 U DNR	5.0 U DNR
		4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	270 E DNR	0.2 U DNR	0.5 U
		7/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.4 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**220**	2.0 U DNR	5.0 U DNR
		7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	260 E DNR	0.2 U DNR	0.5 U
		10/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.8 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**200**	2.0 U DNR	5.0 U DNR
		10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	260 E DNR	0.2 U DNR	0.5 U
		1/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.4 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**210**	2.0 U DNR	5.0 U DNR
		1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U
		4/10/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.1 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR
		4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	250 E DNR	0.2 U DNR	0.5 U
		7/24/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.2 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**200**	2.0 U DNR	5.0 U DNR
		7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	200 E DNR	0.2 U DNR	0.5 U
		10/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.2 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR
		10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	210 E DNR	0.2 U DNR	0.5 U
		1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR
		1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	200 E DNR	0.2 U DNR	0.5 U
		4/10/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR
		4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	(54.5') (3)	1/3/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.025	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	0.020 U	1.0 U
		4/11/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	0.020 U	1.0 U
		10/31/06	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.020 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	0.026	3.0 U	3.0 U	3.0 U	**140**	0.020 U	3.0 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW133 (54.5') (continued) (3)	1/26/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.040	1.0 U	1.0 U	1.0 U	**130**	0.020 U	1.0 U
	4/12/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.9	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.039	0.2 U	0.2 U	0.2 U	**120 D**	0.020 U	0.4 U
	7/18/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.024	1.0 U	1.0 U	1.0 U	**120**	0.020 U	1.0 U
	11/2/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.15	1.0 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U
	1/9/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.029	1.0 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U
	4/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U
	7/10/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**97**	0.20 U	1.0 U
	10/24/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**120**	0.20 U	2.0 U
	1/18/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.024	1.0 U	1.0 U	1.0 U	**100**	0.020 U	2.0 U
	4/22/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**110 D**	0.020 UJ	0.4 U
	4/22/09 (DUP)	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**110 D**	0.020 UJ	0.4 U
	7/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**110**	0.020 UJ	2.0 U
	11/3/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.031	0.2 U	0.2 U	0.2 U	**110 D**	0.020 U	0.4 U
	1/18/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.022	0.6 U	0.6 U	0.6 U	**94**	0.020 U	1.2 U
	4/14/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.6	0.6 U	0.6 U	15 U	1.9	0.6 U	0.021 J	0.6 U	0.6 U	0.6 U	**92**	0.020 UJ	1.2 U
	7/20/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.024	0.6 U	0.6 U	0.6 U	**77**	0.020 U	1.2 U
	10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.022 J	0.2 U	0.2 U	0.2 U	**88 D**	0.020 UJ	0.4 U
	1/18/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	1.1	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.023	0.6 U	0.6 U	0.6 U	**91**	0.020 U	1.2 U
	4/14/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	2.4	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**85**	0.020 U	1.2 U
	7/19/11	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 UJ	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 J	0.6 U	0.6 U	0.6 U	**75**	0.020 UJ	1.2 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.021	0.2 U	0.2 U	0.2 U	**73**	0.020 U	0.4 U
	1/24/12	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	3.0 U	0.6 U	0.023	0.6 U	0.6 U	0.6 U	**81**	0.020 U	1.2 U
	4/12/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	79 E DNR	0.2 U DNR	0.5 U
	4/12/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**69**	2.0 U DNR	5.0 U DNR
	4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	0.020 U	NA
	4/12/2012 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	79 E DNR	0.2 U DNR	0.5 U
	4/12/12 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**68**	2.0 U DNR	5.0 U DNR
	4/12/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.031	NA	NA	NA	NA	0.020 U	NA
	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	83 E DNR	0.2 U DNR	0.5 U
	7/26/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**64**	2.0 U DNR	5.0 U DNR
	7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.029	NA	NA	NA	NA	0.020 U	NA
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	74 E DNR	0.2 U DNR	0.5 U
	1015/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**62**	2.0 U DNR	5.0 U DNR
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.025	NA	NA	NA	NA	0.020 U	NA
	1/21/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	90 E DNR	0.2 U DNR	0.5 U
	1/21/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**71**	2.0 U DNR	5.0 U DNR
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.030	NA	NA	NA	NA	0.020 U	NA
	4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	78 E DNR	0.2 U DNR	0.5 U
	4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**60**	2.0 U DNR	5.0 U DNR
	4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036	NA	NA	NA	NA	0.020 U	NA
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	76 E DNR	0.2 U DNR	0.5 U
	7/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**61**	2.0 U DNR	5.0 U DNR
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	86 E DNR	0.2 U DNR	0.5 U
	10/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**71**	2.0 U DNR	5.0 U DNR
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.029	NA	NA	NA	NA	0.020 U	NA
	1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	89 E DNR	0.2 U DNR	0.5 U
	1/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**68**	2.0 U DNR	5.0 U DNR
	1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036	NA	NA	NA	NA	0.020 U	NA
	4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	85 E DNR	0.2 U DNR	0.5 U
	4/10/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**66**	2.0 U DNR	5.0 U DNR
	4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.035	NA	NA	NA	NA	0.020 U	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	87 E DNR	0.2 U DNR	0.5 U
	7/24/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**64**	2.0 U DNR	5.0 U DNR
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	79 E DNR	0.2 U DNR	0.5 U
	10/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**63**	2.0 U DNR	5.0 U DNR
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.031	NA	NA	NA	NA	0.020 U	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	79 E DNR	0.2 U DNR	0.5 U
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**63**	2.0 U DNR	5.0 U DNR
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	73 E DNR	0.2 U DNR	0.5 U
	4/10/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**63**	2.0 U DNR	5.0 U DNR
	4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.037	NA	NA	NA	NA	0.020 U	NA
(41.5') (2)	1/3/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.044	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**81**	0.020 U	1.0 U
	4/11/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.022	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U
	10/31/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.052	1.0 U	1.0 U	1.0 U	**94**	0.020 U	1.0 U
	1/26/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.078	1.0 U	1.0 U	1.0 U	**91**	0.020 U	1.0 U
	4/12/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.024	1.0	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.080	0.2 U	0.2 U	0.2 U	**92 D**	0.020 U	0.4 U
	7/18/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.051	1.0 U	1.0 U	1.0 U	**83**	0.020 U	1.0 U
	11/2/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.064	1.0 U	1.0 U	1.0 U	**74**	0.020 U	1.0 U
	1/9/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.070	1.0 U	1.0 U	1.0 U	**80**	0.020 U	1.0 U
	4/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**84**	0.20 U	1.0 U
	7/10/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.058	1.0 U	1.0 U	1.0 U	**75**	0.020 U	1.0 U
	10/24/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.062	1.0 U	1.0 U	1.0 U	**90**	0.020 U	2.0 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																										
		Acetone	**Benzene**	**BDCM**	**Bromoform**	**Bromomethane**	**2-Butanone**	**Carbon Disulfide**	**Carbon Tetrachloride**	**Chloroethane**	**Chloroform**	**Chloromethane**	**DBCM**	**1,1-DCA**	**1,1-DCE**	**cis-1,2-DCE**	**trans-1,2-DCE**	**Ethylbenzene**	**MIBK**	**Methylene Chloride**	**Styrene**	**PCE**	**Toluene**	**1,1,1-TCA**	**1,1,2-TCA**	**TCE**	**Vinyl Chloride**	**Xylenes**
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW133 (41.5')	1/18/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.055	1.0 U	1.0 U	1.0 U	**73**	0.020 U	2.0 U
(continued) (2)	4/22/09	3.7	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.044 J	0.2 U	0.2 U	0.2 U	**85 D**	0.020 UJ	0.4 U
	7/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.043 J	1.0 U	1.0 U	1.0 U	**80**	0.020 UJ	2.0 U
	11/3/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.065	0.2 U	0.2 U	0.2 U	**72 D**	0.020 U	0.4 U
	1/18/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.7	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.047	0.6 U	0.6 U	0.6 U	**63**	0.020 U	1.2 U
	4/14/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.7	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.044 J	0.6 U	0.6 U	0.6 U	**66**	0.020 UJ	1.2 U
	7/20/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	0.6	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.051	0.6 U	0.6 U	0.6 U	**61**	0.020 U	1.2 U
	10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.7 J	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.044 J	0.2 U	0.2 U	0.2 U	**63 D**	0.020 UJ	0.4 U
	1/18/11	10 U	0.4 U	0.4 U	0.4 U	2.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 UJ	0.4 U	0.4 U	0.4 U	0.6	0.4 U	0.4 U	10 U	1.0 U	0.4 U	0.046	0.4 U	0.4 U	0.4 U	**63**	0.020 U	0.8 U
	4/14/11	10 U	0.4 U	0.4 U	0.4 U	2.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 U	0.4 U	0.4 U	0.4 U	0.7	0.4 U	0.4 U	10 U	1.0 U	0.4 U	0.044	0.4 U	0.4 U	0.4 U	**74**	0.020 U	0.8 U
	7/19/11	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 UJ	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.042	0.6 U	0.6 U	0.6 U	**68**	0.020 U	1.2 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.045	0.2 U	0.2 U	0.2 U	**62**	0.020 U	0.4 U
	1/24/12	10 U	0.4 U	0.4 U	0.4 U	2.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 U	0.4 U	0.4 U	0.4 U	0.6	0.4 U	0.4 U	10 U	2.0 U	0.4 U	0.048	0.4 U	0.4 U	0.4 U	**60**	0.020 U	0.8 U
	4/12/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	69 E DNR	0.2 U DNR	0.5 U
	4/12/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**56**	2.0 U DNR	5.0 U DNR
	4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.057	NA	NA	NA	NA	0.020 U	NA
	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	72 E DNR	0.2 U DNR	0.5 U
	7/26/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.055	NA	NA	NA	NA	0.020 U	NA
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	62 E DNR	0.2 U DNR	0.5 U
	1015/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**50**	2.0 U DNR	5.0 U DNR
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.047	NA	NA	NA	NA	0.020 U	NA
	1/21/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	86 E DNR	0.2 U DNR	0.5 U
	1/21/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**67**	2.0 U DNR	5.0 U DNR
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.057	NA	NA	NA	NA	0.020 U	NA
	4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	70 E DNR	0.2 U DNR	0.5 U
	4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**56**	2.0 U DNR	5.0 U DNR
	4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.065	NA	NA	NA	NA	0.020 U	NA
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	65 E DNR	0.2 U DNR	0.5 U
	7/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**57**	2.0 U DNR	5.0 U DNR
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.063	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.3 X	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	74 E DNR	0.2 U DNR	0.5 U
	10/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**57**	2.0 U DNR	5.0 U DNR
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.057	NA	NA	NA	NA	0.020 U	NA
	1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	68 E DNR	0.2 U DNR	0.5 U
	1/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**55**	2.0 U DNR	5.0 U DNR
	1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.074	NA	NA	NA	NA	0.020 U	NA
	4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	68 E DNR	0.2 U DNR	0.5 U
	4/10/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**52**	2.0 U DNR	5.0 U DNR
	4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.063	NA	NA	NA	NA	0.020 U	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	65 E DNR	0.2 U DNR	0.5 U
	7/24/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**52**	2.0 U DNR	5.0 U DNR
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.066	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	62 E DNR	0.2 U DNR	0.5 U
	10/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**49**	2.0 U DNR	5.0 U DNR
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.055	NA	NA	NA	NA	0.020 U	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	62 E DNR	0.2 U DNR	0.5 U
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**47**	2.0 U DNR	5.0 U DNR
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	61 E DNR	0.2 U DNR	0.5 U
	4/10/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**49**	2.0 U DNR	5.0 U DNR
	4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.067	NA	NA	NA	NA	0.020 U	NA
(28.5')	1/3/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.03	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**80**	0.020 U	1.0 U
(1)	4/11/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**90**	0.020 U	1.0 U
	10/31/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.074	1.0 U	1.0 U	1.0 U	**88**	0.020 U	1.0 U
	1/26/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.097	1.0 U	1.0 U	1.0 U	**76**	0.020 U	1.0 U
	7/18/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.057	1.0 U	1.0 U	1.0 U	**72**	0.020 U	1.0 U
	11/2/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.14	1.0 U	1.0 U	1.0 U	**67**	0.020 U	1.0 U
	1/9/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.065	1.0 U	1.0 U	1.0 U	**70**	0.020 U	1.0 U
	4/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**66**	0.20 U	1.0 U
	7/10/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**60**	0.20 U	1.0 U
	10/24/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.072	1.0 U	1.0 U	1.0 U	**78**	0.020 U	2.0 U
	1/18/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.060	1.0 U	1.0 U	1.0 U	**62**	0.020 U	2.0 U
	4/22/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.048 J	0.2 U	0.2 U	0.2 U	**71**	0.020 UJ	0.4 U
	7/14/09	10 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.26 J	1.0 U	1.0 U	1.0 U	**65**	0.020 UJ	2.0 U
	11/3/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.080	0.2 U	0.2 U	0.2 U	**71 D**	0.020 U	0.4 U
	1/18/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.058	0.6 U	0.6 U	0.6 U	**61**	0.020 U	1.2 U
	4/14/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.047 J	0.2 U	0.2 U	0.2 U	**55**	0.020 UJ	0.4 U
	7/20/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.056	0.2 U	0.2 U	0.2 U	**46**	0.020 U	0.4 U
	10/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.046	0.2 U	0.2 U	0.2 U	**53**	0.020 U	0.4 U
	1/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.047	0.2 U	0.2 U	0.2 U	**52**	0.020 U	0.4 U
	4/14/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.040	0.2 U	0.2 U	0.2 U	**49**	0.020 U	0.4 U
	7/19/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.039	0.2 U	0.2 U	0.2 U	**40**	0.020 U	0.4 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.040	0.2 U	0.2 U	0.2 U	**41**	0.020 U	0.4 U
	1/24/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.047	0.2 U	0.2 U	0.2 U	**45**	0.020 U	0.4 U
	4/12/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	43 E DNR	0.2 U DNR	0.5 U
	4/12/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**36**	2.0 U DNR	5.0 U DNR
	4/12/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.052	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW133 (28.5') (continued) (1)	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	40 E DNR	0.2 U DNR	0.5 U
	7/26/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**32**	2.0 U DNR	5.0 U DNR
	7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.048	NA	NA	NA	NA	0.020 U	NA
	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	40 E DNR	0.2 U DNR	0.5 U
	1015/12 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**34**	1.0 U DNR	2.5 U DNR
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.040	NA	NA	NA	NA	0.020 U	NA
	10/15/2012 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	40 E DNR	0.2 U DNR	0.5 U
	10/15/12 (DUP DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**34**	1.0 U DNR	2.5 U DNR
	10/15/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.041	NA	NA	NA	NA	0.020 U	NA
	1/21/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	44 E DNR	0.2 U DNR	0.5 U
	1/21/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**37**	2.0 U DNR	5.0 U DNR
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.039	NA	NA	NA	NA	0.020 U	NA
	4/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	28 E DNR	0.2 U DNR	0.5 U
	4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR
	4/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.039	NA	NA	NA	NA	0.020 U	NA
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	29 E DNR	0.2 U DNR	0.5 U
	7/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	2.0 U DNR	5.0 U DNR
	7/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.034	NA	NA	NA	NA	0.020 U	NA
	10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	29 E DNR	0.2 U DNR	0.5 U
	10/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	2.0 U DNR	5.0 U DNR
	10/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033	NA	NA	NA	NA	0.020 U	NA
	1/20/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	29 E DNR	0.2 U DNR	0.5 U
	1/20/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**23**	2.0 U DNR	5.0 U DNR
	1/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.039	NA	NA	NA	NA	0.020 U	NA
	4/10/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	26 E DNR	0.2 U DNR	0.5 U
	4/10/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**20**	2.0 U DNR	5.0 U DNR
	4/10/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	0.020 U	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	31 E DNR	0.2 U DNR	0.5 U
	7/24/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	2.0 U DNR	5.0 U DNR
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.038	NA	NA	NA	NA	0.020 U	NA
	10/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	28 E DNR	0.2 U DNR	0.5 U
	10/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**23**	2.0 U DNR	5.0 U DNR
	10/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	0.020 U	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	28 E DNR	0.2 U DNR	0.5 U
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/10/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	25 E DNR	0.2 U DNR	0.5 U
	4/10/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**21**	2.0 U DNR	5.0 U DNR
	4/10/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036	NA	NA	NA	NA	0.020 U	NA
EGW134	2/1/06	14 *	0.2 U	0.2 U	0.2 U	0.2 UJ	1.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.023	6.2	1.6	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	**2.3**	**16**	0.3
	4/14/06	7.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.041	8.4	1.7	0.4 U	2.0 U	0.6 U	0.4 U	0.4 U	2.6	0.4 U	0.4 U	**1.6**	**21**	0.8 U
EGW135	2/1/06	1.3 *	0.2 U	0.2 U	0.2 U	0.2 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/14/06	1.4 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/17/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	1/10/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.02 U	0.020 U	0.4 U
	4/9/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/16/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 J	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	**0.032 J**	0.4 U
	11/8/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	0.020 UJ	0.020 UJ	0.4 U
	1/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.033	0.020 U	0.4 U
	4/21/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.6
	7/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/15/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/22/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.12	0.020 U	0.4 U
	7/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 UJ	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/21/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/20/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/29/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/19/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/25/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW135 (continued)	7/25/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW136	2/1/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/14/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
EGW137	2/1/06	5.2 *	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	3.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.4 U
	4/14/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.4 U
	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	4.9	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.32	**0.36**	0.4 U
	1/10/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.0**	0.020 U	0.4 U
	4/9/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.061 U	0.020 U	0.4 U
	7/16/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	1.4	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.1 J	**0.053 J**	0.4 U
	11/7/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.8	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.078 U	0.028	0.4 U
	1/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.039	0.020 U	0.4 U
	4/21/08	3.5	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.028	0.020 U	0.4 U
	7/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.035	0.020 U	0.4 U
	10/28/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	2.4	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.054	**0.11**	0.4 U
	1/15/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.022	0.020 U	0.4 U
	4/23/09	4.4	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.027	0.020 U	0.4 U
	7/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	4.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 UJ	0.020 U	0.2 U	0.2 U	0.2 U	0.047	**0.65**	0.4 U
	11/5/09	9.8	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.18	**0.16**	0.4 U
	1/21/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.027	0.020 U	0.4 U
	4/20/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.034	0.025	0.4 U
	7/21/10	6.6	0.2 U	0.2 U	0.2 U	0.020 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.031	**0.060**	0.4 U
	10/29/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.029	**0.24**	0.4 U
	1/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/21/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/26/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.0	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	**0.34**	0.4 U
	10/20/11	43	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**19**	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**6.5**	**3.7**	0.4 U
	1/25/12	7.0	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	**0.35**	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.040**	NA
	7/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	0.2 DNR	0.5 U
	7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.26**	NA
	10/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.4	29 E DNR	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**12**	7.9 DNR	0.5 U
	10/17/12 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	**24**	1.0 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	9.8 DNR	6.8 DNR	2.5 U DNR
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**8.5**	NA
	1/22/13	3.9 X	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.060**	NA
	4/18/13	75 J	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.081**	NA
	4/18/13 (DUP)	12 J	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/18/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.085**	NA
	7/29/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	9.6	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.4**	3.5 DNR	0.5 U
	7/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**3.5**	NA
	7/29/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	8.6	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.8**	3.1 DNR	0.5 U
	7/29/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**3.4**	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.1 X	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	1.1 DNR	0.6
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**1.0**	NA
	10/21/2013 (DUP)	3.3 X	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.2 U	0.1 X	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2	0.9 DNR	0.6
	10/21/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.93**	NA
	1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	**0.3**	0.5 U
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.20 DNR	NA
	10/24/14	11	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	1.4 DNR	0.1 X
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**1.4**	NA
	1/19/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.1 X DNR	0.5 U
	1/19/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.11**	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 DNR	0.4 X
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.27**	NA
	4/15/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 DNR	0.3 X
	4/15/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.28**	NA
EGW138	4/14/06	4.4 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**24**	0.020 U	1.2 U
	10/27/06	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.021	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**28**	0.020 U	1.2 U
	1/9/07	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**20**	0.020 U	1.2 U
	4/10/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**19 D**	0.020 U	0.4 U
	7/17/07	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**26**	0.020 U	1.2 U
	11/6/07	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**24**	0.020 U	1.2 U
	1/15/08	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**19**	0.020 UJ	1.2 U
	4/21/08	9.0 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**19**	0.020 UJ	1.2 U
	7/15/08	9.0 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**23**	0.020 U	1.2 U
	10/27/08	9.0 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**20**	0.020 U	1.2 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW138 (continued)		1/15/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**15 J**	0.020 U	0.4 U
		4/23/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**12**	0.020 U	0.4 U
		7/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 UJ	0.020 UJ	0.2 U	0.2 U	0.2 U	**14**	0.020 UJ	0.4 U
		11/6/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**14**	0.020 U	0.4 U
		1/21/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**12**	0.020 U	0.4 U
		4/20/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.4 U
		7/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**9.4**	0.020 U	0.4 U
		10/29/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.4 U
		1/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.4 U
		4/21/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**8.5**	0.020 U	0.4 U
		7/26/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.4 U
		10/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**9.7**	0.020 U	0.4 U
		1/24/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	0.4 U
		4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**9.2**	0.2 U DNR	0.5 U
		4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		7/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**7.8**	0.2 U DNR	0.5 U
		7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/18/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**12**	0.2 U DNR	0.5 U
		10/18/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		12/27/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 UJ	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**3.5**	0.2 U DNR	0.5 U
		12/27/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**12**	0.2 U DNR	0.5 U
		1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.3**	0.2 U DNR	0.5 U
		2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**4.7**	0.2 U DNR	0.5 U
		4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**12**	0.2 U DNR	0.5 U
		7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U
		10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**14**	0.2 U DNR	0.5 U
		1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		10/27/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**11**	0.2 U DNR	0.5 U
		10/27/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
		1/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**12**	0.2 U DNR	0.5 U
		1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**11**	0.2 U DNR	0.5 U
		4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW139	**(11-15')**	1/6/06	NA	1.0 U	1.0 U	1.0 U	2.0 U	NA	NA	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**81**	0.5 U	1.0 U
	(15-20')	4/15/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**81 D**	0.2 U	0.4 U
		10/22/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	53 E DNR	0.2 U DNR	0.5 U
		10/22/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**46**	2.0 U DNR	5.0 U DNR
		10/22/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		12/27/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 UJ	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	38 E DNR	0.2 U DNR	0.5 U
		12/27/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**33**	2.0 U DNR	5.0 U DNR
		12/27/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		1/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	37 E DNR	0.2 U DNR	0.5 U
		1/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**32**	2.0 U DNR	5.0 U DNR
		1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	30 E DNR	0.2 U DNR	0.5 U
		2/12/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**23**	2.0 U DNR	5.0 U DNR
		2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/19/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**22**	0.2 U DNR	0.5 U
		4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		7/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**24**	0.2 U DNR	0.5 U
		7/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		10/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**21**	0.2 U DNR	0.5 U
		10/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**20**	0.2 U DNR	0.5 U
		1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		10/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**16**	0.2 U DNR	0.5 U
		10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**16**	0.2 U DNR	0.5 U
		1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**17**	0.2 U DNR	0.5 U
		4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	(21.5-25.5')	1/6/06	NA	1.0 U	1.0 U	1.0 U	2.0 U	NA	NA	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.5**	0.5 U	1.0 U
	(31.5-35.5')	1/6/06	NA	1.0 U	1.0 U	1.0 U	2.0 U	NA	NA	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	1.0 U
EGW140	**(11-15')**	1/5/06	NA	1.0 U	1.0 U	1.0 U	2.0 U	NA	NA	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.6	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**168**	0.5 U	1.0 U
	(12.25-17.25')	4/15/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**110 D**	0.2 U	0.4 U
	(21-25')	1/5/06	NA	1.0 U	1.0 U	1.0 U	2.0 U	NA	NA	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**78.2**	0.5 U	1.0 U
	(28-32')	1/5/06	NA	1.0 U	1.0 U	1.0 U	2.0 U	NA	NA	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	4.3	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**118**	0.5 U	1.0 U
		1/5/06 (DUP)	NA	1.0 U	1.0 U	1.0 U	2.0 U	NA	NA	1.0 U	2.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	4.9	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**112**	0.5 U	1.0 U
EGW141	**(11-15')**	1/4/06	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.1	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**124**	0.5 U	1.0 U
	(21-25')	1/4/06	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**38.6**	0.5 U	1.0 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW141 (12.25-17.25') (continued)	4/14/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.032	2.9	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	**0.047**	1.0 U
	10/27/06	60 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	0.020 U	4.0 U	4.0 U	4.0 U	20 U	6.0 U	4.0 U	0.020 U	4.0 U	4.0 U	4.0 U	**130**	0.020 U	8.0 U
	10/27/06 (DUP)	45 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.020 U	3.0 U	3.0 U	3.0 U	15 U	4.5 U	3.0 U	0.020 U	3.0 U	3.0 U	3.0 U	**140**	0.020 U	6.0 U
	1/9/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**120**	0.020 U	1.0 U
	4/10/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	2.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**140**	0.020 U	1.0 U
	7/17/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U
	11/6/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**87**	0.020 U	1.0 U
	1/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 UJ	1.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**130**	0.020 UJ	0.4 U
	4/21/08	15 U	1.0 U	1.0 U	1.0 U	2.5 U	12 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 UJ	2.0	1.0 U	1.0 U	12 U	2.5 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**110 D**	0.020 UJ	2.0 U
	7/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U
	7/15/08 (DUP)	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U
	10/27/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**130**	0.020 U	2.0 U
	1/15/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	2.0 U
	4/23/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	**120 D**	0.2 U	0.4 U
	7/15/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 UJ	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 UJ	1.1	0.6 U	0.6 U	15 U	1.5 U	0.6 UJ	0.020 UJ	0.6 U	0.6 U	0.6 U	**95**	0.020 UJ	1.2 U
	11/6/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**93**	0.020 U	2.0 U
	1/21/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.1	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**100**	0.020 U	1.2 U
	4/15/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**96 D**	0.2 U	0.4 U
	4/20/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.1	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**98**	0.020 UJ	1.2 U
	7/21/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**86**	0.020 U	1.2 U
	10/29/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**92**	0.020 UJ	1.2 U
	1/18/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**80**	0.020 U	1.2 U
	4/21/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**79**	0.020 U	1.2 U
	7/26/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.1	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**86**	0.020 UJ	1.2 U
	10/20/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**86**	0.020 U	1.2 U
	1/24/12	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	15 U	3.0 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**83**	0.020 U	1.2 U
	1/24/12 (DUP)	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	15 U	3.0 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**84**	0.020 U	1.2 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	87 E DNR	0.2 U DNR	0.5 U
	4/16/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**75**	2.0 U DNR	5.0 U DNR
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA	NA	NA	0.020 U	NA
	7/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	90 E DNR	0.2 U DNR	0.5 U
	7/24/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**71**	2.0 U DNR	5.0 U DNR
	7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA	NA	NA	0.020 U	NA
	10/18/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	88 E DNR	0.2 U DNR	0.5 U
	10/18/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**72**	2.0 U DNR	5.0 U DNR
	10/18/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.011 X	NA	NA	NA	NA	0.020 U	NA
	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	73 E DNR	0.2 U DNR	0.5 U
	1/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	57 E DNR	0.2 U DNR	0.5 U
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**43**	2.0 U DNR	5.0 U DNR
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	56 E DNR	0.2 U DNR	0.5 U
	7/24/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**43**	2.0 U DNR	5.0 U DNR
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	54 E DNR	0.2 U DNR	0.5 U
	10/21/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**42**	2.0 U DNR	5.0 U DNR
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	42 E DNR	0.2 U DNR	0.5 U
	1/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**35**	2.0 U DNR	5.0 U DNR
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/27/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	35 E DNR	0.2 U DNR	0.5 U
	10/27/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**28**	2.0 U DNR	5.0 U DNR
	10/27/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	36 E DNR	0.2 U DNR	0.5 U
	1/16/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**29**	2.0 U DNR	5.0 U DNR
	1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	37 E DNR	0.2 U DNR	0.5 U
	4/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**26**	2.0 U DNR	5.0 U DNR
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW143	2/1/06	1.4 *	0.2 U	0.2 U	0.2 U	0.2 UJ	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**9.7**	0.020 U	0.4 U
	4/14/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.020 U	0.4 U
	10/27/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.6 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.130 U	0.020 U	0.4 U
	1/10/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.63**	0.020 U	0.4 U
	4/9/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.25	0.035 U	0.4 U
	7/16/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 J	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.18 J	0.020 U	0.4 U
	11/7/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.13 U	0.020 U	0.4 U
	1/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.14	0.020 U	0.4 U
	4/21/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.15	0.020 U	0.4 U
	7/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.16	0.020 U	0.4 U
	10/28/08	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.086	0.020 U	0.4 U
	10/28/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.092	0.020 U	0.4 U
	1/15/09	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.070	0.020 U	0.4 U
	1/15/09 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.063	0.020 U	0.4 U
	4/23/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.090	0.020 U	0.4 U
	7/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 UJ	0.020 U	0.2 U	0.2 U	0.2 U	0.065	0.020 U	0.4 U
	11/5/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.044	0.020 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW143 (continued)	1/21/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.038	0.020 U	0.4 U
	4/20/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.030	0.020 U	0.4 U
	7/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020	0.020 U	0.4 U
	10/29/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.028	0.020 U	0.4 U
	1/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/21/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/26/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/25/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U DNR	0.5 U
	7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/19/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/19/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.5	0.2 U DNR	0.5 U
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW144	2/27/06	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.058	3.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	1.1	0.2 U	0.2 U	0.2 U	**630 D**	0.020 U	0.4 U
	4/4/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.066	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	0.020 U	5.0 U
	7/11/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.077	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**540**	0.020 U	5.0 U
	11/13/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.32	10	5.0 U	5.0 U	25 U	10 U	5.0 U	1.0	5.0 U	5.0 U	5.0 U	**550**	**0.16**	5.0 U
	12/13/06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**56**	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2,000**	5.0 U	NA
	1/18/07	320	50 U	50 U	50 U	0.2 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	2.0	**54**	50 U	50 U	250 U	100 U	50 U	50 U	50 U	50 U	50 U	**1,500**	**0.76**	50 U
	2/16/07	3.0 U	0.2 U	0.2 U	0.2 U	10 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2	**50**	0.7	0.2 U	1.0 U	0.3 U	0.2 U	**2.1**	0.2 U	0.2 U	0.2 U	**1,000**	**1.20**	0.4 U
	3/15/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.4	**37**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**760**	**1.40**	10 U
	4/16/07	50 U	10 U	10 U	10 U	10 UJ	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.4	**38**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,300**	**0.31**	10 U
	5/14/07	50 UJ	10 UJ	10 UJ	10 UJ	10 U	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**20 J**	10 UJ	10 UJ	50 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**1,000 J**	10 UJ	10 UJ
	6/12/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3.2	**23**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**860**	**0.38**	10 U
	7/12/07	50 U	10 U	10 U	10 U	5.0 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.5	**19**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**650**	**0.19**	10 U
	8/21/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.21	5.6	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**510**	0.022	5.0 U
	9/25/07	26	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.3	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**700**	5.0 U	5.0 U
	10/17/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**420**	5.0 U	5.0 U
	10/17/07 (DUP)	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**500**	5.0 U	5.0 U
	10/30/07	25 U	5.0 U	5.0 U	5.0 U	3.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.082	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**410**	0.020 U	5.0 U
	11/20/07	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**240**	3.0 U	3.0 U
	1/17/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.2 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**380**	0.2 U	3.0 U
	2/5/08	15 U	3.0 U	3.0 U	3.0 U	5.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**490**	3.0 U	3.0 U
	3/7/08	25 U	5.0 U	5.0 U	5.0 U	0.5 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**440**	5.0 U	5.0 U
	4/2/08	3.0 U	0.2 U	0.2 U	0.2 U	3.0 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	2.8	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	1.1	0.2 U	0.2 U	0.2 U	**600 D**	0.2 U	0.4 U
	4/10/08	15 U	3.0 U	3.0 U	3.0 U	5.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.20 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**390**	0.20 U	3.0 U
	4/29/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	5.0 U	5.0 U
	7/9/08	25 U	5.0 U	5.0 U	5.0 U	3.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**380**	0.20 U	5.0 U
	10/21/08	15 U	3.0 U	3.0 U	3.0 U	5.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.22	8.3	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**620 D**	**0.058**	6.0 U
	1/13/09	25 U	5.0 U	5.0 U	5.0 U	0.5 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.14	7.7	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**550**	**0.043**	10 U
	3/2/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.1 X	0.2 U	0.2 U	0.2 U	0.2	8.7	0.2 X	0.2 U	2.5 U	0.5 U	0.2 U	0.9	0.2 U	0.2 U	0.2 U	**570 D**	0.2 U	0.4 U
	4/8/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	0.2 U	0.2	14	0.3	0.2 U	2.5 U	0.5 U	0.2 U	1.0	0.2 U	0.2 U	0.2 U	**710 D**	0.2 U	0.4 U
	5/4/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.4	**28**	0.3	0.2 U	2.5 U	0.5 U	0.2 U	1.1	0.2 U	0.2 U	0.2 U	**1,000 D**	**0.2**	0.4 U
	5/26/09	25 U	2.0 U	2.0 U	2.0 U	5.0 U	25 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**36**	2.0 U	2.0 U	25 U	5.0 U	2.0 U	0.2 U	2.0 U	2.0 U	2.0 U	**1,100 D**	2.0 U	4.0 U
	6/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.3	0.5 U	0.2 U	0.2 U	0.4	**34**	0.4	0.2 U	5.0 U	0.5 U	0.2 U	1.2	0.2 U	0.2 U	0.2 U	**1,200 D**	0.2 U	0.4 U
	7/13/09	150 U	6.0 U	6.0 U	6.0 U	15 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**37**	6.0 U	6.0 U	150 U	15 U	6.0 U	0.76 J	6.0 U	6.0 U	6.0 U	**1,300**	**0.22 J**	12 U
	8/27/09	150 U	6.0 U	6.0 U	6.0 U	15 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**30**	6.0 U	6.0 U	150 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	**1,200**	6.0 U	12 U
	9/14/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.3	**21**	0.3	0.2 U	5.0 U	0.5 U	0.2 U	0.9	0.2 U	0.2 U	0.2 U	**940 D**	0.2 U	0.4 U
	10/22/09	150 U	6.0 U	6.0 U	6.0 U	15 UJ	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**34**	6.0 U	6.0 U	150 U	15 U	6.0 U	0.76	6.0 U	6.0 U	6.0 U	**1,100**	**0.16**	12 U
	1/14/10	75 U	3.0 U	3.0 U	3.0 U	7.5 U	75 U	3.0 U	3.0 U	3.0 U	3.0 U	7.5 U	3.0 U	3.0 U	3.0 U	5.1	3.0 U	3.0 U	75 U	7.5 U	3.0 U	0.42	3.0 U	3.0 U	3.0 U	**420**	0.023	6.0 U
	4/12/10	100 UJ	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	8.2	4.0 U	4.0 U	100 U	10 U	4.0 U	0.34 J	4.0 U	4.0 U	4.0 U	**460**	**0.056 J**	8.0 U
	7/19/10	50 UJ	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 UJ	2.0 U	2.0 U	2.0 U	13	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.48	2.0 U	2.0 U	2.0 U	**590**	**0.11**	4.0 U
	10/19/10	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	**23**	4.0 U	4.0 U	100 U	10 U	4.0 U	0.64 J	4.0 U	4.0 U	4.0 U	**820**	0.20 UJ	8.0 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW144 (continued)	1/13/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	7.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.44	4.0 U	4.0 U	4.0 U	**550**	0.20 U	8.0 U
	4/12/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	100 U	10 U	4.0 U	0.40	4.0 U	4.0 U	4.0 U	**360**	**0.040**	8.0 U
	7/14/11	50 UJ	2.0 U	2.0 U	2.0 U	10 U	50 UJ	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	9.0	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.47	2.0 U	2.0 U	2.0 U	**490**	**0.068**	4.0 U
	10/10/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.3	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**40**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.56	2.0 U	2.0 U	2.0 U	**600**	**7.9**	4.0 U
	1/22/12	100 U	4.0 U	4.0 U	4.0 UJ	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	8.8	4.0 U	4.0 U	100 U	20 U	4.0 U	0.72	4.0 U	4.0 U	4.0 U	**580**	**0.043**	8.0 U
	4/10/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	3.9	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	370 E DNR	1.0 U DNR	2.5 U
	4/10/12 (DL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.58	NA	NA	NA	NA	**0.029**	NA
	4/10/12 (SIM)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**380**	10 U DNR	25 U DNR
	7/23/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.1	0.4 U	1.0 U	10 U	0.4 X	1.0 U	0.5 DNR	0.4 U	1.0 U	0.4 U	390 E DNR	0.4 U DNR	1.0 U
	7/23/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.2 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**350**	4.0 U DNR	10 U DNR
	7/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.62	NA	NA	NA	NA	**0.054**	NA
	10/10/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.2 X	11	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.6 DNR	0.4 U	1.0 U	0.4 U	560 E DNR	0.4 U DNR	1.0 U
	10/10/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	12 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**550**	10 U DNR	25 U DNR
	10/10/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.66	NA	NA	NA	NA	**0.11**	NA
	1/17/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**18**	1.0 U	2.5 U	25 U	2.5 U	2.5 U	0.7 X DNR	1.0 U	2.5 U	1.0 U	780 E DNR	1.0 U DNR	2.5 U
	1/17/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	19 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**780**	10 U DNR	25 U DNR
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.89	NA	NA	NA	NA	**0.16**	NA
	4/9/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**17**	1.0 U	2.5 U	25 U	2.5 U	2.5 U	0.8 X DNR	1.0 U	2.5 U	1.0 U	760 E DNR	1.0 U DNR	2.5 U
	4/9/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	18 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**800**	10 U DNR	25 U DNR
	4/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.85	NA	NA	NA	NA	**0.11**	NA
	7/22/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**19**	1.0 U	2.5 U	25 U	2.5 U	2.5 U	0.9 X DNR	1.0 U	2.5 U	1.0 U	860 E DNR	1.0 U DNR	2.5 U
	7/22/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	21 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**910**	10 U DNR	25 U DNR
	7/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.87	NA	NA	NA	NA	**0.096**	NA
	10/15/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 UJ	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	**18**	1.0 U	2.5 U	25 U	2.5 U	2.5 U	0.9 X DNR	1.0 U	2.5 U	1.0 U	890 E DNR	1.0 U DNR	2.5 U
	10/15/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	18 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**880**	10 U DNR	25 U DNR
	10/15/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.77	NA	NA	NA	NA	**0.13**	NA
	1/15/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	**23**	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	950 E DNR	2.0 U DNR	5.0 U
	1/15/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	27 DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**950**	20 U DNR	50 U DNR
	1/15/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.97	NA	NA	NA	NA	**0.11**	NA
	4/8/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	**14***	5.0 U	**5.0**	5.0 U	5.0 U	5.0 U	2.0 U	12	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	640 E DNR	2.0 U DNR	5.0 U
	4/8/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	14 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**730**	20 U DNR	50 U DNR
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.80	NA	NA	NA	NA	**0.063**	NA
	7/9/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	12	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	740 E DNR	2.0 U DNR	5.0 U
	7/9/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	12 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**710**	20 U DNR	50 U DNR
	7/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.72	NA	NA	NA	NA	**0.23**	NA
	10/20/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	22 DNR	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	790 E DNR	2.0 U DNR	5.0 U
	10/20/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	**28**	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**920**	20 U DNR	50 U DNR
	10/20/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.75	NA	NA	NA	NA	**0.21**	NA
	1/13/15	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U DNR	5.0 U	5.0 U	2.0 U	**17**	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U	2.0 U	5.0 U	2.0 U	790 E DNR	2.0 U DNR	5.0 U
	1/13/15 (DL)	500 U DNR	20 U DNR	50 DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	18 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**790**	20 U DNR	50 U DNR
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.34**	NA
	4/9/15	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	**24**	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U	2.0 U	5.0 U	2.0 U	850 E DNR	2.0 U DNR	5.0 U
	4/9/15 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	27 DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**940**	20 U DNR	50 U DNR
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.38**	NA
EGW145	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	2.9	0.2 U	0.2 U	1.0 U	0.3.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**250**	0.020 U	0.4 U
	1/10/07	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.020 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**100**	0.020 U	3.0 U
	4/9/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**90**	0.024 U	1.0 U
	7/16/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**23**	0.021 J	1.0 U
	11/7/07	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	1.4	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**80**	0.020 U	1.2 U
	1/14/08	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**40**	0.020 U	1.2 U
	4/21/08	15 U	1.0 U	1.0 U	1.0 U	2.5 U	12 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.7	1.0 U	1.0 U	12 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**120 D**	0.020 U	2.0 U
	7/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**85**	0.20 U	1.0 U
	10/28/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**99**	0.20 U	2.0 U
	1/15/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**80**	0.020 U	2.0 U
	4/23/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**110 D**	0.2 U	0.4 U
	7/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**55**	0.020 UJ	0.4 U
	11/5/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**68**	0.020 U	1.2 U
	1/21/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**74**	0.020 U	1.2 U
	4/20/10	10 U	0.4 U	0.4 U	0.4 U	1.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 U	0.4 U	0.4 U	0.4 U	0.8	0.4 U	0.4 U	10 U	1.0 U	0.4 U	0.020 UJ	0.4 U	0.4 U	0.4 U	**67**	0.020 UJ	0.8 U
	7/21/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**55 D**	0.020 U	0.4 U
	10/29/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.7	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**53**	0.020 UJ	1.2 U
	1/18/11	10 U	0.4 U	0.4 U	0.4 U	2.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 UJ	0.4 U	0.4 U	0.4 U	0.8	0.4 U	0.4 U	10 U	1.0 U	0.4 U	0.020 U	0.4 U	0.4 U	0.4 U	**67**	0.020 U	0.8 U
	4/21/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**40 J**	0.020 U	0.4 U
	4/21/11 (DUP)	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**62 J**	0.020 U	1.2 U
	7/26/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**27**	0.020 U	0.4 U
	10/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**24**	0.020 U	0.4 U
	10/20/11 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**23**	0.020 U	0.4 U
	1/25/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**48**	0.020 U	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	57 E DNR	0.2 U DNR	0.5 U
	4/16/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/12	4.5 X	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	35 E DNR	0.2 U DNR	0.5 U
	7/24/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**25**	2.0 U DNR	5.0 U DNR
	7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**14**	0.2 U DNR	0.5 U
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																										
		Acetone	**Benzene**	**BDCM**	**Bromoform**	**Bromomethane**	**2-Butanone**	**Carbon Disulfide**	**Carbon Tetrachloride**	**Chloroethane**	**Chloroform**	**Chloromethane**	**DBCM**	**1,1-DCA**	**1,1-DCE**	**cis-1,2-DCE**	**trans-1,2-DCE**	**Ethylbenzene**	**MIBK**	**Methylene Chloride**	**Styrene**	**PCE**	**Toluene**	**1,1,1-TCA**	**1,1,2-TCA**	**TCE**	**Vinyl Chloride**	**Xylenes**
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW145	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	40 E DNR	0.2 U DNR	0.5 U
(continued)	1/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**32**	2.0 U DNR	5.0 U DNR
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	30 E DNR	0.2 U DNR	0.5 U
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	5.0 U DNR
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**12**	0.2 U DNR	0.5 U
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/19/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**20**	0.2 U DNR	0.5 U
	1/19/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	28 E DNR	0.2 U DNR	0.5 U
	4/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	2.0 U DNR	5.0 U DNR
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW146	10/26/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.14	**26**	0.3	0.2 U	1.0 U	0.3.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1,000**	**0.21**	0.4 U
	1/10/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.089	**16**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**680**	**0.65**	10 U
	4/9/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.10	**22**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**770**	**0.54**	10 U
	7/16/07	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.048 J	8.8	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**390**	**0.087 J**	3.0 U
	11/7/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.082	12	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	**0.16**	5.0 U
	1/14/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.2 U	7.4	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**240**	0.2 U	5.0 U
	4/21/08	15 U	1.0 U	1.0 U	1.0 U	2.5 U	12 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	15	1.0 U	1.0 U	12 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**560 D**	**0.38**	2.0 U
	7/15/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	11	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**590**	0.20 U	5.0 U
	10/28/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	**17**	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**840**	0.20 U	10 U
	1/15/09	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.057	11	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	**590**	**0.13**	20 U
	4/23/09	25 U	2.0 U	2.0 U	2.0 U	5.0 U	25 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	12	2.0 U	2.0 U	25 U	5.0 U	2.0 U	0.2 UJ	2.0 U	2.0 U	2.0 U	**670 D**	**0.24 J**	4.0 U
	7/15/09	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 UJ	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 UJ	9.6	4.0 U	4.0 U	100 U	10 U	4.0 UJ	0.20 UJ	4.0 U	4.0 U	4.0 U	**480**	0.20 UJ	8.0 U
	11/5/09	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	13	4.0 U	4.0 U	100 U	10 U	4.0 U	0.020 U	4.0 U	4.0 U	4.0 U	**710**	**0.086**	8.0 U
	1/21/10	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	11	4.0 U	4.0 U	100 U	10 U	4.0 U	0.020 U	4.0 U	4.0 U	4.0 U	**640**	**0.32**	8.0 U
	4/20/10	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	9.8	4.0 U	4.0 U	100 U	10 U	4.0 U	0.020 UJ	4.0 U	4.0 U	4.0 U	**570**	**0.17 J**	8.0 U
	4/20/10 (DUP)	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	9.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.020 UJ	4.0 U	4.0 U	4.0 U	**550**	**0.20 J**	8.0 U
	7/21/10	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 UJ	4.0 U	4.0 U	4.0 U	7.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.020 U	4.0 U	4.0 U	4.0 U	**400**	**0.082**	8.0 U
	10/29/10	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	11	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 UJ	4.0 U	4.0 U	4.0 U	**600**	**0.28 J**	8.0 U
	1/20/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	9.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 U	4.0 U	4.0 U	4.0 U	**560**	**0.37**	8.0 U
	4/20/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	7.8	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 U	4.0 U	4.0 U	4.0 U	**480**	**0.30**	8.0 U
	7/19/11	100 UJ	4.0 U	4.0 U	4.0 U	20 U	100 UJ	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.8	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 U	4.0 U	4.0 U	4.0 U	**480**	0.20 U	8.0 U
	7/19/11 (DUP)	100 UJ	4.0 U	4.0 U	4.0 U	20 U	100 UJ	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 UJ	4.0 U	4.0 U	4.0 U	**490**	0.20 UJ	8.0 U
	10/17/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	10	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**590**	**0.082**	4.0 U
	1/25/12	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	8.2	4.0 U	4.0 U	100 U	20 U	4.0 U	0.020 U	4.0 U	4.0 U	4.0 U	**470**	**0.073**	8.0 U
	4/16/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	7.6	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	420 E DNR	0.2 X DNR	1.0 U
	4/16/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	7.4 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**410**	4.0 U DNR	10 U DNR
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.23**	NA
	7/24/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	5.3	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	350 E DNR	0.2 X DNR	1.0 U
	7/24/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.8 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**300**	4.0 U DNR	10 U DNR
	7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.26**	NA
	10/16/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	7.8	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	510 E DNR	0.4 U DNR	1.0 U
	10/16/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	7.2 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**490**	4.0 U DNR	10 U DNR
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.074**	NA
	1/22/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	6.4	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	350 E DNR	0.3 X DNR	1.0 U
	1/22/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	7.5 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**390**	4.0 U DNR	10 U DNR
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.35**	NA
	4/17/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.9	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	380 E DNR	0.4 U DNR	1.0 U
	4/17/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**300**	4.0 U DNR	10 U DNR
	4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	**0.11**	NA
	7/25/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	7.2	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	540 E DNR	0.4 U DNR	1.0 U
	7/25/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	7.1 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**460**	4.0 U DNR	10 U DNR
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA	NA	NA	**0.091**	NA
	10/18/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	6.1	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	510 E DNR	0.4 U DNR	1.0 U
	10/18/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	6.6 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**480**	4.0 U DNR	10 U DNR
	10/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.011 X	NA	NA	NA	NA	**0.12**	NA
	1/21/14	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	6.0	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	440 E DNR	0.4 U DNR	1.0 U
	1/21/14 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	5.1 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**350**	4.0 U DNR	10 U DNR
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA	NA	NA	**0.084**	NA
	10/24/14	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	5.5	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	390 E DNR	0.4 U DNR	1.0 U
	10/24/14 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.7 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**290**	4.0 U DNR	10 U DNR
	10/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.023 X	NA	NA	NA	NA	**0.091**	NA
	1/19/15	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	5.8	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	370 E DNR	0.4 U DNR	1.0 U
	1/19/15 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	5.2 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**300**	4.0 U DNR	10 U DNR
	1/19/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.061**	NA
	4/15/15	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.9	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	400 E DNR	0.4 U DNR	1.0 U
	4/15/15 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.3 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**340**	4.0 U DNR	10 U DNR
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 X	NA	NA	NA	NA	**0.059**	NA
EGW147	10/28/06	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.061	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	0.020 U	3.0 U	3.0 U	3.0 U	**96**	0.020 U	3.0 U
	1/9/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.030	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.02 U	1.0 U	1.0 U	1.0 U	**64**	0.020 U	1.0 U
	4/10/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.029	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**44**	0.020 U	1.0 U
	7/16/07	15 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020	1.0 U	1.0 U	1.0 U	5.0 U	1.5 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**43**	0.021 J	2.0 U
	11/5/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.058	1.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**88**	0.020 U	1.0 U
	1/10/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U	2.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.2 U	1.0 U	1.0 U	1.0 U	**180**	0.2 U	1.0 U
	4/17/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.021 J	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**47**	0.020 UJ	1.0 U
	7/17/08	9.0 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**40**	0.020 U	1.2 U
	10/29/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**46**	0.020 U	2.0 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW147 (continued)	1/20/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**22**	0.020 U	2.0 U
	4/27/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**19**	0.020 UJ	0.4 U
	4/27/09 (DUP)	3.1	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**18**	0.020 UJ	0.4 U
	7/16/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**22**	0.020 UJ	0.4 U
	11/9/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**13**	0.020 U	0.4 U
	1/22/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**36**	0.020 U	0.4 U
	4/22/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**10**	0.020 U	0.4 U
	7/22/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**9.6**	0.020 U	0.4 U
	11/1/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 UJ	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**18**	0.020 U	0.4 U
	1/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**9.1**	0.020 U	0.4 U
	4/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**13**	0.020 U	0.4 U
	7/21/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**8.5**	0.020 U	0.4 U
	10/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**9.7**	0.020 U	0.4 U
	1/25/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**18**	0.020 U	0.4 U
	4/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**24**	0.2 U DNR	0.5 U
	4/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**20 J**	0.2 U DNR	0.5 U
	7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/26/2012 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.4 X	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**20 J**	0.2 U DNR	0.5 U
	7/26/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**14**	0.2 U DNR	0.5 U
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.2**	0.2 U DNR	0.5 U
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.7**	0.2 U DNR	0.5 U
	1/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**2.0**	0.2 U DNR	0.5 U
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.4**	0.2 U DNR	0.5 U
	4/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.0**	0.2 U DNR	0.5 U
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**2.9**	0.2 U DNR	0.5 U
	10/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**3.1**	0.2 U DNR	0.5 U
	1/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**1.6**	0.2 U DNR	0.5 U
	10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.7**	0.2 U DNR	0.5 U
	1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.4**	0.2 U DNR	0.5 U
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW148	10/28/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.032	10 U	10 U	10 U	50 U	20 U	10 U	0.020 U	10 U	10 U	10 U	**620**	0.020 U	10 U
	1/9/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.038	8.8	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**570**	0.020 U	5.0 U
	4/10/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.034	10	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**660**	0.020 U	5.0 U
	7/16/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.049 J	6.4	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**480**	**0.029 J**	5.0 U
	11/5/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.022	7.5	5.0 U	5.0 U	25 U	10 U	5.0 U	0.020 U	5.0 U	5.0 U	5.0 U	**480**	0.020 U	5.0 U
	1/10/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.2 U	6.8	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**420**	0.2 U	5.0 U
	4/17/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	6.8	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**500**	0.20 U	5.0 U
	7/17/08	3.0 U	0.2 U	0.2 U	0.2	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	6.7	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**540 D**	0.20 U	0.4 U
	10/29/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	6.4	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**550**	0.20 U	10 U
	1/20/09	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.020 U	5.2	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**430**	0.020 U	10 U
	4/27/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**470 D**	0.020 UJ	0.4 U
	7/16/09	50 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 UJ	5.0 U	0.020 UJ	5.0 U	5.0 U	5.0 U	**440**	0.020 UJ	10 U
	11/9/09	75 U	3.0 U	3.0 U	3.0 U	7.5 U	75 U	3.0 U	3.0 U	3.0 U	3.0 U	7.5 U	3.0 U	3.0 U	3.0 U	4.5	3.0 U	3.0 U	75 U	7.5 U	3.0 U	0.020 U	3.0 U	3.0 U	3.0 U	**390**	0.020 U	6.0 U
	1/22/10	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	4.1	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.023	2.0 U	2.0 U	2.0 U	**350**	0.020 U	4.0 U
	4/22/10	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	4.0	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 UJ	2.0 U	2.0 U	2.0 U	**340**	0.020 UJ	4.0 U
	7/22/10	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	3.6	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**320**	0.20 U	4.0 U
	11/1/10	50 U	2.0 U	2.0 U	2.0 U	10 UJ	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	3.7	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 UJ	2.0 U	2.0 U	2.0 U	**300**	0.20 UJ	4.0 U
	1/20/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	4.2	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**300**	0.020 U	4.0 U
	4/20/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	3.7	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.20 U	2.0 U	2.0 U	2.0 U	**350**	0.20 U	4.0 U
	7/21/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	4.4	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.10 U	2.0 U	2.0 U	2.0 U	**330**	0.10 U	4.0 U
	10/25/11	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	3.2	2.0 U	2.0 U	50 U	5.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**290**	0.020 U	4.0 U
	1/25/12	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	4.5	2.0 U	2.0 U	50 U	10 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**310**	0.020 U	4.0 U
	4/17/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	3.9	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	290 E DNR	0.4 U DNR	1.0 U
	4/17/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	3.9 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**280**	4.0 U DNR	10 U DNR
	4/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.017 X	NA	NA	NA	NA	0.020 U	NA
	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	5.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	400 E DNR	0.2 U DNR	0.5 U
	7/26/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	12 X DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**340**	10 U DNR	25 U DNR
	7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	3.8	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	310 E DNR	0.4 U DNR	1.0 U
	10/17/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	3.6 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**280**	4.0 U DNR	10 U DNR
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.015 X	NA	NA	NA	NA	0.020 U	NA
	12/20/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 UJ	0.4 U	1.0 UJ	1.0 U	1.0 U	0.4 U	3.6	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	290 E DNR	0.4 U DNR	1.0 U
	12/20/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	3.5 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**270**	4.0 U DNR	10 U DNR
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW148		1/23/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.5	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	350 E DNR	0.4 U DNR	1.0 U
(continued)		1/23/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.6 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**330**	4.0 U DNR	10 U DNR
		1/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.015 X	NA	NA	NA	NA	0.020 U	NA
		2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	290 E DNR	0.2 U DNR	0.5 U
		2/13/13 (DL)	130 U DNR	5.0 U DNR	13 U DNR	13 U DNR	13 U DNR	130 U DNR	13 U DNR	5.0 U DNR	13 U DNR	5.0 U DNR	13 U DNR	13 U DNR	13 U DNR	5.0 U DNR	3.4 X DNR	5.0 U DNR	13 U DNR	130 U DNR	13 U DNR	13 U DNR	5.0 U DNR	5.0 U DNR	13 U DNR	5.0 U DNR	**250**	5.0 U DNR	13 U DNR
		2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/22/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.8	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	370 E DNR	0.4 U DNR	1.0 U
		4/22/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.2 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**300**	4.0 U DNR	10 U DNR
		4/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA	NA	NA	0.020 U	NA
		7/25/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	3.7	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	340 E DNR	0.4 U DNR	1.0 U
		7/25/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	3.3 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**300**	4.0 U DNR	10 U DNR
		7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA	NA	NA	0.020 U	NA
		10/23/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.3	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	370 E DNR	0.4 U DNR	1.0 U
		10/23/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**310**	4.0 U DNR	10 U DNR
		10/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.018 X	NA	NA	NA	NA	0.020 U	NA
		1/23/14	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	4.8	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	390 E DNR	0.4 U DNR	1.0 U
		1/23/14 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.5 DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**320**	4.0 U DNR	10 U DNR
		1/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA	NA	NA	0.020 U	NA
		10/23/14	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	1.2	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U DNR	0.4 U	1.0 U	0.4 U	250 E DNR	0.4 U DNR	1.0 U
		10/23/14 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**210**	4.0 U DNR	10 U DNR
		10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.013 X	NA	NA	NA	NA	0.020 U	NA
		1/16/15	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	0.9	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	240 E DNR	0.4 U DNR	1.0 U
		1/16/15 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**190**	4.0 U DNR	10 U DNR
		1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/16/15	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	0.6	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	190 E DNR	0.4 U DNR	1.0 U
		4/16/15 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**160**	4.0 U DNR	10 U DNR
		4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW149	**(1)**	7/13/06	210	1.0 U	1.0 U	1.0 U	1.0 U	190	1.0 U	1.0 U	1.0 U	**3.4**	1.0 U	1.0 U	1.0 U	1.0 U	**44**	1.0 U	4.9	88	2.0 U	1.0 U	1.0 U	2.4	1.0 U	1.0 U	**660**	1.0 U	26.8
		8/7/06	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**65 J**	10 UJ	10 UJ	50 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**1,500 J**	10 UJ	10 UJ
		9/5/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**43**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,100**	20 U	20 U
		7/24/07	92	**9.6**	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	4.3	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**300**	3.0 U	3.0 U
		9/24/07	53	**3.6**	0.2 U	0.2 U	0.2 U	4.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.3	0.4	0.2 U	0.2 U	**6.4**	0.2 U	0.4 U
		11/28/07	40	**75**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**13**	1.0 U	1.0 U
	(2)	7/13/06	140	1.0 U	1.0 U	1.0 U	1.0 U	140	1.0 U	1.0 U	1.0 U	**2.4**	1.0 U	1.0 U	1.0 U	1.0 U	12	1.0 U	2.9	48	2.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	**520**	1.0 U	14.3
		8/7/06	53 J	10 UJ	10 UJ	10 UJ	10 UJ	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**86 J**	10 UJ	10 UJ	50 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**1,300 J**	10 UJ	10 UJ
		9/5/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**130**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,800**	20 U	20 U
	(2)	1/25/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**86**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,600**	20 U	20 U
		4/17/07	100 U	20 U	20 U	20 U	20 U	190	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,000**	20 U	20 U
		7/24/07	70	**38**	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	4.2	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**290**	3.0 U	3.0 U
		9/24/07	49	**12**	1.0 U	1.0 U	1.0 U	6.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**60**	1.0 U	1.0 U
		9/24/07 (DUP)	47	**9.9**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**48**	1.0 U	1.0 U
		11/28/07	27	**54**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**14**	1.0 U	1.0 U
	(3)	7/13/06	190	1.0 U	1.0 U	1.0 U	1.0 U	260	1.0 U	1.0 U	1.0 U	**2.6**	1.0 U	1.0 U	1.0 U	1.0 U	10	1.0 U	4.1	55	2.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	**190**	1.0 U	21.5
		8/7/06	6.1 J	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	6.7 J	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	5.0 UJ	2.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	**20 J**	1.0 UJ	1.0 UJ
		9/5/06	6.0 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	2.0 U	0.6 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	**14**	0.4 U	0.4 U
		7/24/07	8.6	0.5	0.2 U	0.2 U	0.2 U	3.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**9.6**	0.2 U	0.4 U
		11/28/07	14	**1.1**	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.3**	0.2 U	0.4 U
	(4)	7/13/06	80	1.0 U	1.0 U	1.0 U	1.0 U	80	1.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.0 U	15	1.0 U	1.9	29	2.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	**240**	1.0 U	8.8
		8/7/06	6.9	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**110**	1.0 U	1.0 U
		9/5/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.9	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.6	1.0 U	1.0 U	**150**	1.0 U	1.0 U
		7/24/07	7.5 J	0.4 J	0.2 U	0.2 U	1.0 U	1.4 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4.2 J	0.2 U	0.3 J	1.0 U	0.3 U	0.2 U	0.4 J	0.2 U	0.2 U	0.2 U	**14 J**	**0.4 J**	2.1 J
		11/28/07	13	0.7	0.2 U	0.2 U	1.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.7**	**0.3**	0.4 U
EGW150	**(1)**	7/14/06	180	1.0 U	1.0 U	1.0 U	1.0 U	130	1.0 U	1.0 U	1.0 U	**6.1**	1.0 U	1.0 U	1.0 U	1.0 U	**22**	1.0 U	4.7	85	2.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U	**530**	1.0 U	25.6
		7/14/06 (DUP)	190	1.0 U	1.0 U	1.0 U	1.0 U	140	1.0 U	1.0 U	1.0 U	**6.1**	1.0 U	1.0 U	1.0 U	1.0 U	**22**	1.0 U	4.7	88	2.0 U	1.0 U	1.0 U	2.0	1.0 U	1.0 U	**520**	1.0 U	25.3
		8/7/06	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**94 J**	10 UJ	10 UJ	50 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**2,000**	10 UJ	10 UJ
		9/6/06	250 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**220**	50 U	50 U	250 U	100 U	50 U	50 U	50 U	50 U	50 U	**5,100**	50 U	50 U
		9/11/06	500 U	100 U	100 U	NA	100 U	500 U	100 U	100 U	NA	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	200 U	NA	100 U	100 U	100 U	100 U	**12,000**	100 U	100 U
		4/18/07	2,100	**260**	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**420**	50 U	50 U	250 U	100 U	50 U	50 U	50 U	50 U	50 U	**8,000**	50 U	50 U
		7/18/07	150 U	**120**	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	**130**	30 U	30 U	150 U	60 U	30 U	30 U	30 U	30 U	30 U	**1,900**	30 U	30 U
		8/16/07	250 U	**90**	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	**74**	50 U	50 U	250 U	100 U	50 U	50 U	50 U	50 U	50 U	**960**	50 U	50 U
		9/24/07	96	**23**	1.0 U	1.0 U	1.0 U	19	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**37**	1.6	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U	**160**	1.0 U	1.0 U
		10/23/07	62	**28**	1.0 U	1.0 U	1.0 U	7.8 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**32**	1.3	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	**190**	1.0 U	1.0 U
		11/27/07	5.3	**20**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**18**	1.8	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	**220**	1.0 U	1.0 U
		2/4/08	10 U	**15**	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	6.0	2.0 U	2.0 U	10 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**200**	2.0 U	2.0 U
		3/7/08	5.0 U	**10**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	1.0 U	1.0 U
		4/2/08	3.9	**7.7**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	6.1	0.6	0.2 U	2.5 U	0.5 U	0.2 U	0.4	0.7	0.2 U	0.2 U	**170 D**	0.2 U	0.2
		5/1/08	5.0 U	**4.6**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U
		5/1/08 (DUP)	16	**4.6**	1.0 U	1.0 U	1.0 U	10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U
		8/1/08	5.0 U	**7.5**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	14	1.3	1.0 U	5.0 U	2.0 U	1.0 U	1.0	1.0	1.0 U	1.0 U	**450 D**	1.0 U	1.0 U
		10/15/08	3.0 U	**2.8**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	6.4	0.6	0.2 U	2.5 U	0.5 UJ	0.2 U	0.7	0.3	0.2 U	0.2 U	**310 D**	0.2 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW150 (continued)	**(1)**	1/14/09	4.1 U	0.3	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**38 D**	0.2 U	0.4 U
		4/8/09	2.8	0.2	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**27**	0.2 U	0.4 U
		6/8/09	5.0 U	0.4	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.1 X	1.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.2 U	0.2 U	**43**	0.2 U	0.4 U
		7/31/09	15 UJ	0.7 J	0.6 UJ	0.6 UJ	1.5 UJ	15 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	1.5 UJ	0.6 UJ	0.6 UJ	0.6 UJ	1.8 J	0.6 UJ	0.6 UJ	15 UJ	1.5 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	**83 J**	0.6 UJ	1.2 UJ
		10/28/09	5.0 U	0.3	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**39**	0.2 U	0.4 U
		4/9/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**15**	0.2 U	0.4 U
		10/13/10	5.0 U	0.4	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**43**	**0.8**	0.4 U
		4/14/11	5.0 U	0.3	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**21**	**0.2**	0.4 U
		10/18/11	5.0 U	0.3	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	1.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.5	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	**1.7**	0.4 U
		4/9/12	5.0 U	2.3	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.1	0.2 U	0.5	0.5 U	0.5 U	0.2 U	2.4	0.9	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	**1.9**	0.5 U
		10/1/12	5.0 U	1.0	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.6 J	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	1.1	1.0	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.9**	**1.4**	0.5 U
		4/16/13	5.0 U	0.4	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	3.2	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 X	0.2 U	0.5 U	0.2 U	62 E DNR	**0.6**	0.5 U
		4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.9 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**53**	2.0 U DNR	5.0 U DNR
		10/15/13	5.0 UJ	0.7	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	3.5	0.2	0.5 U	5.0 UJ	0.5 U	0.5 U	0.3	0.2 U	0.5 U	0.2 U	110 E DNR	**0.4**	0.5 U
		10/15/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.9 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**84**	2.0 U DNR	5.0 U DNR
		4/2/14	5.0 U	0.3	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	2.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X	0.2 U	0.5 U	0.2 U	42 E DNR	**0.5**	0.5 U
		4/2/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**34**	2.0 U DNR	5.0 U DNR
		10/13/14	5.0 U	0.5	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	3.2	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2	0.2 U	0.5 U	0.2 U	90 E DNR	**0.8**	0.5 U
		10/13/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.7 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**74**	2.0 U DNR	5.0 U DNR
		4/21/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	1.7	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X	0.2 U	0.5 U	0.2 U	55 E DNR	**0.4**	0.5 U
		4/21/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**45**	2.0 U DNR	5.0 U DNR
	(2)	7/14/06	150	1.0 U	1.0 U	1.0 U	1.0 U	140	1.0 U	1.0 U	1.0 U	**4.7**	1.0 U	1.0 U	1.0 U	1.0 U	6.4	1.0 U	3.2	40	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**300**	1.0 U	15.7
		8/7/06	52	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	55	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	10	5.0 UJ	5.0 UJ	25 UJ	10 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ	**940**	5.0 UJ	5.0 UJ
		9/6/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**25**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,200**	20 U	20 U
		9/12/06	100 U	20 U	20 U	NA	20 U	100 U	20 U	20 U	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	NA	20 U	20 U	20 U	20 U	**1,300**	20 U	20 U
		7/23/07	25 U	**22**	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	14	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**360**	5.0 U	5.0 U
		9/26/07	120	**91**	2.0 U	2.0 U	2.0 U	26	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**51**	4.0	2.0 U	10 U	4.0 U	2.0 U	2.0 U	3.7	2.0 U	2.0 U	**210**	2.0 U	2.0 U
		11/27/07	54	**89**	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**20**	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**180**	3.0 U	3.0 U
		2/4/08	25 U	**12**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**57**	1.0 U	1.0 U
		4/2/08	34 D	**4.5**	0.2 U	0.2 U	0.2 U	2.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.6	0.3	0.2 U	2.5 U	0.5 U	0.2 U	0.5	0.4	0.2 U	0.2 U	**39 D**	0.2 U	0.4 U
		8/1/08	9.0 U	**1.3**	0.6 U	0.6 U	0.6 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**35**	0.6 U	1.2 U
		10/15/08	3.0 U	**4.8**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	7.4	0.8	0.2 U	2.5 U	0.5 UJ	0.2 U	0.9	0.4	0.2 U	0.2 U	**300 D**	0.2 U	0.4 U
		1/14/09	9.8 U	0.7	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**60 D**	0.2 U	0.4 U
		4/8/09	2.5 U	**1.2**	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.3	0.2	0.2 U	2.5 U	0.5 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	**99 D**	0.2 U	0.4 U
		6/8/09	5.0 U	**1.2**	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	3.0	0.3	0.2 U	5.0 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**96 D**	0.2 U	0.4 U
		7/31/09	30 UJ	1.2 UJ	1.2 UJ	1.2 UJ	3.0 UJ	30 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	3.0 UJ	1.2 UJ	1.2 UJ	1.2 UJ	3.2 J	1.2 UJ	1.2 UJ	30 UJ	3.0 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	**140 J**	1.2 UJ	2.4 UJ
		10/28/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	25 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**68**	1.0 U	2.0 U
		4/9/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.1**	0.2 U	0.4 U
		10/13/10	5.0 U	0.8	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.5	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**81**	**0.5**	0.4 U
		4/14/11	5.0 U	0.4	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**40**	0.2 U	0.4 U
		10/18/11	5.0 U	0.5	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.8**	0.2 U	0.4 U
		4/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**2.5**	**0.1 X**	0.5 U
		10/1/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**3.0**	**0.1 X**	0.5 U
		4/16/13	5.0 U	0.4	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.6	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 X	0.2 U	0.5 U	0.2 U	64 E DNR	**0.3**	0.5 U
		4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.1 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**51**	2.0 U DNR	5.0 U DNR
		10/15/13	5.0 UJ	0.3	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.7	0.2 X	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2	0.2 U	0.5 U	0.2 U	96 E DNR	**0.3**	0.5 U
		10/15/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.6 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**80**	2.0 U DNR	5.0 U DNR
		4/2/14	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X	0.2 U	0.5 U	0.2 U	42 E DNR	**0.2 X**	0.5 U
		4/2/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**37**	2.0 U DNR	5.0 U DNR
		10/13/14	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.0	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 X	0.2 U	0.5 U	0.2 U	70 E DNR	**0.2 X**	0.5 U
		10/13/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**59**	2.0 U DNR	5.0 U DNR
		4/21/15	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	40 E DNR	0.2 U	0.5 U
		4/21/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**31**	2.0 U DNR	5.0 U DNR
	(3)	7/14/06	92	1.0 U	1.0 U	1.0 U	1.0 U	69	1.0 U	1.0 U	1.0 U	**2.7**	1.0 U	1.0 U	1.0 U	1.0 U	3.8	1.0 U	1.7	37	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**120**	1.0 U	8.1
		8/7/06	33	1.0 U	1.0 U	1.0 U	1.0 U	25	1.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.0 U	3.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**94**	1.0 U	1.0 U
		9/6/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**70**	1.0 U	1.0 U
		9/12/06	89 J	10 U	10 U	NA	10 U	50 U	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	NA	10 U	10 U	10 U	10 U	**710**	10 U	10 U
		9/12/06 (DUP)	96 J	10 U	10 U	NA	10 U	50 U	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	NA	10 U	10 U	10 U	10 U	**740**	10 U	10 U
		7/23/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**36**	1.0 U	2.2
		11/27/07	14	**7.8**	0.2 U	0.2 U	0.2 U	1.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	13	1.2	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	**110**	0.2 U	1.4
	(4)	7/14/06	74	1.0 U	1.0 U	1.0 U	1.0 U	23	1.0 U	1.0 U	1.0 U	**3.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.1	29	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**9.5**	1.0 U	9.1
		8/7/06	66	1.0 U	1.0 U	1.0 U	1.0 U	96	1.0 U	1.0 U	1.0 U	**2.4**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	11	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.2**	1.0 U	1.0 U
		8/7/06 (DUP)	66	1.0 U	1.0 U	1.0 U	1.0 U	99	1.0 U	1.0 U	1.0 U	**2.3**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	11	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.3**	1.0 U	1.0
		9/6/06	36	0.2 U	0.2 U	0.2 U	0.2 U	29	0.2 U	0.2 U	0.2 U	**1.7**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	7.4	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.9**	0.2 U	1.3
		9/6/06 (DUP)	36	0.2 U	0.2 U	0.2 U	0.2 U	28	0.2 U	0.2 U	0.2 U	**1.7**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	7.5	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.0**	0.2 U	1.3
		9/11/06	50 U	10 U	10 U	NA	10 U	50 U	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	NA	10 U	10 U	10 U	10 U	**1,100**	10 U	10 U
		7/23/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.8 J	0.2 U	0.4 J	1.0 U	0.3 U	0.2 U	0.2 J	0.2 U	0.2 U	0.2 U	**33**	**0.9 J**	2.8 J
		11/27/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.7**	0.2 U	0.7
EGW151	**(1)**	7/14/06	49	1.0 U	1.0 U	1.0 U	1.0 U	86	1.0 U	1.0 U	1.0 U	**4.1**	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**730**	1.0 U	1.0 U
		8/7/06	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	50 UJ	20 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**6,200**	10 UJ	10 UJ
		9/11/06	500 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	200 U	100 U	100 U	100 U	100 U	100 U	**12,000**	100 U	100 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW151 (1) (continued)	1/26/07	1,500	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	200 U	100 U	100 U	100 U	100 U	100 U	**5,200**	100 U	100 U
	4/19/07	1,000	25 U	25 U	25 U	25 U	120 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	**50**	25 U	25 U	120 U	50 U	25 U	25 U	25 U	25 U	25 U	**4,100**	25 U	25 U
	7/16/07	530	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	250 U	100 U	50 U	50 U	50 U	50 U	50 U	**2,100**	50 U	50 U
	8/16/07	390	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	250 U	100 U	50 U	50 U	50 U	50 U	50 U	**2,400**	50 U	50 U
	9/24/07	660	**40**	25 U	25 U	25 U	120 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	**66**	40	25 U	120 U	50 U	25 U	25 U	25 U	25 U	25 U	**3,300**	25 U	25 U
	10/23/07	450	**32**	25 U	25 U	25 U	120 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	**42**	26	25 U	120 U	50 U	25 U	25 U	25 U	25 U	25 U	**1,800**	25 U	25 U
	11/27/07	640	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**37**	27	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,400**	20 U	20 U
	2/4/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11	**47**	32	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,800**	10 U	10 U
	3/7/08	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**60**	35	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,200**	20 U	20 U
	4/1/08	600 U	40 U	40 U	40 U	40 U	500 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	**68**	46	40 U	500 U	100 U	40 U	40 U	40 U	40 U	40 U	**2,600 D**	40 U	80 U
	4/29/08	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	**40**	30 U	30 U	150 U	60 U	30 U	30 U	30 U	30 U	30 U	**1,900**	30 U	30 U
	6/5/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**23**	13	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,100**	10 U	10 U
	6/5/08 (DUP)	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**21**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,000**	20 U	22
	7/31/08	50 U	**26**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	12	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**620**	10 U	10 U
	8/22/08	150 U	10 U	10 U	10 U	10 U	120 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	14	11	10 U	120 U	25 U	10 U	10 U	10 U	10 U	10 U	**830 D**	10 U	20 U
	9/25/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**18**	10	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**860**	10 U	10 U
	9/25/08 (DUP)	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**18**	11	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**890**	10 U	10 U
	10/14/08	3.0 U	**1.0**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3.8	**17 D**	8.9	0.2 U	2.5 U	0.5 UJ	0.2 U	0.7	0.2 U	0.2 U	0.2 U	**830 D**	0.2 U	0.4 U
	11/5/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	13	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**690**	10 U	20 U
	12/4/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	14	6.6	5.0 U	25 U	**15**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**620**	5.0 U	10 U
	12/4/08 (DUP)	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	13	6.8	5.0 U	25 U	**12**	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**620**	5.0 U	10 U
	1/13/09	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	11	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**580**	5.0 U	10 U
	1/13/09 (DUP)	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**560**	5.0 U	10 U
	2/5/09	5.4 U	0.5	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	2.6	11	5.2	0.2 U	2.5 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**600**	0.2 U	0.4 U
	2/5/09 (DUP)	5.5 U	0.5	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	0.2 U	2.5	11	5.4	0.2 U	2.5 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**610**	0.2 U	0.4 U
	3/2/09	2.5 U	0.5	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	0.2 U	3.0	12	5.9	0.2 U	2.5 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**620 D**	0.2 U	0.4 U
	3/2/09 (DUP)	2.5 U	0.5	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	0.2 U	3.0	12	5.9	0.2 U	2.5 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**600 D**	0.2 U	0.4 U
	4/7/09	2.5 U	0.5	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.1 X	0.2 U	0.2 U	0.2 U	3.0	12	5.7	0.2 U	2.5 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**570 D**	0.2 U	0.4 U
	4/7/09 (DUP)	2.5 U	0.5	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.1 X	0.2 U	0.2 U	0.2 U	3.1	13	5.9	0.2 U	2.5 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**670 D**	0.2 U	0.4 U
	5/4/09	2.5 U	0.6	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3.0	13	6.1	0.2 U	2.5 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**850 D**	0.2 U	0.4 U
	5/4/09 (DUP)	2.5 U	0.6	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	3.0	13	6.2	0.2 U	2.5 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**860 D**	0.2 U	0.4 U
	5/26/09	25 U	2.0 U	2.0 U	2.0 U	5.0 U	25 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.2	14	6.2	2.0 U	25 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**700 D**	2.0 U	4.0 U
	5/26/09 (DUP)	25 U	2.0 U	2.0 U	2.0 U	5.0 U	25 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.0	13	6.1	2.0 U	25 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**680 D**	2.0 U	4.0 U
	6/11/09	5.0 U	0.5	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	3.4	15	6.8	0.2 U	5.0 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**770 D**	0.2 U	0.4 U
	6/11/09 (DUP)	5.0 U	0.5	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	3.5	14	6.7	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**760 D**	0.2 U	0.4 U
	7/31/09	250 UJ	10 UJ	10 UJ	10 UJ	25 UJ	250 UJ	10 UJ	10 UJ	10 UJ	10 UJ	25 UJ	10 UJ	10 UJ	10 UJ	14 J	10 UJ	10 UJ	250 UJ	25 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	**730 J**	10 UJ	20 UJ
	7/31/09 (DUP)	300 UJ	12 UJ	12 UJ	12 UJ	30 UJ	300 UJ	12 UJ	12 UJ	12 UJ	12 UJ	30 UJ	12 UJ	12 UJ	12 UJ	14 J	12 UJ	12 UJ	300 UJ	30 UJ	12 UJ	12 UJ	12 UJ	12 UJ	12 UJ	**800 J**	12 UJ	24 UJ
	8/27/09	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.2	12	7.4	4.0 U	100 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**640**	4.0 U	8.0 U
	9/15/09	5.0 U	0.5	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	3.2	14	6.8	0.2 U	5.0 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**680 D**	0.2 U	0.4 U
	9/15/09 (DUP)	5.0 U	0.5	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	3.5	14	7.2	0.2 U	5.0 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**850 D**	0.2 U	0.4 U
	10/28/09	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.4	**30**	7.2	4.0 U	100 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**730**	4.0 U	8.0 U
	10/28/09 (DUP)	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	**31**	6.8	4.0 U	100 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**720**	4.0 U	8.0 U
	1/27/10	5.0 UJ	0.4	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	2.2	**200**	5.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**420 D**	**16**	0.4 U
	1/27/10 (DUP)	5.0 UJ	0.4	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	2.2	**230**	5.9	0.2 U	5.0 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**460 D**	**16**	0.4 U
	4/7/10	75 UJ	3.0 U	3.0 U	3.0 U	7.5 U	75 U	3.0 U	3.0 U	3.0 U	3.0 U	7.5 UJ	3.0 U	3.0 U	3.0 U	**180**	5.4	3.0 U	75 U	7.5 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**450**	**12**	6.0 U
	7/7/10	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**88**	4.7	2.0 U	50 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**450**	**7.1**	4.0 U
	7/7/10 (DUP)	5.0 U	0.4	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.9	**92 D**	4.8	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**450**	**7.3**	0.4 U
	10/12/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	**84**	4.9	0.6 U	15 UJ	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**18**	**43**	1.2 U
	10/12/10 (DUP)	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	**84**	5.1	0.6 U	15 UJ	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**22**	**43**	1.2 U
	1/19/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	1.1	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	**51**	4.4	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**89**	**21**	1.2 U
	1/19/11 (DUP)	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	1.1	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	**52**	4.4	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**90**	**21**	1.2 U
	4/12/11	5.0 U	0.3	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	1.0	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**32**	6.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**	**18**	0.4 U
	4/12/11 (DUP)	5.0 U	0.2	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**34**	6.6	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.5**	**19**	0.4 U
	7/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.4	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	11	6.7	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**20**	**5.2**	0.5
	7/12/11 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	6.4	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	12	6.9	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**22**	**5.4**	0.4 U
	10/19/11	8.6	0.4	0.2 U	0.2 U	1.0 U	5.4	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**17**	7.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**42**	**5.8**	0.4 U
	10/19/11 (DUP)	5.2	0.3	0.2 U	0.2 U	1.0 U	5.6	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**19**	7.8	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**50**	**7.2**	0.4 U
	1/23/12	34 J	0.3	0.2 U	0.2 U	1.0 U	9.0	0.2 U	0.2 U	1.0	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	8.0	7.9	0.2 U	5.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**18**	**4.6**	0.4 U
	4/9/12	32	0.3	0.5 U	0.5 U	0.5 U	44	0.5 U	0.2 U	0.8	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.1	6.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.1**	**1.1**	0.5 U
	7/10/12	58	0.6	0.5 U	0.5 U	0.5 U	140	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.5	4.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	**1.2**	**1.7**	0.5 U
	10/2/12	110	0.6	0.5 U	0.5 U	0.5 U	4.9 X	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	3.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	**1.8**	**3.7**	0.5 U
	1/14/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	2.3	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	**4.4**	**1.8**	2.5 U
	4/16/13	17	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	2.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.3**	**1.1**	0.5 U
	7/23/13	58	0.3	0.5 U	0.5 U	0.5 U	1.8 X	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.3	4.0	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.8**	**6.6**	0.5 U
	10/15/13	16 J	0.2 X	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.5	1.6	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**3.6**	0.5 U
	1/14/14	15	0.3	0.5 U	0.5 U	0.5 U	1.4 X	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	8.0	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	0.5	**1.2**	0.5 U
	4/7/14	16	0.4	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	9.9	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	**0.6**	**1.5**	0.5 U
	7/15/14	26	0.3	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**19**	2.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.6**	**2.7**	0.5 U
	10/14/14	8.3	0.4	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	6.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	0.2 U	**2.1**	0.5 U
	1/22/15	11	0.4	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	5.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	0.2 X	**1.4**	0.5 U
	4/22/15	12	0.3	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.4	4.1	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	0.1 X	**2.4**	0.5 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW151 (2) (continued)	7/14/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	**2.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1,200**	1.0 U	1.0 U
	8/7/06	100 UJ	20 UJ	20 UJ	20 UJ	20 UJ	100 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	100 UJ	40 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	**1,400 J**	20 UJ	20 UJ
	9/12/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,300**	20 U	20 U
	7/16/07	130	15 U	15 U	10 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	75 U	30 U	15 U	15 U	15 U	15 U	15 U	**1,100**	15 U	15 U
	8/16/07	120	15 U	15 U	15 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	75 U	30 U	15 U	15 U	15 U	15 U	15 U	**880**	15 U	15 U
	9/24/07	250	**38**	10 U	15 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**21**	24	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,600**	10 U	10 U
	10/23/07	440	**65**	20 U	10 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**30**	29	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,400**	20 U	20 U
	11/28/07	170	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**360**	20 U	20 U
	2/5/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**470**	5.0 U	5.0 U
	4/1/08	90 U	6.0 U	6.0 U	6.0 U	6.0 U	75 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	75 U	15 U	6.0 U	6.0 U	6.0 U	6.0 U	6.0 U	**460 D**	6.0 U	12 U
	7/31/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**250**	5.0 U	5.0 U
	10/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.6	0.8	0.3	0.2 U	2.5 U	0.5 UJ	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**190 D**	0.2 U	0.4 U
	1/13/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**130**	1.0 U	2.0 U
	4/7/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	0.2 U	0.2 X	0.4	0.1 X	0.2 U	2.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.2 U	0.2 U	**120 D**	0.2 U	0.4 U
	6/11/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**120**	0.6 U	1.2 U
	7/31/09	25 UJ	1.0 UJ	1.0 UJ	1.0 UJ	2.5 UJ	25 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	2.5 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	25 UJ	2.5 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	**110 J**	1.0 UJ	2.0 UJ
	8/26/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	8.7	0.3	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.3 J	6.6	0.4	0.2 U	5.0 U	0.5 U	0.2 U	2.3	0.2	0.2 U	0.2 U	**430 D**	0.2 U	0.4 U
	9/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**96 D**	0.2 U	0.4 U
	10/28/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**86**	0.6 U	1.2 U
	1/27/10	15 UJ	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.6	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**82**	0.6 U	1.2 U
	4/14/10	15 UJ	0.6 UJ	0.6 UJ	0.6 UJ	1.5 UJ	15 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	1.5 UJ	0.6 UJ	0.6 UJ	0.6 UJ	1.5 J	0.6 UJ	0.6 UJ	15 UJ	1.5 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	0.6 UJ	**84 J**	0.6 UJ	1.2 UJ
	7/6/10	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.3	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**82**	0.6 U	1.2 U
	10/12/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.4	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**76**	**0.9**	1.2 U
	1/19/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**69**	**0.6**	1.2 U
	4/12/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**66**	0.6 U	1.2 U
	7/12/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**64**	0.6 U	1.2 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**74**	**0.4**	0.4 U
	1/24/12	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	15 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**72**	0.6 U	1.2 U
	4/9/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	76 E DNR	**0.3**	0.5 U
	4/9/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**62**	2.0 U DNR	5.0 U DNR
	7/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	79 E DNR	**0.3**	0.5 U
	7/10/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**65**	2.0 U DNR	5.0 U DNR
	10/2/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	76 E DNR	**0.2**	0.5 U
	10/2/2012 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**64**	2.0 U DNR	5.0 U DNR
	1/14/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.1 X	0.2 U	0.5 U	0.2 U	98 E DNR	**0.3**	0.5 U
	1/14/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**71 J**	2.0 U DNR	5.0 U DNR
	4/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	75 E DNR	**0.3**	0.5 U
	4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.3 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**63**	2.0 U DNR	5.0 U DNR
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	1.3 X	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	12	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	49 E DNR	**3.3**	0.5 U
	7/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	12 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**42**	3.7 DNR	5.0 U DNR
	10/15/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	14	0.2 U	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	110 E DNR	**0.7**	0.5 U
	10/15/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	14 DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**80**	2.0 U DNR	5.0 U DNR
	1/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	27 E DNR	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.2**	**17**	0.5 U
	1/14/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	6.9 DNR	12 DNR	5.0 U DNR
	4/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**20**	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.9**	**11**	0.5 U
	7/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.8	0.5 U	0.2 U	0.9	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	9.5	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**14**	**5.2**	0.5 U
	10/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.9**	**8.2**	0.5 U
	1/22/15	7.1	0.2 U	0.5 U	0.5 U	0.5 U	2.4 X	0.5 U	0.2 U	1.1	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**3.2**	0.5 U
	4/21/15	4.6 X	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**3.9**	0.5 U
(3)	7/14/06	24	1.0 U	1.0 U	1.0 U	1.0 U	45	1.0 U	1.0 U	1.0 U	**3.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**92**	1.0 U	1.0 U
	8/7/06	8.2	1.0 U	1.0 U	1.0 U	1.0 U	16	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2,700**	1.0 U	1.0 U
	9/12/06	89 J	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**710**	10 U	10 U
	9/12/06 (DUP)	96 J	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**740**	10 U	10 U
	7/16/07	260	**75**	10 U	10 U	10 U	66	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**420**	10 U	13
	9/26/07	430	**94**	4.0 U	4.0 U	4.0 U	91	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	9.2	4.6	4.0 U	20 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**310**	4.0 U	15.4
	11/28/07	190	**63**	3.0 U	3.0 U	3.0 U	24	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**100**	3.0 U	3.0 U
	2/5/08	21	**13**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.1	15	8.6	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**570 D**	1.0 U	1.0 U
	3/7/08	25 U	**6.4**	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.8	**17**	8.5	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**650**	5.0 U	5.0 U
	4/1/08	150 U	10 U	10 U	10 U	10 U	120 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**19**	10 U	10 U	120 U	25 U	10 U	10 U	10 U	10 U	10 U	**810 D**	10 U	20 U
	4/1/08 (DUP)	300 U	20 U	20 U	20 U	20 U	250 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	250 U	50 U	20 U	20 U	20 U	20 U	20 U	**1,000**	20 U	40 U
	4/29/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**540**	5.0 U	5.0 U
	6/5/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	7.1	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**340**	3.0 U	3.0 U
	7/31/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**260**	5.0 U	5.0 U
	8/22/08	150 U	10 U	10 U	10 U	10 U	120 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	120 U	25 U	10 U	10 U	10 U	10 U	10 U	**310**	10 U	20 U
	9/25/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	4.0	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**240**	3.0 U	3.0 U
	10/14/08	3.0 U	0.7	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.7	3.6	0.8	0.2 U	2.5 U	0.5 UJ	0.2 U	0.4	0.2 U	0.2 U	0.2 U	**240 D**	0.2 U	0.4 U
	11/5/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**170**	3.0 U	6.0 U
	12/4/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5	1.0 U	1.0 U	5.0 U	3.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	2.0 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW151 (3)	1/13/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	2.0 U
(continued)	2/5/09	6.2 U	0.4	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.1 X	0.2 U	0.2 U	0.2 U	0.4	2.4	0.5	0.2 U	2.5 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**150**	0.2 U	0.4 U
	3/2/09	2.5 U	0.4	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.1 X	0.2 U	0.2 U	0.2 U	0.5	2.9	0.7	0.2 U	2.5 U	0.5 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	**180 D**	0.2 U	0.4 U
	4/7/09	2.5 U	0.3	0.2 U	0.2 U	0.2 X	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	2.6	0.4	0.2 U	2.5 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**190 D**	0.2 U	0.4 U
	5/4/09	2.5 U	0.3	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	3.1	0.4	0.2 U	2.5 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**260 D**	0.2 U	0.4 U
	5/26/09	7.5 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	3.2	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**230 D**	0.6 U	1.2 U
	6/11/09	5.0 U	0.2	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.5	3.9	0.5	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**270 D**	**0.2**	0.4 U
	7/31/09	75 UJ	3.0 UJ	3.0 UJ	3.0 UJ	7.5 UJ	75 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	7.5 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.9 J	3.0 UJ	3.0 UJ	75 UJ	7.5 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	3.0 UJ	**360 J**	3.0 UJ	6.0 UJ
	8/27/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	4.4	1.0 U	1.0 U	25 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**400 D**	1.0 U	2.0 U
	8/27/09 (DUP)	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	4.6	2.0 U	2.0 U	50 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**400**	2.0 U	4.0 U
	9/15/09	5.0 U	0.2	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.7	**87 D**	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**290 D**	0.2 U	0.4 U
	10/28/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	**190**	1.0 U	1.0 U	25 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**34**	1.0 U	2.0 U
	1/27/10	50 UJ	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**25**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**230**	**13**	4.0 U
	4/7/10	50 UJ	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 UJ	2.0 U	2.0 U	2.0 U	**30**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**69**	**5.5**	4.0 U
	7/7/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	1.2	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	9.4	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**61**	**1.1**	1.2 U
	10/12/10	5.0 U	0.2	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	9.3	0.4	0.2 U	5.0 UJ	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**45**	**2.4**	0.4 U
	1/19/11	8.6	0.2 U	0.2 U	0.2 U	1.0 U	9.7	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	6.1	0.7	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**17**	**1.1**	0.4 U
	4/12/11	14	0.2 U	0.2 U	0.2 U	1.0 U	6.8	0.2 U	0.2 U	0.5	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	11	0.7	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**14**	**1.6**	0.4 U
	7/12/11	7.1	0.2 U	0.2 U	0.2 U	1.0 U	5.5	0.2 U	0.2 U	1.0	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	9.6	1.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**27**	**1.8**	0.4 U
	10/19/11	5.0 U	0.2	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.5	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	14	1.3	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**7.4**	**3.7**	0.4 U
	1/23/12	5.0 UJ	0.1 X	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	6.6	0.4	0.2 U	5.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**6.6**	**1.0**	0.4 U
	4/9/12	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	6.8	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.9**	**1.0**	0.5 U
	7/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.9**	**0.8**	0.5 U
	10/2/12	10	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.9**	**0.7**	0.5 U
	1/14/13	4.4 X	0.2 U	0.5 U	0.5 U	0.5 U	2.3 X J	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**1.7**	0.5 U
	4/16/13	28	0.2 U	0.5 U	0.5 U	0.5 U	10	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**1.3**	0.5 U
	7/23/13	11	0.1 X	0.5 U	0.5 U	0.5 U	45	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 X	**2.7**	0.5 U
	10/15/13	3.5 XJ	0.2 U	0.5 U	0.5 U	0.5 U	8.6 J	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.1 X	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2	**0.3**	0.5 U
	1/14/14	5.8	0.1 X	0.5 U	0.5 U	0.5 U	6.2	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	0.2	**0.2 X**	0.5 U
	4/7/14	3.4 X	0.2 U	0.5 U	0.5 U	0.5 U	2.3 X	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U
	7/29/14	13	0.2 U	0.5 U	0.5 U	0.5 U	3.3 X	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2	0.5 U	0.2 U	0.3	**1.1**	0.5 U
	10/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**0.2**	0.5 U
	1/22/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	**0.2 X**	0.5 U
	4/22/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.8	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U
(4)	7/14/06	29	1.0 U	1.0 U	1.0 U	1.0 U	50	1.0 U	1.0 U	1.0 U	**11**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**33**	1.0 U	1.0 U
	8/7/06	20	1.0 U	1.0 U	1.0 U	1.0 U	40	1.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**690**	1.0 U	1.0 U
	9/11/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,100**	10 U	10 U
	1/26/07	120	**20**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**400**	10 U	10 U
	4/19/07	50 U	**60**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**21**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,000**	10 U	10 U
	4/19/07 (DUP)	64	**57**	1.0 U	1.0 U	1.0 U	14	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.1	**20**	6.4	1.0 U	5.0 U	2.0 U	1.0 U	1.6	2.3	1.0 U	1.0 U	**1,100**	1.0 U	1.0 U
	7/17/07	180	**37**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	13	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**570**	10 U	13
	8/16/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**99**	10 U	10 U
	8/16/07 (DUP)	250 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	250 U	100 U	50 U	50 U	50 U	50 U	50 U	**100**	50 U	50 U
	11/28/07	42	**23**	1.0 U	1.0 U	1.0 U	38	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	6.1	2.4	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**120**	1.0 U	1.9
EGW152 (1)	9/11/06	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**16**	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**84**	1.0 U	1.0 U
	6/11/07	51	0.3	0.2 U	0.2 U	0.2 U	2.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**9.0**	0.2 U	0.4 U
	7/19/07	120	0.6	0.2 U	0.2 U	0.2 U	6.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	6.8	0.8	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**60**	0.2 U	0.4 U
	11/29/07	28	1.0 U	1.0 U	0.2 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	11	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**130**	1.0 U	1.0 U
	11/29/07 (DUP)	29	0.5	0.2 U	1.0 U	0.2 U	1.6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0	**16**	1.2	0.2 U	1.0 U	0.3 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**150 D**	**0.2**	0.4 U
	2/6/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**87**	1.0 U	1.0 U
	4/3/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**68**	1.0 U	1.0 U
	7/29/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.9	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**44**	1.0 U	1.0 U
	10/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	5.2	0.2 U	0.2 U	2.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**60 D**	0.2 U	0.4 U
	1/12/09	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	4.5	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**49 D**	0.2 U	0.4 U
	4/9/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 X	3.0	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**59**	0.2 U	0.4 U
	6/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	3.0	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**62 D**	0.2 U	0.4 U
	7/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	3.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**74 D**	0.2 U	0.4 U
	8/27/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	4.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**87**	0.6 U	1.2 U
	9/14/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	7.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**70 D**	0.2 U	0.4 U
	10/27/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	14	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**64**	0.6 U	1.2 U
	1/27/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	8.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**67 D**	**3.8**	0.4 U
	4/14/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	5.5	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**86**	**2.3**	1.2 U
	7/6/10	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	2.4	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**66**	**0.6**	1.2 U
	10/5/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	14	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.5**	**1.5**	0.4 U
	1/20/11	6.3	0.2 U	0.2 U	0.2 U	1.0 U	13	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.5	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.2**	**0.4**	0.4 U
	4/15/11	9.3	0.2 U	0.2 U	0.2 U	1.0 U	14	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.0	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.7**	0.2 U	0.4 U
	7/12/11	15	0.2 U	0.2 U	0.2 U	1.0 U	32	0.4	0.2 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.1	0.4	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.4 U
	10/18/11	16	0.2 U	0.2 U	0.2 U	1.0 U	21	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.1	0.3	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	**0.4**	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW152 (continued)	**(1)**	1/24/12	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	37	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.8	0.2	0.2 U	5.0 U	1.0 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	0.3	**0.3**	0.4 U
		4/10/12	3.3 X	0.2 U	0.5 U	0.5 U	0.5 U	9.4	0.5 U	0.2 U	0.6	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	0.5	**0.2**	0.5 U
		7/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	2.3 X	0.5 U	0.2 U	0.6	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2	0.5 U	0.2 U	0.5	**0.3**	0.5 U
		10/3/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	7.7	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**0.3**	0.5 U
		1/15/13	4.1 X	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.7**	**0.2 X**	0.5 U
		4/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.6**	**0.1 X**	0.5 U
		7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.7**	**0.4**	0.5 U
		10/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.1 X	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.6**	**0.2**	0.5 U
		1/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.8**	**0.6**	0.5 U
		4/3/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.8**	**0.5**	0.5 U
		7/16/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.8**	**1.1**	0.5 U
		10/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.8**	**1.3**	0.5 U
		1/21/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.8**	**1.6**	0.5 U
		4/22/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	1.0	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.7**	**1.3**	0.5 U
	(2)	9/11/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,300**	10 U	10 U
		4/19/07	500	**45**	1.0 U	1.0 U	1.0 U	39	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.6	1.0 U	1.0 U	**180**	1.0 U	1.0 U
		6/11/07	86 J	**58**	0.2 U	0.2 U	0.2 U	4.4	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.3	12	2.8	0.2 U	1.0 U	0.3 U	0.2 U	1.4	3.3	0.2 U	0.2 U	**400 D**	**0.2**	1.0
		7/19/07	310	**51**	1.0 U	1.0 U	1.0 U	16	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.9	1.8	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.6	1.0 U	1.0 U	**110**	1.0 U	1.0 U
		9/25/07	130	**20**	1.0 U	1.0 U	1.0 U	10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.4	1.3	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	2.4	1.0 U	1.0 U	**52**	1.0 U	1.0 U
		11/29/07	130 D	**16**	0.2 U	0.2 U	0.2 U	10	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6	2.3	1.1	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	2.8	0.2 U	0.2 U	**26 D**	0.2 U	0.4 U
		7/6/10	5.0 UJ	0.3	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	4.6	0.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**17**	**1.8**	0.4 U
		10/5/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.7	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.0**	**1.3**	0.4 U
		1/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.9	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	5.0	0.8	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.3**	**2.8**	0.4 U
		4/15/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	1.1	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	3.4	0.7	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.0**	**1.8**	0.4 U
		7/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.9	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.2	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.3**	**0.6**	0.4 U
		10/18/11	9.1	0.2 U	0.2 U	0.2 U	1.0 U	5.9	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	**0.5**	0.4 U
		1/24/12	5.0 UJ	0.2	0.2 U	0.2 U	1.0 U	12	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.1	0.8	0.2 U	5.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	**0.6**	0.4 U
		4/10/12	7.2	0.1 X	0.5 U	0.5 U	0.5 U	3.7 X	0.5 U	0.2 U	1.0	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	1.0	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	**1.4**	**0.8**	0.5 U
		7/11/12	5.0 U	0.2	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	1.0	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	**1.6**	**0.9**	0.5 U
		10/3/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.8	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.4**	**0.7**	0.5 U
		1/15/13	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.9	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.0**	**0.6**	0.5 U
		4/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	**0.2 X**	0.5 U
		7/24/13	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**0.3**	0.5 U
		10/16/13	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**0.4**	0.5 U
		1/15/14	3.3 X	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**0.6**	0.5 U
		4/3/14	5.0 U	0.3	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.6**	**0.4**	0.5 U
		7/16/14	5.0 U	0.2	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**1.0**	0.5 U
		10/14/14	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.9**	**1.6**	0.5 U
		1/21/15	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.7	0.8	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.9**	**4.7**	0.5 U
		4/22/15	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	3.1	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.9**	**3.7**	0.5 U
	(3)	9/11/06	9.1 J	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**110**	1.0 U	1.0 U
		6/11/07	44 J	**1.2 J**	0.2 U	0.2 U	0.2 U	2.6 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.5 J	0.2 U	0.9 J	1.0 U	0.3 U	0.2 U	0.2 U	0.3 J	0.2 U	0.2 U	**41 D**	0.2 U	7.0 J
		7/19/07	12	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.4	0.3 U	0.3 U	1.5 U	0.4 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	**14**	0.3 U	0.6 U
		11/29/07	21	**0.8**	0.2 U	0.2 U	0.2 U	2.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	**9.3**	0.2 U	0.4 U
		7/6/10	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**31**	**0.3**	0.4 U
		10/5/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	8.8	0.4	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**14**	**0.7**	0.4 U
		4/15/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.8 J**	0.4 U
		10/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.3**	0.4 U
		4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	0.1 X	**0.3**	0.5 U
		10/3/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.5	0.5 U	0.2 U	0.1 X	**0.2 X**	0.5 U
		4/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2	**0.2 X**	0.5 U
		10/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.5	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	**0.3**	0.5 U
		4/3/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	**0.4**	0.5 U
		10/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	**1.4**	0.5 U
		4/22/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	1.0	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**1.6**	0.5 U
	(4)	9/11/06	20 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**280**	4.0 U	4.0 U
		6/11/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6 J	0.2 U	1.2 J	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.8 J**	0.2 U	7.8 J
		7/19/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 J	0.2 U	0.5 J	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**4.3 J**	0.2 U	3.0 J
		11/29/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.1**	0.2 U	1.5
EGW153	**(1)**	9/8/06	5.5	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**19**	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**55**	**1.9**	1.0 U
		6/12/07	50	0.6	0.2 U	0.2 U	0.2 U	3.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.4**	0.2 U	0.4 U
		7/18/07	130	**5.4**	0.2 U	0.2 U	0.2 U	7.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4.1	0.7	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**46**	0.2 U	0.4 U
		7/7/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 UJ	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**53**	0.2 U	0.4 U
		10/7/10	5.0 U	0.6	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	**25**	0.2 U	0.4 U
		1/21/11	18	0.2 U	0.2 U	0.2 U	1.0 U	66	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	21	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.3**	**5.3**	0.4 U
		4/18/11	15	0.2 U	0.2 U	0.2 UJ	1.0 U	41	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.8**	0.2 U	0.4 U
		7/13/11	23	0.2 U	0.2 U	0.2 U	1.0 U	45	0.4	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	0.2 U	0.4 U
		10/17/11	15	0.2 U	0.2 U	0.2 U	1.0 U	19	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.7**	0.2 U	0.4 U
		1/25/12	3.1 X	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.8**	0.2 U	0.4 U
		4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.0**	0.2 U	0.5 U
		7/12/12	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.0**	**0.1 X**	0.5 U
		10/1/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	3.6 X	0.5 U	0.2 U	0.4 XJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.4	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.1**	**0.2 X**	0.5 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																										
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW153 (continued)	**(1)**	1/15/13	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U
		4/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.0**	**0.1 X**	0.5 U
		7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.4**	**0.2 X**	0.5 U
		10/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.9**	**0.1 X**	0.5 U
		1/15/14	5.9	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.8**	**0.3**	0.5 U
		4/3/14	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**0.1 X**	0.5 U
		10/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U
		4/23/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U
	(2)	9/8/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,800**	20 U	20 U
		6/12/07	36	**9.3**	0.2 U	0.2 U	0.2 U	1.6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**13**	0.2 U	0.4 U
		7/18/07	72	**30**	0.2 U	0.2 U	0.2 U	9.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	2.1	0.7	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**69**	0.2 U	0.4 U
		11/20/07	45	**1.1**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.3	1.1	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**120**	1.0 U	1.0 U
		11/20/07 (DUP)	47	**1.2**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.1	1.1	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**110**	1.0 U	1.0 U
		2/4/08	12 U	**1.2**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**24**	1.0 U	1.0 U
		4/2/08	3.0 U	**1.0**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	1.8	0.2	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	**18 D**	0.2 U	0.4 U
		7/29/08	9.0 U	**1.8**	0.6 U	0.6 U	0.6 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	4.3	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**350 D**	0.6 U	1.2 U
		10/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	5.3	0.2	0.2 U	0.2 U	0.5 UJ	0.2 U	0.3	0.2 U	0.2 U	2.5 U	**240 D**	**0.2**	0.4 U
		10/14/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	5.3	0.2	0.2 U	0.2 U	0.5 UJ	0.2 U	0.3	0.2 U	0.2 U	2.5 U	**260 D**	**0.2**	0.4 U
		1/12/09	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.3	5.3	0.2	0.2 U	0.2 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**130 D**	0.2 U	0.4 U
		4/9/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	3.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**130 D**	**0.1 X**	0.4 U
		6/9/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 X	0.5 U	0.2 U	0.2 U	0.2	3.3	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**120 D**	0.2 U	0.4 U
		7/29/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**98 D**	0.2 U	0.4 U
		10/27/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U	25 U	2.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.8**	**30**	2.0 U
		1/27/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	0.2 U	0.2	**28**	0.8	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**28**	**38**	0.4 U
		4/9/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 UJ	0.2 U	0.2 U	1.5	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	5.4	0.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**20**	**2.8**	0.4 U
		7/7/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	3.6	0.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**22**	**1.5**	0.4 U
		10/7/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.8	0.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**	**2.0**	0.4 U
		1/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.9	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.6	1.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.5**	**2.1**	0.4 U
		4/18/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	1.0	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.5**	**1.5**	0.4 U
		7/13/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.7	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.9**	**1.0**	0.4 U
		10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.7**	**1.3**	0.4 U
		1/24/12	6.9	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.7	0.2 X	0.2 U	5.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.9**	**0.7**	0.4 U
		4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.7	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.9	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.4**	**1.3**	0.5 U
		7/12/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.0	1.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**5.7**	**5.0**	0.5 U
		10/1/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 XJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	2.3	1.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**8.0**	**4.2**	0.5 U
		1/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	5.3	1.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**13**	**7.2**	0.5 U
		4/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.9	1.1	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**5.1**	**4.9**	0.5 U
		7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.7**	**1.0**	0.5 U
		10/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.5	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.7**	**2.8**	0.5 U
		1/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	**2.3**	0.5 U
		4/3/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.2	0.9	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.3**	**7.3**	0.5 U
		10/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**23**	1.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**18**	**16**	0.5 U
		4/23/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**21**	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.9**	**11**	0.5 U
	(3)	9/8/06	5.5	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	**1.5**	1.0 U	1.0 U	1.0 U	1.0 U	6.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**430**	1.0 U	1.0 U
		6/12/07	3.8	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**34 D**	0.2 U	0.4 U
		7/18/07	15 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**41**	1.0 U	2.0 U
		11/20/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**39**	1.0 U	1.0 U
		7/7/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	6.5	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**24**	**0.5**	0.4 U
		10/7/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	5.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**29**	**0.6**	0.4 U
		4/18/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	3.7	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**13**	**2.5**	0.4 U
		10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.7**	**0.6**	0.4 U
		4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.9**	**0.8**	0.5 U
		10/1/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.4 X	0.2 U	0.3 XJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.3	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.3**	**0.6**	0.5 U
		4/15/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.6**	**0.5**	0.5 U
		10/16/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 X	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**0.4**	0.5 U
		4/3/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**0.4**	0.5 U
		10/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**1.2**	0.5 U
		4/23/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**1.5**	0.5 U
EGW154	**(1)**	9/7/06	4.2	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.6	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**14**	0.2 U	0.4 U
		6/13/07	22	**2.5**	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	**8.8**	0.2 U	0.4 U
		7/17/07	120	0.4	0.2 U	0.2 U	0.2 U	5.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**7.4**	0.2 U	0.4 U
		7/17/07 (DUP)	110	0.6 U	0.6 U	0.6 U	0.6 U	4.7 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**5.7**	0.6 U	1.2 U
		10/23/07	99 D	0.6	0.2 U	0.2 U	0.2 U	5.4 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**15**	0.2 U	0.4 U
		11/19/07	130	**1.1**	0.6 U	0.6 U	0.6 U	3.8	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**4.2**	0.6 U	1.2 U
	(2)	9/7/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**59**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**3,400**	20 U	20 U
		6/13/07	40 J	**2.7 J**	0.2 U	0.2 U	0.2 U	2.5 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3 J	0.2 U	0.2 U	**5.8 J**	0.2 U	0.4 U
		7/17/07	140	**15**	0.2 U	0.2 U	0.2 U	6.8 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6	4.2	1.8	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**210**	0.2 U	0.4 U
		9/25/07	370	**13**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**26**	11	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,300**	10 U	10 U
		10/23/07	150	**12**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**610**	10 U	10 U
		10/23/07 (DUP)	160	**11**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**600**	10 U	10 U
		11/19/07	100	**6.7**	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	4.8	3.2	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**180**	3.0 U	3.0 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW154 (continued)	**(2)**	2/4/08	140	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	6.2	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**230**	5.0 U	5.0 U
		3/7/08	110	**4.8**	3.0 U	3.0 U	3.0 U	24	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	10	5.6	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**250**	3.0 U	3.0 U
		4/1/08	60 U	**5.8**	4.0 U	4.0 U	4.0 U	50 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	12	7.4	4.0 U	50 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**300**	4.0 U	8.0 U
		5/1/08	25 U	**6.0**	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	8.6	5.7	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**240**	5.0 U	5.0 U
		7/29/08	5.0 U	**3.3**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.2	8.9	4.4	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U
		10/13/08	3.0 U	**2.7**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4.0	9.3	4.3	0.2 U	2.5 U	0.5 UJ	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**160 D**	0.2 U	0.4 U
		1/12/09	5.0 U	**1.8**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.8	4.1	2.0	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**76**	1.0 U	2.0 U
		4/9/09	2.5 U	**1.0**	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.6	2.1	1.1	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**48**	0.2 U	0.4 U
		6/9/09	5.0 U	**0.7**	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.9	1.4	0.8	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**40**	0.2 U	0.4 U
		7/30/09	5.0 U	0.5	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.4	0.8	0.4	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**26**	0.2 U	0.4 U
		10/27/09	5.0 U	0.3	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2	0.4	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**17**	0.2 U	0.4 U
		4/9/10	5.0 UJ	0.3	0.2 U	0.2 U	0.5 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.3	0.7	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**12**	0.2 U	0.4 U
		10/5/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2	0.8	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**17**	0.2 U	0.4 U
		4/18/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.3	2.0	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**39**	0.2 U	0.4 U
		10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.5	0.2 U	0.5 U	0.2 U	0.2 U	0.2	11	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**18**	**2.8**	0.4 U
		4/12/12	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	4.3	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**13**	**12**	0.5 U
		10/1/12	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.0 J	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	1.6	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**7.6**	**6.0**	0.5 U
		4/17/13	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.1**	**1.4**	0.5 U
		10/16/13	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	**1.0**	0.5 U
		4/7/14	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	2.1	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.9	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	**0.8**	0.5 U
		10/15/14	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	2.1	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	1.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	**2.3**	0.5 U
		4/23/15	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	**1.3**	0.5 U
	(3)	9/7/06	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.4	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**580**	5.0 U	5.0 U
		6/13/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 J	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**21 D**	0.2 U	1.4 J
		7/17/07	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**26**	0.6 U	1.2 U
		10/23/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**3.1**	0.2 U	0.4 U
		11/19/07	4.2	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**	0.2 U	0.4 U
EGW155	**(1)**	9/7/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**24**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**990**	10 U	10 U
		1/25/07	440	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**16**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**920**	10 U	10 U
		4/17/07	320	**7.8**	1.0 U	1.0 U	1.0 U	25	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**35**	1.0 U	1.2
		6/13/07	45 J	**3.1**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.2	1.0 U	1.0 U	5.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**49**	1.0 U	2.0 U
		7/18/07	15 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	5.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**38**	1.0 U	2.0 U
		11/30/07	9.0 U	0.6	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.7	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**26**	0.6 U	1.2 U
	(2)	9/7/06	1,100	200 U	200 U	200 U	200 U	1,000 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	1,000 U	400 U	200 U	200 U	200 U	200 U	200 U	**7,700**	200 U	200 U
		1/25/07	1,000 U	200 U	200 U	200 U	200 U	1,000 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	1,000 U	400 U	200 U	200 U	200 U	200 U	200 U	**1,100**	200 U	200 U
		4/17/07	180	**140**	1.0 U	1.0 U	1.0 U	10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	5.8	1.0 U	1.0 U	**140**	1.0 U	1.0 U
		6/13/07	56 J	**17**	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.7	2.0 U	2.0 U	10 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**110**	2.0 U	4.0 U
		7/18/07	11 U	**10**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**78**	1.0 U	1.0 U
		11/30/07	6.5	**34 D**	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**31 D**	0.2 U	0.4 U
	(3)	9/7/06	7.4	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**28**	1.0 U	1.0 U
		7/18/07	80	**28**	0.2 U	0.2 U	0.2 U	5.1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	**20**	0.2 U	0.7
		11/30/07	420 D	**86 D**	0.6 U	0.6 U	0.6 U	22	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	5.3	0.6 U	0.6 U	3.0 U	1.0	0.6 U	0.6 U	0.9	0.6 U	0.6 U	**23**	0.6 U	1.2 U
EGW156	**(1)**	9/7/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**160**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,500**	20 U	20 U
		4/19/07	330	**6.9**	3.0 U	3.0 U	3.0 U	20	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	7.7	3.0 U	3.0 U	15 U	6.0 U	**4.0**	3.0 U	3.0 U	3.0 U	3.0 U	**260**	3.0 U	3.0 U
		6/14/07	460 J	**22**	1.0 U	1.0 U	1.0 U	30	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.9	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	**120**	1.0 U	1.0 U
		7/16/07	170	1.0 U	1.0 U	1.0 U	1.0 U	7.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	2.8	1.0 U	1.0 U	**30**	1.0 U	1.0 U
		11/29/07	200 D	**75 D**	0.6 U	0.6 U	0.6 U	5.2	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.6	1.1	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	1.6	0.6 U	0.6 U	**28**	0.6 U	1.2 U
	(2)	9/7/06	500 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	200 U	100 U	100 U	100 U	100 U	100 U	**9,200**	100 U	100 U
		1/26/07	500 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	200 U	100 U	100 U	100 U	100 U	100 U	**1,400**	100 U	100 U
		1/26/07 (DUP)	500 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	200 U	100 U	100 U	100 U	100 U	100 U	**1,300**	100 U	100 U
		4/16/07	370	**33**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**27**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,600**	10 U	10 U
		6/14/07	500 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	200 U	100 U	100 U	100 U	100 U	100 U	**2,000**	100 U	100 U
		7/17/07	190	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	100 U	20 U	20 U	20 U	20 U	**600**	20 U	20 U
		8/16/07	130	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**66**	20 U	20 U
		9/25/07	120	**8.1**	1.0 U	1.0 U	1.0 U	6.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	5.0 U	1.5 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**27**	1.0 U	2.0 U
		11/29/07	330 D	**360 D**	0.6 U	0.6 U	0.6 U	7.0	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.0	2.9	2.0	0.6 U	3.0 U	0.9 U	0.6 U	0.6 U	2.6	0.6 U	0.6 U	**44**	0.6 U	1.2 U
		11/29/07 (DUP)	340 D	**360 D**	0.6 U	0.6 U	0.6 U	3.0 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.0	2.9	2.0	0.6 U	3.0 U	1.2	0.6 U	0.6 U	2.5	0.6 U	0.6 U	**42**	0.6 U	1.2 U
		2/4/08	340	**340**	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	5.0	**17**	11	4.0 U	20 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**220**	4.0 U	4.0 U
		4/1/08	290	**240 D**	3.0 U	3.0 U	3.0 U	38 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	5.0	**23**	12	3.0 U	38 U	7.5 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**250 D**	3.0 U	6.0 U
		7/29/08	76	**26**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.2	12	4.3	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**110**	1.0 U	1.0 U
		10/13/08	3.1	**8.6**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2	8.9	4.5	0.2 U	2.5 U	0.5 UJ	0.2 U	0.2 U	0.3	0.2 U	0.2 U	**110 D**	**0.2**	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW156	**(2)**	1/12/09	3.0 U	**2.7**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.8	6.9	3.2	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**53 D**	**0.2**	0.4 U
(continued)		4/8/09	2.5 U	**1.0**	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.1	4.8	2.4	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**43**	**0.2 X**	0.4 U
		6/9/09	5.0 U	**0.8**	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	2.1	4.7	2.4	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**40**	**0.2 X**	0.4 U
		7/30/09	5.0 U	0.6	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.6	3.8	1.7	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**33**	0.2 U	0.4 U
		10/27/09	5.0 U	0.4	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.0	2.6	1.0	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**19**	0.2 U	0.4 U
		4/9/10	5.0 UJ	0.2	0.2 U	0.2 U	0.5 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.9	0.9	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**16**	0.2 U	0.4 U
		10/7/10	5.0 U	0.3	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.6	1.9	0.7	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	**13**	0.2 U	0.4 U
		4/15/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.5	1.6	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**	0.2 U	0.4 U
		10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.4	1.4	0.5	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**10**	0.2 U	0.4 U
		4/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5	1.4	0.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.2**	0.2 U	0.5 U
		10/1/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.4	1.4	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.2**	0.2 U	0.5 U
		4/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.4	2.2	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**8.0**	**0.2**	0.5 U
		10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.3	2.4	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**8.3**	**0.8**	0.5 U
		4/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.3	2.3	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.8**	**1.2**	0.5 U
		10/15/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.3	2.1	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.9**	**2.1**	0.5 U
		4/23/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2	1.8	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**5.4**	**2.3**	0.5 U
	(3)	9/7/06	500 U	100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	200 U	100 U	100 U	100 U	100 U	100 U	**4,800**	100 U	100 U
		7/17/07	220	**6.0**	2.0 U	2.0 U	2.0 U	11 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	6.7	2.0 U	2.0 U	10 U	3.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**250**	2.0 U	4.0 U
		11/29/07	140 D	**23 D**	0.2 U	0.2 U	0.2 U	3.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.6	0.4	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	**16 D**	0.2 U	0.5
		2/4/08	380	**67**	1.0 U	1.0 U	1.0 U	14	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.8	7.4	4.3	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U
		4/1/08	340	**33**	2.0 U	2.0 U	2.0 U	25 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.7	11	7.6	2.0 U	25 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**190 D**	2.0 U	4.0 U
		7/29/08	16	**3.8**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0	2.7	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**43**	1.0 U	1.0 U
		10/13/08	3.6	**3.8**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.7	10	4.6	0.4	2.5 U	0.5 UJ	0.2 U	0.2 U	2.3	0.2 U	0.2 U	**44 D**	**0.2**	2.4
		1/12/09	3.0 U	**6.6**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.6	11	3.9	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	**60 D**	**0.3**	0.4 U
		4/8/09	2.5 U	**2.1**	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.4	8.2	2.0	0.3	2.5 U	0.5 U	0.2 U	0.2 U	1.6	0.2 U	0.2 U	**26**	**0.2 X**	2.2
		6/9/09	5.0 U	**1.6**	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.6	7.7	1.0	0.3	5.0 U	0.5 U	0.2 U	0.2 U	1.5	0.2 U	0.2 U	**27**	0.2 U	1.7
		6/9/09 (DUP)	5.0 U	**1.6**	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.6	8.1	1.1	0.2	5.0 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U	0.2 U	**28**	0.2 U	1.7
		7/30/09	5.0 U	**1.2**	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.2	5.3	0.8	0.3	5.0 U	0.5 U	0.2 U	0.2 U	1.9	0.2 U	0.2 U	**25**	0.2 U	2.2
		10/27/09	5.0 U	**1.1**	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	1.0	4.9	1.1	0.3	5.0 U	0.5 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	**29**	0.2 U	1.8
		4/9/10	5.0 UJ	**0.9**	0.2 U	0.2 U	0.5 U	5.0 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.8	4.5	0.8	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**16**	0.2 U	0.4 U
		11/8/10	5.0 U	0.2	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.8	3.5	0.7	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**11**	0.2 U	0.4 U
		4/15/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.6	3.0	0.6	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**9.3**	0.2 U	0.4 U
		10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.5	2.0	0.4	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**8.2**	0.2 U	0.4 U
		4/11/12	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.7	2.5	0.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.2**	0.2 U	0.5 U
		10/1/12	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 UJ	0.2 U	0.5 UJ	0.5 U	0.5 U	0.5	2.1	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**8.2**	0.2 U	0.5 U
		4/17/13	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.4	2.6	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**7.5**	**0.2 X**	0.5 U
		10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.4	2.6	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**8.2**	**0.5**	0.5 U
		4/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.4	2.4	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.7**	**0.8**	0.5 U
		10/15/14	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.3	2.1	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**5.4**	**1.4**	0.5 U
		4/23/15	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.3	1.9	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.1**	**1.8**	0.5 U
EGW157	**(1)**	9/6/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**150**	20 U	20 U	100 U	**56**	20 U	20 U	20 U	20 U	20 U	**2,300**	20 U	20 U
		7/23/07	150	**120**	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**300**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**3,200**	20 U	20 U
		7/23/07 (DUP)	160	**120**	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**320**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**3,400**	20 U	20 U
		8/16/07	160	**130**	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**650**	56	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**4,500 D**	20 U	20 U
		9/24/07	2,200	**76**	5.0 U	5.0 U	5.0 U	130	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**76**	5.6	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**450**	5.0 U	5.0 U
		10/23/07	370	**25**	1.0 U	1.0 U	1.0 U	15	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	2.4	1.8	1.0 U	1.0 U	**97**	1.0 U	1.0 U
		11/30/07	34	**100**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	**55**	1.0 U	1.0 U
		2/4/08	12 U	**72**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**26**	1.0 U	1.0 U
		4/3/08	10	**38**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**22**	1.0 U	1.0 U
		8/1/08	9.0 U	**12**	0.6 U	0.6 U	0.6 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.8	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	**42**	0.6 U	1.2 U
		8/1/08 (DUP)	5.0 U	**9.7**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**34**	1.0 U	1.0 U
		10/15/08	3.0 U	**2.6**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2	0.2	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**31 D**	0.2 U	0.4 U
		1/14/09	3.5 U	**0.8**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**15**	0.2 U	0.4 U
		4/8/09	2.5 U	0.7	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.4	0.2 X	0.2 U	2.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.2 U	0.2 U	**18**	0.2 U	0.4 U
		6/8/09	5.0 U	0.1 X	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.9	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.2 U	0.2 U	**26**	0.2 U	0.4 U
		7/30/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.0	0.3	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**39**	0.2 U	0.4 U
		10/28/09	5.0 U	0.2	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	3.3	0.3	0.2 U	5.0 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**77 D**	0.2 U	0.4 U
		4/14/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**19**	0.2 U	0.4 U
		10/13/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.4	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**50**	0.2 U	0.4 U
		4/14/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**32**	0.2 U	0.4 U
		10/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**69**	0.2 U	0.4 U
		4/12/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	31 E DNR	0.2 U	0.5 U
		4/12/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**26**	2.0 U DNR	5.0 U DNR
		10/2/12	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	38 E DNR	0.2 U	0.5 U
		10/2/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**32**	2.0 U DNR	5.0 U DNR
		4/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	32 E DNR	0.2 U	0.5 U
		4/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	5.0 U DNR
		10/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	61 E DNR	0.2 U	0.5 U
		10/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**48**	2.0 U DNR	5.0 U DNR
		4/2/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	46 E DNR	0.2 U	0.5 U
		4/2/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**42**	2.0 U DNR	5.0 U DNR
		10/13/14	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	1.0	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**19**	0.2 U	0.5 U
		4/22/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	39 E DNR	0.2 U	0.5 U
		4/22/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**31**	2.0 U DNR	5.0 U DNR

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	**Benzene**	**BDCM**	**Bromoform**	**Bromomethane**	**2-Butanone**	**Carbon Disulfide**	**Carbon Tetrachloride**	**Chloroethane**	**Chloroform**	**Chloromethane**	**DBCM**	**1,1-DCA**	**1,1-DCE**	**cis-1,2-DCE**	**trans-1,2-DCE**	**Ethylbenzene**	**MIBK**	**Methylene Chloride**	**Styrene**	**PCE**	**Toluene**	**1,1,1-TCA**	**1,1,2-TCA**	**TCE**	**Vinyl Chloride**	**Xylenes**
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW157	**(2)**	9/6/06	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**2,400**	20 U	20 U
(continued)		4/18/07	30	**120**	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**36**	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**300**	3.0 U	3.0 U
		7/23/07	10 U	**110**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	11	1.9	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	**190**	1.0 U	3.2
		9/26/07	260	**120**	1.0 U	1.0 U	1.0 U	20	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.5	1.2	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**50**	1.0 U	1.0 U
		11/30/07	7.2	**140**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**11**	1.0 U	1.0 U
	(3)	9/6/06	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**5.6**	0.2 U	0.4 U
		7/23/07	10 U	**12**	0.2 U	0.2 U	0.2 U	1.0 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	12	0.7	0.4	1.0 U	0.3 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	**96**	0.2 U	0.4
		11/30/07	7.4	**26 D**	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 D	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	**3**	0.2 U	0.4 U
EGW158	**(1)**	9/5/06	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**38**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**880**	10 U	10 U
		4/18/07	120	**12**	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**160**	17	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**5,700**	10 U	10 U
		7/23/07	210	**2.7**	1.0 U	1.0 U	1.0 U	6.8 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**27**	1.0 U	1.0 U
		11/27/07	78	**68**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	**1.2**	3.8	1.0 U	1.0 U	**97**	1.0 U	1.0 U
		2/4/08	28 U	**22**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	**97**	1.0 U	1.0 U
		4/1/08	30 U	**20**	2.0 U	2.0 U	2.0 U	25 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.8	2.0 U	2.0 U	25 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**140**	2.0 U	4.0 U
		8/1/08	25 U	**12**	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	6.0	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**300**	5.0 U	5.0 U
		10/14/08	3.0 U	**6.0**	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	7.8	1.1	0.2 U	2.5 U	0.5 UJ	0.2 U	**5.0**	0.4	0.2 U	0.2 U	**520 D**	0.2 U	0.4 U
		11/5/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**310**	5.0 U	10 U
		12/4/08	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.1	2.0 U	2.0 U	10 U	**5.4**	2.0 U	2.6	2.0 U	2.0 U	2.0 U	**220**	2.0 U	4.0 U
		1/14/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.6	1.0 U	1.0 U	1.0 U	**150**	1.0 U	2.0 U
		4/8/09	2.5 U	**1.0**	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 X	1.8	0.3	0.2 U	2.5 U	0.5 U	0.2 U	1.6	0.2 U	0.2 U	0.2 U	**110 D**	0.2 U	0.4 U
		6/8/09	5.0 U	**2.0**	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 X	3.0	0.5	0.2 U	5.0 U	0.5 U	0.2 U	1.8	0.2 U	0.2 U	0.2 U	**150 D**	0.2 U	0.4 U
		7/31/09	50 UJ	**4.0 J**	2.0 UJ	2.0 UJ	5.0 UJ	50 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	5.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	4.3 J	2.0 UJ	2.0 UJ	50 UJ	5.0 UJ	2.0 UJ	3.0 J	2.0 UJ	2.0 UJ	2.0 UJ	**250 J**	2.0 UJ	4.0 UJ
		10/28/09	15 U	**0.8**	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	2.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	1.0	0.6 U	0.6 U	0.6 U	**72**	0.6 U	1.2 U
		4/14/10	5.0 U	0.3	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.8	0.2 U	0.2 U	0.2 U	**50**	0.2 U	0.4 U
		10/13/10	5.0 U	0.7	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.0	0.3	0.2 U	5.0 U	0.5 U	0.2 U	1.0	0.2 U	0.2 U	0.2 U	**72 D**	0.2 U	0.4 U
		4/14/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**41**	0.2 U	0.4 U
		10/18/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.6	0.3	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**49**	0.2 U	0.4 U
		4/10/12	5.0 U	0.1 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.7	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.4	0.2 U	0.5 U	0.2 U	32 E DNR	0.2 U	0.5 U
		4/10/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.6 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	5.0 U DNR
		10/2/12	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2	2.1	0.4	0.5 U	5.0 U	0.5 U	0.5 U	0.9	0.2 U	0.5 U	0.2 U	71 E DNR	0.2 U	0.5 U
		10/2/2012 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.7 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**56**	2.0 U DNR	5.0 U DNR
		4/17/13	5.0 U	0.2 X	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	1.5	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.4	0.2 U	0.5 U	0.2 U	27 E DNR	0.2 U	0.5 U
		4/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR
		10/15/13	5.0 UJ	0.3	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.3	2.1	0.4	0.5 U	5.0 UJ	0.5 U	0.5 U	0.8	0.2 U	0.5 U	0.2 U	88 E DNR	**0.2 X**	0.5 U
		10/15/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.9 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**70**	2.0 U DNR	5.0 U DNR
		4/2/14	5.0 U	0.5	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.1 X	0.5 U	0.5 U	0.5 U	0.8	10	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.4	0.2 U	0.5 U	0.2 U	420 E DNR	**0.3**	0.5 U
		4/2/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	9.0 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**370**	10 U DNR	25 U DNR
		7/14/14	5.0 U	0.4	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.8	11	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.4	0.2 U	0.5 U	0.2 U	430 E DNR	**0.3**	0.5 U
		7/14/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**630**	10 U DNR	25 U DNR
		10/13/14	5.0 U	0.4	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.6	9.4	0.7	0.5 U	5.0 U	0.5 U	0.5 U	0.5	0.2 U	0.5 U	0.2 U	500 E DNR	**0.4**	0.5 U
		10/13/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	8.6 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**600**	10 U DNR	25 U DNR
		4/22/15	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 UJ	2.5 U	2.5 U	1.0 U	5.4	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	400 E DNR	1.0 U	2.5 U
		4/22/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.9 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**400**	10 U DNR	25 U DNR
	(2)	9/5/06	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.9	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**280**	3.0 U	3.0 U
		7/23/07	43 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	**10**	3.0 U	3.0 U	3.0 U	**500**	3.0 U	3.0 U
		9/24/07	64	**25**	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.7	3.0 U	3.0 U	3.0 U	**190**	3.0 U	3.0 U
		11/26/07	14	**5.5**	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**49**	1.0 U	1.0 U
	(3)	9/5/06	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	6.8	2.0 U	2.0 U	10 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**190**	2.0 U	2.0 U
		7/24/07	6.3 J	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 J	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**17**	0.2 U	0.4 U
		7/24/07 (DUP)	7.2 J	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 J	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**17**	0.2 U	0.4 U
		11/26/07	8.0	**1.1**	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**13**	0.2 U	0.9
EGW159		10/27/06	45 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	0.020 U	3.0 U	3.0 U	3.0 U	15 U	4.5 U	3.0 U	0.020 U	3.0 U	3.0 U	3.0 U	**150**	0.020 U	6.0 U
		1/9/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U
		4/9/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**140**	0.043 U	1.0 U
		7/17/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**110**	0.020 U	1.0 U
		11/6/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U
		1/14/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 UJ	1.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**88**	0.020 UJ	1.0 U
		4/16/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	1.4	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	**110 D**	0.20 U	0.4 U
		7/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U
		10/27/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**130**	0.020 U	2.0 U
		1/20/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.2	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**120**	0.020 U	2.0 U
		4/23/09	2.7	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.4	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	**120 D**	0.2 UJ	0.4 U
		7/15/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 UJ	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 UJ	1.1	0.6 U	0.6 U	15 U	1.5 U	0.6 UJ	0.020 UJ	0.6 U	0.6 U	0.6 U	**89**	0.020 UJ	1.2 U
		11/6/09	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.3	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	2.0 U
		1/19/10	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	25 U	3.2	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**93**	0.020 U	2.0 U
		4/19/10	15 U	0.6 U	0.6 U	0.6 UJ	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.3	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**100**	0.020 UJ	1.2 U
		7/21/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**92**	0.020 U	1.2 U
		10/29/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.2	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**110**	0.020 U	1.2 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW159 (continued)	1/18/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	1.3	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.20 U	0.6 U	0.6 U	0.6 U	**110**	0.20 U	1.2 U
	4/21/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.2	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**100**	0.020 U	1.2 U
	7/19/11	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 UJ	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.2	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.20 U	0.6 U	0.6 U	0.6 U	**110**	0.20 U	1.2 U
	10/17/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.5	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**110**	0.020 U	1.2 U
	1/24/12	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.4	0.6 U	0.6 U	15 U	3.0 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**120**	0.020 U	1.2 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U
	4/16/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA	NA	NA	0.020 U	NA
	7/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U
	7/24/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**100**	2.0 U DNR	5.0 U DNR
	7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.018 X	NA	NA	NA	NA	0.020 U	NA
	10/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	120 E DNR	0.2 U DNR	0.5 U
	10/16/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.0 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**98**	2.0 U DNR	5.0 U DNR
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.014 X	NA	NA	NA	NA	0.020 U	NA
	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U
	1/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.0 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.014 X	NA	NA	NA	NA	0.020 U	NA
	4/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
	4/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**85**	2.0 U DNR	5.0 U DNR
	4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.017 X	NA	NA	NA	NA	0.020 U	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U
	7/24/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**79**	2.0 U DNR	5.0 U DNR
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA	NA	NA	0.020 U	NA
	10/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	83 E DNR	0.2 U DNR	0.5 U
	10/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**67**	2.0 U DNR	5.0 U DNR
	10/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.011 X	NA	NA	NA	NA	0.020 U	NA
	1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U
	1/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA	NA	NA	0.020 U	NA
	10/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	49 E DNR	0.2 U DNR	0.5 U
	10/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**39**	2.0 U DNR	5.0 U DNR
	10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	44 E DNR	0.2 U DNR	0.5 U
	1/16/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**35**	2.0 U DNR	5.0 U DNR
	1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	43 E DNR	0.2 U DNR	0.5 U
	4/16/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**34**	2.0 U DNR	5.0 U DNR
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW160	10/27/06	30 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.028	3.3	2.0 U	2.0 U	10 U	3.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**100**	0.020 U	4.0 U
	1/9/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.034	3.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**83**	0.020 U	1.0 U
	4/9/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.032	4.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	1.0 U
	7/17/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.036	2.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**83**	0.020 U	1.0 U
	11/6/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.048	2.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**78**	0.020 U	1.0 U
	1/14/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 UJ	2.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**67**	0.020 UJ	1.0 U
	1/14/08 (DUP)	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	2.7	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**66**	0.020 U	1.0 U
	4/16/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	3.5	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	**92 D**	0.20 U	0.4 U
	7/15/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	2.6	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**86**	0.20 U	1.0 U
	10/27/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.028	2.9	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**100**	0.020 U	2.0 U
	1/20/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.022	2.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**91**	0.020 U	2.0 U
	4/23/09	2.8	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.2	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**100 D**	0.20 U	0.4 U
	7/15/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 UJ	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 UJ	1.8	0.6 U	0.6 U	15 U	1.5 U	0.6 UJ	0.020 UJ	0.6 U	0.6 U	0.6 U	**73**	0.020 UJ	1.2 U
	11/6/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.9	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**88**	0.020 U	1.2 U
	11/6/09 (DUP)	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**87**	0.020 U	2.0 U
	1/19/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.8	0.6 U	0.6 U	15 U	1.7	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**83**	0.020 U	1.2 U
	4/19/10	15 U	0.6 U	0.6 U	0.6 UJ	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.4	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**84**	0.020 UJ	1.2 U
	7/21/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	1.2	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**76**	0.020 U	1.2 U
	10/29/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.3	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**79**	0.020 UJ	1.2 U
	1/18/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	1.2	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**78**	0.020 U	1.2 U
	4/21/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**68**	0.020 U	1.2 U
	7/19/11	15 UJ	0.6 U	0.6 U	0.6 U	3.0 U	15 UJ	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.6	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**61**	0.020 U	1.2 U
	10/17/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**59**	0.020 U	0.4 U
	1/24/12	10 U	0.4 U	0.4 U	0.4 U	2.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 U	0.4 U	0.4 U	0.4 U	0.8	0.4 U	0.4 U	10 U	2.0 U	0.4 U	0.020 U	0.4 U	0.4 U	0.4 U	**66**	0.020 U	0.8 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	65 E DNR	0.2 U DNR	0.5 U
	4/16/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**56**	2.0 U DNR	5.0 U DNR
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/16/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	65 E DNR	0.2 U DNR	0.5 U
	4/16/12 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**52**	2.0 U DNR	5.0 U DNR
	4/16/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	60 E DNR	0.2 U DNR	0.5 U
	7/24/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**48**	2.0 U DNR	5.0 U DNR
	7/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	60 E DNR	0.2 U DNR	0.5 U
	7/24/12 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**48**	2.0 U DNR	5.0 U DNR
	7/24/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																										
		Acetone	**Benzene**	**BDCM**	**Bromoform**	**Bromomethane**	**2-Butanone**	**Carbon Disulfide**	**Carbon Tetrachloride**	**Chloroethane**	**Chloroform**	**Chloromethane**	**DBCM**	**1,1-DCA**	**1,1-DCE**	**cis-1,2-DCE**	**trans-1,2-DCE**	**Ethylbenzene**	**MIBK**	**Methylene Chloride**	**Styrene**	**PCE**	**Toluene**	**1,1,1-TCA**	**1,1,2-TCA**	**TCE**	**Vinyl Chloride**	**Xylenes**
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW160 (continued)	10/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	60 E DNR	0.2 U DNR	0.5 U
	10/16/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**39**	2.0 U DNR	5.0 U DNR
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/2012 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	46 E DNR	0.2 U DNR	0.5 U
	10/16/12 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**38**	2.0 U DNR	5.0 U DNR
	10/16/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	62 E DNR	0.2 U DNR	0.5 U
	1/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**44**	2.0 U DNR	5.0 U DNR
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	62 E DNR	0.2 U DNR	0.5 U
	4/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**56**	2.0 U DNR	5.0 U DNR
	4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	68 E DNR	0.2 U DNR	0.5 U
	7/24/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**61**	2.0 U DNR	5.0 U DNR
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	75 E DNR	0.2 U DNR	0.5 U
	7/24/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**65**	2.0 U DNR	5.0 U DNR
	7/24/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	87 E DNR	0.2 U DNR	0.5 U
	10/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**64**	2.0 U DNR	5.0 U DNR
	10/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/18/2013 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	84 E DNR	0.2 U DNR	0.5 U
	10/18/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**62**	2.0 U DNR	5.0 U DNR
	10/18/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	120 E DNR	0.2 U DNR	0.5 U
	1/21/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**83**	2.0 U DNR	5.0 U DNR
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
	1/21/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**94**	2.0 U DNR	5.0 U DNR
	1/21/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	68 E DNR	0.2 U DNR	0.5 U
	10/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	76 E DNR	0.2 U DNR	0.5 U
	10/23/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**62**	2.0 U DNR	5.0 U DNR
	10/23/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	70 E DNR	0.2 U DNR	0.5 U
	1/16/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**56**	2.0 U DNR	5.0 U DNR
	1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/16/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	76 E DNR	0.2 U DNR	0.5 U
	1/16/15 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	1/16/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	71 E DNR	0.2 U DNR	0.5 U
	4/16/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW161 (1)	9/12/06	5.0 J	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.8	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**50**	1.0 U	1.0 U
	7/17/07	15 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.2	**77**	4.4	1.0 U	5.0 U	1.5 U	1.0 U	4.8	1.0 U	1.0 U	1.0 U	**1,500**	**1.4**	2.0 U
	8/16/07	75 U	15 U	15 U	15 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	**65**	15 U	15 U	75 U	30 U	15 U	15 U	15 U	15 U	15 U	**1,800**	15 U	15 U
	9/24/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**46**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,600**	20 U	20 U
	10/23/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**17**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**750**	10 U	10 U
	11/27/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**22**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,100**	10 U	10 U
	2/5/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**28**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,600**	10 U	10 U
	3/7/08	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	**31**	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,700**	20 U	20 U
	4/2/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**24**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,500**	10 U	10 U
	4/29/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**22**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,900**	10 U	10 U
	6/5/08	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 U	20 U	20 U	20 U	20 U	20 U	**1,300**	20 U	20 U
	7/31/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**750**	10 U	10 U
	8/22/08	150 U	10 U	10 U	10 U	10 U	120 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	12	10 U	10 U	120 U	25 U	10 U	10 U	10 U	10 U	10 U	**660**	10 U	20 U
	8/22/08 (DUP)	150 U	10 U	10 U	10 U	10 U	120 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10	10 U	10 U	120 U	25 U	10 U	10 U	10 U	10 U	10 U	**660**	10 U	20 U
	9/25/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	5.4	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**330**	3.0 U	3.0 U
	10/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	1.4	0.2 U	0.2 U	0.2 U	0.2 U	4.0	0.2 U	0.2 U	2.5 U	0.5 UJ	0.2 U	1.0	0.3	0.2 U	0.2 U	**270 D**	0.2 U	0.4 U
	11/5/08	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.9	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**270**	3.0 U	6.0 U
	11/5/08 (DUP)	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**290**	5.0 U	10 U
	12/4/08	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.7	2.0 U	2.0 U	10 U	**5.7**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**240**	2.0 U	4.0 U
	1/13/09	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**180**	3.0 U	6.0 U
	2/5/09	3.6 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 X	2.5	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.8	0.2 U	0.2 U	0.2 U	**160**	0.2 U	0.2 X
	3/2/09	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.6	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.7	0.2 X	0.2 U	0.2 U	**160 D**	0.2 U	0.4 U
	4/7/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 X	2.9	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.8	0.2 U	0.2 U	0.2 U	**130 D**	0.20 U	0.4 U
	5/4/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2	5.0	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	1.1	0.2 U	0.2 U	0.2 U	**260 D**	0.2 U	0.4 U
	5/26/09	7.5 U	0.6 U	0.6 U	0.6 U	1.5 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	4.6	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	1.1	0.6 U	0.6 U	0.6 U	**230 D**	0.6 U	1.2 U
	6/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2	5.1	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	1.2	0.2 U	0.2 U	0.2 U	**270 D**	0.2 U	0.4 U
	7/31/09	150 UJ	6.0 UJ	6.0 UJ	6.0 UJ	15 UJ	150 UJ	6.0 UJ	6.0 UJ	6.0 UJ	6.0 UJ	15 UJ	6.0 UJ	6.0 UJ	6.0 UJ	9.3 J	6.0 UJ	6.0 UJ	150 UJ	15 UJ	6.0 UJ	6.0 UJ	6.0 UJ	6.0 UJ	6.0 UJ	**630 J**	6.0 UJ	12 UJ
	8/26/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**92 D**	0.2 U	0.4 U
	9/15/09	5.5	0.2 U	0.2 U	0.2 U	0.5 U	11	0.2	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.6	**19**	0.5	0.2 U	5.0 U	0.5 U	0.2 U	1.9	0.2 U	0.2 U	0.2 U	**670 D**	**0.4**	0.4 U
	10/28/09	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	**440**	4.0 U	4.0 U	100 U	10 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	**130**	4.0 U	8.0 U
	1/26/10	50 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**560**	2.7	2.0 U	50 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**5.6**	2.0 U	4.0 U
	4/7/10	75 UJ	3.0 U	3.0 U	3.0 U	7.5 U	75 U	4.0	3.0 U	3.0 U	3.0 U	7.5 UJ	3.0 U	3.0 U	3.0 U	**470**	3.0 U	3.0 U	75 U	7.5 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**5.3**	3.0 U	6.0 U
	4/7/10 (DUP)	75 UJ	3.0 U	3.0 U	3.0 U	7.5 U	75 U	4.2	3.0 U	3.0 U	3.0 U	7.5 UJ	3.0 U	3.0 U	3.0 U	**480**	3.0 U	3.0 U	75 U	7.5 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	**5.0**	3.0 U	6.0 U
	7/6/10	50 UJ	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**400**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**35**	**4.6**	4.0 U
	10/12/10	50 U	2.0 U	2.0 U	2.0 U	10 U	50 U	2.0 U	2.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	**140**	2.0 U	2.0 U	50 U	5.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**16**	**57**	4.0 U
	1/19/11	9.2	0.2 U	0.2 U	0.2 U	1.0 U	16	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2	**50**	0.9	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**29**	**19**	0.4 U
	4/12/11	6.2	0.2 U	0.2 U	0.2 UJ	1.0 U	8.4	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2	**47**	0.9	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**42**	**15**	0.4 U
	7/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.3	**48 J**	1.0	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**77**	**11**	0.4 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.3	**26**	1.3	0.2 U	5.0 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**160 D**	**8.8**	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																										
		Acetone	**Benzene**	**BDCM**	**Bromoform**	**Bromomethane**	**2-Butanone**	**Carbon Disulfide**	**Carbon Tetrachloride**	**Chloroethane**	**Chloroform**	**Chloromethane**	**DBCM**	**1,1-DCA**	**1,1-DCE**	**cis-1,2-DCE**	**trans-1,2-DCE**	**Ethylbenzene**	**MIBK**	**Methylene Chloride**	**Styrene**	**PCE**	**Toluene**	**1,1,1-TCA**	**1,1,2-TCA**	**TCE**	**Vinyl Chloride**	**Xylenes**
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW161 (continued) (1)	1/23/12	25 UJ	1.0 U	1.0 U	1.0 U	5.0 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 UJ	1.0 U	1.0 U	**27**	1.7	1.0 U	25 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**150 J**	**8.8**	1.0 U
	1/23/12 (DUP)	25 UJ	1.0 U	1.0 U	1.0 U	5.0 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	**26**	1.7	1.0 U	25 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**160**	**7.6**	1.0 U
	4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	**23**	1.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	130 E DNR	**8.2**	0.5 U
	4/10/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	21 DNR	1.5 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	6.9 DNR	5.0 U DNR
	4/10/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	**23**	1.7	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	130 E DNR	**7.9**	0.5 U
	4/10/12 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	19 DNR	1.5 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	5.8 DNR	5.0 U DNR
	7/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	27 E DNR	2.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	150 E DNR	**11**	0.5 U
	7/11/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	**23**	1.9 X DNR	5.0 U DNR	50 U DNR	3.4 X DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	7.9 DNR	5.0 U DNR
	7/11/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2	27 E DNR	2.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	170 E DNR	**10**	0.5 U
	7/11/12 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	1.9 X DNR	5.0 U DNR	50 U DNR	2.9 X DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	7.8 DNR	5.0 U DNR
	10/2/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	**22**	2.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	110 E DNR	**8.7**	0.5 U
	10/2/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	19 DNR	1.8 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**91**	7.0 DNR	5.0 U DNR
	10/2/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	**21**	2.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	120 E DNR	**8.3**	0.5 U
	10/2/12 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	18 DNR	1.9 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**96**	6.8 DNR	5.0 U DNR
	1/14/13	250 U	10 U	25 U	25 U	25 U	250 U	25 U	10 U	25 U	10 U	25 U	25 U	25 U	10 U	**25**	10 U	25 U	250 U	25 U	25 U	10 U	10 U	25 U	10 U	**24**	**14**	25 U
	1/14/13 (DUP)	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	**24**	1.6 X	5.0 U	50 U	5.0 U	5.0 U	2.0 U	1.0 X	5.0 U	2.0 U	**22**	**12**	5.0 U
	4/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	15	1.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	69 E DNR	**5.3**	0.5 U
	4/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	13 DNR	1.2 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**55**	4.2 DNR	5.0 U DNR
	4/16/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	**16**	1.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	74 E DNR	**5.6**	0.5 U
	4/16/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	14 DNR	1.3 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**62**	4.3 DNR	5.0 U DNR
	7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	10	1.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	62 E DNR	**4.2**	0.5 U
	7/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	8.5 DNR	1.2 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**46**	3.0 DNR	5.0 U DNR
	7/23/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	10	1.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	60 E DNR	**4.2**	0.5 U
	7/23/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	8.1 DNR	1.2 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**47**	3.1 DNR	5.0 U DNR
	10/15/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	28 E DNR	1.7	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	1.4	0.5 U	0.2 U	28 E DNR	**9.0**	0.5 U
	10/15/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	1.4 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	5.0 U DNR	2.0 U DNR	**23**	7.1 DNR	5.0 U DNR
	10/15/13 (DUP)	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	28 E DNR	2.0	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	1.4	0.5 U	0.2 U	30 E DNR	**9.7**	0.5 U
	10/15/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	1.8 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	5.0 U DNR	2.0 U DNR	**25**	7.9 DNR	5.0 U DNR
	1/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	12	2.0	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	56 E DNR	**5.6**	0.5 U
	1/14/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	9.6 DNR	1.7 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**43**	4.1 DNR	5.0 U DNR
	1/14/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	12	2.1	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	60 E DNR	**5.6**	0.5 U
	1/14/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	9.0 DNR	1.6 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**43**	3.8 DNR	5.0 U DNR
	4/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 X	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	14	2.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	74 E DNR	**6.3**	0.5 U
	4/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	11 DNR	1.9 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**59**	4.8 DNR	5.0 U DNR
	4/7/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.4 X	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	13	2.4	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	75 E DNR	**6.0**	0.5 U
	4/7/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	3.2 DNR	5.0 U DNR	1.0 X DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	11 DNR	2.0 DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**59**	4.8 DNR	5.0 U DNR
	7/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	10	2.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	62 E DNR	**5.0**	0.5 U
	7/14/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	8.6 DNR	1.7 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**51**	4.0 DNR	5.0 U DNR
	7/14/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	0.5 U	0.5 U	0.1 X	10	2.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	64 E DNR	**5.0**	0.5 U
	7/14/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	8.1 DNR	1.8 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**46**	3.7 DNR	5.0 U DNR
	10/13/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2	15	2.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	100 E DNR	**5.4**	0.5 U
	10/13/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	13 DNR	2.2 DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**82**	4.2 DNR	5.0 U DNR
	10/13/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.3 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2	15	2.6	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	100 E DNR	**5.4**	0.5 U
	10/13/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	13 DNR	2.4 DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**83**	4.3 DNR	5.0 U DNR
	1/21/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	14	2.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	92 E DNR	**5.4**	0.5 U
	1/21/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	9.7 DNR	1.7 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**66**	4.0 DNR	5.0 U DNR
	1/21/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 X	14	2.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	93 E DNR	**5.1**	0.5 U
	1/21/15 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	9.7 DNR	1.7 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**70**	4.0 DNR	5.0 U DNR
	4/21/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.6	1.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	31 E DNR	**1.4**	0.5 U
	4/21/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.0 DNR	1.1 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**25**	1.2 X DNR	5.0 U DNR
	4/21/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.9	1.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	34 E DNR	**1.6**	0.5 U
	4/21/15 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	4.0 DNR	1.2 X DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**26**	1.2 X DNR	5.0 U DNR
(2)	9/12/06	5.2 J	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**26**	1.0 U	1.0 U
	7/17/07	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	3.0 U	1.4	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	1.3	0.6 U	0.6 U	3.0 U	0.9 U	0.6 U	1.7	0.6 U	0.6 U	0.6 U	**150**	0.6 U	1.2 U
	9/26/07	9.9	1.0 U	1.0 U	1.0 U	1.0 U	5.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U	**150**	1.0 U	1.0 U
	11/27/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**61**	1.0 U	1.0 U
	2/5/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**52**	1.0 U	1.0 U
	4/2/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**61 D**	0.2 U	0.4 U
	7/31/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**48**	1.0 U	1.0 U
	10/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.2 U	2.5 U	0.5 UJ	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**54 D**	0.2 U	0.4 U
	1/13/09	3.0 U	1.0 U	0.2 U	1.0 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.5 U	1.0 U	1.0 U	1.0 U	0.2 U	1.0 U	**44**	0.2 U	2.0 U
	4/7/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**48**	0.2 U	0.4 U
	6/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**55**	0.2 U	0.4 U
	7/31/09	10 UJ	0.4 UJ	0.4 UJ	0.4 UJ	1.0 UJ	10 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	1.0 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	10 UJ	1.0 UJ	0.4 UJ	0.9 J	0.4 UJ	0.4 UJ	0.4 UJ	**61 J**	0.4 UJ	0.8 UJ
	8/26/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	**48**	0.2 U	0.4 U
	9/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	**42**	0.2 U	0.4 U
	10/28/09	6.3	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	9.8	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**27**	0.2 U	0.4 U
	1/26/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**20**	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**20**	0.2 U	0.4 U
	4/7/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.3	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	**19**	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**19**	0.2 U	0.4 U
	7/6/10	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	15	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	**20**	**0.8**	0.4 U
	10/12/10	5.3	0.2 U	0.2 U	0.2 U	1.0 U	26	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	7.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**34**	0.4 U
	1/19/11	20	0.2 U	0.2 U	0.2 U	1.0 U	29	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.5**	0.4 U
	4/12/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.9	0.2	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	**0.6**	0.4 U
	7/11/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.8	0.3	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	**0.5**	0.4 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	3.3	0.3	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	**1.0**	0.4 U
	1/23/12	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	9.2	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.4	0.2 U	5.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 X	**0.3**	0.4 U
	4/10/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.5	**0.3**	0.5 U
	7/11/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.5	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	**0.3**	0.5 U
	10/2/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.8	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	**0.9**	0.5 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
			Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW161 (continued)	**(2)**	1/14/13	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	2.0 U	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U	5.0 U
		4/16/13	29	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U
		7/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U
		10/15/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.3	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	0.2 U	**0.1 X**	0.5 U
		1/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U
		4/2/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U
		7/14/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.3	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U
		10/13/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U
		1/21/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U
		4/21/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.1 X	0.2 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U
	(3)	9/12/06	6.5 J	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**140**	1.0 U	1.0 U
		7/17/07	11 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0	5.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**13**	1.0 U	63
		11/28/07	3.0 U	0.6 J	0.2 U	0.2 U	0.2 U	1.0 U	0.3 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 J	0.2 U	13 D	1.0 U	0.3 U	0.2 U	0.2 U	0.5 J	0.2 U	0.2 U	**5.2 J**	0.2 U	105 D
	(4)	9/12/06	11	0.2 U	0.2 U	0.2 U	0.2 U	1.6	0.4	0.2 U	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.4 U
		7/18/07	3.0 U	0.2 U	0.2 U	0.2 U	0.3 J	1.0 U	0.2 U	0.2 U	0.3 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	3.0
		11/28/07	5.8	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	7.1
EGW162		10/28/06	150 U	30 U	30 U	30 U	30 U	150 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	0.083	30 U	30 U	30 U	150 U	60 U	30 U	0.022	30 U	30 U	30 U	**1,000**	0.020 U	30 U
		1/9/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.057	14	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**940**	0.020 U	10 U
		4/10/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.062	**20**	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**1,200**	0.020 U	10 U
		7/16/07	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.070 J	11	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**840**	0.020 U	5.0 U
		11/5/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.042	12	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**880**	0.020 U	10 U
		11/5/07 (DUP)	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.052	10	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**850**	0.020 U	10 U
		1/10/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.079	11	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**880**	0.020 U	10 U
		4/17/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U	11	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**810**	0.20 U	10 U
		7/17/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U	10 U	10 U	10 U	50 U	20 U	10 U	10 U	10 U	10 U	10 U	**800**	0.20 U	10 U
		10/29/08	25 U	5.0 U	5.0 U	5.0 U	5.0 U	25 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.20 U	10	5.0 U	5.0 U	25 U	10 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**960**	0.20 U	10 U
		1/20/09	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.034	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	**760**	0.020 U	20 U
		4/27/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	8.8	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**780 D**	0.020 UJ	0.4 U
		7/16/09	100 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	50 U	20 UJ	10 U	0.20 UJ	10 U	10 U	10 U	**810**	0.20 UJ	20 U
		11/9/09	150 U	6.0 U	6.0 U	6.0 U	15 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	7.2	6.0 U	6.0 U	150 U	15 U	6.0 U	0.026	6.0 U	6.0 U	6.0 U	**680**	0.020 U	12 U
		1/22/10	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	4.0	4.0 U	4.0 U	100 U	10 U	4.0 U	0.043	4.0 U	4.0 U	4.0 U	**460**	0.020 U	8.0 U
		4/22/10	100 U	4.0 U	4.0 U	4.0 U	10 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.020 UJ	4.0 U	4.0 U	4.0 U	**550**	0.020 UJ	8.0 U
		7/22/10	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.2	4.0 U	4.0 U	100 U	10 U	4.0 U	0.020	4.0 U	4.0 U	4.0 U	**570**	0.020 U	8.0 U
		11/1/10	100 U	4.0 U	4.0 U	4.0 U	20 UJ	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.2	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 UJ	4.0 U	4.0 U	4.0 U	**530**	0.20 UJ	8.0 U
		1/20/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.2	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 U	4.0 U	4.0 U	4.0 U	**520**	4.0 U	8.0 U
		4/20/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	5.8	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 U	4.0 U	4.0 U	4.0 U	**610**	0.20 U	8.0 U
		7/21/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.4	4.0 U	4.0 U	100 U	10 U	4.0 U	0.20 U	4.0 U	4.0 U	4.0 U	**550**	0.20 U	8.0 U
		10/25/11	75 U	3.0 U	3.0 U	3.0 U	15 U	75 U	3.0 U	3.0 U	3.0 U	3.0 U	7.5 U	3.0 U	3.0 U	3.0 U	5.7	3.0 U	3.0 U	75 U	7.5 U	3.0 U	0.10 U	3.0 U	3.0 U	3.0 U	**540**	0.10 U	6.0 U
		1/25/12	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	5.2	4.0 U	4.0 U	100 U	20 U	4.0 U	0.020	4.0 U	4.0 U	4.0 U	**500**	0.020 U	8.0 U
		4/17/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	4.3	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	430 E DNR	1.0 U DNR	2.5 U
		4/17/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**460**	10 U DNR	25 U DNR
		4/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.026	NA	NA	NA	NA	0.020 U	NA
		7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	6.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	460 E DNR	0.2 U DNR	0.5 U
		7/26/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	6.1 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**530**	10 U DNR	25 U DNR
		7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.024	NA	NA	NA	NA	0.020 U	NA
		10/17/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	4.5	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	440 E DNR	1.0 U DNR	2.5 U
		10/17/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**450**	10 U DNR	25 U DNR
		10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	NA	NA	NA	NA	0.020 U	NA
		12/20/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 UJ	1.0 U	2.5 UJ	2.5 U	2.5 U	1.0 U	4.4	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	420 E DNR	1.0 U DNR	2.5 U
		12/20/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**470**	10 U DNR	25 U DNR
		12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		1/23/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	4.9	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	510 E DNR	1.0 U DNR	2.5 U
		1/23/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.3 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**510**	10 U DNR	25 U DNR
		1/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	NA	NA	NA	NA	0.020 U	NA
		2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	4.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	410 E DNR	0.2 U DNR	0.5 U
		2/13/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.4 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**500**	10 U DNR	25 U DNR
		2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/22/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	3.9	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	410 E DNR	1.0 U DNR	2.5 U
		4/22/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**410**	10 U DNR	25 U DNR
		4/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	NA	NA	NA	NA	0.020 U	NA
		7/25/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	4.2	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	450 E DNR	1.0 U DNR	2.5 U
		7/25/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.4 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**470**	10 U DNR	25 U DNR
		7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.022	NA	NA	NA	NA	0.020 U	NA
		10/23/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	3.8	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	400 E DNR	1.0 U DNR	2.5 U
		10/23/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**380**	10 U DNR	25 U DNR
		10/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.021	NA	NA	NA	NA	0.020 U	NA
		1/23/14	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	3.8	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	370 E DNR	1.0 U DNR	2.5 U
		1/23/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**410**	10 U DNR	25 U DNR
		1/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.018 X	NA	NA	NA	NA	0.020 U	NA
		10/23/14	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	3.3	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	300 E DNR	1.0 U DNR	2.5 U
		10/23/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**330**	10 U DNR	25 U DNR
		10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.019 X	NA	NA	NA	NA	0.020 U	NA
		1/16/15	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	3.6	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	370 E DNR	1.0 U DNR	2.5 U
		1/16/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**400**	10 U DNR	25 U DNR
		1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
		4/16/15	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	3.1	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	340 E DNR	1.0 U DNR	2.5 U
		4/16/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**340**	10 U DNR	25 U DNR
		4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW163	6/20/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.2 U	1.9	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.2 U	1.0 U	1.0 U	1.0 U	**180**	0.2 U	1.0 U
	11/8/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 UJ	1.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**150**	0.020 UJ	1.0 U
	1/14/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 UJ	1.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**140**	0.020 UJ	1.0 U
	4/17/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.4	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**120**	0.020 U	1.0 U
	7/17/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**110**	0.20 U	1.0 U
	10/29/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	1.3	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.10 U	1.0 U	1.0 U	1.0 U	**130**	0.10 U	2.0 U
	1/20/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**110**	0.020 U	2.0 U
	1/20/09 (DUP)	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.1	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**120**	0.020 U	2.0 U
	4/27/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**110**	0.020 UJ	0.4 U
	7/16/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.1	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**110**	0.020 UJ	1.2 U
	11/9/09	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.9	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**90**	0.020 U	1.2 U
	1/22/10	5.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.5 UJ	5.0 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.5 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.8 J	0.2 UJ	0.2 UJ	5.0 UJ	0.5 UJ	0.2 UJ	0.020 U	0.2 UJ	0.2 UJ	0.2 UJ	**87 JD**	0.020 U	0.4 UJ
	1/22/10 (DUP)	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**15 J**	0.020 U	0.4 U
	4/22/10	15 U	0.6 U	0.6 U	0.6 U	1.5 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.2	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**100**	0.020 UJ	1.2 U
	7/21/10	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 UJ	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**70**	0.020 U	1.2 U
	11/1/10	15 U	0.6 U	0.6 U	0.6 U	3.0 UJ	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.1	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**92**	0.020 U	1.2 U
	1/20/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.8	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**77**	0.020 U	1.2 U
	4/20/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	1.0	0.6 U	0.6 U	15 U	1.5 U	0.6 U	0.020 UJ	0.6 U	0.6 U	0.6 U	**94**	0.020 UJ	1.2 U
	7/21/11	15 U	0.6 U	0.6 U	0.6 U	3.0 U	15 U	0.6 U	0.6 U	0.6 U	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	0.7	0.6 U	0.6 U	15 U	2.0	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**69**	0.020 U	1.2 U
	10/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**54**	0.020 U	0.4 U
	1/25/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**58**	0.020 U	0.4 U
	4/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	73 E DNR	0.2 U DNR	0.5 U
	4/17/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**56**	2.0 U DNR	5.0 U DNR
	4/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	82 E DNR	0.2 U DNR	0.5 U
	7/25/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	1.3 X DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**61**	2.0 U DNR	5.0 U DNR
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	55 E DNR	0.2 U DNR	0.5 U
	10/17/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**48**	2.0 U DNR	5.0 U DNR
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	60 E DNR	0.2 U DNR	0.5 U
	1/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**61 J**	2.0 U DNR	5.0 U DNR
	1/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/23/2013 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	72 E DNR	0.2 U DNR	0.5 U
	1/23/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**45 J**	2.0 U DNR	5.0 U DNR
	1/23/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	59 E DNR	0.2 U DNR	0.5 U
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**46**	2.0 U DNR	5.0 U DNR
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	63 E DNR	0.2 U DNR	0.5 U
	7/25/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**50**	2.0 U DNR	5.0 U DNR
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	67 E DNR	0.2 U DNR	0.5 U
	10/21/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**50**	2.0 U DNR	5.0 U DNR
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	65 E DNR	0.2 U DNR	0.5 U
	1/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	1/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	63 E DNR	0.2 U DNR	0.5 U
	10/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**50**	2.0 U DNR	5.0 U DNR
	10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/19/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	73 E DNR	0.2 U DNR	0.5 U
	1/19/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**57**	2.0 U DNR	5.0 U DNR
	1/19/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	71 E DNR	0.2 U DNR	0.5 U
	4/16/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**59**	2.0 U DNR	5.0 U DNR
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW164	6/20/07	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.21	**18**	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.2 U	1.0 U	1.0 U	1.0 U	**990**	0.2 U	1.0 U
	11/6/07	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.14	**17**	10 U	10 U	50 U	20 U	10 U	0.020 U	10 U	10 U	10 U	**850**	0.020 U	10 U
	1/14/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.2 UJ	13	10 U	10 U	50 U	20 U	10 U	0.2 UJ	10 U	10 U	10 U	**800**	0.2 UJ	10 U
	4/17/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 UJ	**22**	10 U	10 U	50 U	20 U	10 U	0.20 UJ	10 U	10 U	10 U	**970**	0.20 UJ	10 U
	4/17/08 (DUP)	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 UJ	**22**	10 U	10 U	50 U	20 U	10 U	0.20 UJ	10 U	10 U	10 U	**990**	0.20 UJ	10 U
	7/17/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 J	**23**	10 U	10 U	50 U	20 U	10 U	0.20 UJ	10 U	10 U	10 U	**1,100**	0.20 UJ	10 U
	10/29/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.0 U	**26**	10 U	10 U	50 U	20 U	10 U	1.0 U	10 U	10 U	10 U	**1,400**	1.0 U	20 U
	1/20/09	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.15	**22**	10 U	10 U	50 U	20 U	10 U	0.024	10 U	10 U	10 U	**1,200**	0.020 U	20 U
	4/27/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.2 U	**21**	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**1,200 D**	0.020 UJ	0.4 U
	7/16/09	100 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**20**	10 U	10 U	50 U	20 UJ	10 U	0.20 UJ	10 U	10 U	10 U	**1,300**	0.20 UJ	20 U
	11/9/09	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**20**	10 U	10 U	250 U	25 U	10 U	0.020	10 U	10 U	10 U	**1,100**	0.020 U	20 U
	1/22/10	150 U	6.0 U	6.0 U	6.0 U	15 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	9.6	6.0 U	6.0 U	150 U	15 U	6.0 U	0.020 U	6.0 U	6.0 U	6.0 U	**870**	0.020 U	12 U
	4/22/10	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**20**	10 U	10 U	250 U	25 U	10 U	0.20 UJ	10 U	10 U	10 U	**1,000**	0.20 UJ	20 U
	7/22/10	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**16 J**	10 U	10 U	250 U	25 U	10 U	0.020 U	10 U	10 U	10 U	**980 J**	0.020 U	20 U
	7/22/10 (DUP)	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**16**	10 U	10 U	250 U	25 U	10 U	0.020 U	10 U	10 U	10 U	**980**	0.020 U	20 U
	11/1/10	150 U	6.0 U	6.0 U	6.0 U	30 UJ	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**17**	6.0 U	6.0 U	150 U	15 U	6.0 U	0.20 UJ	6.0 U	6.0 U	6.0 U	**920**	0.20 UJ	12 U
	1/20/11	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**17**	10 U	10 U	250 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**950**	0.20 U	20 U
	4/20/11	150 U	6.0 U	6.0 U	6.0 U	30 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	**16**	6.0 U	6.0 U	150 U	15 U	6.0 U	0.20 U	6.0 U	6.0 U	6.0 U	**1,000**	0.20 U	12 U
	7/21/11	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**18**	10 U	10 U	250 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**940**	0.20 U	20 U
	7/21/11 (DUP)	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**17**	10 U	10 U	250 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**970**	0.20 U	20 U
	10/25/11	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	**16**	10 U	10 U	250 U	25 U	10 U	0.10 U	10 U	10 U	10 U	**960**	0.10 U	20 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW164 (continued)	1/25/12	150 U	6.0 U	6.0 U	6.0 U	30 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	13	6.0 U	6.0 U	150 U	30 U	6.0 U	0.018 X	6.0 U	6.0 U	6.0 U	**870**	0.020 U	12 U
	4/17/12	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	13	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	800 E DNR	2.0 U DNR	5.0 U
	4/17/12 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	14 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**870**	20 U DNR	50 U DNR
	4/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.022 X	NA	NA	NA	NA	**0.040**	NA
	7/25/12	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	14	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	850 E DNR	2.0 U DNR	5.0 U
	7/25/12 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	14 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**830**	20 U DNR	50 U DNR
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.024 X	NA	NA	NA	NA	0.040 U	NA
	10/17/12	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	13	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	810 E DNR	2.0 U DNR	5.0 U
	10/17/12 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	13 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**860**	20 U DNR	50 U DNR
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.018 X	NA	NA	NA	NA	0.020 U	NA
	1/23/13	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	12	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	870 E DNR	2.0 U DNR	5.0 U
	1/23/13 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	13 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**870**	20 U DNR	50 U DNR
	1/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.040 U	NA	NA	NA	NA	0.040 U	NA
	4/22/13	50 UJ	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	10	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	700 E DNR	2.0 U DNR	5.0 U
	4/22/13 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	12 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**810**	20 U DNR	50 U DNR
	4/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.096	NA	NA	NA	NA	0.040 U	NA
	7/25/13	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	9.7	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	770 E DNR	2.0 U DNR	5.0 U
	7/25/13 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	12 X DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**740**	20 U DNR	50 U DNR
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.040 U	NA	NA	NA	NA	0.040 U	NA
	10/21/13	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	6.6	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	620 E DNR	2.0 U DNR	5.0 U
	10/21/13 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**660**	20 U DNR	50 U DNR
	10/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.017 X	NA	NA	NA	NA	0.020 U	NA
	1/23/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	7.4	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	520 E DNR	2.0 U DNR	5.0 U
	1/23/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**550**	20 U DNR	50 U DNR
	1/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.040 U	NA	NA	NA	NA	0.040 U	NA
	10/23/14	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	3.0	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	310 E DNR	2.0 U DNR	5.0 U
	10/23/14 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**310**	20 U DNR	50 U DNR
	10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.040 U	NA	NA	NA	NA	**0.031 X**	NA
	1/19/15	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	3.0	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U	2.0 U	5.0 U	2.0 U	290 E DNR	2.0 U DNR	5.0 U
	1/19/15 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**310**	20 U DNR	50 U DNR
	1/19/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/17/15	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 UJ	5.0 U	5.0 U	2.0 U	2.6	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	280 E DNR	2.0 U DNR	5.0 U
	4/17/15 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**290**	20 U DNR	50 U DNR
	4/17/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 X	NA	NA	NA	NA	0.020 U	NA
EGW165	6/20/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.2 U	**22**	20 U	20 U	100 U	40 U	20 U	0.2 U	20 U	20 U	20 U	**1,900**	0.2 U	20 U
	11/6/07	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.12	20 U	20 U	20 U	100 U	40 U	20 U	0.06	20 U	20 U	20 U	**1,700**	0.020 U	20 U
	1/10/08	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.2 UJ	20 U	20 U	20 U	100 U	40 U	20 U	0.2 UJ	20 U	20 U	20 U	**1,100**	0.2 UJ	20 U
	4/17/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 UJ	**19**	10 U	10 U	50 U	20 U	10 U	0.20 UJ	10 U	10 U	10 U	**1,500**	0.20 UJ	10 U
	7/17/08	75 U	15 U	15 U	15 U	15 U	75 U	15 U	15 U	15 U	15 U	15 U	15 U	15 U	0.20 UJ	**16**	15 U	15 U	75 U	30 U	15 U	0.20 UJ	15 U	15 U	15 U	**1,400**	0.20 UJ	15 U
	10/29/08	50 U	10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.0 U	15	10 U	10 U	50 U	20 U	10 U	1.0 U	10 U	10 U	10 U	**1,700**	1.0 U	20 U
	1/20/09	100 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	0.051	20 U	20 U	20 U	100 U	40 U	20 U	0.054	20 U	20 U	20 U	**1,400**	0.020 U	40 U
	4/27/09	2.8	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	14	0.2	0.2 U	2.5 U	0.5 U	0.2 U	0.034 J	0.2 U	0.2 U	0.2 U	**1,400 D**	0.020 UJ	0.4 U
	7/16/09	200 U	20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	100 U	40 UJ	20 U	0.20 UJ	20 U	20 U	20 U	**1,600**	0.20 UJ	40 U
	11/9/09	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10	10 U	10 U	250 U	25 U	10 U	0.048	10 U	10 U	10 U	**1,200**	0.020 U	20 U
	1/22/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	9.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020	0.2 U	0.2 U	0.2 U	**1,200 D**	0.020 U	0.4 U
	4/22/10	250 U	10 U	10 U	10 U	25 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U	10 U	10 U	250 U	25 U	10 U	0.20 UJ	10 U	10 U	10 U	**1,000**	0.20 UJ	20 U
	7/22/10	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U	10 U	10 U	250 U	25 U	10 U	0.035	10 U	10 U	10 U	**980**	0.020 U	20 U
	11/1/10	150 U	6.0 U	6.0 U	6.0 U	30 UJ	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	8.1	6.0 U	6.0 U	150 U	15 U	6.0 U	0.20 UJ	6.0 U	6.0 U	6.0 U	**810**	0.20 UJ	12 U
	1/20/11	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	10 U	10 U	10 U	250 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**900**	0.20 U	20 U
	4/20/11	150 U	6.0 U	6.0 U	6.0 U	30 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	7.2	6.0 U	6.0 U	150 U	15 U	6.0 U	0.20 U	6.0 U	6.0 U	6.0 U	**950**	0.20 U	12 U
	7/21/11	250 U	10 U	10 U	10 U	50 U	250 U	10 U	10 U	10 U	10 U	25 U	10 U	10 U	10 U	8.0 X	10 U	10 U	250 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**860**	0.20 U	20 U
	10/25/11	100 U	4.0 U	4.0 U	4.0 U	20 U	100 U	4.0 U	4.0 U	4.0 U	4.0 U	10 U	4.0 U	4.0 U	4.0 U	6.2	4.0 U	4.0 U	100 U	10 U	4.0 U	0.10 U	4.0 U	4.0 U	4.0 U	**780**	0.10 U	8.0 U
	1/25/12	150 U	6.0 U	6.0 U	6.0 U	30 U	150 U	6.0 U	6.0 U	6.0 U	6.0 U	15 U	6.0 U	6.0 U	6.0 U	7.8	6.0 U	6.0 U	150 U	30 U	6.0 U	0.034	6.0 U	6.0 U	6.0 U	**820**	0.020 U	12 U
	4/17/12	50 U	2.0 U	5.0 U	5.0 U	5.0 U	50 U	5.0 U	2.0 U	5.0 U	2.0 U	5.0 U	5.0 U	5.0 U	2.0 U	5.8	2.0 U	5.0 U	50 U	5.0 U	5.0 U	2.0 U DNR	2.0 U	5.0 U	2.0 U	710 E DNR	2.0 U DNR	5.0 U
	4/17/12 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**780**	20 U DNR	50 U DNR
	4/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.037 X	NA	NA	NA	NA	**0.038 X**	NA
	7/27/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	6.6	0.1 X	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	500 E DNR	0.2 U DNR	0.5 U
	7/27/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.8 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**670**	10 U DNR	25 U DNR
	7/27/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.041	NA	NA	NA	NA	0.020 U	NA
	10/17/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	5.0	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	610 E DNR	1.0 U DNR	2.5 U
	10/17/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.1 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**620**	10 U DNR	25 U DNR
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033	NA	NA	NA	NA	0.020 U	NA
	12/20/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 UJ	1.0 U	2.5 UJ	2.5 U	2.5 U	1.0 U	6.9	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	590 E DNR	1.0 U DNR	2.5 U
	12/20/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	7.4 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**640**	10 U DNR	25 U DNR
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/23/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	5.2	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	670 E DNR	1.0 U DNR	2.5 U
	1/23/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.3 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**650**	10 U DNR	25 U DNR
	1/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	5.0	0.2 U	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	440 E DNR	0.2 U DNR	0.5 U
	2/13/13 (DL)	500 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	500 U DNR	50 U DNR	20 U DNR	50 U DNR	20 U DNR	50 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	20 U DNR	50 U DNR	500 U DNR	50 U DNR	50 U DNR	20 U DNR	20 U DNR	50 U DNR	20 U DNR	**580**	20 U DNR	50 U DNR
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/22/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	3.9	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	490 E DNR	1.0 U DNR	2.5 U
	4/22/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**500**	10 U DNR	25 U DNR
	4/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW165 (continued)	7/25/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	4.4	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	550 E DNR	1.0 U DNR	2.5 U
	7/25/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**560**	10 U DNR	25 U DNR
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033	NA	NA	NA	NA	0.020 U	NA
	10/22/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	4.1	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	580 E DNR	1.0 U DNR	2.5 U
	10/22/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**560**	10 U DNR	25 U DNR
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA	NA	NA	0.020 U	NA
	1/23/14	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	4.3	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	580 E DNR	1.0 U DNR	2.5 U
	1/23/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.1 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**600**	10 U DNR	25 U DNR
	1/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.030	NA	NA	NA	NA	0.020 U	NA
	10/23/14	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	1.8	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U DNR	1.0 U	2.5 U	1.0 U	380 E DNR	1.0 U DNR	2.5 U
	10/23/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**400**	10 U DNR	25 U DNR
	10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.027	NA	NA	NA	NA	0.020 U	NA
	1/16/15	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	1.5	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	350 E DNR	1.0 U DNR	2.5 U
	1/16/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**360**	10 U DNR	25 U DNR
	1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	1.5	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	390 E DNR	1.0 U DNR	2.5 U
	4/16/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**390**	10 U DNR	25 U DNR
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW166	6/20/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4 U
	11/6/07	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.6	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	5.1
	1/10/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/16/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/15/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/27/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/20/09	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/23/09	2.6	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 UJ	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/5/09	6.7	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/19/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/19/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/28/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/19/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/17/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/24/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/24/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/21/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/21/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/19/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/19/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW167	12/5/07	3.0 U	0.4	0.2 U	0.2 U	0.2 U	1.0 U	1.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.80**	0.2 U	0.4 U
	1/10/08	3.0 U	0.2	0.2 U	0.2 U	0.2 U	1.0 U	12	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.86**	0.020 U	0.4 U
	4/17/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	1.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.36	0.020 U	0.4 U
	7/17/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	1.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.39	0.020 U	0.4 U
	10/29/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.27	0.020 U	0.4 U
	1/20/09	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	0.30	0.020 U	0.4 U
	4/27/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.22	0.020 U	0.4 U
	7/16/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.25	0.020 U	0.4 U
	11/9/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.28	0.020 U	0.4 U
	1/22/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**37**	0.020 U	0.4 U
	4/22/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2	0.2 U	0.2 U	0.25	0.020 U	0.4 U
	7/22/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	11/1/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 UJ	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	1/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	4/20/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	7/21/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.3	0.020 U	0.4 U
	10/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.6**	0.020 U	0.4 U
	1/25/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.4	0.020 U	0.4 U
	4/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
	4/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/26/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
	7/26/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/17/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
	10/17/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW167 (continued)	1/23/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.5	0.2 U DNR	0.5 U
	1/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
	4/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
	7/25/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
	1/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U
	10/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
	1/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW168	3/17/08	3.7	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.59**	0.020 U	0.4 U
	3/17/08 (DUP)	2.6	0.2 U	0.2 U	0.2 U	0.2 U	1.0 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	1.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.56**	0.020 U	0.4 U
	4/21/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.40	0.020 U	0.4 U
	7/14/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.088	0.020 U	0.4 U
	10/29/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.15	0.020 U	0.4 U
	1/22/09	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 UJ	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.034	0.020 U	0.4 U
	4/25/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.054	0.020 U	0.4 U
	7/16/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.052	0.020 U	0.4 U
	11/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/25/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**14**	0.020 U	0.4 U
	4/21/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/22/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.034	0.020 U	0.4 U
	11/2/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/24/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/24/11 (DUP)	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/19/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/25/11 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/11 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/23/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/29/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/13 (DUP)	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/29/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	3/18/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	3/18/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/27/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/27/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/20/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	1/20/15 (DL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/17/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U
	4/17/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW169	3/17/08	2.5	0.2 U	0.2 U	0.2 U	0.2 U	1.9	0.2 U	0.2 U	0.2 U	1.4	0.2 U	0.2 U	0.2 U	0.42	**21**	0.2 U	0.2 U	1.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2	**680 D**	**0.048**	0.4 U
	4/22/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	4.6	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**150**	0.20 U	1.0 U
	7/14/08	150 U	10 U	10 U	10 U	10 U	120 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U	14	10 U	10 U	120 U	25 U	10 U	0.20 U	10 U	10 U	10 U	**610**	0.20 U	20 U
	10/29/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U	1.6	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.20 U	1.0 U	1.0 U	1.0 U	**110**	0.20 U	2.0 U
	1/22/09	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.046	5.4	2.0 U	2.0 U	10 UJ	4.0 U	2.0 U	0.020 U	2.0 U	2.0 U	2.0 U	**220**	0.020 U	4.0 U
	4/28/09	12 U	1.0 U	1.0 U	1.0 U	2.5 U	12 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6	1.0 U	1.0 U	12 U	2.5 U	1.0 U	0.020 UJ	1.0 U	1.0 U	1.0 U	**210**	0.020 UJ	2.0 U
	7/16/09	20 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.4	2.0 U	2.0 U	10 U	4.0 UJ	2.0 U	0.020 UJ	2.0 U	2.0 U	2.0 U	**270**	0.020 UJ	4.0 U
	11/10/09	9.3 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**57**	0.020 U	0.4 U
	1/25/10	25 U	1.0 U	1.0 U	1.0 U	2.5 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	3.2	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**290**	0.020 U	2.0 U
	4/21/10	10 U	0.4 U	0.4 U	0.4 U	1.0 U	10 U	0.4 U	0.4 U	0.4 U	0.4 U	1.0 U	0.4 U	0.4 U	0.4 U	0.6	0.4 U	0.4 U	10 U	1.0 U	0.4 U	0.020 UJ	0.4 U	0.4 U	0.4 U	**67**	0.020 UJ	0.8 U
	7/26/10	25 U	1.0 U	1.0 U	1.0 U	5.0 U	25 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U	1.7	1.0 U	1.0 U	25 U	2.5 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**140**	0.020 U	2.0 U
	11/2/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**44**	0.2 U	0.4 U

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW169 (continued)	1/24/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**54**	0.020 U	0.4 U
	4/19/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**59**	0.020 U	0.4 U
	7/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**63 D**	0.020 UJ	0.4 U
	10/24/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.1 X	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**36**	0.020 U	0.4 U
	1/23/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**37**	0.020 U	0.4 U
	4/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	37 E DNR	0.2 U DNR	0.5 U
	4/23/12 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**31**	1.0 U DNR	2.5 U DNR
	4/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	29 E DNR	0.2 U DNR	0.5 U
	7/25/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	1.2 X DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	28 E DNR	0.2 U DNR	0.5 U
	10/23/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**23**	2.0 U DNR	5.0 U DNR
	10/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/29/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	28 E DNR	0.2 U DNR	0.5 U
	1/29/13 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**25**	1.0 U DNR	2.5 U DNR
	1/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	40 E DNR	0.2 U DNR	0.5 U
	4/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**31**	2.0 U DNR	5.0 U DNR
	4/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/29/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	75 E DNR	0.2 U DNR	0.5 U
	7/29/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	7/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
	10/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**87**	2.0 U DNR	5.0 U DNR
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	160 E DNR	0.2 U DNR	0.5 U
	1/22/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**130**	2.0 U DNR	5.0 U DNR
	1/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	3/18/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U
	3/18/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**180**	2.0 U DNR	5.0 U DNR
	3/18/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/27/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U
	10/27/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**100**	2.0 U DNR	5.0 U DNR
	10/27/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/20/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	170 E DNR	0.2 U DNR	0.5 U
	1/20/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**130**	2.0 U DNR	5.0 U DNR
	1/20/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/17/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	5.0 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	120 E DNR	0.2 U DNR	0.5 U
	4/17/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**98**	2.0 U DNR	5.0 U DNR
	4/17/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW170	3/17/08	7.6	0.2 U	0.2 U	0.2 U	0.2 U	1.9	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	1.0	0.2 U	0.2 U	1.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**20**	0.020 U	0.4 U
	4/22/08	12 U	0.8 U	0.8 U	0.8 U	0.8 U	10 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.020	1.2	0.8 U	0.8 U	10 U	2.0 U	0.8 U	0.020 U	0.8 U	0.8 U	0.8 U	**29**	0.020 U	1.6 U
	7/14/08	9.0 U	0.6 U	0.6 U	0.6 U	0.6 U	7.5 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.020 U	1.1	0.6 U	0.6 U	7.5 U	1.5 U	0.6 U	0.020 U	0.6 U	0.6 U	0.6 U	**36**	0.020 U	1.2 U
	10/29/08	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.6	1.0 U	1.0 U	5.0 U	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**44**	0.020 U	2.0 U
	1/22/09	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.4	1.0 U	1.0 U	5.0 UJ	2.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	**44**	0.020 U	2.0 U
	4/28/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**51**	0.020 UJ	0.4 U
	7/16/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.9	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**29**	0.020 UJ	0.4 U
	11/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.8	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**23**	0.020 U	0.4 U
	1/25/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.3**	0.020 U	0.4 U
	4/20/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.2 U	**26**	0.020 UJ	0.4 U
	7/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**26**	0.020 U	0.4 U
	11/2/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**23**	0.020 U	0.4 U
	1/24/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**27**	0.020 U	0.4 U
	4/19/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**39**	0.020 U	0.4 U
	7/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**38**	0.020 U	0.4 U
	10/24/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**34**	0.020 U	0.4 U
	1/23/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**34**	0.020 U	0.4 U
	1/23/12 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**35**	0.020 U	0.4 U
	4/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	46 E DNR	0.2 U DNR	0.5 U
	4/23/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**37**	2.0 U DNR	5.0 U DNR
	4/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	35 E DNR	0.2 U DNR	0.5 U
	7/25/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**30**	2.0 U DNR	5.0 U DNR
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	34 E DNR	0.2 U DNR	0.5 U
	10/23/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**28**	2.0 U DNR	5.0 U DNR
	10/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/2012 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	32 E DNR	0.2 U DNR	0.5 U
	10/23/12 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	5.0 U DNR
	10/23/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/29/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	43 E DNR	0.2 U DNR	0.5 U
	1/29/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**36**	2.0 U DNR	5.0 U DNR
	1/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	41 E DNR	0.2 U DNR	0.5 U
	4/23/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**31**	2.0 U DNR	5.0 U DNR
	4/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW170 (continued)	7/29/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	35 E DNR	0.2 U DNR	0.5 U
	7/29/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**26**	2.0 U DNR	5.0 U DNR
	7/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	44 E DNR	0.2 U DNR	0.5 U
	10/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**35**	2.0 U DNR	5.0 U DNR
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	36 E DNR	0.2 U DNR	0.5 U
	1/22/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**30**	2.0 U DNR	5.0 U DNR
	1/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	3/18/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	31 E DNR	0.2 U DNR	0.5 U
	3/18/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**25**	2.0 U DNR	5.0 U DNR
	3/18/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/27/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	32 E DNR	0.2 U DNR	0.5 U
	10/27/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**26**	2.0 U DNR	5.0 U DNR
	10/27/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/20/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	32 E DNR	0.2 U DNR	0.5 U
	1/20/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	2.0 U DNR	5.0 U DNR
	1/20/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/21/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	29 E DNR	0.2 U DNR	0.5 U
	4/21/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**23**	2.0 U DNR	5.0 U DNR
	4/21/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW171	9/12/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.3	0.3	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/30/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/22/09	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 UJ	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/28/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/20/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/25/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/21/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/2/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/24/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/19/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/23/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/29/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/29/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	3/18/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	3/18/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	6/4/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	6/4/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW172	8/28/08	5.6	0.2 U	0.4	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	**10**	0.2 U	0.2 U	0.2 U	0.20 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.20 U	0.4 U
	9/12/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	10/30/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/22/09	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 UJ	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	4/28/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.023	0.020 U	0.4 U
	7/20/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/10/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/25/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.5**	0.020 U	0.4 U
	4/21/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/2/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/24/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/19/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/23/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW172 (continued)	1/29/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/29/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	3/18/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	3/18/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	6/4/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	6/4/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	6/4/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	6/4/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW173	9/12/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.3 J	0.2 U	0.2 U	0.4 J	0.2 U	0.4 U
	9/12/08 (DUP)	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.2 U	0.3 J	0.2 U	0.2 U	0.4 J	0.2 U	0.4 U
	10/30/08	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/22/09	3.0 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	2.5 UJ	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.40	0.020 U	0.4 U
	4/28/09	2.5 U	0.2 U	0.2 U	0.2 U	0.5 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.5 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.85**	0.020 U	0.4 U
	7/20/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/10/09	5.7 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	11/10/09 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/25/10	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.4	0.2 U	0.2 U	**1.5**	0.020 U	0.4 U
	1/25/10 (DUP)	5.0 UJ	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.6**	0.020 U	0.4 U
	4/21/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	7/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.033	0.020 U	0.4 U
	11/2/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.020 U	0.020 U	0.4 U
	1/24/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/19/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	7/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	10/24/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	1/23/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U
	4/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/25/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/29/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	4/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/29/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	7/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	1/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	3/18/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	3/18/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	6/4/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U
	6/4/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW174	10/15/09	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.9**	0.020 U	0.4 U
	10/15/09 (DUP)	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**0.9**	0.020 U	0.4 U
	1/25/10	5.0 U	0.2 U	0.2 U	0.2 U	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.5**	0.020 U	0.4 U
	4/21/10	5.0 U	0.2 U	0.2 U	0.2 UJ	0.5 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**5.2**	0.020 U	0.4 U
	7/26/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**6.4**	0.020 U	0.4 U
	11/2/10	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	0.32	0.020 U	0.4 U
	1/24/11	5.0 UJ	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.0**	0.020 U	0.4 U
	4/19/11	5.0 U	0.2 U	0.2 U	0.2 UJ	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**3.5**	0.020 U	0.4 U
	7/25/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.2**	0.020 U	0.4 U
	10/24/11	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.2 U	5.0 U	0.5 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**1.6**	0.020 U	0.4 U
	1/23/12	5.0 U	0.2 U	0.2 U	0.2 U	1.0 U	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 X	0.2 U	0.2 U	5.0 U	1.0 U	0.2 U	0.020 U	0.2 U	0.2 U	0.2 U	**2.3**	0.020 U	0.4 U
	4/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**11**	0.2 U DNR	0.5 U
	4/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																										
		Acetone	**Benzene**	**BDCM**	**Bromoform**	**Bromomethane**	**2-Butanone**	**Carbon Disulfide**	**Carbon Tetrachloride**	**Chloroethane**	**Chloroform**	**Chloromethane**	**DBCM**	**1,1-DCA**	**1,1-DCE**	**cis-1,2-DCE**	**trans-1,2-DCE**	**Ethylbenzene**	**MIBK**	**Methylene Chloride**	**Styrene**	**PCE**	**Toluene**	**1,1,1-TCA**	**1,1,2-TCA**	**TCE**	**Vinyl Chloride**	**Xylenes**
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW174 (continued)	7/25/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	40 E DNR	0.2 U DNR	0.5 U
	7/25/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**28**	2.0 U DNR	5.0 U DNR
	7/25/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/23/12	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	26 E DNR	0.2 U DNR	0.5 U
	10/23/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**20**	2.0 U DNR	5.0 U DNR
	10/23/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/29/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**20**	0.2 U DNR	0.5 U
	1/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	4/23/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U
	4/23/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	7/29/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U
	7/29/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/22/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	48 E DNR	0.2 U DNR	0.5 U
	10/22/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**41**	2.0 U DNR	5.0 U DNR
	10/22/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/22/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	37 E DNR	0.2 U DNR	0.5 U
	1/22/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**32**	2.0 U DNR	5.0 U DNR
	1/22/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	3/18/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	50 E DNR	0.2 U DNR	0.5 U
	3/18/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**41**	2.0 U DNR	5.0 U DNR
	3/18/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	10/27/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**9.1**	0.2 U DNR	0.5 U
	10/27/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
	1/20/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	**23**	0.2 U DNR	0.5 U
	1/20/15 (DL)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/21/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U DNR	0.2 U	0.5 U	0.2 U	**9.2**	0.2 U DNR	0.5 U
	4/21/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA	NA	NA	0.020 U	NA
EGW185	10/16/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	6.0	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	520 E DNR	1.0 U DNR	2.5 U
	10/16/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	6.1 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**550**	10 U DNR	25 U DNR
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	12/20/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 UJ	2.5 U	2.5 U	1.0 U	5.7	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	540 E DNR	1.0 U DNR	2.5 U
	12/20/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	6.4 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**570**	10 U DNR	25 U DNR
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/18/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	6.1	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	710 E DNR	1.0 U DNR	2.5 U
	1/18/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	6.5 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**660**	10 U DNR	25 U DNR
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	6.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	480 E DNR	0.2 U DNR	0.5 U
	2/13/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.4 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**590**	10 U DNR	25 U DNR
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/19/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	5.4	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	550 E DNR	1.0 U DNR	2.5 U
	4/19/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.9 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**550**	10 U DNR	25 U DNR
	4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	7/18/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	5.4	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	510 E DNR	1.0 U DNR	2.5 U
	7/18/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	6.4 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**540**	10 U DNR	25 U DNR
	7/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/9/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	4.1	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	490 E DNR	1.0 U DNR	2.5 U
	10/9/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**460**	10 U DNR	25 U DNR
	10/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	2.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	410 E DNR	0.2 U DNR	0.5 U
	1/8/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**340**	10 U DNR	25 U DNR
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/8/14	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	1.6	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	300 E DNR	1.0 U DNR	2.5 U
	10/8/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**320**	10 U DNR	25 U DNR
	10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/15/15	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	1.3	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	380 E DNR	1.0 U DNR	2.5 U
	1/15/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**370**	10 U DNR	25 U DNR
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	0.7 X	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	230 E DNR	1.0 U DNR	2.5 U
	4/16/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**240**	10 U DNR	25 U DNR
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
EGW186	10/16/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	8.4	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	680 E DNR	1.0 U DNR	2.5 U
	10/16/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	8.7 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**710**	10 U DNR	25 U DNR
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	12/20/12	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 UJ	2.5 U	2.5 U	1.0 U	5.2	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	400 E DNR	1.0 U DNR	2.5 U
	12/20/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	5.8 X DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**450**	10 U DNR	25 U DNR
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/21/13	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 U	2.5 U	2.5 U	1.0 U	9.0	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	780 E DNR	1.0 U DNR	2.5 U
	1/21/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**810**	10 U DNR	25 U DNR
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	3.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	300 E DNR	0.2 U DNR	0.5 U
	2/13/13 (DL)	130 U DNR	5.0 U DNR	13 U DNR	13 U DNR	13 U DNR	130 U DNR	13 U DNR	5.0 U DNR	13 U DNR	5.0 U DNR	13 U DNR	13 U DNR	13 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	13 U DNR	130 U DNR	13 U DNR	13 U DNR	5.0 U DNR	5.0 U DNR	13 U DNR	5.0 U DNR	**230**	5.0 U DNR	13 U DNR
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/19/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U
	4/19/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**120**	10 U DNR	25 U DNR
	4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	7/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U
	7/18/13 (DL)	25 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	2.5 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	2.5 U DNR	1.0 U DNR	**72**	1.0 U DNR	2.5 U DNR
	7/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	63 E DNR	0.2 U DNR	0.5 U
	10/9/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	5.0 U DNR
	10/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	63 E DNR	0.2 U DNR	0.5 U
	1/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**55**	2.0 U DNR	5.0 U DNR
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	47 E DNR	0.2 U DNR	0.5 U
	10/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**35**	2.0 U DNR	5.0 U DNR
	10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	36 E DNR	0.2 U DNR	0.5 U
	1/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**28**	2.0 U DNR	5.0 U DNR
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	26 E DNR	0.2 U DNR	0.5 U
	4/16/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**21**	2.0 U DNR	5.0 U DNR
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA

Table A-22
Summary of Groundwater Analytical Results
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)																									
		Acetone	Benzene	BDCM	Bromoform	Bromomethane	2-Butanone	Carbon Disulfide	Carbon Tetrachloride	Chloroethane	Chloroform	Chloromethane	DBCM	1,1-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	MIBK	Methylene Chloride	Styrene	PCE	Toluene	1,1,1-TCA	1,1,2-TCA	TCE	Vinyl Chloride	Xylenes
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	0.706 (B)	5.54 (B)	11.2 (B)	4,800 (B)	800 (B)	0.625 (B)	NE	1.41 (B)	NE	0.521 (B)	7.68 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	640 (B)	5 (A) 21.9 (B)	1,600 (B)	5 (A) 20.8 (B)	1,000 (A) 640 (B)	200 (A) 16,000 (B)	0.768 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)
EGW187	10/16/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	2.9	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	320 E DNR	0.4 U DNR	1.0 U
	10/16/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	2.8 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**300**	4.0 U DNR	10 U DNR
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/16/12 (DUP)	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	3.0	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	320 E DNR	0.4 U DNR	1.0 U
	10/16/12 (DUP DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	2.9 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**300**	4.0 U DNR	10 U DNR
	10/16/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	12/20/12	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 UJ	1.0 U	1.0 U	0.4 U	2.5	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	270 E DNR	0.4 U DNR	1.0 U
	12/20/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	2.5 X DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**260**	4.0 U DNR	10 U DNR
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	12/20/2012 (DUP)	25 U	1.0 U	2.5 U	2.5 U	2.5 U	25 U	2.5 U	1.0 U	2.5 U	1.0 U	2.5 UJ	2.5 U	2.5 U	1.0 U	2.6	1.0 U	2.5 U	25 U	2.5 U	2.5 U	1.0 U	1.0 U	2.5 U	1.0 U	280 E DNR	1.0 U DNR	2.5 U
	12/20/12 (DUP DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	250 U DNR	25 U DNR	10 U DNR	25 U DNR	10 U DNR	25 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	250 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**290**	10 U DNR	25 U DNR
	12/20/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/18/13	10 U	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	2.1	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	270 E DNR	0.4 U DNR	1.0 U
	1/18/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**220**	4.0 U DNR	10 U DNR
	1/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/18/13 (DUP)	10 UJ	0.4 U	1.0 U	1.0 U	1.0 U	10 U	1.0 U	0.4 U	1.0 U	0.4 U	1.0 U	1.0 U	1.0 U	0.4 U	1.9	0.4 U	1.0 U	10 U	1.0 U	1.0 U	0.4 U	0.4 U	1.0 U	0.4 U	210 E DNR	0.4 U DNR	1.0 U
	1/18/13 (DUP DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	100 U DNR	10 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	10 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	100 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**180**	4.0 U DNR	10 U DNR
	1/18/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	2/13/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	190 E DNR	0.2 U DNR	0.5 U
	2/13/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR
	2/13/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	2/13/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 UJ	0.5 U	0.5 U	0.2 U	1.7	0.2 U	0.5 U	5.0 UJ	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	190 E DNR	0.2 U DNR	0.5 U
	2/13/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR
	2/13/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/19/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	170 E DNR	0.2 U DNR	0.5 U
	4/19/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**140**	2.0 U DNR	5.0 U DNR
	4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/19/2013 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	170 E DNR	0.2 U DNR	0.5 U
	4/19/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**130**	2.0 U DNR	5.0 U DNR
	4/19/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	7/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	160 E DNR	0.2 U DNR	0.5 U
	7/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR
	7/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	7/18/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	160 E DNR	0.2 U DNR	0.5 U
	7/18/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR
	7/18/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/9/13	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U
	10/9/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR
	10/9/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/9/2013 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U
	10/9/13 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR
	10/9/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U
	1/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**100**	2.0 U DNR	5.0 U DNR
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/8/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U
	1/8/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR
	1/8/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U
	10/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**84**	2.0 U DNR	5.0 U DNR
	10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	10/8/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U
	10/8/14 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**82**	2.0 U DNR	5.0 U DNR
	10/8/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	91 E DNR	0.2 U DNR	0.5 U
	1/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**72**	2.0 U DNR	5.0 U DNR
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	1/15/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.3	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	86 E DNR	0.2 U DNR	0.5 U
	1/15/15 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**66**	2.0 U DNR	5.0 U DNR
	1/15/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	84 E DNR	0.2 U DNR	0.5 U
	4/16/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**66**	2.0 U DNR	5.0 U DNR
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA
	4/16/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.5 U	5.0 U	0.5 U	0.2 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.5 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5 U	0.2 U	86 E DNR	0.2 U DNR	0.5 U
	4/16/15 (DUP DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**68**	2.0 U DNR	5.0 U DNR
	4/16/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA

Notes:

Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website
CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
D - Dilution required to quantitate analyte within linear range of detector.
DL - dilution
DNR - Do Not Report
DUP - field duplicate
J - estimated value
NA - not analyzed
SIM - selected ion monitoring
ug/L - microgram per liter
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result is between the method detection limit (MDL) and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.

* Suspected laboratory contamination
1,1-DCA - 1,1-dichloroethane
1,1-DCE - 1,1-dichloroethene
BDCM - bromodichloromethane
cis-1,2-DCE - cis-1,2-dichloroethene
DBCM - dibromochloromethane
PCE - tetrachloroethene
trans-1,2-DCE - trans-1,2-dichloroethene
TCE - trichloroethene
1,1,1-TCA - 1,1,1-trichloroethane
1,1,2-TCA - 1,1,2-trichloroethane
MIBK - 4-methyl-2-pentanone

Table A-23
Summary of Groundwater Analytical Results -1,4-Dioxane and PCBs
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (ug/L)
MTCA Method A or B Groundwater Screening Level		0.438 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
EGW075	5/14/03	NA	0.017 U
	7/23/03	NA	0.017 UJ
	11/3/03	NA	0.017 U
	1/20/04	NA	0.1 U
	4/13/04	NA	0.1 U
	7/20/04	NA	0.2 U
	10/11/04	NA	0.12 U
	1/7/05	NA	0.1 U
	4/4/05	NA	0.1 U
	10/10/05	NA	0.1 U
	4/5/06	NA	0.1 U
	10/23/06	NA	0.1 U
	1/17/07	NA	0.1 U
	4/5/07	NA	0.010 U
	7/12/07	NA	0.1 U
	10/30/07	NA	0.010 U
	1/8/08	NA	0.010 U
	4/9/08	NA	0.010 U
	7/10/08	NA	0.010 U
	10/22/08	NA	0.010 U
	1/14/09	NA	0.012 UJ
	4/15/09	NA	0.010 U
	7/13/09	NA	0.010 U
	10/30/09	NA	0.010 U
	1/15/10	NA	0.010 U
	4/13/10	NA	0.010 U
	7/20/10	NA	0.010 U
	10/20/10	NA	0.010 U
	1/17/11	NA	0.010 U
	4/13/11	NA	0.010 U
	7/18/11	NA	0.010 U
	10/11/11	NA	0.010 U
	1/22/12	NA	0.010 U
	4/11/12	NA	0.0095 U
	7/23/12	NA	0.0095 U
	10/9/12	NA	0.0095 U
	1/18/13	NA	0.0097 U
	4/10/13	NA	0.0095 U
	7/22/13	NA	0.0094 U
	10/15/13	NA	0.0095 U
	1/16/14	NA	0.0095 U
	4/25/14	NA	0.0095 U
	7/9/14	NA	0.0095 U
	10/17/14	NA	0.0094 U
	1/13/15	NA	0.0095 U
	4/9/15	NA	0.0095 U
EGW076	12/3/03	NA	0.1 U
	1/20/04	NA	0.1 U
	4/13/04	NA	0.1 U
EGW077	12/3/03	NA	0.1 U
	1/20/04	NA	0.1 U
	4/13/04	NA	0.1 U

Table A-23
Summary of Groundwater Analytical Results -1,4-Dioxane and PCBs
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (ug/L)
MTCA Method A or B Groundwater Screening Level		0.438 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
EGW078	12/3/03	NA	0.1 U
	12/3/03 (DUP)	NA	0.1 U
	1/20/04	NA	0.1 U
	1/20/04 (DUP)	NA	0.1 U
	3/11/04	NA	0.1 U
	4/12/04	NA	0.1 U
	10/12/04	1.0 UJ	NA
	1/6/05	5.0 U	NA
	4/6/05	5.0 U	NA
	7/15/05	5.0 U	NA
	10/11/05	5.0 U	0.1 U
	1/11/06	4.0 U	NA
	4/4/06	4.0 U	NA
	7/10/06	2.0 U	NA
	11/14/06	NA	0.1 U
	1/17/07	NA	0.1 U
	4/5/07	NA	0.010 U
	7/12/07	NA	0.1 U
	10/30/07	NA	0.010 U
	1/7/08	NA	0.010 U
	4/10/08	NA	0.010 U
	7/9/08	NA	0.010 U
	10/21/08	NA	0.010 U
	1/13/09	NA	0.010 U
	4/15/09	NA	0.010 U
	7/13/09	NA	0.010 U
	10/22/09	NA	0.010 U
	1/14/10	NA	0.010 U
	4/12/10	NA	0.010 U
	7/19/10	NA	0.010 U
	10/19/10	NA	0.010 U
	1/13/11	NA	0.010 U
	4/12/11	NA	0.010 U
	7/14/11	NA	0.010 U
	10/10/11	NA	0.010 U
	1/22/12	NA	0.010 U
	4/10/12	NA	0.0098 U
	7/23/12	NA	0.0095 U
	10/10/12	NA	0.0095 U
	1/18/13	NA	0.0097 U
	4/9/13	NA	0.0097 U
	7/22/13	NA	0.0094 U
	10/15/13	NA	0.0095 U
	1/15/14	NA	0.0096 U
	4/25/14	NA	0.0095 U
	7/9/14	NA	0.0095 U
	10/20/14	NA	0.0094 U
	1/13/15	NA	0.0095 U
	4/9/15	NA	0.0095 U
EGW079	12/2/03	NA	0.1 U
	1/20/04	NA	0.1 U
	4/13/04	NA	0.1 U

Table A-23
Summary of Groundwater Analytical Results -1,4-Dioxane and PCBs
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (ug/L)
MTCA Method A or B Groundwater Screening Level		0.438 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
EGW080	12/2/03	NA	0.1 U
	1/20/04	NA	0.1 U
	4/13/04	NA	0.1 U
	10/14/04	1.0 U	NA
	1/10/05	5.0 U	NA
	4/8/05	5.0 U	NA
	7/14/05	5.0 U	NA
	10/13/05	5.0 U	0.1 U
	1/9/06	4.0 U	NA
	1/9/06 (DUP)	4.0 U	NA
	4/10/06	4.0 U	0.1 U
	7/13/06	2.0 U	NA
	7/13/06 (DUP)	2.0 U	NA
	10/24/06	NA	0.1 U
	4/5/07	NA	0.010 U
	11/1/07	NA	0.010 U
	1/9/08	NA	0.010 U
	4/10/08	NA	0.010 U
	10/22/08	NA	0.010 U
	4/15/09	NA	0.010 U
	10/30/09	NA	0.010 U
	4/15/10	NA	0.010 U
	10/28/10	NA	0.010 U
	4/14/11	NA	0.010 U
	10/13/11	NA	0.010 U
	4/13/12	NA	0.0095 U
	10/11/12	NA	0.0095 U
	10/11/12 (DUP)	NA	0.0095 U
	4/10/13	NA	0.0095 U
	10/17/13	NA	0.010 U
	1/16/14	NA	0.0095 U
	4/25/14	NA	0.0095 U
	10/22/14	NA	0.0094 U
	4/14/15	NA	0.0095 U
EGW081	12/2/03	NA	0.1 U
	1/20/04	NA	0.1 U
	4/13/04	NA	0.1 U
EGW082	12/2/03	NA	0.1 U
	1/20/04	NA	0.1 U
	4/13/04	NA	0.1 U
EGW083	12/2/03	NA	0.1 U
EGW084	12/2/03	NA	0.1 U
	1/20/04	NA	0.1 U
	4/13/04	NA	0.1 U
EGW085	3/10/04	NA	0.1 U
	4/13/04	NA	0.1 U

Table A-23
Summary of Groundwater Analytical Results -1,4-Dioxane and PCBs
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (ug/L)
MTCA Method A or B Groundwater Screening Level		0.438 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
EGW086	3/10/04	NA	0.1 U
	4/13/04	NA	0.1 U
	4/13/04 (DUP)	NA	0.1 U
	10/14/04	1.0 U	NA
	1/10/05	5.0 U	NA
	1/10/05 (DUP)	5.0 U	NA
	4/8/05	5.0 U	NA
	7/14/05	5.0 U	NA
	7/14/05 (DUP)	5.0 U	NA
	10/13/05	5.0 U	NA
	1/9/06	4.0 U	NA
	4/10/06	4.0 U	NA
	7/13/06	2.0 U	NA
EGW087	3/10/04	NA	0.1 U
	4/13/04	NA	0.1 U
EGW088	3/10/04	NA	0.1 U
	4/12/04	NA	0.1 U
	10/12/04	1.0 UJ	NA
	1/6/05	5.0 U	NA
	4/6/05	5.0 U	NA
	7/15/05	5.0 U	NA
	10/11/05	5.0 U	NA
	10/11/05 (DUP)	5.0 U	NA
	1/11/06	4.0 U	NA
	4/4/06	4.0 U	NA
	7/10/06	2.0 U	NA
EGW089	3/22/04	NA	0.1 U
EGW094	10/15/04	1.0 U	NA
	1/10/05	5.0 U	NA
	4/5/05	5.0 U	NA
	7/13/05	5.0 U	NA
	10/13/05	5.0 U	NA
	1/10/06	4.0 U	NA
	4/13/06	4.0 U	NA
	7/13/06	4.0 U	NA

Table A-23
Summary of Groundwater Analytical Results -1,4-Dioxane and PCBs
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	1,4-Dioxane (ug/L)	Polychlorinated Biphenyls (PCBs) [a] (ug/L)
MTCA Method A or B Groundwater Screening Level		0.438 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
EGW095	10/15/04	1.0 U	NA
	1/10/05	5.0 U	NA
	4/5/05	5.0 U	NA
	7/13/05	5.0 U	NA
	10/13/05	5.0 U	NA
	1/10/06	4.0 U	NA
	4/13/06	4.0 U	NA
	7/13/06	4.0 U	NA

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
DUP - field duplicate
NA - not analyzed
U - Compound was analyzed for but not detected above the reporting limit shown.
ug/L - microgram per liter
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
[a] PCB reporting limits are for all Aroclors except Aroclor 1221 which ranges from 0.010 ug/L to 0.2 ug/L.

Table A-24
Summary of Groundwater Analytical Results - Dissolved Gases
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Dissolved Gases* (ug/L)			
		Acetylene	Ethane	Ethene	Methane
EGW078	11/19/2007	1.1 U	1.2 U	1.1 U	36.1
	6/9/2009	1.1 U	1.2 U	1.1 U	74.4
	7/30/2009	1.1 U	1.2 U	1.1 U	107
	8/27/2009	1.1 U	1.2 U	1.1 U	0.7 U
	9/14/2009	1.1 U	1.2 U	1.1 U	77.1
	10/22/2009	1.1 U	1.2 U	1.1 U	57.6
	1/14/2010	1.1 U	1.2 U	1.1 U	69.5
	4/12/2010	1.1 U	1.2 U	1.1 U	58.8
	7/19/2010	1.1 U	1.2 U	1.1 U	296
	10/19/2010	1.1 U	8.4	1.1 U	729
	1/13/2011	1.1 U	6.9	1.1 U	1,930
	4/12/2011	1.1 U	2.5	1.1 U	1,170
	7/14/2011	1.1 U	8.7	1.1 U	3,250
	10/10/2011	1.1 U	1.4	1.1 U	823
	1/22/12	1.1 U	5.1	1.1 U	1,520
	4/10/12	5.0 U	5.9	5.0 U	490 E DNR
	4/10/12 (DL)	25 U DNR	7.8 X DNR	25 U DNR	720
	7/23/12	5.0 U	3.5 X	5.0 U	220
	10/10/12	5.0 U	1.5 X	5.0 U	95
	1/18/13	5.0 U	5.0 U	5.0 U	53
	4/9/13	5.0 U	5.0 U	5.0 U	38
	4/8/14	5.0 U	5.0 U	5.0 U	76
	10/20/14	5.0 U	5.0 U	5.0 U	16
	4/9/15	5.0 U	5.0 U	5.0 U	220
EGW088	7/12/2007	1.1 U	8.1	1.3	173
	11/19/2007	1.1 U	1.2 U	1.1 U	1
	6/10/2009	1.1 U	1.2 U	1.1 U	0.7 U
	10/22/2009	1.1 U	1.2 U	1.1 U	0.7 U
	1/14/2010	1.1 U	1.2 U	1.1 U	0.7 U
	4/12/2010	1.1 U	1.2 U	1.1 U	0.7 U
	7/19/2010	1.1 U	1.2 U	1.1 U	0.7 U
	10/19/2010	1.1 U	1.2 U	1.1 U	0.7 U
	1/13/2011	1.1 U	1.2 U	1.1 U	0.7 U
	4/12/2011	1.1 U	1.2 U	1.1 U	0.7 U
	7/14/2011	1.1 U	1.2 U	1.1 U	124
	10/10/2011	1.1 U	14.1	1.1 U	2,200
	1/22/12	1.1 U	7.1	1.1 U	1,800
	4/10/12	5.0 U	2.8 X	5.0 U	1,100 E DNR
	4/10/12 (DL)	50 U DNR	50 U DNR	50 U DNR	1,600
	7/23/12	5.0 U	7.4	5.0 U	980 E DNR
	7/23/12 (DL)	50 U DNR	10 X DNR	50 U DNR	1,600
	10/10/12	5.0 U	6.2	5.0 U	1,400 E DNR
	10/10/2012 (DL)	100 U DNR	100 U DNR	100 U DNR	2,100
	1/18/13	5.0 U	3.5 X	5.0 U	420
	4/9/13	5.0 U	4.9 X	5.0 U	1,100 E DNR
	4/9/13 (DL)	100 U DNR	100 U DNR	100 U DNR	1,000
	4/8/14	5.0 U	3.9 X	5.0 U	1,900 E DNR
	4/8/14 (DL)	50 U DNR	50 U DNR	50 U DNR	2,500
	10/20/14	5.0 U	5.5	5.0 U	2,800 E DNR
	10/20/14 (DL)	100 U DNR	100 U DNR	100 U DNR	4,000
	4/9/15	5.0 U	3.9 X	5.0 U	3,000 E DNR
	4/9/15 (DL)	100 U DNR	100 U DNR	100 U DNR	3,400
EGW100	11/19/07	1.1 U	1.2 U	1.1 U	0.7 U
	6/10/09	1.1 U	1.2 U	1.1 U	0.7 U
EGW127	6/14/07	1.1 U	1.2 U	1.1 U	8.2
	7/23/07	1.1 U	1.2 U	1.1 U	2.6
	11/20/07	1.1 U	1.2 U	1.1 U	87.6
	6/10/09	1.1 U	1.2 U	1.1 U	0.7 U
	7/30/09	1.1 U	1.2 U	1.1 U	0.7 U
	8/27/09	1.1 U	1.2 U	1.1 U	0.7 U
	9/14/09	1.1 U	1.2 U	1.1 U	0.7 U
	10/22/09	1.1 U	1.2 U	1.1 U	1.1
	1/14/10	1.1 U	1.2 U	1.1 U	0.7 U
	4/12/10	1.1 U	1.2 U	1.1 U	0.7 U
	7/19/10	1.1 U	1.2 U	1.1 U	0.7 U
	10/19/10	1.1 U	1.2 U	1.1 U	0.7 U
	1/13/11	1.1 U	29.8	1.1 U	7,220
	4/12/11	1.1 U	23.4	1.1 U	6,200
	7/14/11	1.1 U	26.1	1.1 U	7,300
	10/10/11	1.1 U	4.6	1.1 U	1,240

Table A-24
Summary of Groundwater Analytical Results - Dissolved Gases
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Dissolved Gases* (ug/L)			
			Acetylene	Ethane	Ethene	Methane
EGW127		1/22/12	1.1 U	13.9	1.1 U	7,580
(continued)		4/10/12	5.0 U	10	5.0 U	4,200 E DNR
		4/10/12 (DL)	100 U DNR	100 U DNR	100 U DNR	8,200
		7/23/12	5.0 U	8.9	5.0 U	3,200 E DNR
		7/23/12 (DL)	250 U DNR	250 U DNR	250 U DNR	5,200
		10/10/12	5.0 U	5.1	5.0 U	1,900 E DNR
		10/10/2012 (DL)	100 U DNR	100 U DNR	100 U DNR	2,800
		1/17/13	5.0 U	4.0 X	5.0 U	1,600 E DNR
		1/17/13 (DL)	100 U DNR	100 U DNR	100 U DNR	1,900
		4/9/13	5.0 U	2.3 X	5.0 U	660 E DNR
		4/9/13 (DL)	25 U DNR	25 U DNR	25 U DNR	760
		7/22/13	5.0 U	1.3 X	5.0 U	380
		10/15/13	5.0 U	1.8 X	5.0 U	450
		1/15/14	5.0 U	1.2 X	5.0 U	320
		4/8/14	5.0 U	5.0 U	5.0 U	210
		7/9/14	5.0 U	5.0 U	5.0 U	66
		10/20/14	5.0 U	5.0 U	5.0 U	21
		1/13/15	5.0 U	5.0 U	5.0 U	44
		4/9/15	5.0 U	5.0 U	5.0 U	19
EGW128		6/14/07	5.5	1.2 U	1.4	8.7
		7/16/07	2.2	1.2 U	1.1 U	9.0
		12/5/07	1.1 U	1.2 U	1.1 U	1.0
		10/22/09	1.1 U	1.2 U	1.1 U	29.0
		1/14/10	1.1 U	1.2 U	1.1 U	26.8
		4/12/10	1.1 U	1.2 U	1.1 U	50.4
EGW129		11/20/07	1.1 U	1.2 U	1.1 U	2.3
EGW130		11/20/07	1.1 U	1.2 U	1.1 U	0.7 U
EGW144		7/12/07	1.1 U	1.2 U	1.1 U	2.6
		11/20/07	1.1 U	1.2 U	1.1 U	0.7 U
		6/10/09	1.1 U	1.2 U	1.1 U	0.7 U
		8/27/09	1.1 U	1.2 U	1.1 U	0.7 U
		9/14/09	1.1 U	1.2 U	1.1 U	0.7 U
		10/22/09	1.1 U	1.2 U	1.1 U	0.9
		1/14/10	1.1 U	1.2 U	1.1 U	0.7 U
		4/12/10	1.1 U	1.2 U	1.1 U	0.7 U
		7/19/10	1.1 U	1.2 U	1.1 U	2.5
		10/19/10	1.1 U	1.2 U	1.1 U	0.7 U
		1/13/11	1.1 U	1.2 U	1.1 U	0.7 U
		4/12/11	1.1 U	1.2 U	1.1 U	0.7 U
		7/14/11	1.1 U	1.2 U	1.1 U	0.7 U
		10/10/11	1.1 U	14.7	1.1 U	2,620
		1/22/12	1.1 U	1.2 U	1.1 U	0.7 U
		4/10/12	5.0 U	5.0 U	5.0 U	15 U
		7/23/12	5.0 U	5.0 U	5.0 U	15 U
		10/10/12	5.0 U	5.0 U	5.0 U	110
		1/17/13	5.0 U	5.0 U	5.0 U	54
		4/9/13	5.0 U	5.0 U	5.0 U	120
		7/22/13	5.0 U	1.5 X	5.0 U	770 E DNR
		7/22/13 (DL)	50 U DNR	50 U DNR	50 U DNR	890
		10/15/13	5.0 U	1.3 X	5.0 U	600 E DNR
		10/15/13 (DL)	25 U DNR	25 U DNR	25 U DNR	720
		1/15/14	5.0 U	5.0 U	5.0 U	110
		4/8/14	5.0 U	5.0 U	5.0 U	5.0 U
		7/9/14	5.0 U	5.0 U	5.0 U	210
		10/20/14	5.0 U	5.0 U	5.0 U	21
		1/13/15	5.0 U	5.0 U	5.0 U	560 E DNR
		1/13/15 (DL)	25 U DNR	25 U DNR	25 U DNR	710
		4/9/15	5.0 U	5.0 U	5.0 U	140
EGW149	**(1)**	7/24/07	5.8	1.2 U	1.1 U	0.7 U
		11/28/07	1.1 U	1.2 U	1.1 U	1.9
	(2)	7/24/07	1.2	1.2 U	1.1 U	7.2
		11/28/07	1.1 U	1.2 U	1.1 U	7.8
	(3)	7/24/07	1.1 U	1.2 U	1.1 U	61.5
		11/28/07	1.1 U	1.2 U	1.1 U	0.7
	(4)	7/24/07	1.1 U	1.2 U	1.8	165
		11/28/07	1.1 U	1.2 U	2.0	168
EGW150	**(1)**	7/18/07	15.2	1.5	24.4	227
		11/27/07	1.4	1.2 U	1.1 U	59.9
	(2)	7/23/07	3.3	1.2 U	1.1 U	18.2
		11/27/07	3.4	1.2 U	2.0	76.4
	(3)	7/23/07	1.1 U	1.2 U	1.1 U	3.5
		11/27/07	3.3	1.2 U	1.1 U	37.4
	(4)	7/23/07	1.1 U	1.2 U	1.1 U	1,460
		11/27/07	1.1 U	4.0	1.1 U	1,310

Table A-24
Summary of Groundwater Analytical Results - Dissolved Gases
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Dissolved Gases* (ug/L)			
			Acetylene	Ethane	Ethene	Methane
EGW151	**(1)**	7/16/07	28.1	1.2 U	1.1 U	1.4
		11/27/07	85.7	2.2	1.5	56.6
		6/11/09	1.1 U	1.2 U	1.1 U	3.2
		6/11/09 (DUP)	1.1 U	1.2 U	1.1 U	2.5
		7/31/09	1.1 U	1.2 U	1.1 U	10.5
		7/31/09 (DUP)	1.1 U	1.2 U	1.1 U	13.1
		8/27/09	1.1 U	1.2 U	1.1 U	43.2
		9/15/09	1.2	1.9	1.1 U	42.4
		9/15/09 (DUP)	1.1 U	1.2 U	1.1 U	44.1
		10/28/09	1.1 U	1.7	1.1 U	33.7
		10/28/09 (DUP)	1.1 U	1.3	1.1 U	26.8
		1/27/10	1.1 U	1.4	2.7	39.3
		1/27/10 (DUP)	1.1 U	1.6	2.8	44.2
		4/7/10	1.1 U	1.2 U	6.9	44.2
		7/7/10	1.1 U	1.2 U	9.4	131
		7/7/10 (DUP)	1.1 U	1.2 U	10.2	142
		10/12/10	1.1 U	27.1	73.4	2,460
		10/12/10 (DUP)	1.1 U	29.1	77.1	2,690
		1/19/11	1.1 U	17.5	19.5	4,780
		1/19/11 (DUP)	1.1 U	19.5	22.7	5,280
		4/12/11	1.1 U	10.8 J	33.8	5,750
		4/12/11 (DUP)	1.1 U	15.3 J	45.6	7,630
		7/12/11	1.1 U	29.1	26.5	5,930
		7/12/11 (DUP)	1.1 U	25.8	23.5	5,490
		10/19/11	1.1 U	58.3	11.3	8,100
		10/19/11 (DUP)	1.1 U	61.6	10.2	8,840
		1/23/12	1.1 U	78.2	4.6	13,700
		4/9/12	5.0 U	63	1.4 X	11,000 E DNR
		4/9/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	22,000
		7/10/12	5.0 U	41	1.1 X	14,000 E DNR
		7/10/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	26,000
		10/2/12	5.0 U	42	3.2 X	16,000 E DNR
		10/2/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	24,000
		1/14/13	5.0 U	6.8	5.0 U	11,000 E DNR
		1/14/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	15,000
		4/16/13	5.0 U	28	1.6 X	14,000 E DNR
		4/16/13 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	18,000
		7/23/13	5.0 U	33	1.8 X	12,000 E DNR
		7/23/13 (DL)	500 U DNR	500 U DNR	500 U DNR	10,000
		10/15/13	5.0 U	29	1.7 X	16,000 E DNR
		10/15/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	21,000
		1/14/14	5.0 U	43	2.3 X	18,000 E DNR
		1/14/14 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	27,000
		4/7/14	5.0 U	33	1.8 X	15,000 E DNR
		4/7/14 (DL)	500 U DNR	500 U DNR	500 U DNR	25,000
		7/15/14	5.0 U	26	1.0 X	14,000 E DNR
		7/15/14 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	20,000
		10/14/14	5.0 U	35	1.2 X	18,000 E DNR
		10/14/14 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	28,000
		1/22/15	5.0 U	35	5.0 U	17,000 E DNR
		1/22/15 (DL)	500 U DNR	500 U DNR	500 U DNR	24,000
		4/22/15	5.0 U	46	2.1 X	23,000 E DNR
		4/22/15 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	27,000
	(2)	7/16/07	9.5	1.8	1.7	47.4
		11/28/07	7.9	1.7	1.1 U	55.6
		6/11/09	1.1 U	1.2 U	1.1 U	0.7 U
		7/31/09	1.1 U	1.2 U	1.1 U	0.7 U
		8/26/09	1.1 U	1.2 U	1.1 U	34.8
		9/15/09	1.1 U	1.2 U	1.1 U	8.4
		10/28/09	1.1 U	1.2 U	1.1 U	12.5
		1/27/10	1.1 U	1.2 U	1.1 U	4.7
		4/14/10	1.1 U	1.2 U	1.1 U	59.0
		7/6/10	1.1 U	1.2 U	1.1 U	232
		10/12/10	1.1 U	1.2 U	1.1 U	392
		1/19/11	1.1 U	1.2 U	1.1 U	0.7 U
		4/12/11	1.1 U	1.2 U	1.1 U	26.4
		7/12/11	1.1 U	1.2 U	1.1 U	5.0
		10/19/11	1.1 U	1.2 U	1.1 U	442
		1/24/12	1.1 U	1.2 U	1.1 U	625
		4/9/12	5.0 UJ	5.0 U	5.0 U	870 E DNR
		4/9/12 (DL)	25 U DNR	25 U DNR	25 U DNR	950
		7/10/12	5.0 U	5.0 U	5.0 U	1,000 E DNR
		7/10/12 (DL)	100 U DNR	100 U DNR	100 U DNR	1,500
		10/2/12	5.0 U	5.0 U	5.0 U	780 E DNR
		10/2/12 (DL)	50 U DNR	50 U DNR	50 U DNR	1,100
		1/14/13	5.0 U	5.0 U	5.0 U	980 E DNR
		1/14/13 (DL)	50 U DNR	50 U DNR	50 U DNR	1,000
		4/16/13	5.0 U	5.0 U	5.0 U	870 E DNR
		4/16/13 (DL)	25 U DNR	25 U DNR	25 U DNR	970
		7/23/13	5.0 U	5.0 U	5.0 U	1,500 E DNR
		7/23/13 (DL)	100 U DNR	100 U DNR	100 U DNR	2,200
		10/15/13	5.0 U	5.0 U	5.0 U	280
		1/14/14	5.0 U	1.5 X	3.3 X	2,700 E DNR
		1/14/14 (DL)	100 U DNR	100 U DNR	100 U DNR	3,700
		4/7/14	5.0 U	2.0 X	5.9	4,500 E DNR
		4/7/14 (DL)	250 U DNR	250 U DNR	250 U DNR	6,200
		7/16/14	5.0 U	2.6 X	1.9 X	6,300 E DNR
		7/16/14 (DL)	130 U DNR	130 U DNR	130 U DNR	8,200
		10/14/14	5.0 U	2.9 X	5.0 U	5,900 E DNR
		10/14/14 (DL)	250 U DNR	250 U DNR	250 U DNR	9,100
		1/22/15	5.0 U	5.2	2.6 X	7,200 E DNR
		1/22/15 (DL)	100 U DNR	100 U DNR	100 U DNR	9,200
		4/21/15	5.0 U	7.3	2.1 X	7,300 E DNR
		4/21/15 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	9,500

Table A-24
Summary of Groundwater Analytical Results - Dissolved Gases
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Dissolved Gases* (ug/L)			
			Acetylene	Ethane	Ethene	Methane
EGW151	**(3)**	7/16/07	4.8	2.2	6.3	54
(continued)		11/28/07	3.3	1.3	2.9	41.9
		6/11/09	1.1 U	1.2 U	1.1 U	162
		7/31/09	1.1 U	1.2 U	1.1 U	172
		8/27/09	1.1 U	1.2 U	1.1 U	146
		8/27/09 (DUP)	1.1 U	1.2 U	1.1 U	187
		9/15/09	1.1 U	1.2 U	1.1 U	122
		10/28/09	1.1 U	1.2 U	1.1 U	114
		1/27/10	1.1 U	1.2 U	2.9	59.2
		4/7/10	1.1 U	1.2 U	4.1	74.4
		7/7/10	1.1 U	2.3	1.1 U	252
		10/12/10	1.1 U	14.3	1.4	873
		1/19/11	1.1 U	27.8	1.1 U	5,580
		4/12/11	1.1 U	12.7	1.1 U	6,660
		7/12/11	1.1 U	6.6	1.1 U	3,870
		10/19/11	1.1 U	10.2	1.9	5,140
		1/23/12	1.1 U	3.4	1.1 U	5,620
		4/9/12	5.0 U	8.5	5.0 U	6,300 E DNR
		4/9/12 (DL)	250 U DNR	250 U DNR	250 U DNR	8,400
		7/10/12	5.0 U	4.7 X	5.0 U	11,000 E DNR
		7/10/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	19,000
		10/2/12	5.0 U	3.5 X	5.0 U	7,100 E DNR
		10/2/12 (DL)	500 U DNR	500 U DNR	500 U DNR	12,000
		1/14/13	5.0 U	3.1 X	5.0 U	15,000 E DNR
		1/14/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	22,000
		4/16/13	5.0 U	4.0 X	5.0 U	15,000 E DNR
		4/16/13 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	24,000
		7/23/13	5.0 U	6.2	1.6 X	15,000 E DNR
		7/23/13 (DL)	500 U DNR	500 U DNR	500 U DNR	17,000
		10/15/13	5.0 U	7.3	5.0 U	20,000 E DNR
		10/15/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	27,000
		1/14/14	5.0 U	15	5.0 U	22,000 E DNR
		1/14/14 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	31,000
		4/7/14	5.0 U	12	5.0 U	22,000 E DNR
		4/7/14 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	30,000
		7/29/14	5.0 U	6.0	5.0 U	17,000 E DNR
		7/29/14 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	22,000
		10/14/14	5.0 U	8.5	5.0 U	15,000 E DNR
		10/14/14 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	23,000
		1/22/15	5.0 U	3.5 X	5.0 U	9,100 E DNR
		1/22/15 (DL)	250 U DNR	250 U DNR	250 U DNR	17,000
		4/22/15	5.0 U	12	5.0 U	24,000 E DNR
		4/22/15 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	29,000
	(4)	7/17/07	2.1	1.9	5.5	229
		11/28/07	1.1 U	1.4	21.7	1,500
EGW152	**(1)**	6/11/07	1.1 U	1.2 U	1.1 U	0.7 U
		7/19/07	1.1 U	1.2 U	1.1 U	8.7
		11/29/07	1.1 U	1.2 U	1.1 U	29.5
		11/29/07 (DUP)	1.1 U	1.2 U	1.1 U	30.3
		6/10/09	1.1 U	1.2 U	1.1 U	0.7 U
		7/30/09	1.1 U	1.2 U	1.1 U	0.7 U
		8/27/09	1.1 U	1.2 U	1.1 U	0.7 U
		9/14/09	1.1 U	1.2 U	1.1 U	0.7 U
		10/27/09	1.1 U	1.2 U	1.1 U	8.4
		1/27/10	1.1 U	1.2 U	1.1 U	137
		4/14/10	1.1 U	1.2 U	1.1 U	211
		7/6/10	1.1 U	1.2 U	1.1 U	0.7 U
		10/5/10	1.1 U	1.2 U	1.1 U	674
		1/20/11	1.1 U	1.2 U	1.1 U	876
		4/15/11	1.1 U	4.8	1.1 U	6,160
		7/12/11	1.1 U	2.0	1.1 U	2,160
		10/18/11	1.1 U	3.3	1.1 U	5,380
		1/24/12	1.1 U	5.1	1.1 U	13,800
		4/10/12	5.0 U	5.1	5.0 U	10,000 E DNR
		4/10/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	17,000
		7/11/12	5.0 U	8.8	5.0 U	15,000 E DNR
		7/11/12 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	26,000
		10/3/12	5.0 U	8.3	5.0 U	12,000 E DNR
		10/3/12 (DL)	500 U DNR	500 U DNR	500 U DNR	14,000
		1/15/13	5.0 U	4.8 X	5.0 U	9,900 E DNR
		1/15/13 (DL)	500 U DNR	500 U DNR	500 U DNR	12,000
		4/15/13	5.0 U	2.9 X	5.0 U	4,500 E DNR
		4/15/13 (DL)	250 U DNR	250 U DNR	250 U DNR	6,400
		7/24/13	5.0 U	5.2	5.0 U	9,100 E DNR
		7/24/13 (DL)	500 U DNR	500 U DNR	500 U DNR	12,000
		10/16/13	5.0 U	2.3 X	5.0 U	3,600 E DNR
		10/16/13 (DL)	100 U DNR	100 U DNR	100 U DNR	4,100
		1/15/14	5.0 U	5.8	5.0 U	6,900 E DNR
		1/15/14 (DL)	500 U DNR	500 U DNR	500 U DNR	9,300
		4/3/14	5.0 U	6.7	5.0 U	7,500 E DNR
		4/3/14 (DL)	500 U DNR	500 U DNR	500 U DNR	10,000
		7/16/14	5.0 U	4.4 X	5.0 U	5,400 E DNR
		7/16/14 (DL)	100 U DNR	100 U DNR	100 U DNR	7,300
		10/14/14	5.0 U	4.6 X	5.0 U	5,800 E DNR
		10/14/14 (DL)	250 U DNR	250 U DNR	250 U DNR	7,700
		1/21/15	5.0 U	4.3 X	5.0 U	5,700 E DNR
		1/21/15 (DL)	250 U DNR	250 U DNR	250 U DNR	8,200
		4/22/15	5.0 U	4.9 X	5.0 U	3,900 E DNR
		4/22/15 (DL)	500 U DNR	500 U DNR	500 U DNR	5,600

Table A-24
Summary of Groundwater Analytical Results - Dissolved Gases
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Dissolved Gases* (ug/L)			
			Acetylene	Ethane	Ethene	Methane
EGW152 (continued)	**(2)**	6/11/07	3.2	1.5	2.6	20.8
		7/19/07	2.8	1.2 U	1.2	19
		11/29/07	1.1 U	2.8	2.8	108
		7/6/10	1.1 U	7.3	5.9	3,570
		10/5/10	1.1 U	8.5	3.2	5,980
		1/20/11	1.1 U	7.5	4.2	8,560
		4/15/11	1.1 U	8.6	2.6	10,700
		7/12/11	1.1 U	10.9	3.0	12,300
		10/18/11	1.1 U	9.6	1.1 U	8,270
		1/24/12	1.1 U	14.8	1.1 U	19,700
		4/10/12	5.0 U	13	1.7 X	12,000 E DNR
		4/10/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	21,000
		7/11/12	5.0 U	17	3.0 X	14,000 E DNR
		7/11/12 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	25,000
		10/3/12	5.0 U	14	3.8 X	13,000 E DNR
		10/3/12 (DL)	500 U DNR	500 U DNR	500 U DNR	17,000
		1/15/13	5.0 U	11	5.0 U	13,000 E DNR
		1/15/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	19,000
		4/15/13	5.0 U	9.7	1.4 X	11,000 E DNR
		4/15/13 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	15,000
		7/24/13	5.0 U	9.0	2.7 X	10,000 E DNR
		7/24/13 (DL)	500 U DNR	500 U DNR	500 U DNR	13,000
		10/16/13	5.0 U	9.2	2.3 X	9,100 E DNR
		10/16/13 (DL)	500 U DNR	500 U DNR	500 U DNR	13,000
		1/15/14	5.0 U	9.8	2.1 X	7,800 E DNR
		1/15/14 (DL)	500 U DNR	500 U DNR	500 U DNR	11,000
		4/3/14	5.0 U	9.9	2.1 X	7,700 E DNR
		4/3/14 (DL)	500 U DNR	500 U DNR	500 U DNR	11,000
		7/16/14	5.0 U	7.2	2.2 X	6,100 E DNR
		7/16/14 (DL)	130 U DNR	130 U DNR	130 U DNR	9,400
		10/14/14	5.0 U	5.7	2.8 X	5,200 E DNR
		10/14/14 (DL)	250 U DNR	250 U DNR	250 U DNR	7,300
		1/21/15	5.0 U	7.5	5.3	7,800 E DNR
		1/21/15 (DL)	250 U DNR	250 U DNR	250 U DNR	10,000
		4/22/15	5.0 U	8.9	4.7 X	8,200 E DNR
		4/22/15 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	9,600
	(3)	6/11/07	1.1 U	1.2 U	1.1 U	1.4
		7/19/07	1.1 U	1.2 U	1.1 U	21.2
		11/29/07	1.1 U	1.2 U	1.1 U	45.8
		7/6/10	1.1 U	1.2 U	1.1 U	49.9
		10/5/10	1.1 U	2.3	1.1 U	884
		4/15/11	1.1 U	6.7	1.1 U	5,560
		10/18/11	1.1 U	5.1	1.1 U	5,700
		4/10/12	5.0 U	5.3	5.0 U	13,000 E DNR
		4/10/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	22,000
		10/3/12	5.0 U	9.0	5.0 U	14,000 E DNR
		10/3/12 (DL)	500 U DNR	500 U DNR	500 U DNR	20,000
		4/15/13	5.0 U	8.9	5.0 U	13,000 E DNR
		4/15/13 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	21,000
		10/16/13	5.0 U	7.8	5.0 U	9,700 E DNR
		10/16/13 (DL)	500 U DNR	500 U DNR	500 U DNR	13,000
		4/3/14	5.0 U	8.4	1.1 X	7,400 E DNR
		4/3/14 (DL)	500 U DNR	500 U DNR	500 U DNR	10,000
		10/14/14	5.0 U	5.1	1.5 X	5,400 E DNR
		10/14/14 (DL)	250 U DNR	250 U DNR	250 U DNR	8,000
		4/22/15	5.0 U	5.9	1.6 X	6,800 E DNR
		4/22/15 (DL)	500 U DNR	500 U DNR	500 U DNR	8,700
	(4)	6/11/07	1.1 U	1.2 U	1.1 U	0.9
		7/19/07	1.1 U	1.2 U	1.1 U	0.7 U
		11/29/07	1.1 U	1.2 U	1.1 U	0.7 U
EGW153	**(1)**	6/12/07	1.1 U	1.2 U	1.1 U	0.7 U
		7/18/07	1.1 U	1.2 U	1.1 U	4.1
		7/7/10	1.1 U	1.2 U	1.1 U	66.1
		10/7/10	1.1 U	1.2 U	1.1 U	21.6
		1/21/11	1.1 U	1.2 U	6.8	156
		4/18/11	1.1 U	1.2 U	4.4	658
		7/13/11	1.1 U	12.2	1.1 U	5,730
		10/17/11	1.1 U	9.4	1.1 U	5,160
		1/25/12	1.1 U	4.7	1.1 U	5,860
		4/11/12	5.0 U	5.1	5.0 U	3,900 E DNR
		4/11/12 (DL)	100 U DNR	100 U DNR	100 U DNR	5,900
		7/12/12	5.0 U	5.4	5.0 U	5,200 E DNR
		7/12/12 (DL)	250 U DNR	250 U DNR	250 U DNR	9,100
		10/1/12	5.0 U	7.3	5.0 U	7,200 E DNR
		10/1/12 (DL)	500 U DNR	500 U DNR	500 U DNR	14,000

Table A-24
Summary of Groundwater Analytical Results - Dissolved Gases
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Dissolved Gases* (ug/L)			
			Acetylene	Ethane	Ethene	Methane
EGW153		1/15/13	5.0 U	2.9 X	5.0 U	5,100 E DNR
(continued)		1/15/13 (DL)	500 U DNR	500 U DNR	500 U DNR	4,900
		4/15/13	5.0 U	4.2 X	5.0 U	6,300 E DNR
		4/15/13 (DL)	500 U DNR	500 U DNR	500 U DNR	9,800
		7/23/13	5.0 U	4.2 X	5.0 U	6,200 E DNR
		7/23/13 (DL)	250 U DNR	250 U DNR	250 U DNR	7,200
		10/16/13	5.0 U	3.5 X	5.0 U	5,600 E DNR
		10/16/13 (DL)	250 U DNR	250 U DNR	250 U DNR	6,700
		1/15/14	5.0 U	4.4 X	5.0 U	5,400 E DNR
		1/15/14 (DL)	500 U DNR	500 U DNR	500 U DNR	7,200
		4/3/14	5.0 U	3.1 X	5.0 U	4,200 E DNR
		4/3/14 (DL)	100 U DNR	100 U DNR	100 U DNR	5,700
		10/15/14	5.0 U	1.1 X	5.0 U	1,800 E DNR
		10/15/14 (DL)	100 U DNR	100 U DNR	100 U DNR	3,000
		4/23/15	5.0 U	3.9 X	5.0 U	3,800 E DNR
		4/23/15 (DL)	100 U DNR	100 U DNR	100 U DNR	4,200
	(2)	6/12/07	1.1 U	1.2 U	1.1 U	0.7 U
		7/18/07	1.1 U	1.2 U	1.1 U	12.5
		11/20/07	1.1 U	2.7	1.5	80.4
		11/20/07 (DUP)	NA	2.3	1.3	79.5
		1/27/10	1.1 U	1.2 U	79.5	628
		4/14/10	1.1 U	42.8	3.0	2,880
		7/7/10	1.1 U	21.9	2.0	6,110
		10/7/10	1.1 U	27.3	1.1 U	9,420
		1/20/11	1.1 U	45.1	1.1 U	19,600
		4/18/11	1.1 U	39.5	1.1 U	28,700
		7/13/11	1.1 U	15.2	1.1 U	24,000
		10/17/11	1.1 U	9.4	1.1 U	12,400
		1/24/12	1.1 U	4.1	1.1 U	5,410
		4/11/12	5.0 U	20	1.2 X	14,000 E DNR
		4/11/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	20,000
		7/12/12	5.0 UJ	15	7.9	14,000 E DNR
		7/12/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	27,000
		10/1/12	5.0 UJ	11	8.0	13,000 E DNR
		10/1/12 (DL)	500 U DNR	500 U DNR	500 U DNR	20,000
		1/15/13	5.0 U	11	12	16,000 E DNR
		1/15/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	21,000
		4/15/13	5.0 U	9.1	15	14,000 E DNR
		4/15/13 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	21,000
		7/23/13	5.0 U	1.4 X	5.0 U	1,900 E DNR
		7/23/13 (DL)	100 U DNR	100 U DNR	100 U DNR	2,000
		10/16/13	5.0 U	8.0	11	12,000 E DNR
		10/16/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	17,000
		1/15/14	5.0 U	9.6	5.3	12,000 E DNR
		1/15/14 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	16,000
		4/3/14	5.0 U	11	11	12,000 E DNR
		4/3/14 (DL)	500 U DNR	500 U DNR	500 U DNR	17,000
		10/15/14	5.0 U	8.1	9.5	11,000 E DNR
		10/15/14 (DL)	500 U DNR	500 U DNR	500 U DNR	14,000
		4/23/15	5.0 U	6.8	5.2	11,000 E DNR
		4/23/15 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	9,300
	(3)	6/12/07	1.1 U	1.2 U	1.1 U	201
		7/18/07	1.1 U	1.2 U	1.1 U	169
		11/20/07	1.1 U	1.2 U	1.1 U	352
		7/7/10	1.1 U	2.6	1.1 U	429
		10/7/10	1.1 U	2.6	1.1 U	1,080
		4/18/11	1.1 U	6.8	1.1 U	3,940
		10/17/11	1.1 U	4.8	1.1 U	5,800
		4/11/12	5.0 U	4.0 X	5.0 U	3,300 E DNR
		4/11/12 (DL)	100 U DNR	100 U DNR	100 U DNR	6,000
		10/1/12	5.0 U	4.5 X	1.2 X	4,600 E DNR
		10/1/12 (DL)	250 U DNR	250 U DNR	250 U DNR	7,400
		4/15/13	5.0 U	4.6 X	1.7 X	5,700 E DNR
		4/15/13 (DL)	500 U DNR	500 U DNR	500 U DNR	7,400
		10/16/13	5.0 U	4.1 X	5.0 U	4,700 E DNR
		10/16/13 (DL)	250 U DNR	250 U DNR	250 U DNR	5,900
		4/3/14	5.0 U	4.2 X	1.0 X	3,700 E DNR
		4/3/14 (DL)	100 U DNR	100 U DNR	100 U DNR	4,300
		10/15/14	5.0 U	4.1 X	1.3 X	4,300 E DNR
		10/15/14 (DL)	100 U DNR	100 U DNR	100 U DNR	6,200
		4/23/15	5.0 U	4.8 X	1.1 X	3,800 E DNR
		4/23/15 (DL)	100 U DNR	100 U DNR	100 U DNR	4,200

Table A-24
Summary of Groundwater Analytical Results - Dissolved Gases
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Dissolved Gases* (ug/L)			
			Acetylene	Ethane	Ethene	Methane
EGW154	**(1)**	6/13/07	1.1 U	1.2 U	1.1 U	0.7 U
		7/17/07	1.1 U	1.2 U	1.1 U	0.7 U
		7/17/07 (DUP)	1.1 U	1.2 U	1.1 U	0.7 U
		11/19/07	1.1 U	1.2 U	1.1 U	0.7
	(2)	6/13/07	1.1 U	1.2 U	1.1 U	0.7 U
		7/17/07	5.1	1.2 U	1.1 U	5.9
		11/19/07	13	1.2 U	1.1 U	10.4
	(3)	6/13/07	1.1 U	1.2 U	1.1 U	1.1
		7/17/07	1.1 U	1.2 U	1.1 U	0.7 U
		11/19/07	1.1 U	1.2 U	1.1 U	1.2
EGW155	**(1)**	6/13/07	1.1 U	1.2 U	1.1 U	0.7 U
		7/18/07	1.1 U	1.2 U	1.1 U	1.8
		11/30/07	1.1 U	1.2 U	1.1 U	2.3
	(2)	6/13/07	1.1 U	1.2 U	1.1 U	2.6
		7/18/07	1.1 U	1.2 U	1.1 U	6.2
		11/30/07	1.1 U	1.2 U	1.1 U	9.8
	(3)	7/18/07	1.1 U	1.2 U	1.1 U	0.8
		11/30/07	1.1 U	1.2 U	1.1	3.7
EGW156	**(1)**	6/14/07	1.1 U	1.2 U	1.1 U	3.3
		7/16/07	1.1 U	1.2 U	1.1 U	0.7 U
		11/29/07	1.4	1.2 U	1.1 U	1.8
	(2)	6/14/07	20.5	2.3	2.9	36.0
		7/17/07	13.2	1.2 U	1.1 U	3.0
		11/29/07	1.6	1.3	1.1 U	14.8
		11/29/07 (DUP)	1.5	1.2 U	1.1 U	16.8
	(3)	7/17/07	2.6	1.2 U	1.1 U	3.8
		11/29/07	1.1 U	1.2 U	1.1 U	5.1
EGW157	**(1)**	7/23/07	52.5	1.7	6.9	38.2
		7/23/07 (DUP)	53.6	1.6	7.0	38.7
		11/30/07	1.1 U	1.2 U	1.1 U	0.8
	(2)	7/23/07	4.5	1.2 U	1.3	6.2
		11/30/07	1.1 U	1.2 U	1.1 U	0.9
	(3)	7/23/07	1.8	1.2 U	1.1 U	2.7
		11/30/07	1.1 U	1.2 U	1.1 U	0.7 U
EGW158	**(1)**	7/23/07	1.1 U	1.2 U	1.1 U	0.7 U
		11/27/07	1.1 U	1.2 U	1.6	28.2
	(2)	7/23/07	1.1 U	1.2 U	4.2	28.9
		11/26/07	1.1 U	1.2 U	1.1 U	33.2
	(3)	7/24/07	1.1 U	1.2 U	1.1 U	10.5
		7/24/07 (DUP)	1.1 U	1.2 U	1.1 U	9.6
		11/26/07	1.1 U	1.2 U	1.1 U	2.3
EGW161	**(1)**	7/17/07	1.1 U	2.6	1.5	170
		11/27/07	1.1 U	1.2 U	1.1 U	50.7
		6/10/09	1.1 U	1.2 U	1.1 U	4.1
		7/31/09	1.1 U	1.2 U	1.1 U	199
		8/26/09	1.1 U	1.2 U	1.1 U	0.7 U
		9/15/09	1.1 U	1.2 U	1.1 U	387
		10/28/09	1.1 U	1.2 U	1.1 U	452 J
		1/26/10	1.1 U	1.2 J	1.1 U	5,950
		4/7/10	1.1 U	4.6	1.1 U	8,890
		4/7/10 (DUP)	1.1 U	4.7	1.1 U	9,460
		7/6/10	1.1 U	2.4	1.1 U	7,890
		10/12/10	1.1 U	3.4	4.5	12,300
		1/19/11	1.1 U	1.2 U	11.1	12,200
		4/12/11	1.1 U	1.6	13.1	21,100
		7/11/11	1.1 U	2.0	4.0	17,600
		10/19/11	1.1 U	1.2 U	4.4	13,300
		1/23/12	1.1 U	1.8	5.4	23,400
		1/23/12 (DUP)	1.1 U	1.6	5.9	22,300
		4/10/12	5.0 U	3.4 X	3.8 X	13,000 E DNR
		4/10/2012 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	26,000
		4/10/12 (DUP)	5.0 U	3.1 X	3.4 X	12,000 E DNR
		4/10/12 (DUP DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	29,000
		7/11/12	5.0 U	9.4	7.0	23,000 E DNR
		7/11/12 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	34,000
		7/11/12 (DUP)	5.0 U	10	7.7	25,000 E DNR
		7/11/12 (DUP DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	35,000

Table A-24
Summary of Groundwater Analytical Results - Dissolved Gases
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Dissolved Gases* (ug/L)			
			Acetylene	Ethane	Ethene	Methane
EGW161 (continued)	**(1)**	10/2/12	5.0 U	5.8	6.9	12,000 E DNR
		10/2/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	18,000 J
		10/2/12 (DUP)	5.0 U	5.9	6.9	14,000 E DNR
		10/2/12 (DUP DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	27,000 J
		1/14/13	5.0 U	8.3	14	20,000 E DNR
		1/14/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	27,000
		1/14/13 (DUP)	5.0 U	9.4	15	21,000 E DNR
		1/14/13 (DUP DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	25,000
		4/16/13	5.0 U	2.0 X	2.8 X	7,400 E DNR
		4/16/13 (DL)	500 U DNR	500 U DNR	500 U DNR	9,900
		4/16/13 (DUP)	5.0 U	2.0 X	2.8 X	7,300 E DNR
		4/16/13 (DUP DL)	500 U DNR	500 U DNR	500 U DNR	11,000
		7/23/13	5.0 U	4.3 X	5.5	18,000 E DNR
		7/23/13 (DL)	500 U DNR	500 U DNR	500 U DNR	19,000
		7/23/13 (DUP)	5.0 U	3.4 X	3.9 X	13,000 E DNR
		7/23/13 (DUP DL)	500 U DNR	500 U DNR	500 U DNR	21,000
		10/15/13	5.0 U	2.6 X	6.2	9,400 E DNR
		10/15/13 (DL)	500 U DNR	500 U DNR	500 U DNR	12,000
		10/15/13 (DUP)	5.0 U	2.3 X	5.8	8,300 E DNR
		10/15/13 (DUP DL)	500 U DNR	500 U DNR	500 U DNR	11,000
		1/14/14	5.0 U	2.3 X	2.8 X	5,500 E DNR
		1/14/14 (DL)	250 U DNR	250 U DNR	250 U DNR	7,400
		1/14/14 (DUP)	5.0 U	2.4 X	2.9 X	5,700 E DNR
		1/14/14 (DUP DL)	500 U DNR	500 U DNR	500 U DNR	6,800
		4/7/14	5.0 U	11	8.9	22,000 E DNR
		4/7/14 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	30,000
		4/7/14 (DUP)	5.0 U	10	8.3	22,000 E DNR
		4/7/14 (DUP DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	28,000
		7/14/14	5.0 U	9.2	7.4	19,000 E DNR
		7/14/14 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	27,000
		7/14/14 (DUP)	5.0 U	9.9	8.1	20,000 E DNR
		7/14/14 (DUP DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	27,000
		10/13/14	5.0 U	3.8 X	4.3 X	5,700 E DNR
		10/13/14 (DL)	250 U DNR	250 U DNR	250 U DNR	6,600
		10/13/14 (DUP)	5.0 U	3.7 X	4.2 X	5,600 E DNR
		10/13/14 (DUP DL)	250 U DNR	250 U DNR	250 U DNR	7,400
		1/21/15	5.0 U	6.9	7.3	14,000 E DNR
		1/21/15 (DL)	500 U DNR	500 U DNR	500 U DNR	19,000
		1/21/15 (DUP)	5.0 U	6.8	7.3	14,000 E DNR
		1/21/15 (DUP DL)	500 U DNR	500 U DNR	500 U DNR	19,000
		4/21/15	5.0 U	4.1 X	3.7 X	5,500 E DNR
		4/21/15 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	6,100
		4/21/15 (DUP)	5.0 U	3.6 X	3.2 X	4,400 E DNR
		4/21/15 (DUP DL)	500 U DNR	500 U DNR	500 U DNR	5,300
	(2)	7/17/07	1.1 U	1.2 U	1.1 U	30
		11/27/07	1.1 U	1.2 U	1.1 U	12.3
		8/26/09	1.1 U	1.2 U	1.1 U	0.7 U
		9/15/09	1.1 U	1.2 U	1.1 U	0.7 U
		10/28/09	1.1 U	1.2 U	1.1 U	4.5
		1/26/10	1.1 U	1.2 U	1.1 U	2,380
		4/7/10	1.1 U	1.2 U	1.1 U	2,500 J
		7/6/10	1.1 U	1.2 U	1.1 U	2,580
		10/12/10	1.1 U	1.2 U	2.4	17,800
		1/19/11	1.1 U	1.2 U	5.1	28,900 D
		4/12/11	1.1 U	1.2 U	5.0	26,600
		7/11/11	1.1 U	5.1	1.1 U	21,300 D
		10/19/11	1.1 U	2.7	1.1 U	16,800
		1/23/12	1.1 U	5.0	1.1 U	27,500 D
		4/10/12	5.0 U	5.4	5.0 U	16,000 E DNR
		4/10/2012 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	35,000
		7/11/12	5.0 U	11	1.0 X	22,000 E DNR
		7/11/12 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	40,000
		10/2/12	5.0 U	8.6	1.2 X	17,000 E DNR
		10/2/12 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	27,000
		1/14/13	5.0 U	6.7	5.0 U	20,000 E DNR
		1/14/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	34,000
		4/16/13	5.0 U	6.3	5.0 U	19,000 E DNR
		4/16/13 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	33,000
		7/23/13	5.0 U	7.4	5.0 U	25,000 E DNR
		7/23/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	29,000
		10/15/13	5.0 U	5.2	5.0 U	17,000 E DNR
		10/15/13 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	25,000
		1/14/14	5.0 U	10	5.0 U	24,000 E DNR
		1/14/14 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	41,000
		4/2/14	5.0 U	6.5	5.0 U	15,000 E DNR
		4/2/14 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	38,000
		7/14/14	5.0 U	7.5	5.0 U	20,000 E DNR
		7/14/14 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	36,000
		10/13/14	5.0 U	8.1	5.0 U	21,000 E DNR
		10/13/14 (DL)	1,300 U DNR	1,300 U DNR	1,300 U DNR	38,000
		1/21/15	5.0 U	6.3	5.0 U	19,000 E DNR
		1/21/15 (DL)	500 U DNR	500 U DNR	500 U DNR	26,000
		4/21/15	5.0 U	12	5.0 U	25,000 E DNR
		4/21/15 (DL)	1,000 U DNR	1,000 U DNR	1,000 U DNR	33,000
	(3)	7/17/07	1.1 U	1.2 U	5.0	10.5
		11/28/07	2.6	1.2 U	3.9	8.3
	(4)	7/18/07	1.1 U	1.4	1.6	1,450
		11/28/07	7.8	1.7	1.1 U	55.7

Notes:
D - Dilution required to quantitate analyte within the range of detector.
DL - dilution
DNR - Do Not Report
DUP - field duplicate
J - estimated value
U - Compound was analyzed for but not detected above the reporting limit shown.
ug/L - microgram per liter
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result is between the method detection limit and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.
*Samples were analyzed by *Standard Operating Procedure, Sample Preparation and Calculation for Dissolved Gas Analysis in Water Samples Using a GC Headspace Equilibrium Technique (RSK-175)* , dated August 11, 1994

Table A-25
Summary of Groundwater Analytical Results for Total and Dissolved Metals (mg/L)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Hardness	Arsenic		Calcium	Chromium	Magnesium	Manganese
			Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		NE	0.005 (A) 0.0000583 (B)		NE	0.05 (A) 24 (Cr^{+3}) / 0.048 (Cr^{+6}) (B)	NE	0.747 (B)
EGW076	10/10/05	NA	0.001 U	0.001 U	NA	NA	NA	NA
	4/4/06	NA	0.001 U	0.001 U	NA	NA	NA	NA
	10/20/06	NA	0.001 U	0.001 U	NA	NA	NA	NA
	10/29/07	NA	0.001 UJ	**0.006**	NA	NA	NA	NA
	10/9/08	NA	0.001 U	0.001 U	NA	NA	NA	NA
	10/30/09	NA	**0.0005**	**0.0003**	NA	NA	NA	NA
	10/20/10	NA	**0.0004**	**0.0004**	NA	NA	NA	NA
	10/11/11	NA	**0.0005**	**0.0009**	NA	NA	NA	NA
	10/9/12	NA	**0.00041 X**	0.0020 U	NA	NA	NA	NA
	10/14/13	NA	NA	0.0020 U	NA	NA	NA	NA
	10/23/13	NA	**0.00052 X**	NA	NA	NA	NA	NA
	10/17/14	NA	0.0020 U	0.0020 U	NA	NA	NA	NA
EGW078	6/9/09	NA	NA	**0.0092**	NA	0.0005 U	NA	0.0436
	10/22/09	NA	NA	**0.0061**	NA	0.005 U	NA	0.099
	1/14/10	NA	NA	**0.0058**	NA	0.005 U	NA	0.106
	4/12/10	NA	NA	**0.0069**	NA	0.005 U	NA	0.069
	7/19/10	NA	NA	**0.0051**	NA	0.005 U	NA	0.128
	10/19/10	NA	NA	**0.0058**	NA	0.005 U	NA	0.141
	1/13/11	NA	NA	**0.0054**	NA	0.005 U	NA	0.135
	4/12/11	NA	NA	**0.0052**	NA	0.005 U	NA	0.130
	7/14/11	NA	NA	**0.0033**	NA	0.005 U	NA	0.230
	10/10/11	NA	NA	**0.0032**	NA	0.005 U	NA	0.186
	1/22/12	NA	NA	**0.0029**	NA	0.005 U	NA	0.204
	4/10/12	NA	NA	**0.0024**	NA	0.0300 U	NA	0.471
	7/23/12	NA	NA	**0.0019 X**	NA	0.0300 U	NA	0.588
	10/10/12	NA	NA	**0.0022**	NA	0.0300 U	NA	0.398
	1/18/13	NA	NA	**0.0031**	NA	0.0061 X	NA	0.326
	4/9/13	NA	NA	**0.0028**	NA	0.0300 U	NA	0.106
	4/8/14	NA	NA	**0.0034**	NA	0.0300 U	NA	0.0517
	10/20/14	NA	NA	**0.0025**	NA	0.0300 U	NA	0.0819
	4/9/15	NA	NA	**0.0026**	NA	0.0300 U	NA	0.0752
EGW088	6/10/09	NA	NA	**0.0025**	NA	0.005 U	NA	0.001 U
	10/22/09	NA	NA	**0.003**	NA	0.005 U	NA	0.001 U
	1/14/10	NA	NA	**0.0031**	NA	0.005 U	NA	0.004
	4/12/10	NA	NA	**0.0031**	NA	0.005	NA	0.001 U
	7/19/10	NA	NA	**0.0036**	NA	0.005 U	NA	0.016
	10/19/10	NA	NA	**0.0034**	NA	0.005 U	NA	0.014
	1/13/11	NA	NA	**0.0038**	NA	0.005 U	NA	0.039
	4/12/11	NA	NA	**0.0041**	NA	0.005 U	NA	0.003
	7/14/11	NA	NA	**0.0034**	NA	0.005 U	NA	0.047
	10/10/11	NA	NA	**0.0022**	NA	0.005 U	NA	0.064
	1/22/12	NA	NA	**0.0017**	NA	0.005 U	NA	0.054
	4/10/12	NA	NA	**0.0014 X**	NA	0.0300 U	NA	0.063
	7/23/12	NA	NA	**0.00096 X**	NA	0.0300 U	NA	0.452
	10/10/12	NA	NA	**0.0011 X**	NA	0.0300 U	NA	0.485
	1/18/13	NA	NA	**0.0014 X**	NA	0.0012 X	NA	0.347
	4/9/13	NA	NA	**0.0012 X**	NA	0.0300 U	NA	0.634
	4/8/14	NA	NA	**0.0010 X**	NA	0.0300 U	NA	**1.49**
	10/20/14	NA	NA	**0.0011 X**	NA	0.0300 U	NA	**2.17**
	4/9/15	NA	NA	**0.0018 X**	NA	0.0300 U	NA	**2.9**
EGW089	10/10/05	NA	**0.003**	**0.002**	NA	NA	NA	NA
	4/4/06	NA	**0.002**	**0.002**	NA	NA	NA	NA
	10/20/06	NA	**0.003**	**0.002**	NA	NA	NA	NA
	10/29/07	NA	**0.003 J**	**0.009**	NA	NA	NA	NA
	10/9/08	NA	**0.003**	**0.001**	NA	NA	NA	NA
	10/30/09	NA	**0.0021**	**0.0017**	NA	NA	NA	NA
	10/20/10	NA	**0.0020**	**0.0018**	NA	NA	NA	NA
	10/12/11	NA	**0.0023**	**0.0021**	NA	NA	NA	NA
	10/9/12	NA	**0.0020 X**	**0.0017 X**	NA	NA	NA	NA
	10/14/13	NA	NA	**0.0015 X**	NA	NA	NA	NA
	10/23/13	NA	**0.0049**	NA	NA	NA	NA	NA
	10/17/14	NA	**0.0054**	**0.0017 X**	NA	NA	NA	NA

Table A-25
Summary of Groundwater Analytical Results for Total and Dissolved Metals (mg/L)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Hardness	Arsenic		Calcium	Chromium	Magnesium	Manganese
			Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		NE	0.005 (A) 0.0000583 (B)		NE	0.05 (A) 24 (Cr^{+3}) / 0.048 (Cr^{+6}) (B)	NE	0.747 (B)
EGW100	6/10/09	NA	NA	**0.0059**	NA	0.005 U	NA	0.001 U
	10/22/09	NA	NA	**0.006**	NA	0.005 U	NA	0.001 U
	1/14/10	NA	NA	**0.0060**	NA	0.005 U	NA	0.001 U
	4/12/10	NA	NA	**0.0059**	NA	0.005 U	NA	0.001 U
	7/19/10	NA	NA	**0.0062**	NA	0.006	NA	0.007
	10/19/10	NA	NA	**0.0056**	NA	0.005 U	NA	0.005
	1/13/11	NA	NA	**0.0056**	NA	0.005 U	NA	0.007
	4/12/11	NA	NA	**0.0057**	NA	0.005 U	NA	0.002
	7/14/11	NA	NA	**0.0054**	NA	0.006	NA	0.022
	10/10/11	NA	NA	**0.0050**	NA	0.005 U	NA	0.016
	1/22/12	NA	NA	**0.0049**	NA	0.005 U	NA	0.010
	4/10/12	NA	NA	**0.0049**	NA	0.0039 X	NA	0.0143
	7/23/12	NA	NA	**0.0045**	NA	0.0038 X	NA	0.026
	10/10/12	NA	NA	**0.0051**	NA	0.0040 X	NA	0.0419
	1/18/13	NA	NA	**0.0058**	NA	0.0045 X	NA	0.0168
	4/9/13	NA	NA	**0.0054**	NA	0.0039 X	NA	0.0297
	4/8/14	NA	NA	**0.0056**	NA	0.0031 X	NA	0.0156
	10/20/14	NA	NA	**0.0058**	NA	0.0033 X	NA	0.183
	4/9/15	NA	NA	**0.0056**	NA	0.0032 X	NA	0.0197
EGW127	6/10/09	NA	NA	**0.0034**	NA	0.005 U	NA	0.001 U
	10/22/09	NA	NA	**0.0033**	NA	0.005 U	NA	0.002
	1/14/10	NA	NA	**0.0033**	NA	0.005 U	NA	0.001 U
	4/12/10	NA	NA	**0.0030**	NA	0.005 U	NA	0.001 U
	7/19/10	NA	NA	**0.0027**	NA	0.005 U	NA	0.031
	10/19/10	NA	NA	**0.0038**	NA	0.005 U	NA	0.013
	1/13/11	NA	NA	**0.0020**	NA	0.005 U	NA	0.042
	4/12/11	NA	NA	**0.0028**	NA	0.005 U	NA	0.133
	7/14/11	NA	NA	**0.0028**	NA	0.005 U	NA	0.109
	10/10/11	NA	NA	**0.0029**	NA	0.005 U	NA	0.044
	1/22/12	NA	NA	0.001 U	NA	0.005 U	NA	0.087
	4/10/12	NA	NA	**0.0022**	NA	0.0300 U	NA	0.22
	7/23/12	NA	NA	**0.0017 X**	NA	0.0300 U	NA	0.180
	10/10/12	NA	NA	**0.0017 X**	NA	0.0300 U	NA	0.0989
	1/17/13	NA	NA	**0.0022**	NA	0.0300 U	NA	0.162
	4/9/13	NA	NA	**0.0027**	NA	0.0300 U	NA	0.152
	7/22/13	NA	NA	**0.0020 X**	NA	0.0300 U	NA	0.162
	10/15/13	NA	NA	**0.0022**	NA	0.0300 U	NA	0.128
	1/15/14	NA	NA	**0.0021**	NA	0.0300 U	NA	0.0355
	4/8/14	NA	NA	**0.0021**	NA	0.0300 U	NA	0.0450
	7/9/14	NA	NA	**0.0022**	NA	0.0300 U	NA	0.0285 J
	10/20/14	NA	NA	**0.0022**	NA	0.0300 U	NA	0.0062 X
	1/13/15	NA	NA	**0.0022**	NA	0.0300 U	NA	0.0104
	4/9/15	NA	NA	**0.0021**	NA	0.0300 U	NA	0.0191
EGW128	10/22/09	NA	NA	**0.0278**	NA	0.005 U	NA	0.1
	1/14/10	NA	NA	**0.030**	NA	0.005 U	NA	0.091
	4/12/10	NA	NA	**0.026**	NA	0.005 U	NA	0.087
	7/19/10	NA	NA	**0.0285**	NA	0.005 U	NA	0.053
	10/19/10	NA	NA	**0.0255**	NA	0.005 U	NA	0.072
	1/13/11	NA	NA	**0.0250**	NA	0.005 U	NA	0.037
	4/12/11	NA	NA	**0.0247**	NA	0.005 U	NA	0.076
	7/14/11	NA	NA	**0.022**	NA	0.005 U	NA	0.029
	10/10/11	NA	NA	**0.0199**	NA	0.005 U	NA	0.031
	1/22/12	NA	NA	**0.0189**	NA	0.005 U	NA	0.041
	4/10/12	NA	NA	**0.0195**	NA	0.0300 U	NA	0.0627
	7/23/12	NA	NA	**0.0167**	NA	0.0300 U	NA	0.0365
	10/10/12	NA	NA	**0.0176**	NA	0.0300 U	NA	0.0088 X
	1/17/13	NA	NA	**0.0157**	NA	0.0300 U	NA	0.0691
	4/9/13	NA	NA	**0.0184**	NA	0.0300 U	NA	0.0532
	10/15/13	NA	NA	**0.0148**	NA	0.0300 U	NA	0.0696
	4/8/14	NA	NA	**0.0142**	NA	0.0300 U	NA	0.0438
	10/20/14	NA	NA	**0.0123**	NA	0.0300 U	NA	0.0539
	4/9/15	NA	NA	**0.0131**	NA	0.0300 U	NA	0.0953

Table A-25
Summary of Groundwater Analytical Results for Total and Dissolved Metals (mg/L)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Hardness	Arsenic		Calcium	Chromium	Magnesium	Manganese
				Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level			NE	0.005 (A) 0.0000583 (B)		NE	0.05 (A) 24 (Cr^{+3}) / 0.048 (Cr^{+6}) (B)	NE	0.747 (B)
EGW130		1/27/10	NA	NA	**0.0054**	NA	0.005 U	NA	0.006
		7/19/10	NA	NA	**0.0058**	NA	0.005 U	NA	0.002
		10/21/10	NA	NA	**0.0047**	NA	0.004	NA	0.001 U
		1/17/11	NA	NA	**0.0055**	NA	0.005 U	NA	0.001 U
		4/12/11	NA	NA	**0.0055**	NA	0.005 U	NA	0.003
		7/18/11	NA	NA	**0.0053**	NA	0.005 U	NA	0.001 U
		10/11/11	NA	NA	**0.0051**	NA	0.005 U	NA	0.002
		1/22/12	NA	NA	**0.0049**	NA	0.005 U	NA	0.005
		4/10/12	NA	NA	**0.0062**	NA	0.0071 X	NA	0.0577
		7/23/12	NA	NA	**0.0052**	NA	0.0029 X	NA	0.0439
		10/10/12	NA	NA	**0.0047**	NA	0.0035 X	NA	0.0100 U
		1/18/13	NA	NA	**0.0056**	NA	0.0105 X	NA	0.0352
		4/9/13	NA	NA	**0.0052**	NA	0.0065 X	NA	0.0148
		10/15/13	NA	NA	**0.0058**	NA	0.0032 X	NA	0.0074 X
		4/9/14	NA	NA	**0.0057**	NA	0.0038 X	NA	0.0010 X
		10/20/14	NA	NA	**0.0053**	NA	0.0046 X	NA	0.0059 X
		4/9/15	NA	NA	**0.0051**	NA	0.0107 X	NA	0.0438
EGW132	**(1)**	6/11/09	NA	NA	**0.0006**	NA	0.0009	NA	0.0035
	(2)	6/11/09	NA	NA	**0.0007**	NA	0.0009	NA	0.0008
	(3)	11/2/07	61	NA	NA	11.9	NA	7.60	NA
		1/8/08	59	NA	NA	9.37	NA	8.64	NA
		4/15/08	63	NA	NA	10.1	NA	9.26	NA
		7/10/08	64	NA	NA	10.6	NA	9.22	NA
		6/11/09	NA	NA	**0.0017**	NA	0.0005 U	NA	0.0834
	(4)	6/11/09	NA	NA	**0.0039**	NA	0.0024	NA	0.0237
EGW133	**(68')**	11/2/07	57	NA	NA	8.99	NA	8.40	NA
		1/9/08	99	NA	NA	16.0	NA	14.5	NA
	(54.5')	4/15/08	119	NA	NA	19.1	NA	17.3	NA
		7/10/08	100	NA	NA	16.5	NA	14.2	NA
EGW144		6/10/09	NA	NA	**0.0013**	NA	0.005 U	NA	0.001 U
		10/22/09	NA	NA	**0.0013**	NA	0.005 U	NA	0.001 U
		1/14/10	NA	NA	**0.0015**	NA	0.005 U	NA	0.002
		4/12/10	NA	NA	**0.0020**	NA	0.005 U	NA	0.002
		7/19/10	NA	NA	**0.0018**	NA	0.005 U	NA	0.008
		10/19/10	NA	NA	**0.0015**	NA	0.005 U	NA	0.006
		1/13/11	NA	NA	**0.0016**	NA	0.005 U	NA	0.005
		4/12/11	NA	NA	**0.0014**	NA	0.005 U	NA	0.002
		7/14/11	NA	NA	**0.0014**	NA	0.005 U	NA	0.051
		10/10/11	NA	NA	**0.0019**	NA	0.005 U	NA	0.090
		1/22/12	NA	NA	**0.0026**	NA	0.005 U	NA	0.037
		4/10/12	NA	NA	**0.0015 X**	NA	0.0024 X	NA	0.0066 X
		7/23/12	NA	NA	**0.0012 X**	NA	0.0021 X	NA	0.0204
		10/10/12	NA	NA	**0.0015 X**	NA	0.0017 X	NA	0.0698
		1/17/13	NA	NA	**0.0013 X**	NA	0.0032 X	NA	0.136
		4/9/13	NA	NA	**0.0011 X**	NA	0.0012 X	NA	0.0196
		7/22/13	NA	NA	**0.0016 X**	NA	0.0020 X	NA	0.0200
		10/15/13	NA	NA	**0.0016 X**	NA	0.0300 U	NA	0.0112
		1/15/14	NA	NA	**0.0019 X**	NA	0.0026 X	NA	0.0111
		4/8/14	NA	NA	**0.0021**	NA	0.0028 X	NA	0.0100 U
		7/9/14	NA	NA	**0.0019 X**	NA	0.0300 U	NA	0.0100 U
		10/20/14	NA	NA	**0.0020**	NA	0.0023 X	NA	0.0019 X
		1/13/15	NA	NA	**0.0020**	NA	0.0017 X	NA	0.0029 X
		4/9/15	NA	NA	**0.0021**	NA	0.0020 X	NA	0.0060 X
EGW145		11/7/07	74	NA	NA	12.6	NA	10.3	NA
		1/14/08	83	NA	NA	14.0	NA	11.7	NA
		4/21/08	69	NA	NA	11.9	NA	9.58	NA
		7/15/08	73	NA	NA	12.4	NA	10.2	NA

Table A-25
Summary of Groundwater Analytical Results for Total and Dissolved Metals (mg/L)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Hardness	Arsenic		Calcium	Chromium	Magnesium	Manganese
				Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level			NE	0.005 (A) 0.0000583 (B)		NE	0.05 (A) 24 (Cr^{+3}) / 0.048 (Cr^{+6}) (B)	NE	0.747 (B)
EGW146		11/7/07	91	NA	NA	14.3	NA	13.4	NA
		1/14/08	92	NA	NA	14.4	NA	13.6	NA
		4/21/08	90	NA	NA	14.1	NA	13.2	NA
		7/15/08	89	NA	NA	14.0	NA	13.1	NA
EGW151	**(1)**	6/11/09	NA	NA	**0.0100**	NA	0.0005 U	NA	0.0069
		6/11/09 (DUP)	NA	NA	**0.0102**	NA	0.002 U	NA	0.011
		10/28/09	NA	NA	**0.0089**	NA	0.005 U	NA	0.226
		10/28/09 (DUP)	NA	NA	**0.0090**	NA	0.005 U	NA	0.230
		1/27/10	NA	NA	**0.0113**	NA	0.005 U	NA	0.214
		1/27/10 (DUP)	NA	NA	**0.0113**	NA	0.005 U	NA	0.215
		4/7/10	NA	NA	**0.0117**	NA	0.005 U	NA	0.128
		7/7/10	NA	NA	**0.0130**	NA	0.005 U	NA	0.158
		7/7/10 (DUP)	NA	NA	**0.0126**	NA	0.005 U	NA	0.156
		10/12/10	NA	NA	**0.0103**	NA	0.005 U	NA	0.294
		10/12/10 (DUP)	NA	NA	**0.0102**	NA	0.005 U	NA	0.302
		1/19/11	NA	NA	**0.0113**	NA	0.005 U	NA	0.391
		1/19/11 (DUP)	NA	NA	**0.0114**	NA	0.005 U	NA	0.417
		4/12/11	NA	NA	**0.0099**	NA	0.005 U	NA	0.647
		4/12/11 (DUP)	NA	NA	**0.0104**	NA	0.005 U	NA	0.666
		7/12/11	NA	NA	**0.0096**	NA	0.005 U	NA	**0.935**
		7/12/11 (DUP)	NA	NA	**0.0094**	NA	0.005 U	NA	**0.926**
		10/19/11	NA	NA	**0.0082**	NA	0.005 U	NA	**1.14**
		10/19/11 (DUP)	NA	NA	**0.0080**	NA	0.005 U	NA	**1.14**
		1/23/12	NA	NA	**0.0095**	NA	0.005 U	NA	**1.71**
		4/9/12	NA	NA	**0.0101**	NA	0.0300 U	NA	**2.56**
		7/10/12	NA	NA	**0.0128**	NA	0.0300 U	NA	**3.88**
		10/2/12	NA	NA	**0.0096**	NA	0.0021 X	NA	**3.53**
		1/14/13	NA	NA	**0.0063**	NA	0.0300 U	NA	**0.851**
		4/16/13	NA	NA	**0.0034**	NA	0.0300 U	NA	**1.92**
		7/23/13	NA	NA	**0.0062**	NA	0.0300 U	NA	**2.42**
		10/15/13	NA	NA	**0.0109**	NA	0.0300 U	NA	**2.32**
		1/14/14	NA	NA	**0.0085**	NA	0.0300 U	NA	**4.68**
		4/7/14	NA	NA	**0.0086**	NA	0.0020 X	NA	**4.79**
		7/15/14	NA	NA	**0.0138**	NA	0.0300 U	NA	**2.71**
		10/14/14	NA	NA	**0.0114**	NA	0.0013 X	NA	**4.38**
		1/22/15	NA	NA	**0.0118**	NA	0.0300 U	NA	**5.02**
		4/22/15	NA	NA	**0.0132**	NA	0.0300 U	NA	**4.9**
	(2)	6/11/09	NA	NA	**0.0063**	NA	0.001 U	NA	0.004
		10/28/09	NA	NA	**0.0046**	NA	0.005 U	NA	0.070
		1/27/10	NA	NA	**0.0048**	NA	0.005 U	NA	0.037
		4/14/10	NA	NA	**0.0049**	NA	0.005 U	NA	0.091
		7/6/10	NA	NA	**0.0049**	NA	0.005 U	NA	0.094
		10/12/10	NA	NA	**0.0048**	NA	0.005 U	NA	0.107
		1/19/11	NA	NA	**0.0052**	NA	0.005 U	NA	0.081
		4/12/11	NA	NA	**0.0053**	NA	0.005 U	NA	0.090
		7/12/11	NA	NA	**0.0052**	NA	0.005 U	NA	0.105
		10/19/11	NA	NA	**0.0048**	NA	0.005 U	NA	0.150
		1/24/12	NA	NA	**0.0046**	NA	0.005 U	NA	0.133
		4/9/12	NA	NA	**0.0055**	NA	0.0300 U	NA	0.137
		7/10/12	NA	NA	**0.0045**	NA	0.0300 U	NA	0.158
		10/2/12	NA	NA	**0.0046**	NA	0.0300 U	NA	0.156
		1/14/13	NA	NA	**0.0045**	NA	0.0300 U	NA	0.216
		4/16/13	NA	NA	**0.0041**	NA	0.0300 U	NA	0.140
		7/23/13	NA	NA	**0.0042**	NA	0.0300 U	NA	0.221
		10/15/13	NA	NA	**0.0029**	NA	0.0300 U	NA	0.147
		1/14/14	NA	NA	**0.0034**	NA	0.0300 U	NA	0.315
		4/7/14	NA	NA	**0.0035**	NA	0.0300 U	NA	0.321
		7/16/14	NA	NA	**0.0038**	NA	0.0300 U	NA	0.474
		10/14/14	NA	NA	**0.0036**	NA	0.0300 U	NA	0.430
		1/22/15	NA	NA	**0.0038**	NA	0.0300 U	NA	0.540
		4/21/15	NA	NA	**0.0035**	NA	0.0300 U	NA	0.533

Table A-25
Summary of Groundwater Analytical Results for Total and Dissolved Metals (mg/L)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID	Sample Date	Hardness	Arsenic		Calcium	Chromium	Magnesium	Manganese
			Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level		NE	0.005 (A) 0.0000583 (B)		NE	0.05 (A) 24 (Cr^{+3}) / 0.048 (Cr^{+6}) (B)	NE	0.747 (B)
EGW151 (3) (continued)	6/11/09	NA	NA	**0.0114**	NA	0.001 U	NA	0.075
	10/28/09	NA	NA	**0.0111**	NA	0.005 U	NA	0.739
	1/27/10	NA	NA	**0.0119**	NA	0.005 U	NA	0.291
	4/7/10	NA	NA	**0.0118**	NA	0.005 U	NA	0.278
	7/7/10	NA	NA	**0.0112**	NA	0.005 U	NA	0.260
	10/12/10	NA	NA	**0.0148**	NA	0.005 U	NA	0.315
	1/19/11	NA	NA	**0.0110**	NA	0.005 U	NA	**1.29**
	4/12/11	NA	NA	**0.0099**	NA	0.005 U	NA	**1.46**
	7/12/11	NA	NA	**0.0107**	NA	0.005 U	NA	**1.25**
	10/19/11	NA	NA	**0.0086**	NA	0.005 U	NA	**1.27**
	1/23/12	NA	NA	**0.0057**	NA	0.005 U	NA	**0.815**
	4/9/12	NA	NA	**0.0054**	NA	0.0300 U	NA	**1.30**
	7/10/12	NA	NA	**0.0052**	NA	0.0300 U	NA	**0.927**
	10/2/12	NA	NA	**0.0045**	NA	0.0014 X	NA	**2.30**
	1/14/13	NA	NA	**0.0056**	NA	0.0300 U	NA	**0.916**
	4/16/13	NA	NA	**0.0056**	NA	0.0300 U	NA	**1.65**
	7/23/13	NA	NA	**0.0082**	NA	0.0300 U	NA	**2.33**
	10/15/13	NA	NA	**0.0125**	NA	0.0300 U	NA	**2.41**
	1/14/14	NA	NA	**0.0112**	NA	0.0021 X	NA	**3.59**
	4/7/14	NA	NA	**0.0116**	NA	0.0300 U	NA	**3.18**
	7/29/14	NA	NA	**0.0165**	NA	0.0300 U	NA	**2.14**
	10/14/14	NA	NA	**0.0142**	NA	0.0300 U	NA	**2.76**
	1/22/15	NA	NA	**0.0058**	NA	0.0019 X	NA	**2.20**
	4/22/15	NA	NA	**0.0139**	NA	0.0300 U	NA	**3.68**
EGW152 (1)	6/10/09	NA	NA	**0.0012**	NA	0.005 U	NA	0.004
	10/27/09	NA	NA	**0.0012**	NA	0.005 U	NA	0.068
	1/27/10	NA	NA	**0.0015**	NA	0.005 U	NA	0.138
	4/14/10	NA	NA	**0.0012**	NA	0.005 U	NA	0.099
	7/6/10	NA	NA	**0.0015**	NA	0.005 U	NA	0.080
	10/5/10	NA	NA	**0.0061**	NA	0.005 U	NA	**0.852**
	1/20/11	NA	NA	**0.0106**	NA	0.005 U	NA	**1.96**
	4/15/11	NA	NA	**0.0120**	NA	0.005 U	NA	**3.75**
	7/12/11	NA	NA	**0.0135**	NA	0.005 U	NA	**7.67**
	10/18/11	NA	NA	**0.0206**	NA	0.005 U	NA	**10.1**
	1/24/12	NA	NA	**0.0190**	NA	0.005 U	NA	**9.23**
	4/10/12	NA	NA	**0.0145**	NA	0.0300 U	NA	**7.81**
	7/11/12	NA	NA	**0.0162**	NA	0.0013 X	NA	**7.18**
	10/3/12	NA	NA	**0.0294**	NA	0.0036 X	NA	**9.68**
	1/15/13	NA	NA	**0.0207**	NA	0.0015 X	NA	**5.81**
	4/15/13	NA	NA	**0.0139**	NA	0.0300 U	NA	**2.83**
	7/24/13	NA	NA	**0.0222**	NA	0.0022 X	NA	**8.12**
	10/16/13	NA	NA	0.0020 U	NA	0.0033 X	NA	**7.78**
	1/15/14	NA	NA	**0.0249**	NA	0.0017 X	NA	**8.31**
	4/3/14	NA	NA	**0.0202**	NA	0.0051 X	NA	**8.22**
	7/16/14	NA	NA	**0.0357**	NA	0.0300 U	NA	**8.20**
	10/14/14	NA	NA	**0.0236**	NA	0.0013 X	NA	**7.79**
	1/21/15	NA	NA	**0.0216**	NA	0.0019 X	NA	**7.26**
	4/22/15	NA	NA	**0.0187**	NA	0.0300 U	NA	**7.55**
EGW153 (2)	1/27/10	NA	NA	**0.0063**	NA	0.005 U	NA	0.725
	4/14/10	NA	NA	**0.0060**	NA	0.005 U	NA	0.633
	7/7/10	NA	NA	**0.0038**	NA	0.005 U	NA	0.514
	10/7/10	NA	NA	**0.0048**	NA	0.005 U	NA	**0.977**
	1/20/11	NA	NA	**0.0066**	NA	0.005 U	NA	**1.57**
	4/18/11	NA	NA	**0.0076**	NA	0.005 U	NA	**2.53**
	7/13/11	NA	NA	**0.0070**	NA	0.005 U	NA	**2.25**
	10/17/11	NA	NA	**0.0069**	NA	0.005 U	NA	**2.51**
	1/24/12	NA	NA	**0.0041**	NA	0.005 U	NA	**0.801**
	4/11/12	NA	NA	**0.0078**	NA	0.0300 U	NA	**3.55**
	7/12/12	NA	NA	**0.0080**	NA	0.0015 X	NA	**3.77**
	10/1/12	NA	NA	**0.0079**	NA	0.0016 X	NA	**2.82**
	1/15/13	NA	NA	**0.0075**	NA	0.0300 U	NA	**2.73**
	4/15/13	NA	NA	**0.0087**	NA	0.0300 U	NA	**2.61**
	7/23/13	NA	NA	**0.0091**	NA	0.0300 U	NA	**2.88**
	10/16/13	NA	NA	**0.0084**	NA	0.0300 U	NA	**2.71**
	1/15/14	NA	NA	**0.0091**	NA	0.0018 X	NA	**2.89**
	4/3/14	NA	NA	**0.0094**	NA	0.0300 U	NA	**2.89**
	10/15/14	NA	NA	**0.0100**	NA	0.0300 U	NA	**2.93**
	4/23/15	NA	NA	**0.0085**	NA	0.0300 U	NA	**2.9**

Table A-25
Summary of Groundwater Analytical Results for Total and Dissolved Metals (mg/L)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID		Sample Date	Hardness	Arsenic		Calcium	Chromium	Magnesium	Manganese
				Total	Dissolved	Total	Dissolved	Total	Dissolved
MTCA Method A or B Groundwater Screening Level			NE	0.005 (A) 0.0000583 (B)		NE	0.05 (A) 24 (Cr^{+3}) / 0.048 (Cr^{+6}) (B)	NE	0.747 (B)
EGW161	**(1)**	6/10/09	NA	NA	**0.0012**	NA	0.005 U	NA	0.015
		10/28/09	NA	NA	**0.0044**	NA	0.005 U	NA	**5.6**
		1/26/10	NA	NA	**0.0051**	NA	0.005 U	NA	**4.4**
		4/7/10	NA	NA	**0.0056**	NA	0.005 U	NA	**2.66**
		4/7/10 (DUP)	NA	NA	**0.0054**	NA	0.005 U	NA	**2.65**
		7/6/10	NA	NA	**0.0062**	NA	0.005 U	NA	**2.79**
		10/12/10	NA	NA	**0.0070**	NA	0.005 U	NA	**3.46**
		1/19/11	NA	NA	**0.0070**	NA	0.005 U	NA	**4.45**
		4/12/11	NA	NA	**0.0064**	NA	0.005 U	NA	**5.79**
		7/11/11	NA	NA	**0.0065**	NA	0.005 U	NA	**4.76**
		10/19/11	NA	NA	**0.0070**	NA	0.005 U	NA	**4.34**
		1/23/12	NA	NA	**0.0069**	NA	0.005 U	NA	**4.36**
		1/23/12 (DUP)	NA	NA	**0.0067**	NA	0.005 U	NA	**4.32**
		4/10/12	NA	NA	**0.0065**	NA	0.0300 U	NA	**5.08**
		4/10/12 (DUP)	NA	NA	**0.0064**	NA	0.0300 U	NA	**5.06**
		7/11/12	NA	NA	**0.0066**	NA	0.0300 U	NA	**6.13**
		7/11/12 (DUP)	NA	NA	**0.0064**	NA	0.0300 U	NA	**5.96**
		10/2/12	NA	NA	**0.0073**	NA	0.0029 X	NA	**5.85**
		10/2/12 (DUP)	NA	NA	**0.0072**	NA	0.0024 X	NA	**5.78**
		1/14/13	NA	NA	**0.0071**	NA	0.0300 U	NA	**5.21**
		1/14/13 (DUP)	NA	NA	**0.0076**	NA	0.0300 U	NA	**5.21**
		4/16/13	NA	NA	**0.0064**	NA	0.0300 U	NA	**4.77**
		4/16/13 (DUP)	NA	NA	**0.0075**	NA	0.0300 U	NA	**4.90**
		7/23/13	NA	NA	**0.0072**	NA	0.0300 U	NA	**4.44**
		7/23/13 (DUP)	NA	NA	**0.0071**	NA	0.0300 U	NA	**4.48**
		10/15/13	NA	NA	**0.0081**	NA	0.0300 U	NA	**4.33**
		10/15/13 (DUP)	NA	NA	**0.0078**	NA	0.0300 U	NA	**4.34**
		1/14/14	NA	NA	**0.0080**	NA	0.0300 U	NA	**3.92**
		1/14/14 (DUP)	NA	NA	**0.0092**	NA	0.0018 X	NA	**3.97**
		4/7/14	NA	NA	**0.0078**	NA	0.0300 U	NA	**4.29**
		4/7/14 (DUP)	NA	NA	**0.0082**	NA	0.0300 U	NA	**4.29**
		7/14/14	NA	NA	**0.0062**	NA	0.0300 U	NA	**3.45**
		7/14/14 (DUP)	NA	NA	**0.0071**	NA	0.0300 U	NA	**3.38**
		10/13/14	NA	NA	**0.0080**	NA	0.0300 U	NA	**2.61**
		10/13/14 (DUP)	NA	NA	**0.0099**	NA	0.0300 U	NA	**2.38**
		1/21/15	NA	NA	**0.0069**	NA	0.0300 U	NA	**3.20**
		1/21/15 (DUP)	NA	NA	**0.0075**	NA	0.0300 U	NA	**3.25**
		4/21/15	NA	NA	**0.0055**	NA	0.0300 U	NA	**3.19**
		4/21/15 (DUP)	NA	NA	**0.0057**	NA	0.0300 U	NA	**3.21**
	(2)	10/28/09	NA	NA	**0.0028**	NA	0.005 U	NA	0.264
		1/26/10	NA	NA	**0.0028**	NA	0.005 U	NA	0.349
		4/7/10	NA	NA	**0.0017**	NA	0.005 U	NA	0.326
		7/6/10	NA	NA	**0.0008**	NA	0.005 U	NA	0.321
		10/12/10	NA	NA	**0.0027**	NA	0.005 U	NA	**0.868**
		1/19/11	NA	NA	**0.0034**	NA	0.005 U	NA	**2.02**
		4/12/11	NA	NA	**0.0039**	NA	0.005 U	NA	**2.40**
		7/11/11	NA	NA	**0.0037**	NA	0.005 U	NA	**2.64**
		10/19/11	NA	NA	**0.0031**	NA	0.005 U	NA	**3.01**
		1/23/12	NA	NA	**0.0037**	NA	0.005 U	NA	**4.22**
		4/10/12	NA	NA	**0.0034**	NA	0.0018 X	NA	**5.04**
		7/11/12	NA	NA	**0.0031**	NA	0.0014 X	NA	**5.15**
		10/2/12	NA	NA	**0.0064**	NA	0.0028 X	NA	**4.24**
		1/14/13	NA	NA	**0.0069**	NA	0.0014 X	NA	**5.44**
		4/16/13	NA	NA	**0.0040**	NA	0.0016 X	NA	**6.96**
		7/23/13	NA	NA	**0.0056**	NA	0.0028 X	NA	**8.59**
		10/15/13	NA	NA	**0.0061**	NA	0.0029 X	NA	**8.46**
		1/14/14	NA	NA	**0.0065**	NA	0.0026 X	NA	**8.49**
		4/2/14	NA	NA	**0.0062**	NA	0.0024 X	NA	**8.40**
		7/14/14	NA	NA	**0.0055**	NA	0.0300 U	NA	**7.04**
		10/13/14	NA	NA	**0.0042**	NA	0.0023 X	NA	**6.39**
		1/21/15	NA	NA	**0.0021**	NA	0.0300 U	NA	**5.26**
		4/21/15	NA	NA	**0.0020**	NA	0.0300 U	NA	**4.68**

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA level based on the Ecology website. Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website, CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
DUP - field duplicate
J - estimated value
mg/L - milligram per liter
NA - not analyzed
NE - not established
U - Compound was analyzed for but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result is between the method detection limit and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

		Conventional Parameters							
Well ID	**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW078	11/19/07	NA	4.2	0.1	11.2	1.71	NA	NA	NA
	2/5/08	NA	NA	0.1 U	10.6	1.50 U	NA	NA	NA
	3/7/08	NA	NA	0.1 U	13.7	1.50 U	NA	NA	NA
	3/7/08 (DUP)	NA	NA	0.1 U	14.8	1.50 U	NA	NA	NA
	4/2/08	NA	NA	0.1 UJ	9.4	1.50 U	NA	NA	NA
	6/9/09	NA	3.3	0.4	15.0	1.59	NA	NA	NA
	7/30/09	NA	3.8	0.3	11.8	1.50 U	NA	NA	NA
	8/27/09	NA	3.6	0.2	21.2	1.50 U	NA	NA	NA
	9/14/09	7.02 J	3.7	0.3	22.5	1.50 U	NA	NA	NA
	10/22/09	NA	4.5	0.3	25.9	1.50 U	NA	NA	NA
	1/14/10	NA	4.4	0.5	38.9	3.97	NA	NA	NA
	4/12/10	NA	5.7	0.1 U	14.2	1.50 U	NA	NA	NA
	7/19/10	NA	4.4	0.1 U	21.9	1.50 U	NA	NA	NA
	10/19/10	NA	7.9	0.1 U	19.0	1.50 U	NA	NA	NA
	1/13/11	NA	5.2	0.1 U	26.4	2.10	NA	NA	NA
	4/12/11	NA	6.6	0.1 U	8.3	2.46	NA	NA	NA
	7/14/11	NA	9.9	0.2	18.2	1.59	NA	NA	NA
	10/10/11	NA	6.7	0.6 J+	47.2	1.64	NA	NA	NA
	1/22/12	NA	6.7	0.1 U	14.5	1.93	NA	NA	NA
	4/10/12	NA	16.5	0.10 U	21.6	2.3	NA	NA	NA
	7/23/12	NA	15.8	0.42 J	51.8	1.9	NA	NA	NA
	10/10/12	NA	12.3	0.37	25.3	1.4	NA	NA	NA
	1/18/13	NA	9.5	0.70	35.1	1.6	NA	NA	NA
	4/9/13	NA	7.8	0.73	30.8	0.60 X	NA	NA	NA
	4/8/14	NA	6.2	0.19	19.7	1.0 U	NA	NA	NA
	10/20/14	NA	5.9	1.0	89.6	1.3	NA	NA	NA
	4/9/15	NA	6.5	0.35	13.7	0.79 X	NA	NA	NA
EGW088	7/12/07	NA	NA	0.1 U	17.4	3.23	0.05 U	NA	NA
	11/19/07	NA	3.6	1.7	9.6	1.50 U	NA	NA	NA
	2/5/08	NA	NA	0.7	7.3	1.50 U	NA	NA	NA
	3/7/08	NA	NA	0.5	7.9	1.50 U	NA	NA	NA
	4/2/08	NA	NA	0.4 J	7.8	1.50 U	NA	NA	NA
	6/10/09	NA	2.9	0.1 U	5.1	1.50 U	NA	NA	NA
	10/22/09	NA	2.7	0.1 U	6.2	1.50 U	NA	NA	NA
	1/14/10	NA	3.2	0.3	7.9	2.35	NA	NA	NA
	4/12/10	NA	3.2	0.3	8.0	1.50 U	NA	NA	NA
	7/19/10	NA	3.1	0.2	8.0	1.50 U	NA	NA	NA
	10/19/10	NA	5.3	0.2	13.1	1.50 U	NA	NA	NA
	1/13/11	NA	31.8	0.4	32.6	1.50 U	NA	NA	NA
	4/12/11	NA	3.7	0.4	14.1	1.50 U	NA	NA	NA
	7/14/11	NA	5.5	0.1 U	11.7	1.50 U	NA	NA	NA
	10/10/11	NA	12.0	0.1 J+	5.4	1.50 U	NA	NA	NA
	1/22/12	NA	6.2	0.1	11.3	1.50 U	NA	NA	NA
	4/10/12	NA	7.9	0.063 X	21.0	0.95 X	NA	NA	NA
	7/23/12	NA	14.0	0.10 U	41.5	1.7	NA	NA	NA
	10/10/12	NA	12.1	0.10 U	6.3	1.1	NA	NA	NA
	1/18/13	NA	10.6	0.10 U	6.3	1.6	NA	NA	NA
	4/9/13	NA	12.7	0.10 U	4.3	0.94 X	NA	NA	NA
	4/8/14	NA	1,220	0.10 U	1.1	1.4	NA	NA	NA
	10/20/14	NA	8.4	0.10 U	4.9	1.5	NA	NA	NA
	4/9/15	NA	7.7	0.10 U	9.1	1.5	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

		Conventional Parameters							
Well ID	**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW100	11/19/07	NA	2.8	0.1 U	4.9	1.50 U	NA	NA	NA
	6/10/09	NA	2.9	0.1 U	4.8	1.50 U	NA	NA	NA
EGW127	1/5/06	NA	NA	0.1 U	11.5	1.50 U	NA	NA	NA
	4/5/06	NA	NA	0.6	30.8	1.75	NA	NA	NA
	7/11/06	NA	NA	0.8	24.2	1.67	NA	NA	NA
	11/13/06	NA	NA	2.8	8.1	1.50 U	NA	NA	NA
	1/25/07	NA	NA	1.1	8.8	1.50 U	NA	NA	NA
	4/16/07	NA	NA	0.2	8.9	1.50 U	NA	NA	NA
	6/14/07	NA	NA	0.9	12.2	1.81	0.05 UJ	NA	NA
	7/23/07	NA	NA	0.1 U	5.4	1.50 U	NA	NA	NA
	11/20/07	NA	3.5	0.1 U	7.4	1.50 U	NA	63.6	NA
	1/7/08	NA	NA	0.1 U	6.8	1.50 U	NA	NA	NA
	2/5/08	NA	NA	0.1 U	6.1	1.50 U	NA	NA	NA
	4/2/08	NA	NA	0.1 UJ	5.6	1.50 U	NA	NA	NA
	4/22/08	NA	NA	0.1 U	5.3	1.50 U	NA	NA	NA
	7/9/08	NA	NA	0.8	15.9	1.50 U	NA	NA	NA
	10/21/08	NA	NA	1.8	15.2	1.50 U	NA	NA	NA
	6/10/09	NA	4.0	2.3	9.1	1.50 U	NA	NA	NA
	7/30/09	NA	3.6	2.4	7.8	1.50 U	NA	NA	NA
	8/27/09	NA	3.6	1.7	9.5	1.50 U	NA	NA	NA
	9/14/09	7.24 J	3.6	1.9	8.7	1.50 U	NA	NA	NA
	10/22/09	NA	3.6	1.7	7.4	1.50 U	NA	NA	NA
	1/14/10	NA	4.4	1.9	8.7	1.50	NA	NA	NA
	4/12/10	NA	4.2 J	1.6	8.6	1.50 U	NA	NA	NA
	7/19/10	NA	4.0	2.2	7.9	1.50 U	NA	NA	NA
	10/19/10	NA	5.0	1.0	5.0	1.50 U	NA	NA	NA
	1/13/11	NA	10.7	0.7	4.3	1.50 U	NA	NA	NA
	4/12/11	NA	6.0	0.3	3.5	1.50 U	NA	NA	NA
	7/14/11	NA	4.9	0.1 U	4.6	1.50 U	NA	NA	NA
	10/10/11	NA	7.1	0.5 J+	6.0	1.50 U	NA	NA	NA
	1/22/12	NA	5.3	0.2	6.0	1.67	NA	NA	NA
	4/10/12	NA	7.2	0.10 U	6.1	0.71 X	NA	NA	NA
	7/23/12	NA	5.3	0.10 U	6.5	1.0 U	NA	NA	NA
	10/10/12	NA	5.1	0.10 U	7.0	1.0 U	NA	NA	NA
	1/17/13	NA	5.0	0.23	6.7	0.61 X	NA	NA	NA
	4/9/13	NA	5.3	1.0	7.2	1.0 U	NA	NA	NA
	7/22/13	NA	5.0	1.6	7.0	1.0 U	NA	NA	NA
	10/15/13	NA	4.6	1.2	6.7	1.0 U	NA	NA	NA
	1/15/14	NA	4.8	1.7 J	7.5	1.0 U	NA	NA	NA
	4/8/14	NA	4.6	1.2	6.5	1.0 U	NA	NA	NA
	7/9/14	NA	4.7 U	1.7	6.7	1.1 U	NA	NA	NA
	10/20/14	NA	4.5	1.7	6.6	1.0 U	NA	NA	NA
	1/13/15	NA	4.8	1.7	6.1	1.0 U	NA	NA	NA
	4/9/15	NA	4.3	1.8	6.6	1.0 U	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

			Conventional Parameters							
Well ID		**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW128		1/5/06	NA	NA	1.7	9.2	1.50 U	NA	NA	NA
		4/5/06	NA	NA	1.5	7.2	1.50 U	NA	NA	NA
		7/11/06	NA	NA	2.2	9.1	1.50 U	NA	NA	NA
		11/13/06	NA	NA	2.6	9.9	1.50 U	NA	NA	NA
		1/25/07	NA	NA	1.3	24.3	7.79	NA	NA	NA
		4/16/07	NA	NA	0.6	18.7	2.81	NA	NA	NA
		6/14/07	NA	NA	0.4	23.2	7.52	0.05 UJ	NA	NA
		7/16/07	NA	NA	0.6	21.7	8.32	NA	NA	NA
		12/5/07	NA	1.5	0.1 U	17.6	8.28	NA	12.2	NA
		1/7/08	NA	NA	0.1 U	13.8	4.62	NA	NA	NA
		2/5/08	NA	NA	0.1 U	12.8	3.67	NA	NA	NA
		2/5/08 (DUP)	NA	NA	0.1 U	13.0	3.63	NA	NA	NA
		4/1/08	NA	NA	0.1 U	11.1	2.08	NA	NA	NA
		4/22/08	NA	NA	0.1 U	9.0	1.50 U	NA	NA	NA
		7/9/08	NA	NA	0.1 U	9.3	1.50 U	NA	NA	NA
		10/21/08	NA	NA	0.1 U	8.7	1.50 U	NA	NA	NA
		10/22/09	NA	3.3	0.1 U	7.2	1.50 U	NA	NA	NA
		1/14/10	NA	3.4	0.1 U	7.7	2.28	NA	NA	NA
		4/12/10	NA	3.3	0.1 U	7.6	1.50 U	NA	NA	NA
EGW129		1/5/06	NA	NA	0.5 U	16.4	1.50 U	NA	NA	NA
		11/20/07	NA	4.4	0.6	10.4	1.50 U	NA	NA	NA
EGW130		1/5/06	NA	NA	0.5 U	25.9	1.50 U	NA	NA	NA
		11/20/07	NA	3.1	0.1 U	7.1	1.50 U	NA	NA	NA
EGW131		1/5/06	NA	NA	0.5	7.0	1.50 U	NA	NA	NA
EGW132	**(113')**	1/4/06	NA	NA	0.1 U	62.6	4.34	NA	NA	NA
	(97')	1/4/06	NA	NA	0.1 U	32	2.10	NA	NA	NA
	(81')	1/4/06	NA	NA	0.1 U	4.6	1.50 U	NA	NA	NA
	(62')	1/4/06	NA	NA	0.1	29.4	1.50 U	NA	NA	NA
	(50')	1/4/06	NA	NA	0.4	7.6	1.50 U	NA	NA	NA
		10/31/06	NA	NA	0.4	6.4	1.50 U	NA	NA	NA
		1/26/07	NA	NA	0.3	6.3	1.50 U	NA	NA	NA
		4/13/07	NA	NA	0.4	6.7	1.50 U	NA	NA	NA
		7/18/07	NA	NA	0.3	6.3	1.50 U	NA	NA	NA
		11/2/07	NA	NA	0.4	6.8	1.50 U	NA	66.7	2.1 U
		1/8/08	NA	NA	0.5	6.6	1.50 U	NA	68.2	2.0 U
		4/15/08	NA	NA	0.6	7.4	1.50 U	NA	66.3	2.0 U
		7/10/08	NA	NA	2.1	9.7	1.50 U	NA	63.0	2.0 U
		10/24/08	NA	NA	0.7	8.1	1.75	NA	NA	NA
	(37')	1/4/06	NA	NA	2.9	6.4	1.50 U	NA	NA	NA
	(24')	1/4/06	NA	NA	3.1	16.1	1.50 U	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

			Conventional Parameters							
Well ID		**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW133	**(112.5')**	1/3/06	NA	NA	0.1 U	7.5	1.50 U	NA	NA	NA
	(100.5')	1/3/06	NA	NA	0.1 U	9.3	1.50 U	NA	NA	NA
	(88.5')	1/3/06	NA	NA	0.1 U	5.7	1.50 U	NA	NA	NA
	(67.5')	1/3/06	NA	NA	0.1 U	5.8	1.50 U	NA	NA	NA
		11/2/07	NA	NA	0.1 U	4.8	1.50 U	NA	77.4	7.4
		1/9/08	NA	NA	0.2	7.6	1.50 U	NA	119	1.1
	(54.5')	1/3/06	NA	NA	0.1 U	6.7	1.50 U	NA	NA	NA
		4/15/08	NA	NA	0.2	7.5	1.50 U	NA	129	1.8
		7/10/08	NA	NA	0.2	7.2	1.50 U	NA	120	2.1
	(41.5')	1/3/06	NA	NA	0.1	13.1	1.53	NA	NA	NA
	(28.5')	1/3/06	NA	NA	0.6	8.2	2.09	NA	NA	NA
EGW144		2/27/06	NA	NA	3.7	12.2	2.90	NA	NA	NA
		4/4/06	NA	NA	3.6	12.5	1.50 U	NA	NA	NA
		7/11/06	NA	NA	3.3	16.3	1.50 U	NA	NA	NA
		11/13/06	NA	NA	1.7	16.6	1.50 U	NA	NA	NA
		1/18/07	NA	NA	0.1 U	12.1	3.31	NA	NA	NA
		3/15/07	NA	NA	0.1 U	36.1	6.50	NA	NA	NA
		4/16/07	NA	NA	1.0	24.5	2.42	NA	NA	NA
		6/12/07	NA	NA	0.1	33.1	8.21	NA	NA	NA
		7/12/07	NA	NA	1.0	20.6	3.85	0.05 U	NA	NA
		10/30/07	NA	NA	2.8	11.8	1.50 U	NA	NA	NA
		11/20/07	NA	4.5	2.9	12.5	1.50 U	NA	NA	NA
		1/7/08	NA	NA	2.8	14.2	1.50 U	NA	NA	NA
		2/5/08	NA	NA	2.5	13.6	1.50 U	NA	NA	NA
		3/7/08	NA	NA	2.6	9.7	1.50 U	NA	NA	NA
		4/2/08	NA	NA	2.5 J	13.8	1.50 U	NA	NA	NA
		4/10/08	NA	NA	2.4	15.1	1.50 U	NA	NA	NA
		7/9/08	NA	NA	2.2	22.4	1.50 U	NA	NA	NA
		10/21/08	NA	NA	2.1	25.1	1.50 U	NA	NA	NA
		6/10/09	NA	3.0	1.7	29.4	1.50 U	NA	NA	NA
		8/27/09	NA	3.3	1.8	23.2	1.50 U	NA	NA	NA
		9/14/09	6.90 J	3.4	1.8	18.3	1.50 U	NA	NA	NA
		10/22/09	NA	3.8	1.5	19.6	1.50 U	NA	NA	NA
		1/14/10	NA	4.8	2.6	14.9	3.59	NA	NA	NA
		4/12/10	NA	4.7	2.0	21.6	1.50 U	NA	NA	NA
		7/19/10	NA	4.4	1.8	41.1	1.50 U	NA	NA	NA
		10/19/10	NA	6.3	1.7	25.9	1.50 U	NA	NA	NA
		1/13/11	NA	5.0	1.9	31.4	1.50 U	NA	NA	NA
		4/12/11	NA	13.0	1.9	27.1	1.50 U	NA	NA	NA
		7/14/11	NA	4.0	1.4	32.0	1.50 U	NA	NA	NA
		10/10/11	NA	9.7	0.8 J+	15.0	1.53	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

			Conventional Parameters							
Well ID		**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW144 (continued)		1/22/12	NA	4.4	1.4	17.0	1.50 U	NA	NA	NA
		4/10/12	NA	4.7	1.8	26.7	0.68 X	NA	NA	NA
		7/23/12	NA	4.1	1.6	26.2	1.0 U	NA	NA	NA
		10/10/12	NA	4.4	1.3	51.2	1.0 U	NA	NA	NA
		1/17/13	NA	4.7	1.4	38.9	1.2	NA	NA	NA
		4/9/13	NA	4.9	1.1	47.3	1.0 U	NA	NA	NA
		7/22/13	NA	5.2	1.2	35.5	1.0 U	NA	NA	NA
		10/15/13	NA	5.2	0.89	40.0	1.0 U	NA	NA	NA
		1/15/14	NA	4.5	1.2 J	29.9	0.84 X	NA	NA	NA
		4/8/14	NA	4.0	1.3	23.5	1.0 U	NA	NA	NA
		7/9/14	NA	4.6 UJ	1.1 J	37.3	1.9 J	NA	NA	NA
		10/20/14	NA	3.9 J	1.0 J	31.1	1.7	NA	NA	NA
		1/13/15	NA	4.9	0.97	38.0	1.3	NA	NA	NA
		4/9/15	NA	3.8	0.95	38.3	1.2	NA	NA	NA
EGW145		11/7/07	NA	NA	NA	NA	1.50 U	NA	83.3	141
		1/14/08	NA	NA	0.3	3.0	1.50 U	NA	78.9	50.0
		4/21/08	NA	NA	NA	NA	1.50 U	NA	81.7	10.7
		7/15/08	NA	NA	0.2	4.6	1.50 U	NA	78.4	15.2
EGW146		11/7/07	NA	NA	NA	NA	1.50 U	NA	91.0	45.7
		1/14/08	NA	NA	1.3	5.9	1.50 U	NA	91.0	89.4
		4/21/08	NA	NA	NA	NA	1.50 U	NA	88.6	6.1
		7/15/08	NA	NA	2.6	6.7	1.50 U	NA	84.8	5.9
EGW149	**(1)**	7/24/07	NA	NA	0.1 U	7.7	18.4	NA	NA	NA
		11/28/07	NA	NA	0.1 U	9.0	8.07	NA	NA	NA
		2/4/08	NA	NA	0.1 U	7.7	3.16	NA	NA	NA
	(2)	4/17/07	NA	NA	0.1 U	13.3	21	NA	NA	NA
		7/24/07	NA	NA	0.2	11.2	38.8	NA	NA	NA
		11/28/07	NA	3.4	0.1 U	13.4	3.26	NA	NA	NA
		2/4/08	NA	NA	0.1	8.7	3.23	NA	NA	NA
	(3)	7/24/07	NA	NA	0.1	7.4	1.50 U	NA	NA	NA
		11/28/07	NA	NA	0.2	13.3	1.50 U	NA	NA	NA
	(4)	7/24/07	NA	NA	0.1 U	6.1	2.92	NA	NA	NA
		11/28/07	NA	NA	0.1 U	6.0	1.50 U	NA	NA	NA
EGW150	**(1)**	4/18/07	NA	NA	0.2	276	582	NA	NA	NA
		7/18/07	NA	NA	0.1 U	41.1	129	NA	NA	NA
		11/27/07	NA	NA	0.1 U	6.5	2.98	NA	NA	NA
		2/4/08	NA	NA	0.1 U	7.7	3.16	NA	NA	NA
		3/7/08	NA	NA	0.1 U	7.8	2.49	NA	NA	NA
		4/2/08	NA	NA	0.1 UJ	7.2	2.25	NA	NA	NA
	(2)	7/23/07	NA	NA	0.1 U	15	31.2	NA	NA	NA
		11/27/07	NA	3.8	0.1 U	7.9	11	NA	NA	NA
		2/4/08	NA	NA	0.1	8.7	3.23	NA	NA	NA
		4/2/08	NA	NA	0.1 UJ	7.9	2.47	NA	NA	NA
	(3)	7/23/07	NA	NA	0.1 U	7.1	2.92	NA	NA	NA
		11/27/07	NA	NA	0.1 U	7.8	4.42	NA	NA	NA
	(4)	7/23/07	NA	NA	0.1 U	5.0	3.94	NA	NA	NA
		11/27/07	NA	NA	0.1 U	6.2	1.50 U	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

		Conventional Parameters							
Well ID	**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW151 (1)	4/19/07	NA	NA	0.1 U	20.5	18.2	NA	NA	NA
	7/16/07	NA	NA	0.1 U	20.5	17.4	NA	NA	NA
	11/27/07	NA	15.5	0.1 U	28.3	13.8	NA	87.2	NA
	2/5/08	NA	NA	0.1 U	23.9	4.97	NA	NA	NA
	3/7/08	NA	NA	0.1 U	23.7	2.93	NA	NA	NA
	4/1/08	NA	NA	0.1 U	22.4	2.11	NA	NA	NA
	6/11/09	NA	4.8	0.3	12.7	1.50 U	NA	NA	NA
	6/11/2009 (DUP)	NA	5.0	0.3	12.8	1.50 U	NA	NA	NA
	7/31/09	NA	5.0	0.2	12.4	1.50 U	NA	NA	NA
	7/31/09 (DUP)	NA	5.5	0.2	12.6	1.50 U	NA	NA	NA
	8/27/09	NA	5.3	0.1 U	18.0	2.74	NA	NA	NA
	9/15/09	7.38 J	6.6	0.1 U	15.5	1.73	NA	NA	NA
	9/15/09 (DUP)	7.34 J	5.6	0.1 U	15.9	1.87	NA	NA	NA
	10/28/09	NA	5.4	0.1 U	8.9 J	1.50 U	NA	NA	NA
	10/28/09 (DUP)	NA	5.2	0.1 U	8.7 J	1.50 U	NA	NA	NA
	1/27/10	NA	5.6	0.1 U	8.6	8.54	NA	NA	NA
	1/27/10 (DUP)	NA	6.0	0.1 U	9.3	9.92	NA	NA	NA
	4/7/10	NA	5.8	0.1 U	10.0	1.50 U	NA	NA	NA
	7/7/10	NA	5.3	0.1 U	8.8	1.50 U	NA	NA	NA
	7/7/10 (DUP)	NA	5.3	0.1 U	8.4	1.50 U	NA	NA	NA
	10/12/10	NA	6.2	0.1	3.6	4.89	NA	NA	NA
	10/12/10 DUP)	NA	6.0	0.1	3.6	4.75	NA	NA	NA
	1/19/11	NA	8.4	0.1 U	5.0	3.03	NA	NA	NA
	1/19/11 (DUP)	NA	8.4	0.1 U	4.9	2.98	NA	NA	NA
	4/12/11	NA	7.5	0.1 U	2.4 J	5.76	NA	NA	NA
	4/12/11 (DUP)	NA	7.5	0.1 U	3.0 J	5.66	NA	NA	NA
	7/12/11	NA	8.5	0.1 U	2.0	11.4	NA	NA	NA
	7/12/11 (DUP)	NA	8.7	0.1 U	2.3	10.3	NA	NA	NA
	10/19/11	NA	11.3	0.1 U	1.3	9.25	NA	NA	NA
	10/19/11 (DUP)	NA	11.6	0.1 J+	1.4	8.80	NA	NA	NA
	1/23/12	NA	16.1	0.1	1.1	16.6	NA	NA	NA
	4/9/12	NA	23.3	0.1 U	0.87 X	29.9	NA	NA	NA
	7/10/12	NA	27.5	0.10 U	0.61 X	39.9	NA	NA	NA
	10/2/12	NA	25.4	0.10 U	0.53 X	8.7	NA	NA	NA
	1/14/13	NA	3.2	0.10 U	2.1	3.4	NA	NA	NA
	4/16/13	NA	13.0	0.10 U	1.0 U	3.6	NA	NA	NA
	7/23/13	NA	12.5	0.10 U	0.46 X	5.8	NA	NA	NA
	10/15/13	NA	8.3	0.10 U	0.31 X	7.4	NA	NA	NA
	1/14/14	NA	28.9	0.10 U	0.45 X	8.1	NA	NA	NA
	4/7/14	NA	33.8	0.10 U	0.44 X	4.9	NA	NA	NA
	7/15/14	NA	9.5 UJ	0.10 U	0.30 X	7.6 J	NA	NA	NA
	10/14/14	NA	19.2	0.10 U	1.0 U	5.2	NA	NA	NA
	1/22/15	NA	25.9 J	0.10 U	1.0 U	4.1 J	NA	NA	NA
	4/22/15	NA	25.0 J	0.10 U	1.0 U	2.0	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

			Conventional Parameters							
			pH	Chloride	Nitrate	Sulfate	TOC	Sulfide	Alkalinity	TSS
Well ID		Sample Date	(S.U.)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
EGW151	(2)	7/16/07	NA	NA	0.1 U	10.0	6.97	NA	NA	NA
(continued)		11/28/07	NA	7.5	0.1 U	14.9	5.01	NA	NA	NA
		2/5/08	NA	NA	0.1 U	10.0	1.86	NA	NA	NA
		4/1/08	NA	NA	0.1 U	8.2	1.50 U	NA	NA	NA
		6/11/09	NA	2.8	0.3	5.4	1.50 U	NA	NA	NA
		7/31/09	NA	2.9	0.3	5.3	1.50 U	NA	NA	NA
		8/26/09	NA	2.9	0.1 U	6.0	1.50 U	NA	NA	NA
		9/15/09	7.25 J	2.8	0.1 U	5.6	1.50 U	NA	NA	NA
		10/28/09	NA	2.7	0.1 U	3.8 J	1.50 U	NA	NA	NA
		1/27/10	NA	2.9	0.1 U	4.1	6.35	NA	NA	NA
		4/14/10	NA	3.0	0.1	4.0	1.50 U	NA	NA	NA
		7/6/10	NA	3.6	0.1	4.5	1.50 U	NA	NA	NA
		10/12/10	NA	3.5	0.1	5.1	1.50 U	NA	NA	NA
		1/19/11	NA	3.7	0.1 U	5.9	1.50 U	NA	NA	NA
		4/12/11	NA	3.1	0.1 U	5.0	1.50 U	NA	NA	NA
		7/12/11	NA	3.3	0.1 U	4.8	1.50 U	NA	NA	NA
		10/19/11	NA	3.7	0.1 J+	4.6	1.50 U	NA	NA	NA
		1/24/12	NA	3.8	0.1 U	4.7	1.50 U	NA	NA	NA
		4/9/12	NA	3.5	0.1 U	4.8	0.55 X	NA	NA	NA
		7/10/12	NA	3.9	0.10 U	4.7	1.0 U	NA	NA	NA
		10/2/12	NA	4.0	0.10 U	4.7	1.0 U	NA	NA	NA
		1/14/13	NA	4.3	0.10 U	4.5	1.0 U	NA	NA	NA
		4/16/13	NA	4.1	0.10 U	3.8	1.0 U	NA	NA	NA
		7/23/13	NA	4.7 J+	0.10 U	3.5	1.0 U	NA	NA	NA
		10/15/13	NA	4.7	0.10 U	3.9	1.0 U	NA	NA	NA
		1/14/14	NA	5.1	0.10 U	0.55 X	1.0 U	NA	NA	NA
		4/7/14	NA	5.7	0.10 U	0.48 X	1.0 U	NA	NA	NA
		7/16/14	NA	5.8 U	0.10 U	0.58 X	3.8 J	NA	NA	NA
		10/14/14	NA	4.9 J	0.10 U	0.57 X	1.1	NA	NA	NA
		1/22/15	NA	5.8	0.10 U	1.0 U	2.3	NA	NA	NA
		4/21/15	NA	6.8	0.10 U	0.59 X	1.0 U	NA	NA	NA
	(3)	7/16/07	NA	NA	0.1 U	13.7	21.8	NA	NA	NA
		11/28/07	NA	NA	0.1 U	15.4	14.2	NA	NA	NA
		2/5/08	NA	NA	0.1 U	17.6	4.12	NA	NA	NA
		3/7/08	NA	NA	0.1 U	15.7	1.99	NA	NA	NA
		4/1/08	NA	NA	0.1 U	13.4	1.58	NA	NA	NA
		4/1/08 (DUP)	NA	NA	0.1 U	13.7	1.74	NA	NA	NA
		6/11/09	NA	3.3	0.5	7.6	1.50 U	NA	NA	NA
		7/31/09	NA	3.5	0.1 U	11.7	5.35	NA	NA	NA
		8/27/09	NA	3.4	0.1 U	6.1	29.6	NA	NA	NA
		8/27/09 (DUP)	NA	3.4	0.1 U	6.2	29.4	NA	NA	NA
		9/15/09	7.02 J	3.7	0.1 U	0.7	30.5	NA	NA	NA
		10/28/09	NA	8.0	0.1 U	0.2 J	8.14	NA	NA	NA
		1/27/10	NA	3.6	0.1	7.7	6.54	NA	NA	NA
		4/7/10	NA	3.7	0.4	8.5	1.50 U	NA	NA	NA
		7/7/10	NA	3.2	0.4	6.2	1.50 U	NA	NA	NA
		10/12/10	NA	4.1	0.1	3.6	1.50 U	NA	NA	NA
		1/19/11	NA	6.2	0.1 U	1.0	16.6	NA	NA	NA
		4/12/11	NA	6.9	0.1 U	0.5	12.3	NA	NA	NA
		7/12/11	NA	6.5	0.1 U	1.3	2.78	NA	NA	NA
		10/19/11	NA	6.1	0.1 U	0.8	1.76	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

			Conventional Parameters							
			pH	Chloride	Nitrate	Sulfate	TOC	Sulfide	Alkalinity	TSS
Well ID		Sample Date	(S.U.)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
EGW151	(3)	1/23/12	NA	4.6	0.1 U	0.6	2.09	NA	NA	NA
(continued)		4/9/12	NA	11.6	0.1 U	1.8	2.1	NA	NA	NA
		7/10/12	NA	4.2	0.10 U	1.1	1.7	NA	NA	NA
		10/2/12	NA	4.8	0.10 U	1.0 U	4.2	NA	NA	NA
		1/14/13	NA	3.6	0.10 U	0.39 X	5.5	NA	NA	NA
		4/16/13	NA	9.3	0.10 U	0.47 X	9.6	NA	NA	NA
		7/23/13	NA	7.5	0.10 U	1.0 U	16.3	NA	NA	NA
		10/15/13	NA	6.2	0.10 U	1.0 U	9.1	NA	NA	NA
		1/14/14	NA	8.4	0.10 U	0.55 X	8.9	NA	NA	NA
		4/7/14	NA	9.4	0.10 U	1.0 U	5.2	NA	NA	NA
		7/29/14	NA	5.1 UJ	0.10 U	0.81 X	8.4 J	NA	NA	NA
		10/14/14	NA	6.6	0.10 U	0.51 X	5.7	NA	NA	NA
		1/22/15	NA	9.6	0.10 U	1.0 U	4.5	NA	NA	NA
		4/22/15	NA	9.8	0.10 U	1.0 U	1.9	NA	NA	NA
	(4)	4/19/07	NA	NA	0.1 U	3.9	14.8	NA	NA	NA
		4/19/07 (DUP)	NA	NA	0.1 U	4.3	14.5	NA	NA	NA
		7/17/07	NA	NA	0.1 U	9.4	15.1	NA	NA	NA
		11/28/07	NA	NA	0.1 U	3.2	11.2	NA	NA	NA
EGW152	(1)	6/11/07	NA	NA	0.1 UJ	32.6	17.6	0.05 UJ	NA	NA
		7/19/07	NA	NA	0.1 U	50	25.3	NA	NA	NA
		11/29/07	NA	NA	0.1 U	22.8 J	7.78	NA	NA	NA
		11/29/07 (DUP)	NA	NA	0.1 U	9.9 J	7.18	NA	NA	NA
		2/6/08	NA	NA	1.6	31.2	4.61	NA	NA	NA
		4/3/08	NA	NA	1.8	25.6	3.93	NA	NA	NA
		6/10/09	NA	5.8	2.8	32.6	2.70	NA	NA	NA
		7/30/09	NA	5.1	0.5	27.7	11.1	NA	NA	NA
		8/27/09	NA	4.6	1 U	29.2	12	NA	NA	NA
		9/14/09	6.86 J	4.6	1.2	17.6	2.84	NA	NA	NA
		10/27/09	NA	6.4	1.7	32.4	3.34	NA	NA	NA
		1/27/10	NA	4.6	2.4	34.1	14.4	NA	NA	NA
		4/14/10	NA	4.3	1.6	24.3	2.52	NA	NA	NA
		7/6/10	NA	3.1	0.9	14.4	3.14	NA	NA	NA
		10/5/10	NA	6.3	0.2	12.9	6.35	NA	NA	NA
		1/20/11	NA	12.2	0.1 UJ	7.0	13.8	NA	NA	NA
		4/15/11	NA	13.9	0.1 U	7.7	24.5	NA	NA	NA
		7/12/11	NA	19.8	0.1 U	8.5	96.4	NA	NA	NA
		10/18/11	NA	20.2	0.1 U	2.3	18.9	NA	NA	NA
		1/24/12	NA	19.0	0.1 U	1.3	40.3	NA	NA	NA
		4/10/12	NA	17.2	0.10 U	2.8	10.9	NA	NA	NA
		7/11/12	NA	14.2	0.10 U	3.5	8.5	NA	NA	NA
		10/3/12	NA	16.5	0.10 U	1.3	7.6	NA	NA	NA
		1/15/13	NA	8.2	0.10 U	3.5	4.4	NA	NA	NA
		4/15/13	NA	8.4	0.10 U	7.5	4.5	NA	NA	NA
		7/24/13	NA	11.9	0.10 U	4.5	4.3	NA	NA	NA
		10/16/13	NA	8.7	0.10 U	4.2	4.3	NA	NA	NA
		1/15/14	NA	10.8	0.10 UJ	3.7	7.2	NA	NA	NA
		4/3/14	NA	8.1	0.10 U	3.3	5.2	NA	NA	NA
		7/16/14	NA	7.6 U	0.10 U	2.4	5.8 J	NA	NA	NA
		10/14/14	NA	6.1 J	0.10 U	2.1	7.8	NA	NA	NA
		1/21/15	NA	6.6	0.10 UJ	1.6	6.2	NA	NA	NA
		1/21/15 (RE)	NA	NA	0.10 U DNR	NA	NA	NA	NA	NA
		4/22/15	NA	6.0	0.10 U	1.3	4.4	NA	NA	NA

Table A-26
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2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

			Conventional Parameters							
Well ID		**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW152 (continued)	**(2)**	4/19/07	NA	NA	2.1	16.1	29.7	NA	NA	NA
		6/11/07	NA	NA	0.3 J	20.1	16.3	0.05 UJ	NA	NA
		7/19/07	NA	NA	0.1 U	6.6	22.1	NA	NA	NA
		11/29/07	NA	4.6	0.1 U	24.2	7.81	NA	NA	NA
		7/6/10	NA	4.5	0.1 U	10.0	2.57	NA	NA	NA
		10/5/10	NA	5.2	0.1 U	3.3	3.00	NA	NA	NA
		1/20/11	NA	10.3	0.1 UJ	2.7	2.59	NA	NA	NA
		4/15/11	NA	9.9	0.1 U	2.2	2.67	NA	NA	NA
		7/12/11	NA	10.5	0.1 U	4.7	2.62	NA	NA	NA
		10/18/11	NA	14.1	0.1 J+	0.2	10.0	NA	NA	NA
		1/24/12	NA	17.2	0.1 U	0.2	9.76	NA	NA	NA
		4/10/12	NA	22.7	0.10 U	0.60 X	5.8	NA	NA	NA
		7/11/12	NA	14.9	0.10 U	0.72 X	2.7	NA	NA	NA
		10/3/12	NA	13.2	0.10 U	2.0	2.6	NA	NA	NA
		1/15/13	NA	14.7	0.10 U	2.0	2.4	NA	NA	NA
		4/15/13	NA	11.2	0.10 U	3.0	3.7	NA	NA	NA
		7/24/13	NA	11.1	0.10 U	2.7	3.2	NA	NA	NA
		10/16/13	NA	12.1	0.10 U	3.4	3.6	NA	NA	NA
		1/15/14	NA	10.3	0.10 UJ	4.3	5.4	NA	NA	NA
		4/3/14	NA	10.3	0.10 U	3.2	3.8	NA	NA	NA
		7/16/14	NA	9.0 U	0.10 U	3.2	4.8 J	NA	NA	NA
		10/14/14	NA	7.9	0.10 U	2.9	5.0	NA	NA	NA
		1/21/15	NA	8.8	0.10 UJ	2.7	4.1	NA	NA	NA
		1/21/15 (RE)	NA	NA	0.10 U DNR	NA	NA	NA	NA	NA
		4/22/15	NA	6.3	0.10 U	2.3	2.8	NA	NA	NA
	(3)	6/11/07	NA	NA	0.1 UJ	12.3	5.31	0.05 UJ	NA	NA
		7/19/07	NA	NA	0.1 U	20.8	1.5	NA	NA	NA
		11/29/07	NA	NA	0.1 U	7.3	2.51	NA	NA	NA
		7/6/10	NA	3.8	0.4	16.7	2.05	NA	NA	NA
		10/5/10	NA	4.3	0.1	8.4	2.02	NA	NA	NA
		4/15/11	NA	8.5	0.1 U	0.6	5.68	NA	NA	NA
		10/18/11	NA	9.9	0.1 J+	1.4	5.59	NA	NA	NA
		4/10/12	NA	20.2	0.10 U	1.1	4.5	NA	NA	NA
		10/3/12	NA	14.4	0.10 U	1.0 U	5.0	NA	NA	NA
		4/15/13	NA	10.1	0.10 U	3.6	5.6	NA	NA	NA
		10/16/13	NA	10.8	0.10 U	2.8	5.1	NA	NA	NA
		4/3/14	NA	10.1	0.10 U	2.3	5.6	NA	NA	NA
		10/14/14	NA	6.0 J	0.10 U	2.3	6.4	NA	NA	NA
		4/22/15	NA	5.9	0.10 U	1.4	4.4	NA	NA	NA
	(4)	6/11/07	NA	NA	0.1 UJ	6.1	1.75	0.05 UJ	NA	NA
		7/19/07	NA	NA	0.1 U	5.2	1.61	NA	NA	NA
		11/29/07	NA	NA	0.1 U	5.7	2.82	NA	NA	NA
EGW153	**(1)**	6/12/07	NA	NA	0.1 UJ	58.8	32.0	0.05 UJ	NA	NA
		7/18/07	NA	NA	0.2 U	53.2	46	NA	NA	NA
		7/7/10	NA	4.8	0.9	201	3.31	NA	NA	NA
		10/7/10	NA	4.8	0.1 U	186	3.18	NA	NA	NA
		1/21/11	NA	11.6	0.2	221	45.5	NA	NA	NA
		4/18/11	NA	9.7	0.1	140	24.4	NA	NA	NA
		7/13/11	NA	11.5	0.1 U	179	24.2	NA	NA	NA
		10/17/11	NA	11.5	0.1 U	215	5.63	NA	NA	NA

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Powder Mill Gulch
Boeing Everett Plant

			Conventional Parameters							
Well ID		**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW153 (continued)	**(1)**	1/25/12	NA	7.8	0.1 U	119	4.13	NA	NA	NA
		4/11/12	NA	8.7	0.10 U	188	4.0	NA	NA	NA
		7/12/12	NA	9.1	0.10 U	157	4.5	NA	NA	NA
		10/1/12 - 10/2/12	NA	10.3	0.10 U	53.9	7.8	NA	NA	NA
		1/15/13	NA	4.4	0.10 U	214	4.0	NA	NA	NA
		4/15/13	NA	4.5	0.10 U	131	3.9	NA	NA	NA
		7/23/13	NA	7.1	0.10 U	93.9	3.9	NA	NA	NA
		10/16/13	NA	6.5	0.10 U	174	4.0	NA	NA	NA
		1/15/14	NA	10.6	0.10 UJ	126	5.9	NA	NA	NA
		4/3/14	NA	4.9	0.10 U	130	4.9	NA	NA	NA
		10/15/14	NA	2.8 J	0.10 U	28.6	4.7	NA	NA	NA
		4/23/15	NA	8.5	0.10 U	24.5	2.4	NA	NA	NA
	(2)	6/12/07	NA	NA	0.1 J	20.6	46.1	0.05 UJ	NA	NA
		7/18/07	NA	NA	0.1 U	23.5	28.8	NA	NA	NA
		11/20/07	NA	5.0	0.1 U	8.8	6.53	NA	100	NA
		11/20/07 (DUP)	NA	4.4	0.1 U	8.8	6.31	NA	NA	NA
		2/4/08	NA	NA	0.1 U	7.6	2.04	NA	NA	NA
		4/2/08	NA	NA	0.1 UJ	12.1	1.50 U	NA	NA	NA
		1/27/10	NA	4.9	0.2	77.3	14.2	NA	NA	NA
		4/14/10	NA	4.8	0.2	39.2	1.50 U	NA	NA	NA
		7/7/10	NA	4.5	0.3	92.9	1.70	NA	NA	NA
		10/7/10	NA	5.7	0.1 U	49.5	4.16	NA	NA	NA
		1/20/11	NA	14.4	0.1 UJ	20.4	2.09	NA	NA	NA
		4/18/11	NA	18.3	0.1 U	3.8	2.71	NA	NA	NA
		7/13/11	NA	14.1	0.1 U	2.9	1.50 U	NA	NA	NA
		10/17/11	NA	13.6	0.1 U	1.6	2.10	NA	NA	NA
		1/24/12	NA	9.0	0.1 U	20.7	1.87	NA	NA	NA
		4/11/12	NA	16.7 J	0.10 U	3.4	3.2	NA	NA	NA
		7/12/12	NA	17.7	0.10 U	4.0 J	1.6	NA	NA	NA
		10/1/12	NA	13.0	0.10 U	4.9	0.68 X	NA	NA	NA
		1/15/13	NA	11.7	0.10 U	5.5	1.0 U	NA	NA	NA
		4/15/13	NA	10.7	0.10 U	5.8	0.82 X	NA	NA	NA
		7/23/13	NA	10.0	0.10 U	5.5	0.65 X	NA	NA	NA
		10/16/13	NA	9.0	0.10 U	5.8	1.0 U	NA	NA	NA
		1/15/14	NA	8.8	0.10 UJ	5.7	2.0	NA	NA	NA
		4/3/14	NA	9.0	0.10 U	5.1	1.1	NA	NA	NA
		10/15/14	NA	7.8 J	0.10 U	4.9	2.3	NA	NA	NA
		4/23/15	NA	8.1 J	0.10 U	4.7	1.1	NA	NA	NA
	(3)	6/12/07	NA	NA	0.1 UJ	9.0	7.80	0.05 UJ	NA	NA
		7/18/07	NA	NA	0.1 U	5.0	1.75	NA	NA	NA
		11/20/07	NA	NA	0.1 U	4.6	1.50 U	NA	72.2	NA
		7/7/10	NA	3.6	0.4	163	1.79	NA	NA	NA
		10/7/10	NA	3.9	0.1 U	182	1.50 U	NA	NA	NA
		4/18/11	NA	6.7	0.1 U	37.6	2.00	NA	NA	NA
		10/17/11	NA	8.6	0.1 U	16.4	1.65	NA	NA	NA
		4/11/12	NA	9.5	0.10 U	20.0	1.6	NA	NA	NA
		10/1/12	NA	10	0.10 U	10.0	0.75 X	NA	NA	NA
		4/15/13	NA	8.2	0.10 U	13.2	0.72 X	NA	NA	NA
		10/16/13	NA	7.2	0.10 U	15.6	0.99 X	NA	NA	NA
		4/3/14	NA	7.1	0.10 U	15.9	0.68 X	NA	NA	NA
		10/15/14	NA	5.7 J	0.10 U	13.7	2.6	NA	NA	NA
		4/23/15	NA	4.9	0.10 U	9.6	1.1	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
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			Conventional Parameters							
			pH	Chloride	Nitrate	Sulfate	TOC	Sulfide	Alkalinity	TSS
Well ID		Sample Date	(S.U.)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
EGW154	(1)	6/13/07	NA	NA	0.1 U	38.6	33.4	0.05 UJ	NA	NA
		7/17/07	NA	NA	0.1 U	33	34.7	NA	NA	NA
		7/17/07 (DUP)	NA	NA	0.1 U	33.6	35	NA	NA	NA
		11/19/07	NA	4.0	0.1 U	63.7	27.7	NA	9.8	NA
	(2)	6/13/07	NA	NA	1.3	51.4	39.5	0.05 UJ	NA	NA
		7/17/07	NA	NA	1.2	37.8	36.3	NA	NA	NA
		11/19/07	NA	7.6	0.1 U	16.4	7.56	NA	62.5	NA
		2/4/08	NA	NA	0.1 U	16.6	7.16	NA	NA	NA
		3/7/08	NA	NA	0.1 U	18.6	5.46	NA	NA	NA
		4/1/08	NA	NA	0.1 U	21.6	4.94	NA	NA	NA
	(3)	6/13/07	NA	NA	0.1 U	6.9	3.51	0.05 UJ	NA	NA
		7/17/07	NA	NA	0.1	5.9	2.26	NA	NA	NA
		11/19/07	NA	2.9	0.1 U	5.9	1.50 U	NA	71.8	NA
EGW155	(1)	4/17/07	NA	NA	0.1 U	47.1	128	NA	NA	NA
		6/13/07	NA	NA	0.1 U	20.5	27.3	0.05 UJ	NA	NA
		7/18/07	NA	NA	0.1 U	10.8	10	NA	NA	NA
		11/30/07	NA	NA	0.1 U	7.9	1.98	NA	NA	NA
	(2)	4/17/07	NA	NA	0.8	53.5	380	NA	NA	NA
		6/13/07	NA	NA	0.2	19.6	22.6	0.05 UJ	NA	NA
		7/18/07	NA	NA	0.1 U	10.6	3.74	NA	NA	NA
		11/30/07	NA	4.4	0.1 U	7.8	2.82	NA	NA	NA
	(3)	7/18/07	NA	NA	0.1 U	20.2	32.5	NA	NA	NA
		11/30/07	NA	NA	0.1 U	22.5	24.1	NA	NA	NA
EGW156	(1)	4/19/07	NA	NA	0.1	247	458	NA	NA	NA
		6/14/07	NA	NA	0.1 U	135	224	0.05 UJ	NA	NA
		7/16/07	NA	NA	0.2	60.3	79.2	NA	NA	NA
		11/29/07	NA	NA	0.1	35.0	64.8	NA	NA	NA
	(2)	4/16/07	NA	NA	1.1	49.4	130	NA	NA	NA
		6/14/07	NA	NA	0.4	32.1	35.6	0.05 UJ	NA	NA
		7/17/07	NA	NA	0.7	36.2	32.5	NA	NA	NA
		11/29/07	NA	20.1	0.4	37.2	20.0	NA	NA	NA
		11/29/07 (DUP)	NA	20.6	0.3	37.1	20.4	NA	NA	NA
		2/4/08	NA	NA	0.4	25.7	10.3	NA	NA	NA
		4/1/08	NA	NA	0.1 U	20.8	5.89	NA	NA	NA
	(3)	7/17/07	NA	NA	0.2	47	66.4	NA	NA	NA
		11/29/07	NA	NA	0.1	33.8	63.2	NA	NA	NA
		2/4/08	NA	NA	0.1 U	22.1	11.6	NA	NA	NA
		4/1/08	NA	NA	0.1 U	20.2	6.11	NA	NA	NA
EGW157	(1)	7/23/07	NA	NA	0.1 U	31.2	41.4	NA	NA	NA
		7/23/07 (DUP)	NA	NA	0.1 U	39.2	46.2	NA	NA	NA
		11/30/07	NA	NA	0.1 U	6.0	7.44	NA	NA	NA
		2/4/08	NA	NA	0.1 U	6.6	2.60	NA	NA	NA
		4/3/08	NA	NA	0.1 U	9.8	1.81	NA	NA	NA

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			Conventional Parameters							
			pH	Chloride	Nitrate	Sulfate	TOC	Sulfide	Alkalinity	TSS
Well ID		Sample Date	(S.U.)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
EGW157	(2)	4/18/07	NA	NA	0.1 U	6.3	8.8	NA	NA	NA
(continued)		7/23/07	NA	NA	0.1 U	7.8	6.67	NA	NA	NA
		11/30/07	NA	5.6	0.1 U	6.4	3.16	NA	NA	NA
	(3)	7/23/07	NA	NA	0.1 U	11	4.73	NA	NA	NA
		11/30/07	NA	NA	0.1	5.8	2.82	NA	NA	NA
EGW158	(1)	4/18/07	NA	NA	0.1 U	28.9	29.1	NA	NA	NA
		7/23/07	NA	NA	0.2	20.8	30.7	NA	NA	NA
		11/27/07	NA	NA	0.1 U	12.7	28.3	NA	NA	NA
		2/4/08	NA	NA	0.1 U	10.6	5.74	NA	NA	NA
		4/1/08	NA	NA	0.2	9.8	2.56	NA	NA	NA
	(2)	7/23/07	NA	NA	0.1 U	21.8	44.8	NA	NA	NA
		11/26/07	NA	3.2	0.1 U	1.7	21.2	NA	NA	NA
	(3)	7/24/07	NA	NA	0.1	7.6	3.16 J	NA	NA	NA
		7/24/07 (DUP)	NA	NA	0.1	7.5	1.65 J	NA	NA	NA
		11/26/07	NA	NA	0.1	7.6	1.64	NA	NA	NA
EGW161	(1)	7/17/07	NA	NA	0.1 U	10.9	5.97	NA	NA	NA
		11/27/07	NA	4.7	1.0	8.3	2.04	NA	60.4	NA
		2/5/08	NA	NA	1.7	7.7	1.64	NA	NA	NA
		3/7/08	NA	NA	1.0	7.0	1.50 U	NA	NA	NA
		4/2/08	NA	NA	0.7 J	6.4	1.74	NA	NA	NA
		6/10/09	NA	3.8	1.7	7.5	1.50 U	NA	NA	NA
		7/31/09	NA	2.9	0.1 U	151	1,380	NA	NA	NA
		8/26/09	NA	5.2	0.1 U	34.1	374	NA	NA	NA
		9/15/09	6.39 J	4.0	0.1 U	0.4	131	NA	NA	NA
		10/28/09	NA	2.2	0.1 U	0.1 UJ	190	NA	NA	NA
		1/26/10	NA	5.8	0.1 UJ	0.5	58.4	NA	NA	NA
		4/7/10	NA	7.4	0.1 U	0.9	12.6	NA	NA	NA
		4/7/10 (DUP)	NA	7.7	0.1 U	0.9	12.8	NA	NA	NA
		7/6/10	NA	6.0	0.1 U	1.2	4.20	NA	NA	NA
		10/12/10	NA	6.6	0.1 U	0.3	15.2	NA	NA	NA
		1/19/11	NA	9.0	0.1 U	1.5	12.6	NA	NA	NA
		4/12/11	NA	6.8	0.1 U	2.0	6.54	NA	NA	NA
		7/11/11	NA	5.9	0.1 U	2.9	4.07	NA	NA	NA
		10/19/11	NA	7.0	0.1 J+	3.4	3.91	NA	NA	NA
		1/23/12	NA	7.1	0.1 U	4.4	3.38	NA	NA	NA
		1/23/12 (DUP)	NA	7.6	0.1 U	4.5	3.37	NA	NA	NA
		4/10/12	NA	8.2	0.10 U	5.3	2.7	NA	NA	NA
		4/10/12 (DUP)	NA	8.7	0.10 U	5.4	2.9	NA	NA	NA
		7/11/12	NA	6.5	0.10 U	2.8	2.9	NA	NA	NA
		7/11/12 (DUP)	NA	6.4	0.10 U	2.8	3.2	NA	NA	NA
		10/2/12	NA	10.2	0.10 U	1.5	2.9	NA	NA	NA
		10/2/12 (DUP)	NA	10.5	0.10 U	1.5	3.0	NA	NA	NA
		1/14/13	NA	11.9	0.10 U	1.0	3.2	NA	NA	NA
		1/14/13 (DUP)	NA	11.4	0.10 U	1.2	3.2	NA	NA	NA
		4/16/13	NA	8.1	0.10 U	2.8	2.7	NA	NA	NA
		4/16/13 (DUP)	NA	8.1	0.10 U	2.7	2.8	NA	NA	NA
		7/23/13	NA	6.6	0.10 U	4.1	3.7	NA	NA	NA
		7/23/2013 (DUP)	NA	6.5	0.10 U	4.2	4.0	NA	NA	NA
		10/15/13	NA	7.3	0.10 U	3.4	3.0	NA	NA	NA
		10/15/13 (DUP)	NA	7.2	0.10 U	3.3	3.2	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

			Conventional Parameters							
Well ID		**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW161 (continued)	**(1)**	1/14/14	NA	8.5 J	0.10 U	4.1	3.3	NA	NA	NA
		1/14/14 (DUP)	NA	8.2	0.10 U	4.2	3.5	NA	NA	NA
		4/7/14	NA	8.3	0.10 U	2.9	4.6	NA	NA	NA
		4/7/14 (DUP)	NA	8.5	0.10 U	2.8	4.6	NA	NA	NA
		7/14/14	NA	6.8 U	0.10 U	1.7	6.5 J	NA	NA	NA
		7/14/14 (DUP)	NA	6.8 U	0.10 U	1.7	6.5 J	NA	NA	NA
		10/13/14	NA	5.3 J	0.10 U	1.4	3.2	NA	NA	NA
		10/13/14 (DUP)	NA	5.3 J	0.10 U	1.4	3.3	NA	NA	NA
		1/21/15	NA	4.8	0.10 U	1.5	3.7	NA	NA	NA
		1/21/15 (DUP)	NA	4.6	0.10 U	1.2	3.9	NA	NA	NA
		4/21/15	NA	7.1	0.10 U	1.5	3.3	NA	NA	NA
		4/21/15 (DUP)	NA	6.7	0.10 U	1.5	3.1	NA	NA	NA
	(2)	7/17/07	NA	NA	1.8	12.3	1.50 U	NA	NA	NA
		11/27/07	NA	3.6	1.6	9.0	1.50 U	NA	NA	NA
		2/5/08	NA	NA	1.4	7.8	1.50 U	NA	NA	NA
		4/2/08	NA	NA	1.7 J	7.7	1.50 U	NA	NA	NA
		8/26/09	NA	3.6	0.2	1.1	34.8	NA	NA	NA
		9/15/09	6.83 J	3.3	0.1 U	2.1	13.8	NA	NA	NA
		10/28/09	NA	3.2	0.1 U	2.0	5.42 J	NA	NA	NA
		1/26/10	NA	3.6	0.2 J	4.3	1.56	NA	NA	NA
		4/7/10	NA	3.7	0.1	5.7	2.44	NA	NA	NA
		7/6/10	NA	4.2	0.1	7.9	2.13	NA	NA	NA
		10/12/10	NA	4.3	0.5	0.6	48.2	NA	NA	NA
		1/19/11	NA	17.1	0.1 U	0.1 U	17.5	NA	NA	NA
		4/12/11	NA	17.2	0.1 U	0.1	6.31	NA	NA	NA
		7/11/11	NA	18.8	0.1 U	0.5	4.91	NA	NA	NA
		10/19/11	NA	23.9	0.1 J+	0.6	4.75	NA	NA	NA
		1/23/12	NA	34.1	0.1 U	1.8	17.5	NA	NA	NA
		4/10/12	NA	42.6	0.10 U	2.8	6.2	NA	NA	NA
		7/11/12	NA	34.8	0.10 U	2.2	5.5	NA	NA	NA
		10/2/12	NA	22.0	0.10 U	3.2	5.9	NA	NA	NA
		1/14/13	NA	29.3	0.10 U	2.1	4.5	NA	NA	NA
		4/16/13	NA	36.9	0.10 U	0.76 X	3.5	NA	NA	NA
		7/23/13	NA	47.6	0.10 U	0.33 X	3.0	NA	NA	NA
		10/15/13	NA	50.1	0.10 U	0.36 X	4.0	NA	NA	NA
		1/14/14	NA	49.6	0.10 U	1.0 U	8.8	NA	NA	NA
		4/2/14	NA	52.4	0.10 U	0.31 X	8.0	NA	NA	NA
		7/14/14	NA	40.9 J	0.10 U	0.70 X	7.0 J	NA	NA	NA
		10/13/14	NA	32.6	0.10 U	0.44 X	2.3	NA	NA	NA
		1/21/15	NA	31.1	0.10 U	1.1	3.8	NA	NA	NA
		4/21/15	NA	29.8	0.10 U	1.3	1.2	NA	NA	NA
	(3)	7/17/07	NA	NA	0.1 U	10.2	14.9	NA	NA	NA
		11/28/07	NA	NA	0.1 U	12.8	5.61	NA	NA	NA
	(4)	7/18/07	NA	NA	0.1 U	4.1	1.88	NA	NA	NA
		11/28/07	NA	NA	0.1 U	4.2	1.50 U	NA	NA	NA
EGW163		6/20/07	NA	NA	13.0	7.0	1.50 U	NA	NA	NA
		10/29/08	NA	NA	9.3	7.0	1.50 U	NA	NA	NA
EGW164		6/20/07	NA	NA	0.3	6.3	1.50 U	NA	NA	NA
		10/29/08	NA	NA	0.3	6.2	1.50 U	NA	NA	NA

Table A-26
Summary of Groundwater Analytical Results for Conventional Parameters
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

		Conventional Parameters							
Well ID	**Sample Date**	**pH (S.U.)**	**Chloride (mg/L)**	**Nitrate (mg/L)**	**Sulfate (mg/L)**	**TOC (mg/L)**	**Sulfide (mg/L)**	**Alkalinity (mg/L)**	**TSS (mg/L)**
EGW165	6/20/07	NA	NA	0.5	6.7	1.50 U	NA	NA	NA
	10/29/08	NA	NA	0.4	6.0	1.50 U	NA	NA	NA
EGW166	6/20/07	NA	NA	0.1 U	9.5	1.50 U	NA	NA	NA
	10/27/08	NA	NA	0.1 U	10.3	1.50 U	NA	NA	NA

Notes:
DNR - Do Not Report
DUP - field duplicate
J - estimated value
J+ - estimated value with high bias
mg/L - milligram per liter
NA - not analyzed
RE - reanalysis
S.U. - standard units
TOC - total organic carbon
TSS - total suspended solids
U - Compound was analyzed for, but not detected above the reporting limit shown.
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result is between the method detection limit (MDL) and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result.
X-flagged results are considered estimated results.

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)		Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
			Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level			7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P1		5/14/03	2.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U	0.017 U
		7/23/03	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U	0.017 UJ
PMG-P2		5/14/03	3.7 U	0.2 U	0.2 U	0.2 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U	0.017 U
		7/23/03	2.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.02 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	0.4 U	0.017 UJ
PMG-P3	**(5-10')**	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	**32**	0.2 U	0.4 U	NA
	(7-11')	3/25/10	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.3	**27**	0.2 U	0.4 U	NA
	(17-21')	3/25/10	5.0 UJ	0.2 UJ	0.2 UJ	0.2 U	0.2 UJ	0.2 UJ	0.4 J	0.2 UJ	0.2 UJ	0.2 UJ	**34 J**	0.2 UJ	0.4 UJ	NA
PMG-P4	**(6-11')**	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5.2	0.2 U	0.2 U	0.2 U	**22**	**0.3**	0.4 U	NA
PMG-P5	**(5-9')**	3/24/10	8.5	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.4	1.9	**12**	0.2 U	2.6	NA
	(5-10')	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	0.2 U	**46**	0.2 U	0.4 U	NA
	(15-19')	3/24/10	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.8	**8.9**	0.2 U	0.4	NA
	(20-24')	3/24/10	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.6**	0.2 U	0.4 U	NA
PMG-P6	**(4.5-9.5')**	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	16	0.2 U	0.2 U	0.2 U	**4.4**	**1.2**	0.4 U	NA
PMG-P7	**(5-10')**	4/15/10	5.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	**27**	0.2 U	0.4 U	NA
	(5-9')	3/24/10	5.0 U	0.7	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.7	5.1	**19**	0.2 U	4.0	NA
		3/24/10 (DUP)	5.0 U	0.7	0.2 U	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.7	4.9	**20**	0.2 U	3.8	NA
	(15-19')	3/24/10	5.0 U	0.3	0.2	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.3	1.9	**59**	0.2 U	1.1	NA
	(24-28')	3/24/10	5.0 UJ	0.5 J	0.3 J	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.6 J	4.2 J	**1.8 J**	0.2 UJ	3.4 J	NA
PMG-P8		10/15/12	10 U	0.4 U	1.0 U	1.0 U	0.4 U	0.4 U	3.5	0.4 U	1.0 U	0.4 U	380 E DNR	0.4 U DNR	1.0 U	NA
		10/15/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	3.3 X DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**330**	4.0 U DNR	10 U DNR	NA
		10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		12/19/12	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.0	1.0 U	2.5 U	1.0 U	350 E DNR	1.0 U DNR	2.5 U	NA
		12/19/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**400**	10 U DNR	25 U DNR	NA
		12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		1/17/13	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.2	1.0 U	2.5 U	1.0 U	450 E DNR	1.0 U DNR	2.5 U	NA
		1/17/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**440**	10 U DNR	25 U DNR	NA
		1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	4.2	0.2 U	0.5 U	0.2 U	380 E DNR	0.2 U DNR	0.5 U	NA
		2/12/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**400**	10 U DNR	25 U DNR	NA
		2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		4/19/13	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.2	1.0 U	2.5 U	1.0 U	360 E DNR	1.0 U DNR	2.5 U	NA
		4/19/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**360**	10 U DNR	25 U DNR	NA
		4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		7/18/13	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.3	1.0 U	2.5 U	1.0 U	380 E DNR	1.0 U DNR	2.5 U	NA
		7/18/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**390**	10 U DNR	25 U DNR	NA
		7/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		10/8/13	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.4	1.0 U	2.5 U	1.0 U	420 E DNR	1.0 U DNR	2.5 U	NA
		10/8/13 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**410**	10 U DNR	25 U DNR	NA
		10/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		1/8/14	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.8	1.0 U	2.5 U	1.0 U	460 E DNR	1.0 U DNR	2.5 U	NA
		1/8/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**460**	10 U DNR	25 U DNR	NA
		1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		4/9/14	25 U	1.0 U	2.5 U	2.5 U	0.6 X	1.0 U	3.5	1.0 U	2.5 U	1.0 U	430 E DNR	1.0 U DNR	2.5 U	NA
		4/9/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**440**	10 U DNR	25 U DNR	NA
		4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		7/24/14	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.1	1.0 U	2.5 U	1.0 U	330 E DNR	1.0 U DNR	2.5 U	NA
		7/24/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**330**	10 U DNR	25 U DNR	NA
		7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		10/8/14	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.6	1.0 U	2.5 U	1.0 U	420 E DNR	1.0 U DNR	2.5 U	NA
		10/8/14 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**420**	10 U DNR	25 U DNR	NA
		10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		1/14/15	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.0	1.0 U	2.5 U	1.0 U	440 E DNR	1.0 U DNR	2.5 U	NA
		1/14/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**410**	10 U DNR	25 U DNR	NA
		1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
		4/15/15	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	3.2	1.0 U	2.5 U	1.0 U	370 E DNR	1.0 U DNR	2.5 U	NA
		4/15/15 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	10 U DNR	10 U DNR	25 U DNR	10 U DNR	**330**	10 U DNR	25 U DNR	NA
		4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P9	10/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/24/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/24/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/19/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	7/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	11	0.2 U DNR	0.5 U	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.9**	0.2 U DNR	0.5 U	NA
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P10	10/15/12	25 U	1.0 U	2.5 U	2.5 U	1.0 U	1.0 U	7.5	1.0 U	2.5 U	1.0 U	530 E DNR	1.0 U DNR	2.5 U	NA
	10/15/12 (DL)	250 U DNR	10 U DNR	25 U DNR	25 U DNR	10 U DNR	10 U DNR	8.1 X DNR	10 U DNR	25 U DNR	10 U DNR	**550**	10 U DNR	25 U DNR	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.5	0.2 U	0.5 U	0.2 U	170 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.5 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	87 E DNR	0.2 U DNR	0.5 U	NA
	1/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**72**	2.0 U DNR	5.0 U DNR	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	64 E DNR	0.2 U DNR	0.5 U	NA
	2/12/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**45**	2.0 U DNR	5.0 U DNR	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/19/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	3.5	0.2 U	0.5 U	0.2 U	280 E DNR	0.2 U DNR	0.5 U	NA
	4/19/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	3.0 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**230**	2.0 U DNR	5.0 U DNR	NA
	4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U	0.5 U	0.2 U	120 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**90**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.2	0.2 U	0.5 U	0.2 U	97 E DNR	0.2 U DNR	0.5 U	NA
	10/8/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**86**	2.0 U DNR	5.0 U DNR	NA
	10/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.1 X	0.2 U	3.7	0.2 U	0.5 U	0.2 U	290 E DNR	0.2 U DNR	0.5 U	NA
	1/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.8 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**180**	2.0 U DNR	5.0 U DNR	NA
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 X	0.2 U	2.8	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U	NA
	4/9/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.6 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**200**	2.0 U DNR	5.0 U DNR	NA
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	3.3	0.2 U	0.5 U	0.2 U	250 E DNR	0.2 U DNR	0.5 U	NA
	7/24/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	3.1 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**210**	2.0 U DNR	5.0 U DNR	NA
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	42 E DNR	0.2 U DNR	0.5 U	NA
	10/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	5.0 U DNR	NA
	10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.9	0.2 U	0.5 U	0.2 U	270 E DNR	0.2 U DNR	0.5 U	NA
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.2 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**200**	2.0 U DNR	5.0 U DNR	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.7	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U	NA
	4/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.7 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR	NA
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P11	10/16/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/16/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/20/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	12/20/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/21/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/21/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/19/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	7/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/16/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/16/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P12A	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	3.5	0.2 U	0.5 U	0.2 U	190 E DNR	0.2 U DNR	0.5 U	NA
	10/15/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.9 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	68 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**53**	2.0 U DNR	5.0 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.1	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U	NA
	1/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.0 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR	NA
	1/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/11/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	120 E DNR	0.2 U DNR	0.5 U	NA
	2/11/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**96**	2.0 U DNR	5.0 U DNR	NA
	2/11/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U	NA
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**80**	2.0 U DNR	5.0 U DNR	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 X	0.2 U	0.5 U	0.2 U	54 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**41**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	32 E DNR	0.2 U DNR	0.5 U	NA
	10/7/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**25**	2.0 U DNR	5.0 U DNR	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	25 E DNR	0.2 U DNR	0.5 U	NA
	1/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**18**	2.0 U DNR	5.0 U DNR	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	25 E DNR	0.2 U DNR	0.5 U	NA
	4/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**18**	2.0 U DNR	5.0 U DNR	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	55 E DNR	0.2 U DNR	0.5 U	NA
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**42**	2.0 U DNR	5.0 U DNR	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	32 E DNR	0.2 U DNR	0.5 U	NA
	10/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**25**	2.0 U DNR	5.0 U DNR	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	30 E DNR	0.2 U DNR	0.5 U	NA
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**26**	2.0 U DNR	5.0 U DNR	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 X	0.2 U	0.5 U	0.2 U	55 E DNR	0.2 U DNR	0.5 U	NA
	4/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**44**	2.0 U DNR	5.0 U DNR	NA
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P12B	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.2	0.2 U	0.5 U	0.2 U	**8.3**	0.2 U DNR	0.5 U	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 X	0.2 U	0.2 U DNR	0.5 U	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 X	**1.8**	0.2 U DNR	0.5 U	NA
	1/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/11/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**8.8**	0.2 U DNR	0.5 U	NA
	2/11/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.7**	0.2 U DNR	0.5 U	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.0**	0.2 U DNR	0.5 U	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.4	0.2 U DNR	0.5 U	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.0**	0.2 U DNR	0.5 U	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P13A	10/15/12	10 U	0.4 U	1.0 U	1.0 U	0.4 U	0.4 U	1.2	0.4 U	1.0 U	0.4 U	280 E DNR	0.4 U DNR	1.0 U	NA
	10/15/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**270**	4.0 U DNR	10 U DNR	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.9	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.6 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.5	0.1 X	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U	NA
	1/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**98**	2.0 U DNR	5.0 U DNR	NA
	1/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/11/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.1 X	1.9	0.2 X	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U	NA
	2/11/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**81**	2.0 U DNR	5.0 U DNR	NA
	2/11/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.3	0.1 X	0.5 U	0.2 U	100 E DNR	0.2 U DNR	0.5 U	NA
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**86**	2.0 U DNR	5.0 U DNR	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U	0.5 U	0.2 U	64 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**48**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	67 E DNR	0.2 U DNR	0.5 U	NA
	10/7/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**49**	2.0 U DNR	5.0 U DNR	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U	0.5 U	0.2 U	65 E DNR	0.2 U DNR	0.5 U	NA
	1/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**50**	2.0 U DNR	5.0 U DNR	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	47 E DNR	0.2 U DNR	0.5 U	NA
	4/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**39**	2.0 U DNR	5.0 U DNR	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.2 X	0.2 U	0.2 X	4.6	0.1 X	0.5 U	0.2 U	190 E DNR	0.2 X DNR	0.5 U	NA
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	3.9 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**150**	2.0 U DNR	5.0 U DNR	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.16**	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	65 E DNR	0.2 U DNR	0.5 U	NA
	10/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**49**	2.0 U DNR	5.0 U DNR	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	58 E DNR	0.2 U DNR	0.5 U	NA
	1/13/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**47**	2.0 U DNR	5.0 U DNR	NA
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	84 E DNR	0.2 U DNR	0.5 U	NA
	4/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**68**	2.0 U DNR	5.0 U DNR	NA
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P13B	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.1	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U	NA
	10/15/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	62 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**50**	2.0 U DNR	5.0 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	45 E DNR	0.2 U DNR	0.5 U	NA
	1/16/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**35**	2.0 U DNR	5.0 U DNR	NA
	1/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/11/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	47 E DNR	0.2 U DNR	0.5 U	NA
	2/11/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**40**	2.0 U DNR	5.0 U DNR	NA
	2/11/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	92 E DNR	0.2 U DNR	0.5 U	NA
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**79**	2.0 U DNR	5.0 U DNR	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	45 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**38**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	31 E DNR	0.2 U DNR	0.5 U	NA
	10/7/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**25**	2.0 U DNR	5.0 U DNR	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	29 E DNR	0.2 U DNR	0.5 U	NA
	1/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	36 E DNR	0.2 U DNR	0.5 U	NA
	4/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**29**	2.0 U DNR	5.0 U DNR	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	39 E DNR	0.2 U DNR	0.5 U	NA
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**34**	2.0 U DNR	5.0 U DNR	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	25 E DNR	0.2 U DNR	0.5 U	NA
	10/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**24**	2.0 U DNR	5.0 U DNR	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	39 E DNR	0.2 U DNR	0.5 U	NA
	1/13/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**31**	2.0 U DNR	5.0 U DNR	NA
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	44 E DNR	0.2 U DNR	0.5 U	NA
	4/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**34**	2.0 U DNR	5.0 U DNR	NA
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P14A	10/30/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	**0.9**	0.2 U DNR	0.5 U	NA
	10/30/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2	0.2 U DNR	0.5 U	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P14B	10/30/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.9	0.2 U	0.5 U	0.2 U	260 E DNR	0.2 U DNR	0.5 U	NA
	10/30/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.7 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**230**	2.0 U DNR	5.0 U DNR	NA
	10/30/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.8	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**190**	4.0 U DNR	10 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.2	0.2 U	0.5 U	0.2 U	300 E DNR	0.2 U DNR	0.5 U	NA
	1/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**230**	2.0 U DNR	5.0 U DNR	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U	NA
	2/12/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.3	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U	NA
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**190**	2.0 U DNR	5.0 U DNR	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.7	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**100**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.1	0.2 U	0.5 U	0.2 U	59 E DNR	0.2 U DNR	0.5 U	NA
	10/7/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**35**	2.0 U DNR	5.0 U DNR	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.1	0.2 U	0.5 U	0.2 U	87 E DNR	0.2 U DNR	0.5 U	NA
	1/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**72**	2.0 U DNR	5.0 U DNR	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.6	0.2 U	0.5 U	0.2 U	180 E DNR	0.2 U DNR	0.5 U	NA
	4/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**140**	2.0 U DNR	5.0 U DNR	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.3	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U	NA
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**85**	2.0 U DNR	5.0 U DNR	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.0	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U	NA
	10/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**100**	2.0 U DNR	5.0 U DNR	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	79 E DNR	0.2 U DNR	0.5 U	NA
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**74**	2.0 U DNR	5.0 U DNR	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.0	0.2 U	0.5 U	0.2 U	54 E DNR	0.2 U DNR	0.5 U	NA
	4/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**41**	2.0 U DNR	5.0 U DNR	NA
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P15A	10/30/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.3	0.2 U	0.5 U	0.2 U	46 E DNR	0.2 U DNR	0.5 U	NA
	10/30/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**39**	2.0 U DNR	5.0 U DNR	NA
	10/30/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.9	0.2 U	0.5 U	0.2 U	36 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**31**	2.0 U DNR	5.0 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	**9.4**	0.2 U DNR	0.5 U	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	27 E DNR	0.2 U DNR	0.5 U	NA
	2/12/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**23**	2.0 U DNR	5.0 U DNR	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	**14**	0.2 U DNR	0.5 U	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	**3.7**	0.2 U DNR	0.5 U	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**0.8**	0.2 U DNR	0.5 U	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	**0.8**	0.2 U DNR	0.5 U	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	**0.9**	0.2 U DNR	0.5 U	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	**1.2**	0.2 U DNR	0.5 U	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.9	0.2 U	0.5 U	0.2 U	**3.3**	0.2 U DNR	0.5 U	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	0.5	0.2 U DNR	0.5 U	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	**0.6**	0.2 U DNR	0.5 U	NA
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P15B	10/30/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U	NA
	10/30/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR	NA
	10/30/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	95 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**76**	2.0 U DNR	5.0 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.2	0.2 U	0.5 U	0.2 U	260 E DNR	0.2 U DNR	0.5 U	NA
	1/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**210**	2.0 U DNR	5.0 U DNR	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.0	0.2 U	0.5 U	0.2 U	170 E DNR	0.2 U DNR	0.5 U	NA
	2/12/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**150**	2.0 U DNR	5.0 U DNR	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.6	0.2 U	0.5 U	0.2 U	110 E DNR	0.2 U DNR	0.5 U	NA
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**91**	2.0 U DNR	5.0 U DNR	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.9	0.2 U	0.5 U	0.2 U	280 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**220**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.1	0.2 U	0.5 U	0.2 U	210 E DNR	0.2 U DNR	0.5 U	NA
	10/7/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.0 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.2	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U	NA
	1/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**190**	2.0 U DNR	5.0 U DNR	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	140 E DNR	0.2 U DNR	0.5 U	NA
	4/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U	NA
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**180**	2.0 U DNR	5.0 U DNR	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.3	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U	NA
	10/7/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.0 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U	NA
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.5	0.2 U	0.5 U	0.2 U	270 E DNR	0.2 U DNR	0.5 U	NA
	4/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**220**	2.0 U DNR	5.0 U DNR	NA
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P16	10/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.3	0.2 U DNR	0.5 U	NA
	10/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**2.6**	0.2 U DNR	0.5 U	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	**5.3**	0.2 U DNR	0.5 U	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**1.0**	0.2 U DNR	0.5 U	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.1 X	0.2 U DNR	0.5 U	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U DNR	0.5 U	NA
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P17	10/24/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	3.2	0.2 U	0.5 U	0.2 U	210 E DNR	0.2 U DNR	0.5 U	NA
	10/24/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	2.7 X DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**180**	4.0 U DNR	10 U DNR	NA
	10/24/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	3.3	0.2 U	0.5 U	0.2 U	200 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.9 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	10 U	0.4 U	1.0 U	1.0 U	0.4 U	0.4 U	3.2	0.4 U	1.0 U	0.4 U	190 E DNR	0.4 U DNR	1.0 U	NA
	1/17/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	2.8 X DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**160**	4.0 U DNR	10 U DNR	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.7	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U	NA
	2/12/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.4 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**180**	2.0 U DNR	5.0 U DNR	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.9	0.2 U	0.5 U	0.2 U	190 E DNR	0.2 U DNR	0.5 U	NA
	4/18/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.6 DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.3	0.2 U	0.5 U	0.2 U	49 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.0 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**35**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.9	0.2 U	0.5 U	0.2 U	49 E DNR	0.2 U DNR	0.5 U	NA
	10/8/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**33**	2.0 U DNR	5.0 U DNR	NA
	10/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	25 E DNR	0.2 U DNR	0.5 U	NA
	1/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR	NA
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U	0.5 U	0.2 U	54 E DNR	0.2 U DNR	0.5 U	NA
	4/9/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**45**	2.0 U DNR	5.0 U DNR	NA
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	27 E DNR	0.2 U DNR	0.5 U	NA
	7/23/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**23**	2.0 U DNR	5.0 U DNR	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	**8.1**	0.2 U DNR	0.5 U	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	42 E DNR	0.2 U DNR	0.5 U	NA
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**32**	2.0 U DNR	5.0 U DNR	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 X	0.2 U	0.5 U	0.2 U	**8.3**	0.2 U DNR	0.5 U	NA
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P18	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	**20**	0.2 U DNR	0.5 U	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	32 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**28**	2.0 U DNR	5.0 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	27 E DNR	0.2 U DNR	0.5 U	NA
	1/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**22**	2.0 U DNR	5.0 U DNR	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U	0.5 U	0.2 U	**16**	0.2 U DNR	0.5 U	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/19/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U	0.5 U	0.2 U	43 E DNR	0.2 U DNR	0.5 U	NA
	4/19/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**36**	2.0 U DNR	5.0 U DNR	NA
	4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.7	0.2 U	0.5 U	0.2 U	94 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**71**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	120 E DNR	0.2 U DNR	0.5 U	NA
	10/8/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**96**	2.0 U DNR	5.0 U DNR	NA
	10/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P18 (continued)	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.1	0.2 U	0.5 U	0.2 U	160 E DNR	0.2 U DNR	0.5 U	NA
	1/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR	NA
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U	NA
	4/9/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR	NA
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.0	0.2 U	0.5 U	0.2 U	150 E DNR	0.2 U DNR	0.5 U	NA
	7/24/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**120**	2.0 U DNR	5.0 U DNR	NA
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U	NA
	10/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR	NA
	10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	120 E DNR	0.2 U DNR	0.5 U	NA
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**98**	2.0 U DNR	5.0 U DNR	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.8	0.2 U	0.5 U	0.2 U	130 E DNR	0.2 U DNR	0.5 U	NA
	4/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**110**	2.0 U DNR	5.0 U DNR	NA
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P19	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.6	0.2 U	0.5 U	0.2 U	180 E DNR	0.2 U DNR	0.5 U	NA
	10/15/12 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.3	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U	NA
	12/19/12 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**150**	4.0 U DNR	10 U DNR	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.5	0.2 U	0.5 U	0.2 U	280 E DNR	0.2 U DNR	0.5 U	NA
	1/17/13 (DL)	100 U DNR	4.0 U DNR	10 U DNR	10 U DNR	4.0 U DNR	4.0 U DNR	2.1 X DNR	4.0 U DNR	10 U DNR	4.0 U DNR	**190**	4.0 U DNR	10 U DNR	NA
	1/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/12/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.8	0.2 U	0.5 U	0.2 U	190 E DNR	0.2 U DNR	0.5 U	NA
	2/12/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR	NA
	2/12/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/19/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.0	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U	NA
	4/19/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.7 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**180**	2.0 U DNR	5.0 U DNR	NA
	4/19/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.0	0.2 U	0.5 U	0.2 U	210 E DNR	0.2 U DNR	0.5 U	NA
	7/17/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**150**	2.0 U DNR	5.0 U DNR	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.8	0.2 U	0.5 U	0.2 U	230 E DNR	0.2 U DNR	0.5 U	NA
	10/8/13 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.7 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR	NA
	10/8/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.9	0.2 U	0.5 U	0.2 U	220 E DNR	0.2 U DNR	0.5 U	NA
	1/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**180**	2.0 U DNR	5.0 U DNR	NA
	1/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.7	0.2 U	0.5 U	0.2 U	240 E DNR	0.2 U DNR	0.5 U	NA
	4/9/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**180**	2.0 U DNR	5.0 U DNR	NA
	4/9/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.7	0.2 U	0.5 U	0.2 U	190 E DNR	0.2 U DNR	0.5 U	NA
	7/24/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.6 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**150**	2.0 U DNR	5.0 U DNR	NA
	7/24/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.8	0.2 U	0.5 U	0.2 U	210 E DNR	0.2 U DNR	0.5 U	NA
	10/8/14 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.6 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**160**	2.0 U DNR	5.0 U DNR	NA
	10/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.7	0.2 U	0.5 U	0.2 U	210 E DNR	0.2 U DNR	0.5 U	NA
	1/14/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**170**	2.0 U DNR	5.0 U DNR	NA
	1/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/15/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U	0.5 U	0.2 U	170 E DNR	0.2 U DNR	0.5 U	NA
	4/15/15 (DL)	50 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	2.0 U DNR	**130**	2.0 U DNR	5.0 U DNR	NA
	4/15/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P20	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.3**	0.2 U DNR	0.5 U	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.8**	0.2 U DNR	0.5 U	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**7.0**	0.2 U DNR	0.5 U	NA
	12/19/12 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.2**	0.2 U DNR	0.5 U	NA
	1/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/16/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.4**	0.2 U DNR	0.5 U	NA
	1/16/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P20 (continued)	2/11/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.0**	0.2 U DNR	0.5 U	NA
	2/11/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/11/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.3**	0.2 U DNR	0.5 U	NA
	2/11/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.8**	0.2 U DNR	0.5 U	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.3**	0.2 U DNR	0.5 U	NA
	4/18/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**7.1**	0.2 U DNR	0.5 U	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**6.8**	0.2 U DNR	0.5 U	NA
	7/17/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**2.8**	0.2 U DNR	0.5 U	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/2013 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**3.0**	0.2 U DNR	0.5 U	NA
	10/7/13 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**3.0**	0.2 U DNR	0.5 U	NA
	1/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/7/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.0**	0.2 U DNR	0.5 U	NA
	1/7/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.9**	0.2 U DNR	0.5 U	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.7**	0.2 U DNR	0.5 U	NA
	4/8/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.8**	0.2 U DNR	0.5 U	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**8.9**	0.2 U DNR	0.5 U	NA
	7/23/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.2**	0.2 U DNR	0.5 U	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**4.3**	0.2 U DNR	0.5 U	NA
	10/7/14 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**5.7**	0.2 U DNR	0.5 U	NA
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/13/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**5.9**	0.2 DNR	0.5 U	NA
	1/13/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**7.3**	0.2 U DNR	0.5 U	NA
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15 (DUP)	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**7.9**	0.2 U DNR	0.5 U	NA
	4/14/15 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
PMG-P21	10/15/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	**20**	0.2 U DNR	0.5 U	NA
	10/15/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	12/19/12	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**15**	0.2 U DNR	0.5 U	NA
	12/19/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/16/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U	0.5 U	0.2 U	**19**	0.2 U DNR	0.5 U	NA
	1/16/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	2/11/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**17**	0.2 U DNR	0.5 U	NA
	2/11/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/18/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**11**	0.2 U DNR	0.5 U	NA
	4/18/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/17/13	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**14**	0.2 U DNR	0.5 U	NA
	7/17/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/13	5.0 UJ	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**15**	0.2 U DNR	0.5 U	NA
	10/7/13 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-27
Summary of Groundwater Analytical Results (Piezometers)
2nd Quarter 2015
Powder Mill Gulch
Boeing Everett Plant

Well ID/Sample Depth (feet bgs)	Sample Date	Volatile Organic Compounds (VOCs) (ug/L)													Polychlorinated Biphenyls (PCBs) [a] (ug/L)
		Acetone	Benzene	Carbon Disulfide	Chloroethane	Chloroform	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Ethylbenzene	Toluene	TCE	Vinyl Chloride	Xylenes	
MTCA Method A or B Groundwater Screening Level		7,200 (B)	5 (A) 0.795 (B)	800 (B)	NE	1.41 (B)	400 (B)	16 (B)	160 (B)	700 (A) 800 (B)	1,000 (A) 640 (B)	5 (A) 0.54 (B)	0.2 (A) 0.029 (B)	1,000 (A) 1,600 (B)	0.1 (Total) (A) 0.0438 (Total) (B) 0.0438 (Aroclor 1254) (B)
PMG-P21 (continued)	1/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**13**	0.2 U DNR	0.5 U	NA
	1/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/8/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.5**	0.2 DNR	0.5 U	NA
	4/8/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/23/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**12**	0.2 U DNR	0.5 U	NA
	7/23/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/7/14	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**7.4**	0.2 U DNR	0.5 U	NA
	10/7/14 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/13/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**10**	0.2 U DNR	0.5 U	NA
	1/13/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/14/15	5.0 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	**9.2**	0.2 U DNR	0.5 U	NA
	4/14/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Notes:
Values in **bold** font indicate that the result reported meets or exceeds the most current MTCA levels based on the Ecology website.
Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA Method A and B values are from Ecology website. CLARC tables downloaded June 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx).
(A) - MTCA Method A
(B) - MTCA Method B
bgs - below ground surface
DUP - field duplicate
DCE - dichloroethene
D - Dilution required to quantitate analyte within the range of detector.
DL - dilution
DNR - do not report
J - estimated value
NA - not analyzed
SIM - selected ion monitoring
TCE - trichloroethene
U - Compound was analyzed for but not detected above the reporting limit shown.
ug/L - microgram per liter
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result is between the method detection limit (MDL) and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.
[a] PCB reporting limits are for all Aroclors except Aroclor 1221 which ranges from 0.010 ug/L to 0.2 ug/L.

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG3	4/5/2005	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	7/21/2005	3.2*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	1/4/2006	NA	NA	0.2 U	0.2 U	0.020 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	**5.8**	0.020 U	NA	NA
	4/24/2007	3.0 U	2.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.13	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.027	0.020 U	NA	NA
	10/31/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.020 U	0.020 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.020 U	0.020 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.08	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.047	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG4	10/7/1998	14 U	85 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.5 U	1.0 U	2.5 U	**18**	0.010 U	NA	ND
	11/11/1998	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**22**	0.010 U	NA	ND
	1/26/1999	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**3.1**	0.010 U	NA	ND
	4/29/1999	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**18**	0.020 U	NA	ND
	04/29/1999 (DUP)	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	**18**	0.020 U	NA	ND
	3/18/2003	1.1 U	1.6	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**3.3**	0.020 U	NA	NA
	3/18/2003 (DUP)	1.9 U	1.6	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**3.8**	0.020 U	NA	NA
	12/26/2003	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	1/20/2004	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**2.7**	0.020 U	NA	NA
	3/12/2004	1.6 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	4/5/2005	1.7*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	7/21/2005	1.4*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**7.4**	0.020 U	NA	NA
	1/4/2006	NA	NA	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	0.5 U	0.020 U	NA	NA
	7/11/2006	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**5.7**	0.020 U	NA	NA
	10/25/2006	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**3.6**	0.020 U	NA	NA
	4/24/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**4.6**	0.020 U	NA	NA
	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**2.9**	0.2 U	NA	NA
	11/6/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**5.0**	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**4.9**	0.020 U	NA	NA
	10/31/2008	4.8	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.61	0.020 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.20 U	0.7	0.2 U	0.5 U	0.2 U	0.20 U	0.2 U	**20**	0.20 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**6.9**	0.020 U	NA	NA
	10/28/2009 (DUP)	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**7.4**	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**11**	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**7.6**	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**4.9**	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**8.4**	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**7.9**	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**9.7**	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.1	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.2**	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.3**	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**2.8**	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**2.8**	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.0**	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**2.6**	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.6	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.3	0.2 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG8	6/9/2003	1.5 U	1.0 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**26**	0.020 U	NA	NA
	6/9/2003 (DUP)	1.7 U	1.0 U	0.2 U	0.2 U	0.020 U	0.5	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**25**	0.020 U	NA	NA
	4/5/2005	1.9*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**4.4**	0.020 U	NA	NA
	7/21/2005	1.6*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**9.6**	0.020 U	NA	NA
	1/4/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
	1/11/2006	1.3 J	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	7/11/2006	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**7.3**	0.020 U	NA	NA
	10/25/2006	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**3.3**	0.020 U	NA	NA
	4/24/2007	3.0 U	2.3	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.086	0.020 U	NA	NA
	4/24/07 (DUP)	3.0 U	3.4	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.077	0.020 U	NA	NA
	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**7.5**	0.2 U	NA	NA
	11/6/2007	5.0	2.6	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**10**	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**5.2**	0.020 U	NA	NA
	4/25/08 (DUP)	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**5.0**	0.020 U	NA	NA
	10/31/2008	16	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.9	0.2 U	0.020 U	0.2 U	1.3	0.020 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.20 U	0.2	0.2 U	0.5 U	0.2 U	0.20 U	0.2 U	**9.0**	0.20 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.6 U	0.2 U	0.020 U	0.2 U	**9.1**	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**6.4**	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**7.0**	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	2.0	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**5.8**	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.9**	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.2**	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.0**	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.4	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**2.7**	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.9	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.4	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.3	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.0	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 UJ	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.1	0.2 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG11	6/9/2003	1.9 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**6.5**	0.020 U	NA	NA
	4/5/2005	1.6*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**4.8**	0.020 U	NA	NA
	7/21/2005	2.4*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**5.8**	0.020 U	NA	NA
	1/4/2006	NA	NA	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	**7.4**	0.020 U	NA	NA
	7/11/2006	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**7.2**	0.020 U	NA	NA
	10/25/2006	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**4.8**	0.020 U	NA	NA
	4/24/2007	3.0 U	3.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**5.2**	0.020 U	NA	NA
	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**5.0**	0.2 U	NA	NA
	11/6/2007	5.2	2.8	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**5.7**	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**5.4**	0.020 U	NA	NA
	10/31/2008	3.2	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**4.3**	0.020 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**6.3**	0.020 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**4.7**	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**4.4**	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 UJ	0.2 U	0.2 U	0.5 U	0.2 U	0.020 UJ	0.2 U	**4.7**	0.020 UJ	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**4.3**	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**4.2**	0.020 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG11 (continued)	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.4**	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.3**	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.9**	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.0**	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.4**	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.8**	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.5**	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.7**	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.1**	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.1**	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.9**	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.7**	0.2 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG14	6/9/2003	1.4 *	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	2.1	0.020 U	NA	NA
	4/5/2005	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	2.3	0.020 U	NA	NA
	7/21/2005	2.0*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	1.9	0.020 U	NA	NA
	1/4/2006	NA	NA	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	**4.8**	0.020 U	NA	NA
	7/11/2006	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	2.3	0.020 U	NA	NA
	10/25/2006	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	1.5	0.020 U	NA	NA
	4/24/2007	4.8	6.8	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	2.0	0.020 U	NA	NA
	11/6/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	1.9	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	2.2	0.020 U	NA	NA
	10/31/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	2.0	0.020 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	1.8	0.020 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	1.7	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	1.6	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	1.5	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.4	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	1.2	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.3	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.5	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.3	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.4	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.2	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.2	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.2	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.1	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.0	0.2 U DNR	NA	NA
	4/9/2015(SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG19	3/18/2003	3.1 U	3.0 U	0.6 U	0.6 U	0.020 U	0.9 U	0.6 U	1.1 *	0.6 U	0.020 U	0.6 U	**37**	0.020 U	NA	NA
	12/26/2003	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**5.5**	0.020 U	NA	NA
	1/20/2004	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**25**	0.020 U	NA	NA
	3/12/2004	3.0 U	3.0 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.020 U	0.6 U	**28**	0.020 U	NA	NA
	10/14/2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA
	4/5/2005	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**8.6**	0.020 U	NA	NA
	7/21/2005	1.5*	1.0 U	0.2 U	0.2 U	0.020 U	0.6	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**38**	0.020 U	NA	NA
	1/4/2006	NA	NA	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	**11.4**	0.020 U	NA	NA
	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.2**	0.5 U	NA	NA
	7/11/2006	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.6	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**32**	0.020 U	NA	NA
	10/25/2006	9.0 U	3.0 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.020 U	0.6 U	**22**	0.020 U	NA	NA
	4/24/2007	3.0 U	1.7	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**24**	0.020 U	NA	NA
	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**14**	0.2 U	NA	NA
	11/6/2007	5.3	2.9	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**25**	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**6.2**	0.020 U	NA	NA
	10/31/2008	5.1	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	1.2	0.020 U	NA	NA
	4/16/2009	2.6	2.5 U	0.2 U	0.2 U	0.025	0.4	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**21**	0.020 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.4	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**19**	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.3	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**17**	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.3	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**15**	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**12**	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**4.4**	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**15**	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.3	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**16**	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**5.8**	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**6.4**	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**8.8**	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013 (DUP)	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**8.1**	0.2 U DNR	NA	NA
	7/24/2013 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**6.4**	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**5.7**	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/16/2014 (DUP)	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**5.4**	0.2 U DNR	NA	NA
	1/16/2014 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.3	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**6.7**	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014 (DUP)	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**6.6**	0.2 U DNR	NA	NA
	7/30/2014 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**6.7**	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.1**	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015 (DUP)	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.7**	0.2 U DNR	NA	NA
	1/14/2015 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.9**	0.2 U DNR	NA	NA
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG20	3/18/2003	4 .0 U	2.9	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U		0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.4	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	1.7	0.2 U DNR	NA	NA
	10/11/12 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG23	6/9/2003	1.4 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2	0.020 U	NA	NA
	7/21/2005	1.6*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	1/4/2006	NA	NA	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	0.5 U	0.020 U	NA	NA
	7/11/2006	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.3	0.020 U	NA	NA
	10/25/2006	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.18	0.020 U	NA	NA
	4/24/2007	5.4	5.2	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.23	0.020 U	NA	NA
	11/6/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.18	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.5	0.020 U	NA	NA
	10/31/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.8	0.020 U	NA	NA
	4/16/2009	3.0	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.25	0.020 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.24	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.25	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.19	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 X	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 X	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.3	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 X	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 X	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 X	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG24	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.1 X	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG43	6/9/2003	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
SW-PMG44	6/9/2003	1.6 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	2.5	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG45	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U DNR	NA	NA
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG46	7/22/2004	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
SW-PMG47	7/22/2004	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
SW-PMG48	7/22/2004	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**14**	0.020 U	NA	NA
	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**8.1**	0.2 U	NA	NA
SW-PMG49	7/22/2004	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2	0.020 U	NA	NA
	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG61 (continued)	7/21/2005	2.2*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**2.8**	0.020 U	NA	NA
	8/17/2005	1.2 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**3.6**	0.020 U	NA	NA
	01/04/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	1.0 U	**5.5**	0.5 U	NA	NA
	01/11/2006	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**5.7**	0.020 U	NA	NA
	7/11/2006	1.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**12**	0.020 U	NA	NA
	10/25/2006	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.5	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**16**	0.020 U	NA	NA
	4/24/2007	3.0 U	2.7	0.2 U	0.2 U	0.020 U	0.7	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**21**	0.020 U	NA	NA
	11/6/2007	9.0 U	3.0 U	0.6 U	0.6 U	0.020 U	0.9	0.6 U	0.9 U	0.6 U	0.020 U	0.6 U	**34**	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**6.8**	0.020 U	NA	NA
	10/31/2008	4.0	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.080	0.020 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.23	0.020 U	NA	NA
	10/28/2009	5.3	5.0 U	0.2 U	0.5 U	0.023	1.0	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.089	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.039	2.7	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**7.9**	0.020 U	NA	NA
	10/6/2010	7.0	5.0 U	0.2 U	0.5 U	0.13	12	0.2	0.5 U	0.2 U	0.020 U	0.4	**6.3**	**0.14**	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	2.5	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**14**	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.9	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	NA	NA
	4/23/2012	5.5	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	1.3	0.9	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	1.4	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	110 E DNR	0.2 U DNR	NA	NA
	10/11/2012 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**87**	2.0 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	8.1 J	5.0 U	0.5 U	0.5 U	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2	1.2	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	0.5 U	0.2 U	0.2	1.6	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.1	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	98 E DNR	0.2 U DNR	NA	NA
	10/21/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**85**	2.0 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.8	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	77 E DNR	0.2 U DNR	NA	NA
	4/7/2014 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**58**	2.0 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	88 E DNR	0.2 U DNR	NA	NA
	10/9/2014 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**67**	2.0 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	3.2 X	5.0 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	79 E DNR	0.2 U DNR	NA	NA
	4/9/2015 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**64**	2.0 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG62	7/21/2005	2.4*	1.0 U	0.2 U	0.2 U	0.020 U	2.6	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**57**	**0.028**	NA	NA
	8/17/2005	1.8 U	1.0 U	0.2 U	0.2 U	0.020 U	3.2	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**52**	**0.034**	NA	NA
	1/4/2006	NA	NA	1.0 U	1.0 U	1.0 U	2.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**50.3**	0.5 U	NA	NA
	1/11/2006	5.0 U	5.0 U	1.0 U	1.0 U	0.020 U	2.4	1.0 U	2.0 U	1.0 U	0.020 U	1.0 U	**53**	**0.027**	NA	NA
	7/11/2006	5.0 U	5.0 U	1.0 U	1.0 U	0.02 U	2.6	1.0 U	2.0 U	1.0 U	0.02 U	1.0 U	**51**	0.02 U	NA	NA
	10/25/2006	15 U	5.0 U	1.0 U	1.0 U	0.020 U	2.6	1.0 U	1.5 U	1.0 U	0.020 U	1.0 U	**57**	0.020 U	NA	NA
	4/24/2007	5.0 U	5.0 U	1.0 U	1.0 U	0.020 U	1.8	1.0 U	2.0 U	1.0 U	0.020 U	1.0 U	**49**	0.024	NA	NA
	11/6/2007	5.0 U	5.0 U	1.0 U	1.0 U	0.02 U	2.2	1.0 U	2.0 U	1.0 U	0.02 U	1.0 U	**39**	0.022	NA	NA
	4/25/2008	5.0 U	5.0 U	1.0 U	1.0 U	0.020 U	2.2	1.0 U	2.0 U	1.0 U	0.020 U	1.0 U	**61**	0.020 U	NA	NA
	10/31/2008	9.0 U	7.5 U	0.6 U	0.6 U	0.20 U	3.6	0.6 U	1.5 U	0.6 U	0.20 U	0.6 U	**64 D**	0.20 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.3 J	0.020 U	2.1	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**60 D**	**0.028**	NA	NA
	10/28/2009	10 U	10 U	0.4 U	1.0 U	0.020 U	2.5	0.4 U	1.0 U	0.4 U	0.020 U	0.4 U	**56**	**0.026**	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	2.3	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**56**	0.020 U	NA	NA
	10/6/2010	5.6	5.0 U	0.2 U	0.5 U	0.2 U	2.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**59**	0.2 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	2.0	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**65 D**	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	1.8	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**51**	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.8	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	67 E DNR	0.2 U DNR	NA	NA
	4/23/2012 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.5 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**53**	2.0 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.015 X	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	3.7	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	86 E DNR	0.2 U DNR	NA	NA
	10/11/2012 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	3.4 DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**78**	2.0 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.032	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG62 (continued)	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	1.4	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	59 E DNR	0.2 U DNR	NA	NA
	1/18/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**49**	2.0 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	58 E DNR	0.2 U DNR	NA	NA
	4/24/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**46**	2.0 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.6	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	56 E DNR	0.2 U DNR	NA	NA
	10/21/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**44**	2.0 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	55 E DNR	0.2 U DNR	NA	NA
	4/7/2014 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.1 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**43**	2.0 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 X	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.7	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	49 E DNR	0.2 U DNR	NA	NA
	10/9/2014 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.3 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**33**	2.0 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.012 X	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.0	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	41 E DNR	0.2 U DNR	NA	NA
	4/9/2015 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**32**	2.0 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG63	8/17/2005	1.2 U	1.0 U	0.2 U	0.2 U	0.020 U	3.7	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**36**	**0.043**	NA	NA
	1/4/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**27.4**	0.5 U	NA	NA
	1/11/2006	5.0 U	5.0 U	1.0 U	1.0 U	0.020 U	2.1	1.0 U	2.0 U	1.0 U	0.020 U	1.0 U	**30**	0.024	NA	NA
	7/11/2006	5.0 U	5.0 U	1.0 U	1.0 U	0.020 U	2.7	1.0 U	2.0 U	1.0 U	0.020 U	1.0 U	**30**	**0.025**	NA	NA
	10/25/2006	9.0 U	3.0 U	0.6 U	0.6 U	0.020 U	3.1	0.6 U	0.9 U	0.6 U	0.020 U	0.6 U	**35**	**0.031**	NA	NA
	4/24/2007	9.0 U	7.0	0.6 U	0.6 U	0.020 U	2.8	0.6 U	0.9 U	0.6 U	0.020 U	0.6 U	**44**	**0.036**	NA	NA
	11/6/2007	7.2	5.0 U	1.0 U	1.0 U	0.020 U	2.8	1.0 U	2.0 U	1.0 U	0.020 U	1.0 U	**29**	**0.038**	NA	NA
	4/25/2008	9.0 U	7.5 U	0.6 U	0.6 U	0.020 U	3.1	0.6 U	1.5 U	0.6 U	0.020 U	0.6 U	**45**	**0.031**	NA	NA
	10/31/2008	9.0 U	7.5 U	0.6 U	0.6 U	0.020 U	5.0	0.6 U	1.5 U	0.6 U	0.020 U	0.6 U	**47 D**	**0.050**	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.020 UJ	2.6	0.2 U	0.5 U	0.2 U	0.020 UJ	0.2 U	**47**	**0.042 J**	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	3.2	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**37**	**0.037**	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	2.3	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**29**	**0.026**	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	2.7	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**34**	**0.034**	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	2.6	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**44**	**0.027**	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	2.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**25**	0.019 X	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	2.4	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	43 E DNR	0.2 U DNR	NA	NA
	4/23/2012 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.2 DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**36**	2.0 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.034**	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	1.7	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	52 E DNR	0.2 U DNR	NA	NA
	10/11/2012 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.6 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**46**	2.0 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.015 X	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	1.5	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	35 E DNR	0.2 U DNR	NA	NA
	1/18/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	1.7	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	36 E DNR	0.2 U DNR	NA	NA
	4/24/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.4 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**29**	2.0 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.019 X	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.8	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	26 E DNR	0.2 U DNR	NA	NA
	10/21/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.8 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**21**	2.0 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.3	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	26 E DNR	0.2 U DNR	NA	NA
	4/7/2014 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	1.2 X DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**21**	2.0 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.016 X	NA	NA
	10/9/2014	5.0 U	5.0 U	0.4 X	0.5 U	0.2 U	2.0	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**21**	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.017 X	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	1.2	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**19**	0.2 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 X	NA	NA
SW-PMG64	1/6/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**37.8**	0.5 U	NA	NA
SW-PMG65	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG66	1/6/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
SW-PMG67	1/6/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
SW-PMG68	1/6/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
SW-PMG69	1/6/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
SW-PMG70	1/6/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
SW-PMG71	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
SW-PMG72	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.61	0.5 U	NA	NA
SW-PMG73	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.9	0.5 U	NA	NA
	1/20/2006	1.3 J	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA
SW-PMG74	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.7**	0.5 U	NA	NA
	10/25/2006	6.0 U	2.0 U	0.4 U	0.4 U	0.020 U	0.4 U	0.4 U	0.6 U	0.4 U	0.020 U	0.4 U	**24**	0.020 U	NA	NA
	4/24/2007	9.0 U	6.3	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.020 U	0.6 U	**23**	0.020 U	NA	NA
	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**14**	0.2 U	NA	NA
	11/6/2007	9.0 U	3.0 U	0.6 U	0.6 U	0.020 U	0.6 U	0.6 U	0.9 U	0.6 U	0.020 U	0.6 U	**26**	0.020 U	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**7.3**	0.020 U	NA	NA
	10/31/2008	7.0	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	1.0	0.020 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.020 U	0.4	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**20**	0.020 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.3	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**18**	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**13**	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.3	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**17**	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**14**	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**13**	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**12**	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.9**	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.5**	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**6.2**	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.9**	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**5.0**	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.2**	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.9**	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**5.1**	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.1**	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.1**	0.2 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG75	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**7.9**	0.5 U	NA	NA
	10/25/2006	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.3	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	**21**	0.020 U	NA	NA
	4/24/2007	6.0 U	4.2	0.4 U	0.4 U	0.020 U	0.4 U	0.4 U	0.6 U	0.4 U	0.020 U	0.4 U	**18**	0.020 U	NA	NA
	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**13**	0.2 U	NA	NA
	11/6/2007	8.4	4.9	0.2 U	0.2 U	0.020 UJ	0.3	0.2 U	0.3 U	0.2 U	0.020 UJ	0.2 U	**21**	0.020 UJ	NA	NA
	4/25/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**9.3**	0.020 U	NA	NA
	10/31/2008	8.0	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.9	0.020 U	NA	NA
	4/16/2009	2.5 U	2.5 U	0.2 U	0.2 U	0.022	0.3	0.2 U	0.5 U	0.2 U	0.022	0.2 U	**16**	0.020 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.3	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**14**	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**10**	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**14**	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**9.1**	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	**11**	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**11**	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**10**	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.2**	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.9**	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.8**	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.7**	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.0**	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**2.7**	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.8**	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**4.1**	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.3**	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**3.1**	0.2 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG76	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
SW-PMG77	1/9/2006	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.5 U	0.5 U	NA	NA
SW-PMG78	1/20/2006	5.5	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA
SW-PMG79	1/20/2006	10	2.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA
	7/11/2006	1.1*	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.2 U	0.020 U	NA	NA
	10/25/2006	3.0 U	1.0 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.2 U	0.020 U	0.020 U	NA	NA
	4/24/2007	3.6	4.3	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.3 U	0.2 U	0.020 U	0.3	0.020 U	0.020 U	NA	NA
	11/6/2007	3.8	1.0 U	0.2 U	0.2 U	0.020 UJ	0.2 U	0.2 U	0.3 U	0.2 U	0.020 UJ	0.6	0.027 J	0.020 UJ	NA	NA
	4/25/2008	5.5	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	1.1	0.020 U	0.020 U	NA	NA
	10/31/2008	4.6	2.5 U	0.2 U	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.079	0.020 U	NA	NA
	4/16/2009	6.4	2.5 U	0.3	0.2 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	1.2	0.020 U	0.020 U	NA	NA
	10/28/2009	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.5	0.020 U	0.2 U	0.020 U	0.020 U	NA	NA
	9/3/2010	6.3	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.030	0.020 U	NA	NA
	10/6/2010	5.0	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.020 U	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.6	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	11	0.2 U	0.020 U	NA	NA
	10/26/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.6	0.2 U	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.1 X	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	**5.1**	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG79 (continued)	1/18/2013	3.4 XJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2	0.2 U	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	6.6 J	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	5.1	0.2 U	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	6.7	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.5	0.2 U	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	4.5 X	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	1.7	0.2 U	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	4.6 X	1.2 X	2.4	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	1.1	0.1 X	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	7.0	1.6 X	1.1	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.7	0.2 U	0.2 U DNR	NA	NA
	4/9/15 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG80	1/24/2006	2.0 U	2.0 U	0.4 U	0.4 U	0.4 U	3.3	0.4 U	0.6 U	0.4 U	0.4 U	0.4 U	**18**	0.4 U	NA	NA
SW-PMG81	1/24/2006	10 U	10 U	2.0 U	2.0 U	2.0 U	27	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U	**390**	2.0 U	NA	NA
	7/11/2006	25 U	25 U	5.0 U	5.0 U	0.20	38	5.0 U	10 U	5.0 U	0.020 U	5.0 U	**530**	**0.69**	NA	NA
	10/25/2006	150 U	50 U	10 U	10 U	0.17	75	10 U	15 U	10 U	0.020 U	10 U	**430**	**0.88**	NA	NA
	4/24/2007	25 U	25 U	5.0 U	5.0 U	0.18	61	5.0 U	10 U	5.0 U	0.020 U	5.0 U	**290**	**0.68**	NA	NA
	11/6/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.24 J	67	1.0	0.3 U	0.2 U	0.020 U	0.2 U	**230**	**3.0**	NA	NA
	11/6/2007 (DUP)	3.0 U	1.0 U	0.2 U	0.2 U	0.23 J	77	1.0	0.3 U	0.2 U	0.020 U	0.2 U	**220**	**3.1**	NA	NA
	4/25/2008	5.0 U	5.0 U	1.0 U	1.0 U	0.20 U	82	1.0 U	2.0 U	1.0 U	0.020 U	1.0 U	**38**	**9.1**	NA	NA
	10/31/2008	45 U	38 U	3.0 U	3.0 U	0.25	63	3.0 U	7.5 U	3.0 U	0.020 U	3.0 U	**210**	**6.6**	NA	NA
	10/31/08 (DUP)	45 U	38 U	3.0 U	3.0 U	0.31 J	71	3.0 U	7.5 U	3.0 U	0.020 U	3.0 U	**220**	**6.5**	NA	NA
	4/16/2009	25 U	25 U	2.0 U	2.0 U	1.0 U	59	2.0 U	5.0 U	2.0 U	1.0 U	2.0 U	**110**	**6.9**	NA	NA
	4/16/09 (DUP)	25 U	25 U	2.0 U	2.0 U	0.2 UJ	59	2.0 U	5.0 U	2.0 U	0.2 UJ	2.0 U	**130**	**6.2 J**	NA	NA
	10/28/2009	15 U	15 U	0.6 U	1.5 U	0.089	26	0.6 U	1.5 U	0.6 U	0.020 U	0.6 U	**140**	**2.1**	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.25	73 D	0.5	0.5 U	0.2 U	0.020 U	0.2 U	**55 D**	**16**	NA	NA
	9/3/10 (DUP)	15 U	15 U	0.6 U	1.5 U	0.21	68	0.6 U	1.5 U	0.6 U	0.020 U	0.6 U	**76**	**16**	NA	NA
	10/6/2010	15 U	15 U	0.6 U	1.5 U	0.25	74	0.6	1.5 U	0.6 U	0.020 U	0.6 U	**80**	**8.3**	NA	NA
	10/6/10 (DUP)	5.0 U	5.0 U	0.2 U	0.5 U	0.21	75	0.6	0.5 U	0.2 U	0.2 U	0.2 U	**88**	**10**	NA	NA
	5/19/2011	15 U	15 U	0.6 U	1.5 U	0.6 U	25	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	**86**	**1.2**	NA	NA
	5/19/11 (DUP)	15 U	15 U	0.6 U	1.5 U	0.6 U	27	0.6 U	1.5 U	0.6 U	0.6 U	0.6 U	**85**	**1.4**	NA	NA
	10/26/2011	5.0 U	5.0 U	0.2	0.5 U	0.2 U	14 J	0.4	0.5 U	0.2 U	0.2 U	0.2	**3.5**	**7.2**	NA	NA
	10/26/2011 (DUP)	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	10 J	0.4	0.5 U	0.2 U	0.2 U	0.2 U	**2.8**	**6.0**	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	25 E DNR	0.3	0.5 U	0.5 U	0.2 U	0.3	57 E DNR	1.2 DNR	NA	NA
	4/23/2012 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	22	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**48**	1.0 X DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1	NA	NA
	4/23/2012 (DUP)	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	26 E DNR	0.3	0.5 U	0.5 U	0.2 U	0.2	67 E DNR	1.3 DNR	NA	NA
	4/23/2012 (DUP DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	20	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**46**	2.0 U DNR	NA	NA
	4/23/2012 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	27 E DNR	0.2	0.5 U	0.1 X	0.2 U	0.2	**5.4**	7.1 DNR	NA	NA
	10/11/2012 (DL)	25 U DNR	25 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	14 J	1.0 U DNR	2.5 U DNR	2.5 U DNR	1.0 U DNR	1.0 U DNR	6.4 DNR	2.4 DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**6.9**	NA	NA
	10/11/2012 (DUP)	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	24 J	0.2	0.5 U	0.5 U	0.2 U	0.6	**4.3**	7.3 DNR	NA	NA
	10/11/2012 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.0**	NA	NA
	1/18/2013	3.7 XJ	5.0 U	0.5 U	0.5 U	0.2 U	17	0.2	0.5 U	0.5 U	0.2 U	0.2 U	42 E DNR	1.4	NA	NA
	1/18/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	14 DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**36**	1.2 X DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 DNR	NA	NA
	1/18/2013 (DUP)	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	14	0.2 X	0.5 U	0.5 U	0.2 U	0.2 U	40 E DNR	1.1	NA	NA
	1/18/2013 (DUP DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	14 DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**33**	1.1 X DNR	NA	NA
	1/18/2013 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 DNR	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	20	0.3	0.5 U	0.5 U	0.2 U	0.4	34 E DNR	1.1 DNR	NA	NA
	4/24/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	16 DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**23**	1.1 X DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.1**	NA	NA
	4/24/2013 (DUP)	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	19	0.4	0.5 U	0.5 U	0.2 U	0.4	26 E DNR	1.5 DNR	NA	NA
	4/24/2013 (DUP DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	17 DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**27**	2.0 U DNR	NA	NA
	4/24/2013 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6	NA	NA
	10/21/2013	3.8 X	5.0 U	0.5 U	0.5 U	0.2 U	30 E DNR	0.4	0.5 U	0.5 U	0.2 U	0.4	41 E DNR	3.1 DNR	NA	NA
	10/21/2013 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	24	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**34**	2.5 DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.7**	NA	NA
	10/21/2013 (DUP)	5.2	5.0 U	0.5 U	0.5 U	0.1 X	33 E DNR	0.4	0.5 U	0.5 U	0.2 U	0.3	50 E DNR	2.6 DNR	NA	NA
	10/21/2013 (DUP DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	25	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**34**	2.3 DNR	NA	NA
	10/21/2013 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.4**	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG81 (continued)	4/7/2014	3.8 X	5.0 U	0.5 U	0.5 U	0.2 U	18	0.4	0.5 U	0.5 U	0.2 U	0.2 U	45 E DNR	1.4	NA	NA
	4/7/2014 (DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	17 DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**29**	1.7 X DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 DNR	NA	NA
	4/7/2014 (DUP)	6.0	5.0 U	0.5 U	0.5 U	0.2 U	22	0.4	0.5 U	0.5 U	0.2 U	0.2 U	42 E DNR	**2.1**	NA	NA
	4/7/2014 (DUP DL)	50 U DNR	50 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	15 DNR	2.0 U DNR	5.0 U DNR	5.0 U DNR	2.0 U DNR	2.0 U DNR	**39**	1.2 X DNR	NA	NA
	4/7/2014 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3 DNR	NA	NA
	10/9/2014	5.1	5.0 U	2.8	0.5 U	0.2 U	9.9	0.2 X	0.5 U	0.5 U	0.2 U	0.2	**12**	**2.3**	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9 DNR	NA	NA
	10/9/2014 (DUP)	4.1 X	1.1 X	4.6	0.5 U	0.2 U	8.2	0.2	0.5 U	0.5 U	0.2 U	0.2	**7.7**	**2.8**	NA	NA
	10/9/2014 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2 DNR	NA	NA
	4/9/2015	10	2.4 X	2.4	0.5 U	0.2 U	1.5	0.1 X	0.5 U	0.5 U	0.2 U	0.2 X	1.3	0.4 DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.38	NA	NA
	4/9/2015 (DUP)	9.7	2.1 X	3.7	0.5 U	0.2 U	1.5	0.1 X	0.5 U	0.5 U	0.2 U	0.1 X	1.4	0.5 DNR	NA	NA
	4/9/2015 (DUP SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.39	NA	NA
SW-PMG82	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**22**	0.2 U	NA	NA
SW-PMG83	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**16**	0.2 U	NA	NA
SW-PMG84	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**11**	0.2 U	NA	NA
SW-PMG85	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**9.1**	0.2 U	NA	NA
SW-PMG86	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**8.6**	0.2 U	NA	NA
SW-PMG87	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**6.0**	0.2 U	NA	NA
SW-PMG88	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**5.2**	0.2 U	NA	NA
SW-PMG89	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**4.3**	0.2 U	NA	NA
SW-PMG90	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**3.6**	0.2 U	NA	NA
SW-PMG91	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**3.2**	0.2 U	NA	NA
SW-PMG92	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.4	2.2	0.2 U	NA	NA
SW-PMG93	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**4.4**	0.2 U	NA	NA
SW-PMG94	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**5.8**	0.2 U	NA	NA
SW-PMG95	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**6.2**	0.2 U	NA	NA
SW-PMG96	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**8.4**	0.2 U	NA	NA
SW-PMG97	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**5.6**	0.2 U	NA	NA
SW-PMG98	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**4.3**	0.2 U	NA	NA
SW-PMG99	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.3	0.2 U	0.3	**3.8**	0.2 U	NA	NA
SW-PMG100	10/26/2007	3.0 U	1.0 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.2 U	0.2 U	**3.1**	0.2 U	NA	NA
SW-PMG105	8/21/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA
SW-PMG106	8/21/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA
SW-PMG107	8/21/2008	3.0 U	2.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	NA

Table A-28
Summary of Surface Water Sample Analytical Results for VOCs, TPH and 1,4-Dioxane
2nd Quarter 2015
Powder Mill Gulch

Sample ID/Date		Volatile Organic Compounds (ug/L)													1,4 Dioxane (ug/L)	Total Petroleum Hydrocarbons (mg/L)
		Acetone	2-Butanone (MEK)	Carbon Disulfide	Chloromethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Methylene Chloride	Styrene	PCE	Toluene	TCE	Vinyl Chloride		
MTCA Method B Surface Water Level		NE	NE	NE	NE	23,100	NE	32,407	3,601	NE	99.6	18,855	12.8	3.7	NE	NE
Water Quality Standards WAC 173-201A Human Health Water & Organisms/Organisms Only [1]		NE/NE	NE/NE	NE/NE	NE/NE	0.057 / 3.2	NE/NE	NE/NE	4.7 / 1,600	NE/NE	0.8 / 8.85	6,800 / 200,000	2.7 / 81	2 / 525	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Marine Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
Water Quality Standards WAC 173-201A Fresh Water Aquatic Acute/Chronic [1]		NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE	NE/NE
SW-PMG108	4/16/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.56	0.020 U	NA	NA
	9/3/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.47	0.020 U	NA	NA
	10/6/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	0.49	0.020 U	NA	NA
	5/19/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.6	0.020 U	NA	NA
	10/25/2011	5.0 U	5.0 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5	0.020 U	NA	NA
	4/23/2012	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U DNR	NA	NA
	4/23/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/11/2012	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U DNR	NA	NA
	10/11/2012 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/18/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.6	0.2 U DNR	NA	NA
	1/18/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/24/2013	5.0 UJ	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U DNR	NA	NA
	4/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/24/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U DNR	NA	NA
	7/24/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/21/2013	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U DNR	NA	NA
	10/21/2013 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/6/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U DNR	NA	NA
	1/6/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/7/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U DNR	NA	NA
	4/7/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	7/30/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U DNR	NA	NA
	7/30/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	10/9/2014	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U DNR	NA	NA
	10/9/2014 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	1/14/2015	5.0 U	5.0 U	0.5 U	0.5 UJ	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.4	0.2 U DNR	NA	NA
	1/14/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
	4/9/2015	5.0 U	5.0 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.5	0.2 U DNR	NA	NA
	4/9/2015 (SIM)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	NA	NA
SW-PMG108N	4/16/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.020 U	0.2 U	**6.3**	0.020 U	NA	NA
SW-PMG108S	4/16/2010	5.0 U	5.0 U	0.2 U	0.5 U	0.020 U	0.2 U	0.2 U	0.5 U	0.2 U	0.021	0.2 U	**15**	0.020 U	NA	NA

Notes:
Values in **bold** font indicate that the result reported exceeds a MTCA level or water quality standard.
Model Toxics Control Act (MTCA) Method B value from Ecology website CLARC tables downloaded June 2015 (https://fortress.wa.gov/ecy/clarc/reporting/CLARCReporting.aspx).
* Suspected laboratory contaminant
[1] Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A, Updated May 9, 2011. The human health criteria is from National Toxics Rule 40 CFR 131.36, July 2006.

D - Dilution required to quantitate analyte within the linear range of the detector (used prior to 2012).
DL - dilution
DNR - do not report
DUP - field duplicate
J - estimated concentration
mg/L - milligram per liter
NA - not analyzed
ND - not detected
NE - not established
PCE - tetrachloroethene
SIM - selected ion monitoring
TCE - trichloroethene
U - Compound was analyzed for but not detected above the reporting limit shown.
ug/L - microgram per liter
UJ - Compound was analyzed for but not detected above the reporting limit shown. The reporting limit is an estimated value.
X - Result is between the method detection limit and the reporting limit; therefore, there is a greater level of uncertainty associated with the numerical result. X-flagged results are considered estimated results.

Boring and Well Logs

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring EGW208

Sheet 1 of 1

Date(s) Drilled	**12/6/2013**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**27 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**545**
Groundwater Level	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMUs 086, 089, 094**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
545	0								Surface: asphalt		Start: 0840 Finish: 1218
									Air knife to 6' (fill)		
540	5							SM	Gray silty SAND with gravel (dry) (trace odor, no sheen) (fill)		
535	10		ESB 1998 10-131206	17 24 30	100	6					0915
								SM	Gray silty SAND with gravel (dry) (solvent odor, no sheen) (till)		
530	15		ESB 1998 15-131206	50/6"	33	73			Grading (solvent odor, no sheen)		0925
				50/4"	22	43					
525	20										
520	25		ESB 1998 10-131206	50/4"	22	0.5					1210
			ESB 1998 10-131206	50/6"	33	0.5			Boring was completed to 27' bgs. Groundwater was not encountered. Boring was completed as flush mount well: 22-27 ft bgs — 20 slot stainless steel screen 20-27 ft bgs — 2/12 sand pack 3-20 ft bgs — Cetco medium chips 0-3 ft bgs — Concrete		1215
515	30										

URS

ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring EGW209

Sheet 1 of 1

Date(s) Drilled	**12/7/2013**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**25 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**545**
Groundwater Level	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMUs 086, 089, 094**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
545	0							Surface: asphalt		Start: 0900 Finish: 1250
								Air knife to 7' (fill)		
540	5									
							SM	Gray silty SAND (moist) (trace odor, no sheen) (fill)		
535	10	ESB 1999 10-131207	3 4 3	100	2.0					0920
530	15	ESB 1999 15-131207	20 24 27	100	38					0930
							SM	Gray silty SAND (dry) (trace odor, no sheen) (till)		
525	20	ESB 1999 20-131207	50/6"	33	75					1235
								Grading (moist)		
520	25	ESB 1999 10-131207	50/6"	33	18.9			Boring was completed to 25' bgs. Groundwater was not encountered. Boring was completed as flush mount well: 20-25 ft bgs — 20 slot stainless steel screen 19-25 ft bgs — 2/12 sand pack 3-19 ft bgs — Cetco medium chips 0-3 ft bgs — Concrete		1250
515	30									

URS

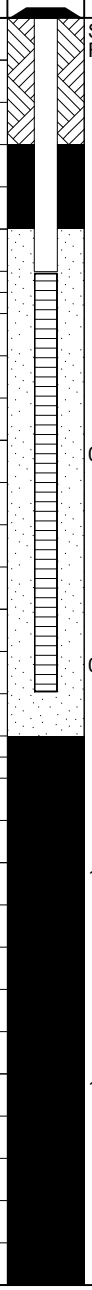
ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring EGW211

Date(s) Drilled	**12/9/2013**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**545**
Groundwater Level	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMUs 086, 089, 094**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	USCS	MATERIAL DESCRIPTION	REMARKS AND WELL DETAILS
545	0						Surface: asphalt	Start: 0905 Finish: 1230
							Air knife to 6.5' (fill)	
540	5							
						SM	Gray silty SAND with trace gravel (wet) (no odor, no sheen) (fill)	
535	10	ESB 2000 10-131209	50/6"	67	10.1			0915
						SM	Gray sandy SILT (dry) (trace odor, no sheen) (till)	
530	15	ESB 2000 15-131209	50/6"	33	95			0920
						SC/SM	Gray silty clayey SAND with gravel (dry) (strong odor, no sheen) (till)	
525	20	ESB 2000 20-131209	50/6"	33	130			1130
520	25	ESB 2000 25-131209	50/4"	22	4.3		Grading silty clayey SAND with gravel (faint odor, no staining)	1140
515	30							



ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring EGW211

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION		REMARKS AND WELL DETAILS
515	30	ESB 2000 30-131209	50/6"	33	3.3			Gray silty clayey SAND with gravel (faint odor, no staining)		1150
510	35	ESB 2000 35-131209	50/6"	33	2.0					1215
										1220
505	40	ESB 2000 40-131209	50/6"	33	6.5			Boring was completed to 40' bgs. Groundwater was not encountered. Boring was completed as flush mount well: 6-16 ft bgs — 20 slot stainless steel screen 17-40 ft bgs — Cetco medium chips 5-17 ft bgs — 2/12 sand pack 3-5 ft bgs — Cetco medium chips 0-3 ft bgs — Concrete		
500	45									
495	50									
490	55									
485	60									
480	65									

ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

URS

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Southern Air Scrubbers
Project Number: 33764444

Log of Boring ESB1970

Date(s) Drilled	**9/16/13**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 55**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**7 ft bgs**	Sampling Method	**D&M Sampler**	Hammer Data	**140#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 151**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 0930 Finish: 1210
								SM	Brown medium to coarse silty SAND (fill)	
545										
	5									
									7 ft ▼ Wet at 7' bgs	
540										
	10		ESB 1970-10-130916	21 20 30		0.0		GM	Brown sandy GRAVEL with silt (moist to wet) (medium dense) (no odor, no sheen) (fill)	1020
535								SW/SC	Gray fine to medium SAND with silty clay and gravel (dry) (very dense) (no odor, no sheen) (glacial till)	
	15		ESB 1970-15-130916	50/6"		0.0				1030
530										
	20		ESB 1970-20-130916	50/6"		0.0				1115
525										
	25		ESB 1970-25-130916			0.0				1130
520										
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 151 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/10/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Southern Air Scrubbers
Project Number: 33764444

Log of Boring ESB1970

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 1970-30-130916	50/6"		0.0		SW/SC	Gray fine to medium SAND with silty clay and gravel (dry) (very dense) (no odor, no sheen) (glacial till)	1150
515								Decreasing gravel	
	35	ESB 1970-35-130916	50/6"		0.0				1200
510									
	40	ESB 1970-40-130916	50/6"		0.0				1210
								Boring was completed to 40.5' bgs. Perched groundwater was encountered at 7' bgs. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
505									
	45								
500									
	50								
495									
	55								
490									
	60								
485									
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 151 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/10/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Southern Air Scrubbers
Project Number: 33764444

Log of Boring ESB1971

Date(s) Drilled	**9/23/13**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 151**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1100 Finish: 1210
									Air knife to 8' (fill)	
545	5									
540								SW/SC	Gray fine to medium SAND with silty clay and gravel (dry) (very dense) (no odor, no sheen) (glacial till)	
	10	■	ESB 1971-10-130923	50/6"	100	0.0				1115
535										
	15	■	ESB 1971-15-130923	50/6"	100	0.0				1120
530										
	20	■	ESB 1971-20-130923	50/6"	80	0.0				1130
525										
	25	■	ESB 1971-25-130923	50/6"	80	0.0				1135
520										
	30									

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ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 151 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/10/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Southern Air Scrubbers
Project Number: 33764444

Log of Boring ESB1971

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 1971-30-130923	50/6"	90	0.0		SP/SM	Gray fine to medium SAND and gravel with trace silt (dry) (very dense) (no odor, no sheen) (glacial till)	1150
515									
	35	ESB 1971-35-130923	50/4"	50	0.0				1200
510									
	40	ESB 1971-40-130923	50/6"	70	0.0				1210
								Boring was completed to 40.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
505									
	45								
500									
	50								
495									
	55								
490									
	60								
485									
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 151 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/10/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Southern Air Scrubbers
Project Number: 33764444

Log of Boring ESB1972

Date(s) Drilled	**9/23/13**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**39.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 151**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0							Concrete	Start: 1400 Finish: 1515
								Air knife to 8' (fill)	
545	5								
540							SW/SC	Gray fine to medium SAND with silty clay and gravel (dry) (very dense) (no odor, no sheen) (glacial till)	
	10	ESB 1972-10-130923	50/6"	80	0.0				1420
535									
	15	ESB 1972-15-130923	50/6"	40	0.0				1430
530									
	20	SS Ring ESB 1972-20-130923	50/6"	90	0.0			Grades to increased sand and less gravel	1440
525									
	25	ESB 1972-25-130923	50/6"	100	0.0				1445
520									
	30								

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ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 151 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/10/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Southern Air Scrubbers
Project Number: 33764444

Log of Boring ESB1972

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	SS Ring ESB 1972-30-130923	50/6"	100	0.0		SW/SC	Gray fine to medium SAND with silty clay and gravel (dry) (very dense) (no odor, no sheen) (glacial till)	1455
515							SP/SM	Gray fine to medium SAND and gravel with trace silt (dry) (very dense) (no odor, no sheen) (glacial till)	
	35	ESB 1972-35-130923	50/6"	40	0.0				1505
510									
		SS Ring ESB 1972-39-130923	50/6"	80	0.0				1515
	40							Boring was completed to 39.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
505									
	45								
500									
	50								
495									
	55								
490									
	60								
485									
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 151 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/10/15

Project: Boeing Everett Upland FS **Project Location: Building 45-01 Former USTs** **Project Number: 33764444**	**Log of Boring ESB1973** Sheet 1 of 2

Date(s) Drilled	**9/25/13**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**NA**	Sampling Method	**D&M Sampler**	Hammer Data	**300 lb.**
Borehole Backfill	**Cetco medium chips**	Location	**SWMU 093**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 0900 Finish: 1100
									Air knife to 8' bgs (fill)	
	5									
								SM	Gray silty SAND cuttings	
	10									
	15									
		◪	ESB 1973-17-130925	50/6	100	5.1		SM	Gray silty SAND with trace gravel (dry) (slight odor, no sheen) (till)	0950
								GC	Gray poorly graded GRAVEL with silty clay and sand (dry) (slight odor, no sheen)	
	20	◪	ESB 1973-20-130925	50/6	100	7.1				1005
								SM	Gray silty SAND with trace gravel (dry) (no odor, no sheen)	
	25	◪	ESB 1973-25-130925	50/6	100	0.0				1015
								SW/SC	Gray well graded SAND with silty clay and gravel (dry) (no odor, no sheen)	
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 093 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

URS

Project: Boeing Everett Upland FS
Project Location: Building 45-01 Former USTs
Project Number: 33764444

Log of Boring ESB1973

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	SS Ring ESB 1973-30-130925	50/6	100	0.0			Same as above	1025
	35	ESB 1973-35-130925	50/6	50	0.0				1030
							SC/SM	Gray silty clayey SAND with gravel (dry) (no odor, no sheen)	
		SS Ring ESB 1973-39-130925	50/6	80	0.0				1040
	40							Boring was completed to 40' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45								
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 093 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

URS

Project: Boeing Everett Upland FS
Project Location: Building 45-01 Former USTs
Project Number: 33764444

Log of Boring ESB1974

Date(s) Drilled	**9/25/13**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**41 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**NA**	Sampling Method	**D&M Sampler**	Hammer Data	**300 lb.**
Borehole Backfill	**Cetco medium chips**	Location	**SWMU 093**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1350 Finish: 1540
									Air knife, brown pea gravel backfill	
	5									
	10									
	15									
			ESB 1974-17.5-130925	50/6	100	0.0		SM	Gray silty SAND with trace gravel (dry) (no odor, no sheen)	1420
	20		SS Ring ESB 1974-20-130925	50/6	100	0.0			Same as above	1435
	25		ESB 1974-25-130925	50/6	80	0.0			Same as above	1445
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 093 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 45-01 Former USTs
Project Number: 33764444

Log of Boring ESB1974

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	SS Ring	ESB 1974-30-130925	50/6	40	0.0			Same as above	1505
	35		ESB 1974-35-130925	50/6	60	0.0			Same as above	1515
	40		ESB 1974-40-130925	50/6	60	0.0			Same as above	1530
									Boring was completed to 41' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45									
	50									
	55									
	60									
	65									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 093 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, UST EV-48-1
Project Number: 33764444

Log of Boring ESB1975

Date(s) Drilled	**9/26/13**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**UST EV-48-1**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: concrete	Start: 1000 Finish: 1245
								GM	Air knife to 5.5' Brown sandy GRAVEL with silt (fill)	
	5							GW	Pea GRAVEL	
								SM	Gray silty SAND with trace gravel (very dense) (dry) (no odor, no sheen) (till)	
	10		ESB 1975-10-130426	50/6"	100	0.8				1110
								SC		
	15				0					
	20		SS Ring ESB 1975-20-130426	17 21 23	100	0.0			Grading brown-gray clayey SAND (moist) (no odor, no sheen) (re-worked till)	1135
	25		ESB 1975-25-130426	39 50/6"	100	0.0			Grading light brown (dense to very dense) (dry)	1145
								GW/GC	Brown well graded GRAVEL with silty clay and sand (very dense) (dry) (no odor, no sheen)	
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\UST EV-48-1 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, UST EV-48-1
Project Number: 33764444

Log of Boring ESB1975

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	SS Ring ESB 1975-30-130426	50/6"	100	0.0		GW/GC		1155
							SP	Brown poorly graded SAND with GRAVEL (dry) (no odor, no sheen)	
	35	ESB 1975-35-130426	50/6"	80	0.0				1220
		SS Ring ESB 1975-39-130426	80/6"	80	0.0				1235
	40							Boring was completed to 40' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45								
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\UST EV-48-1 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, UST EV-48-1
Project Number: 33764444

Log of Boring ESB1976

Date(s) Drilled	**9/26/13**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**UST EV-48-1**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: asphalt	Start: 1400 Finish: 1530
								SM	Brown sandy SILT with clay, organics present (loose) (damp) (no odor, no sheen) (fill)	
	5									
	10		ESB 1976-10-130926	4 4 5	100	1.0				1420
	15		ESB 1976-15-130926	10 12 14		0.5				1430
	20		ESB 1976-20-130926	5 5 7 5 5 5	100	0.0				1435
	25		ESB 1976-25-130926	5 4 10	100	0.0			Grading light gray-brown silty SAND with trace gravel (dry) (no odor, no sheen) (reworked till)	1445
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\UST EV-48-1 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, UST EV-48-1
Project Number: 33764444

Log of Boring ESB1976

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 1976-30-130926	33 50/6"	100	0.0		GP	Gray sandy GRAVEL with cobbles, trace silt (dry) (no odor, no sheen) (till)	1450
	35	ESB 1976-35-130926	50/6"	100	0.5				1500
	40	ESB 1976-40-130926	50/6"	80	0.0			Grading gray sandy GRAVEL with trace silt (moist) (no odor, no sheen) (till)	
	45							Boring was completed to 40.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\UST EV-48-1 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, UST EV-48-1
Project Number: 33764444

Log of Boring ESB1977

Date(s) Drilled	**9/27/13**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**UST EV-48-1**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: concrete	Start: 0700 Finish: 0910
								GP	Air knifed to 9' bgs (fill)	
	5									
								SM	Brown sandy SILT, gravel present (stiff) (dry) (no odor, no sheen) (fill)	
	10		ESB 1977-10-130927	10 10 9	100	0.0				0815
									Grading gray silty SAND with clay, organics prresent (loose) (dry) (no odor, no sheen) (fill)	
	15		ESB 1977-15-130927	6 6 8	100	0.0				0825
	20		ESB 1977-20-130927	7 11 7	100	0.0				0835
									Grading gray silty SAND with trace gravel, some clay (medium dense) (dry) (no odor, no sheen) (fill)	
	25		ESB 1977-25-130927	10 9 12	100	0.0				0840
								GP	Brown-gray sandy GRAVEL with cobbles, trace silt (very dense) (dry) (no odor, no sheen) (till)	
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\UST EV-48-1 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, UST EV-48-1
Project Number: 33764444

Log of Boring ESB1977

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 1977-30-130927	50/6"	80	0.0				0850
	35	ESB 1977-35-130927	50/6"	80	0.0				0855
	40	ESB 1977 40-130927	80/6"	60	0.0			Boring was completed to 40.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45								
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\UST EV-48-1 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring ESB1979

Date(s) Drilled	**12/5/2013**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**545**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMUs 086, 089, 094**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
545	0								Surface: asphalt	Start: 0820 Finish: 1240
									Air knife to 6.5' (fill)	
540	5									
								SM	Olive-gray silty SAND with clay (moist) (dense) (strong odor, no staining) (fill)	
535	10		ESB 1979-10-131205		67	600				0855
530	15		ESB 1979-15-131205	13 17 40	100	53			Grading gray (dry) (moderate odor, no staining) (fill)	0900
								SM	Gray sandy SILT (dry) (moderate odor, no staining) (till)	
			ESB 1979-18-131205	50/6"	33	30				0910
525	20								Installed temporary conductor casing from 0-20 ft	
520	25		ESB 1979-25-131205	50/6"	67	2.2			Grading gray silty SAND, trace gravel (dry) (trace odor, no staining) (till)	1155
								CL/ML	Gray sandy silty CLAY with trace gravel (dense) (dry) (no odor, no staining) (till)	
515	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

URS

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring ESB1979

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
515	30	SS Ring ESB 1979-30-131205	50/6"	44	0.1		CL/ML	Gray sandy silty CLAY with trace gravel (dense) (dry) (no odor, no staining) (till)	1205
510	35	SS Ring ESB 1979-35-131205	50/3"	17	0.0				1215
505	40	ESB 1979-40-131205	50/3"	17	10			Boring was completed to 40.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	1230
500	45								
495	50								
490	55								
485	60								
480	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-32 Footing
Project Number: 33764444

Log of Boring ESB 1983

Date(s) Drilled	**10/21/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**41 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**Former Footing Excavation**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 0947 Finish: 1155
									Air knifed to 10' bgs. (fill)	
545										
	5									
540										
	10	◪	ESB 1983-10-131021	5 5 7		0.0		SP	Dark brown fine SAND (medium dense) (moist) (no odor, no staining) (fill)	0955
535								SC/SM	Medium gray silty clayey fine to medium SAND with rounded gravel and trace coarse sand (very dense) (moist) (no odor, no staining) (till)	
	15	◪	ESB 1983-15-131021	50		0.0				1015
530									Grading dark brownish gray with fine to coarse subangular to rounded gravel	
	20	◪	SS Ring ESB 1983-20-131021	50 300 100/6"		0.0				1040
525										
	25	◪	ESB 1983-25-131021	50		0.0				1050
520								SW/SC	Dark brownish gray SAND with clay and gravel (very dense) (moist) (no odor, no staining) (till)	
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-32 FOOTING LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/10/15

Project: Boeing Everett Upland FS
Project Location: Building 40-32 Footing
Project Number: 33764444

Log of Boring ESB 1983

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 1983-31-131021 SS Ring	50 100/5" 50		0.0		SW/SC	Dark brownish gray SAND with clay and gravel (very dense) (moist) (no odor, no staining) (till)	1100
515									
	35	ESB 1983-35-131021	50		0.0				1135
510							SC/SM	Dark brownish gray silty clayey SAND with gravel (dense) (moist) (no odor, no staining) (till)	
	40	SS Ring ESB 1983-40-131021	50 50		0.0				1155
505								Boring was completed to 41' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45								
500									
	50								
495									
	55								
490									
	60								
485									
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-32 FOOTING LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/10/15

Project: Boeing Everett Upland FS
Project Location: South Fire Pit
Project Number: 33764444

Log of Boring ESB1984

Date(s) Drilled	**10/22/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**31.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 068**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: asphalt	Start: 1017 Finish: 1147
									Air knife to 4' bgs. (fill)	
	5							SW/SM	Medium brown fine to medium SAND with silt, trace fine rounded gravel (very dense) (moist) (no odor, no staining) (till)	
	10		ESB 1984-10-131022	50 47 50		0.0				1037
	15		ESB 1984-15-131022	50		0.0				1104
	20		ESB 1984-21-131022	50 50/5" 50						1112
	25		ESB 1984-25-131022	50						1130
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 068 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: South Fire Pit
Project Number: 33764444

Log of Boring ESB1984

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30		ESB 1984-31.5-131022	65 100 100 50		0.0		SW/SM		1141
									Boring was completed to 31.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	35									
	40									
	45									
	50									
	55									
	60									
	65									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 068 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: South Fire Pit
Project Number: 33764444

Log of Boring ESB1985

Date(s) Drilled	**10/22/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**31.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 068**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: asphalt	Start: 1320 Finish: 1500
									Air knife (fill)	
									Asphalt	
									(fill)	
	5							SW/SM	Medium brown well graded SAND with silt and trace fine rounded gravel (medium dense) (moist) (no odor, no staining)	
	10	SS Ring	ESB 1985-11-131022	51 50 50 30 50		0.0				1346
	15		ESB 1985-15-131022	50		0.0				1403
	20	SS Ring	ESB 1985-20-131022	47 50 50/6"		0.0				1413
	25		ESB 1985-25-131022	50		0.0				1433
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 068 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

URS

Project: Boeing Everett Upland FS
Project Location: South Fire Pit
Project Number: 33764444

Log of Boring ESB1985

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30		ESB 1985-31.5-131022	50 50 170 80				SW/SM		1445
									Boring was completed to 31.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	35									
	40									
	45									
	50									
	55									
	60									
	65									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 068 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: South Fire Pit
Project Number: 33764444

Log of Boring ESB1986

Date(s) Drilled	**10/22/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**30.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 068**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: asphalt	Start: 1607 Finish: 1727
									Air knife to 5' (fill)	
	5									
								SM	Medium gray silty fine SAND with rounded to angular fine to coarse gravel (very dense) (moist) (no odor, no staining) (till)	
	10		ESB 1986-11-131022	87 100 70		0.0				1625
	15		ESB 1986-15-131022	50					Grading medium brown silty fine SAND with rounded to angular fine to coarse gravel (very dense) (moist) (no odor, no staining) (till)	1640
	20		ESB 1986-20.5-131022	57 100 50		0.0				1655
	25		ESB 1986-25-131022	50		0.0				1710
								SM	Light brown silty fine SAND with rounded fine gravel (very dense) (moist) (no odor, no staining) (till)	
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 068 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

URS

Project: Boeing Everett Upland FS
Project Location: South Fire Pit
Project Number: 33764444

Log of Boring ESB1986

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 1986-30.5-131022		60 80		0.0		SM	Light brown silty fine SAND with rounded fine gravel (very dense) (moist) (no odor, no staining) (till)	1735
									Boring was completed to 30.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	35									
	40									
	45									
	50									
	55									
	60									
	65									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 068 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Former Wastewater AST
Project Number: 33764444

Log of Boring ESB1987

Date(s) Drilled	**10/23/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**31 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 054**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 0937 Finish: 1120
									(glacial till) (air knifed)	
545										
	5							SC/SM	Bluish gray silty clayey fine to medium SAND with trace coarse sand and fine to coarse rounded gravel (moist) (very dense) (no odor, no staining) (glacial till)	
540										
	10	SS Ring	ESB 1987-10.5-131023	17 50/6" 50/6"	100 100	0.0				0950
535										
	15		ESB 1987-15-131023	50/6"	100					1000
530									Grades to medium gray with decreased fine sand and increased rounded to subrounded gravel and trace coarse sand (slightly moist)	
	20	SS Ring	ESB 1987-20.5-131023	50/6" 50/6"	100 100	0.0				1015
525								SM	Medium gray silty fine SAND with rounded to subrounded, fine to coarse gravel (moist) (very dense) (no odor, no staining) (glacial till)	
	25		ESB 1987-25-131023	50/6"	100	0.0				1025
520								CL/ML	Medium gray silty CLAY with fine sand and trace fine rounded gravel (moist) (hard) (no odor, no staining) (glacial till)	
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 054 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Former Wastewater AST
Project Number: 33764444

Log of Boring ESB1987

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	SS Ring		50/6"	100			CL/ML	Medium gray silty CLAY with sand and trace fine rounded gravel (moist) (hard) (no odor, no staining) (glacial till)	1035
		ESB	1987-30.5-131023	50/5"	100	0.0			Boring was completed to 31' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
515										
	35									
510										
	40									
505										
	45									
500										
	50									
495										
	55									
490										
	60									
485										
	65									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 054 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Former Wastewater AST
Project Number: 33764444

Log of Boring ESB1988

Date(s) Drilled	**10/23/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**21 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 054**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1153 Finish: 1320
									(glacial till) (air knifed)	
545										
	5							SC/SM	Medium gray silty clayey fine to medium SAND with trace coarse sand and subrounded to subangular, fine to coarse gravel (moist) (very dense) (no odor, no staining)	
540										
	10	■	ESB 1988-10-131023 ESB DUP4-131023 SS Ring	50/6" 50/5"	100 100	0.0				1207
535										
	15	■	ESB 1988-15-131023	50/6"	100	0.0				1220
530										
	20	■	ESB 1988-20-131023 SS Ring	50/6" 50/6"	100 100	0.0				1231
									Boring was completed to 21' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
525										
	25									
520										
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 054 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

URS

Project: Boeing Everett Upland FS **Project Location: Building 40-51, Former Wastewater AST** **Project Number: 33764444**	**Log of Boring ESB1989** Sheet 1 of 1

Date(s) Drilled	**10/23/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**21 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 054**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1317 Finish: 1500
									(glacial till) (air knifed)	
545										
	5							SC/SM	Medium gray silty clayey fine to medium SAND with trace coarse sand and subrounded to subangular, fine to coarse gravel (moist) (very dense) (no odor, no staining)	
540										
	10	SS Ring	ESB 1989-10.5-131023	50/6" 50/6"	100 100	0.0				1330
535										
	15	SS Ring	ESB 1989-15-131023	50/6" 50/6"	100 100	0.0				1350
530										
	20	SS Ring	ESB 1989-20.5-131023	50/6" 50/6"	100 100	0.0				1407
									Boring was completed to 21' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
525										
	25									
520										
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 054 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

URS

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Former Wastewater AST
Project Number: 33764444

Log of Boring ESB1990

Date(s) Drilled	**10/24/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**25.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 054**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 0840 Finish: 1000
									(glacial till) (air knifed)	
545										
	5							SC/SM	Medium gray silty clayey fine to medium SAND with angular fine to coarse gravel (moist) (very dense) (no odor, no staining)	
540										
	10	SS Ring ESB	1990-10.5-131024	50/4" 50/4"	100	0.0				0900
535								CL/ML	Medium gray silty clayey SAND with coarse rounded gravel (moist) (hard) (no odor, no staining)	
	15	ESB	1990-15-131024	50/4"	100	0.0				0910
530										
	20	ESB	1990-20-131024	50/4"	100	0.0				0915
525										
	25	ESB	1990-25-131024	50/4"	100	0.0				0925
									Boring was completed to 25.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
520										
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 054 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Former Wastewater AST
Project Number: 33764444

Log of Boring ESB1991

Date(s) Drilled	**10/24/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**31 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 054**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1000 Finish: 1140
									(glacial till) (air knife)	
545										
	5									
								SC/SM	Medium gray silty clayey fine to medium SAND with fine rounded gravel (moist) (very dense) (no odor, no staining)	
540										
	10	ESB	1991-10-131024	30	33	0.0				1015
		SS Ring		50/4"	100					
				50/4"						
535										
	15	ESB	1991-50-131024	50/3"	100	0.0				1020
530										
	20	SS Ring		50/5"	100					1035
		ESB	1991-20.5-131024	50/5"	100	0.0				
525										
	25	ESB	1991-25-131024	50		0.0				
520										
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 054 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Former Wastewater AST
Project Number: 33764444

Log of Boring ESB1991

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 1991-30-131024 SS Ring	50/4" 50/4"	100 100			SC/SM	Medium gray silty clayey fine to medium SAND with trace fine rounded gravel (moist) (very dense) (no odor, no staining)	1100
								Boring was completed to 31' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
515									
	35								
510									
	40								
505									
	45								
500									
	50								
495									
	55								
490									
	60								
485									
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 054 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-51, Former Wastewater AST
Project Number: 33764444

Log of Boring ESB1992

Sheet 1 of 1

Date(s) Drilled	**10/24/13**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**25.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 054**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0							Concrete	Start: 1230 Finish: 1417
								(glacial till) (air knife)	
545									
	5						SC/SM	Medium gray silty clayey fine to medium SAND with trace fine to coarse (up to 5") rounded gravel (moist) (very dense) (no odor, no staining)	
540									
	10	ESB 1992-10-131024 SS Ring	29 50/50	50 100	0.0				1245
535									
	15	ESB 1992-15-131024	50/6"	100	0.0				1300
530									
	20	ESB 1992-20-131024 SS Ring	50/5" 50/	100					1310
525									
	25	ESB 1992-25-131024	50/5"	100	0.0				1320
								Boring was completed to 25.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
520									
	30								

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 054 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-31, Frmr. Bluestreak Vapor Degreaser
Project Number: 33764444

Log of Boring ESB1993

Date(s) Drilled	**10/26/13**	Logged By	**A. Ortiz**	Checked By	**M. Molinari**
Drilling Method	**Rotary Sonic**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**29.5 feet bgs**
Drill Rig Type	**200 C**	Drill Bit Size/Type	**6" Core Barrel**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Cetco medium chips**	Location	**SWMU 171**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1100 Finish: 1255
									Controlled density fill	
	5									
	10								Concrete	
								SM	Gray silty SAND with rounded gravel (very loose) (moist) (till)	
	15		ESB 1993-14-131026	50						1325
								SC/SM	Gray silty clayey SAND with gravel (very dense) (moist) (till)	
	20		ESB 1993-19-131026	55						1415
	25		ESB 1993-24-131026			3.1				1425
			SS Ring							
			ESB 1993-29-131026			4.5 75				1250
	30								Boring was completed to 29.5' bgs.	

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 171 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-31, Frmr. Bluestreak Vapor Degreaser
Project Number: 33764444

Log of Boring ESB1993

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Blows/ 6in.	SAMPLES Recovery (%)	SAMPLES PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30								Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	35									
	40									
	45									
	50									
	55									
	60									
	65									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 171 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-31, Frmr. Bluestreak Vapor Degreaser
Project Number: 33764444

Log of Boring ESB1994

Date(s) Drilled	**10/26/13**	Logged By	**A. Ortiz**	Checked By	**M. Molinari**
Drilling Method	**Rotary Sonic**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**39.5 feet bgs**
Drill Rig Type	**200 C**	Drill Bit Size/Type	**6" Core Barrel**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Cetco medium chips**	Location	**SWMU 171**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1505 Finish: 2020
									Controlled density fill	
	5									
									Concrete	
	10							SM	Gray silty SAND with gravel (dense) (moist) (no odor, no staining)	
	15		ESB 1994-14-131026			11				1540
	20		ESB 1994-19-131026	50		11				1550
	25		ESB 1994-24-131026			0.6				1630
	30		ESB 1994-	50		0.0				1815

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ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 171 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-31, Frmr. Bluestreak Vapor Degreaser
Project Number: 33764444

Log of Boring ESB1994

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30		29-131026							
			ESB 1994-31-131026							1855
				35 50						
								SC/SM	Gray silty clayey SAND with gravel (moist) (no odor, no staining)	
	35									
			SS Ring							
			ESB 1994	50		1.8				2010
	40		39-131026						Boring was completed to 39.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45									
	50									
	55									
	60									
	65									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 171 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring ESB1995 (EGW207)

Sheet 1 of 1

Date(s) Drilled	**10/30/2013**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**17.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**545**
Groundwater Level	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMUs 086, 089, 094**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
545	0							Surface: asphalt		Start: 1035 Finish: 1220
								Air knife to 5' (fill)		
540	5	ESB 1995-6-131030	17 18 25	100	0.0 0.0 0.0		SM/SP	Medium gray silty fine SAND with fine to coarse sub-rounded gravel (moist) (no odor, no staining) (fill)		1130
535	10	ESB 1995-11.5-131030	3 4 5	100	275 201 507			Grading bluish gray (very moist) (very strong solvent odor, no sheen) (fill)		1130
530	15	ESB 1995-16-131030	10 17 18	100	21 27 30					1200
							SM	Light gray silty fine SAND with gravel (moist) (no odor, no staining) (till)		1220
		ESB 1995-17.5-131030	50/6"	33	0.5					
525	20							Boring was completed to 17.5' bgs. Groundwater was not encountered. Boring was completed as flush mount well: 7-17 ft bgs — 20 slot stainless steel screen 5-17.5 ft bgs — 2/12 sand pack 3-5 ft bgs — Cetco medium chips 0-3 ft bgs — Concrete		
520	25									
515	30									

ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

URS

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring ESB1996 (EGW212)

Date(s) Drilled	**10/31/2013**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**545**
Groundwater Level	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMUs 086, 089, 094**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
545	0								Surface: asphalt		Start: 0830 Finish: 1120
									Air knife to 6' (fill)		
540	5										
								SM	Light brown silty fine SAND with gravel (moist) (no odor, no staining) (fill)		
535	10		ESB 1996 10-131031	21 29 31	100	0.0 0.0 0.0					0950
				50 50/6"	67			SM	Light brown silty fine SAND with gravel (till)		
530	15			50/6"	0						No recovery rock in sampler
525	20		ESB 1996 20-131031	50/4"	22	0.0			Grading medium brown (slightly moist) (no odor, no staining) (till)		1050
520	25		ESB 1996 25-131031	50/3"	17	0.0					1100
515	30										

URS

ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring ESB1996 (EGW212)

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND WELL DETAILS
515	30							SM	Grading bluish-gray silty fine SAND with gravel (slightly moist) (no odor, no staining) (till)	
			ESB 1996 30-131031	100/4"	22	0.0				1105
510	35									
			ESB 1996 35-131031	50/3"	17	0.0				1115
								SW/SC	Bluish gray well-graded SAND with clay and gravel (moist) (no odor, no staining) (till)	
505	40									1120
		SS Ring	ESB 1996 40-131031	100/6"	33				Boring was completed to 40.5' bgs. Groundwater was not encountered. Boring was completed as flush mount well: 3-13 ft bgs — 20 slot stainless steel screen 14-40.5 ft bgs — Cetco medium chips 2.5-14 ft bgs — 2/12 sand pack 1.5-2.5 ft bgs — Cetco medium chips 0-1.5 ft bgs — Concrete	
500	45									
495	50									
490	55									
485	60									
480	65									

ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring ESB1997 (EGW206)

Date(s) Drilled	**11/1/2013**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**12"**	Ground Surface Elevation (feet MSL)	**545**
Groundwater Level	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMUs 086, 089, 094**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
545	0								Surface: asphalt Air knife to 7.5' (fill)		Start: 0817 Finish: 1240
540	5										
								SM	Medium gray silty fine SAND with fine to coarse subrounded gravel (very moist) (strong odor, no staining) (fill)		
535	10		ESB 1997 11-131204	3 3 3	100	320 450 501					0910
530	15		ESB 1997 15-131204	13 50/6"	67	487 311		SM	Gray sandy SILT (very moist) (strong odor, no staining) (till)		0955
525	20								Install temporary conductor casing from 0-20 ft		
520	25		ESB 1997 25-131204	50/6"	33	1.1			Grading gray silty SAND with trace gravel (dry) (no odor, no staining) (till)		1210
515	30										1220

ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

URS

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring ESB1997 (EGW206)

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION		REMARKS AND WELL DETAILS
515	30		ESB 1997 30-131204	50/6"	33	1.1			Gray silty SAND with trace gravel (dry) (no odor, no staining) (till)		
510	35		ESB 1997 35-131204	50/6"	67	0.3					1230
								SC/SM	Gray silty clayey SAND (dry) (no odor, no staining) (till)		
505	40		SS Ring	50/6"	67	0.2					1240
			ESB 1997 40-131204						Boring was completed to 40.5' bgs. Groundwater was not encountered. Boring was completed as flush mount well: 6-16 ft bgs — 20 slot stainless steel screen 17-40.5 ft bgs — Cetco medium chips 4-17 ft bgs — 2/12 sand pack 2-4 ft bgs — Cetco medium chips 0-2 ft bgs — Concrete		
500	45										
495	50										
490	55										
485	60										
480	65										

ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, UST EV-48-1
Project Number: 33764444

Log of Boring ESB1998

Date(s) Drilled	**11/16/13**	Logged By	**J. Rapp**	Checked By	**M. Molinari**
Drilling Method	**200 C**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**41 feet bgs**
Drill Rig Type	**Rotary Sonic**	Drill Bit Size/Type	**6" Core Barrel**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**UST EV-48-1**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: concrete surface patch	Start: 0950 Finish: 1355
								SP	Air Knifed to 10' Coarse SAND (backfill)	
	5									
	10		ESB 1998-10-131116	2 3 3		0.2 0.1 0.2 0.2 0.3		GM/GP	Grayish brown pea GRAVEL with some fine sand and silt (loose) (slightly wet) (fill) Grading less sand and silt	1011 1025
	15		ESB 1998-15-131116	2 2 2		0.3		SP/SM	Dark brown silty SAND with some fine gravel, organic matter (loose) (slightly wet) (colluvium)	1040
	20		ESB 1998-20-131116 SS Ring	5 9 9 5 13 39		7.5 90		SC/SM	Gray silty, clayey SAND with gravel (moist)	1125 1132
								GM	Gray silty, clayey SAND with GRAVEL (very dense) (moist) (till)	
	25		ESB 1998-25-131116	50		28				1150
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\UST EV-48-1 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, UST EV-48-1
Project Number: 33764444

Log of Boring ESB1998

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 1998-30-131116 SS Ring	35 50/5" 10 50/3"		1.7		SM	Grading sandier (till)	1204 1220
	35	ESB 1998-35-131116	50		1.0				1322 1325
	40	ESB 1998-40-131116	50/5" 50/4.5"					Grading sandier (till)	1348
	45							Boring was completed to 41' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\UST EV-48-1 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Building 40-53, Former Mock-up Degreaser
Project Number: 33764444

Log of Boring ESB1999

Date(s) Drilled	**11/16-17/13**	Logged By	**J. Rapp**	Checked By	**M. Molinari**
Drilling Method	**Rotary Sonic**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40 feet bgs**
Drill Rig Type	**200 C**	Drill Bit Size/Type	**6" Core Barrel**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 098**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: concrete	Start: 1843 (11/16/13) Finish: 1100 (11/17/13)
									SAND (fill)	
									Concrete	
545								SP	SAND with gravel (loose) (fill, reworked till material)	
	5									1848
									Grading (dense)	
540								SM	Light gray fine to medium SAND with gravel to 1" (medium dense) (dry) (fill)	
	10		ESB 1999-10-131116	18 21 23						1854
										1900
535										
	15		ESB 1999-15-131116	6 10 25					Grading gray silty fine to medium SAND with gravel (medium dense) (moist)	1915
										end 11/16/13 begin 11/17/13 0740
530								SP/SM	Gray fine to medium SAND with gravel (very dense) (moist) 3" cobble	
	20		ESB 1999-20-131117	50/5" 50/4"					Grading (very dense) (till)	0754
										0815
525										
									Grading large gravel, cobbles	
	25								Granite boulder or large cobble at 25'	Very hard drilling
									Grading silty SAND with gravel, cobbles, silt and clay (till)	
520										
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 098 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-53, Former Mock-up Degreaser
Project Number: 33764444

Log of Boring ESB1999

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30		ESB 1999-30-131117	50 50				SP/SM	Grading grayish brown (very dense) (till)	
									Grading gray silty fine to coarse SAND with gravel (moist)	0950
515										
	35		ESB 1999-35-131117	50 50						1030
510								SM/GM	Grading gray CLAY, SILT, SAND (very dense) (moist) (till)	
	40		ESB 1999-40-131117	50 50/5.5"					Boring was completed to 40' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	1100
505										
	45									
500										
	50									
495										
	55									
490										
	60									
485										
	65									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 098 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-53, Former Mock-up Degreaser
Project Number: 33764444

Log of Boring ESB2000

Date(s) Drilled	**11/17/13**	Logged By	**J. Rapp**	Checked By	**M. Molinari**
Drilling Method	**Rotary Sonic**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**41 feet bgs**
Drill Rig Type	**200 C**	Drill Bit Size/Type	**6" Core Barrel**	Ground Surface Elevation (feet MSL)	**548**
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 098**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Surface: concrete	Start: 1232 Finish: 1630
								SP	Brown SAND with gravel, little to no silt, unconsolidated (fill)	
545										
	5									1236
540										
	10		ESB 2000-10-131117	11 12 21						1246
								SM/GM	Gray silty fine SAND with gravel (fill)	1250
535										
	15		ESB 2000-15-131117	5 50/5"				SP	Brown SAND with gravel (till)	1315
530										
	20		ESB 2000-20-131117	50/5" 50/5"				SM	Gray silty fine SAND with some gravel to 2" (dense) (moist) (till)	1405
525								SC/SM	Silty, clayey SAND with gravel	
	25		SS Ring ESB 2000-25-131117	50 50					Large cobble or boulder at 25'	1445
520								SM/GM	Gray silty SAND with gravel (dense) Cobble to 3"	
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 098 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-53, Former Mock-up Degreaser
Project Number: 33764444

Log of Boring ESB2000

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 2000-30-131117	50 50/3"				SM/GM		1505
515								Cobble to 3"	
	35	ESB 2000-35-131117	50 50						1545
510									
	40	ESB 2000-40-131117	50 50/3.5"						1615
505								Boring was completed to 41' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45								
500									
	50								
495									
	55								
490									
	60								
485									
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 098 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-56, Former USTs
Project Number: 33764444

Log of Boring ESB2001 (EGW210)

Date(s) Drilled	**12/10/2013**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**HSA**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**25 feet bgs**
Drill Rig Type	**CME 75**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**545**
Groundwater Level	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMUs 086, 089, 094**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	Well Completion Schematic	REMARKS AND WELL DETAILS
545	0								Surface: asphalt		Start: 0830 Finish: 1055
									Air knife to 6' (fill)		
540	5										
								SM	Gray silty SAND (moist) (trace odor, no sheen) (fill)		
535	10		ESB 2001 10-131210	10 10 10	100	4.2					0840
530	15		ESB 2001 15-131210	20 50/6"	67	135		SM	Gray silty SAND (dry) (strong odor, no sheen) (till)		0845
525	20		ESB 2001 20-131210	50/6"	33	0.1			Grading with trace gravel (dry) (no odor, no sheen)		1050
520	25		ESB 2001 25-131210	50/6"	33	9.0			Boring was completed to 25' bgs. Groundwater was not encountered. Boring was completed as flush mount well: 20-25 ft bgs — 20 slot stainless steel screen 18-25 ft bgs — 2/12 sand pack 3-18 ft bgs — Cetco medium chips 0-3 ft bgs — Concrete		1055
515	30										

ENV2 WITH WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\BLDG 40-56.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

URS

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-31, Frmr. Bluestreak Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2002

Date(s) Drilled	**2/16/14**	Logged By	**A. Ortiz**	Checked By	**M. Molinari**
Drilling Method	**Rotary Sonic**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40 feet bgs**
Drill Rig Type	**200 C**	Drill Bit Size/Type	**6" Core Barrel**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Cetco medium chips**	Location	**SWMU 171**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 0800
									Controlled density fill	Finish: 1400
	5									
								SM	Gray silty SAND with gravel (moist) (no odor, no staining)	
	10		ESB 2002-10-140216							0905
	15		ESB 2002-15-140216			700				0910
	20		ESB 2002-20-140216			850				0935
	25		ESB 2002-25-140216			380				1035
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 171 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-31, Frmr. Bluestreak Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2002

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 2002-30-140216			900				1115
	35	ESB 2002-35-140216			300				1125
	40	ESB 2002-40-140216			300			Boring was completed to 40' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45								
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 171 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS **Project Location: Bldg. 40-31, Frmr. Bluestreak Vapor Degreaser** **Project Number: 33764444**	**Log of Boring ESB2003** Sheet 1 of 2

Date(s) Drilled	**2/15/14**	Logged By	**A. Ortiz**	Checked By	**M. Molinari**
Drilling Method	**Rotary Sonic**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40 feet bgs**
Drill Rig Type	**200 C**	Drill Bit Size/Type	**6" Core Barrel**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**Not Encountered**	Sampling Method	**D&M Sampler**	Hammer Data	**300#**
Borehole Backfill	**Cetco medium chips**	Location	**SWMU 171**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1045 Finish: 1730
									Controlled density fill	
	5									1050
	10								Concrete	1100
								SM	Gray silty SAND (moist) (no odor, no staining)	
	15					17				1150
								SC/SM	Gray silty clayey SAND with gravel (moist) (very dense) (fill)	
	20	SS Ring	ESB 2003-20-140215	40		12				1440
	25		ESB 2003-25-140215	40		210				1455
	30									

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ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 171 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-31, Frmr. Bluestreak Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2003

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 2003-30-140215			45				1530
	35	ESB 2003-35-140215			301				1700
	40	ESB 2003-40-140215			51			Boring was completed to 40' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	1720
	45								
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 171 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-02, Small Former Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2004

Date(s) Drilled	**3/29/14**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 55**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**NA**
Groundwater Level (feet bgs)	**NA**	Sampling Method	**D&M Sampler**	Hammer Data	**140#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 169**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1255 Finish: 1409
								GP	Coarse gravel base course into re-worked till	
								SP		
	5			49 50/6"	100	0.0			Dark gray fine to coarse SAND with trace silt and fine to coarse rounded gravel (moist) (dense) (no odor, no staining) (fill)	1320
	10			31 50	100	0.2				1339
								ML	Dark gray SILT with coarse rounded gravel (slightly moist) (dense) (no odor, no staining) (till)	
	15		ESB 2004-15.5-140329	100	100	0.0				1345
								CL	Dark gray sandy lean CLAY with coarse rounded gravel (moist) (dense) (no odor, no staining) (till)	
	20		SS Ring ESB 2004-20.5-140329	100	100	0.0				1425
								SM	Grayish brown silty fine SAND with fine to coarse gravel (slightly moist) (no odor, no staining)	
	25		ESB 2004-24-140329	100	100	0.0				1445
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 169 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-02, Small Former Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2004

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	ESB 2004-30.5-140329 SS Ring	100	100	0.0			Bluish gray sandy SILT (slightly moist) (no odor, no staining)	1505
	35	ESB 2004-35.5-140329	100	100	0.0			Bluish gray silty fine SAND with fine to coarse rounded gravel (slightly moist) (no odor, no staining)	1520
	40	SS Ring ESB 2004-40.5-140329	100	100	0.0			Boring was completed to 40.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	1525
	45								
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 169 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-02, Large Former Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2005

Date(s) Drilled	**4/19/14**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**22 feet bgs**
Drill Rig Type	**CME 55**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**NA**
Groundwater Level (feet bgs)	**NA**	Sampling Method	**D&M Sampler**	Hammer Data	**140#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 170**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1250 Finish: 1425
								GP	Coarse gravel base course	
								SP	Dark grayish brown fine SAND with trace fine to coarse rounded gravel (moist) (no odor, no staining) (fill)	
	5			21 31 50	78	4.5				
	10			21 31 30	89	6.2				
	15		ESB 2005-15-140419	50	100	2.0				1322
								CL	Dark grayish brown sandy lean clay with fine to coarse rounded gravel (moist) (no odor, no staining) (till)	
	20		SS Ring ESB 2005-20-140419	100	100	2.0				1330
									Boring was completed to 22' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	25									
	30									

URS

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 170 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-02, Large Former Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2006

Date(s) Drilled	**4/19/14**	Logged By	**A. Palmieri**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**40.5 feet bgs**
Drill Rig Type	**CME 55**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	**NA**
Groundwater Level (feet bgs)	**NA**	Sampling Method	**D&M Sampler**	Hammer Data	**140#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 170**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	
								GP	Coarse gravel base course	Start: 1230 Finish: 1545
								SP		
	5			20 34 45	68	0.0			Dark grayish brown fine SAND with trace fine to coarse rounded gravel (moist) (no odor, no staining) (fill)	1240
	10			29 30 34	100	0.0				1250
	15			50	0				No recovery, plastic in shoe	1311
			ESB 2006-16.5-140414	34 50	68	0.0				1323 Driller indicates much harder drilling
								CL/ML		
	20		SS Ring ESB 2006-20.5-140414	100	100	0.0			Dark bluish gray sandy silty CLAY with fine rounded gravel (slightly moist) (no odor, no staining) (till)	1337
	25		ESB 2006-25.5-140414	100/3"	50	0.0				1355
								GP/GM		
	30									

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 170 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Bldg. 40-02, Large Former Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2006

Elevation, feet	Downhole Depth, feet	SAMPLES Type Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	30	SS Ring ESB 2006-30.5-140414	100	100	0.0			Dark bluish gray poorly graded gravel with silt and sand (moist) (no odor, no staining)	1415
	35	ESB 2006-35.5-140414	100	50	0.0				1435
							SM	Dark bluish gray silty fine SAND with gravel (moist) (no odor, no staining)	
	40	SS Ring ESB 2006-40.5-140414	100	100	0.0				1445
								Boring was completed to 40.5' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	45								
	50								
	55								
	60								
	65								

ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 170 LOGS.GPJ URSSEA3B.GLB URSSEA3.GDT 3/9/15

Project: Boeing Everett Upland FS
Project Location: Building 40-11, Former Vapor Degreaser
Project Number: 33764444

Log of Boring ESB2007

Date(s) Drilled	**5/31/14**	Logged By	**D. Cabanillas**	Checked By	**M. Molinari**
Drilling Method	**Hollow Stem Auger**	Drilling Contractor	**Cascade**	Total Depth of Borehole	**22 feet bgs**
Drill Rig Type	**CME 55**	Drill Bit Size/Type	**8"**	Ground Surface Elevation (feet MSL)	
Groundwater Level (feet bgs)	**NA**	Sampling Method	**D&M Sampler**	Hammer Data	**140#**
Borehole Backfill	**Bentonite Chips**	Location	**SWMU 097**		

Elevation, feet	Downhole Depth, feet	SAMPLES Type	Number	Blows/ 6in.	Recovery (%)	PID/OVM (ppm)	Graphic Log	USCS	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
	0								Concrete	Start: 1020
									Controlled density fill	Finish: 1600
						0.0			(glacial till) (post hole dug)	
								SM		
	5	■	ESB 2007-5-140531	36 50/6	100	1.8			Gray silty SAND (dry) (dense) (no odor, no sheen) (glacial till)	1125
	10	■	ESB 2007-10-140531	50/6		7.0				1145
	15	■	ESB 2007-15-140531	50/6		0.0				1215
	20	■	SS Ring ESB 2007-20-140531	50/3		30				1513 1555
									Boring was completed to 22' bgs. Groundwater was not encountered. Boring was backfilled with Cetco medium chips and surface restored with rapid set concrete.	
	25									
	30									

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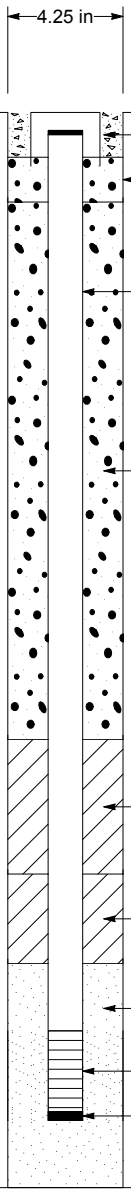
ENV2 W/O WELL J:\PROJECTS\GRFX\ONEWORLD\33765015 BOEING EVERETT 2015\BORING LOGS\SWMU 097.GPJ URSSEA3B.GLB URSSEA3.GDT 3/4/15

ESG001

SAMPLE DATA						SOIL PROFILE			WELL DETAIL
Depth (ft)	Elevation	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-Stem Auger Ground Elevation (ft): 408 Drilled By: Holocene Drilling Inc.	Water Level
0							SP	Lithology based on ESG002 Brown, fine to medium SAND with trace gravel (medium dense, damp to moist)	Groundwater not encountered.
	405								
5									
							SP	Brown to gray, fine to medium SAND with trace silt (medium dense, moist)	
	400								
10									
	395						SM	Light brown, silty, fine SAND (dark, moist) [ESPERANCE SAND]	
15									
	390								
20									
	385								
25									
30									

Soil Gas Well Detail



Boring Completed 12/04/13
Total Depth of Boring = 24.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

25175.012 9/14/15 N:\PROJECTS\025175.GPJ WELL LOG POWDER MILL GULCH

LANDAU ASSOCIATES

Powder Mill Gulch
Everett, Washington

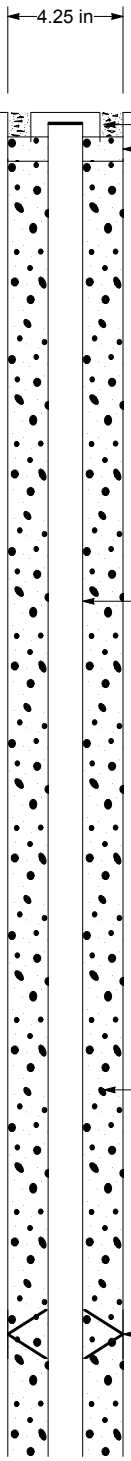
Log of Soil Gas Well ESG001

A-1

ESG002

SAMPLE DATA						SOIL PROFILE			WELL DETAIL
Depth (ft)	Elevation	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-Stem Auger Ground Elevation (ft): 408 Drilled By: Holocene Drilling Inc.	Water Level
0							SP	Brown, fine to medium SAND with trace gravel (medium dense, damp to moist)	Groundwater not encountered.
	400						SP	Brown to gray, fine to medium SAND with trace silt (medium dense, moist)	
10							SM	Light brown, silty, fine SAND (dark, moist) [ESPERANCE SAND]	
	390								
20									
	380								
30									
	370								
40									
	360								
50									

Soil Gas Well Detail



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

25175.012 9/14/15 N:\PROJECTS\025175.GPJ WELL LOG POWDER MILL GULCH

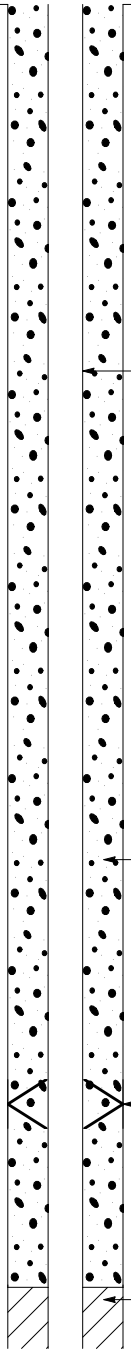
LANDAU ASSOCIATES

Powder Mill Gulch
Everett, Washington

Log of Soil Gas Well ESG002

ESG002

SAMPLE DATA						SOIL PROFILE			WELL DETAIL
Depth (ft)	Elevation	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-Stem Auger Ground Elevation (ft): 408 Drilled By: Holocene Drilling Inc.	Water Level
							SM	Light brown, silty, fine SAND (dark, moist) [ESPERANCE SAND]	Groundwater not encountered.
	350								
60							SP-SM	Gray to gray-brown, fine SAND with silt (medium dense, moist)	
	340								
70									
	330								
80									
	320								
90									
	310								
100									
	300								
110									



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

25175.012 9/14/15 N:\PROJECTS\025175.GPJ WELL LOG POWDER MILL GULCH

LANDAU ASSOCIATES

Powder Mill Gulch
Everett, Washington

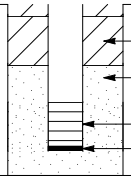
Log of Soil Gas Well ESG002

ESG002

SAMPLE DATA						SOIL PROFILE			WELL DETAIL
Depth (ft)	Elevation	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-Stem Auger Ground Elevation (ft): 408 Drilled By: Holocene Drilling Inc.	Water Level
110							SP-SM	Gray to gray-brown, fine SAND with silt (medium dense, moist)	Groundwater not encountered.

Boring Completed 12/03/13
Total Depth of Boring = 117.0 ft.

Soil Gas Well Detail



120
130
140
150
160

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

LANDAU ASSOCIATES

Powder Mill Gulch
Everett, Washington

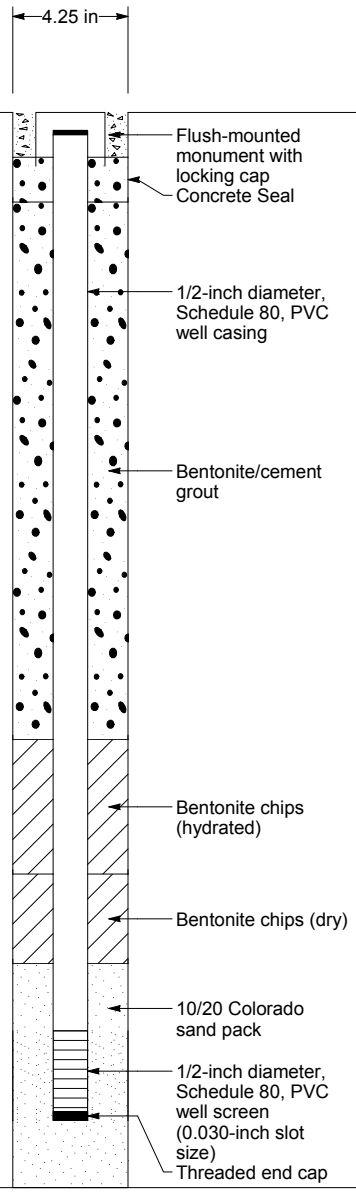
Log of Soil Gas Well ESG002

ESG003

SAMPLE DATA						SOIL PROFILE			WELL DETAIL
Depth (ft)	Elevation	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-Stem Auger Ground Elevation (ft): 409 Drilled By: Holocene Drilling Inc.	Water Level
0							SP	Lithology based on ESG004 Brown, fine to medium SAND with trace gravel (medium dense, moist)	Groundwater not encountered.
	405								
5									
	400								
10							SP/ SM	Brown-gray, fine to medium SAND with silt or trace silt (medium dense, moist) [ESPERANCE SAND]	
	395								
15									
	390								
20									
	385								
25									
30									

Boring Completed 12/05/13
Total Depth of Boring = 24.0 ft.

Soil Gas Well Detail



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

25175.012 9/14/15 N:\PROJECTS\025175.GPJ WELL LOG POWDER MILL GULCH

LANDAU ASSOCIATES

Powder Mill Gulch
Everett, Washington

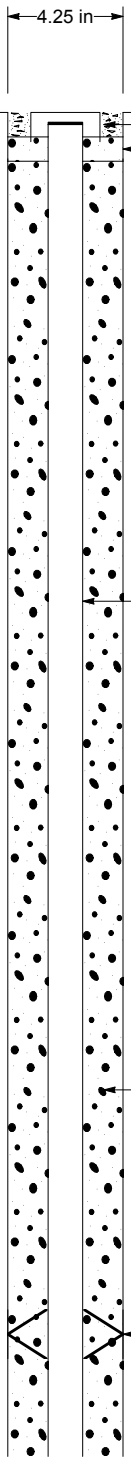
Log of Soil Gas Well ESG003

A-3

ESG004

SAMPLE DATA						SOIL PROFILE			WELL DETAIL
Depth (ft)	Elevation	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-Stem Auger Ground Elevation (ft): 409 Drilled By: Holocene Drilling Inc.	Water Level
0							SP	Brown, fine to medium SAND with trace gravel (medium dense, moist)	Groundwater not encountered.
	400								
10							SP/ SM	Brown-gray, fine to medium SAND with silt or trace silt (medium dense, moist) [ESPERANCE SAND]	
	390								
20									
	380								
30									
	370								
40									
	360								
50									

Soil Gas Well Detail



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

25175.012 9/14/15 N:\PROJECTS\025175.GPJ WELL LOG POWDER MILL GULCH

LANDAU ASSOCIATES

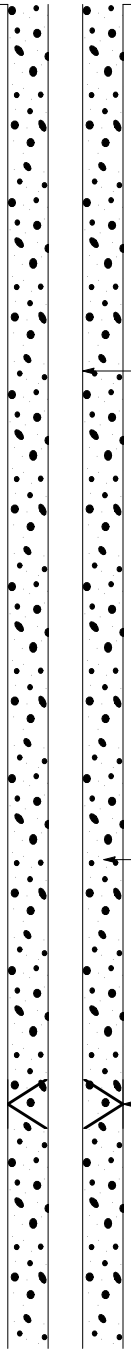
Powder Mill Gulch
Everett, Washington

Log of Soil Gas Well ESG004

ESG004

SAMPLE DATA						SOIL PROFILE			WELL DETAIL
Depth (ft)	Elevation	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-Stem Auger Ground Elevation (ft): 409 Drilled By: Holocene Drilling Inc.	Water Level
							SP/ SM	Brown-gray, fine to medium SAND with silt or trace silt (medium dense, moist) [ESPERANCE SAND]	Groundwater not encountered.
60	350						SP-SM	Gray, fine SAND with silt (medium dense, moist)	
70	340								
80	330								
90	320								
100	310								
110	300								

Soil Gas Well Detail



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

25175.012 9/14/15 N:\PROJECTS\025175.GPJ WELL LOG POWDER MILL GULCH

LANDAU ASSOCIATES

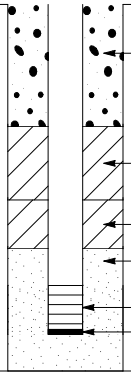
Powder Mill Gulch
Everett, Washington

Log of Soil Gas Well ESG004

ESG004

SAMPLE DATA						SOIL PROFILE			WELL DETAIL
Depth (ft)	Elevation	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-Stem Auger Ground Elevation (ft): 409 Drilled By: Holocene Drilling Inc.	Water Level
110							SP-SM	Gray, fine SAND with silt (medium dense, moist)	Groundwater not encountered.
120	290								

Soil Gas Well Detail



Boring Completed 12/04/13
Total Depth of Boring = 125.0 ft.

130

140

150

160

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

25175.012 9/14/15 N:\PROJECTS\025175.GPJ WELL LOG POWDER MILL GULCH

LANDAU ASSOCIATES

Powder Mill Gulch
Everett, Washington

Log of Soil Gas Well ESG004

SWMU/AOC No. 097, Former Vapor Degreaser, Data Validation and Laboratory Reports

Memo

URS

1501 4th Avenue, Suite 1400
Seattle, Washington 98101
206.438.2700 Telephone
206.438.2699 Fax

To:	Michael Meyer, Project Manager	**Info:**	**FINAL**
From:	Alison M. Rohde, Chemist Jennifer B. Garner, Chemist	**Date:**	June 27, 2014
SUBJECT:	**Summary Data Quality Review** **BCA Everett Plant** **Upland Feasibility Study** **SWMU/AOC No. 097, Building 40-11, Former Vapor Degreaser – May 2014** **Validation Task #2014-22**		

The summary data quality review of 5 soil samples and 1 trip blank collected on May 31, 2014 has been completed. The samples were analyzed at Eurofins Lancaster Laboratories Inc. (LLI) in Lancaster, Pennsylvania for volatile organic compounds (VOCs) by EPA Method 8260C and/or moisture content by SM2540G-1997 (soil). The analyses were performed in general accordance with methods specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)* and Standard Methods for the Examination of Water and Wastewater, 20th edition. The laboratory provided a summary report containing sample results and associated quality assurance and quality control (QA/QC) data. For this report, the sample identification numbers (IDs) do not include the sampling date suffix. The following samples are associated with laboratory group 1478937:

Sample ID	Laboratory ID
ESB2007-5-140531	7485647
ESB2007-10-140531	7485648
ESB2007-15-140531	7485649
ESB2007-20-140531	7485650
ESB2007-TUBSKID	7485651
Trip Blank	7485652

Upon receipt by LLI, the sample jar information was compared to the chain-of-custody (COC) and the cooler temperature was recorded. No discrepancies related to sample identification were noted by the laboratory and the cooler was received at a temperature within the EPA-recommended limits of 4°C±2°C.

Data validation is based on method performance criteria and QC criteria documented in the *Quality Assurance Project Plan (QAPP), Corrective Action Program, Revision 1.9, BCA Everett Plant*, as approved by the Washington State Department of Ecology on June 26, 2012. Holding times, field / method / trip blanks, surrogate recoveries, matrix spike/matrix spike duplicate recoveries, laboratory duplicate results, blank spike recoveries (laboratory control samples), and reporting limits were reviewed to assess compliance with applicable methods. If data qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA documents *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review*, June 2008 and *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganic Data Review*, January 2010. Data qualifier definitions and reason codes are included as Attachment 1 to this report. A summary of data qualifiers assigned to this sample set is included as Attachment 2.

Organic Analyses

Samples were analyzed for VOCs by Method 8260C.

1. Holding Times – Acceptable

2. Blanks – Acceptable

3. Surrogates – Acceptable except as noted below:

The following percent recoveries exceeded the control limits:

Sample ID **Control Limit:**	**1,2-Dichloroethane-d4 70-109%**
ESB2007-5	110%
ESB2007-5 (RE)	113%
ESB2007-10	112%
ESB2007-10 (RE)	114%

RE - reanalysis

As the surrogate recovery for ESB2007-10 was out high and VOCs were reported as not detected, data was not qualified in ESB2007-10 based on the surrogate recovery. ESB2007-5 and ESB2007-10 were reanalyzed due to the 1,2-dichloroethane-d4 percent recoveries. The results for all VOCs in the reanalyses of ESB2007-5 and ESB2007-10 were qualified 'DNR' for Do Not Report. The result for trichloroethene (TCE) in ESB2007-5 was qualified as estimated and flagged 'J' based on the surrogate recovery. VOCs reported as not detected in ESB2007-5 were not qualified based on the elevated 1,2-dichloroethane-d4 result.

4. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – Acceptable

5. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

An MS/MSD was not performed in association with this analysis. Precision and accuracy were assessed using the LCS/LCSD results.

6. Reporting Limits – Acceptable except as noted below:

The reporting limits for 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride were elevated in ESB2007-TUBSKID due to the percent moisture content of the sample. As described in Section 4 of the Ecology-approved Feasibility Study Work Plan (FSWP), dated December 18, 2012, the FS report will propose cleanup standards, including numeric cleanup levels, for each SWMU/AOC based on the nature and extent of contamination, exposure pathways, and other applicable requirements of MTCA. Because the cleanup standards are yet to be developed, the reporting limits were not evaluated against screening levels or potential numeric cleanup levels at this time. Comparison of sample results to the numeric cleanup levels will be made once the cleanup standards have been developed and proposed in the FS report.

Conventional Parameters

The soil samples were analyzed for moisture content by SM2540G.

1. Holding Times – Acceptable

2. Laboratory Control Samples (LCS) – Acceptable

3. Laboratory Duplicate – Acceptable except as noted below:

A laboratory duplicate was performed on a soil sample from an unrelated project. Soil samples reviewed in this report were not qualified based on QC performed on samples unrelated to this project.

4. Reporting Limits - Acceptable

Summary Data Quality Review
BCA Everett Plant
Upland Feasibility Study
SWMU/AOC No. 097, Building 40-11, Former Vapor Degreaser – May 2014
Validation Task #2014-22

Overall Assessment of Data

The data reported in this laboratory group, as qualified, are considered to be usable for meeting project objectives. The completeness for laboratory group 1478937 is 100%.

ATTACHMENT 1

DATA VALIDIATION QUALIFIER DEFINITIONS

The following provide brief explanations of the qualifiers assigned to results in the data review process.

DNR	Do Not Report. Another result is available that is more reliable (see Reason Code 14).
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported sample quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
X	Reported concentration is between the method detection limit and the reporting limit. The result is considered estimated.

DATA VALIDATION QUALIFIER REASON CODES

1	Holding Times
2	Sample Preservation
3	Sample Custody
4	Missing Deliverables
5A	Calibration (Initial)
5B	Calibration (Continuing)
6	Field Blanks
7	Laboratory Blanks
8	Matrix Spike
9	Precision (Duplicate, or Matrix Spike Duplicate)
10	Laboratory Control Sample
11	Detection Limit
12	Standards
13	Surrogates
14a	Multiple results present from different analytical methods. Value from another analytical method should be used.
14b	Analysis made at more than one dilution. Value from another dilution should be used.
14c	Sample analyzed more than once. Value from another analysis should be used.
15	Furnace QC
16	ICP Serial Dilution
17	Chemical Recoveries
18	Trip Blanks
19	Internal Standards
20	Linear Range Exceeded
21	Potential False Negatives
22	Reported analyte is "tentatively identified" and the associated results represent an approximate concentration.
23a	Pattern profile is not indicative of diesel or Jet A fuel.
23b	Pattern profile does not match typical diesel or motor oil range patterns.
23c	Pattern profile does not match typical gasoline range patterns.
23d	Pattern profile does not match typical diesel, motor oil, or Jet A fuel range patterns.
23e	Pattern profile matches diesel range fuel.
23f	Pattern profile matches Jet A fuel.

Attachment 2
Summary of Qualified Data
Boeing (BCA) Everett Plant
Upland FS - SWMU/AOC No. 97, Building 40-11, Former Vapor Degreaser – May 2014
Validation Task #2014-22

SDG	SAMPID	ANLMETHOD	ANALDATE	ANALYTE	VALUE	UNITSCODE	LABQUAL	DVQUAL	DVQUALRC
1478937	ESB2007-5-140531	SW8260C	6/9/2014	1,1-Dichloroethene	4	ug/kg	U	DNR	14c
1478937	ESB2007-5-140531	SW8260C	6/9/2014	cis-1,2-Dichloroethene	4	ug/kg	U	DNR	14c
1478937	ESB2007-5-140531	SW8260C	6/9/2014	trans-1,2-Dichloroethene	4	ug/kg	U	DNR	14c
1478937	ESB2007-5-140531	SW8260C	6/9/2014	Trichloroethene	3	ug/kg	X	J	13
1478937	ESB2007-5-140531	SW8260C	6/9/2014	Trichloroethene	4	ug/kg	U	DNR	14c
1478937	ESB2007-5-140531	SW8260C	6/9/2014	Vinyl Chloride	4	ug/kg	U	DNR	14c
1478937	ESB2007-10-140531	SW8260C	6/9/2014	1,1-Dichloroethene	5	ug/kg	U	DNR	14c
1478937	ESB2007-10-140531	SW8260C	6/9/2014	cis-1,2-Dichloroethene	5	ug/kg	U	DNR	14c
1478937	ESB2007-10-140531	SW8260C	6/9/2014	trans-1,2-Dichloroethene	5	ug/kg	U	DNR	14c
1478937	ESB2007-10-140531	SW8260C	6/9/2014	Trichloroethene	5	ug/kg	U	DNR	14c
1478937	ESB2007-10-140531	SW8260C	6/9/2014	Vinyl Chloride	5	ug/kg	U	DNR	14c

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	The Boeing Company P.O. Box 3707 MC9U4-26 Seattle WA 98124-2207

June 13, 2014

Project: Boeing_EVT: Upland FS SWMU97 Bldg 40-11

Submittal Date: 06/03/2014
Group Number: 1478937
State of Sample Origin: WA

Client Sample Description	Lancaster Labs (LL) #
ESB2007-5-140531 Soil	7485647
ESB2007-10-140531 Soil	7485648
ESB2007-15-140531 Soil	7485649
ESB2007-20-140531 Soil	7485650
ESB2007-TUBSKID Soil	7485651
Trip Blank NaHSO4	7485652

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	URS Corporation	Attn: Karen Mixon
ELECTRONIC COPY TO	URS Corporation	Attn: Jen Garner

Respectfully Submitted,

Kay Hower
Principal Specialist Group Leader

(510) 232-8894

Project Name: Boeing_EVT: Upland FS SWMU97 Bldg 40-11
LL Group #: 1478937

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Batch #: A141601AA (Sample number(s): 7485647-7485652)

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 7485647, 7485647RE, 7485648, 7485648RE

SM 2540 G-1997, Wet Chemistry

Batch #: 14157820002A (Sample number(s): 7485647-7485651 BKG: P485860)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Moisture

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: ESB2007-5-140531 Soil
Boeing_EVT: Upland FS SWMU97 Bldg 40-11

LL Sample # SW 7485647
LL Group # 1478937
Account # 13419

Project Name: Boeing_EVT: Upland FS SWMU97 Bldg 40-11

Collected: 05/31/2014 11:25 by DC

Submitted: 06/03/2014 09:20
Reported: 06/13/2014 18:36

The Boeing Company
P.O. Box 3707 MC9U4-26
Seattle WA 98124-2207

20075

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	
11995	1,1-Dichloroethene	75-35-4	4	U	4	0.77
11995	cis-1,2-Dichloroethene	156-59-2	4	U	4	0.77
11995	trans-1,2-Dichloroethene	156-60-5	4	U	4	0.77
11995	**Trichloroethene**	79-01-6	**3**	**X**	4	0.77
11995	Vinyl Chloride	75-01-4	4	U	4	0.77
Trial ID: RE						
11995	1,1-Dichloroethene	75-35-4	4	U	4	0.64
11995	cis-1,2-Dichloroethene	156-59-2	4	U	4	0.64
11995	trans-1,2-Dichloroethene	156-60-5	4	U	4	0.64
11995	Trichloroethene	79-01-6	4	U	4	0.64
11995	Vinyl Chloride	75-01-4	4	U	4	0.64
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	
00111	**Moisture**	n.a.	**13.6**		0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C457

X = estimated value: The result is >/= the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	8260C TCE VC 11DCE c&t12DCE	SW-846 8260C	1	A141601AA	06/09/2014 12:58	Chelsea B Stong	0.77
11995	8260C TCE VC 11DCE c&t12DCE	SW-846 8260C	2-RE	A141601AA	06/09/2014 14:34	Chelsea B Stong	0.64
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201415434691	05/31/2014 11:25	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201415434691	05/31/2014 11:25	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201415434691	05/31/2014 11:25	Client Supplied	1
00111	Moisture	SM 2540 G-1997	1	14157820002A	06/06/2014 19:19	Scott W Freisher	1

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: ESB2007-10-140531 Soil
Boeing_EVT: Upland FS SWMU97 Bldg 40-11

LL Sample # SW 7485648
LL Group # 1478937
Account # 13419

Project Name: Boeing_EVT: Upland FS SWMU97 Bldg 40-11

Collected: 05/31/2014 11:45 by DC

Submitted: 06/03/2014 09:20
Reported: 06/13/2014 18:36

The Boeing Company
P.O. Box 3707 MC9U4-26
Seattle WA 98124-2207

00710

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	
11995	1,1-Dichloroethene	75-35-4	5	U	5	0.75
11995	cis-1,2-Dichloroethene	156-59-2	5	U	5	0.75
11995	trans-1,2-Dichloroethene	156-60-5	5	U	5	0.75
11995	Trichloroethene	79-01-6	5	U	5	0.75
11995	Vinyl Chloride	75-01-4	5	U	5	0.75
Trial ID: RE						
11995	1,1-Dichloroethene	75-35-4	5	U	5	0.73
11995	cis-1,2-Dichloroethene	156-59-2	5	U	5	0.73
11995	trans-1,2-Dichloroethene	156-60-5	5	U	5	0.73
11995	Trichloroethene	79-01-6	5	U	5	0.73
11995	Vinyl Chloride	75-01-4	5	U	5	0.73
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	
00111	**Moisture**	n.a.	**18.9**		0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C457

X = estimated value: The result is >/= the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	8260C TCE VC 11DCE c&t12DCE	SW-846 8260C	1	A141601AA	06/09/2014 13:21	Chelsea B Stong	0.75
11995	8260C TCE VC 11DCE c&t12DCE	SW-846 8260C	2-RE	A141601AA	06/09/2014 14:58	Chelsea B Stong	0.73
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201415434691	05/31/2014 11:45	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201415434691	05/31/2014 11:45	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201415434691	05/31/2014 11:45	Client Supplied	1
00111	Moisture	SM 2540 G-1997	1	14157820002A	06/06/2014 19:19	Scott W Freisher	1

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Analysis Report

Sample Description: ESB2007-15-140531 Soil
Boeing_EVT: Upland FS SWMU97 Bldg 40-11

LL Sample # SW 7485649
LL Group # 1478937
Account # 13419

Project Name: Boeing_EVT: Upland FS SWMU97 Bldg 40-11

Collected: 05/31/2014 12:15 by DC

Submitted: 06/03/2014 09:20
Reported: 06/13/2014 18:36

The Boeing Company
P.O. Box 3707 MC9U4-26
Seattle WA 98124-2207

00715

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	
11995	1,1-Dichloroethene	75-35-4	5	U	5	0.77
11995	cis-1,2-Dichloroethene	156-59-2	5	U	5	0.77
11995	trans-1,2-Dichloroethene	156-60-5	5	U	5	0.77
11995	Trichloroethene	79-01-6	5	U	5	0.77
11995	Vinyl Chloride	75-01-4	5	U	5	0.77
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	
00111	**Moisture**	n.a.	**18.2**		0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C457

X = estimated value: The result is >/= the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	8260C TCE VC 11DCE c&t12DCE	SW-846 8260C	1	A141601AA	06/09/2014 13:46	Chelsea B Stong	0.77
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201415434691	05/31/2014 12:15	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201415434691	05/31/2014 12:15	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201415434691	05/31/2014 12:15	Client Supplied	1
00111	Moisture	SM 2540 G-1997	1	14157820002A	06/06/2014 19:19	Scott W Freisher	1

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Analysis Report

Sample Description: ESB2007-20-140531 Soil
Boeing_EVT: Upland FS SWMU97 Bldg 40-11

LL Sample # SW 7485650
LL Group # 1478937
Account # 13419

Project Name: Boeing_EVT: Upland FS SWMU97 Bldg 40-11

Collected: 05/31/2014 15:55 by DC

Submitted: 06/03/2014 09:20
Reported: 06/13/2014 18:36

The Boeing Company
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Seattle WA 98124-2207

00720

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	
11995	1,1-Dichloroethene	75-35-4	5	U	5	0.74
11995	cis-1,2-Dichloroethene	156-59-2	5	U	5	0.74
11995	trans-1,2-Dichloroethene	156-60-5	5	U	5	0.74
11995	Trichloroethene	79-01-6	5	U	5	0.74
11995	Vinyl Chloride	75-01-4	5	U	5	0.74
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	
00111	**Moisture**	n.a.	**19.7**		0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C457

X = estimated value: The result is >/= the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	8260C TCE VC 11DCE c&t12DCE	SW-846 8260C	1	A141601AA	06/09/2014 15:23	Chelsea B Stong	0.74
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201415434691	05/31/2014 15:55	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201415434691	05/31/2014 15:55	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201415434691	05/31/2014 15:55	Client Supplied	1
00111	Moisture	SM 2540 G-1997	1	14157820002A	06/06/2014 19:19	Scott W Freisher	1

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Analysis Report

Sample Description: ESB2007-TUBSKID Soil
Boeing_EVT: Upland FS SWMU97 Bldg 40-11

LL Sample # SW 7485651
LL Group # 1478937
Account # 13419

Project Name: Boeing_EVT: Upland FS SWMU97 Bldg 40-11

Collected: 05/31/2014 15:40 by DC

Submitted: 06/03/2014 09:20
Reported: 06/13/2014 18:36

The Boeing Company
P.O. Box 3707 MC9U4-26
Seattle WA 98124-2207

TUBSK

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	
11995	1,1-Dichloroethene	75-35-4	6	U	6	0.9
11995	cis-1,2-Dichloroethene	156-59-2	6	U	6	0.9
11995	trans-1,2-Dichloroethene	156-60-5	6	U	6	0.9
11995	**Trichloroethene**	79-01-6	**1**	**X**	6	0.9
11995	Vinyl Chloride	75-01-4	6	U	6	0.9
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	
00111	**Moisture**	n.a.	**19.8**		0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Washington Lab Certification No. C457

X = estimated value: The result is >/= the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	8260C TCE VC 11DCE c&t12DCE	SW-846 8260C	1	A141601AA	06/09/2014 14:10	Chelsea B Stong	0.9
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201415434691	05/31/2014 15:40	Client Supplied	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	2	201415434691	05/31/2014 15:40	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201415434691	05/31/2014 15:40	Client Supplied	1
00111	Moisture	SM 2540 G-1997	1	14157820002A	06/06/2014 19:19	Scott W Freisher	1

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Analysis Report

Sample Description: Trip Blank NaHSO4
Boeing_EVT: Upland FS SWMU97 Bldg 40-11

LL Sample # G5 7485652
LL Group # 1478937
Account # 13419

Project Name: Boeing_EVT: Upland FS SWMU97 Bldg 40-11

Collected: 05/31/2014

Submitted: 06/03/2014 09:20
Reported: 06/13/2014 18:36

The Boeing Company
P.O. Box 3707 MC9U4-26
Seattle WA 98124-2207

TB97-

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260C**		**ug/kg**		**ug/kg**	
11995	1,1-Dichloroethene	75-35-4	5	U	5	1
11995	cis-1,2-Dichloroethene	156-59-2	5	U	5	1
11995	trans-1,2-Dichloroethene	156-60-5	5	U	5	1
11995	Trichloroethene	79-01-6	5	U	5	1
11995	Vinyl Chloride	75-01-4	5	U	5	1

General Sample Comments

State of Washington Lab Certification No. C457

X = estimated value: The result is >/= the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11995	8260C TCE VC 11DCE c&t12DCE	SW-846 8260C	1	A141601AA	06/09/2014 12:35	Chelsea B Stong	1
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035A	1	201415434691	05/31/2014 00:00	Client Supplied	1
07579	GC/MS-5g Field Preserv.MeOH-NC	SW-846 5035A	1	201415434691	05/31/2014 00:00	Client Supplied	1

Quality Control Summary

Client Name: The Boeing Company Group Number: 1478937
Reported: 06/13/14 at 06:36 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A141601AA	Sample number(s): 7485647-7485652								
1,1-Dichloroethene	5	U	5.	ug/kg	97	95	73-123	3	30
cis-1,2-Dichloroethene	5	U	5.	ug/kg	100	100	80-120	0	30
trans-1,2-Dichloroethene	5	U	5.	ug/kg	101	98	79-120	3	30
Trichloroethene	5	U	5.	ug/kg	100	97	80-120	3	30
Vinyl Chloride	5	U	5.	ug/kg	84	81	53-120	4	30
Batch number: 14157820002A	Sample number(s): 7485647-7485651								
Moisture					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 14157820002A	Sample number(s): 7485647-7485651				BKG: P485860				
Moisture						19.3	20.8	7*	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260C Soil Master
Batch number: A141601AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7485647	106	110*	96	94
7485647 RE	109	113*	96	94
7485648	106	112*	97	94
7485648 RE	111	114*	100	87
7485649	108	108	99	89
7485650	109	109	98	90
7485651	108	109	101	87

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: The Boeing Company Group Number: 1478937
Reported: 06/13/14 at 06:36 PM

Surrogate Quality Control

7485652	104	103	97	95
Blank	107	106	97	96
LCS	105	103	100	103
LCSD	104	102	99	103
Limits:	71-114	70-109	70-123	70-111

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Boeing Chain of Custody

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Acct. # 13419 For Lancaster Laboratories use only Group # 1778937 Sample # 7485647-52

Please print. Instructions on reverse side correspond.

1 Client Information

Site Location: Boeing Everett, WA

Site Project: Upland ES SWMU97 Bldg 40-11

Site Program/#: Upland Feasibility Study

Boeing PM: Nick Gerson

Consultant Contact: Jen Garner & Karen Mixon

Report To: Jen Garner & Karen Mixon

Invoice To: ☒ Boeing EHS ☐ Other (specify):

Sampler: OC / AO # of Coolers: 1

4 Analyses Requested

5 Remarks/Comments

* Truncated VOC list
TCE
VC
1,1-DCE
1,2-DCE

* Hold all TOC analysis

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	VOCs by 8260C	TOC
ESB2007-5-140531	5-31-14	1125	soil	4	x	x
ESB2007-10-140531	↓	1145	↓	4	↓	↓
ESB2007-15-140531		1215		4		
ESB2007-20-140531		1555		4		
ESB2007-TUBSKID	↓	1540	↓	4	↓	↓
* Trip Blank	5-31-14	—	water	2	x	

6 Turnaround Time Requested (please circle)

~~Standard~~ 5 day 4 day

72 hour 48 hour 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
[signature]	6.2.14/830		
		[signature]	6/3/14 0920

Relinquished by commercial carrier (circle): UPS FedEx Other:

Temperature upon Receipt: 3.8 °C

Custody Seals Intact?: Yes No

7

Lancaster Laboratories Inc., 2425 New Holland Pike, Lancaster, PA 17601 717-656-2300

The white copy should accompany samples to Lancaster Laboratories. The yellow copy should be retained by the client.

Issued by Dept. 40 Management

7063.02

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Sample Administration Receipt Documentation Log

Doc Log ID: 16231

Group Number(s): 1478937

Client: BOEING

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	06/03/2014 9:20
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	WA		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Total Trip Blank Qty:	2
Custody Seal Present:	Yes	Trip Blank Type:	NaHSO4/ MeOH
Custody Seal Intact:	Yes	Air Quality Samples Present:	No
Samples Chilled:	Yes	Air Quality Flow Controllers Present:	N/A
Paperwork Enclosed:	Yes	Flow Controller Quantity:	0
Samples Intact:	Yes	Air Quality Returns:	N/A
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		
Sample IDs on COC match Containers:	Yes		
Sample Date/Times match COC:	Yes		
VOA Vial Headspace ≥ 6mm:	N/A		
VOA IDs (≥ 6mm):	N/A		

Unpacked by Corey Eshleman (3647) at 11:17 on 06/03/2014

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Samples Collected Same Day as Receipt?	Elevated Temp?
1	DT121	3.8	DT	Wet	Y	Bagged	N	N

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Lancaster, PA 17605-2425

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F | 717-656-2681
www.LancasterLabs.com

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From: (206) 438-2206
Demetrio Cabanillas
URSCORP
1501 4TH AVE
Suite 1400
SEATTLE, WA 98101

Origin ID: LKEA

FedEx Express

J14101402070326

Ship Date: 02JUN14
ActWgt: 41.0 LB
CAD: 8735053/INET3490

Delivery Address Bar Code

SHIP TO: (717) 656-2300

BILL THIRD PARTY

Sample Receiving
Lancaster Laboratories
2425 New Holland Pike

LANCASTER, PA 17601

Ref # 33764444.12230
Invoice #
PO #
Dept #

TUE - 03 JUN 10:30A
PRIORITY OVERNIGHT

TRK# 7701 6091 5354
0201

XH LNSA

17601
PA-US
MDT

522G3/A26D/F220

RT 729 1

5354
06.03

G-1478937

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Power Mill Gulch Laboratory Report

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1/31/2014
Mr. Ken Reid
Landau Associates, Inc.
130 2nd Avenue South

Edmonds WA 98020

Project Name: PMG FS Soil Gas Investigation
Project #: 025175.114.012
Workorder #: 1401301

Dear Mr. Ken Reid

The following report includes the data for the above referenced project for sample(s) received on 1/21/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1401301

Work Order Summary

CLIENT:	Mr. Ken Reid Landau Associates, Inc. 130 2nd Avenue South Edmonds, WA 98020	**BILL TO:**	Mr. Ken Reid Landau Associates, Inc. 130 2nd Avenue South Edmonds, WA 98020
PHONE:	800-552-5957	**P.O. #**	025175.114.012
FAX:	425-778-6409	**PROJECT #**	025175.114.012 PMG FS Soil Gas Investigation
DATE RECEIVED:	01/21/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	01/31/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	ESG002-1-140116	Modified TO-15	0.0 "Hg	15 psi
02A	ESG002-3-140116	Modified TO-15	1.5 "Hg	15 psi
03A	ESG002-10-140116	Modified TO-15	1.0 "Hg	15 psi
04A	ESG001-140117	Modified TO-15	1.0 "Hg	15.2 psi
05A	ESG003-140117	Modified TO-15	2.0 "Hg	15 psi
06A	ESG004-1-140117	Modified TO-15	1.5 "Hg	15 psi
07A	ESG004-3-140117	Modified TO-15	2.0 "Hg	15 psi
08A	SSG-DUP1-140117	Modified TO-15	2.5 "Hg	15 psi
09A	ESG004-10-140117	Modified TO-15	1.0 "Hg	15 psi
10A	Lab Blank	Modified TO-15	NA	NA
10B	Lab Blank	Modified TO-15	NA	NA
11A	CCV	Modified TO-15	NA	NA
11B	CCV	Modified TO-15	NA	NA
12A	LCS	Modified TO-15	NA	NA
12AA	LCSD	Modified TO-15	NA	NA
12B	LCS	Modified TO-15	NA	NA
12BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Hayes

Technical Director

DATE: 01/31/14

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Landau Associates, Inc.
Workorder# 1401301

Nine 1 Liter Summa Canister (100% Certified) samples were received on January 21, 2014. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample ESG002-10-140116 due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: ESG002-1-140116

Lab ID#: 1401301-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.0	1.3	2.1	2.6
Acetone	1.0	19	2.4	46
Carbon Disulfide	1.0	1.2	3.1	3.7
2-Butanone (Methyl Ethyl Ketone)	1.0	2.4	3.0	7.0
Chloroform	0.20	0.45	0.99	2.2
Benzene	0.20	5.4	0.64	17
1,2-Dichloroethane	0.20	1.3	0.82	5.5
Trichloroethene	0.20	1.8	1.1	9.6
1,2-Dichloropropane	0.20	0.23	0.93	1.1
4-Methyl-2-pentanone	0.20	14	0.83	57
Toluene	0.20	6.9	0.76	26
Ethyl Benzene	0.20	0.44	0.88	1.9
m,p-Xylene	0.20	0.72	0.88	3.1
o-Xylene	0.20	0.58	0.88	2.5
1,1,2,2-Tetrachloroethane	0.20	1.1	1.4	7.8

Client Sample ID: ESG002-3-140116

Lab ID#: 1401301-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	1.1	11	2.5	27
2-Butanone (Methyl Ethyl Ketone)	1.1	1.8	3.1	5.4
Chloroform	0.21	0.46	1.0	2.2
Benzene	0.21	7.4	0.68	24
1,2-Dichloroethane	0.21	2.3	0.86	9.2
1,2-Dichloropropane	0.21	0.41	0.98	1.9
4-Methyl-2-pentanone	0.21	12	0.87	49
Toluene	0.21	11	0.80	40
Ethyl Benzene	0.21	0.68	0.92	2.9
m,p-Xylene	0.21	1.7	0.92	7.2
o-Xylene	0.21	1.4	0.92	5.9

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: ESG002-10-140116

Lab ID#: 1401301-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	2.1	18	5.0	43
2-Butanone (Methyl Ethyl Ketone)	2.1	2.4	6.2	7.0
Chloroform	0.42	0.43	2.0	2.1
Benzene	0.42	8.5	1.3	27
1,2-Dichloroethane	0.42	3.5	1.7	14
1,2-Dichloropropane	0.42	0.61	1.9	2.8
4-Methyl-2-pentanone	0.42	9.9	1.7	40
Toluene	0.42	10	1.6	38
Ethyl Benzene	0.42	0.85	1.8	3.7
m,p-Xylene	0.42	1.9	1.8	8.1
o-Xylene	0.42	1.2	1.8	5.2

Client Sample ID: ESG001-140117

Lab ID#: 1401301-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	1.0	13	2.5	30
Carbon Disulfide	1.0	1.2	3.3	3.9
2-Butanone (Methyl Ethyl Ketone)	1.0	18	3.1	52
Benzene	0.21	1.1	0.67	3.5
4-Methyl-2-pentanone	0.21	5.4	0.86	22
Toluene	0.21	2.3	0.79	8.5
Ethyl Benzene	0.21	0.35	0.91	1.5
m,p-Xylene	0.21	1.1	0.91	4.8
o-Xylene	0.21	0.55	0.91	2.4

Client Sample ID: ESG003-140117

Lab ID#: 1401301-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	1.1	4.8	2.6	12
Carbon Disulfide	1.1	1.1	3.4	3.4
Chloroform	0.22	0.86	1.0	4.2

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: ESG003-140117

Lab ID#: 1401301-05A

Benzene	0.22	0.92	0.69	2.9
4-Methyl-2-pentanone	0.22	1.9	0.88	7.9
Toluene	0.22	1.6	0.81	6.2
Tetrachloroethene	0.22	2.8	1.5	19
Ethyl Benzene	0.22	0.39	0.94	1.7
m,p-Xylene	0.22	1.2	0.94	5.1
o-Xylene	0.22	0.64	0.94	2.8

Client Sample ID: ESG004-1-140117

Lab ID#: 1401301-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	1.1	8.4	2.5	20
2-Butanone (Methyl Ethyl Ketone)	1.1	2.8	3.1	8.3
Chloroform	0.21	0.64	1.0	3.1
Benzene	0.21	2.3	0.68	7.4
1,2-Dichloroethane	0.21	1.0	0.86	4.2
1,2-Dichloropropane	0.21	0.22	0.98	0.99
4-Methyl-2-pentanone	0.21	5.1	0.87	21
Toluene	0.21	6.1	0.80	23
Tetrachloroethene	0.21	3.8	1.4	26
Ethyl Benzene	0.21	0.74	0.92	3.2
m,p-Xylene	0.21	1.8	0.92	7.9
o-Xylene	0.21	1.2	0.92	5.3

Client Sample ID: ESG004-3-140117

Lab ID#: 1401301-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	1.1	5.4	2.6	13
Chloroform	0.22	0.70	1.0	3.4
Benzene	0.22	1.4	0.69	4.4
1,2-Dichloroethane	0.22	0.40	0.87	1.6
4-Methyl-2-pentanone	0.22	3.1	0.88	13

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: ESG004-3-140117

Lab ID#: 1401301-07A

Toluene	0.22	3.0	0.81	11
Ethyl Benzene	0.22	0.63	0.94	2.7
m,p-Xylene	0.22	2.0	0.94	8.6
o-Xylene	0.22	1.2	0.94	5.2

Client Sample ID: SSG-DUP1-140117

Lab ID#: 1401301-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	1.1	2.3	2.3
Acetone	1.1	16	2.6	38
Carbon Disulfide	1.1	1.3	3.4	4.0
2-Butanone (Methyl Ethyl Ketone)	1.1	8.3	3.2	24
Chloroform	0.22	1.0	1.1	5.0
Benzene	0.22	2.5	0.70	8.0
1,2-Dichloroethane	0.22	0.59	0.89	2.4
4-Methyl-2-pentanone	0.22	2.8	0.90	11
Toluene	0.22	2.9	0.83	11
Ethyl Benzene	0.22	0.44	0.96	1.9
m,p-Xylene	0.22	1.4	0.96	5.9
o-Xylene	0.22	0.79	0.96	3.4

Client Sample ID: ESG004-10-140117

Lab ID#: 1401301-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	1.0	3.1	2.5	7.4
Chloroform	0.21	0.64	1.0	3.1
Benzene	0.21	0.62	0.67	2.0
1,2-Dichloroethane	0.21	0.24	0.84	0.97
4-Methyl-2-pentanone	0.21	2.2	0.86	9.0
Toluene	0.21	1.4	0.79	5.4
Ethyl Benzene	0.21	0.38	0.91	1.7
m,p-Xylene	0.21	0.79	0.91	3.4

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: ESG004-10-140117

Lab ID#: 1401301-09A

o-Xylene	0.21	0.64	0.91	2.8

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Client Sample ID: ESG002-1-140116

Lab ID#: 1401301-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012814**	**Date of Collection:**	**1/16/14 11:34:00 AM**
Dil. Factor:	**2.02**	**Date of Analysis:**	**1/28/14 08:01 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.0	1.3	2.1	2.6
Vinyl Chloride	0.20	Not Detected	0.52	Not Detected
Bromomethane	1.0	Not Detected	3.9	Not Detected
Chloroethane	1.0	Not Detected	2.7	Not Detected
Freon 11	0.20	Not Detected	1.1	Not Detected
Freon 113	0.20	Not Detected	1.5	Not Detected
1,1-Dichloroethene	0.20	Not Detected	0.80	Not Detected
Acetone	1.0	19	2.4	46
Carbon Disulfide	1.0	1.2	3.1	3.7
Methylene Chloride	0.40	Not Detected	1.4	Not Detected
trans-1,2-Dichloroethene	0.20	Not Detected	0.80	Not Detected
1,1-Dichloroethane	0.20	Not Detected	0.82	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.0	2.4	3.0	7.0
cis-1,2-Dichloroethene	0.20	Not Detected	0.80	Not Detected
Chloroform	0.20	0.45	0.99	2.2
1,1,1-Trichloroethane	0.20	Not Detected	1.1	Not Detected
Carbon Tetrachloride	0.20	Not Detected	1.3	Not Detected
Benzene	0.20	5.4	0.64	17
1,2-Dichloroethane	0.20	1.3	0.82	5.5
Trichloroethene	0.20	1.8	1.1	9.6
1,2-Dichloropropane	0.20	0.23	0.93	1.1
Bromodichloromethane	0.20	Not Detected	1.4	Not Detected
cis-1,3-Dichloropropene	0.20	Not Detected	0.92	Not Detected
4-Methyl-2-pentanone	0.20	14	0.83	57
Toluene	0.20	6.9	0.76	26
trans-1,3-Dichloropropene	0.20	Not Detected	0.92	Not Detected
1,1,2-Trichloroethane	0.20	Not Detected	1.1	Not Detected
Tetrachloroethene	0.20	Not Detected	1.4	Not Detected
2-Hexanone	1.0	Not Detected	4.1	Not Detected
Dibromochloromethane	0.20	Not Detected	1.7	Not Detected
Chlorobenzene	0.20	Not Detected	0.93	Not Detected
Ethyl Benzene	0.20	0.44	0.88	1.9
m,p-Xylene	0.20	0.72	0.88	3.1
o-Xylene	0.20	0.58	0.88	2.5
Styrene	0.20	Not Detected	0.86	Not Detected
Bromoform	0.20	Not Detected	2.1	Not Detected
1,1,2,2-Tetrachloroethane	0.20	1.1	1.4	7.8
Vinyl Acetate	1.0	Not Detected	3.6	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

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Client Sample ID: ESG002-1-140116

Lab ID#: 1401301-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012814**	**Date of Collection:**	**1/16/14 11:34:00 AM**
Dil. Factor:	**2.02**	**Date of Analysis:**	**1/28/14 08:01 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: ESG002-3-140116

Lab ID#: 1401301-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012815**	**Date of Collection:**	**1/16/14 1:59:00 PM**
Dil. Factor:	**2.13**	**Date of Analysis:**	**1/28/14 08:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	Not Detected	2.2	Not Detected
Vinyl Chloride	0.21	Not Detected	0.54	Not Detected
Bromomethane	1.1	Not Detected	4.1	Not Detected
Chloroethane	1.1	Not Detected	2.8	Not Detected
Freon 11	0.21	Not Detected	1.2	Not Detected
Freon 113	0.21	Not Detected	1.6	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.84	Not Detected
Acetone	1.1	11	2.5	27
Carbon Disulfide	1.1	Not Detected	3.3	Not Detected
Methylene Chloride	0.43	Not Detected	1.5	Not Detected
trans-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
1,1-Dichloroethane	0.21	Not Detected	0.86	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	1.8	3.1	5.4
cis-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
Chloroform	0.21	0.46	1.0	2.2
1,1,1-Trichloroethane	0.21	Not Detected	1.2	Not Detected
Carbon Tetrachloride	0.21	Not Detected	1.3	Not Detected
Benzene	0.21	7.4	0.68	24
1,2-Dichloroethane	0.21	2.3	0.86	9.2
Trichloroethene	0.21	Not Detected	1.1	Not Detected
1,2-Dichloropropane	0.21	0.41	0.98	1.9
Bromodichloromethane	0.21	Not Detected	1.4	Not Detected
cis-1,3-Dichloropropene	0.21	Not Detected	0.97	Not Detected
4-Methyl-2-pentanone	0.21	12	0.87	49
Toluene	0.21	11	0.80	40
trans-1,3-Dichloropropene	0.21	Not Detected	0.97	Not Detected
1,1,2-Trichloroethane	0.21	Not Detected	1.2	Not Detected
Tetrachloroethene	0.21	Not Detected	1.4	Not Detected
2-Hexanone	1.1	Not Detected	4.4	Not Detected
Dibromochloromethane	0.21	Not Detected	1.8	Not Detected
Chlorobenzene	0.21	Not Detected	0.98	Not Detected
Ethyl Benzene	0.21	0.68	0.92	2.9
m,p-Xylene	0.21	1.7	0.92	7.2
o-Xylene	0.21	1.4	0.92	5.9
Styrene	0.21	Not Detected	0.91	Not Detected
Bromoform	0.21	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.21	Not Detected	1.5	Not Detected
Vinyl Acetate	1.1	Not Detected	3.7	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

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Client Sample ID: ESG002-3-140116

Lab ID#: 1401301-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012815**	**Date of Collection:**	**1/16/14 1:59:00 PM**
Dil. Factor:	**2.13**	**Date of Analysis:**	**1/28/14 08:46 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: ESG002-10-140116

Lab ID#: 1401301-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012816**	**Date of Collection:**	**1/16/14 4:51:00 PM**
Dil. Factor:	**4.18**	**Date of Analysis:**	**1/28/14 09:34 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	2.1	Not Detected	4.3	Not Detected
Vinyl Chloride	0.42	Not Detected	1.1	Not Detected
Bromomethane	2.1	Not Detected	8.1	Not Detected
Chloroethane	2.1	Not Detected	5.5	Not Detected
Freon 11	0.42	Not Detected	2.3	Not Detected
Freon 113	0.42	Not Detected	3.2	Not Detected
1,1-Dichloroethene	0.42	Not Detected	1.6	Not Detected
Acetone	2.1	18	5.0	43
Carbon Disulfide	2.1	Not Detected	6.5	Not Detected
Methylene Chloride	0.84	Not Detected	2.9	Not Detected
trans-1,2-Dichloroethene	0.42	Not Detected	1.6	Not Detected
1,1-Dichloroethane	0.42	Not Detected	1.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.1	2.4	6.2	7.0
cis-1,2-Dichloroethene	0.42	Not Detected	1.6	Not Detected
Chloroform	0.42	0.43	2.0	2.1
1,1,1-Trichloroethane	0.42	Not Detected	2.3	Not Detected
Carbon Tetrachloride	0.42	Not Detected	2.6	Not Detected
Benzene	0.42	8.5	1.3	27
1,2-Dichloroethane	0.42	3.5	1.7	14
Trichloroethene	0.42	Not Detected	2.2	Not Detected
1,2-Dichloropropane	0.42	0.61	1.9	2.8
Bromodichloromethane	0.42	Not Detected	2.8	Not Detected
cis-1,3-Dichloropropene	0.42	Not Detected	1.9	Not Detected
4-Methyl-2-pentanone	0.42	9.9	1.7	40
Toluene	0.42	10	1.6	38
trans-1,3-Dichloropropene	0.42	Not Detected	1.9	Not Detected
1,1,2-Trichloroethane	0.42	Not Detected	2.3	Not Detected
Tetrachloroethene	0.42	Not Detected	2.8	Not Detected
2-Hexanone	2.1	Not Detected	8.6	Not Detected
Dibromochloromethane	0.42	Not Detected	3.6	Not Detected
Chlorobenzene	0.42	Not Detected	1.9	Not Detected
Ethyl Benzene	0.42	0.85	1.8	3.7
m,p-Xylene	0.42	1.9	1.8	8.1
o-Xylene	0.42	1.2	1.8	5.2
Styrene	0.42	Not Detected	1.8	Not Detected
Bromoform	0.42	Not Detected	4.3	Not Detected
1,1,2,2-Tetrachloroethane	0.42	Not Detected	2.9	Not Detected
Vinyl Acetate	2.1	Not Detected	7.4	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

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Client Sample ID: ESG002-10-140116

Lab ID#: 1401301-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012816**	**Date of Collection:**	**1/16/14 4:51:00 PM**
Dil. Factor:	**4.18**	**Date of Analysis:**	**1/28/14 09:34 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: ESG001-140117

Lab ID#: 1401301-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012817**	**Date of Collection:**	**1/17/14 9:54:00 AM**
Dil. Factor:	**2.10**	**Date of Analysis:**	**1/28/14 10:26 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.0	Not Detected	2.2	Not Detected
Vinyl Chloride	0.21	Not Detected	0.54	Not Detected
Bromomethane	1.0	Not Detected	4.1	Not Detected
Chloroethane	1.0	Not Detected	2.8	Not Detected
Freon 11	0.21	Not Detected	1.2	Not Detected
Freon 113	0.21	Not Detected	1.6	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.83	Not Detected
Acetone	1.0	13	2.5	30
Carbon Disulfide	1.0	1.2	3.3	3.9
Methylene Chloride	0.42	Not Detected	1.4	Not Detected
trans-1,2-Dichloroethene	0.21	Not Detected	0.83	Not Detected
1,1-Dichloroethane	0.21	Not Detected	0.85	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.0	18	3.1	52
cis-1,2-Dichloroethene	0.21	Not Detected	0.83	Not Detected
Chloroform	0.21	Not Detected	1.0	Not Detected
1,1,1-Trichloroethane	0.21	Not Detected	1.1	Not Detected
Carbon Tetrachloride	0.21	Not Detected	1.3	Not Detected
Benzene	0.21	1.1	0.67	3.5
1,2-Dichloroethane	0.21	Not Detected	0.85	Not Detected
Trichloroethene	0.21	Not Detected	1.1	Not Detected
1,2-Dichloropropane	0.21	Not Detected	0.97	Not Detected
Bromodichloromethane	0.21	Not Detected	1.4	Not Detected
cis-1,3-Dichloropropene	0.21	Not Detected	0.95	Not Detected
4-Methyl-2-pentanone	0.21	5.4	0.86	22
Toluene	0.21	2.3	0.79	8.5
trans-1,3-Dichloropropene	0.21	Not Detected	0.95	Not Detected
1,1,2-Trichloroethane	0.21	Not Detected	1.1	Not Detected
Tetrachloroethene	0.21	Not Detected	1.4	Not Detected
2-Hexanone	1.0	Not Detected	4.3	Not Detected
Dibromochloromethane	0.21	Not Detected	1.8	Not Detected
Chlorobenzene	0.21	Not Detected	0.97	Not Detected
Ethyl Benzene	0.21	0.35	0.91	1.5
m,p-Xylene	0.21	1.1	0.91	4.8
o-Xylene	0.21	0.55	0.91	2.4
Styrene	0.21	Not Detected	0.89	Not Detected
Bromoform	0.21	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.21	Not Detected	1.4	Not Detected
Vinyl Acetate	1.0	Not Detected	3.7	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

eurofins | Air Toxics

Client Sample ID: ESG001-140117

Lab ID#: 1401301-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012817**	**Date of Collection:**	**1/17/14 9:54:00 AM**
Dil. Factor:	**2.10**	**Date of Analysis:**	**1/28/14 10:26 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: ESG003-140117

Lab ID#: 1401301-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012909**	**Date of Collection:**	**1/17/14 12:19:00 PM**
Dil. Factor:	**2.16**	**Date of Analysis:**	**1/29/14 03:21 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	Not Detected	2.2	Not Detected
Vinyl Chloride	0.22	Not Detected	0.55	Not Detected
Bromomethane	1.1	Not Detected	4.2	Not Detected
Chloroethane	1.1	Not Detected	2.8	Not Detected
Freon 11	0.22	Not Detected	1.2	Not Detected
Freon 113	0.22	Not Detected	1.6	Not Detected
1,1-Dichloroethene	0.22	Not Detected	0.86	Not Detected
Acetone	1.1	4.8	2.6	12
Carbon Disulfide	1.1	1.1	3.4	3.4
Methylene Chloride	0.43	Not Detected	1.5	Not Detected
trans-1,2-Dichloroethene	0.22	Not Detected	0.86	Not Detected
1,1-Dichloroethane	0.22	Not Detected	0.87	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	Not Detected	3.2	Not Detected
cis-1,2-Dichloroethene	0.22	Not Detected	0.86	Not Detected
Chloroform	0.22	0.86	1.0	4.2
1,1,1-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Carbon Tetrachloride	0.22	Not Detected	1.4	Not Detected
Benzene	0.22	0.92	0.69	2.9
1,2-Dichloroethane	0.22	Not Detected	0.87	Not Detected
Trichloroethene	0.22	Not Detected	1.2	Not Detected
1,2-Dichloropropane	0.22	Not Detected	1.0	Not Detected
Bromodichloromethane	0.22	Not Detected	1.4	Not Detected
cis-1,3-Dichloropropene	0.22	Not Detected	0.98	Not Detected
4-Methyl-2-pentanone	0.22	1.9	0.88	7.9
Toluene	0.22	1.6	0.81	6.2
trans-1,3-Dichloropropene	0.22	Not Detected	0.98	Not Detected
1,1,2-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Tetrachloroethene	0.22	2.8	1.5	19
2-Hexanone	1.1	Not Detected	4.4	Not Detected
Dibromochloromethane	0.22	Not Detected	1.8	Not Detected
Chlorobenzene	0.22	Not Detected	0.99	Not Detected
Ethyl Benzene	0.22	0.39	0.94	1.7
m,p-Xylene	0.22	1.2	0.94	5.1
o-Xylene	0.22	0.64	0.94	2.8
Styrene	0.22	Not Detected	0.92	Not Detected
Bromoform	0.22	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.22	Not Detected	1.5	Not Detected
Vinyl Acetate	1.1	Not Detected	3.8	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

eurofins | Air Toxics

Client Sample ID: ESG003-140117

Lab ID#: 1401301-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012909**	**Date of Collection:**	**1/17/14 12:19:00 PM**
Dil. Factor:	**2.16**	**Date of Analysis:**	**1/29/14 03:21 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

eurofins | Air Toxics

Client Sample ID: ESG004-1-140117

Lab ID#: 1401301-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012910**	**Date of Collection:**	**1/17/14 2:42:00 PM**
Dil. Factor:	**2.13**	**Date of Analysis:**	**1/29/14 04:26 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	Not Detected	2.2	Not Detected
Vinyl Chloride	0.21	Not Detected	0.54	Not Detected
Bromomethane	1.1	Not Detected	4.1	Not Detected
Chloroethane	1.1	Not Detected	2.8	Not Detected
Freon 11	0.21	Not Detected	1.2	Not Detected
Freon 113	0.21	Not Detected	1.6	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.84	Not Detected
Acetone	1.1	8.4	2.5	20
Carbon Disulfide	1.1	Not Detected	3.3	Not Detected
Methylene Chloride	0.43	Not Detected	1.5	Not Detected
trans-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
1,1-Dichloroethane	0.21	Not Detected	0.86	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	2.8	3.1	8.3
cis-1,2-Dichloroethene	0.21	Not Detected	0.84	Not Detected
Chloroform	0.21	0.64	1.0	3.1
1,1,1-Trichloroethane	0.21	Not Detected	1.2	Not Detected
Carbon Tetrachloride	0.21	Not Detected	1.3	Not Detected
Benzene	0.21	2.3	0.68	7.4
1,2-Dichloroethane	0.21	1.0	0.86	4.2
Trichloroethene	0.21	Not Detected	1.1	Not Detected
1,2-Dichloropropane	0.21	0.22	0.98	0.99
Bromodichloromethane	0.21	Not Detected	1.4	Not Detected
cis-1,3-Dichloropropene	0.21	Not Detected	0.97	Not Detected
4-Methyl-2-pentanone	0.21	5.1	0.87	21
Toluene	0.21	6.1	0.80	23
trans-1,3-Dichloropropene	0.21	Not Detected	0.97	Not Detected
1,1,2-Trichloroethane	0.21	Not Detected	1.2	Not Detected
Tetrachloroethene	0.21	3.8	1.4	26
2-Hexanone	1.1	Not Detected	4.4	Not Detected
Dibromochloromethane	0.21	Not Detected	1.8	Not Detected
Chlorobenzene	0.21	Not Detected	0.98	Not Detected
Ethyl Benzene	0.21	0.74	0.92	3.2
m,p-Xylene	0.21	1.8	0.92	7.9
o-Xylene	0.21	1.2	0.92	5.3
Styrene	0.21	Not Detected	0.91	Not Detected
Bromoform	0.21	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.21	Not Detected	1.5	Not Detected
Vinyl Acetate	1.1	Not Detected	3.7	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

eurofins | Air Toxics

Client Sample ID: ESG004-1-140117

Lab ID#: 1401301-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012910**	**Date of Collection:**	**1/17/14 2:42:00 PM**
Dil. Factor:	**2.13**	**Date of Analysis:**	**1/29/14 04:26 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: ESG004-3-140117

Lab ID#: 1401301-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012911**	**Date of Collection:**	**1/17/14 3:45:00 PM**
Dil. Factor:	**2.16**	**Date of Analysis:**	**1/29/14 05:10 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	Not Detected	2.2	Not Detected
Vinyl Chloride	0.22	Not Detected	0.55	Not Detected
Bromomethane	1.1	Not Detected	4.2	Not Detected
Chloroethane	1.1	Not Detected	2.8	Not Detected
Freon 11	0.22	Not Detected	1.2	Not Detected
Freon 113	0.22	Not Detected	1.6	Not Detected
1,1-Dichloroethene	0.22	Not Detected	0.86	Not Detected
Acetone	1.1	5.4	2.6	13
Carbon Disulfide	1.1	Not Detected	3.4	Not Detected
Methylene Chloride	0.43	Not Detected	1.5	Not Detected
trans-1,2-Dichloroethene	0.22	Not Detected	0.86	Not Detected
1,1-Dichloroethane	0.22	Not Detected	0.87	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	Not Detected	3.2	Not Detected
cis-1,2-Dichloroethene	0.22	Not Detected	0.86	Not Detected
Chloroform	0.22	0.70	1.0	3.4
1,1,1-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Carbon Tetrachloride	0.22	Not Detected	1.4	Not Detected
Benzene	0.22	1.4	0.69	4.4
1,2-Dichloroethane	0.22	0.40	0.87	1.6
Trichloroethene	0.22	Not Detected	1.2	Not Detected
1,2-Dichloropropane	0.22	Not Detected	1.0	Not Detected
Bromodichloromethane	0.22	Not Detected	1.4	Not Detected
cis-1,3-Dichloropropene	0.22	Not Detected	0.98	Not Detected
4-Methyl-2-pentanone	0.22	3.1	0.88	13
Toluene	0.22	3.0	0.81	11
trans-1,3-Dichloropropene	0.22	Not Detected	0.98	Not Detected
1,1,2-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Tetrachloroethene	0.22	Not Detected	1.5	Not Detected
2-Hexanone	1.1	Not Detected	4.4	Not Detected
Dibromochloromethane	0.22	Not Detected	1.8	Not Detected
Chlorobenzene	0.22	Not Detected	0.99	Not Detected
Ethyl Benzene	0.22	0.63	0.94	2.7
m,p-Xylene	0.22	2.0	0.94	8.6
o-Xylene	0.22	1.2	0.94	5.2
Styrene	0.22	Not Detected	0.92	Not Detected
Bromoform	0.22	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.22	Not Detected	1.5	Not Detected
Vinyl Acetate	1.1	Not Detected	3.8	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

eurofins | Air Toxics

Client Sample ID: ESG004-3-140117

Lab ID#: 1401301-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012911**	**Date of Collection:**	**1/17/14 3:45:00 PM**
Dil. Factor:	**2.16**	**Date of Analysis:**	**1/29/14 05:10 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	101	70-130

eurofins | Air Toxics

Client Sample ID: SSG-DUP1-140117

Lab ID#: 1401301-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012912**	**Date of Collection:**	**1/17/14 1:00:00 AM**
Dil. Factor:	**2.20**	**Date of Analysis:**	**1/29/14 06:09 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	1.1	2.3	2.3
Vinyl Chloride	0.22	Not Detected	0.56	Not Detected
Bromomethane	1.1	Not Detected	4.3	Not Detected
Chloroethane	1.1	Not Detected	2.9	Not Detected
Freon 11	0.22	Not Detected	1.2	Not Detected
Freon 113	0.22	Not Detected	1.7	Not Detected
1,1-Dichloroethene	0.22	Not Detected	0.87	Not Detected
Acetone	1.1	16	2.6	38
Carbon Disulfide	1.1	1.3	3.4	4.0
Methylene Chloride	0.44	Not Detected	1.5	Not Detected
trans-1,2-Dichloroethene	0.22	Not Detected	0.87	Not Detected
1,1-Dichloroethane	0.22	Not Detected	0.89	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	8.3	3.2	24
cis-1,2-Dichloroethene	0.22	Not Detected	0.87	Not Detected
Chloroform	0.22	1.0	1.1	5.0
1,1,1-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Carbon Tetrachloride	0.22	Not Detected	1.4	Not Detected
Benzene	0.22	2.5	0.70	8.0
1,2-Dichloroethane	0.22	0.59	0.89	2.4
Trichloroethene	0.22	Not Detected	1.2	Not Detected
1,2-Dichloropropane	0.22	Not Detected	1.0	Not Detected
Bromodichloromethane	0.22	Not Detected	1.5	Not Detected
cis-1,3-Dichloropropene	0.22	Not Detected	1.0	Not Detected
4-Methyl-2-pentanone	0.22	2.8	0.90	11
Toluene	0.22	2.9	0.83	11
trans-1,3-Dichloropropene	0.22	Not Detected	1.0	Not Detected
1,1,2-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Tetrachloroethene	0.22	Not Detected	1.5	Not Detected
2-Hexanone	1.1	Not Detected	4.5	Not Detected
Dibromochloromethane	0.22	Not Detected	1.9	Not Detected
Chlorobenzene	0.22	Not Detected	1.0	Not Detected
Ethyl Benzene	0.22	0.44	0.96	1.9
m,p-Xylene	0.22	1.4	0.96	5.9
o-Xylene	0.22	0.79	0.96	3.4
Styrene	0.22	Not Detected	0.94	Not Detected
Bromoform	0.22	Not Detected	2.3	Not Detected
1,1,2,2-Tetrachloroethane	0.22	Not Detected	1.5	Not Detected
Vinyl Acetate	1.1	Not Detected	3.9	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

eurofins | Air Toxics

Client Sample ID: SSG-DUP1-140117

Lab ID#: 1401301-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012912**	**Date of Collection:**	**1/17/14 1:00:00 AM**
Dil. Factor:	**2.20**	**Date of Analysis:**	**1/29/14 06:09 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: ESG004-10-140117

Lab ID#: 1401301-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012913**	**Date of Collection:**	**1/17/14 6:45:00 PM**
Dil. Factor:	**2.09**	**Date of Analysis:**	**1/29/14 07:07 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.0	Not Detected	2.2	Not Detected
Vinyl Chloride	0.21	Not Detected	0.53	Not Detected
Bromomethane	1.0	Not Detected	4.0	Not Detected
Chloroethane	1.0	Not Detected	2.8	Not Detected
Freon 11	0.21	Not Detected	1.2	Not Detected
Freon 113	0.21	Not Detected	1.6	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.83	Not Detected
Acetone	1.0	3.1	2.5	7.4
Carbon Disulfide	1.0	Not Detected	3.2	Not Detected
Methylene Chloride	0.42	Not Detected	1.4	Not Detected
trans-1,2-Dichloroethene	0.21	Not Detected	0.83	Not Detected
1,1-Dichloroethane	0.21	Not Detected	0.85	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.0	Not Detected	3.1	Not Detected
cis-1,2-Dichloroethene	0.21	Not Detected	0.83	Not Detected
Chloroform	0.21	0.64	1.0	3.1
1,1,1-Trichloroethane	0.21	Not Detected	1.1	Not Detected
Carbon Tetrachloride	0.21	Not Detected	1.3	Not Detected
Benzene	0.21	0.62	0.67	2.0
1,2-Dichloroethane	0.21	0.24	0.84	0.97
Trichloroethene	0.21	Not Detected	1.1	Not Detected
1,2-Dichloropropane	0.21	Not Detected	0.96	Not Detected
Bromodichloromethane	0.21	Not Detected	1.4	Not Detected
cis-1,3-Dichloropropene	0.21	Not Detected	0.95	Not Detected
4-Methyl-2-pentanone	0.21	2.2	0.86	9.0
Toluene	0.21	1.4	0.79	5.4
trans-1,3-Dichloropropene	0.21	Not Detected	0.95	Not Detected
1,1,2-Trichloroethane	0.21	Not Detected	1.1	Not Detected
Tetrachloroethene	0.21	Not Detected	1.4	Not Detected
2-Hexanone	1.0	Not Detected	4.3	Not Detected
Dibromochloromethane	0.21	Not Detected	1.8	Not Detected
Chlorobenzene	0.21	Not Detected	0.96	Not Detected
Ethyl Benzene	0.21	0.38	0.91	1.7
m,p-Xylene	0.21	0.79	0.91	3.4
o-Xylene	0.21	0.64	0.91	2.8
Styrene	0.21	Not Detected	0.89	Not Detected
Bromoform	0.21	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.21	Not Detected	1.4	Not Detected
Vinyl Acetate	1.0	Not Detected	3.7	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

eurofins | Air Toxics

Client Sample ID: ESG004-10-140117

Lab ID#: 1401301-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012913**	**Date of Collection:**	**1/17/14 6:45:00 PM**
Dil. Factor:	**2.09**	**Date of Analysis:**	**1/29/14 07:07 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	102	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1401301-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012806**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/28/14 12:41 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.50	Not Detected	1.0	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
Vinyl Acetate	0.50	Not Detected	1.8	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1401301-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012806**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/28/14 12:41 PM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1401301-10B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012908**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/29/14 02:25 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.50	Not Detected	1.0	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
Vinyl Acetate	0.50	Not Detected	1.8	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits

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Client Sample ID: Lab Blank

Lab ID#: 1401301-10B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012908**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/29/14 02:25 PM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: CCV

Lab ID#: 1401301-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012802**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 1/28/14 09:04 AM**

Compound	%Recovery
Chloromethane	102
Vinyl Chloride	103
Bromomethane	95
Chloroethane	105
Freon 11	106
Freon 113	104
1,1-Dichloroethene	102
Acetone	95
Carbon Disulfide	102
Methylene Chloride	105
trans-1,2-Dichloroethene	100
1,1-Dichloroethane	102
2-Butanone (Methyl Ethyl Ketone)	101
cis-1,2-Dichloroethene	102
Chloroform	101
1,1,1-Trichloroethane	104
Carbon Tetrachloride	124
Benzene	99
1,2-Dichloroethane	103
Trichloroethene	102
1,2-Dichloropropane	105
Bromodichloromethane	103
cis-1,3-Dichloropropene	102
4-Methyl-2-pentanone	100
Toluene	101
trans-1,3-Dichloropropene	104
1,1,2-Trichloroethane	108
Tetrachloroethene	104
2-Hexanone	106
Dibromochloromethane	109
Chlorobenzene	104
Ethyl Benzene	103
m,p-Xylene	105
o-Xylene	107
Styrene	105
Bromoform	111
1,1,2,2-Tetrachloroethane	108
Vinyl Acetate	103

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits

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Client Sample ID: CCV

Lab ID#: 1401301-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/28/14 09:04 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: CCV

Lab ID#: 1401301-11B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012902**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 1/29/14 09:17 AM**

Compound	**%Recovery**
Chloromethane	101
Vinyl Chloride	100
Bromomethane	88
Chloroethane	103
Freon 11	102
Freon 113	99
1,1-Dichloroethene	99
Acetone	92
Carbon Disulfide	108
Methylene Chloride	100
trans-1,2-Dichloroethene	99
1,1-Dichloroethane	95
2-Butanone (Methyl Ethyl Ketone)	97
cis-1,2-Dichloroethene	96
Chloroform	95
1,1,1-Trichloroethane	98
Carbon Tetrachloride	118
Benzene	98
1,2-Dichloroethane	104
Trichloroethene	106
1,2-Dichloropropane	105
Bromodichloromethane	101
cis-1,3-Dichloropropene	102
4-Methyl-2-pentanone	100
Toluene	100
trans-1,3-Dichloropropene	100
1,1,2-Trichloroethane	104
Tetrachloroethene	99
2-Hexanone	103
Dibromochloromethane	106
Chlorobenzene	100
Ethyl Benzene	101
m,p-Xylene	100
o-Xylene	105
Styrene	101
Bromoform	107
1,1,2,2-Tetrachloroethane	100
Vinyl Acetate	96

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**

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Client Sample ID: CCV

Lab ID#: 1401301-11B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/29/14 09:17 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCS

Lab ID#: 1401301-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/28/14 09:52 AM**	

Compound	**%Recovery**	**Method Limits**
Chloromethane	94	70-130
Vinyl Chloride	98	70-130
Bromomethane	94	70-130
Chloroethane	98	70-130
Freon 11	97	70-130
Freon 113	107	70-130
1,1-Dichloroethene	105	70-130
Acetone	89	70-130
Carbon Disulfide	84	70-130
Methylene Chloride	105	70-130
trans-1,2-Dichloroethene	81	70-130
1,1-Dichloroethane	97	70-130
2-Butanone (Methyl Ethyl Ketone)	97	70-130
cis-1,2-Dichloroethene	104	70-130
Chloroform	95	70-130
1,1,1-Trichloroethane	96	70-130
Carbon Tetrachloride	90	70-130
Benzene	94	70-130
1,2-Dichloroethane	98	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	100	70-130
Bromodichloromethane	98	70-130
cis-1,3-Dichloropropene	100	70-130
4-Methyl-2-pentanone	90	70-130
Toluene	94	70-130
trans-1,3-Dichloropropene	89	70-130
1,1,2-Trichloroethane	98	70-130
Tetrachloroethene	94	70-130
2-Hexanone	103	70-130
Dibromochloromethane	101	70-130
Chlorobenzene	94	70-130
Ethyl Benzene	95	70-130
m,p-Xylene	97	70-130
o-Xylene	97	70-130
Styrene	95	70-130
Bromoform	100	70-130
1,1,2,2-Tetrachloroethane	97	70-130
Vinyl Acetate	95	60-140

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**

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Client Sample ID: LCS

Lab ID#: 1401301-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/28/14 09:52 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: LCSD

Lab ID#: 1401301-12AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/28/14 10:37 AM**	

Compound	**%Recovery**	**Method Limits**
Chloromethane	95	70-130
Vinyl Chloride	98	70-130
Bromomethane	93	70-130
Chloroethane	99	70-130
Freon 11	96	70-130
Freon 113	108	70-130
1,1-Dichloroethene	104	70-130
Acetone	92	70-130
Carbon Disulfide	83	70-130
Methylene Chloride	106	70-130
trans-1,2-Dichloroethene	81	70-130
1,1-Dichloroethane	98	70-130
2-Butanone (Methyl Ethyl Ketone)	96	70-130
cis-1,2-Dichloroethene	105	70-130
Chloroform	94	70-130
1,1,1-Trichloroethane	96	70-130
Carbon Tetrachloride	89	70-130
Benzene	92	70-130
1,2-Dichloroethane	95	70-130
Trichloroethene	98	70-130
1,2-Dichloropropane	98	70-130
Bromodichloromethane	95	70-130
cis-1,3-Dichloropropene	98	70-130
4-Methyl-2-pentanone	88	70-130
Toluene	91	70-130
trans-1,3-Dichloropropene	89	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	94	70-130
2-Hexanone	105	70-130
Dibromochloromethane	101	70-130
Chlorobenzene	95	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	94	70-130
o-Xylene	97	70-130
Styrene	94	70-130
Bromoform	98	70-130
1,1,2,2-Tetrachloroethane	97	70-130
Vinyl Acetate	98	60-140

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**

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Client Sample ID: LCSD

Lab ID#: 1401301-12AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/28/14 10:37 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCS

Lab ID#: 1401301-12B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/29/14 10:11 AM**	

Compound	**%Recovery**	**Method Limits**
Chloromethane	106	70-130
Vinyl Chloride	99	70-130
Bromomethane	93	70-130
Chloroethane	100	70-130
Freon 11	100	70-130
Freon 113	108	70-130
1,1-Dichloroethene	106	70-130
Acetone	92	70-130
Carbon Disulfide	86	70-130
Methylene Chloride	105	70-130
trans-1,2-Dichloroethene	81	70-130
1,1-Dichloroethane	96	70-130
2-Butanone (Methyl Ethyl Ketone)	95	70-130
cis-1,2-Dichloroethene	104	70-130
Chloroform	94	70-130
1,1,1-Trichloroethane	96	70-130
Carbon Tetrachloride	90	70-130
Benzene	92	70-130
1,2-Dichloroethane	98	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	97	70-130
Bromodichloromethane	98	70-130
cis-1,3-Dichloropropene	100	70-130
4-Methyl-2-pentanone	107	70-130
Toluene	92	70-130
trans-1,3-Dichloropropene	91	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	96	70-130
2-Hexanone	105	70-130
Dibromochloromethane	102	70-130
Chlorobenzene	94	70-130
Ethyl Benzene	96	70-130
m,p-Xylene	95	70-130
o-Xylene	97	70-130
Styrene	95	70-130
Bromoform	101	70-130
1,1,2,2-Tetrachloroethane	96	70-130
Vinyl Acetate	97	60-140

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**

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Client Sample ID: LCS

Lab ID#: 1401301-12B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/29/14 10:11 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: LCSD

Lab ID#: 1401301-12BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/29/14 10:58 AM**	

Compound	**%Recovery**	**Method Limits**
Chloromethane	92	70-130
Vinyl Chloride	92	70-130
Bromomethane	89	70-130
Chloroethane	93	70-130
Freon 11	93	70-130
Freon 113	102	70-130
1,1-Dichloroethene	103	70-130
Acetone	88	70-130
Carbon Disulfide	80	70-130
Methylene Chloride	101	70-130
trans-1,2-Dichloroethene	76	70-130
1,1-Dichloroethane	92	70-130
2-Butanone (Methyl Ethyl Ketone)	91	70-130
cis-1,2-Dichloroethene	101	70-130
Chloroform	89	70-130
1,1,1-Trichloroethane	90	70-130
Carbon Tetrachloride	85	70-130
Benzene	92	70-130
1,2-Dichloroethane	97	70-130
Trichloroethene	97	70-130
1,2-Dichloropropane	96	70-130
Bromodichloromethane	96	70-130
cis-1,3-Dichloropropene	98	70-130
4-Methyl-2-pentanone	103	70-130
Toluene	92	70-130
trans-1,3-Dichloropropene	89	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	93	70-130
2-Hexanone	101	70-130
Dibromochloromethane	99	70-130
Chlorobenzene	93	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	94	70-130
o-Xylene	96	70-130
Styrene	93	70-130
Bromoform	96	70-130
1,1,2,2-Tetrachloroethane	94	70-130
Vinyl Acetate	94	60-140

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**

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Client Sample ID: LCSD

Lab ID#: 1401301-12BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e012904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 1/29/14 10:58 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

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Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project ~~Manager~~ Contact Ken Reid
Collected by: (Print and Sign) Brandon Duncan
Company Landau Associates Email kreid@landauinc.com
Address 130 2nd Ave South City Edmonds State WA Zip 98020
Phone (425) 778-0907 Fax (425) 778-6409

Project Info:
P.O. # 025175.114.012
Project # 025175 114.012
Project Name PMG FS Soil Gas Investigation

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	~~ES6002-1-140116~~ ESG002-1-140116	12367	1/16/14	1134	TO-15 (low level)	29.0	4.5		
02A	~~ES6002-3-140116~~ ESG002-3-140116	37397	1/16/14	1359	TO-15 (low level)	>30	4.0		
03A	~~ES6002-10-140116~~ ESG002-10-140116	34621	1/16/14	1651	TO-15 (low level)	26.8	4.0		
04A	ESG001-140117	9327	1/17/14	0954	TO-15 (low level)	>30	4.0		
05A	ESG003-140117	37733	1/17/14	1219	TO-15 (low level)	>30	3.5		
06A	ESG004-1-140117	36397	1/17/14	1442	TO-15 (low level)	26.0	4.0		
07A	ESG004-3-140117	35605	1/17/14	1545	TO-15 (low level)	>30	4.0		
08A	SSG-DUP1-140117	3021	1/17/14	0100	TO-15 (low level)	>30	4.0		
09A	ESG004-10-140117	1350	1/17/14	1845	TO-15 (low level)	>30	4.0		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
BM	1/20/13 1030	ATL	1/21/14 1015
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		NA	Good	Yes No None	1401301

Form 1293 rev.11

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3/10/2014
Mr. Ken Reid
Landau Associates, Inc.
130 2nd Avenue South

Edmonds WA 98020

Project Name: PMG FS Soil Gas Sampling
Project #: 025175.113.012
Workorder #: 1402414R1

Dear Mr. Ken Reid

The following report includes the data for the above referenced project for sample(s) received on 2/25/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1402414R1

Work Order Summary

CLIENT:	Mr. Ken Reid Landau Associates, Inc. 130 2nd Avenue South Edmonds, WA 98020	**BILL TO:**	Accounts Payable Eurofins Lancaster Laboratories Environmental, LLC 2425 New Holland Pike Lancaster, PA 17605-2425
PHONE:	800-552-5957	**P.O. #**	
FAX:	425-778-6409	**PROJECT #**	025175.113.012 PMG FS Soil Gas Sampling
DATE RECEIVED:	02/25/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	03/03/2014		
DATE REISSUED:	03/10/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	ESG-SWAGBLANK-140221	Modified TO-15	3.5 "Hg	15.1 psi
02A	ESG-MISCBLANK-140221	Modified TO-15	2.2 "Hg	14.9 psi
03A	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 03/10/14

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-13-6, UT NELAP CA009332013-4, VA NELAP - 460197, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Landau Associates, Inc.
Workorder# 1402414R1

Two 1 Liter Summa Canister (100% Certified) samples were received on February 25, 2014. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

THE WORKORDER WAS REISSUED ON 3/10/14 TO CORRECT SAMPLE COLLECTION TIME FOR SAMPLE ESG-SWAGBLANK-140221 DUE TO LABORATORY TRANSCRIPTION ERROR.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates

as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: ESG-SWAGBLANK-140221

Lab ID#: 1402414R1-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	1.1	52	2.7	120
Carbon Disulfide	1.1	2.2	3.6	6.8
Methylene Chloride	0.46	0.86	1.6	3.0
2-Butanone (Methyl Ethyl Ketone)	1.1	4.4	3.4	13
Benzene	0.23	21	0.73	66
1,2-Dichloroethane	0.23	3.5	0.93	14
1,2-Dichloropropane	0.23	0.46	1.0	2.1
4-Methyl-2-pentanone	0.23	16	0.94	65
Toluene	0.23	21	0.86	79
Ethyl Benzene	0.23	0.77	0.99	3.4
m,p-Xylene	0.23	1.1	0.99	4.8
o-Xylene	0.23	1.1	0.99	4.7

Client Sample ID: ESG-MISCBLANK-140221

Lab ID#: 1402414R1-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	1.8	2.2	3.6
Acetone	1.1	51	2.6	120
Carbon Disulfide	1.1	5.2	3.4	16
Methylene Chloride	0.44	1.3	1.5	4.4
2-Butanone (Methyl Ethyl Ketone)	1.1	7.8	3.2	23
Benzene	0.22	37	0.70	120
1,2-Dichloroethane	0.22	7.6	0.88	31
1,2-Dichloropropane	0.22	0.95	1.0	4.4
4-Methyl-2-pentanone	0.22	16	0.89	66
Toluene	0.22	36	0.82	140
Ethyl Benzene	0.22	0.92	0.95	4.0
m,p-Xylene	0.22	1.8	0.95	7.7
o-Xylene	0.22	1.5	0.95	6.4
Styrene	0.22	0.48	0.93	2.0

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Client Sample ID: ESG-SWAGBLANK-140221

Lab ID#: 1402414R1-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022809**	**Date of Collection:**	**2/21/14 2:39:00 PM**
Dil. Factor:	**2.29**	**Date of Analysis:**	**2/28/14 02:42 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	Not Detected	2.4	Not Detected
Vinyl Chloride	0.23	Not Detected	0.58	Not Detected
Bromomethane	1.1	Not Detected	4.4	Not Detected
Chloroethane	1.1	Not Detected	3.0	Not Detected
Freon 11	0.23	Not Detected	1.3	Not Detected
Freon 113	0.23	Not Detected	1.8	Not Detected
1,1-Dichloroethene	0.23	Not Detected	0.91	Not Detected
Acetone	1.1	52	2.7	120
Carbon Disulfide	1.1	2.2	3.6	6.8
Methylene Chloride	0.46	0.86	1.6	3.0
trans-1,2-Dichloroethene	0.23	Not Detected	0.91	Not Detected
1,1-Dichloroethane	0.23	Not Detected	0.93	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	4.4	3.4	13
cis-1,2-Dichloroethene	0.23	Not Detected	0.91	Not Detected
Chloroform	0.23	Not Detected	1.1	Not Detected
1,1,1-Trichloroethane	0.23	Not Detected	1.2	Not Detected
Carbon Tetrachloride	0.23	Not Detected	1.4	Not Detected
Benzene	0.23	21	0.73	66
1,2-Dichloroethane	0.23	3.5	0.93	14
Trichloroethene	0.23	Not Detected	1.2	Not Detected
1,2-Dichloropropane	0.23	0.46	1.0	2.1
Bromodichloromethane	0.23	Not Detected	1.5	Not Detected
cis-1,3-Dichloropropene	0.23	Not Detected	1.0	Not Detected
4-Methyl-2-pentanone	0.23	16	0.94	65
Toluene	0.23	21	0.86	79
trans-1,3-Dichloropropene	0.23	Not Detected	1.0	Not Detected
1,1,2-Trichloroethane	0.23	Not Detected	1.2	Not Detected
Tetrachloroethene	0.23	Not Detected	1.6	Not Detected
2-Hexanone	1.1	Not Detected	4.7	Not Detected
Dibromochloromethane	0.23	Not Detected	2.0	Not Detected
Chlorobenzene	0.23	Not Detected	1.0	Not Detected
Ethyl Benzene	0.23	0.77	0.99	3.4
m,p-Xylene	0.23	1.1	0.99	4.8
o-Xylene	0.23	1.1	0.99	4.7
Styrene	0.23	Not Detected	0.98	Not Detected
Bromoform	0.23	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.23	Not Detected	1.6	Not Detected
Vinyl Acetate	1.1	Not Detected	4.0	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

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Client Sample ID: ESG-SWAGBLANK-140221

Lab ID#: 1402414R1-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022809**	**Date of Collection:**	**2/21/14 2:39:00 PM**
Dil. Factor:	**2.29**	**Date of Analysis:**	**2/28/14 02:42 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	115	70-130

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Client Sample ID: ESG-MISCBLANK-140221

Lab ID#: 1402414R1-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022810**	**Date of Collection:**	**2/21/14 4:46:00 PM**
Dil. Factor:	**2.18**	**Date of Analysis:**	**2/28/14 03:26 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	1.1	1.8	2.2	3.6
Vinyl Chloride	0.22	Not Detected	0.56	Not Detected
Bromomethane	1.1	Not Detected	4.2	Not Detected
Chloroethane	1.1	Not Detected	2.9	Not Detected
Freon 11	0.22	Not Detected	1.2	Not Detected
Freon 113	0.22	Not Detected	1.7	Not Detected
1,1-Dichloroethene	0.22	Not Detected	0.86	Not Detected
Acetone	1.1	51	2.6	120
Carbon Disulfide	1.1	5.2	3.4	16
Methylene Chloride	0.44	1.3	1.5	4.4
trans-1,2-Dichloroethene	0.22	Not Detected	0.86	Not Detected
1,1-Dichloroethane	0.22	Not Detected	0.88	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	7.8	3.2	23
cis-1,2-Dichloroethene	0.22	Not Detected	0.86	Not Detected
Chloroform	0.22	Not Detected	1.1	Not Detected
1,1,1-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Carbon Tetrachloride	0.22	Not Detected	1.4	Not Detected
Benzene	0.22	37	0.70	120
1,2-Dichloroethane	0.22	7.6	0.88	31
Trichloroethene	0.22	Not Detected	1.2	Not Detected
1,2-Dichloropropane	0.22	0.95	1.0	4.4
Bromodichloromethane	0.22	Not Detected	1.5	Not Detected
cis-1,3-Dichloropropene	0.22	Not Detected	0.99	Not Detected
4-Methyl-2-pentanone	0.22	16	0.89	66
Toluene	0.22	36	0.82	140
trans-1,3-Dichloropropene	0.22	Not Detected	0.99	Not Detected
1,1,2-Trichloroethane	0.22	Not Detected	1.2	Not Detected
Tetrachloroethene	0.22	Not Detected	1.5	Not Detected
2-Hexanone	1.1	Not Detected	4.5	Not Detected
Dibromochloromethane	0.22	Not Detected	1.8	Not Detected
Chlorobenzene	0.22	Not Detected	1.0	Not Detected
Ethyl Benzene	0.22	0.92	0.95	4.0
m,p-Xylene	0.22	1.8	0.95	7.7
o-Xylene	0.22	1.5	0.95	6.4
Styrene	0.22	0.48	0.93	2.0
Bromoform	0.22	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.22	Not Detected	1.5	Not Detected
Vinyl Acetate	1.1	Not Detected	3.8	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits

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Client Sample ID: ESG-MISCBLANK-140221

Lab ID#: 1402414R1-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022810**	**Date of Collection:**	**2/21/14 4:46:00 PM**
Dil. Factor:	**2.18**	**Date of Analysis:**	**2/28/14 03:26 PM**

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	114	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1402414R1-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022806**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/14 12:34 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloromethane	0.50	Not Detected	1.0	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
Vinyl Acetate	0.50	Not Detected	1.8	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits

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Client Sample ID: Lab Blank

Lab ID#: 1402414R1-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022806**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/14 12:34 PM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: CCV

Lab ID#: 1402414R1-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022802**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/14 09:37 AM**

Compound	%Recovery
Chloromethane	81
Vinyl Chloride	95
Bromomethane	107
Chloroethane	86
Freon 11	93
Freon 113	100
1,1-Dichloroethene	94
Acetone	86
Carbon Disulfide	97
Methylene Chloride	98
trans-1,2-Dichloroethene	96
1,1-Dichloroethane	88
2-Butanone (Methyl Ethyl Ketone)	96
cis-1,2-Dichloroethene	96
Chloroform	95
1,1,1-Trichloroethane	93
Carbon Tetrachloride	95
Benzene	97
1,2-Dichloroethane	92
Trichloroethene	101
1,2-Dichloropropane	88
Bromodichloromethane	96
cis-1,3-Dichloropropene	94
4-Methyl-2-pentanone	85
Toluene	100
trans-1,3-Dichloropropene	102
1,1,2-Trichloroethane	104
Tetrachloroethene	107
2-Hexanone	90
Dibromochloromethane	103
Chlorobenzene	102
Ethyl Benzene	108
m,p-Xylene	108
o-Xylene	108
Styrene	101
Bromoform	121
1,1,2,2-Tetrachloroethane	105
Vinyl Acetate	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits

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Client Sample ID: CCV

Lab ID#: 1402414R1-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/14 09:37 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	120	70-130

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Client Sample ID: LCS

Lab ID#: 1402414R1-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/14 10:20 AM**	

Compound	**%Recovery**	**Method Limits**
Chloromethane	83	70-130
Vinyl Chloride	96	70-130
Bromomethane	120	70-130
Chloroethane	89	70-130
Freon 11	97	70-130
Freon 113	119	70-130
1,1-Dichloroethene	109	70-130
Acetone	88	70-130
Carbon Disulfide	93	70-130
Methylene Chloride	111	70-130
trans-1,2-Dichloroethene	88	70-130
1,1-Dichloroethane	91	70-130
2-Butanone (Methyl Ethyl Ketone)	105	70-130
cis-1,2-Dichloroethene	114	70-130
Chloroform	102	70-130
1,1,1-Trichloroethane	98	70-130
Carbon Tetrachloride	97	70-130
Benzene	102	70-130
1,2-Dichloroethane	93	70-130
Trichloroethene	104	70-130
1,2-Dichloropropane	91	70-130
Bromodichloromethane	104	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	88	70-130
Toluene	100	70-130
trans-1,3-Dichloropropene	91	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	105	70-130
2-Hexanone	90	70-130
Dibromochloromethane	105	70-130
Chlorobenzene	97	70-130
Ethyl Benzene	100	70-130
m,p-Xylene	104	70-130
o-Xylene	99	70-130
Styrene	100	70-130
Bromoform	120	70-130
1,1,2,2-Tetrachloroethane	99	70-130
Vinyl Acetate	97	60-140

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**

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Client Sample ID: LCS

Lab ID#: 1402414R1-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/14 10:20 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	88	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	117	70-130

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Client Sample ID: LCSD

Lab ID#: 1402414R1-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/14 11:02 AM**	

Compound	**%Recovery**	**Method Limits**
Chloromethane	85	70-130
Vinyl Chloride	101	70-130
Bromomethane	129	70-130
Chloroethane	95	70-130
Freon 11	104	70-130
Freon 113	125	70-130
1,1-Dichloroethene	120	70-130
Acetone	94	70-130
Carbon Disulfide	99	70-130
Methylene Chloride	117	70-130
trans-1,2-Dichloroethene	95	70-130
1,1-Dichloroethane	95	70-130
2-Butanone (Methyl Ethyl Ketone)	110	70-130
cis-1,2-Dichloroethene	121	70-130
Chloroform	105	70-130
1,1,1-Trichloroethane	101	70-130
Carbon Tetrachloride	101	70-130
Benzene	102	70-130
1,2-Dichloroethane	96	70-130
Trichloroethene	104	70-130
1,2-Dichloropropane	90	70-130
Bromodichloromethane	104	70-130
cis-1,3-Dichloropropene	104	70-130
4-Methyl-2-pentanone	89	70-130
Toluene	101	70-130
trans-1,3-Dichloropropene	93	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	103	70-130
2-Hexanone	92	70-130
Dibromochloromethane	107	70-130
Chlorobenzene	97	70-130
Ethyl Benzene	102	70-130
m,p-Xylene	107	70-130
o-Xylene	104	70-130
Styrene	101	70-130
Bromoform	123	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Vinyl Acetate	104	60-140

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**

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Client Sample ID: LCSD

Lab ID#: 1402414R1-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**v022804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/28/14 11:02 AM**	

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	114	70-130

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Sample Transportation Notice

Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project: ~~Manager~~ Central Valley RPO Northern Kern Bed

Collected by: (Print and Sign) Brandon Duncan Brandon Duncan

Company Landau Associates Email kristi@landau-inc.com

Address 130 2nd Ave S City Edmonds State WA Zip 98020

Phone (425) 778-0907 Fax (425) 778-6409

Project Info:

P.O. # 025175.014.012

Project # 025175.014.012

Project Name PFAS Soil Gas Investigation

Turn Around Time: ☐ Normal ☒ Rush 5 day scedule

Lab Use Only: Pressurized by: Date: Pressurization Gas: N. He.

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	ESG-SVAGBL-NAK-140221	34609	2/21/14	14:39	TO-15 (low level)	29.5	5.0		
02A	ESG-MESCBL-ANK-140221	36498	2/21/14	16:46	TO-15 (low level)	>30	5.0		

Relinquished by: (signature) Date/Time [signature] 2/24/14 09:40

Received by: (signature) Date/Time [signature] ATL 2/25/14 0955

Relinquished by: (signature) Date/Time

Received by: (signature) Date/Time

Relinquished by: (signature) Date/Time

Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	Fedex		NA	Good	Yes No None	1402414

Form 1293 rev. 1

APPENDIX B

Vadose Zone Modeling Results

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VADOSE ZONE MODELING RESULTS

1.0 INTRODUCTION

This appendix summarizes the methodology and results of vadose zone transport model simulations conducted for selected SWMUS/AOCs at the Boeing Everett Plant in Everett, Washington (site). In accordance with the Feasibility Study Work Plan (FSWP) (URS and Landau 2012) approved by Washington State Department of Ecology (Ecology), chemicals of concern (COCs) detected in shallow soil at the various SWMUs/AOCs at upland locations of the Everett Plant were evaluated for their potential to impact groundwater in the regional aquifer (Esperance Sand), which occurs at a depth of approximately 200 feet below ground surface (bgs) beneath the upland portion of the site.

The default methodology for establishing soil cleanup levels that would be protective of groundwater are described in MTCA in Washington Administrative Code (WAC) 173-340-747. The default input parameters used as part of this methodology are established in WAC 173-340-747(4) and also provided by Ecology in the current CLARC database. The MTCA default methodology uses a fixed dilution factor and does not account for site-specific conditions, such as the significant depth to groundwater in the Esperance Sand beneath the known contaminated soil and perched groundwater at the Everett Plant, or other soil physical parameters that affect vadose zone transport. Consequently, an alternative fate and transport modeling method was presented in the FSWP (URS and Landau 2012) and approved by Ecology (Yasuda, 2014). This alternative modeling was used to assess the soil to Esperance Sand groundwater pathway by conservatively estimating the potential for the maximum known concentrations of organic COCs detected in the unsaturated (or vadose) zone at various SWMUs/AOCs to migrate to the Esperance Sand groundwater and is consistent with the requirements in WAC 173-340-702(16). In particular, the model conservatively estimated the potential for COCs in soil to impact Esperance Sand groundwater at concentrations greater than the applicable state and federal maximum concentration levels (MCLs) or other applicable groundwater cleanup levels as specified by MTCA and Ecology guidance for constituents without MCLs.

Model simulations were performed using the Seasonal Soil Compartment Model (SESOIL) (Bonazountas and Wagner 1984, Bonazountas et al. 1997, and ORNL and Wisconsin DNR 1996). This model meets the requirements of MTCA under WAC 173-340-702(16), is well established, can be easily modified for site-specific conditions, and is a widely accepted model that is used by multiple state and federal regulatory agencies. The assumptions made for the modeling the Everett Plant SWMUs/AOCs are conservative and the approach used to apply the site-specific data to the model was approved by Ecology (Yasuda 2014) in the FSWP as further discussed below.

In accordance with the FSWP, an initial model simulation of the SWMU/AOC No. 054, Former Wastewater (WW) AST area near Building 40-51 was performed and the methodology and results were submitted to Ecology in a technical memorandum (URS 2014) for review to accomplish the following:

- Establish concurrence on the approach and assumptions.
- Evaluate the site-specific data used as input parameters.
- Assess the results of sensitivity analyses performed.

Ecology reviewed this initial evaluation and concurred with the approach and use of the site-specific data in a meeting with Boeing and URS personnel. In addition, Ecology provided subsequent written comments (Yasuda 2014) prior to the modeling of the other SWMUs/AOCs, which were incorporated in the subsequent modeling. This facilitated consistent and more efficient modeling of the additional SWMUs/AOCs. The SWMU/AOC No. 054 area was selected as the initial SWMU/AOC to be modeled because it is relatively straight forward and representative of physical conditions of a majority of the SWMUs/AOCs at the Everett Plant as summarized below:

- Volatile organic compounds in shallow glacial till and/or till fill soil
- No shallow perched groundwater
- Covered by concrete, asphalt, or a building with a concrete floor

The SWMUs/AOCs on the site that were modeled were (1) those SWMUs/AOCs identified in the remedial investigation (RI) with concentrations of one or more COCs in soil that exceeded the MTCA Method B protection of groundwater soil cleanup levels in CLARC or calculated per MTCA if not in CLARC at the time the FSWP was prepared and (2) those SWMUs/AOCs with RI and/or FS soil COC data that exceed protection of groundwater cleanup levels revised by Ecology during the FS period. The results of the modeling are presented within this appendix in the order listed below:

- Building 40-51, SWMU/AOC No. 054, Former Wastewater AST
- Building 40-51, SWMU/AOC No. 151, Sumps EV-112 and EV-119
- Building 40-56, SWMU/AOC Nos. 086, 089, 094, Former USTs
- Building 40-56, SWMU/AOC Nos.067 and 71, Former Recycling Unit and UST
- Building 40-24, SWMU/AOC Nos.055 and 168, Utilities Trenches and Sumps
- Building 40-31, SWMU/AOC No. 171, Former Bluestreak Vapor Degreaser

- Building 40-11, SWMU/AOC No. 097, Former Vapor Degreaser
- Building 40-53, SWMU/AOC No. 098, Mock-Up Degreaser
- Building 40-02, SWMU/AOC No. 170, Large Vapor Degreaser
- Building 40-32, Footing Excavation
- South Complex, SWMU/AOC No. 068, South Fire Pit
- Building 40-11, UST EV-48-1
- Building 45-52, SWMU/AOC No. 165, Fueling System Piping and Former Fuel Farm USTs
- Flightline, SWMU/AOC No. 083, Former UST EV-15
- Building 45-51, SWMU/AOC No. 093, Former Solvent USTs

Data from physical testing and chemical analyses used for modeling each SWMU/AOC are summarized in the tables and figures. Laboratory reports for chemical analyses were transmitted previously to Ecology in appendices to the RI report (URS and Landau Associates, 2013) or during the FS time frame. The laboratory reports for physical testing performed during the RI and FS that were used as inputs for this vadose zone modeling are also presented in this appendix following the tables and figures referenced in the SWMU/AOC specific sections.

2.0 METHODOLOGY

SESOIL simulates the fate and transport of organic compounds with the capability to incorporate many different mechanisms. Per the model methodology previously approved by Ecology, the model inputs used for the modeling described in this appendix focused primarily on the mechanisms of infiltration, diffusion, and adsorption. Since its initial development, it has been upgraded and refined by EPA and others to improve and enhance its capabilities. The graphical user interface SEVIEW 7.1 (Environmental Software Consultants 2014) was used to construct, simulate, and analyze results from the SESOIL model.

The same basic methodology was used for all the SWMUs/AOCs as presented in this Appendix. The general approach is described below and further details are provided in the relevant section for each specific SWMU/AOC. The primary contaminant constituent(s) modeled, soil concentrations and depths, and physical parameters of the soil used as inputs for the model were modified as appropriate to reflect the site-specific conditions of the designated SWMU/AOC area. Where soil physical parameters were not available for a specific SWMU/AOC, data were used from a nearby SWMU/AOC with similar soil. The chemical and physical soil data collected during the FS were supplemented by the available RI data for each SWMU/AOC. However, if the FS soil chemical data was duplicative of the RI data in a location and depth, the FS data were deemed to be most representative of the current conditions. If RI samples at a SWMU/AOC had a higher concentrations than the FS samples and were collected at different locations and/or depths, then the RI data were used in the model inputs to be conservative. Some of the SWMU/AOCs were modeled for contaminated soil areas that deviate somewhat from the areas shown in Section 2 of this FS report that were used to evaluate and estimate costs for remedial alternatives. This was done to simplify the shape of the modeled area and/or because the modeling was completed prior to the finalization of the SWMU/AOC areas for estimating/costing purposes.

The SWMU/AOC-specific chemical and physical data are typically limited to depths of 40 feet bgs or less. Consequently, a single set of soil physical parameters based on physical testing data collected during the RI was established and used for soils at depths greater than 40 feet, because the lithology and soil characteristics are interpreted to be relatively consistent at this depth throughout the site based on the available data.

Key inputs for the SESOIL model included chemical and physical soil parameters, RI/FS soil sample analytical and physical testing data, and chemical-specific parameters that influence the ability of the simulated contaminant to migrate through the unsaturated zone. These input parameters were specified using site-specific data for each SWMU/AOC. The model results were conservative (i.e., overestimated the potential for migration) because of a number of assumptions incorporated for each model simulation, including the following:

- Volatilization, biodegradation, and hydrolysis, which reduce contaminant concentrations in soil, were not included in the model.
- The maximum concentration of each COC in each soil layer modeled at a SWMU/AOC was applied to the entire volume of the soil layer, which significantly overestimates the contaminant mass.
- A constant source concentration was assumed for the duration of the model time frame without depletion or reduction in concentration.
- Conservative hydraulic properties of the saturated soils below the unsaturated leaching zone were assigned as input parameters used to simulate the concentration and attenuation of leached contaminants in groundwater.
- When available, conservative site-specific data were used as the model input parameters.
- For COC and other parameters used in the model and for which site-specific values do not apply or were not available, conservative literature based values and conservative model program default database information were used, in accordance with the FSWP, to account for data variability and uncertainty.

The hydraulic, climatic, and chemical input values outlined below were presented in the initial modeling technical memorandum (URS 2014) and agreed to as appropriate by Ecology. These values were also used for the subsequent modeling of the other SWMUs/AOCs.

2.1 CLIMATIC PARAMETERS

The SESOIL model also uses local climatic data for the site to generate precipitation inputs that are used to predict infiltration of moisture through the unsaturated zone to groundwater. This climatic parameter data determine the volume of precipitation available to percolate through the unsaturated zone to groundwater. SEVIEW weather generator (Environmental Software Consultants 2014) was used to specify weather inputs using climate coefficients from its weather database, which includes climate coefficients estimated by SEVIEW developers for more than 3,000 locations. Climatic parameters are summarized in Table B-1 and the seasonal variation shown graphically on Figure B-1. The input parameters were generated by utilizing average monthly precipitation amounts, average monthly temperatures, monthly humidity and evapotranspiration rates, length, and number of storms for Everett, Washington.

2.2 CHEMICAL PARAMETERS

The concentrations of COCs at each SWMU/AOC source area were assumed to remain constant, without depletion, throughout the modeled time frame. Conservative initial input concentrations for each layer were derived from the maximum concentrations of the COCs detected in pre-RI, RI and/or FS soil samples collected at similar depths in each SWMU/AOC area. The maximum concentrations were typically assigned to the entire layer interval. In some cases, there was sufficient analytical data to assign lower concentrations to a sublayer below the portion of the layer with the maximum concentration. In addition to the site-specific soil physical parameters and COC concentrations, COC chemical parameters largely control the ability of contaminant mass to migrate within the transport model. Simulated chemical parameters (such as soil organic carbon-water partitioning coefficient [K_{oc}], solubility, etc.) are specific to each chemical and were obtained from literature sources, in particular the GSI Chemical Database (http://www.gsi-net.com/UsefulTools/ChemPropDatabaseHome.asp).

The model was developed based on the conservative assumption that organic contaminants are not undergoing significant volatilization, biodegradation, and/or chemical breakdown. Therefore, these processes were not simulated. The washload transport subroutine, simulating surficial soil erosion and contaminant washload transport, was not used in the simulations where site-specific data indicated that there is no surface soil contamination at a SWMU/AOC.

2.3 GROUNDWATER PARAMETERS

Groundwater parameters partially determine predicted concentrations in groundwater based on leaching from the vadose zone. Groundwater input parameters include saturated hydraulic conductivity, hydraulic gradient, and saturated zone thickness. A saturated hydraulic conductivity value of 15 feet per day (ft/day) was selected as the value used, because it is conservative (the lower the rate, the slower the attenuation) and within the lower portion of the range of estimated hydraulic conductivities derived from physical test data (0.2 to 94 ft/day) and aquifer tests (4 to 38 ft/day) for the Esperance Sand during the RI (URS and Landau 2011) and values (8 and 40 ft/day) subsequently used by Landau Associates (2014) for modeling groundwater flow in Esperance Sand in the Powder Mill Gulch portion of the Everett Plant. The hydraulic gradient in the Esperance Sand was set at 0.0025 foot per foot, based on water level data collected during the RI/FS. A conservative mixing zone thickness of 5 feet was used to minimize dilution as well as represent a typical minimum saturated length of screen in a shallow groundwater monitoring well. This is also consistent with WAC 173-340-747, Equation 747-4, which specifies that a mixing thickness of 15 feet or less be used.

3.0 BUILDING 40-51, FORMER WASTEWATER AST (SWMU/AOC NO. 054)

The conceptual site-model, site specific model input parameters and simulation results are discussed step by step in this section for the former WW AST (SWMU/AOC No. 054) area, located east of Building 40-51 (Figure B-2). As the procedure was the same for each SWMU/AOC, these steps are not repeated for each SWMU/AOC in subsequent sections but only the SWMU/AOC-specific details and results.

3.1.1 Conceptual Site Model

A single conceptual subsurface model was developed to simulate two subareas (East and West) within the former SWMU/AOC 054 area with trichloroethane (TCE) in soils at depths of less than 25 feet bgs, as summarized on Figure B-2. The conceptual model is based on the field boring log of soils encountered during drilling and physical testing data for soil samples collected from borings completed during implementation of the FS for the Everett Plant per the FSWP (URS and Landau 2012), as well as applicable data from the RI (URS and Landau 2011). Simulations for each subarea (East and West) used different estimates for the area and volume of TCE-contaminated soil and maximum TCE soil concentration.

Figure B-2 depicts the analytical results for TCE in soils obtained during the RI and FS and the estimated lateral extent of TCE-contaminated soil modeled for both the East and West subareas based on this data. These data are also summarized in Table 2-3a in the FS report. The simulated area for each location was based on the lateral and vertical distribution of TCE in soils within the vadose zone at each subarea developed, using the RI and FS soil TCE concentration data (Figure B-2). For the East subarea, the areal extent of TCE in soil was estimated to be approximately 1,200 ft^2, and in the West subarea, the areal extent was estimated to be approximately 975 ft^2 (Figure B-2).

Soil physical and chemical data are summarized in Table B-2 for samples from boreholes completed in the Building 40-51 WW AST area from which model inputs were derived. Beneath both of the subareas, the subsurface soil units (i.e., layers) occur at fairly consistent depths, based on the shallow subsurface soils encountered in the RI and FS borings in the WW AST area to a depth of 40 feet bgs. This factor allowed for a single soil physical profile to be developed for use in simulations for both of the subareas using the variable soil chemical data for the subareas.

The uppermost soils are unsaturated glacial till consisting of silty (SM) and clayey sands (SC) from ground surface to approximately 25 feet bgs and silts, clays, and very fine sands (CL-ML) from 25 to 30 feet bgs. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 30 to 200 feet bgs. From approximately 30 to 90 feet, these soils typically consist of silty sands (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are

present below 90 feet bgs. The potentiometric surface in the Esperance Sand underlying the upland portion of the Everett Plant typically occurs at about 200 feet bgs, based on the 17+ years of data from monitoring wells on the upland portion that are completed in the Esperance Sand (e.g., wells EGW040, EGW060, and EGW061). Perched water was not encountered in the soil borings completed in the WW AST area.

3.1.2 Site Setting

Site setting profile inputs required for the SESOIL model include the area of contaminated soil to be modeled, the unsaturated zone depth, number of layers, and layer thicknesses. The depth of the unsaturated zone used in the model for the upland portion of the site is 200 feet, based on the potentiometric surface measured in the Esperance Sand groundwater monitoring wells on the upland portion of the Everett Plant. The SWMU/AOC No. 054 model was assigned four soil layers based on the soil units and physical parameters summarized in Section 3.1.1 above and summarized in Table B-2: Layer 1 is 25 feet of SC/SM glacial till, Layer 2 is 5 feet of ML/CL that represents a finer grained unit within the till, Layer 3 is 60 feet of silty sandy silt (SM) till, and Layer 4 is 110 feet of unsaturated sand and gravel (SP) of the Esperance Sand. Each layer was subdivided into 10 sublayers to allow discretization and repeat the applicable calculations to refine the contaminant mass as it moves downward through the soil layer. The conceptual site model for the East subarea is illustrated on Figure B-3 and for the West subarea on Figure B-4.

3.1.3 Soil Properties

Physical Properties

The soil profiles shown on Figures B-2 and B-3 are based on the lithology shown on the boring logs and physical testing data for soil samples collected from borings completed within the SWMU/AOC area. The same soil profile was incorporated in the model and used to simulate contaminant transport within both subareas, because the borings drilled in each subarea demonstrated a similar lithology and associated depths. The soil physical property input parameters were based on site-specific values summarized by depth in Table B-2 obtained from laboratory test results for physical parameters of representative samples collected from the FS borings (Table B-2). Parameters for deeper soils were based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

Soil TCE Concentrations

Conservative initial input concentrations for each layer were derived from the maximum concentrations of TCE detected in soil samples collected at similar depths from FS soil borings ESB1987, ESB1988, 1989 in the West subarea and ESB1990, ESB1991, and ESB1992 in the East subarea. The maximum concentrations were assigned to the entire layer interval.

Analytical data, from which input concentrations were derived together with the depths at which those samples were assigned as inputs, are summarized in Table B-2 and illustrated on Figures B-3 and B-4.

3.1.4 Model Simulations

The fate and transport simulations of TCE at both the SWMU/AOC No. 054 East and West subareas were run for a period of 999 years, which is the limit of the model code. Contaminant loading was modeled as being instantaneous and constant throughout the modeled duration. All simulations incorporated the site condition that there was no additional contributing source other than the constant contaminant concentration. Simulations were repeated for each subarea for two separate conditions at ground surface: a cover (i.e., concrete paving and/or building covering the contaminated soil), which matches the current conditions for both subareas of SWMU/AOC No. 054, and no cover at ground surface.

A sensitivity analysis was performed by varying several soil property inputs to account for the potential range of soil property parameters. The goal of the sensitivity analysis was to understand the model's sensitivity to variability associated with the chemical parameters that have the largest effect on the transport modeling: the initial maximum soil TCE concentration and the fraction of organic carbon (FOC). The initial TCE concentration values in both subareas were adjusted downward by one and two orders of magnitude. These additional model runs allow assessment of the effect of simulated TCE concentrations in groundwater of the varying TCE concentrations in the source soil. The groundwater maximum contaminant level (MCL) for TCE of 5 µg/L was used as the reference level to assess the time of TCE migration to the Esperance Sand groundwater and subsequent attenuation of the TCE concentration of groundwater. In addition, simulations were repeated with the addition of a surface cover (i.e., concrete pavement) to inhibit rainfall infiltration to demonstrate the effect of the surface cover (i.e., no recharge) on TCE migration in the soil. The results of the sensitivity analysis are discussed below, following the model simulation results.

As discussed in Section 2, the initial model simulation, methodology, and results for this SWMU/AOC were previously submitted to Ecology (URS 2014), confirming concurrence with the overall approach and use of site-specific data.

Model Results – SWMU/AOC No. 054 East Subarea

Scenario 1 – Using the Maximum TCE Soil Concentration of 5,500 µg/kg with Recharge (without Surface Cover). Using the maximum soil concentration for the East subarea of 5,500 µg/kg and no surface cover, TCE is predicted to impact groundwater at a depth of 200 feet bgs at a maximum concentration of 32 mg/L (32,000 µg/L) in approximately 50 years. The TCE flux to groundwater is not predicted to attenuate below the MCL of 5 µg/L within the 999-year simulation. Predicted TCE concentrations for this scenario are shown on Figure B-5.

Scenario 2 – Using a TCE Soil Concentration of 550 µg/kg with Recharge (without Surface Cover). Using a maximum soil concentration for the East subarea of 550 µg/kg and no surface cover, TCE is predicted to impact groundwater at a depth of 200 feet bgs at a maximum concentration of 3 mg/L (3,200 µg/L) in approximately 45 years. The TCE flux to groundwater is predicted to attenuate below the MCL of 5 µg/L within approximately 675 years) after the maximum concentration is reached. Predicted concentrations for this scenario are shown on Figure B-5.

Scenario 3 – Using a TCE Soil Concentration of 55 µg/kg with Recharge (without Surface Cover). Using a maximum soil concentration for the East subarea of 55 µg/kg and no surface cover, TCE is predicted to impact groundwater at a depth of 200 feet bgs at a maximum concentration of 0.3 mg/L (300 µg/L) in approximately 45 years. The TCE flux to groundwater is predicted to attenuate below the MCL of 5 µg/L within approximately 250 years after the maximum concentration is reached. Predicted concentrations for this scenario are shown on Figure B-5.

Model Results – SWMU/AOC No. 054 West Subarea

Scenario 1 – Using a Maximum TCE Soil Concentration of 8,500 µg/kg with Recharge (Without Surface Cover). Using the maximum soil concentration for the West subarea of 8,500 µg/kg and no surface cover, TCE is predicted to impact groundwater at a depth of 200 feet bgs at a maximum concentration of 52 mg/L (52,000 µg/L) in approximately 45 to 50 years. The TCE concentration in groundwater is not predicted to attenuate below the MCL of 5 µg/L within the 999-year simulation. Predicted concentrations for this scenario are shown on Figure B-6.

Scenario 2 – Using a TCE Soil Concentration of 850 µg/kg with Recharge (without Surface Cover). Using a maximum soil concentration for the West subarea of 850 µg/kg and no surface cover, TCE is predicted to impact groundwater at a depth of 200 feet bgs at a maximum concentration of 7 mg/L (7,000 µg/L) in approximately 40 years. The TCE concentration in groundwater is predicted to attenuate below the MCL of 5 µg/L within approximately 750 years after the maximum concentration is reached. Predicted concentrations for this scenario are shown on Figure B-6.

Scenario 3 – Using a Soil Concentration of 85 µg/kg with Recharge (without Surface Cover). Using a maximum soil concentration for the West subarea of 85 µg/kg and no surface cover, TCE is predicted to have a maximum concentration of 0.5 mg/L (500 µg/L) in groundwater at a depth of 200 feet bgs in approximately 40 years. The TCE flux to groundwater is predicted to attenuate below the MCL of 5µg/L within approximately 300 years) after the maximum concentration is reached . Predicted concentrations for this scenario are shown on Figure B-6.

Model Sensitivity Analysis

Sensitivity analyses were performed by varying the input TCE soil concentration as shown on Figures B-5 and B-6 and the input soil parameters FOC. In addition, the sensitivity of model results to the presence of a surface cover was assessed by reducing the intrinsic permeability of Layer 1 to represent the existing area condition of a low permeability cover (e.g., concrete or asphalt), which would reduce recharge. The sensitivity analyses were completed using the simulation of the West subarea with the maximum initial TCE input concentration (8,500 µg/kg). In addition, the MTCA Method B soil cleanup level for the protection of groundwater of 3.6 mg/kg at the time of the initial modeling (2014) was also used as an assumed TCE soil concentration input using the initial simulation physical parameter values to demonstrate the level of conservatism of the model using these input values relative to the MTCA protection of groundwater soil value calculated by Ecology using the MTCA default method.

The FOC sensitivity analyses were completed by increasing and decreasing the organic carbon parameters by a percentage above and below their initially simulated value. Initial soil parameter input values for the West subarea, the values used during the sensitivity analyses, and the resulting changes in predicted maximum groundwater concentrations and attenuation times for TCE in groundwater are shown on Figure B-7 for FOC and the protection of groundwater input concentration. Figure B-8 shows the results for the sensitivity analysis of intrinsic permeability (i.e., reduced recharge).

The results of the sensitivity analyses indicate that the SESOIL model predictions are somewhat sensitive to organic carbon and recharge. As shown on Figure B-7, a 50 percent increase in the FOC parameter results in a decrease in the predicted maximum TCE concentration in groundwater, but also increases the time for the TCE concentration in groundwater to decrease below the TCE groundwater concentration reference levels. A 50 percent decrease in this parameter slightly increased the maximum concentration, but did not significantly impact the TCE migration or attenuation time. Figure B-7 also shows that soil exhibiting a TCE concentration equal to the MTCA Method B protection of groundwater cleanup level (3.6. µg/kg) is predicted to result in TCE reaching Esperance Sand groundwater in about 60 years and exceedance of the TCE MCL in groundwater (5 µg/L) for at least 150 years. Testing of the 2014 MTCA Method B protection of groundwater cleanup level in this way supports that the model inputs and results are conservative.

As shown on Figure B-8, reducing the intrinsic permeability in Layer 1 to represent a surface cover of low permeability material (e.g., concrete floor and/or a building) that inhibits or prevents infiltration and recharge reduces the vadose zone migration of TCE in soil such that the TCE does not affect the Esperance Sand groundwater in the area within the 999-year model period.

Conclusions

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-51 WW AST (SWMU/AOC No. 054) East and West subareas, with simulations for various starting TCE soil concentrations repeated with and without concrete pavement at ground surface. The simulations incorporating the current site condition of concrete pavement at ground surface indicated that modeled TCE concentrations in soil would not impact the Esperance Sand groundwater at a depth of 200 feet bgs beneath the site at any time during the modeled duration of 999 years, even assuming the maximum soil concentration of 8,500 µg/kg. Without a surface cover in place, model simulations predicted a potential for migration of constituents to the Esperance Sand groundwater. For example, conservative model simulations for the maximum known TCE soil contamination of 8,500 µg/kg indicated that TCE would migrate to the Esperance Sand groundwater at concentrations greater than the state and federal MCL for TCE of 5 µg/L and reach the maximum groundwater concentration within approximately 50 years, but not attenuate to below the MCL within the 999-year model period. Soils data indicate that substantive concentrations of TCE have migrated to depths of less than 20 feet below the former WW AST in the approximately 27 years since it was removed.

3.2 BUILDING 40-51, SUMPS EV-112 AND EV-119 (SWMU/AOC NO. 151)

Sumps EV-112 and EV-119 (SWMU/AOC No. 151) are located in the east-central portion of Building 40-51, and soils containing TCE were detected outside of the building to the south of SWMU/AOC No. 151 (Figure B-9). Fate and transport simulations were performed to estimate potential transport of TCE detected in soils in the vadose zone in this area.

3.2.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the SWMU/AOC No. 151 site conditions with TCE in soil to a depth of up to15 feet bgs. The conceptual model, including the simulated area for the location (Figure B-9), was based upon the lateral and vertical distribution of TCE in soils within the vadose zone interpreted from the RI and FS soil TCE concentration data. Figure B-9 depicts the analytical results for TCE in soils obtained during the RI and FS and the estimated lateral extent of TCE-contaminated soil incorporated in the model based on this data. The RI/FS soil analytical data are summarized in Table 2-4a of the FS.

Model inputs were determined using soil physical and chemical data for samples from boreholes completed in the SWMU/AOC No. 151 area, as summarized in Table B-3. The uppermost soils are unsaturated glacial till that consist of silty sands (SM) from ground surface to approximately 20 feet bgs, silts, clays and very fine sands (SW-SC) from 20 to 35 feet bgs, and sand with silt and gravel (SP-SM) from 35 to 40 feet bgs. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs.

From approximately 40 to 90 feet, the glacial till soils typically consist of silty sands (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The area site model was assigned four layers based on physical observations and data: Layer 1 is 20 feet of SM and 10 feet of SW/SC, Layer 2 is 5 feet of SW/SC with a lower intrinsic permeability, Layer 3 is 55 feet of SM, and Layer 4 is 110 feet of unsaturated SP of Esperance Sand. Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-3. The conceptual site model for the southern air scrubber sump area is illustrated on Figure B10.

3.2.2 Model Results – SWMU/AOC No. 151

Scenario 1 – Using a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 18 µg/kg with recharge and no surface cover, TCE is not predicted to migrate to groundwater for the duration of the modeled time frame (999 years). Predicted concentrations for this scenario are shown on Figure B-11a.

Scenario 2 – Using a TCE Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of a low-permeability surface cover on the site (e.g., concrete slab) to reduce impacts from recharge (precipitation). Using a maximum soil concentration of 18 µg/kg without recharge, TCE is predicted to not impact groundwater at a depth of 200 feet bgs for the duration of the modeled timeframe (999 years). Predicted concentrations for this scenario are shown on Figure B-11b.

3.2.3 Conclusions

Conservative model simulations predict TCE contamination in the vadose zone soil in the Building 40-51 Sumps EV-112 and EV-119 (SWMU/AOC No. 151) area will not impact Esperance Sand groundwater at a concentration greater than 5 µg/L for the duration of the modeled time frame (999 years) with or without a surface cover in the area. The current concrete pad overlying this area is acting as a surface cover, and the empirical soil data are consistent with the model results, indicating that TCE was not detected in soil samples analyzed from depths of greater than 15 feet bgs. Therefore, the model simulations demonstrate that TCE concentrations in soil at the SWMU/AOC No. 151 area are protective of Esperance Sand groundwater.

3.3 BUILDING 40-56, FORMER USTS (SWMU/AOC NOS. 086, 089, AND 094)

Three former USTs (SWMU/AOCs No. 086, 089, and 094) were located south of Building 40-56 (Figure B-12). Fate and transport simulations were performed to estimate potential transport of silk screen solvents (toluene, ethylbenzene, and xylenes (TEX) detected in soils and shallow perched water in the soils in this area.

3.3.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the former USTs area site conditions consisting of TEX in soil to a maximum depth of 25 to 30 feet bgs. The majority of the impacted soil is 20 feet bgs or less, with xylenes the predominant constituent. The conceptual model, including the simulated area for the location (Figure B-12), was based upon the lateral and vertical distribution of TEX in soils interpreted from the RI and FS soil TEX concentration data. The RI/FS soil analytical data are summarized in Table 2-14a and shown on Figures 2-10a and 2-10d through 2-10h of the FS.

Model inputs were determined using soil physical and chemical data from post-excavation and borehole samples collected in former USTs area, as summarized in Table B-4. The uppermost soils consist of granular or recompacted till fill, with varying depths down to about 15 feet bgs, overlying unsaturated glacial till. The underlying glacial till consists of silty (SM) and clayey sands (SC) from the bottom of the fill to approximately 25 feet bgs and silts, clays, and very fine sands (CL-ML) from 25 to 40 feet bgs. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 80 feet, the glacial till soils typically consist of silty sands (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 80 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

Most of the residual xylenes and other associated volatile organic compounds are in the lower portions of the fill or uppermost glacial till. To simplify the model and simulate migration through the glacial till, the fill layer was modeled with consistent physical characteristics throughout the fill. Therefore, the model was assigned four layers: Layer 1 is 25 feet of SM and SC-SM, Layer 2 is 15 feet of CL/ML, Layer 3 is 50 feet of SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-4. The conceptual site model for the former USTs area is illustrated on Figure B-13.

3.3.2 Model Results – SWMU/AOC Nos. 086, 089, And 094

Model simulations were based on the distribution and transport of total xylenes, because xylenes are the primary constituent of the silk screen solvent formerly stored in the USTs and have the highest concentrations and extent within the soil. The results of the four modeling scenarios for xylenes in the SWMU/AOC Nos. 086, 089, and 094 area are summarized below, and simulated xylene concentrations for the scenarios over time are shown on Figure B-14. Because of the variability in the age, thickness, and nature of paving currently overlying the area (ranging from older asphalt to new, thick [greater than 0.5 foot] concrete), the model for this area was run with multiple values (orders of magnitude) for the intrinsic permeability of the surface layer to assess the sensitivity of this parameter to affect the variability in the resulting recharge effects.

Scenario 1 – Using a Xylene Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 55,200 µg/kg (55.2 µg/g) with recharge for the area (i.e., no surface cover), xylenes are predicted to migrate to Esperance Sand groundwater at a depth of 200 feet bgs and exceed the MCL for xylenes (10,000 µg/L) in approximately 200 years.

Scenario 2 – Using a Xylene Soil Concentration with Limited Recharge (with Surface Cover at 10^{-10} cm^2 Intrinsic Permeability). For Scenario 2, intrinsic permeability of Layer 1 was reduced to assess the impacts of a surface cover on the site with 10^{-10} cm^2 intrinsic permeability. Using the maximum soil concentration of 55.2 µg/g with limited recharge for the area, xylenes are predicted not to exceed the MCL in groundwater for approximately 400 years.

Scenario 3 – Using a Xylene Soil Concentration with Limited Recharge (with Surface Cover at 10^{-11} cm^2 Intrinsic Permeability). For Scenario 3, intrinsic permeability of Layer 1 was reduced to assess the impacts of a surface cover on the site with 10^{-11} cm^2 intrinsic permeability. Using the maximum soil concentration of 55.2 µg/g with limited recharge for the area, xylenes are predicted not to exceed the MCL in groundwater for approximately 700 years.

Scenario 4 – Using a Xylene Soil Concentration without Recharge (with Surface Cover at 10^{-12} cm^2 Intrinsic Permeability). For Scenario 4, intrinsic permeability of Layer 1 was reduced to assess the impacts of a surface cover on the site with 10^{-12} cm^2 intrinsic permeability. Using a maximum soil concentration of 55.2 µg/g without recharge for the area, xylenes are predicted not to impact groundwater for the duration of the modeled time frame (999 years).

3.3.3 Conclusion

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-56 former USTs (SWMU/AOC Nos. 086, 089, and 094) area, with simulations for maximum total xylenes soil concentration repeated with and without pavement of varying intrinsic permeability at ground surface. The simulations incorporating the varying pavement on the ground surface indicated that modeled xylenes concentrations in soil will not leach to the

Esperance Sand groundwater during the modeled time frame (999 years) if a low permeability surface cover is used. This would be representative of the concrete pavement that currently covers a portion of the area. With a more permeable surface cover (e.g., asphalt) or no surface cover, model simulations predicted a potential for migration of constituents to the Esperance Sand groundwater. For example, the least conservative model simulations for the maximum xylenes soil contamination (i.e., initial concentrations of 55,200 µg/kg) and recharge (i.e., no surface cover) predicted that xylenes would migrate to the Esperance Sand groundwater at concentrations greater than 1,000 µg/L in approximately 200 years. Soil data shown on Figures 2-10d through 2-10h indicate that even with perched groundwater present and variable pavement, most of the COCs have not migrated more than about 15 to 20 feet below the base of the former USTs, which were the source of the silk screen solvents released in this SWMU/AOC area. The model results, assuming a continuous surface cover, are therefore the most consistent with the observed site characteristics during the 28 years since the USTs were removed.

3.4 BUILDING 40-56, FORMER RECYCLING UNIT AND UST (SWMU/AOC NOS. 067 AND 071)

The Former Recycling Unit and UST area (SWMU/AOCs Nos. 067 and 071) is located inside the southwest portion of Building 40-56 (Figure B-15) in an area that is currently the active silk screen shop. Fate and transport simulations were performed to estimate potential transport of silk screen solvent constituents (primarily xylenes with ethylbenzene and toluene or TEX) detected in soils in the vadose zone beneath the area.

3.4.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the former Recycling Unit and UST area site conditions with TEX in soil to a depth of between 20 to 30 feet bgs. The area was partially excavated prior to RI and FS activities, and the excavation was backfilled with low-permeability controlled-density fill and covered with a concrete floor. Xylenes are the predominant constituent. The conceptual model, including the simulated area for the location (Figure B-15), was based upon the lateral and vertical distribution of TEX in soils within the vadose zone interpreted from the RI and FS soil concentration data. Figure B-15 depicts the analytical results for TEX in soil samples obtained from soil borings and post-excavation soil samples collected during a limited soil cleanup action completed prior to the RI/FS and the estimated lateral extent of xylenes-contaminated soil modeled based on these data. The available soil analytical data are summarized in Table A-15a of the FS, and pertinent data are shown on Figure B-15.

Model inputs were derived using soil chemical data from boreholes completed in the SWMU/AOC Nos. 067 and 071 area, as summarized in Table B-5. Since no soil sampling was completed in this area during the RI/FS, soil physical parameters used for the model were

obtained from the nearby SWMU/AOC Nos. 086, 089, and 094 area. The uppermost soils are unsaturated glacial till. The till consists of silty (SM) and clayey sands (SC) from ground surface to approximately 25 feet bgs and silts, clays, silts and very fine sands (CL-ML) from 25 to 40 feet bgs. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these glacial till soils typically consist of silty sands (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The SWMU/AOC Nos. 067 and 071 area model was developed as four layers: Layer 1 is 25 feet of SM and SC-SM, Layer 2 is 15 feet of CL/ML, Layer 3 is 50 feet of SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-5. The conceptual site model for the former recycling unit and UST area is illustrated on Figure B-16.

3.4.2 Model Results – SWMU/AOC Nos. 067 and 071

Total xylenes were used as the constituent modeled because xylenes are the predominant constituent within the silk screen solvents and the COC with highest concentrations and extent within the soil.

Scenario 1 – Using a Xylenes Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 6,900,000 µg/kg (6,900 µg/g) xylenes for the Former Recycling Unit and UST area with recharge (i.e., no surface cover), xylenes are predicted to migrate to groundwater at a concentrations greater than the MCL (10,000 µg/L) in approximately 200 years and not attenuate below the MCL during the remaining duration of the modeled time frame. Predicted xylenes concentrations in groundwater for this scenario are shown on Figure B-17.

Scenario 2 – Using a Xylenes Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to simulate the current condition of a cover at ground surface (concrete pad). Using a maximum soil concentration of 6,900 µg/g without recharge, xylenes are not predicted to migrate to Esperance Sand groundwater for the duration of the modeled time frame (999 years). Predicted xylenes concentrations in groundwater for this scenario are shown on Figure B-17.

3.4.3 Conclusion

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-56 Former Recycling Unit and UST (SWMU/AOCs Nos. 067 and 071) area, with

simulations for maximum total xylenes soil concentration repeated with and without concrete pavement. The conservative simulations of the current conditions, with a surface cover (concrete floor) in place, xylenes present in soil in this area will not migrate to Esperance Sand groundwater for the duration of the modeled time frame (999 years). The building above the current concrete floor would provide additional protection against the potential for recharge that could cause the migration of TEX in soil to Esperance Sand groundwater. Without a surface cover in place, the model predicts that residual xylenes present in soil could leach to Esperance Sand groundwater at concentrations greater than 10,000 µg/L within about 200 years, but the model overpredicts the potential migration because of the conservative assumptions inherent in the model.

3.5 BUILDING 40-24, UTILITY TRENCHES AND SUMPS (SWMU/AOC NOS. 055 AND 168)

The SWMU/AOC Nos. 055 and 168 areas are located inside and outside (to the south) Building 40-24, respectively, as shown on Figure B-18. Fate and transport simulations were performed to estimate potential transport of tributyl phosphate (TBP) detected in soils in the vadose zone beneath this area.

3.5.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the SWMU/AOC No. 055 (Utility Trenches and Sumps) site conditions with TBP in soil to a depth of up to 25 feet bgs. Soil near SWMU/AOC No. 168 had similar or lower concentrations and TBP at a depth of 20 feet bgs. The conceptual model, including the simulated area for the location (Figure B-18), was based upon the lateral and vertical distribution of TBP in soils within the vadose zone interpreted from the RI and pre-RI soil TBP concentration data. Figure B-18 depicts the analytical results for TBP in soils obtained during the RI and pre-RI and the estimated lateral extent of TBP-contaminated soil at SWMU/AOC No. 055 that was modeled based on the combined soil analytical data (summarized in Table 2-9a of the FS). Additional soil chemical data were not collected during the FS per the FSWP.

Model inputs were determined using soil physical and chemical data for samples from boreholes completed in both the SWMU/AOC Nos. 055 and 168 areas, as summarized in Table B-6 and shown on Figure B-19. The ground surface is covered with a 14-inch-thick concrete pad and the uppermost soils are unsaturated glacial till. Inorganic silty fine to medium sands (SM) extend from the surface to approximately 30 feet bgs, and sandy and clayey silts (ML) are present from 30 to 40 feet bgs. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these soils typically consist of well graded sands with silt (SW) and silty sands (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP)

of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The SWMU/AOC No. 055 model was assigned four layers: Layer 1 is 30 feet of SM, Layer 2 is 10 feet of ML, Layer 3 is 50 feet of SW-SM and SM, and Layer 4 is 110 feet of SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-5. The conceptual site model for the SWMU/AOC 055 area is illustrated on Figure B-19.

3.5.2 Model Results – SWMU/AOC No. 055

Scenario 1 – Using a TBP Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 2,700 mg/kg with recharge (i.e., no surface cover) for the SWMU/AOC 055 area, TBP is predicted to migrate to Esperance Sand groundwater in about 100 years, but the maximum TBP concentration in groundwater (less than 2 µg/L) would be less than the MTCA Method B calculated groundwater cleanup level for TBP of 160 µg/L. Predicted concentrations in groundwater for this scenario are shown on Figure B-20.

Scenario 2 – Using a TBP Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site with an impermeable cover (e.g., concrete) that would reduce recharge, simulating current site conditions. Using a maximum soil concentration without recharge for SWMU/AOC 055 of 2,700 mg/kg, TBP is not predicted to migrate to Esperance Sand groundwater for the duration of the modeled time frame (999 years). Predicted TBP concentrations in groundwater for this scenario are shown on Figure B-20.

3.5.3 Conclusion

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-24 Utility Trenches and Sumps (SWMU/AOC No. 055) area, with simulations for maximum TBP soil concentration repeated with and without concrete pavement. The conservative simulation incorporating current site conditions, with a surface cover (concrete floor) in place to limit recharge, indicates that the TBP present in soil at this SWMU/AOC will not leach to Esperance Sand groundwater for the duration of the modeled time frame (999 years). The presence of the existing building above the concrete floor would provide additional protection against the potential for recharge that could cause the TBP to migrate to the Esperance Sand groundwater. Without the surface cover, the model predicts that residual TBP in soil at this SWMU/AOC will migrate to the Esperance Sand groundwater at concentrations greater than 160 µg/L in approximately 100 years, but the model overpredicts the potential migration because of the conservative assumptions inherent in the model. Soils data for this SWMU/AOC area

demonstrate the conservative nature of the model results, indicating that the TBP has only migrated in soil a maximum of about 20 to 25 feet below the former tanks (removed in 1995) and less than 20 feet below the existing vault.

3.6 BUILDING 40-31, FORMER BLUESTREAK VAPOR DEGREASER (SWMU/AOC NO. 171)

The Former Bluestreak Vapor Degreaser (SWMU/AOC No. 171) area is located in the northwest portion of Building 40-31 (Figure B-21). Fate and transport simulations were performed to estimate potential transport of TCE detected in soils in the vadose zone beneath the Former Bluestreak Vapor Degreaser.

3.6.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the SWMU/AOC No. 151 site conditions with TCE in soil to a depth of up to 25 feet bgs. The conceptual model, including the estimated footprint of impacted soil (Figure B-21), was based upon the lateral and vertical distribution of TCE in soils within the vadose zone interpreted from the RI and FS soil TCE concentration data. Figure B-21 depicts the analytical results for TCE in soils obtained prior to the RI and during the FS and the estimated lateral extent of TCE-contaminated soil modeled based on these data. Soils containing TCE were excavated during the pre-RI removal of the vapor degreaser, and post-excavation soil samples were collected and analyzed. The pre-RI/FS soil analytical data are summarized in Table 2-1a of the FS.

Model inputs were determined using soil physical and chemical data for samples from boreholes completed in the SWMU/AOC No. 171 area, as summarized in Table B-7. During removal of the vapor degreaser, the excavation was filled with controlled-density fill and clean granular fill. The uppermost soils in the surrounding soils consist of unsaturated glacial till. This glacial till is comprised of graded to poorly graded sand (SW-SP) fill and controlled-density fill that extend from ground surface to approximately 20 feet bgs in the former excavation. Silts, clays, and silty sands (SC-SM) are present from 20 to 40 feet bgs and are also present in the upper 20 feet outside the excavation. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 feet to 90 feet, these soils typically consist of silty sands (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The model was assigned 4 layers: Layer 1 has a thickness of 20 feet of SC-SM and the highest TCE concentrations, Layer 2 is 20 feet of SC-SM with lower TCE concentrations and intrinsic permeability, Layer 3 is 50 feet of SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-7. The conceptual site model for the Former Bluestreak Vapor Degreaser area is illustrated on Figure B-22.

3.6.2 Model Results – SWMU/AOC No. 171

Scenario 1 – Using a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum detected TCE soil concentration of 21,000 µg/kg (21.0 µg/g) with recharge for the SWMU/AOC 171 area, TCE is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (5 µg/L) in approximately 25 years and attenuate below the MCL in about 600 years. Predicted TCE concentrations in groundwater for this scenario are shown on Figure B-23a.

Scenario 2 – Using a TCE Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site with a concrete surface cover. Using the maximum soil concentration of 21.0 µg/g without recharge, TCE is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted TCE concentrations in groundwater for this scenario are shown on Figure B-23b.

3.6.3 Conclusions

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-31 (SWMU/AOC No. 171) former degreaser area, with simulations for the maximum TCE soil concentration repeated with and without a surface cover at ground surface. The simulation incorporating the current site conditions, with a concrete surface cover (floor) in place to prevent rainfall runoff/infiltration (i.e., recharge), indicates that the residual TCE present in soil at this SWMU/AOC will not leach to Esperance Sand groundwater for at least 999 years. The presence of the existing building above the surface cover would provide additional protection against the potential for TCE to migrate to Esperance Sand groundwater. Without a surface cover in place, the model predicts that the TCE in soil could leach to Esperance Sand groundwater at concentrations greater than the MCL for TCE of 5µg/L within 25 years, but the model overpredicts the potential migration because of the conservative assumptions inherent in the model. Soils data for this SWMU demonstrate the conservative nature of the model results, indicating that the TCE in soil has only migrated a maximum of about 15 feet below the former vapor degreaser in the approximately 20 years since the former degreaser was removed.

3.7 BUILDING 40-11, FORMER VAPOR DEGREASER (SWMU/AOC NO. 097)

The Former Vapor Degreaser (SWMU/AOC No. 097) area is located in the south end of Building 40-11 (Figure B24). Fate and transport simulations were performed to estimate potential transport of TCE detected in soils in the vadose zone beneath the Former Vapor Degreaser area.

3.7.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the SWMU/AOC No. 097 site conditions with TCE in soil to a depth of less than 5 feet bgs. The conceptual model, including the simulated area for the location (Figure B-24), was based upon the lateral and vertical distribution of TCE in soils within the vadose zone interpreted from the RI and FS soil TCE concentration data. Figure B-24 depicts the analytical results for TCE in soils obtained during the RI and FS and the estimated lateral extent of TCE-contaminated soil modeled based on these data. The RI/FS soil analytical data are summarized in Table 2-9a of the FS.

Model inputs were determined using soil chemical data for samples from boreholes completed in the SWMU/AOC No. 097 area, as summarized in Table B-8. The uppermost soils are unsaturated glacial till, which consists of silty sand (SM), with some discontinuous gravelly zones and cobbles to at least 25 feet bgs, the maximum depth investigated because of refusal. Samples suitable for physical testing could not be obtained from the FS soil borings at this SWMU/AOC area. Therefore, the modeling assumed that soils to a depth of 40 feet bgs at the Building 40-11 Former Vapor Degreaser area were similar to and have the same physical properties as soils beneath the Building 40-02 Large Vapor Degreaser area, as summarized in Table B-8. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, the glacial till soils typically consist of silty sands (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The SWMU/AOC No. 097 site model was assigned four layers: Layer 1 is 20 feet of SM underlain by 10 feet of CL-ML, Layer 2 is 10 feet of GP-GM, Layer 3 is 50 feet of SM, and Layer 4 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-8. The conceptual site model for the Former Vapor Degreaser area is illustrated on Figure B-25.

3.7.2 Model Results – SWMU/AOC No. 097

Scenario 1 – Using a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 27 µg/kg with recharge, TCE is predicted not to migrate to the Esperance Sand groundwater for at least the 999-year modeling period. Predicted TCE concentrations in groundwater for this scenario are shown on Figure B-26.

Scenario 2 – Using a TCE Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of a surface cover (e.g., concrete) on the site to reduce impacts from recharge (precipitation). Using a maximum soil concentration of 27 µg/kg without recharge, TCE is predicted not to migrate to Esperance Sand groundwater for at least the 999-year modeling period. Predicted TCE concentrations for this scenario are shown on Figure B-26.

3.7.3 Conclusion

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-11 Former Vapor Degreaser (SWMU/AOC No. 097) area, with simulations for the maximum starting TCE soil concentration repeated with (current condition) and without a concrete surface cover at ground surface. The extent of contaminated soil at this SWMU/AOC is estimated to be an area of only approximately 8 feet^2 and extends to a depth of 2.25 feet bgs (approximately 0.5 cubic yard). Simulations indicate that residual TCE present in soil at this SWMU/AOC will not leach to Esperance Sand groundwater at concentrations greater than 5 µg/L for the duration of the modeled time frame (999 years) with or without a cover at ground surface. The model simulations demonstrate that TCE concentrations in soil at the SWMU/AOC No. 097 area are protective of Esperance Sand groundwater.

3.8 BUILDING 40-53, MOCK-UP DEGREASER (SWMU/AOC NO. 098)

The Mock-Up Degreaser (SWMU/AOC No. 098) area is located in Building 40-53 (Figure B-27). Fate and transport simulations were performed to estimate potential transport of TCE detected in soils in the vadose zone near the former mock degreaser in four subareas (subareas 1, 2, 3, and 4).

3.8.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the SWMU/AOC No. 098 site conditions with TCE detected in soil to various depths with a maximum of 30 feet bgs. The conceptual model, including the simulated area for the location (Figure B-27), was based upon the lateral and vertical distribution of TCE in soils within the vadose zone interpreted from the RI and FS soil TCE concentration data. Figure B-27 depicts the analytical results for TCE in soils obtained during the RI and FS and the estimated lateral extent of TCE-contaminated soil

modeled based on these data. The RI/FS soil analytical data are summarized in Table 2-19a of the FS.

Model inputs were determined using soil physical and chemical data for samples from boreholes completed in the SWMU/AOC No. 098 area, as summarized in Table B-9. The uppermost soils are unsaturated glacial till. Well-graded sands and silty sands (SW-SM) extend from the ground surface to approximately 30 feet bgs. From approximately 30 to 40 feet bgs, the soil consist of silty sands (SM) and silty gravels (GM). Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these glacial till soils typically consist of silty sands (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The SWMU/AOC No. 098 site model for each of the four areas was assigned four layers: Layer 1 is 30 feet of SW-SM, Layer 2 is 10 feet of SM-GM, Layer 3 is 50 feet of SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-9. The conceptual site model for the SWMU/AOC 098 area is illustrated on Figure B-28.

3.8.2 Model Results – SWMU/AOC No. 098

The results of the two modeling scenarios for TCE in soils in each of the four subareas of the SWMU/AOC No. 098 Mock-Up Degreaser area are summarized in the following sections.

Subarea 1

Scenario 1 – Utilizing a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 0.150 µg/g with recharge, TCE is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (5 µg/L) within the next 15 years and attenuate below the MCL in about 100 years thereafter. Predicted concentrations for this scenario for subarea 1 are shown on Figure B-29a.

Scenario 2 – Using a TCE Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site with an impermeable cover (e.g., concrete) to reduce impacts from recharge. Using a maximum soil concentration of 0.150 µg/g without recharge, TCE is predicted not to migrate to Esperance Sand groundwater within the 999-year-modeling period. Predicted concentrations for this scenario for subarea 1 are shown on Figure B-29a.

Subarea 2

Scenario 1 – Using a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 0.150 µg/g with recharge, TCE is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (5 µg/L) in approximately 10 years and attenuate below the MCL in about 20 years thereafter. Predicted concentrations for this scenario for subarea 2 are shown on Figure B-29b.

Scenario 2 – Using a TCE Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site with an impermeable cover (e.g., concrete) to reduce impacts from recharge. Using a maximum soil concentration without recharge for the Mock-Up Degreaser of 0.150 µg/g without recharge, TCE is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for subarea 2 are shown on Figure B-29b.

Subarea 3

Scenario 1 – Using a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 0.150 µg/g with recharge, TCE is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (5 µg/L) in approximately 10 years and attenuate below the MCL in about 20 years thereafter. Predicted concentrations for this scenario for subarea 3 are shown on Figure B-29c.

Scenario 2 – Utilizing a TCE Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site with an impermeable cover (e.g., concrete) to reduce impacts from recharge. Using a maximum soil concentration of 0.150 µg/g without recharge, TCE is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for subarea 3 are shown on Figure B-29c.

Subarea 4

Scenario 1 – Using a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 0.150 µg/g with recharge, TCE is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (5 µg/L) in approximately 10 years and attenuate below the MCL in about 35 years from the present. Predicted concentrations for this scenario for subarea 4 are shown on Figure B-29d.

Scenario 2 – Using a TCE Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of a surface cover (e.g., concrete) to reduce impacts from recharge. Using a maximum soil concentration of

0.150 µg/g without recharge, TCE is not predicted to migrate to Esperance Sand groundwater for the duration of the modeled time frame (999 years). Predicted concentrations for this scenario for subarea 4 are shown on Figure B-29d.

3.8.3 Conclusion

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-53 Mock-Up Degreaser (SWMU/AOC No. 098) area, with simulations for the maximum starting TCE soil concentration in each area repeated with and without concrete pavement at ground surface. The simulations indicate that, with the current condition of a concrete surface cover (floor) in place to limit recharge, residual TCE present in soil at this SWMU/AOC will not leach to Esperance Sand groundwater for the duration of the modeled time frame (999 years). The presence of the building above the surface cover would provide additional protection against the potential for recharge that could cause the TCE to migrate to Esperance Sand groundwater. Without a surface cover in place, the model predicts that the TCE in soil could leach to Esperance Sand groundwater at concentrations greater than 5 µg/L in about 10 to 15 years, but the model overpredicts the potential migration because of the conservative assumptions inherent in the model. Soil data indicate that the depth of TCE is within 15 to 30 feet bgs. The TCE concentrations detected in the 2014 FS samples are similar to the 1992 pre-RI samples collected at similar depths and locations, indicating that there has been minimal migration since the degreaser was decommissioned and demonstrates the conservative nature of the model results.

3.9 BUILDING 40-02, LARGE VAPOR DEGREASER (SWMU/AOC NO. 170)

The Large Vapor Degreaser (SWMU/AOC No. 170) area is located in Building 40-02 (Figure B-30). Fate and transport simulations were performed to estimate potential transport of TCE detected in soils in the vadose zone beneath the former Large Vapor Degreaser area.

3.9.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the SWMU/AOC No. 170 site conditions with TCE in soil to a depth of up to 20 feet bgs. The conceptual model, including the simulated area for the location (Figure B-31), was based upon the lateral and vertical distribution of TCE in soils within the vadose zone interpreted from the RI and FS soil TCE concentration data. Figure B-30 depicts the analytical results for TCE in soils obtained during the RI and FS and the estimated lateral extent of TCE-contaminated soil modeled based on these data. The RI/FS soil analytical data are summarized in Table 2-11a of the FS.

Model inputs were determined using soil physical and chemical data for samples from boreholes completed in the SWMU/AOC No. 170 area, as summarized in Table B-10. The uppermost soils are unsaturated glacial till and consist of silty sand/sandy silt to a depth of 20 feet bgs with inorganic silty clays (CL) and silts (ML) from approximately 20 to 30 feet bgs. From approximately 30 to 40 feet bgs, glacial till soils consist of poorly graded gravels (GP) and silty gravels (GM). Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these soils are glacial till that typically consist of silty sands/sandy silts (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The SWMU/AOC No. 170 site model assigned four layers: Layer 1 is 20 feet of SM underlain by 10 feet of CL-ML, Layer 2 is 10 feet of GP-GM, Layer 3 is 50 feet of SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-10. The conceptual site model for the SWMU/AOC No. 170 area is illustrated on Figure B-31.

3.9.2 Model Results – SWMU/AOC No. 170

Scenario 1 – Using a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 0.040 µg/g with recharge, TCE is predicted to migrate to Esperance Sand groundwater at concentrations greater than the MCL for TCE of 5 µg/L within the next 100 years and attenuate below the MCL in about another 100 years thereafter. Predicted concentrations for the area are shown on Figure B-32.

Scenario 2 – Using a TCE Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of a surface cover (e.g., concrete) to reduce impacts from recharge (precipitation). Using a maximum soil concentration for the area of 0.040 µg/g without recharge, TCE is not predicted to migrate to Esperance Sand groundwater for at least the 999-year modeling period. Predicted concentrations for the area are shown on Figure B-32.

3.9.3 Conclusion

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-02 Large Vapor Degreaser (SWMU/AOC No. 170) area, with simulations for the maximum starting TCE soil concentration repeated with and without concrete pavement at ground surface. The simulations indicate that under current conditions, with a concrete surface cover (floor) in place to limit recharge, residual TCE present in soil at this SWMU/AOC will not

leach to Esperance Sand groundwater for the duration of the modeled time frame (999 years). The presence of the existing building above the surface cover would also provide additional protection against the potential for TCE to migrate to Esperance Sand groundwater. Without a surface cover in place, the model predicts that the residual TCE in soil could leach to Esperance Sand groundwater at concentrations greater than 5 µg/L in about 100 years, but the model overpredicts the potential migration because of the conservative assumptions inherent in the model.

3.10 BUILDING 40-32 FOOTING EXCAVATION

The Footing Excavation area is located outside the northwest corner of Building 40-32 (Figure B-33). Fate and transport simulations were performed to estimate potential transport of COCs (TCE, xylenes, total petroleum hydrocarbon gasoline [TPH-G] and TPH as motor oil [TPH-MO]) detected in soils in the large footing excavation for a building modification completed in this area during the RI period.

3.10.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the Building 40-32 Footing Excavation site conditions with several COCs in soil to a depth of 15 feet bgs. The conceptual model, including the simulated area for the location (Figure B-33), was based upon the lateral and vertical distribution of TCE and other COCs in soils within the vadose zone interpreted from the RI and FS soil TCE concentration data. Figure B-33 depicts the analytical results for the COCs in soils obtained during the RI and FS and the estimated lateral extent of COC-contaminated soil modeled based on these data. The RI/FS soil analytical data is summarized in Table 2-22a of the FS.

Model inputs were determined using soil physical and chemical data for samples from boreholes completed in the Footing Excavation area, as summarized in Table B-11. The uppermost soils are unsaturated glacial till consisting of silty (SM) and clayey sands (SC) from ground surface to approximately 30 feet bgs and well graded sands and clays (SW-SC) from 30 to 40 feet bgs. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these soils are glacial till that typically consist of silty sands/sandy silts (SM) with localized zones clayey sand (SC) and increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The Footing Excavation area site model was assigned four layers: Layer 1 is 30 feet of SC-SM, Layer 2 is 20 feet of SW-SC, Layer 3 is 50 feet of SC-SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-11. The conceptual site model for the Footing Excavation area is illustrated on Figure B-34 (TCE), Figure B-35 (xylenes), and Figure B-36 (TPH-G and TPH-MO).

3.10.2 Model Results – Building 40-32, Footing Excavation Area

The vadose zone model for this SWMU/AOC used TPH-G and TPH-MO as the proxy for the other TPH constituents and TCE and xylenes as the proxy for ethylbenzene, since these were the TPH-related compounds with the highest concentrations and greatest potential to migrate in soil. In addition, TCE was also modeled.

Scenario 1 – Using a TCE Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 3 µg/g with recharge, TCE is predicted to migrate to Esperance Sand groundwater at a concentration above the MCL (5 µg/L) in about 300 years and remain above the MCL beyond 1,000 years from the present. Predicted concentrations for this scenario for the area are shown on Figure B-37a.

Scenario 2 – Using a Xylenes Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 116 µg/g with recharge, xylene is predicted to migrate to Esperance Sand groundwater in approximately 300 years, but not exceed the MCL (10,000 µg/L). Predicted concentrations for this scenario for the area are shown on Figure B-37b.

Scenario 3 – Using a TPH-G Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 16 µg/g with recharge, TPH-G is predicted to migrate to Esperance Sand groundwater in approximately 350 years and only exceed the MTCA Method A groundwater cleanup level of 1,000 µg/L for approximately 25 years in about 500 years from the present before attenuating to below the MTCA A level. Predicted concentrations for this scenario for the area are shown on Figure B-37b.

Scenario 4 – Using a TPH-MO Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 16 µg/g with recharge, TPH-MO is predicted to migrate to Esperance Sand groundwater in approximately 100 years. However, the predicted maximum concentration is below the MTCA Method A groundwater cleanup level of 500 µg/L. Predicted concentrations for this scenario in the area are shown on Figure B-38.

Scenario 5 – Using maximum Soil Concentrations without Recharge (with Surface Cover). Each of the four scenarios presented above were modeled again with the same soil concentration and the intrinsic permeability of Layer 1 reduced to assess the impacts of covering the site with a

surface cover (e.g., concrete) to reduce effects from recharge. None of the COCs was predicted to migrate to groundwater within the 999-year modeling period under this scenario.

3.10.3 Conclusions

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-32 Footing Excavation area, with simulations for the maximum starting TPH-G, TPH-MO, xylenes, and TCE soil concentrations repeated with and without concrete pavement at ground surface. The simulations indicate that under current conditions, with a concrete surface cover (pavement) in place, the COCs present in soil in this area will not leach to Esperance Sand groundwater for the duration of the modeled time frame (999 years). The existing controlled-density fill footing below the concrete surface cover would provide additional protection against the potential for recharge to cause migration of the COCs in soil to Esperance Sand groundwater. Without a surface cover in place, the model predicts that (1) TCE in soil could leach to Esperance Sand groundwater at concentrations greater than 5 µg/L within about 300 years, and (2) TPH-G in soil could leach to Esperance Sand groundwater at a concentration greater than 0.5 mg/L in about 350 years. However, the model overpredicts the potential migration because of the conservative assumptions inherent in the model. The model also predicts that without a surface cover in place, xylenes could leach to the Esperance Sand groundwater within about 300 years and TPH-MO within about 100 years, but concentrations of both constituents would remain below their respective MCL/and cleanup level.

3.11 SOUTH COMPLEX, SOUTH FIRE PIT (SWMU/AOC NO. 068)

The South Fire Pit (SWMU/AOC No. 068) area is located beneath an asphalt-paved parking lot on the South Complex of the Everett Plant (Figure B-39). Fate and transport simulations were performed to estimate potential transport of TPH in the ranges of gasoline, diesel, and motor oil (TPH-G, TPH-D, and TPH-MO) detected in soils in the vadose zone beneath the former South Fire Pit Area.

3.11.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the SWMU/AOC No. 068 site conditions with TPH in soil to a depth of less than 5 feet bgs. The conceptual model, including the simulated area for the location (Figure B-39), was based upon the lateral and vertical distribution of TPH in soils within the vadose zone interpreted from the RI and FS soil TPH concentration data. Figure B-39 depicts the analytical results for TPH in soils obtained during the RI and FS and the estimated lateral extent of TPH-contaminated soil modeled based on these data. The RI/FS soil analytical data are summarized in Table A-20a of the FS.

Model inputs were determined using soil chemical data for samples from pre-RI excavations and boreholes and the FS borings completed in the SWMU/AOC No. 068 area, as summarized in Table B-12. The uppermost soils are unsaturated glacial till consisting of well graded sands (SW) and clayey sands (SM) from ground surface to approximately 30 feet bgs and silts, silty sands (SM) from 30 to 40 feet bgs. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these soils are glacial till that typically consist of silty sands/sandy silts (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The SWMU/AOC 068 model was assigned four layers: Layer 1 is 30 feet of SW-SM, Layer 2 is 10 feet of SM, Layer 3 is 50 feet of SP-SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-12. The conceptual site models for the SWMU/AOC No. 068 area are illustrated on Figure B-40 (TPH-G), Figure B-41 (TPH-D), and Figure B-42 (TPH-MO).

3.11.2 Model Results - SWMU/AOC No. 068

TPH-G Results

Scenario 1 – Using a TPH-G Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 1.9 µg/g TPH-G with recharge, TPH-G is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-43a.

Scenario 2 – Using a TPH-G Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the effect of covering the site with a surface cover (e.g., concrete) to reduce the effect of recharge. Using a maximum soil concentration of 1.9 µg/g without recharge, TPH-G is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-43a.

TPH-D Results

Scenario 3 – Using a TPH-D Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 5.8 µg/g with recharge, TPH-D is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for the area are shown on Figure B-43b.

Scenario 4 – Using a TPH-D Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site with a surface cover (e.g., concrete) to reduce the effects of recharge. Using a maximum soil concentration of 5.8 µg/g without recharge, TPH-D is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-43b.

TPH-MO Results

Scenario 5 – Using a TPH-O Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 13 µg/g with recharge, TPH-MO is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-43c.

Scenario 6 – Using a TPH-O Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site with a surface cover (e.g., concrete) to reduce the effects of recharge. Using a maximum soil concentration of 13 µg/g without recharge, TPH-MO is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-43c.

3.11.3 Conclusions

Model simulations incorporating multiple conservative assumptions were completed for the SWMU/AOC No. 068 area, with simulations for the maximum starting TPH soil concentrations repeated with and without concrete pavement at ground surface. The conservative simulations of the former South Fire Pit area indicate that, with or without a surface cover in place, residual TPH-G, TPH-D, and TPH-MO present in soil at this SWMU/AOC will not leach to Esperance Sand groundwater for the duration of the modeled time frame (999 years). Therefore, the residual TPH concentrations in soil in this area are protective of Esperance Sand groundwater per MTCA criteria.

3.12 BUILDING 40-11, UST EV-48-1

The UST EV-48-1 area is located northeast of Building 40-11 (Figure B-44). Fate and transport simulations were performed to estimate potential transport of COCs (benzene, toluene, and xylenes [BTX]) detected in soils in the vadose zone beneath the UST EV-48-1 area.

3.12.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate the UST EV-48-1 site conditions with BTX in soil to a depth of up to15 feet bgs. The conceptual model, including the simulated area

for the location (Figure B-44), was based upon the lateral and vertical distribution of BTX in soils within the vadose zone interpreted from the RI and FS soil BTX concentration data. Figure B-44 depicts the analytical results for the COCs in soils obtained during the RI and FS and the estimated lateral extent of COC-contaminated soil that was modeled based on these data. The RI/FS soil analytical data are summarized in Table 2-8a of the FS.

Model inputs were determined using soil physical and chemical data for samples from boreholes completed in the USTEV-48-1 area, as summarized in Table B-13. The uppermost soils are approximately 20 feet of gravel and sand fill (GP-SP) underlain by unsaturated glacial till consisting of silty sands (SM) and clayey sands (SC) to approximately 30 feet bgs. Well graded and clayey gravels (GW-GC) are present from approximately 30 to 40 feet bgs. Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize for the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these soils are glacial till that typically consist of silty sands/sandy silts (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The UST EV-48-1 area site model was assigned four layers: Layer 1 is 30 feet of fill (GP-SP) and uppermost glacial till (SC-SM), Layer 2 is 10 feet of GW-GC, Layer 3 is 50 feet of SP-SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-13. The conceptual site models for the UST-48-1 area are illustrated on Figure B-45 (benzene), Figure B4-6 (toluene) and Figure B-47 (xylenes).

3.12.2 Model Results – UST EV-48-1

Benzene Results

Scenario 1 – Using a Benzene Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 5.3 µg/g with recharge, benzene is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (5 µg/L) in about 100 years and attenuate to below the MCL approximately 575 years thereafter. Predicted concentrations for this scenario for the area are shown on Figure B-48a.

Scenario 2 – Using a Benzene Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site area with a surface cover (e.g., concrete) to reduce the effects of recharge. Using a maximum soil concentration of 5.3 µg/g without recharge, benzene is predicted not to migrate to Esperance Sand groundwater at a concentration greater than the MCL within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-48a.

Toluene Results

Scenario 1 – Using a Toluene Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 63 µg/g with recharge, toluene is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (1,000 µg/L) in about 100 years and attenuate to below the MCL approximately 150 years thereafter. Predicted concentrations for this scenario for the area are shown on Figure B-48b.

Scenario 2 – Using Toluene Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site area with a surface cover (e.g., concrete) to reduce the effects of recharge. Using a maximum soil concentration of 63 µg/g without recharge, toluene is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-48b.

Xylenes Results

Scenario 1 – Using a Xylene Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 122 µg/g with recharge, xylene is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (10,000 µg/L) in about 100 years and attenuate to below the MCL by approximately 175 years thereafter. Predicted concentrations for this scenario for the area are shown on Figure B-48c.

Scenario 2 – Using Xylene Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site area with a surface cover (e.g., concrete) to reduce the effects of recharge. Using a maximum soil concentration of 122 µg/g without recharge, xylene is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for the area are shown on Figure B-48c.

3.12.3 Conclusions

Model simulations incorporating multiple conservative assumptions were completed for the Building 40-11 UST EV-48-1 area, with simulations for the maximum starting BTX soil concentrations repeated with and without concrete pavement at ground surface. The simulations indicate that with a concrete surface cover (pavement) in place to limit recharge, residual BTX in soil in this area will not leach to Esperance Sand for the duration of the modeled time frame (999 years). Without a surface cover in place, the conservative model predicts that the residual BTX present in soil could leach to Esperance Sand groundwater at concentrations greater than the MCLs within about 100 years, but the model overpredicts the potential migration because of the conservative assumptions inherent in the model.

3.13 BUILDING 45-52, FORMER FUEL FARM USTS (SWMU/AOC NO. 165)

The Former Fuel Farm USTs (SWMU/AOC No. 165) and fueling system area is located on the South Complex of the Everett Plant near Building 45-52 (Figures B-49 and B-50). Fate and transport simulations were performed to estimate potential transport of TPH-G and TPH-D detected in soils in the vadose zone beneath the former fuel farm and active fueling system area.

3.13.1 Conceptual Model

A single, combined conceptual subsurface model was developed to simulate site conditions with TPH in soil to a depth of up to11 feet bgs for the two subareas within the SWMU/AOC No. 165 area. The conceptual model, including the simulated area for the locations (Figure B-49 and B-50), was based upon the lateral and vertical distribution of BTX in soils within the vadose zone interpreted from the RI and FS soil TPH-G and TPH-D concentration data. The simulated area for the location (Figures B-49 and B-50) was the initial interpreted lateral and vertical distribution of the COCs in soils within the vadose zone based on the RI and FS soil COC concentration data. The maximum concentration for different depth intervals from either the former fuel farm or the fueling system area was used as the input COC data. The RI/FS soil analytical data are summarized in Table 2-18a of the FS.

Model inputs were determined using soil chemical data for samples from boreholes and post-excavation samples completed prior to and during the RI in the SWMU/AOC No. 165 area, as summarized in Tables B-14a and B-14b. Additional samples were not obtained during the FS per the FSWP. Therefore, the modeling assumed that the soils between the maximum depth of exploration/excavation (20 feet bgs) and a depth of 40 feet below the Former Fuel Farm USTs and active fueling system area are similar to and have the same physical properties as soils beneath the Building 45-01 former solvent USTs area, as summarized in Tables B-14a and B-14b. The uppermost soils are unsaturated glacial till, except in the former UST excavation area where granular fill and controlled-density fill were used to backfill the excavation. Outside the excavation, glacial till soils extend from ground surface to approximately 20 feet bgs and consist of silty sand (SM) and clayey sand (SC). Poorly graded gravels (GP) and clayey gravels (GC) are assumed to be present from 20 to 30 feet bgs. From 30 to 40 feet, the glacial till soils are assumed to consist of well-graded sandy clays and very fine sands (SW-SC). Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these soils are glacial till that typically consist of silty sands/sandy silts (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The SWMU/AOC No. 165 site model was assigned four layers: Layer 1is 20 feet of SM-SC underlain by 10 feet of GP-GC, Layer 2 is 10 feet of SW-SC, Layer 3 is 50 feet of SP-SM and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Tables B-14a and B-14b. The conceptual site models for the SWMU/AOC No. 165 area are illustrated on Figures B-51 (TPH-D) and B-52 (TPH-G).

3.13.2 Model Results – SWMU/AOC No. 165

TPH-G Results

Scenario 1 – Using TPH- D Soil Concentration with recharge (without Surface Cover). Using the maximum soil concentration of 50.7 µg/g with recharge, TPH-D is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-53a.

Scenario 2 – Using TPH- D Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of a surface cover (e.g., concrete) to reduce the effects of recharge. Using the maximum soil concentration of 50.7 µg/g without recharge, TPH-D is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario for the area are shown on Figure B-53a.

Scenario 3 – Using a TPH-G Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration of 14 µg/g with recharge, TPH-G is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for the area are shown on Figure B-53b.

Scenario 4 – Using a TPH-G Soil Concentration without Recharge (with Surface Cover). For Scenario 4, the intrinsic permeability of Layer 1 was reduced to assess the impacts of a surface cover (e.g., concrete) to reduce the effect of recharge. Using a maximum soil concentration of 14 µg/g without recharge, TPH-G is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for the area are shown on Figure B-53b.

3.13.3 Conclusions

Model simulations incorporating multiple conservative assumptions were completed for the Building 45-52 Former Fuel Farm USTs (SWMU/AOC No. 165) area, with simulations for the maximum starting TPH soil concentration repeated with and without concrete pavement at ground surface. The simulations indicate that, with or without a concrete surface cover (pavement) in place, residual petroleum hydrocarbons at this SWMU/AOC will not leach to

Esperance Sand groundwater for the duration of the modeled time frame (999 years). Therefore, the residual TPH concentrations in soil in the SWMU/AOC No. 165 area are protective of Esperance Sand groundwater.

3.14 FLIGHTLINE, FORMER UST EV-15 (SWMU/AOC NO. 083)

The Former UST EV-15 (SWMU/AOC No. 083) area is located in the southwest portion of the flightline, as shown on Figure B-54. Fate and transport simulations were performed to estimate potential transport of TPH-D detected in soils in the vadose zone beneath the SWMU/AOC No. 083 area.

3.14.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate site conditions with TPH-D in soil to a depth of between 8 to11 feet bgs for the SWMU/AOC No. 083 area. The conceptual model, including the simulated area for the location (Figure B-54), was based upon the lateral and vertical distribution of TPH-D in soils within the vadose zone interpreted from the pre-RI TPH-D concentration data. Figure B-54 depicts the analytical results for TPH-D in soils and the estimated lateral extent of TPH-D contaminated soil modeled based on these data. The RI/FS soil analytical data are summarized in Table 2-21 of the FS.

Model inputs were determined using soil chemical data for samples from pre-RI boreholes completed in the SWMU/AOC No. 083 area, as summarized in Table B-15. Additional samples were not obtained during the FS per the FSWP. Therefore, the modeling assumed that the soils between the maximum depth of exploration/excavation (13 feet bgs) and a depth of 40 feet below the former UST area are similar to and have the same physical properties as soils beneath the Building 45-01 former solvent USTs area as summarized in Table B-15. In the former UST excavation area, granular fill was used to backfill the excavation. Outside the excavation, glacial till soils from ground surface to approximately 20 feet bgs consist of silty sand (SM) and clayey sand (SC), and poorly graded gravels (GP) and clayey gravels (GC) are assumed to be present from 20 to 30 feet bgs. From 30 to 40 feet bgs the glacial till soils are assumed to consist of well-graded sandy clays and very fine sands (SW-SC). Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from 40 to 200 feet bgs. From approximately 40 to 90 feet, these soils are glacial till that typically consist of silty sands/sandy silts (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

The SWMU 083 model was assigned four layers: Layer 1 is 20 feet of SM-SC underlain by 10 feet of GP-GC, Layer 2 is 10 feet of SW-SC, Layer 3 is 50 feet of SP-SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-15. The conceptual site model for the former UST area is illustrated on Figure B-55.

3.14.2 Model Results - SWMU/AOC No. 083

Scenario 1 – Using a TPH-D Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration with recharge for the SWMU/AOC No. 083 area of 2.8 µg/g, TPH-D is predicted to migrate to Esperance Sand groundwater at approximately 450 years, but the maximum concentration is predicted to be less than the MTCA Method A groundwater cleanup level of 500 µg/L. Predicted concentrations for this scenario for the area are shown on Figure B-56.

Scenario 2 – Using a TPH-D Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site area with a surface cover (e.g., concrete) to reduce the effects of recharge. Using a maximum soil concentration of 2.8 µg/g without recharge, TPH-D is predicted not to migrate to the Esperance Sand groundwater for the 999-year modeling period. Predicted concentrations for the area are shown on Figure B-56.

3.14.3 Conclusion

Model simulations incorporating multiple conservative assumptions were completed for the Former UST EV-15 (SWMU/AOC No. 083) area, with simulations for the maximum starting TPH soil concentration repeated with and without concrete pavement at ground surface. The simulations indicate that, with or without a concrete surface cover (pavement) in place to limit recharge, residual petroleum hydrocarbons at this SWMU/AOC will not leach to Esperance Sand groundwater for the duration of the modeled time frame (999 years). Therefore, the residual TPH concentrations in soil in the SWMU/AOC No. 083 area are protective of Esperance Sand groundwater per MTCA criteria.

3.15 BUILDING 45-01, FORMER SOLVENT USTS (SWMU/AOC NO. 093)

The former solvent USTs (SWMU/No. 093) area is located outside the east wall of Building 45-01 (Figure B-57). Fate and transport simulations were performed to estimate potential transport of 2-butanone (i.e., methyl ethyl ketone [MEK]) detected in soils in the vadose zone beneath the SWMU/AOC No. 093 area.

3.15.1 Conceptual Site Model

A conceptual subsurface model was developed to simulate site conditions with MEK in soil at concentrations above the screening level to a depth of about 20 feet bgs for the SWMU/AOC No. 093 area. The conceptual model, including the simulated area for the location (Figure B-54), was based upon the lateral and vertical distribution of MEK in soils within the vadose zone interpreted from the RI and FS MEK concentration data. Figure B-57 depicts the analytical results for MEK in soils obtained during the RI and FS and the estimated lateral extent of MEK-contaminated soil modeled based on these data. The RI/FS soil analytical data is summarized in Table 2-6a of the FS.

Model inputs were determined using soil physical and chemical data for samples from boreholes completed in SWMU/AOC No. 093 area, as summarized in Table B-16. The uppermost soils are unsaturated glacial till, except in the former UST excavations, which contain granular backfill. Outside the excavations, silty (SM) and clayey sands (SC) extend from ground surface to approximately 20 feet bgs and poorly graded gravels (GP) and clayey gravels (GC) are present from 20 to 30 feet bgs. From 30 to 40 feet bgs, the soils are assumed to consist of well-graded sandy clays and very fine sands (SW-SC). Deeper geotechnical and RI soil/well borings on the upland portion of the site were used to characterize the deeper soils from to 200 feet bgs. From approximately 40 to 90 feet, these soils are glacial till that typically consist of silty sands/sandy silts (SM) with localized zones of increased sand, gravel, or cobbles. Poorly graded sands or gravelly sands (SP) of the Esperance Sand are present below 90 feet bgs. Parameters for deeper soils are based on the physical test data for glacial till at depths of 50 to 55 feet bgs and Esperance Sand at depths of 150 and 199 feet bgs obtained from borings drilled to install monitoring wells EGW060 and EGW061 during the RI.

SWMU/AOC No. 093 site model was assigned four layers: Layer 1 is 20 feet of gravel backfill and silty sands, Layer 2 is 10 feet of GP-GC, Layer 3 is 50 feet of SP-SM, and Layer 4 is 110 feet of unsaturated SP (Esperance Sand). Each layer was subdivided into 10 sublayers. A summary of the soil layer profile inputs is presented in Table B-16. The conceptual site model for the SWMU/AOC No. 093 area is illustrated on Figure B-58.

3.15.2 Model Results – SWMU/AOC No. 093

Scenario 1 – Using a MEK Soil Concentration with Recharge (without Surface Cover). Using the maximum soil concentration with recharge for the area of 140 µg/g, MEK is predicted to migrate to Esperance Sand groundwater at a concentration greater than the MCL (4,800 µg/L) in approximately 100 years and attenuate to below the MCL in about 200 years thereafter. Predicted concentrations for this scenario for the area are shown on Figure B-59.

Scenario 2 – Using a MEK Soil Concentration without Recharge (with Surface Cover). For Scenario 2, the intrinsic permeability of Layer 1 was reduced to assess the impacts of covering the site area with a surface cover (e.g., concrete) to reduce impacts from recharge. Using a maximum soil concentration for the area of 140 µg/g without recharge, MEK is predicted not to migrate to Esperance Sand groundwater within the 999-year modeling period. Predicted concentrations for this scenario in the area are shown on Figure B-59.

3.15.3 Conclusions

Model simulations incorporating multiple conservative assumptions were completed for the Former Solvent USTs (SWMU/AOC No. 093) area, with simulations for the maximum starting MEK soil concentration repeated with and without concrete pavement at ground surface. The simulations indicate that, with a concrete surface cover (pavement) in place to limit recharge, residual MEK at his SWMU/AOC will not leach to Esperance Sand groundwater for the duration of the modeled timeframe (999 years). Without a surface cover in place, the model predicts that the MEK present in soil could leach to Esperance Sand groundwater at concentrations greater than 4,800 µg/L within about 100 years, but the model overpredicts the potential migration because of the conservative assumptions inherent in the model. Soils data for this SWMU/AOC demonstrate the conservative nature of the model results, indicating that in the approximately 30 years since the USTs were removed, the residual MEK has migrated less than about 10 to 15 feet below the base of the former USTs.

4.0 REFERENCES

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Figures

Figure B-1
Building 40-51, Former Wastewater AST (SWMU/AOC No. 054)
Model Recharge Input Data for Everett, WA

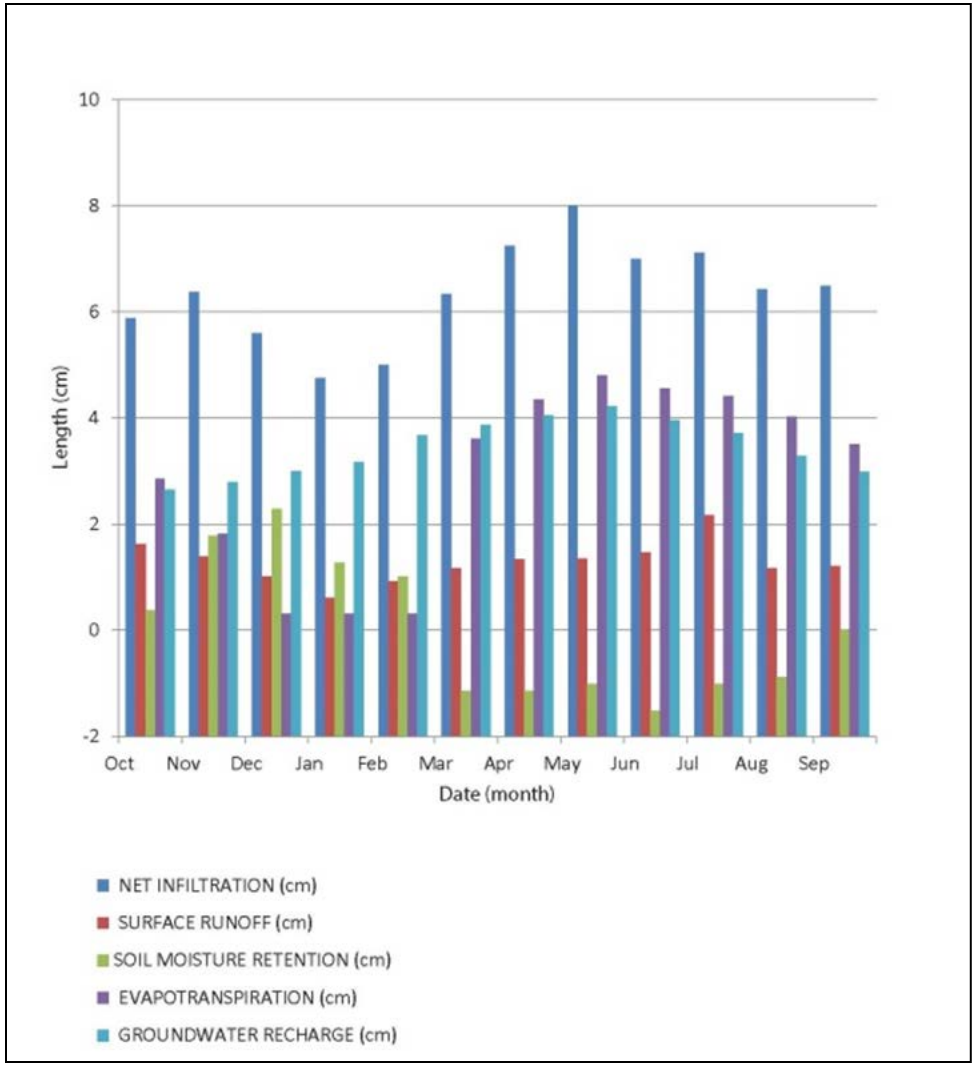


Figure B-2
Building 40-51, Former Wastewater AST (SWMU/AOC No. 054)
Sample Locations

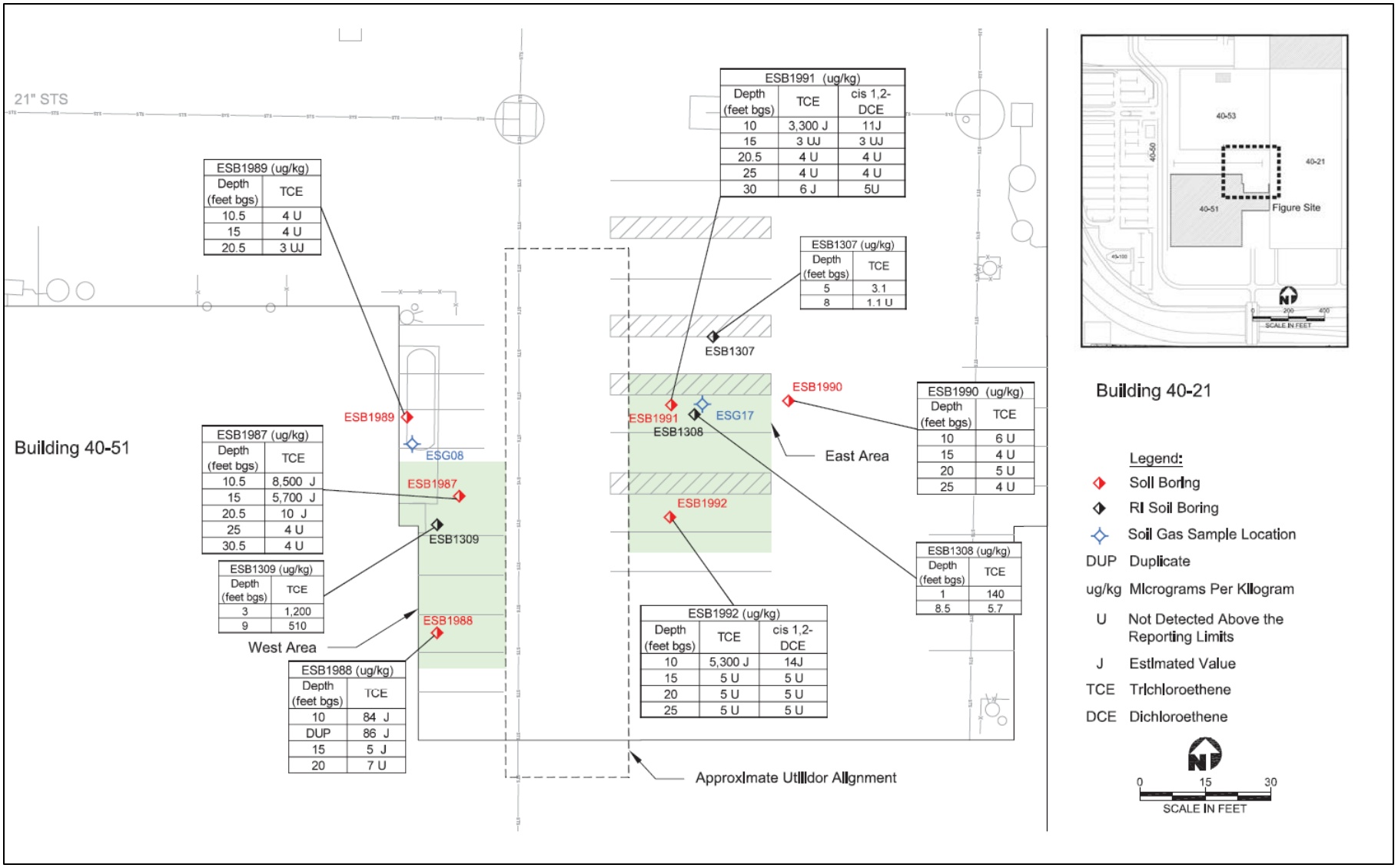
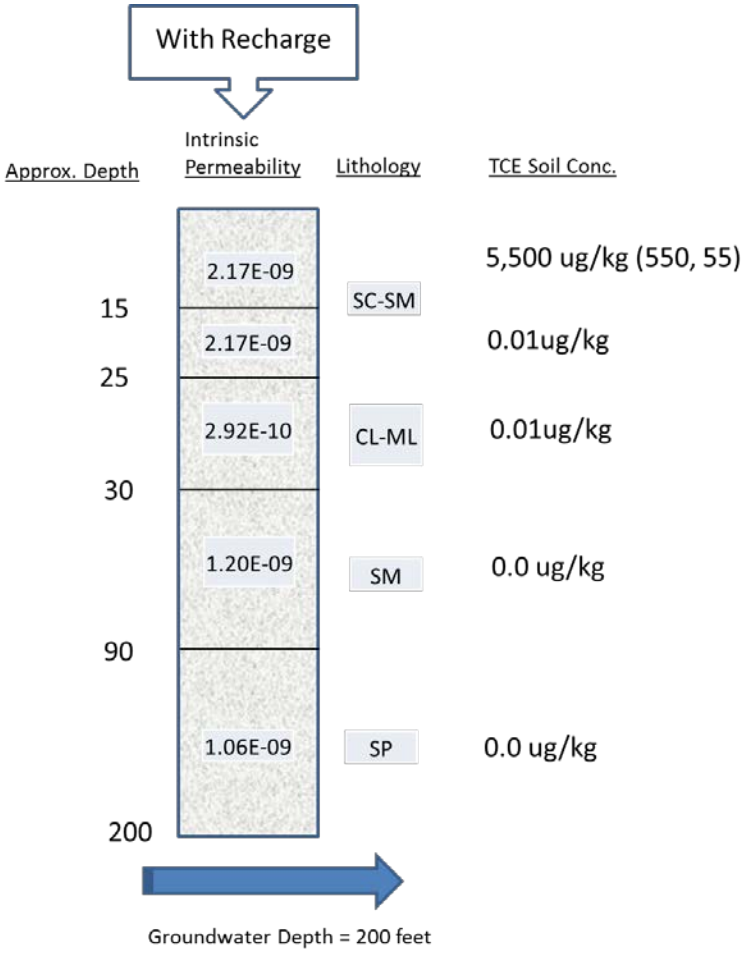
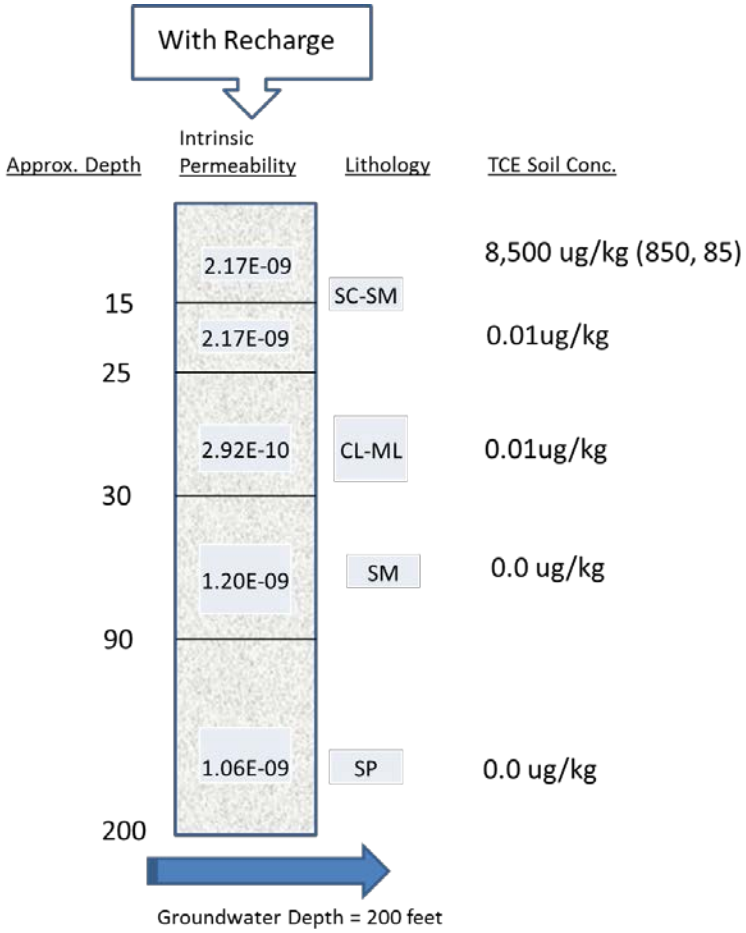


Figure B-3
Building 40-51, Former Wastewater AST (SWMU/AOC No. 054)
Conceptual Site Model, East Subarea



See Table B2 for input parameters

Figure B-4
Building 40-51, Former Wastewater AST (SWMU/AOC No. 054)
Conceptual Site Model, West Subarea



See Table B2 for input parameters

Figure B-5
Building 40-51, Former Wastewater AST (SWMU/AOC No. 054)
Model Results – East Subarea with Recharge

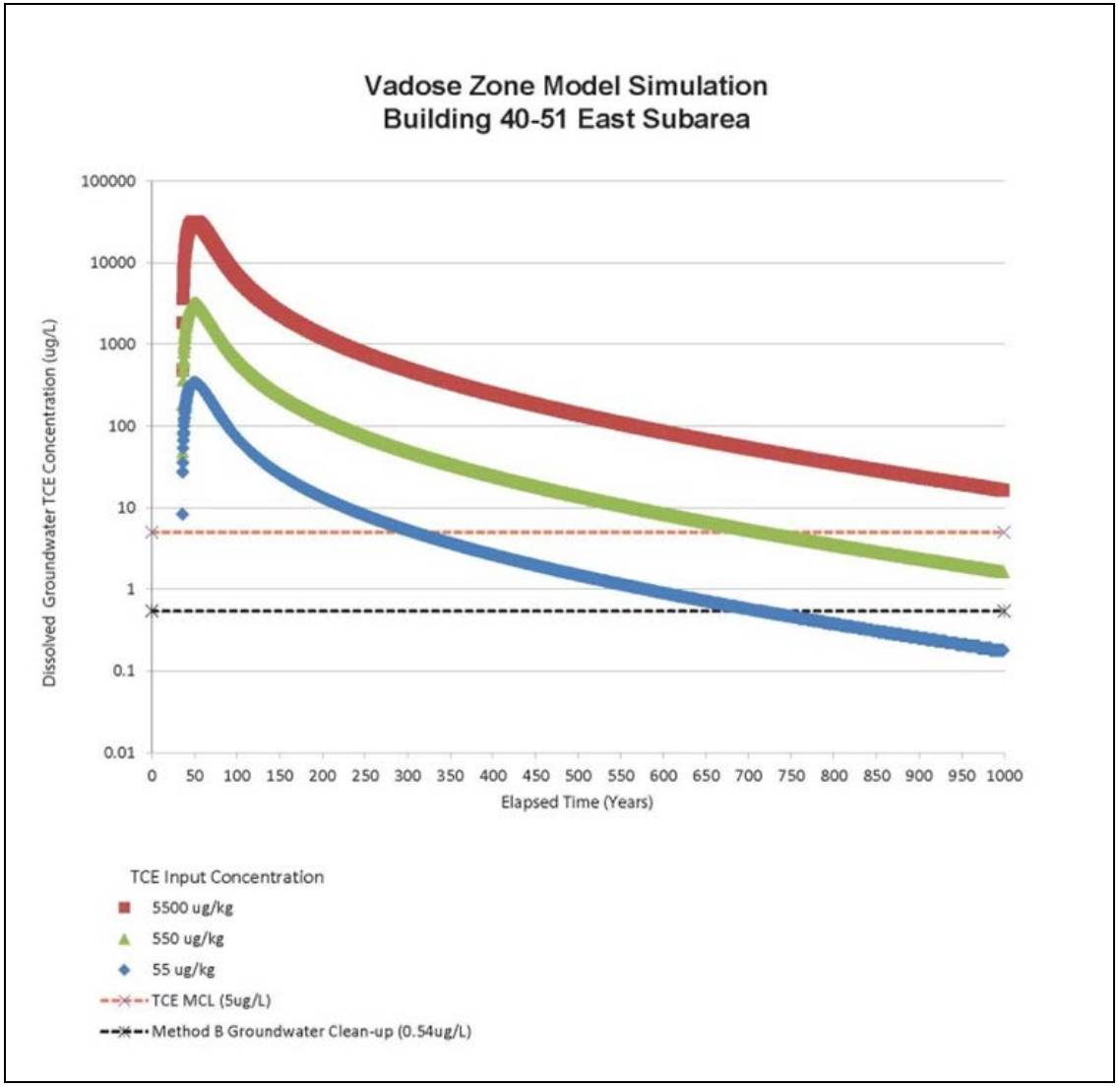


Figure B-6
Building 40-51, Former Wastewater AST (SWMU/AOC No. 054)
Model Results – West Subarea with Recharge

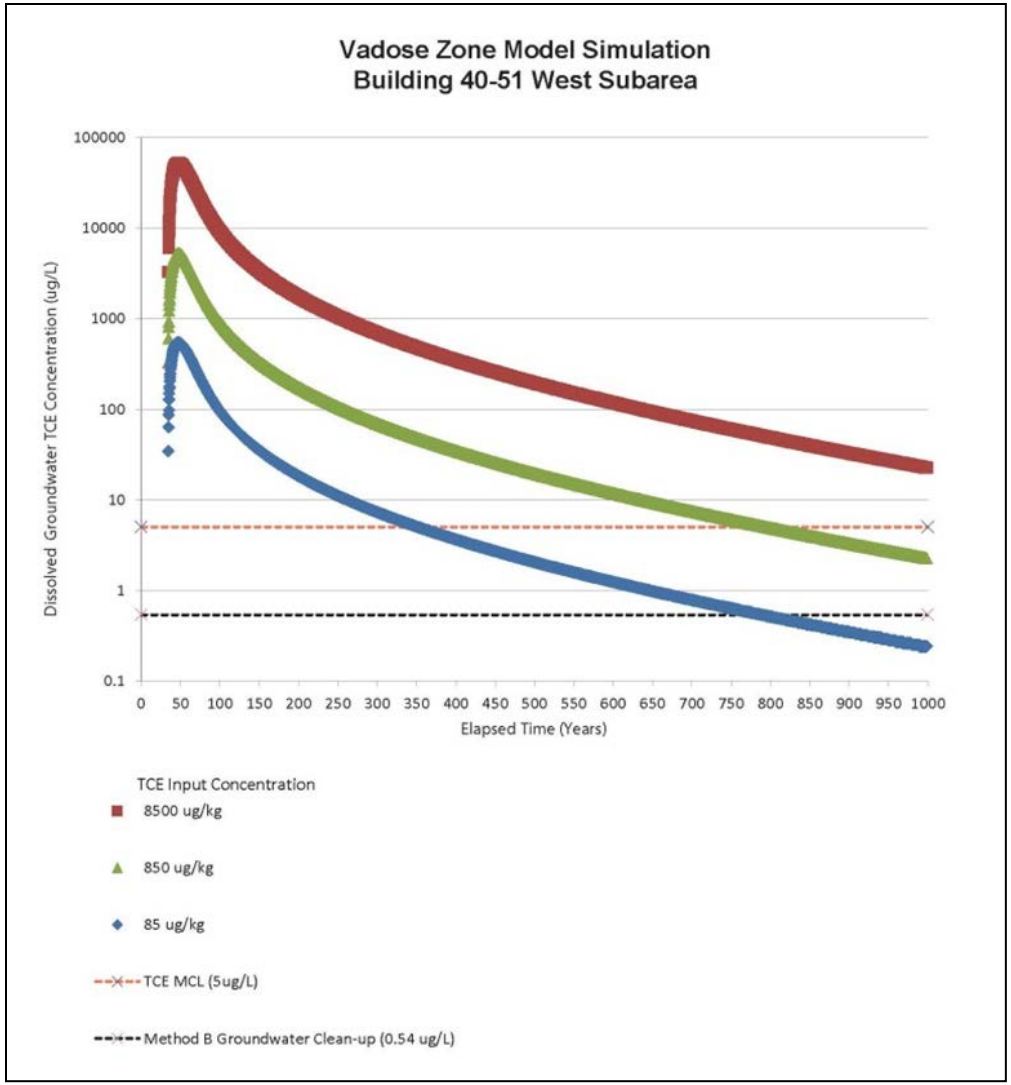


Figure B-7
Building 40-51, Former Wastewater AST (SWMU/AOC No. 054)
Model Sensitivity Results – FOC in West Subarea with Recharge

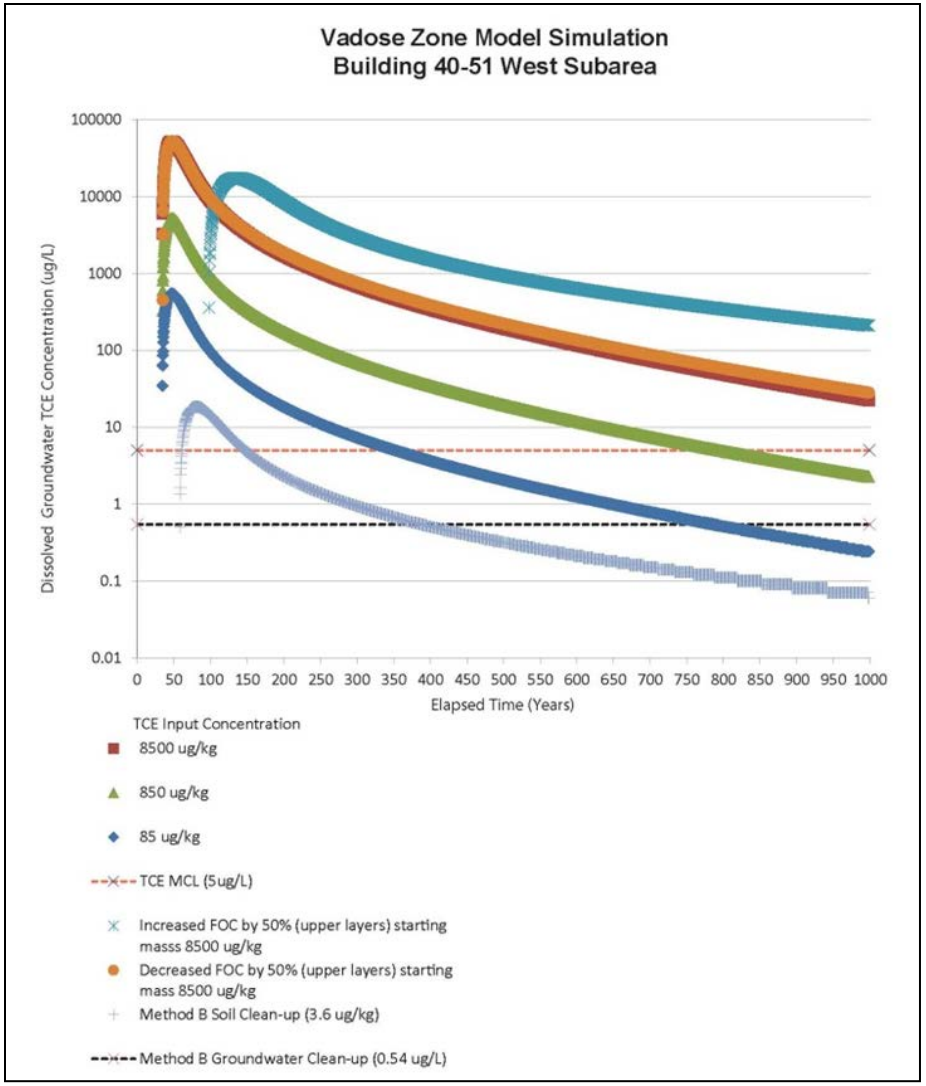


Figure B-8
Building 40-51, Former Wastewater AST (SWMU/AOC No. 054)
Model Sensitivity Results – Recharge in West Subarea

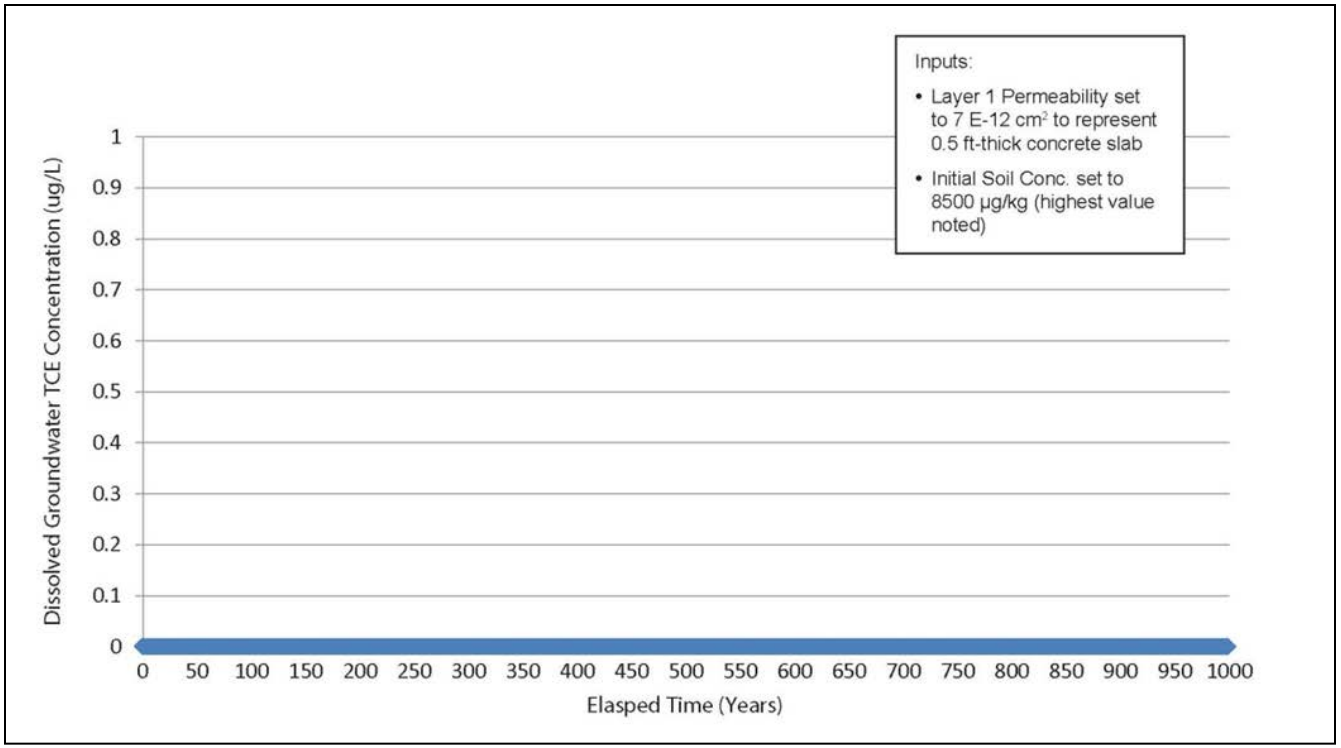
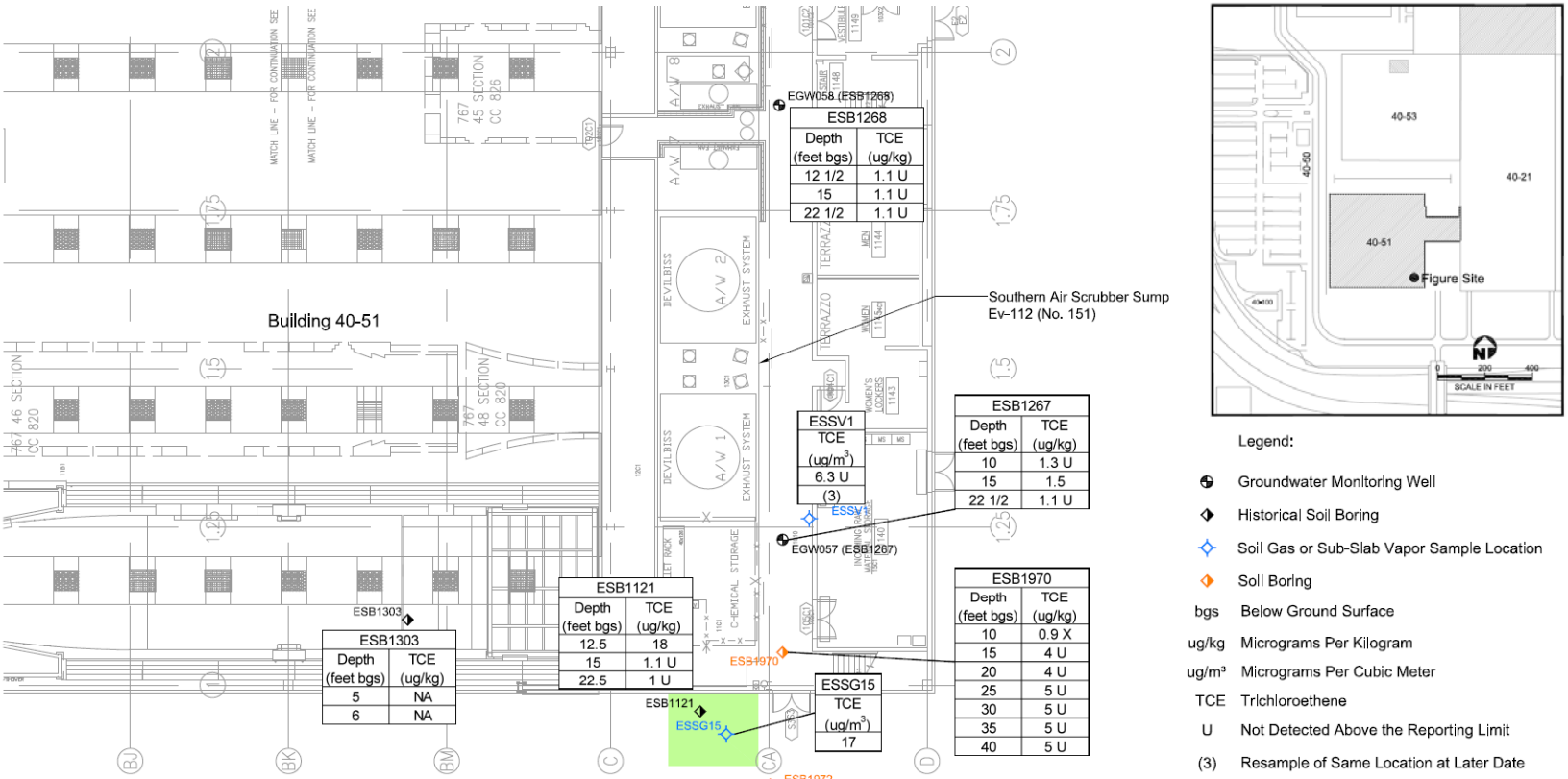


Figure B-9
Building 40-51, Southern Air Scrubber Sump (SWMU/AOC No. 151) Sampling Locations



ESB1268	
Depth (feet bgs)	TCE (ug/kg)
12 1/2	1.1 U
15	1.1 U
22 1/2	1.1 U

ESSV1
TCE (ug/m³)
6.3 U
(3)

ESB1267	
Depth (feet bgs)	TCE (ug/kg)
10	1.3 U
15	1.5
22 1/2	1.1 U

ESB1303	
Depth (feet bgs)	TCE (ug/kg)
5	NA
6	NA

ESB1121	
Depth (feet bgs)	TCE (ug/kg)
12.5	18
15	1.1 U
22.5	1 U

ESB1970	
Depth (feet bgs)	TCE (ug/kg)
10	0.9 X
15	4 U
20	4 U
25	5 U
30	5 U
35	5 U
40	5 U

ESSG15
TCE (ug/m³)
17

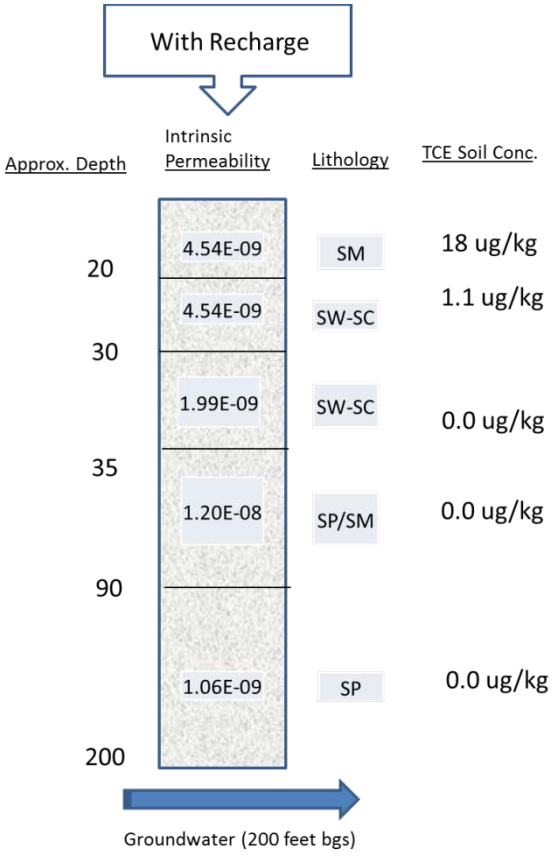
ESB1971	
Depth (feet bgs)	TCE (ug/kg)
10	6 U
DUP	5 U
15	5 U
20	5 U
25	5 U
30	4 U
35	4 U
40	4 U

ESB1972	
Depth (feet bgs)	TCE (ug/kg)
10	5 U
15	5 U
20	5 U
25	4 U
30	5 U
35	4 U
40	4 U

Legend:

- Groundwater Monitoring Well
- Historical Soil Boring
- Soil Gas or Sub-Slab Vapor Sample Location
- Soil Boring
- bgs — Below Ground Surface
- ug/kg — Micrograms Per Kilogram
- ug/m³ — Micrograms Per Cubic Meter
- TCE — Trichloroethene
- U — Not Detected Above the Reporting Limit
- (3) — Resample of Same Location at Later Date
- ESB — Everett Soil Boring
- ESSG — Everett Sub-Slab Gas
- ESSV — Everett Sub-Slab Vapor
- X — Reported Value Between the Method Detection Limit and Reporting Limit. Considered Estimated.
- Estimated Area of Contamination

Figure B-10
Building 40-51, Southern Air Scrubber Sump (SWMU/AOC No. 151)
Conceptual Site Model



Note:
See Table B3 for input parameters

Figure B-11a
Building 40-51, Southern Air Scrubber Sump (SWMU/AOC No. 151)
Model Results – Without Surface Cover

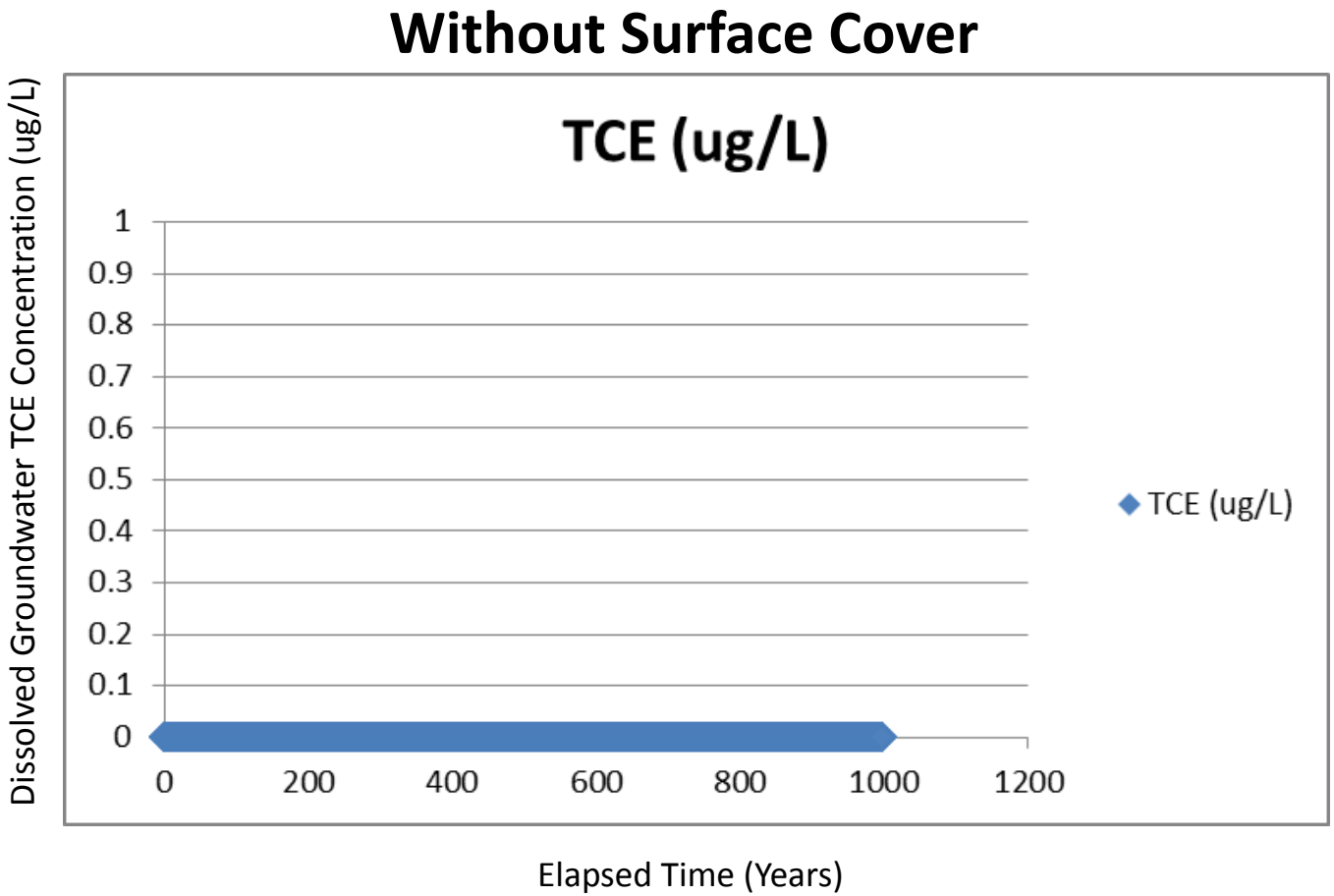


Figure B-11b
Building 40-51, Southern Air Scrubber Sump (SWMU/AOC No. 151)
Model Results – With Surface Cover

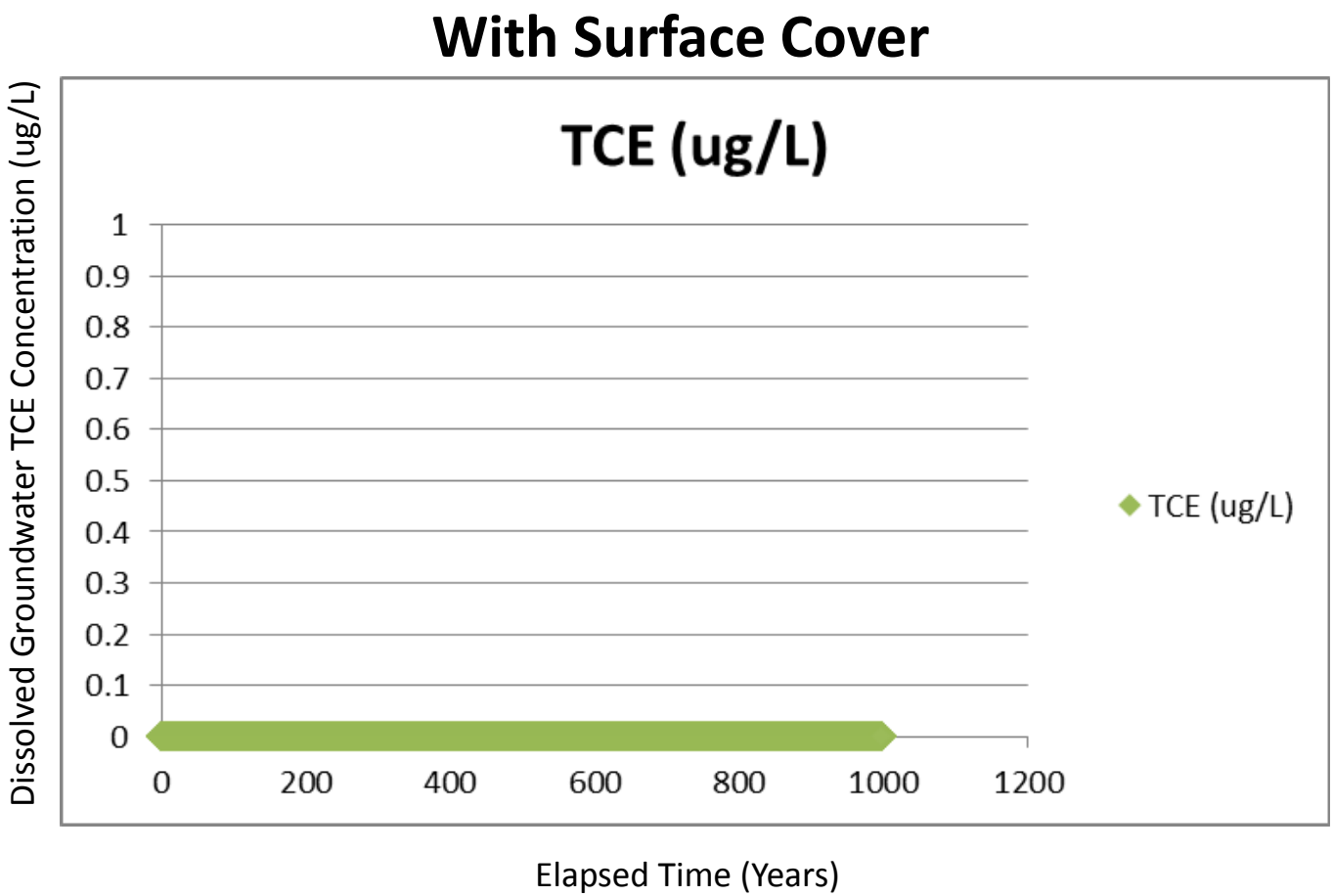


Figure B-12
Building 40-56, Former USTs (SWMU/AOC Nos. 086, 089, 094)
Sample Locations

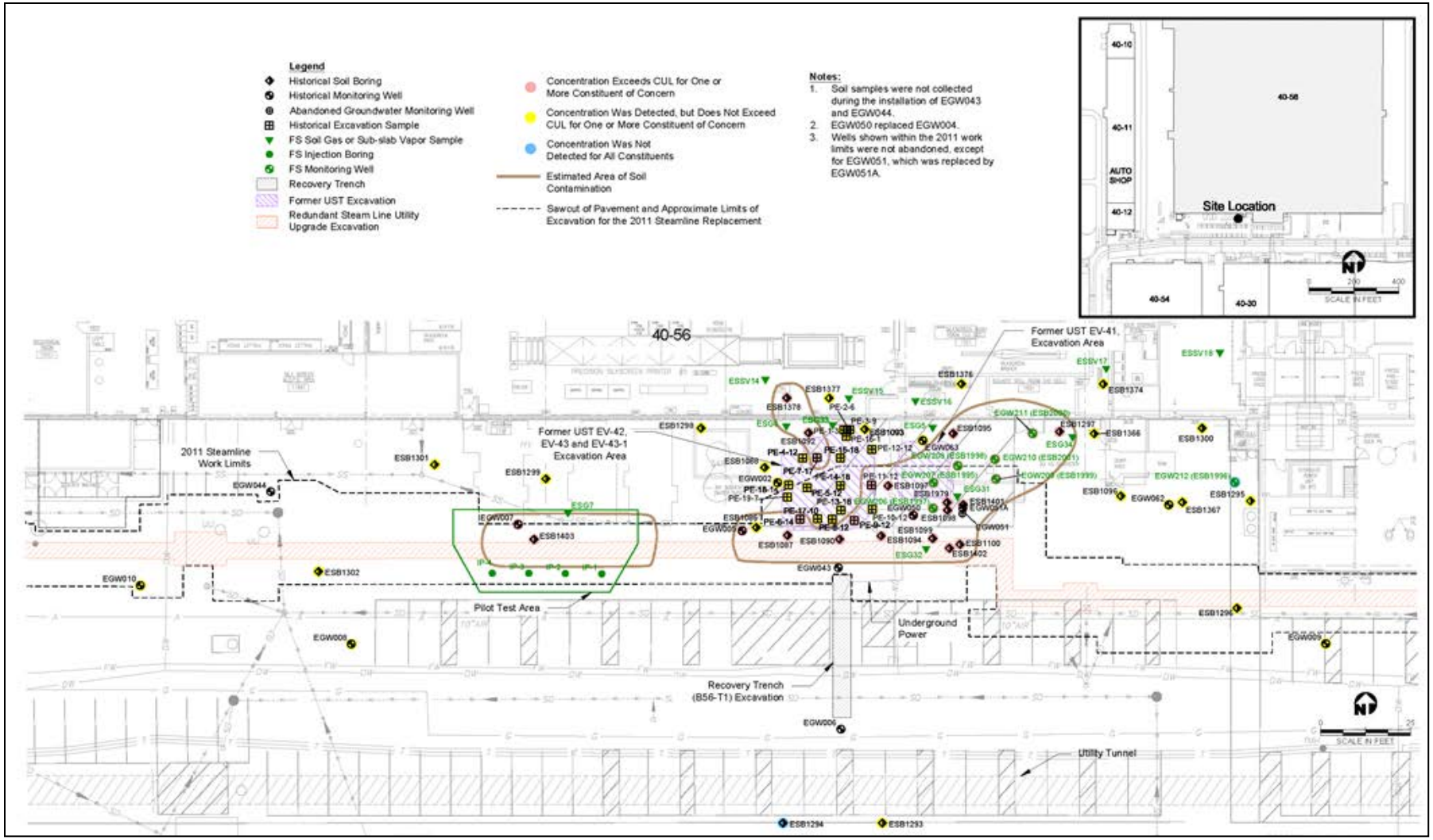
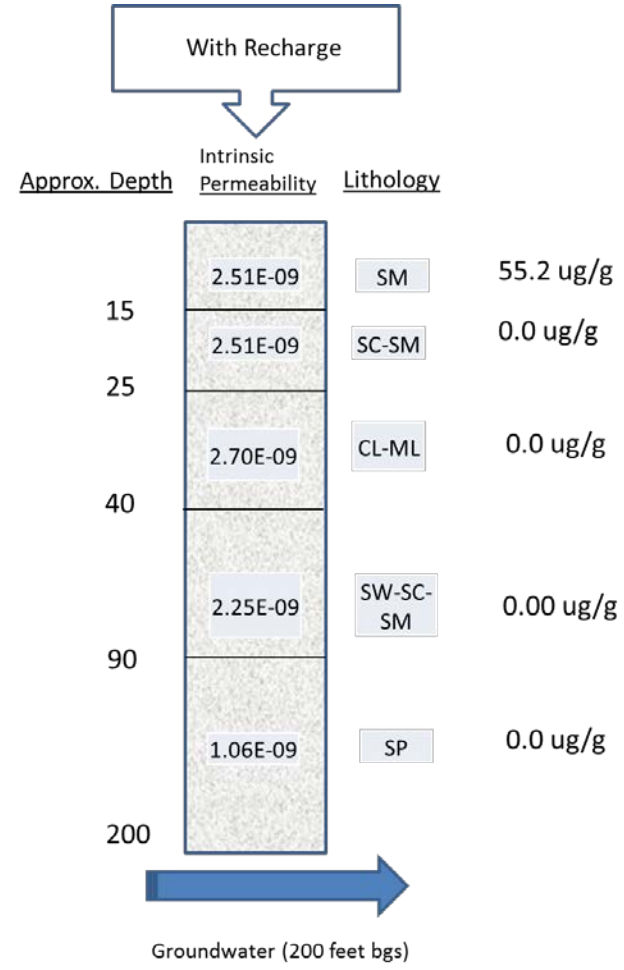


Figure B-13
Building 40-56, Former USTs (SWMU/AOC Nos. 086, 089, 094)
Conceptual Site Model



Note:
See Table B4 for input parameters

Figure B-14
Building 40-56, Former USTs (SWMU/AOC Nos. 086, 089, 094)
Model Results

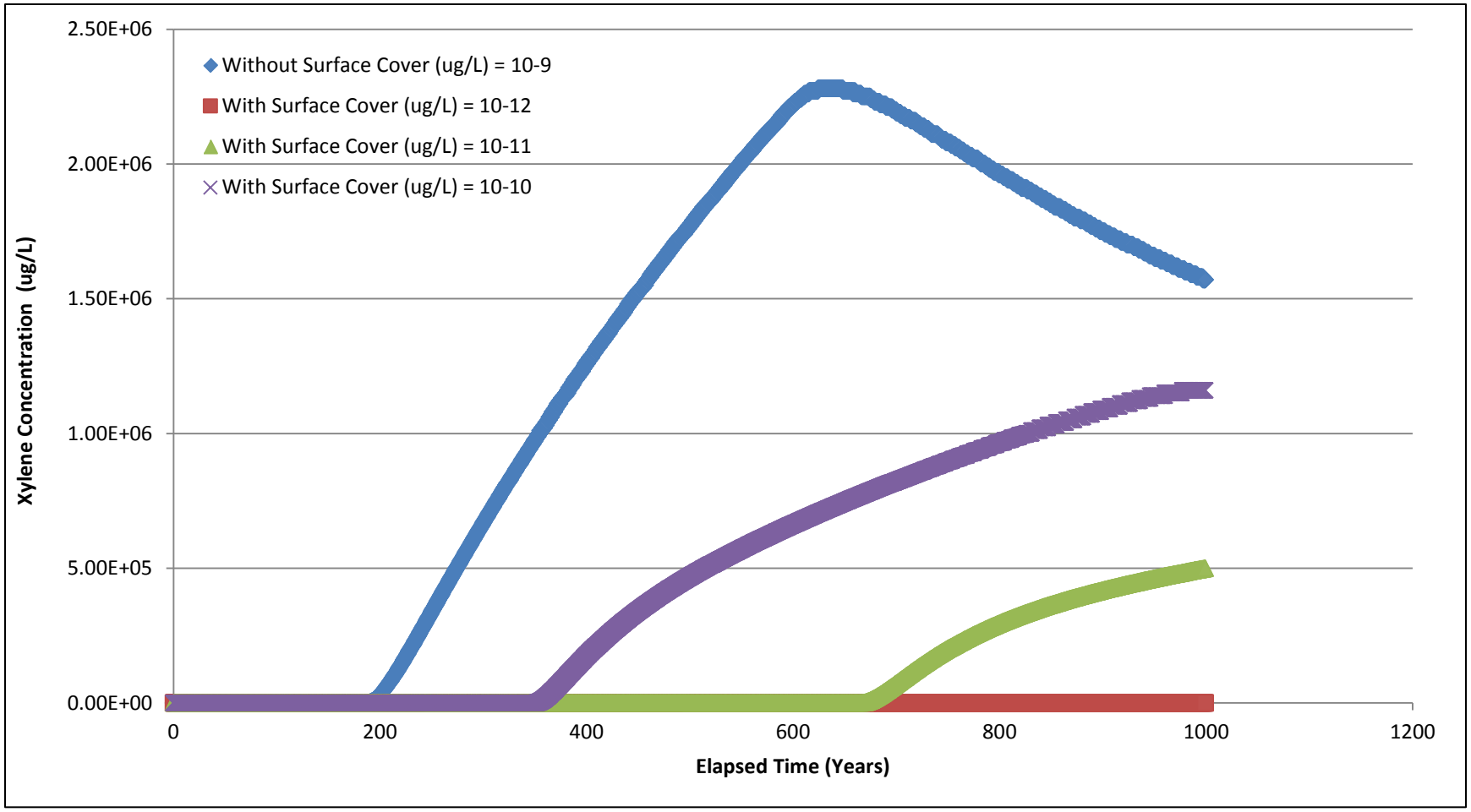


Figure B-15
Building 40-56, Former Recycling Unit and UST EV-153
(SWMU/AOC Nos. 067 and 071)
Sample Locations

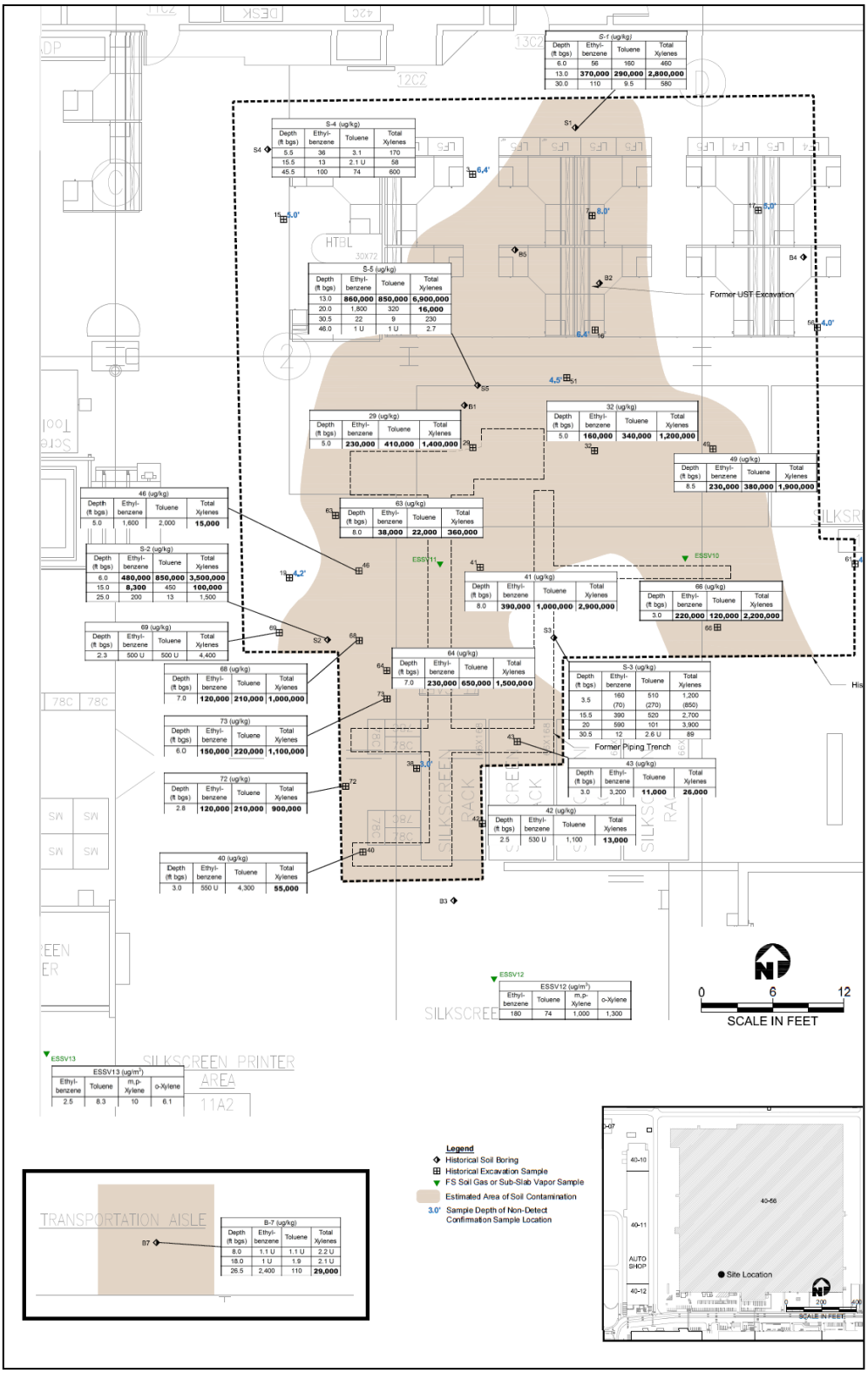
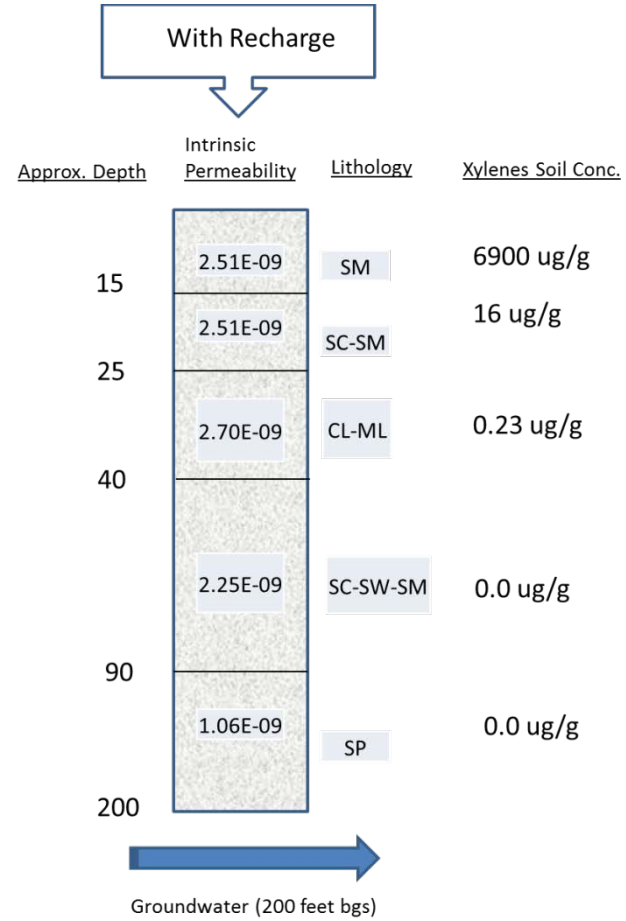


Figure B-16
Building 40-56, Former Recycling Unit and UST EV-153
(SWMU/AOC Nos. 067 and 071)
Conceptual Site Model



Note:
See Table B5 for input parameters

Figure B-17
Building 40-56, Former Recycling Unit and UST EV-153
(SWMU/AOC Nos. 067 and 071)
Model Results

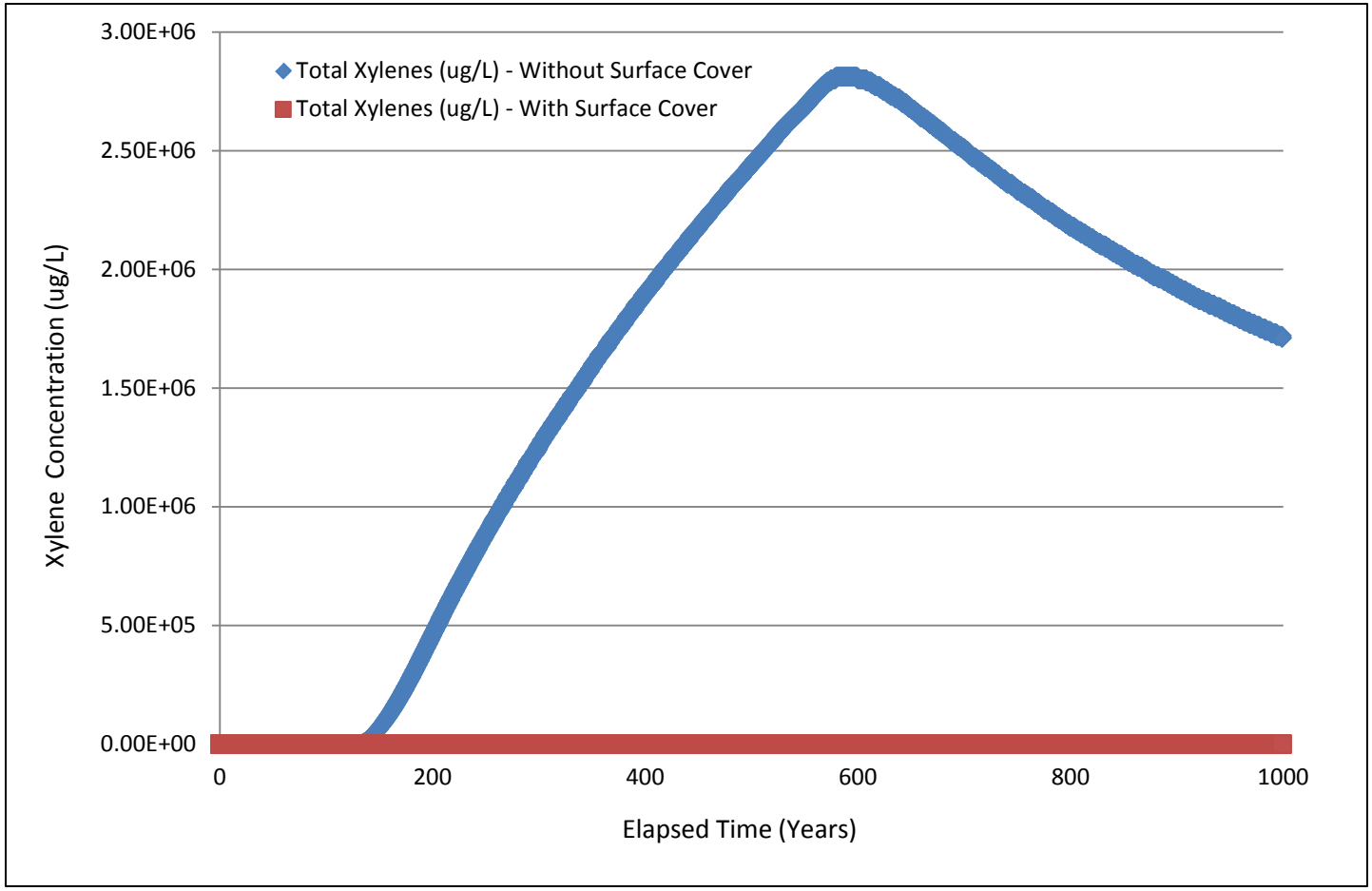
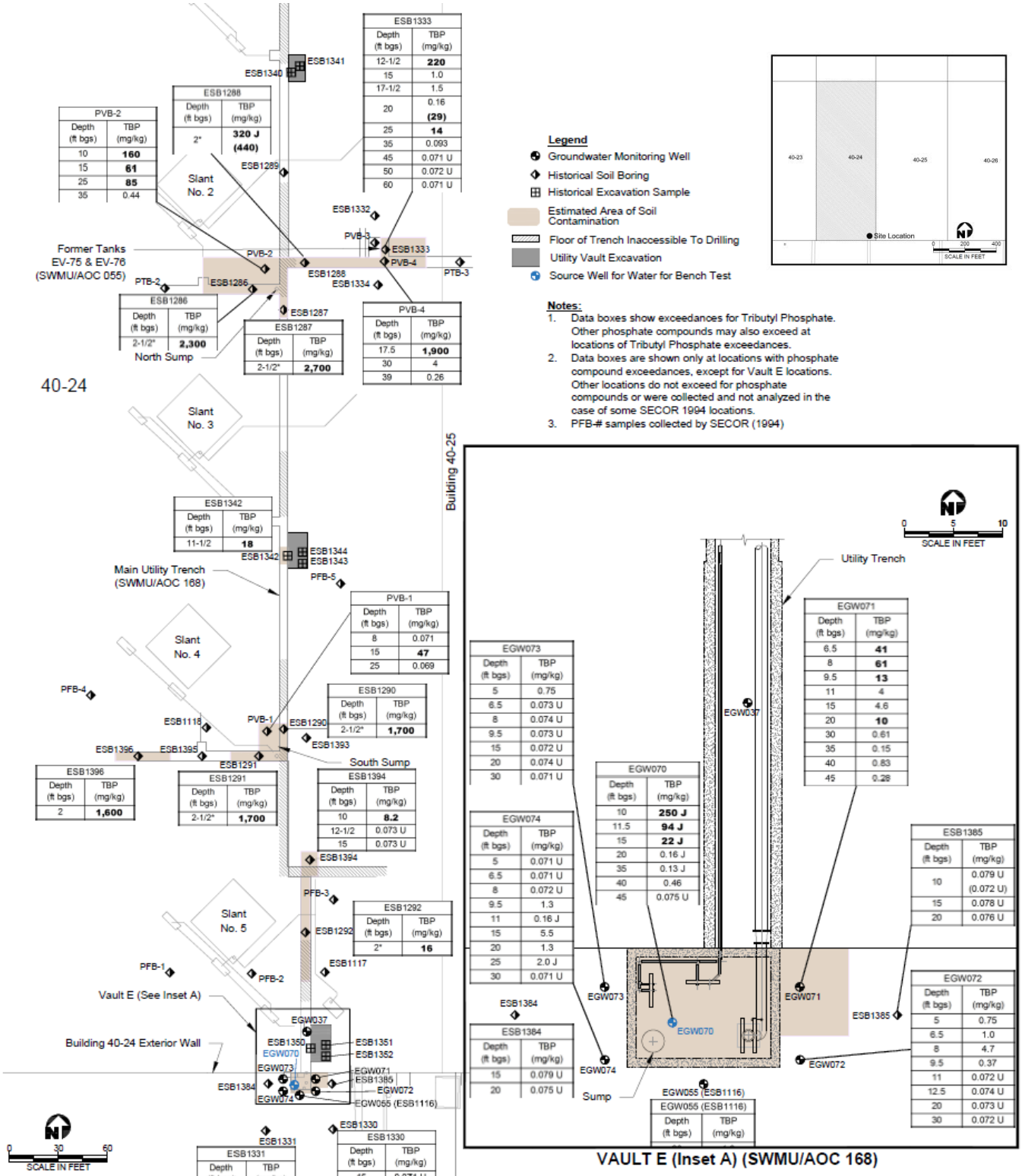


Figure B-18
Building 40-24 (SWMU/AOC Nos. 055 and 168)
Sample Locations



PVB-2	
Depth (ft bgs)	TBP (mg/kg)
10	**160**
15	**61**
25	**85**
35	0.44

ESB1288	
Depth (ft bgs)	TBP (mg/kg)
2*	**320 J (440)**

ESB1333	
Depth (ft bgs)	TBP (mg/kg)
12-1/2	**220**
15	1.0
17-1/2	1.5
20	0.16 **(29)**
25	**14**
35	0.093
45	0.071 U
50	0.072 U
60	0.071 U

ESB1286	
Depth (ft bgs)	TBP (mg/kg)
2-1/2*	**2,300**

ESB1287	
Depth (ft bgs)	TBP (mg/kg)
2-1/2*	**2,700**

PVB-4	
Depth (ft bgs)	TBP (mg/kg)
17.5	**1,900**
30	4
39	0.26

ESB1342	
Depth (ft bgs)	TBP (mg/kg)
11-1/2	**18**

PVB-1	
Depth (ft bgs)	TBP (mg/kg)
8	0.071
15	**47**
25	0.069

ESB1290	
Depth (ft bgs)	TBP (mg/kg)
2-1/2*	**1,700**

ESB1396	
Depth (ft bgs)	TBP (mg/kg)
2	**1,600**

ESB1291	
Depth (ft bgs)	TBP (mg/kg)
2-1/2*	**1,700**

ESB1394	
Depth (ft bgs)	TBP (mg/kg)
10	**8.2**
12-1/2	0.073 U
15	0.073 U

ESB1292	
Depth (ft bgs)	TBP (mg/kg)
2*	**16**

ESB1331	
Depth (ft bgs)	TBP (mg/kg)
15	0.072 U
17-1/2	0.073 U

ESB1330	
Depth (ft bgs)	TBP (mg/kg)
15	0.071 U
17-1/2	0.075 U
25	0.074 U

EGW073	
Depth (ft bgs)	TBP (mg/kg)
5	0.75
6.5	0.073 U
8	0.074 U
9.5	0.073 U
15	0.072 U
20	0.074 U
30	0.071 U

EGW074	
Depth (ft bgs)	TBP (mg/kg)
5	0.071 U
6.5	0.071 U
8	0.072 U
9.5	1.3
11	0.16 J
15	5.5
20	1.3
25	2.0 J
30	0.071 U

ESB1384	
Depth (ft bgs)	TBP (mg/kg)
15	0.079 U
20	0.075 U

EGW070	
Depth (ft bgs)	TBP (mg/kg)
10	**250 J**
11.5	**94 J**
15	**22 J**
20	0.16 J
35	0.13 J
40	0.46
45	0.075 U

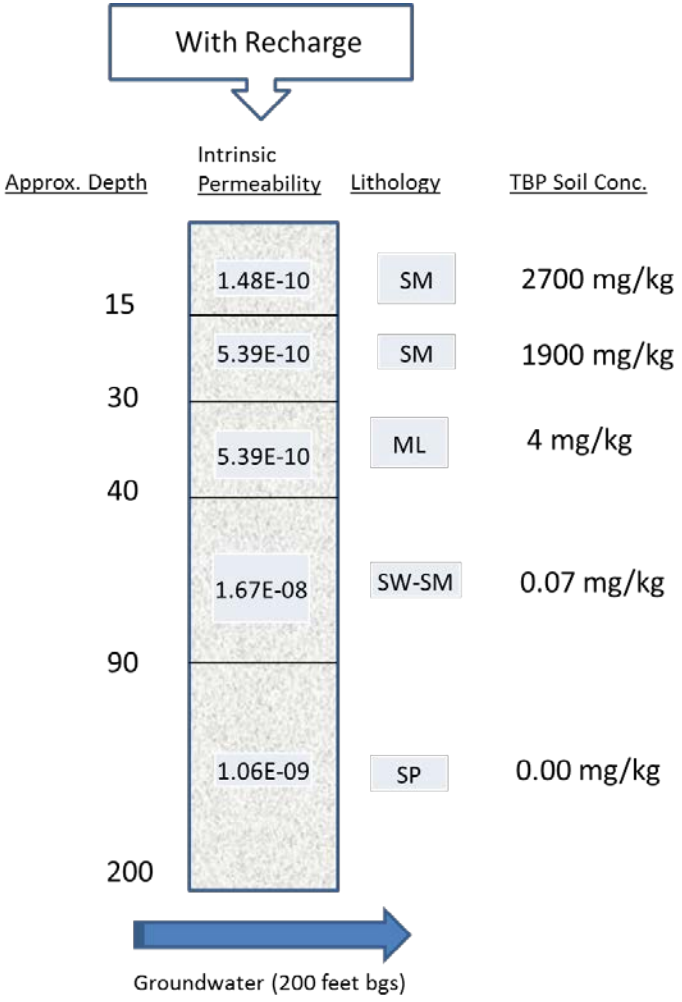
EGW071	
Depth (ft bgs)	TBP (mg/kg)
6.5	**41**
8	**61**
9.5	**13**
11	4
15	4.6
20	**10**
30	0.61
35	0.15
40	0.83
45	0.28

ESB1385	
Depth (ft bgs)	TBP (mg/kg)
10	0.079 U (0.072 U)
15	0.078 U
20	0.076 U

EGW072	
Depth (ft bgs)	TBP (mg/kg)
5	0.75
6.5	1.0
8	4.7
9.5	0.37
11	0.072 U
12.5	0.074 U
20	0.073 U
30	0.072 U

EGW055 (ESB1116)	
Depth (ft bgs)	TBP (mg/kg)

Figure B-19
Building 40-24 (SWMU/AOC Nos. 055 and 168)
Conceptual Site Model



Note:
See Table B6 for input parameters

Figure B-20
Building 40-24 (SWMU/AOC Nos. 055 and 168)
Model Results

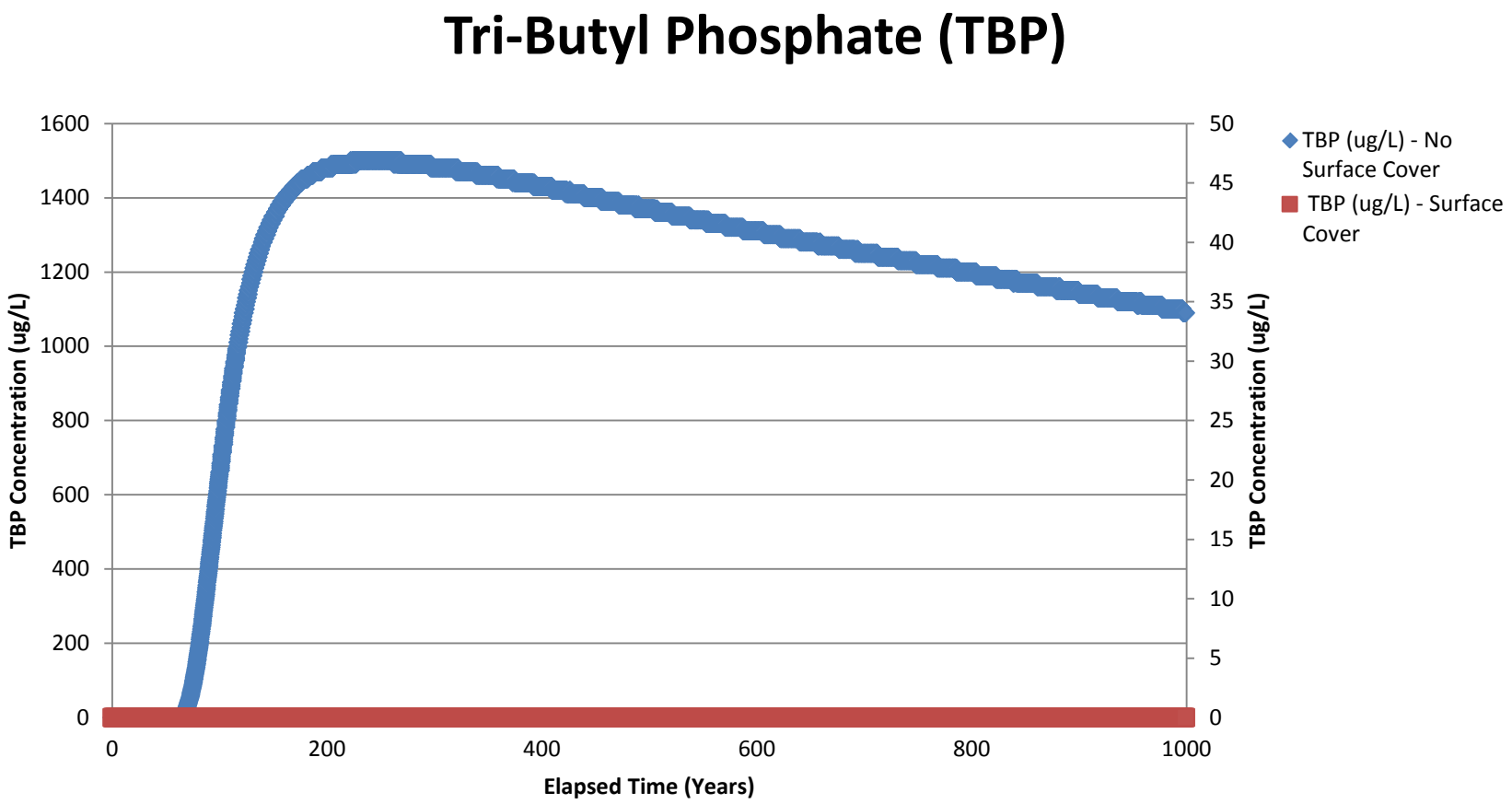


Figure B-21
Building 40-31, Former Bluestreak Vapor Degreaser (SWMU/AOC No. 171) Sample Locations

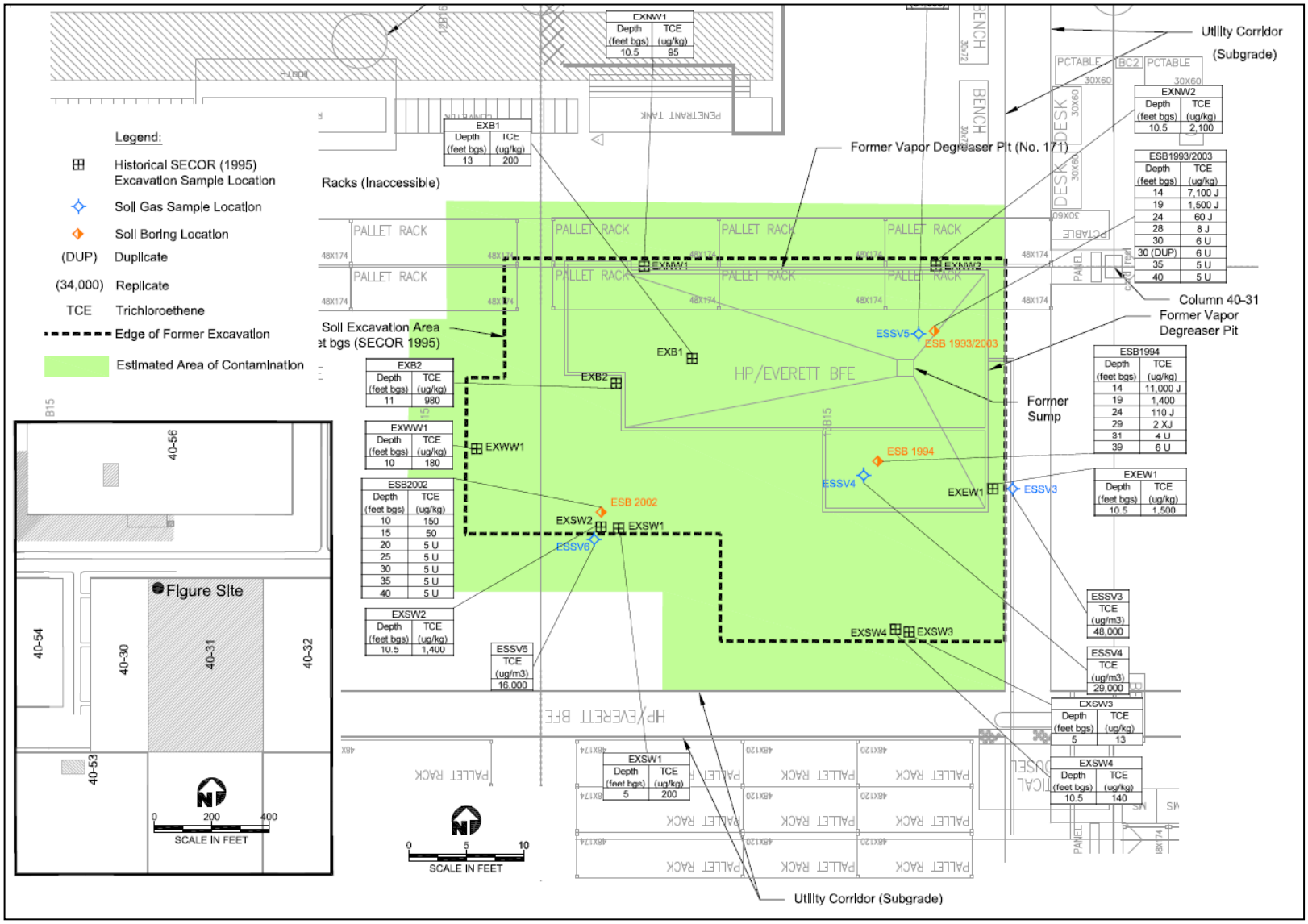
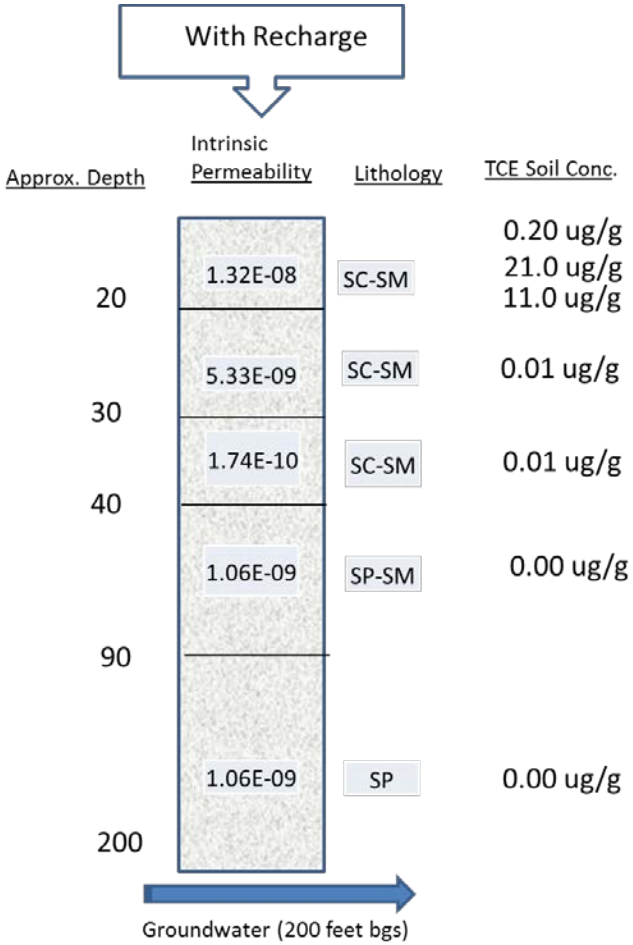


Figure B-22
Building 40-31, Former Bluestreak Vapor Degreaser (SWMU/AOC No. 171) Conceptual Site Model



Note:
See Table B7 for input parameters

Figure B-23a
Building 40-31, Former Bluestreak Vapor Degreaser
(SWMU/AOC No. 171)
Model Results

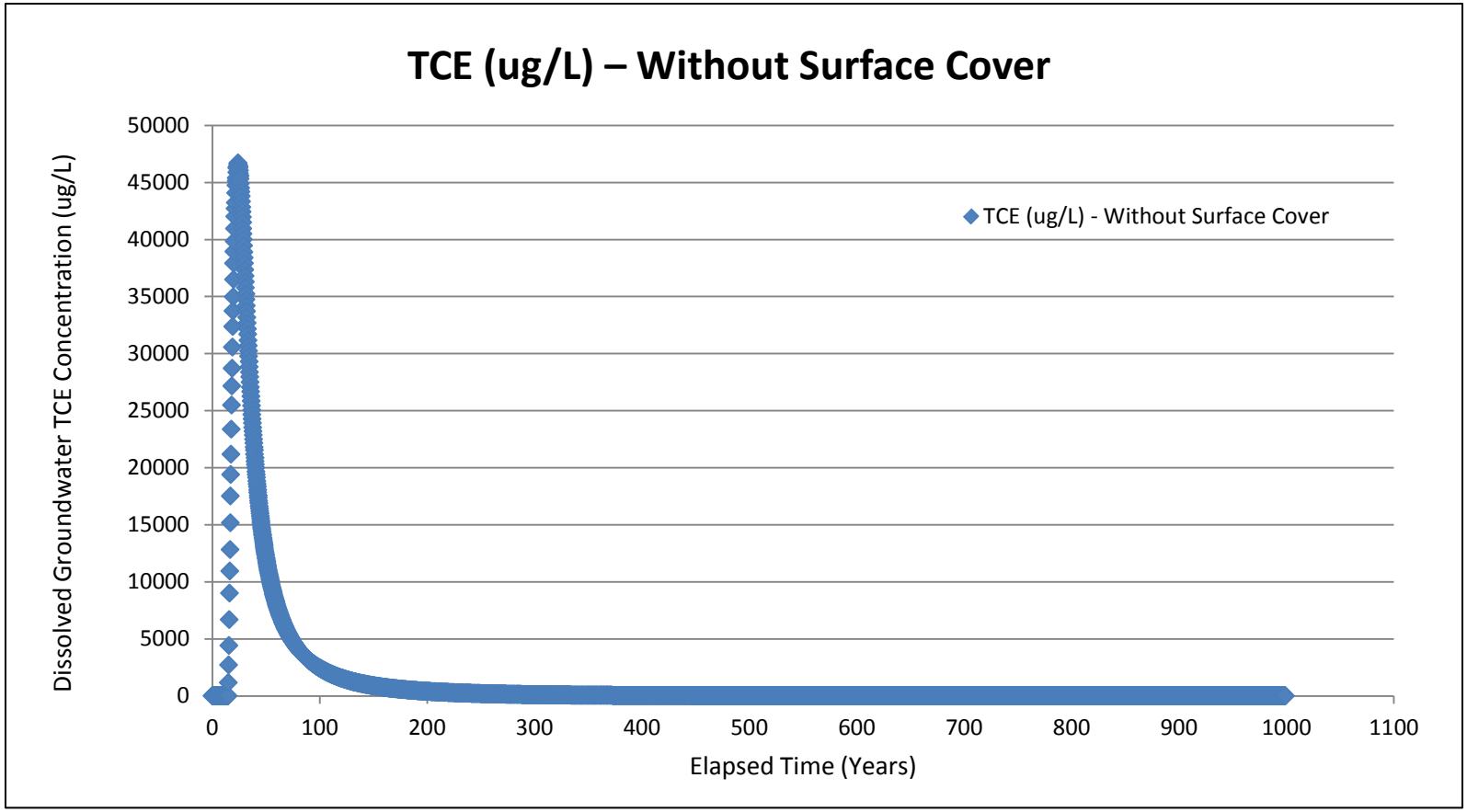


Figure B-23b
Building 40-31, Former Bluestreak Vapor Degreaser
(SWMU/AOC No. 171)
Model Results

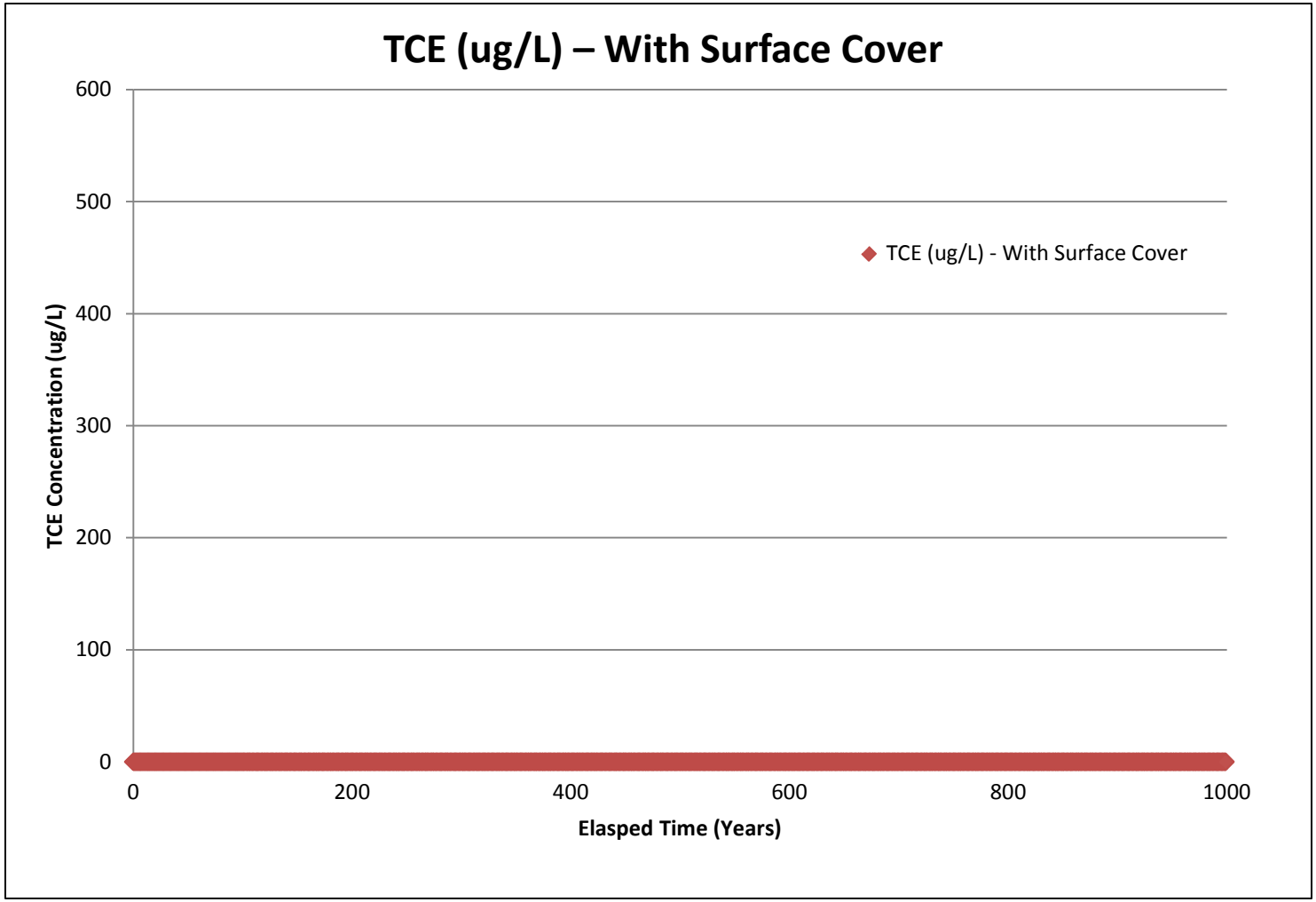


Figure B-24
Building 40-11, Former Vapor Degreaser (SWMU/AOC No. 097) Sample Locations

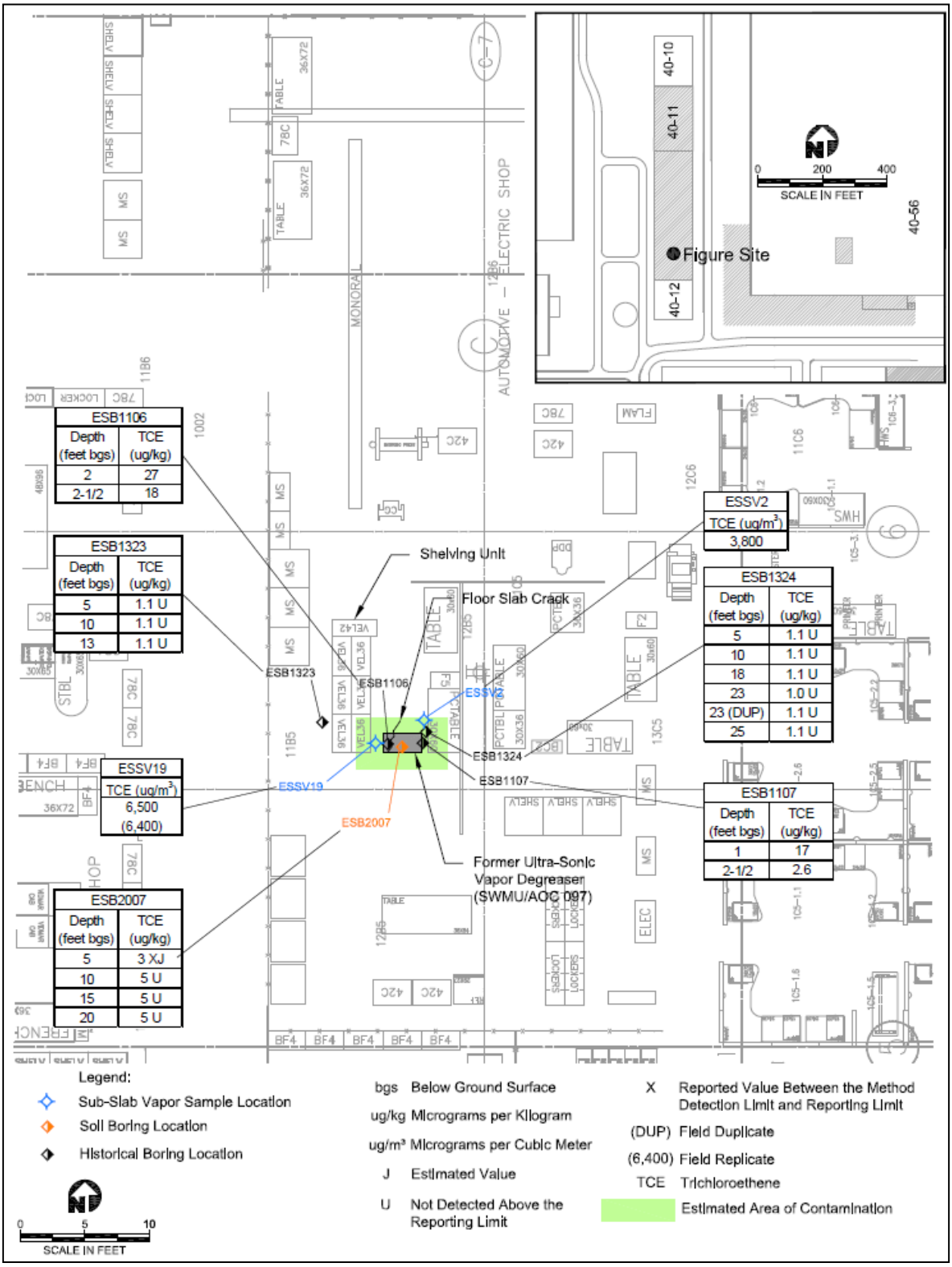


Figure B-25
Building 40-11, Former Vapor Degreaser (SWMU/AOC No. 097)
Conceptual Site Model

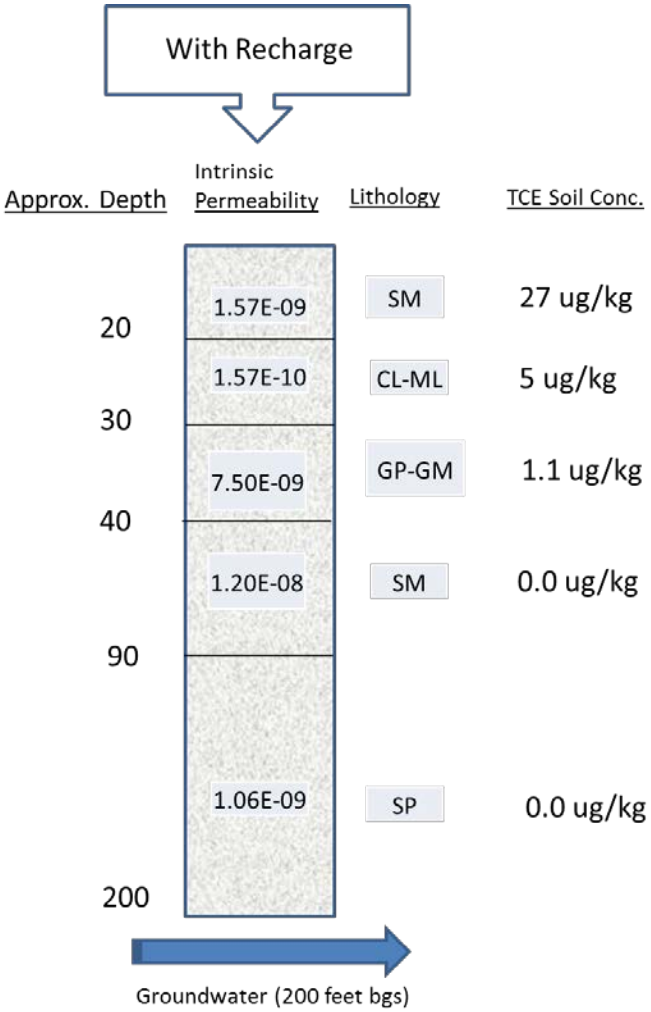
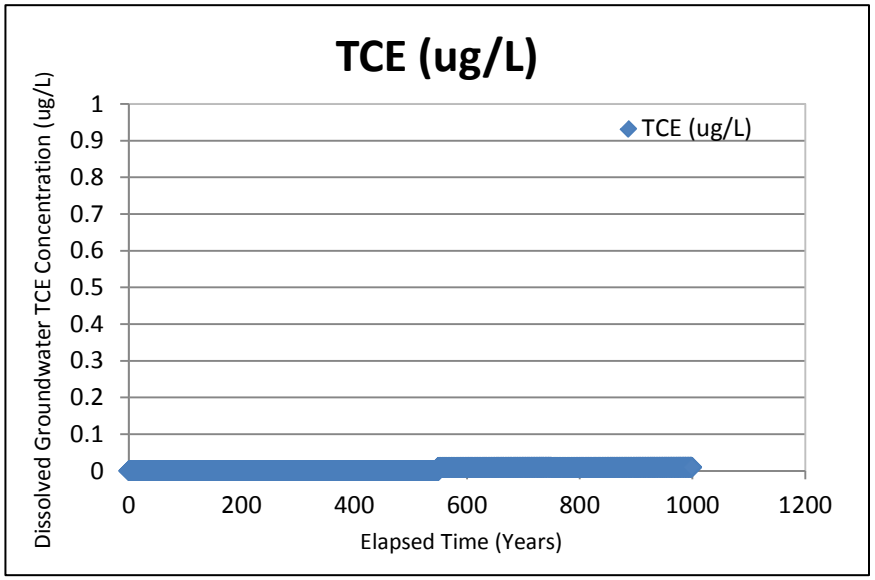


Figure B-26
Building 40-11, Former Vapor Degreaser (SWMU/AOC No. 097)
Model Results

Without Surface Cover



With Surface Cover

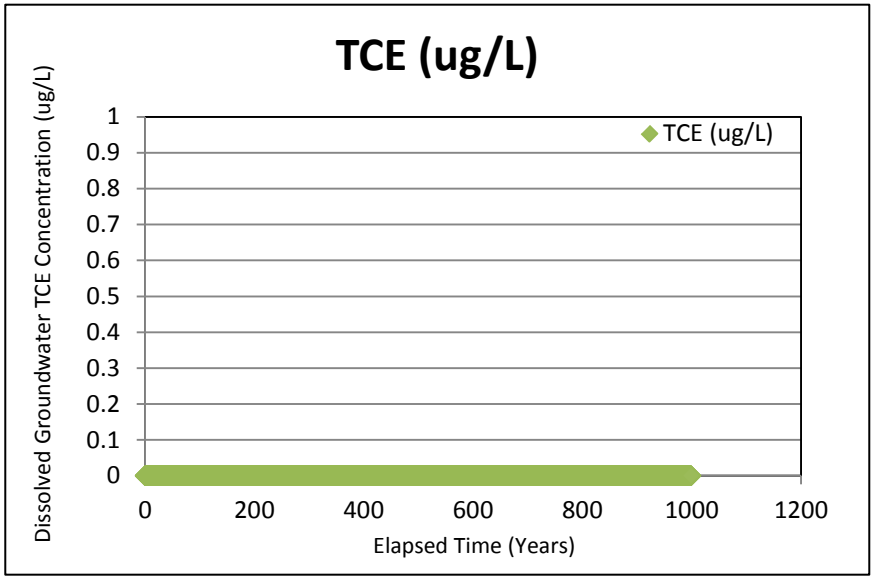
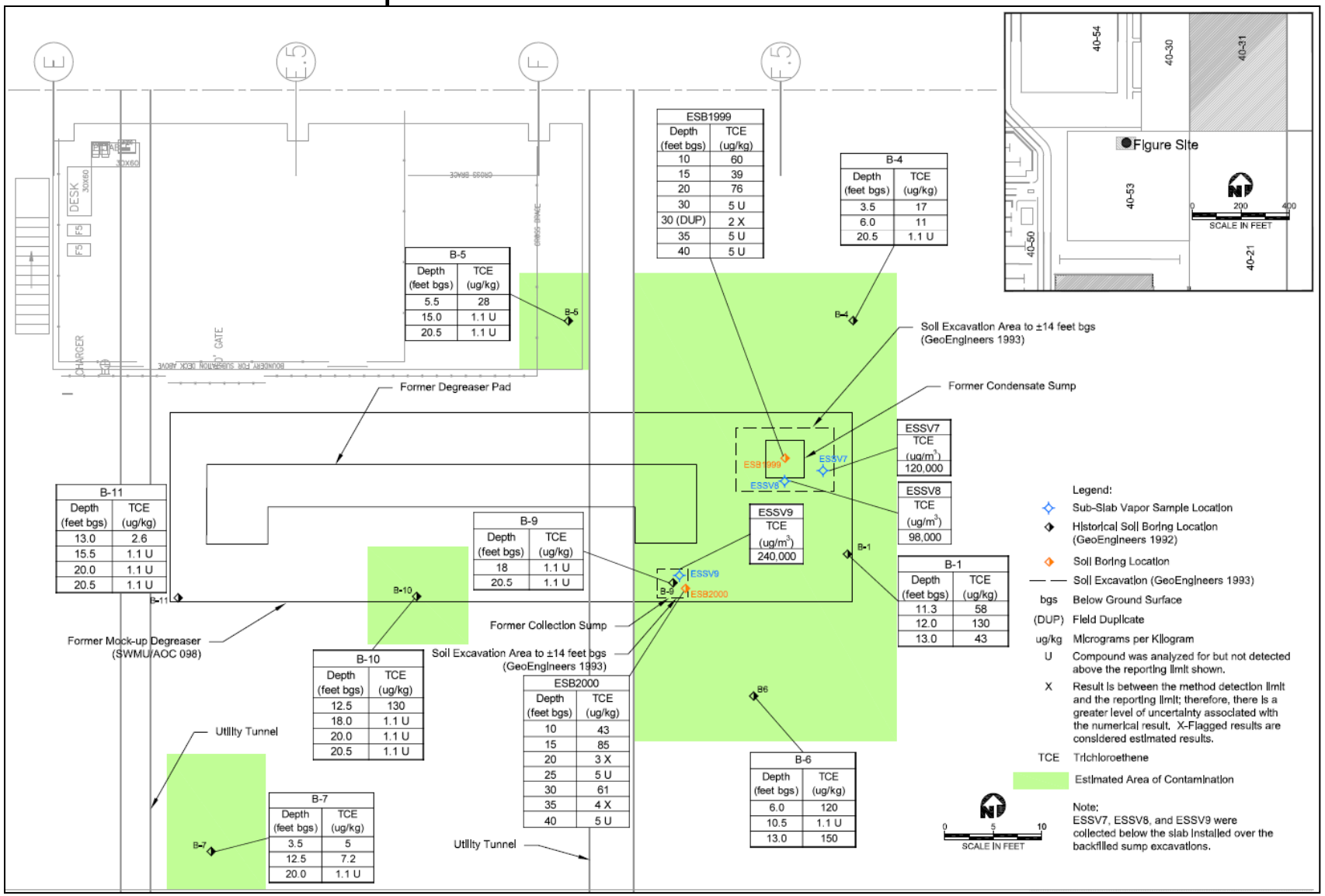


Figure B-27
Building 40-53, Former Mock-Up Degreaser (SWMU/AOC No. 098)
Sample Locations and Selected Results



ESB1999	
Depth (feet bgs)	TCE (ug/kg)
10	60
15	39
20	76
30	5 U
30 (DUP)	2 X
35	5 U
40	5 U

B-4	
Depth (feet bgs)	TCE (ug/kg)
3.5	17
6.0	11
20.5	1.1 U

B-5	
Depth (feet bgs)	TCE (ug/kg)
5.5	28
15.0	1.1 U
20.5	1.1 U

ESSV7
TCE (ug/m^3)
120,000

ESSV8
TCE (ug/m^3)
98,000

ESSV9
TCE (ug/m^3)
240,000

B-1	
Depth (feet bgs)	TCE (ug/kg)
11.3	58
12.0	130
13.0	43

B-11	
Depth (feet bgs)	TCE (ug/kg)
13.0	2.6
15.5	1.1 U
20.0	1.1 U
20.5	1.1 U

B-9	
Depth (feet bgs)	TCE (ug/kg)
18	1.1 U
20.5	1.1 U

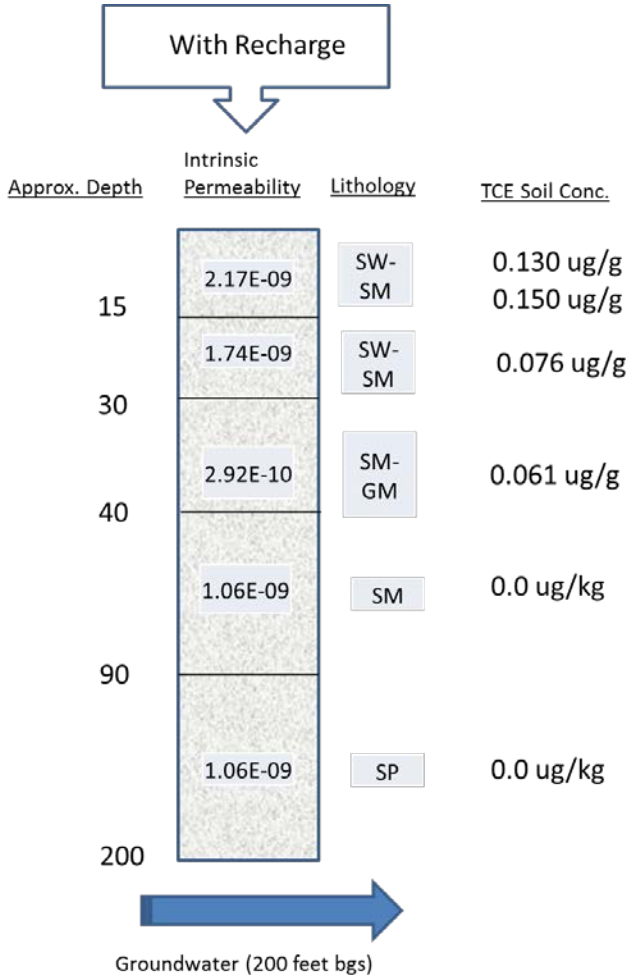
B-10	
Depth (feet bgs)	TCE (ug/kg)
12.5	130
18.0	1.1 U
20.0	1.1 U
20.5	1.1 U

ESB2000	
Depth (feet bgs)	TCE (ug/kg)
10	43
15	85
20	3 X
25	5 U
30	61
35	4 X
40	5 U

B-6	
Depth (feet bgs)	TCE (ug/kg)
6.0	120
10.5	1.1 U
13.0	150

B-7	
Depth (feet bgs)	TCE (ug/kg)
3.5	5
12.5	7.2
20.0	1.1 U

Figure B-28
Building 40-53, Former Mock-Up Degreaser (SWMU/AOC No. 098)
Conceptual Site Model



Note:
See Table B9 for input parameters

Figure B-29a
Building 40-53, Former Mock-Up Degreaser (SWMU/AOC No. 098)
Model Results – Subarea 1

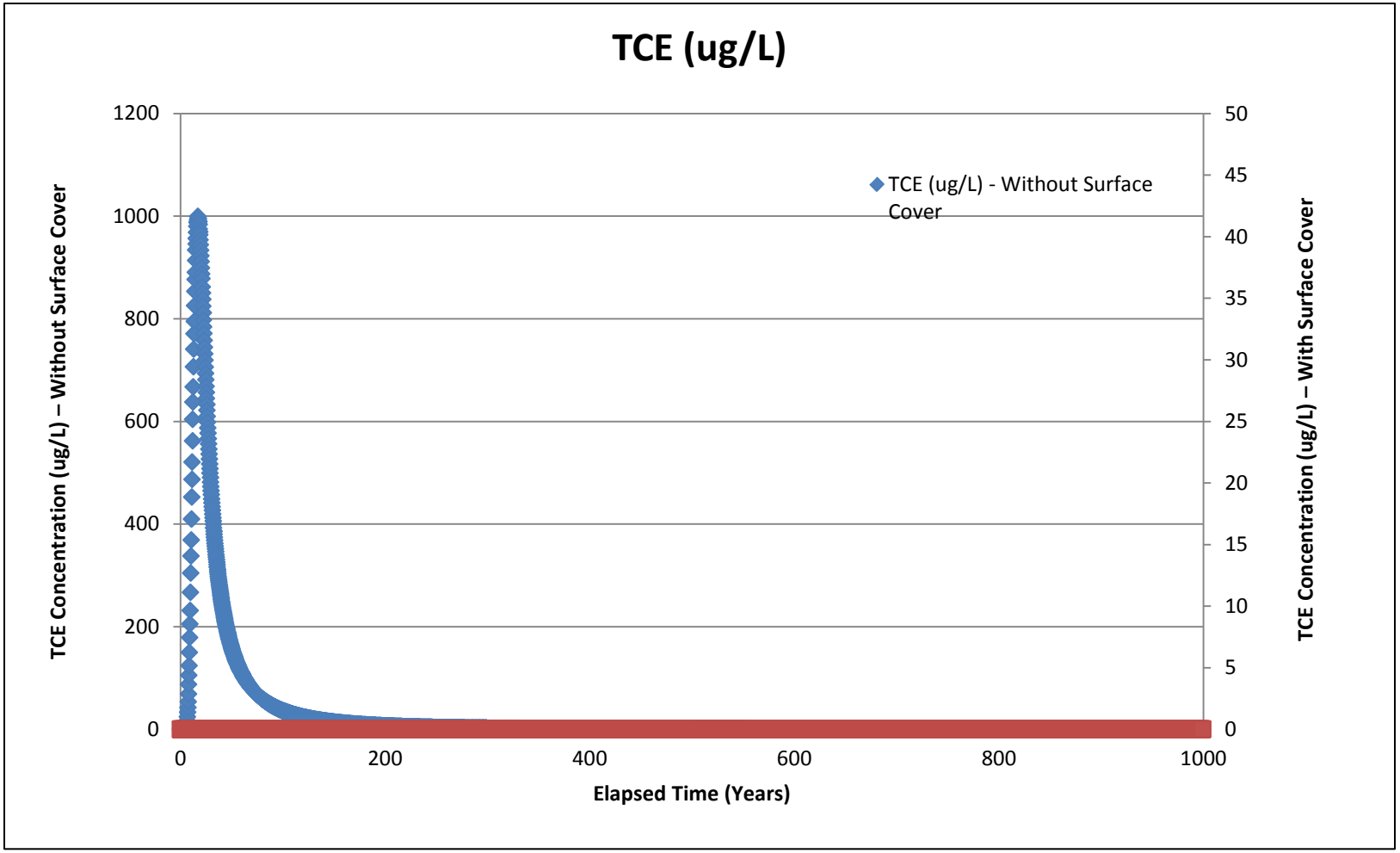


Figure B-29b
Building 40-53, Former Mock-Up Degreaser (SWMU/AOC No. 098)
Model Results – Subarea 2

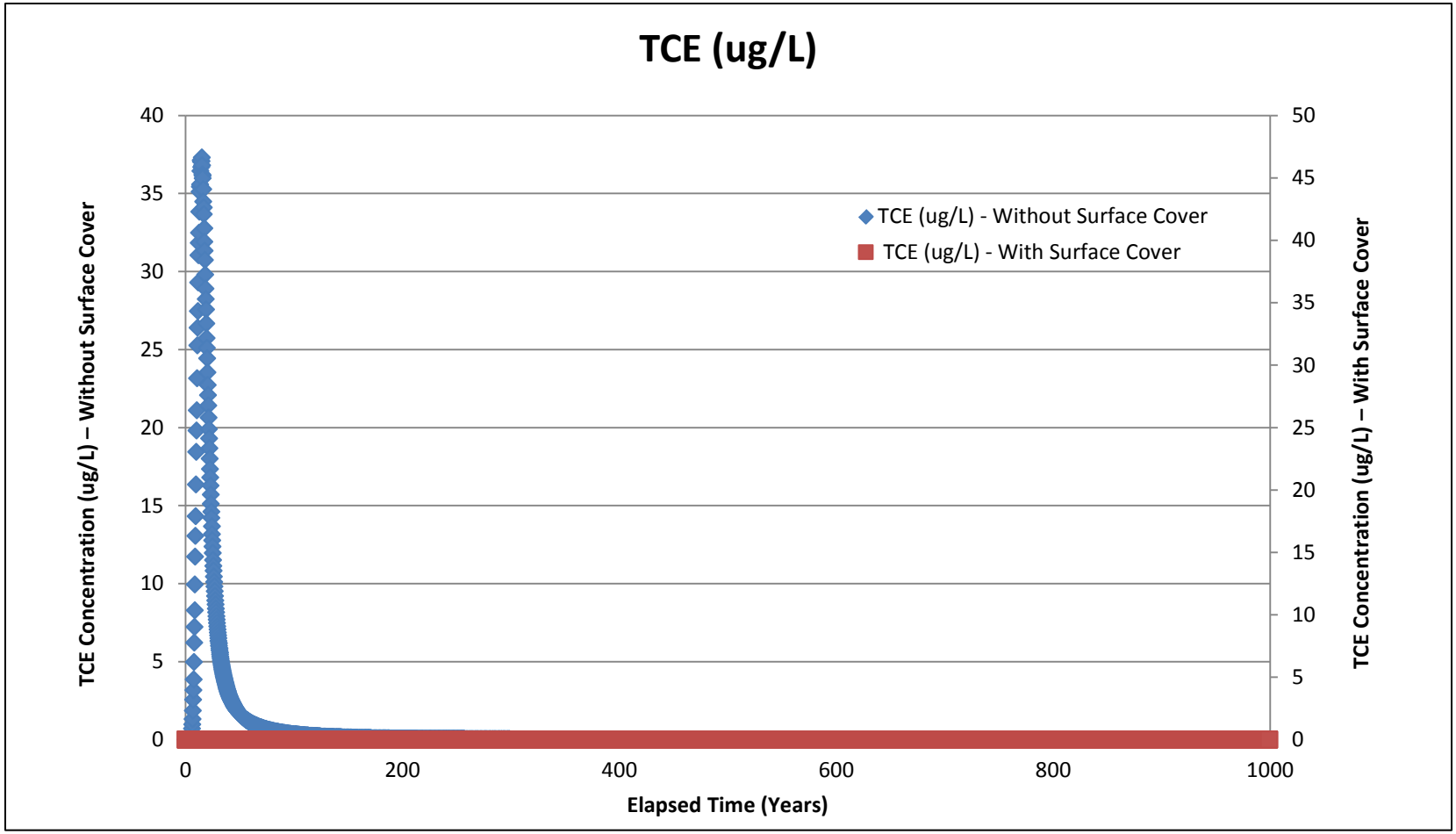


Figure B-29c
Building 40-53, Former Mock-Up Degreaser (SWMU/AOC No. 098)
Model Results – Subarea 3

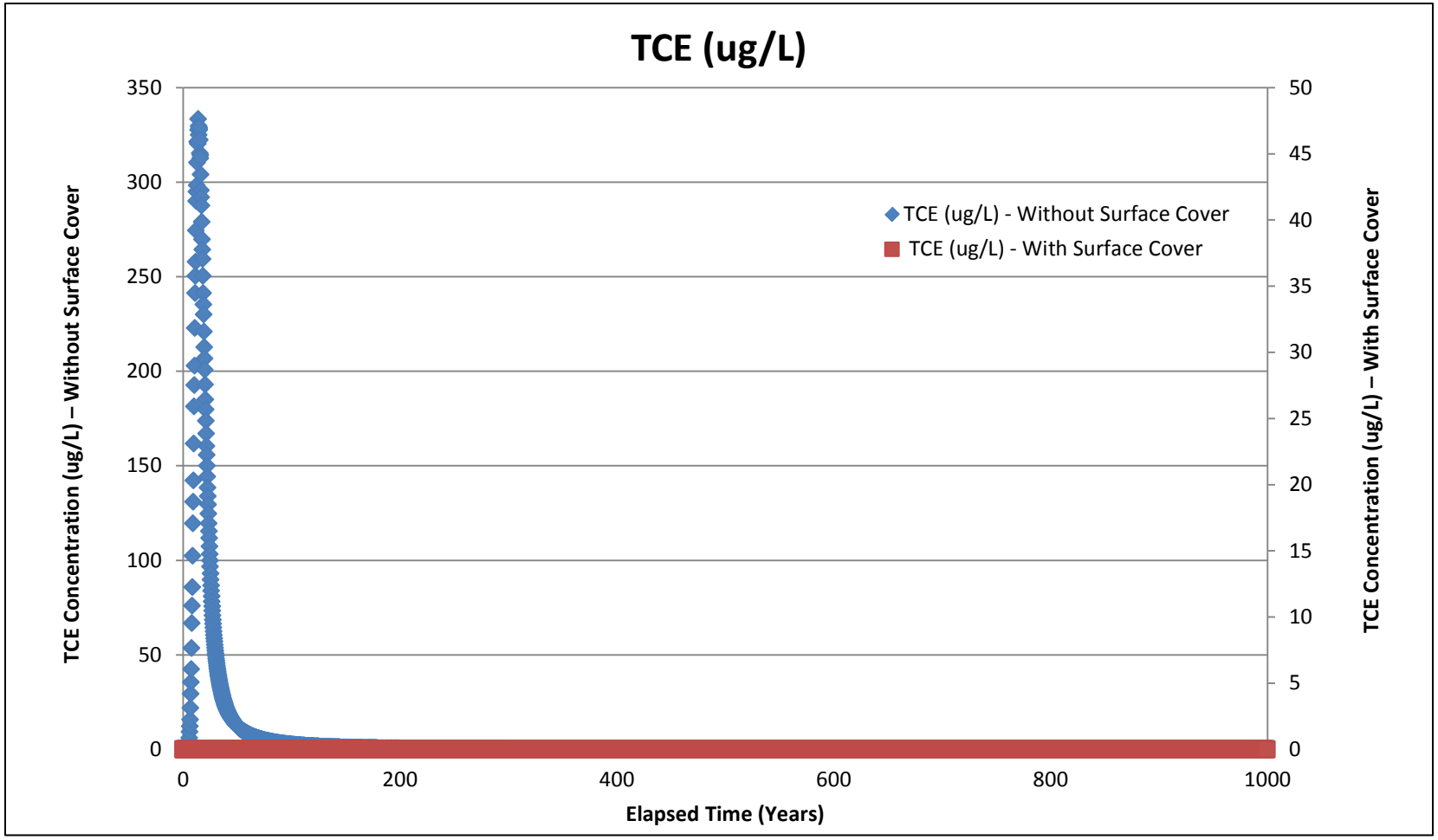


Figure B-29d
Building 40-53, Former Mock-Up Degreaser (SWMU/AOC No. 098)
Model Results – Subarea 4

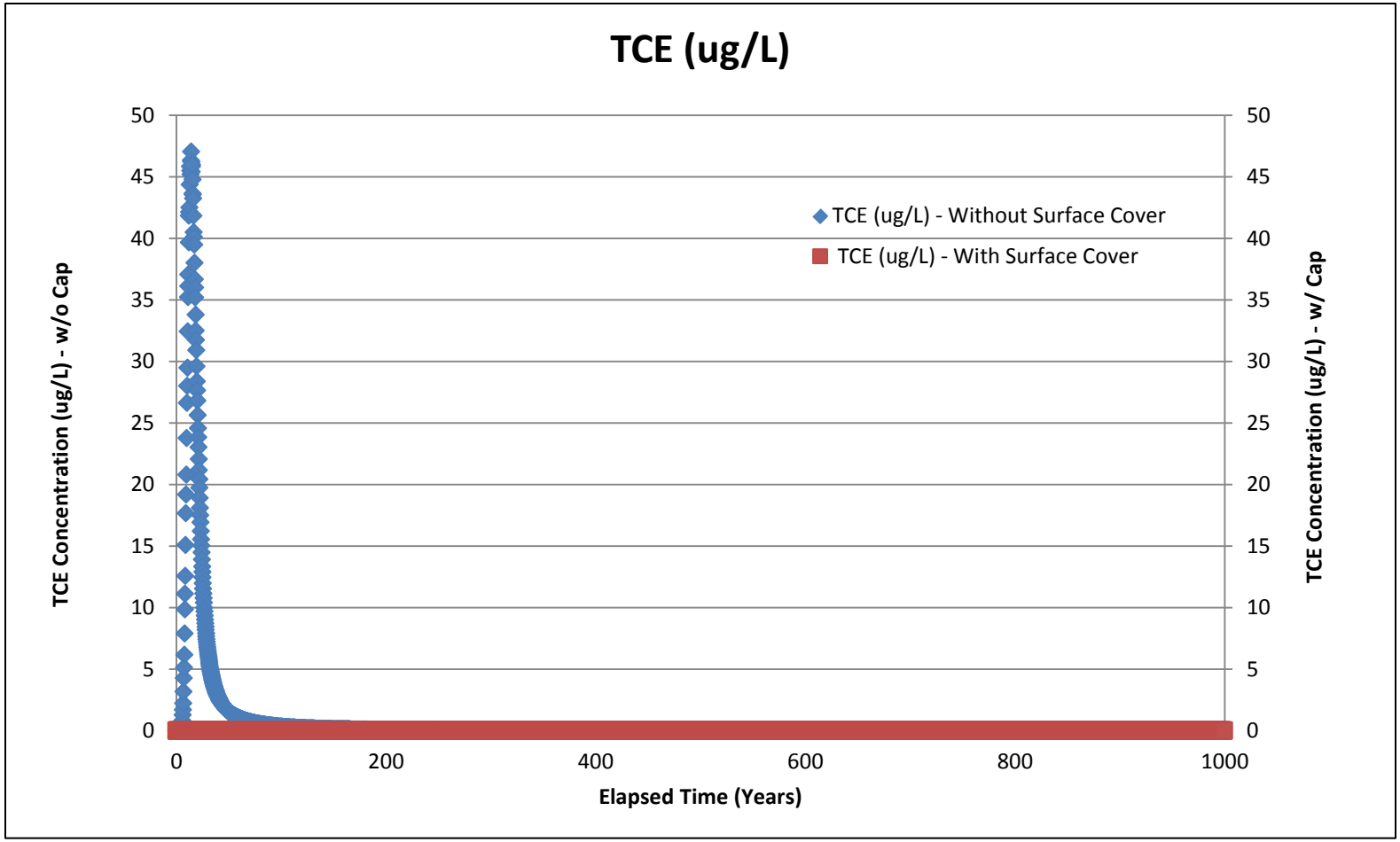


Figure B-30
Building 40-02, Former Large Degreaser (SWMU/AOC No. 170) Sample Locations

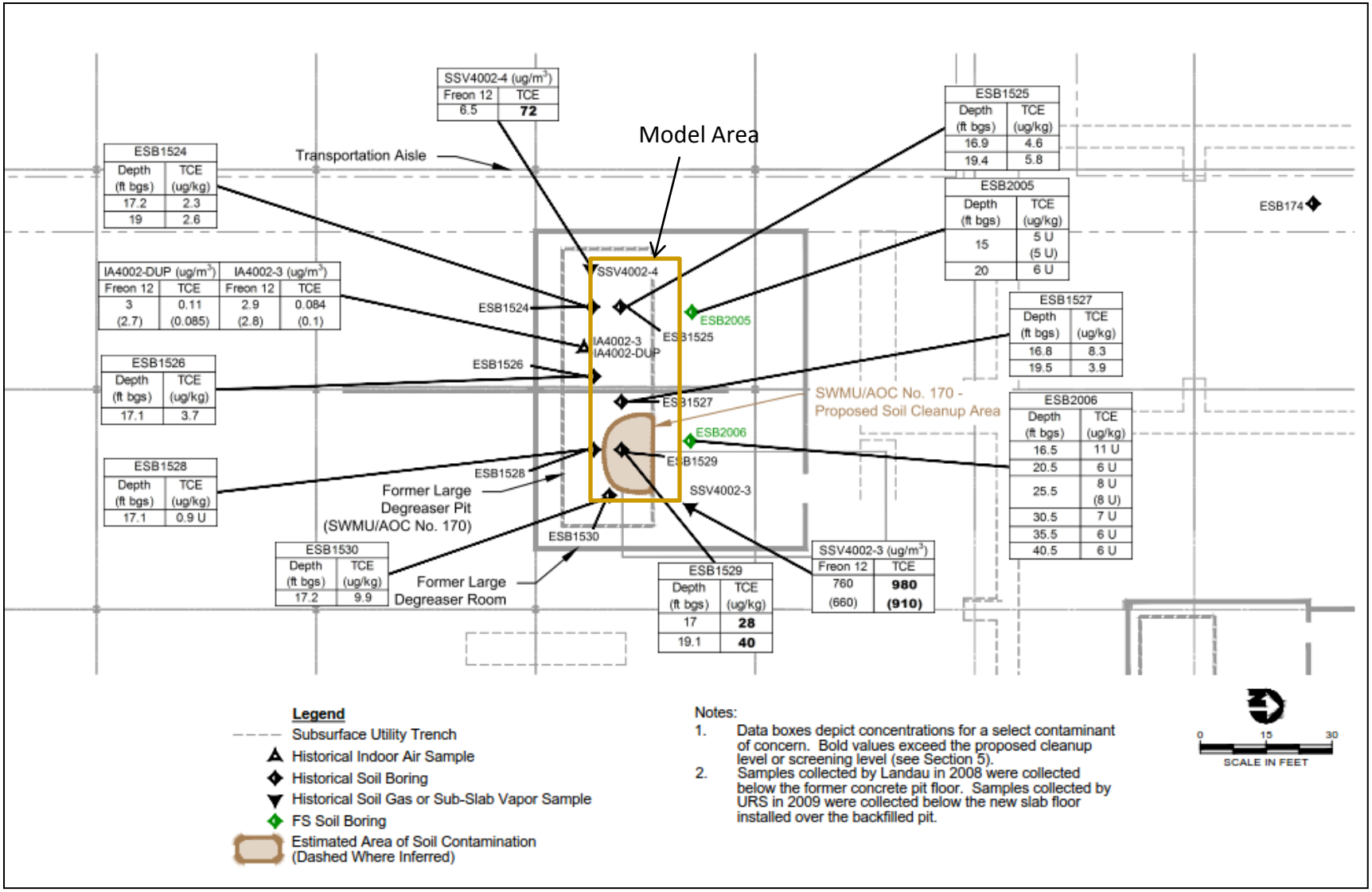
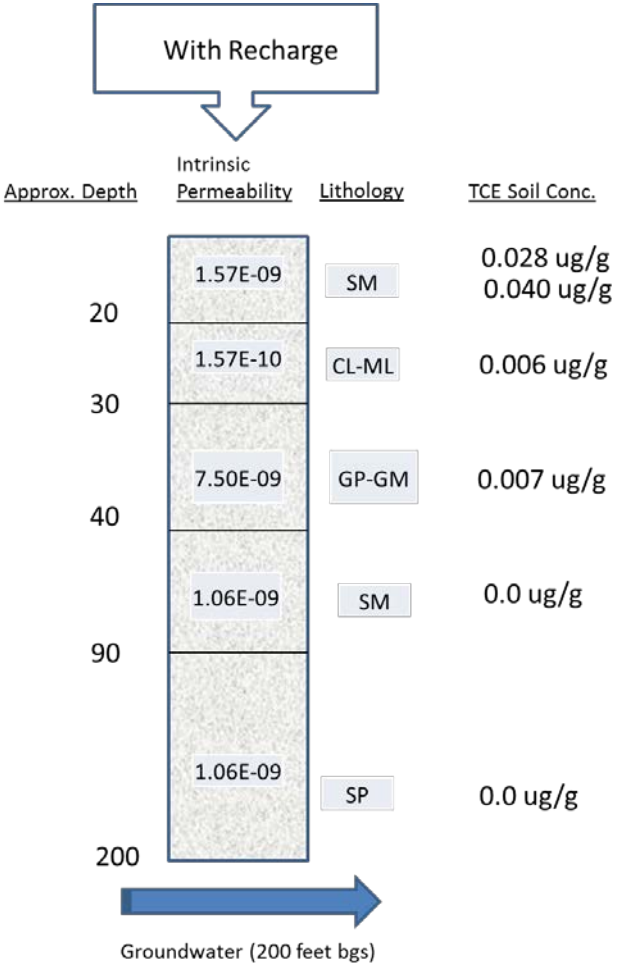


Figure B-31
Building 40-02, Former Large Degreaser (SWMU/AOC No. 170)
Conceptual Site Model



Note:
See Table B10 for input parameters

Figure B-32
Building 40-02, Former Large Degreaser (SWMU/AOC No. 170)
Conceptual Site Model

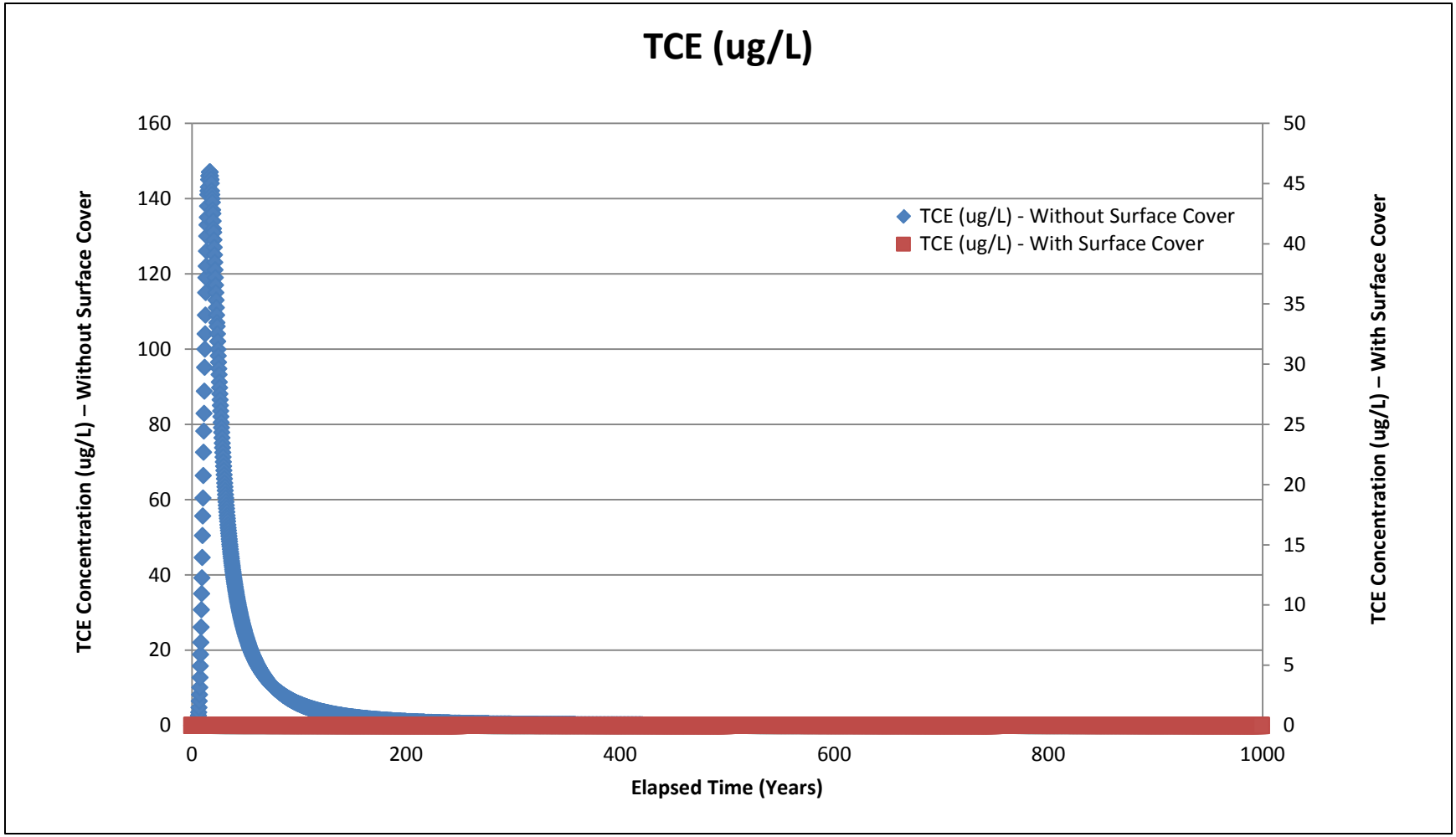
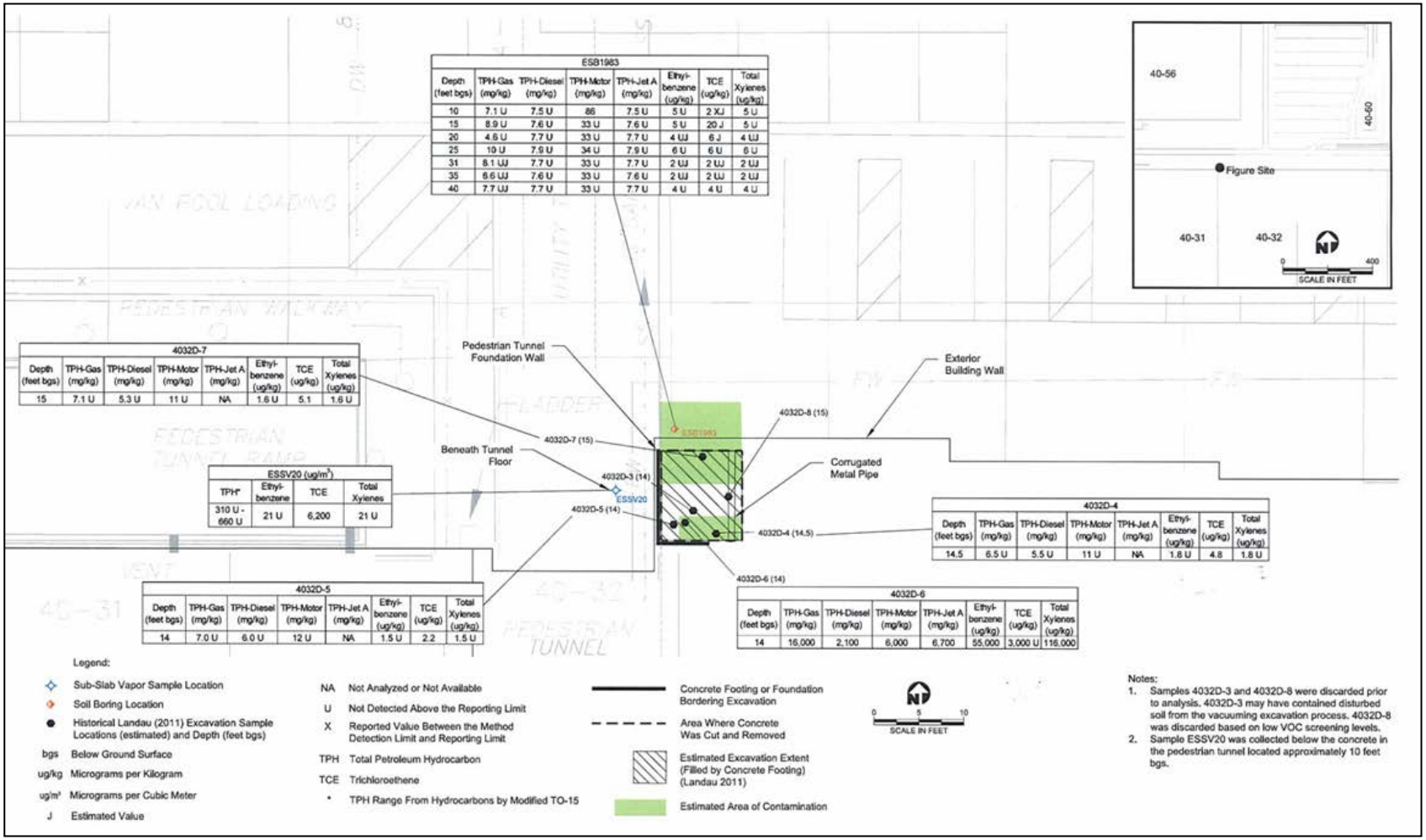


Figure B-33
Building 40-32, Footing Excavation
Sample Locations



ESB1983

Depth (feet bgs)	TPH-Gas (mg/kg)	TPH-Diesel (mg/kg)	TPH-Motor (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
10	7.1 U	7.5 U	86	7.5 U	5 U	2 XJ	5 U
15	8.9 U	7.6 U	33 U	7.6 U	5 U	20 J	5 U
20	4.6 U	7.7 U	33 U	7.7 U	4 UJ	6 J	4 UJ
25	10 U	7.9 U	34 U	7.9 U	6 U	6 U	6 U
31	8.1 UJ	7.7 U	33 U	7.7 U	2 UJ	2 UJ	2 UJ
35	6.6 UJ	7.6 U	33 U	7.6 U	2 UJ	2 UJ	2 UJ
40	7.7 UJ	7.7 U	33 U	7.7 U	4 U	4 U	4 U

4032D-7

Depth (feet bgs)	TPH-Gas (mg/kg)	TPH-Diesel (mg/kg)	TPH-Motor (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
15	7.1 U	5.3 U	11 U	NA	1.6 U	5.1	1.6 U

ESSV20 (ug/m³)

TPH*	Ethyl-benzene	TCE	Total Xylenes
310 U - 660 U	21 U	6,200	21 U

4032D-4

Depth (feet bgs)	TPH-Gas (mg/kg)	TPH-Diesel (mg/kg)	TPH-Motor (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
14.5	6.5 U	5.5 U	11 U	NA	1.8 U	4.8	1.8 U

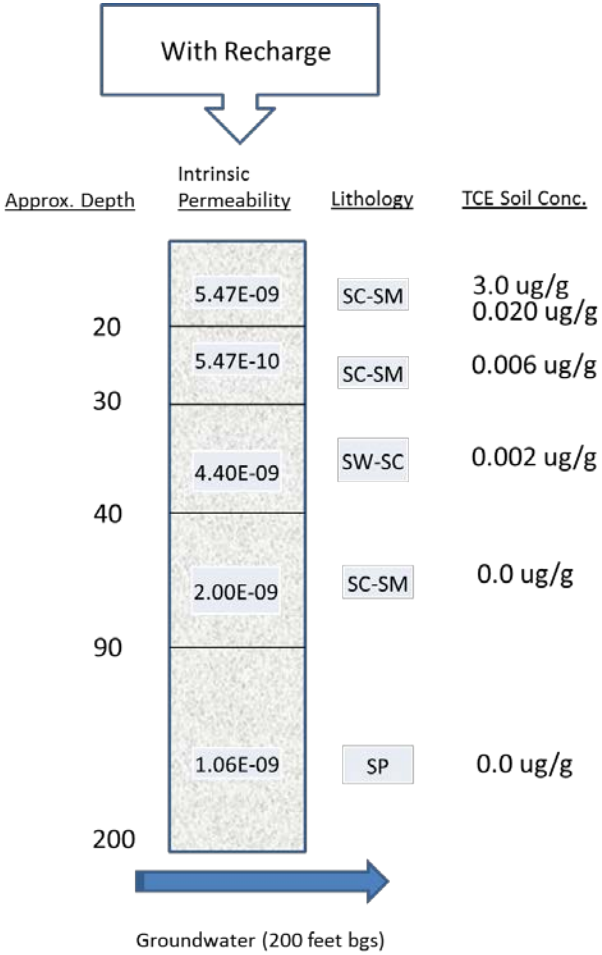
4032D-5

Depth (feet bgs)	TPH-Gas (mg/kg)	TPH-Diesel (mg/kg)	TPH-Motor (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
14	7.0 U	6.0 U	12 U	NA	1.5 U	2.2	1.5 U

4032D-6

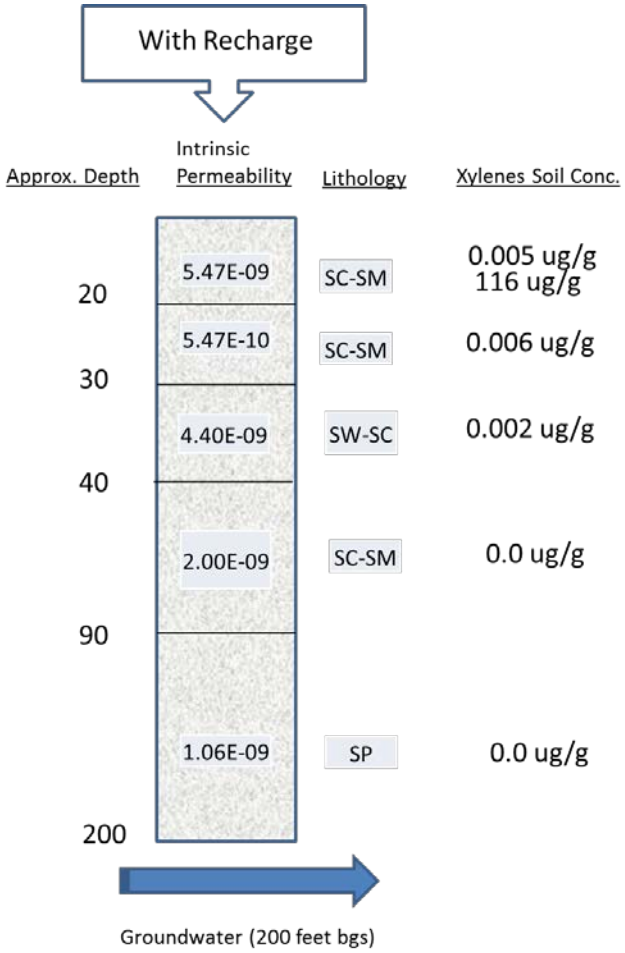
Depth (feet bgs)	TPH-Gas (mg/kg)	TPH-Diesel (mg/kg)	TPH-Motor (mg/kg)	TPH-Jet A (mg/kg)	Ethyl-benzene (ug/kg)	TCE (ug/kg)	Total Xylenes (ug/kg)
14	16,000	2,100	6,000	6,700	55,000	3,000 U	116,000

Figure B-34
Building 40-32, Footing Excavation
Conceptual Site Model (TCE)



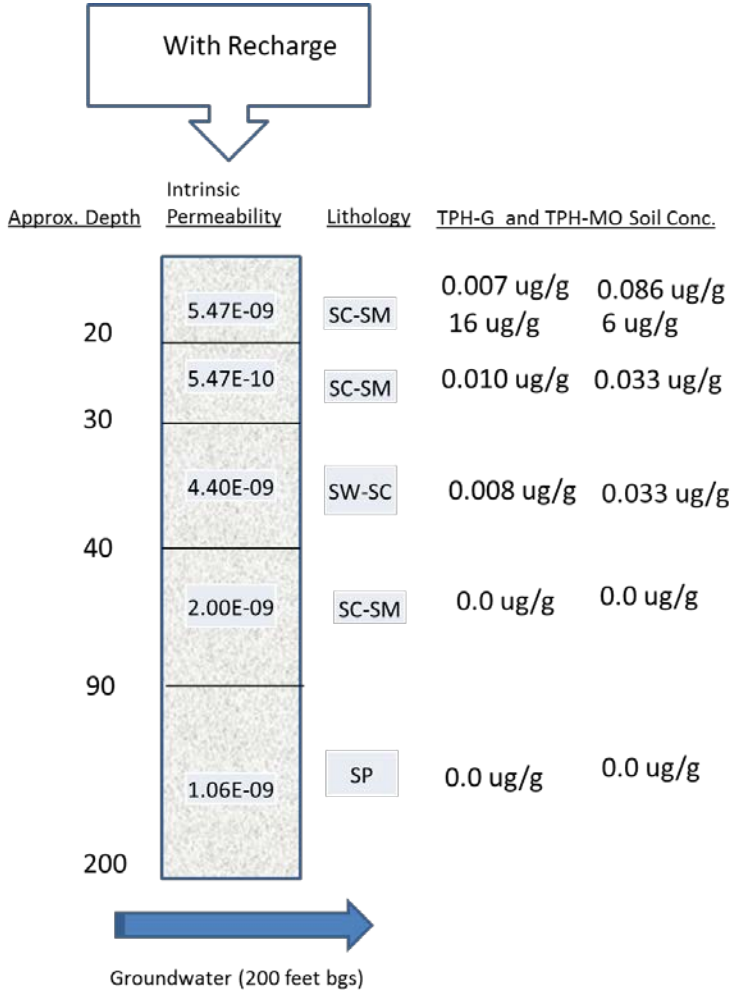
Note:
See Table B11 for input parameters

Figure B-35
Building 40-32, Footing Excavation
Conceptual Site Model (Xylenes)



Note:
See Table B11 for input parameters

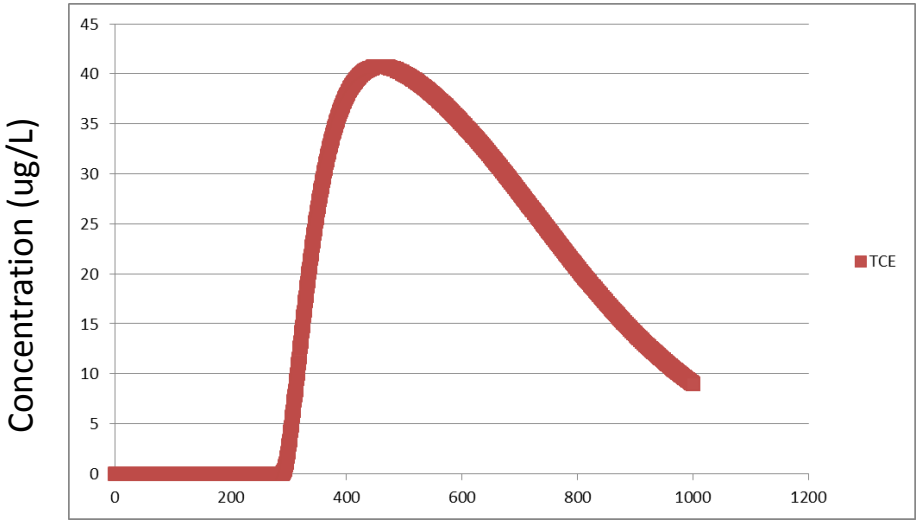
Figure B-36
Building 40-32, Footing Excavation
Conceptual Site Model (TPH-G and TPH-MO)



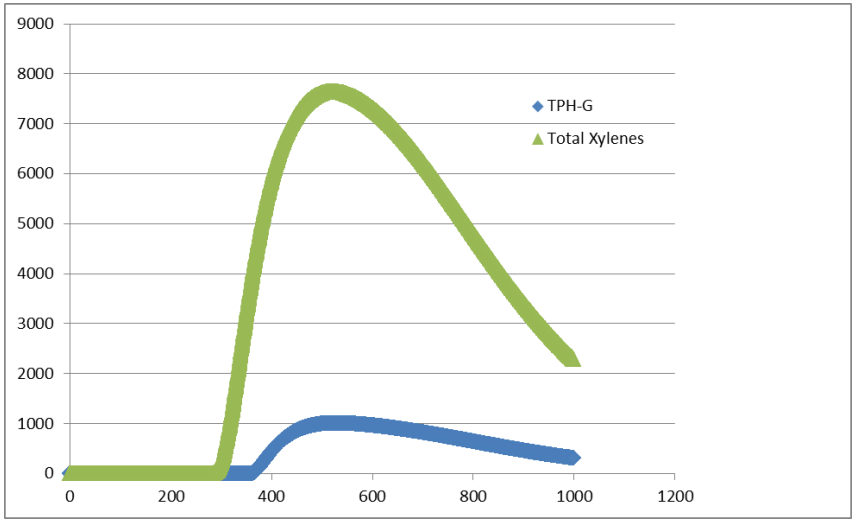
Note:
See Table B11 for input parameters

Figure B-37
Building 40-32, Footing Excavation
Model Results – Without Concrete Cap
(TCE, Xylenes and TPH-G)

B37a - TCE



B37b – TPH-G and Xylenes



Elapsed Time (Years)

Figure B-38
Building 40-32, Footing Excavation
Model Results – Without Concrete Cap (TPH-MO)

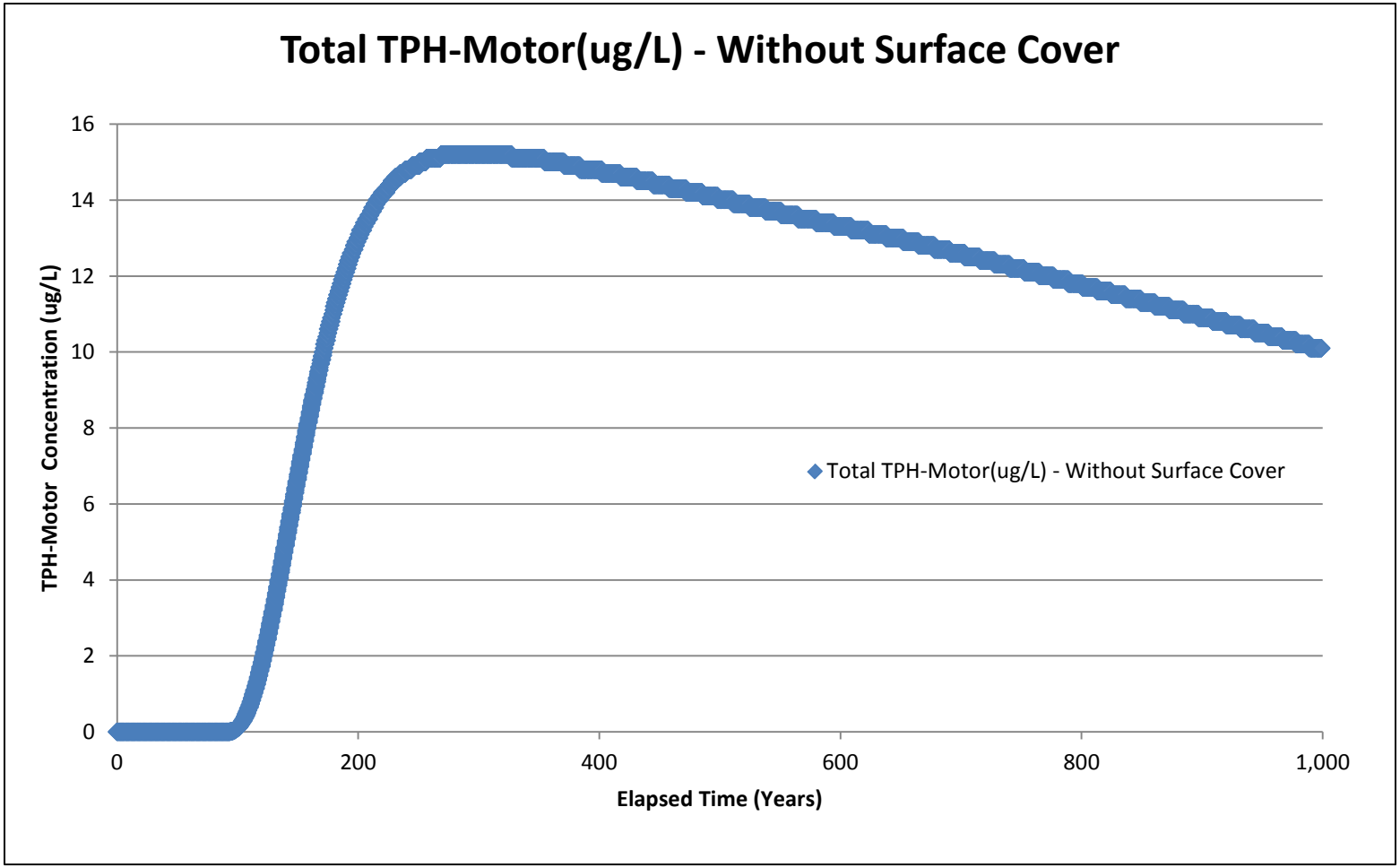


Figure B-39
Former South Fire Pit (SWMU/AOC No. 068)
Sample Locations

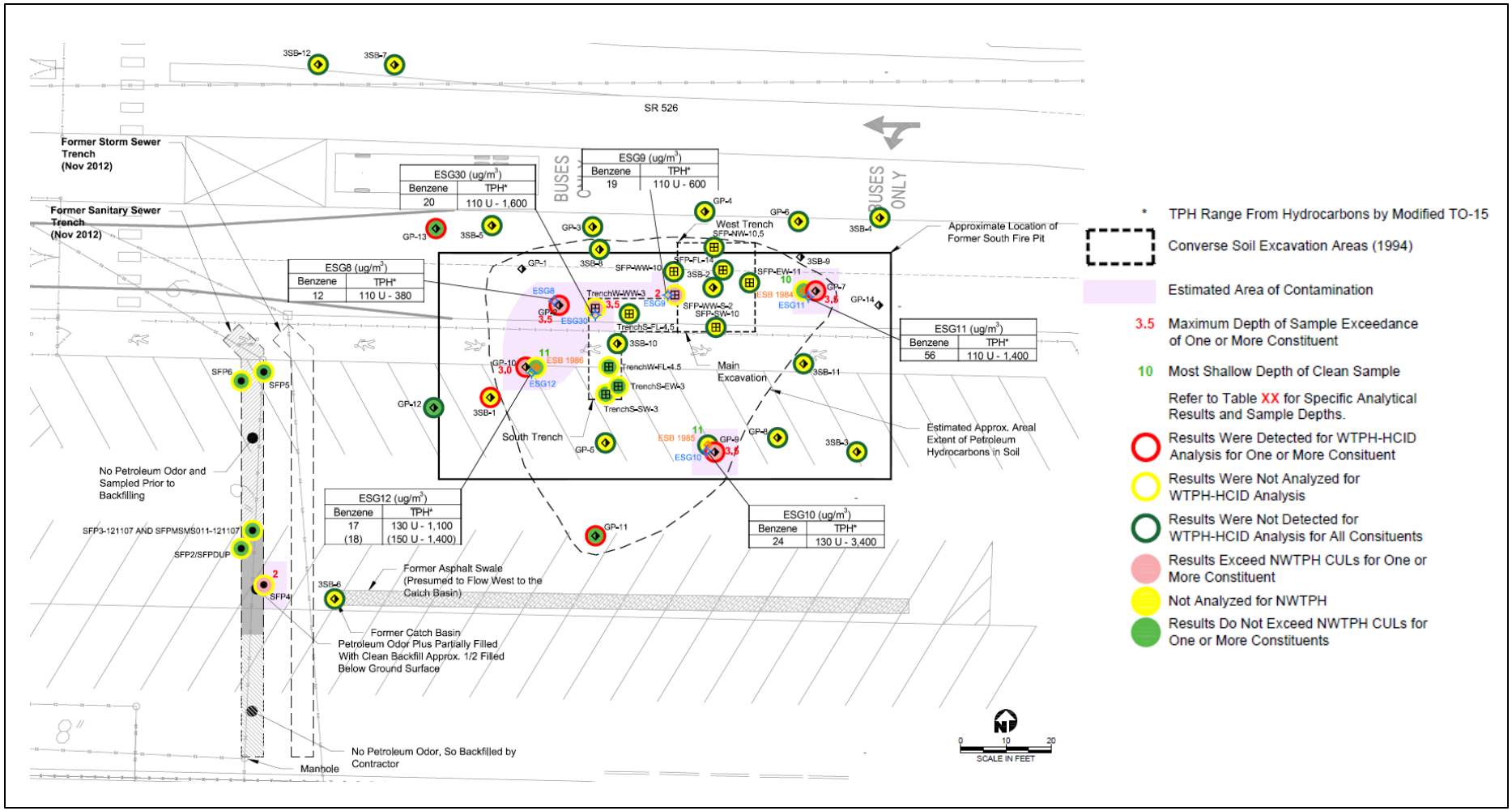
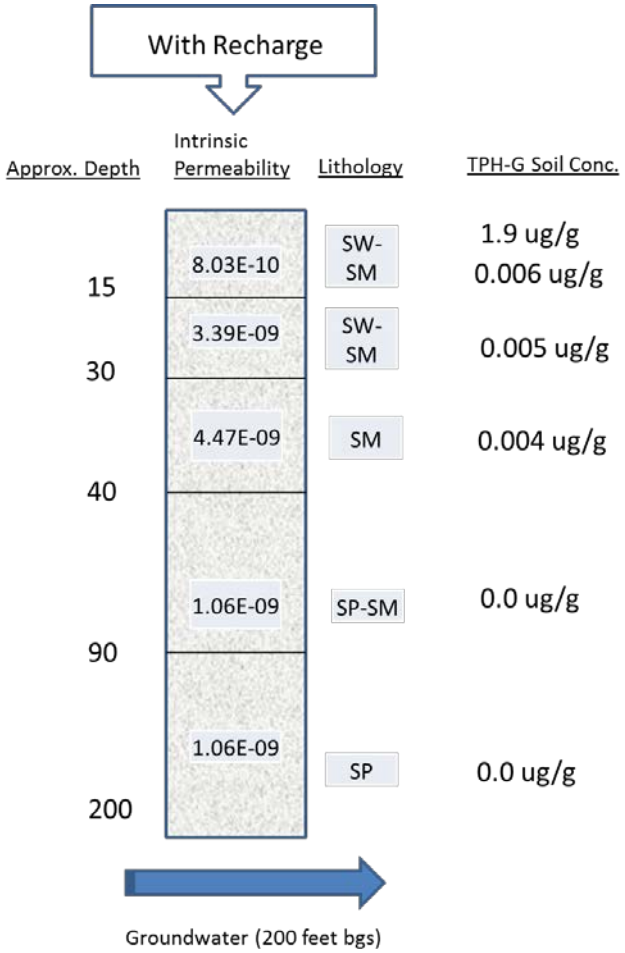
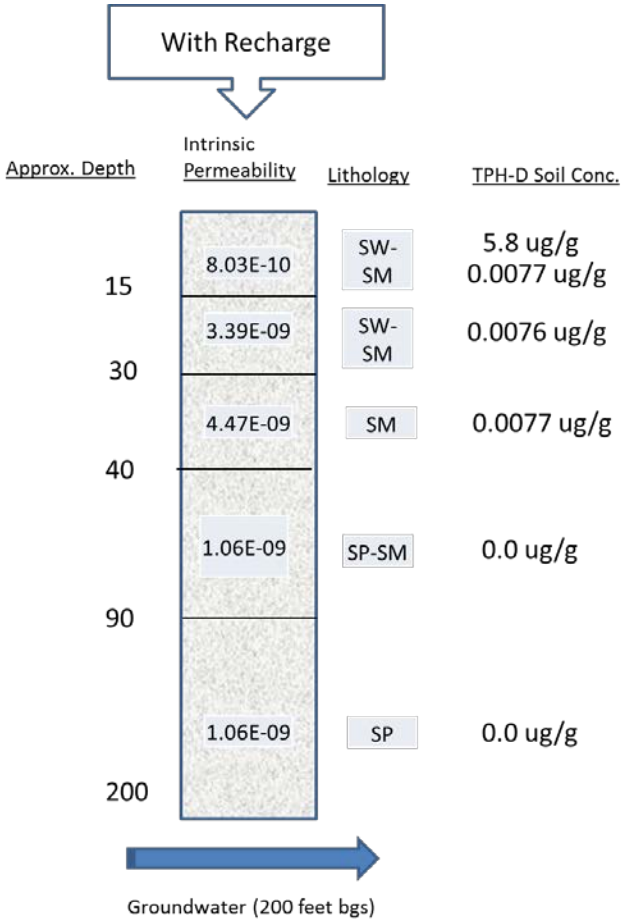


Figure B-40
Former South Fire Pit (SWMU/AOC No. 068)
Conceptual Site Model (TPH-G)



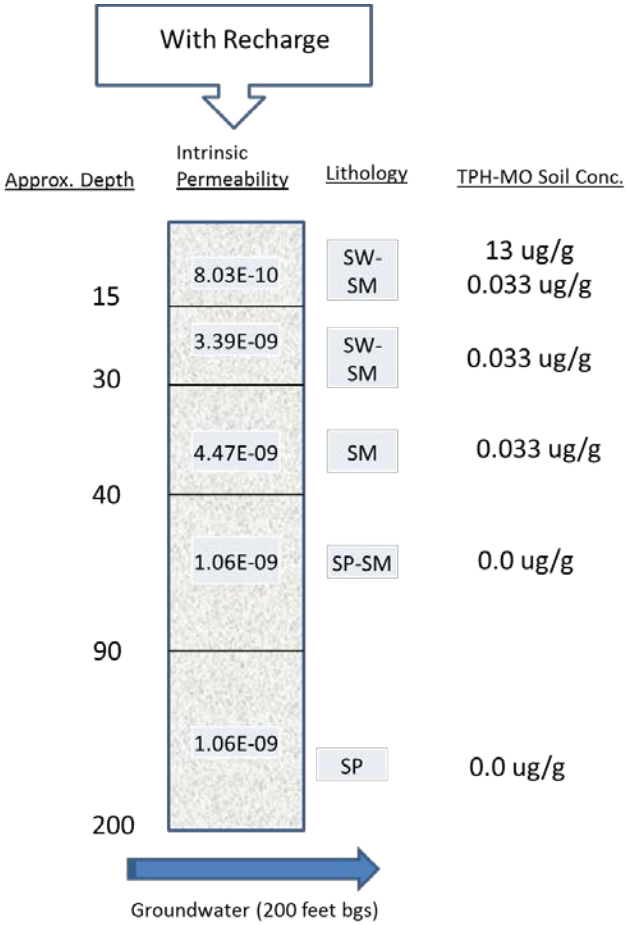
Note:
See Table B12 for input parameters

Figure B-41
Former South Fire Pit (SWMU/AOC No. 068)
Conceptual Site Model (TPH-D)



Note:
See Table B12 for input parameters

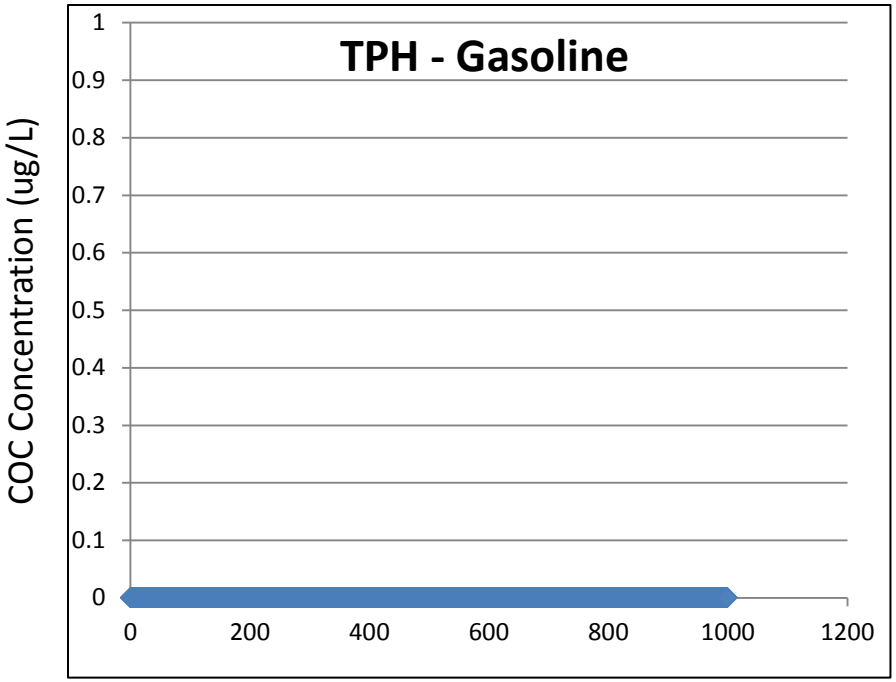
Figure B-42
Former South Fire Pit (SWMU/AOC No. 068)
Conceptual Site Model (TPH-MO)

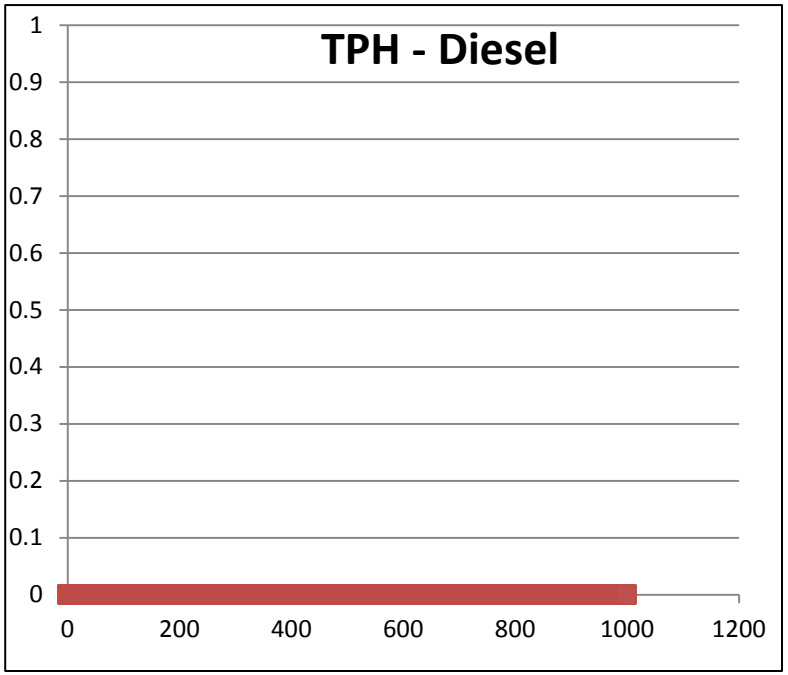


Note:
See Table B12 for input parameters

Figure B-43a and B-43b
Former South Fire Pit (SWMU/AOC No. 068)
Model Results (TPH-G and TPHD)

With and Without Surface Cover





B-43a

Elapsed Time (Years)

B-43b

Figure B-43c
Former South Fire Pit (SWMU/AOC No. 068)
Model Results (TPH-MO)

With and Without Surface Cover

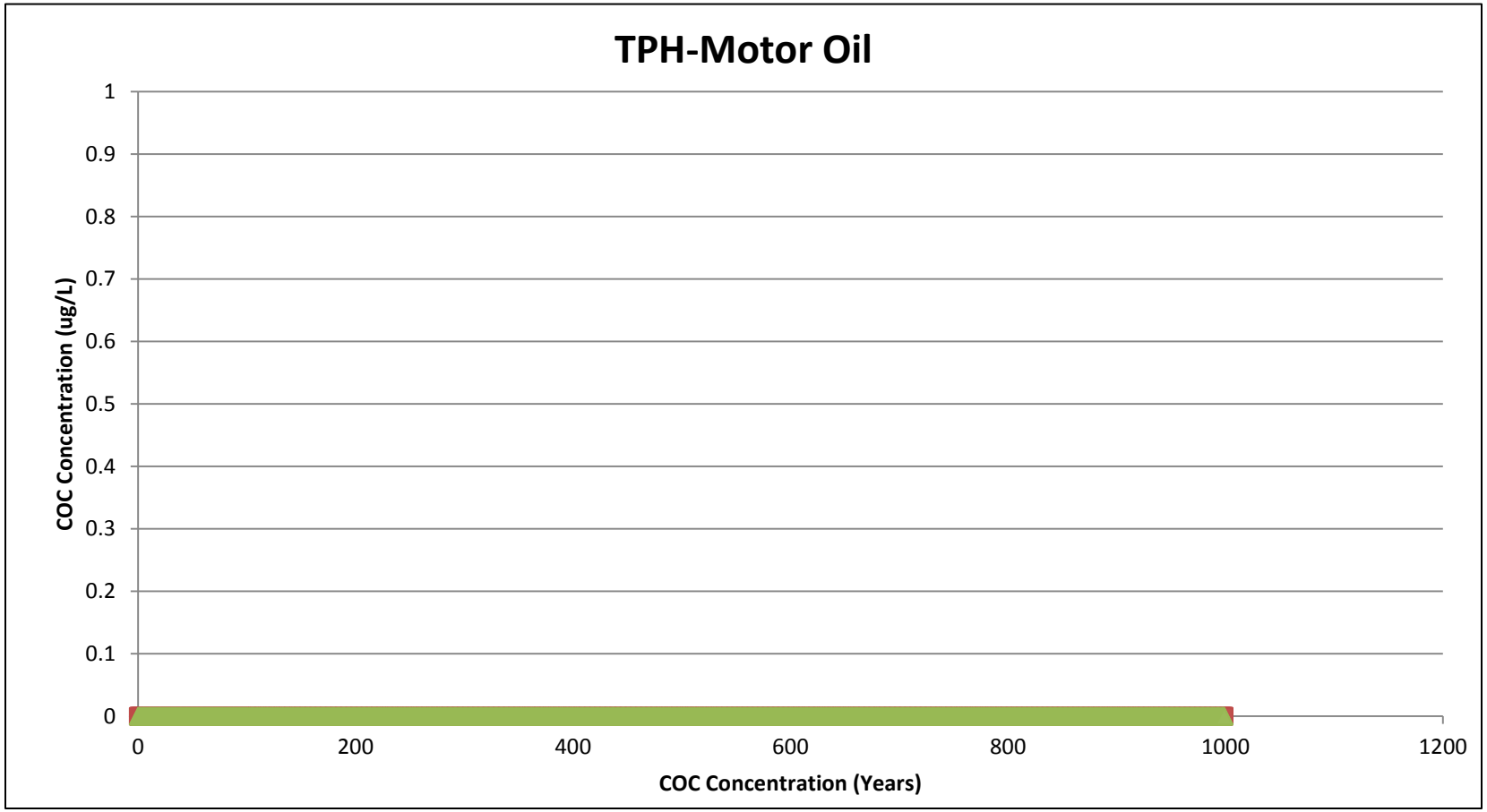
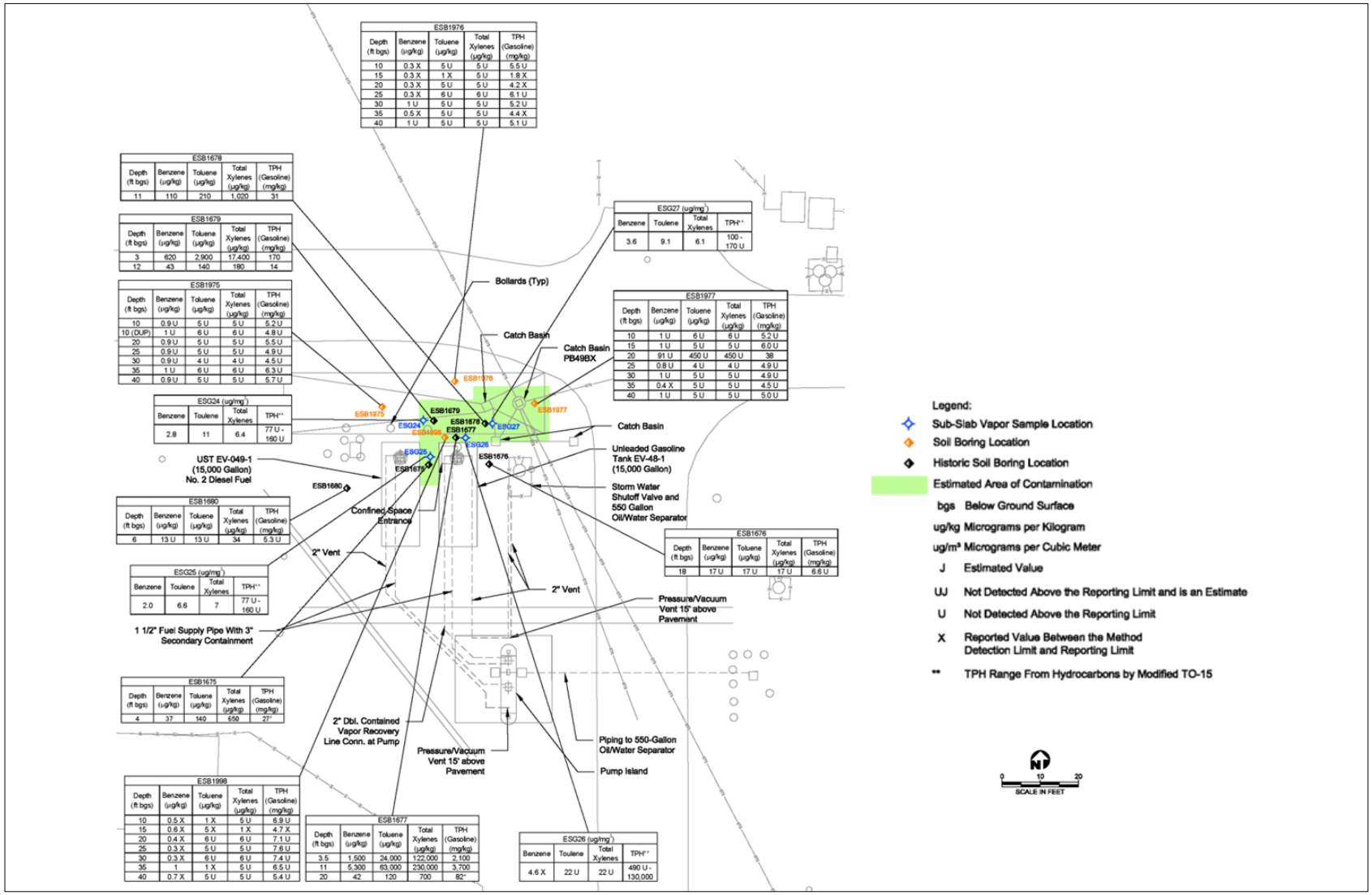


Figure B-44
Building 40-11, UST EV-48-1
Sample Locations



ESB1976

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
10	0.3 X	5 U	5 U	5.5 U
15	0.3 X	1 X	5 U	1.8 X
20	0.3 X	5 U	5 U	4.2 X
25	0.3 X	6 U	6 U	6.1 U
30	1 U	5 U	5 U	5.2 U
35	0.5 X	5 U	5 U	4.4 X
40	1 U	5 U	5 U	5.1 U

ESB1678

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
11	110	210	1,020	31

ESB1679

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
3	620	2,900	17,400	170
12	43	140	180	14

ESB1975

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
10	0.9 U	5 U	5 U	5.2 U
10 (DUP)	1 U	6 U	6 U	4.8 U
20	0.9 U	5 U	5 U	5.5 U
25	0.9 U	5 U	5 U	4.9 U
30	0.9 U	4 U	4 U	4.5 U
35	1 U	6 U	6 U	6.3 U
40	0.9 U	5 U	5 U	5.7 U

ESG24 (ug/mg)

Benzene	Toulene	Total Xylenes	TPH**
2.8	11	6.4	77 U - 160 U

ESB1680

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
6	13 U	13 U	34	5.3 U

ESG25 (ug/mg)

Benzene	Toulene	Total Xylenes	TPH**
2.0	6.6	7	77 U - 160 U

ESB1675

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
4	37	140	650	27*

ESB1998

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
10	0.5 X	1 X	5 U	6.9 U
15	0.6 X	5 X	1 X	4.7 X
20	0.4 X	6 U	6 U	7.1 U
25	0.3 X	5 U	5 U	7.6 U
30	0.3 X	6 U	6 U	7.4 U
35	1	1 X	5 U	6.5 U
40	0.7 X	5 U	5 U	5.4 U

ESB1677

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
3.5	1,500	24,000	122,000	2,100
11	5,300	63,000	230,000	3,700
20	42	120	700	82*

ESG26 (ug/mg)

Benzene	Toulene	Total Xylenes	TPH**
4.6 X	22 U	22 U	490 U - 130,000

ESG27 (ug/mg)

Benzene	Toulene	Total Xylenes	TPH**
3.6	9.1	6.1	100 - 170 U

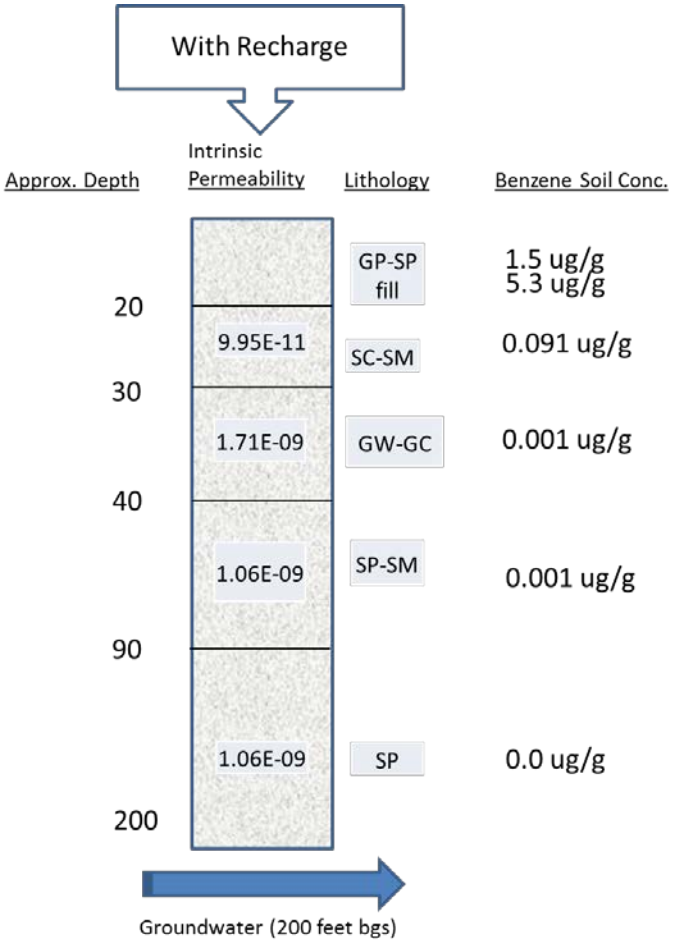
ESB1977

Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
10	1 U	6 U	6 U	5.2 U
15	1 U	5 U	5 U	6.0 U
20	91 U	450 U	450 U	38
25	0.8 U	4 U	4 U	4.9 U
30	1 U	5 U	5 U	4.9 U
35	0.4 X	5 U	5 U	4.5 U
40	1 U	5 U	5 U	5.0 U

ESB1676

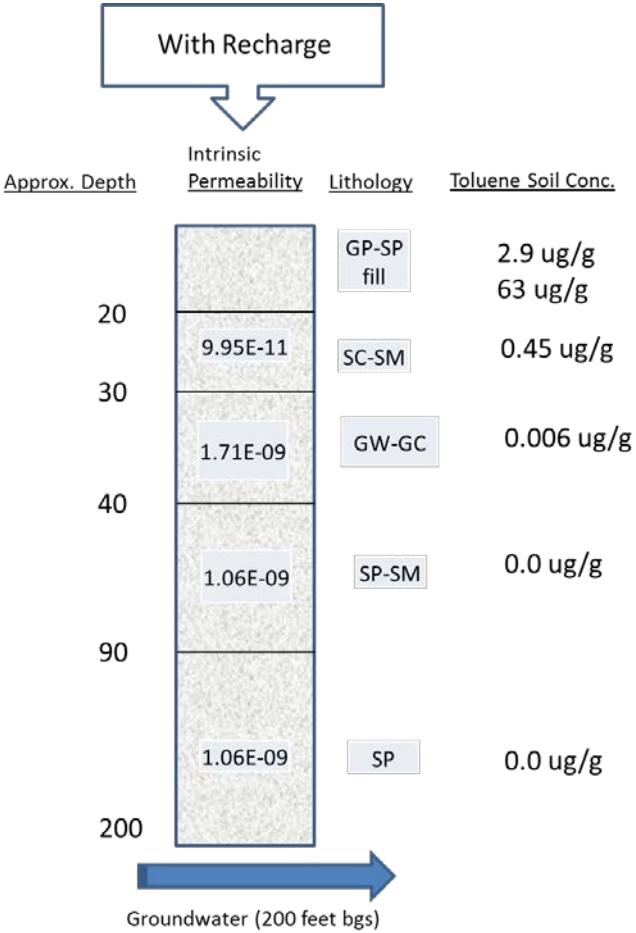
Depth (ft bgs)	Benzene (µg/kg)	Toluene (µg/kg)	Total Xylenes (µg/kg)	TPH (Gasoline) (mg/kg)
18	17 U	17 U	17 U	6.6 U

Figure B-45
Building 40-11, UST EV-48-1
Conceptual Site Model (Benzene)



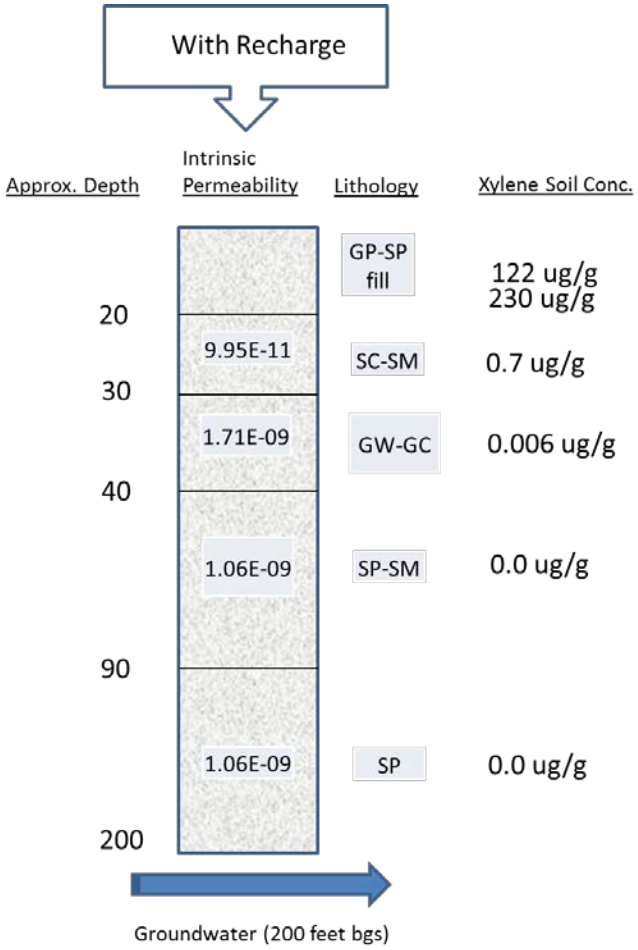
Note:
See Table B13 for input parameters

Figure B-46
Building 40-11, UST EV-48-1
Conceptual Site Model (Toluene)



Note:
See Table B13 for input parameters

Figure B-47
Building 40-11, UST EV-48-1
Conceptual Site Model (Xylene)



Note:
See Table B13 for input parameters

Figure B-48a
Building 40-11, UST EV-48-1
Model Results (Benzene)

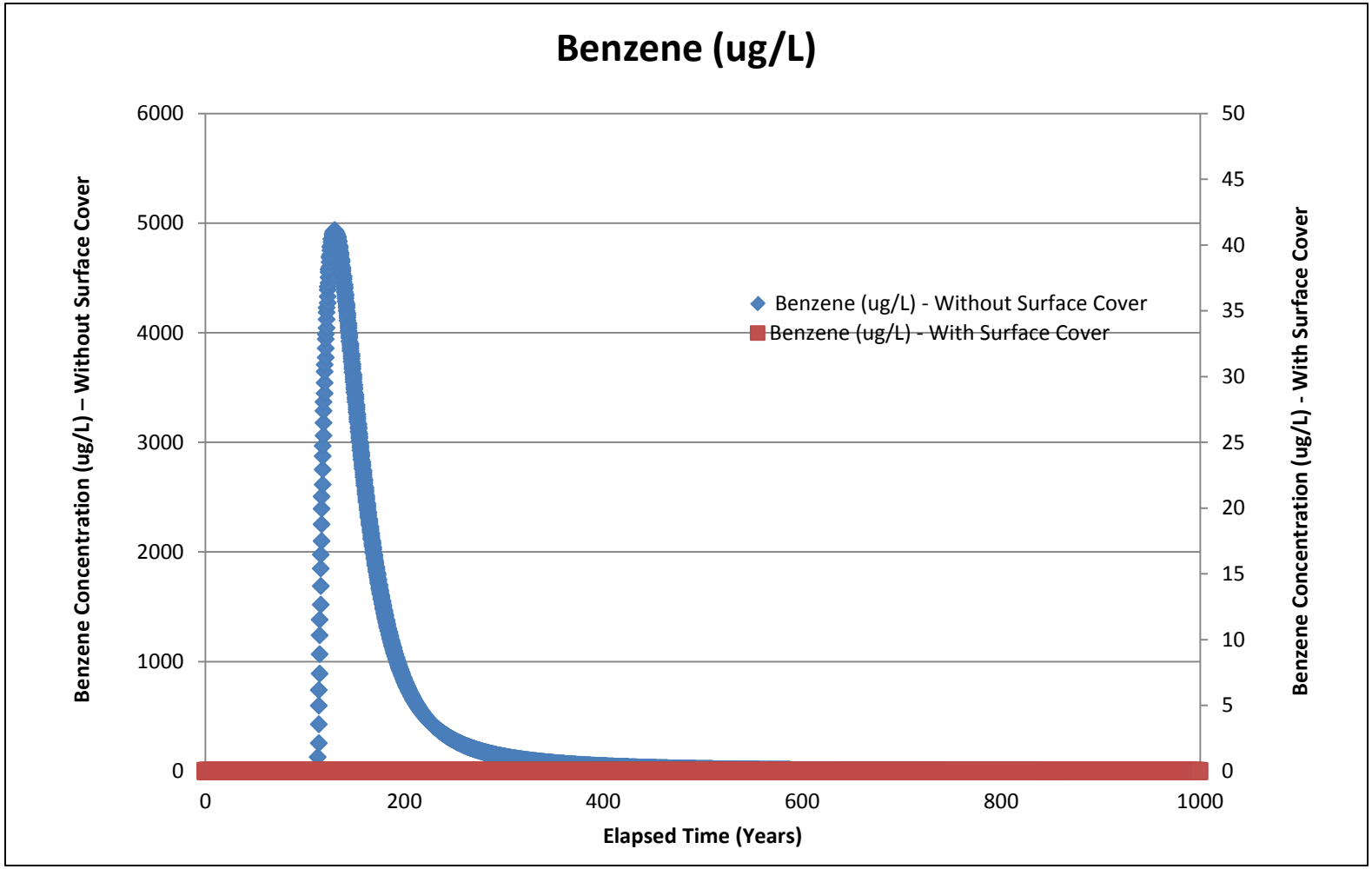


Figure B-48b
Building 40-11, UST EV-48-1
Model Results (Toluene)

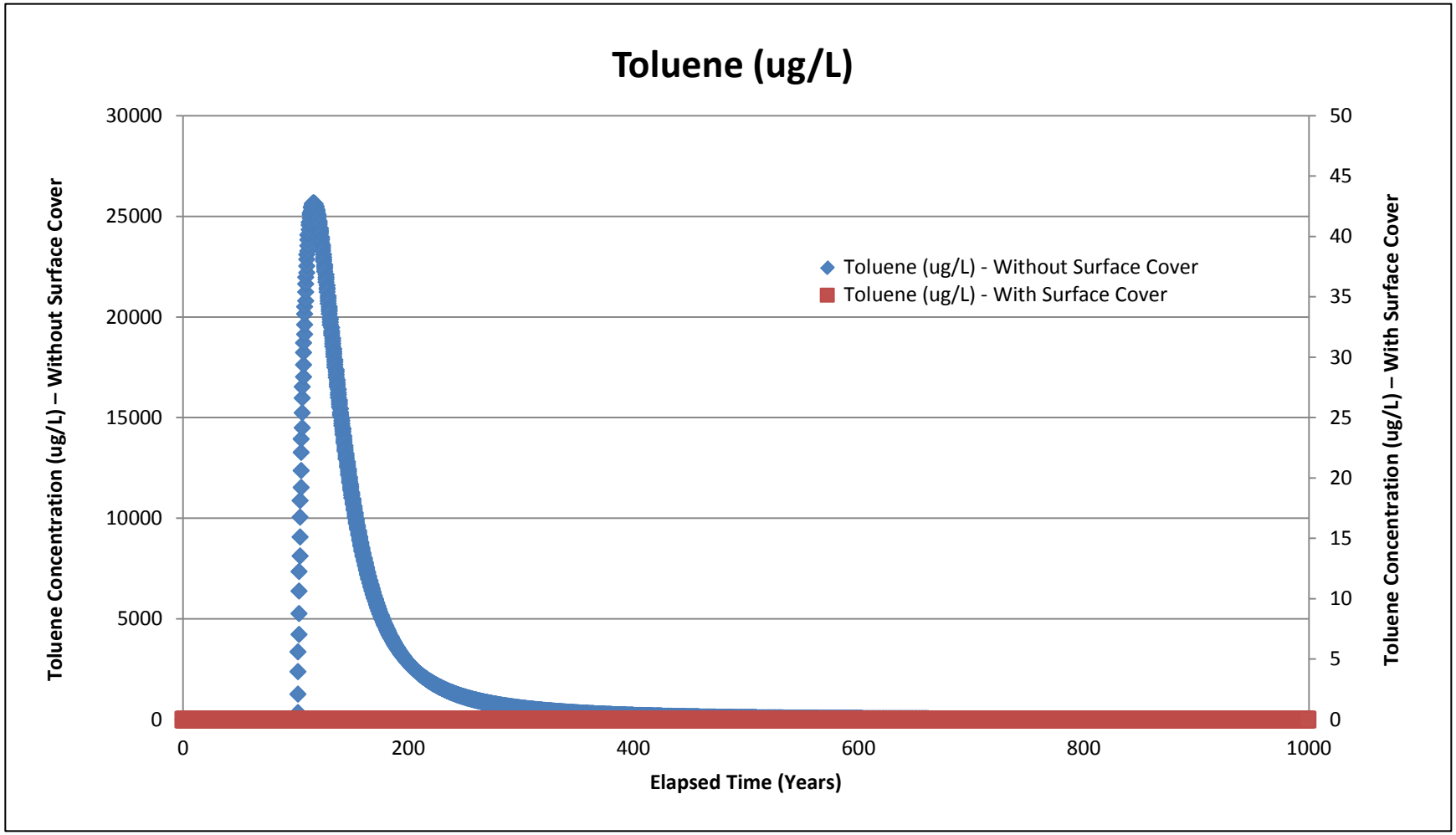


Figure B-48c
Building 40-11, UST EV-48-1
Model Results (Xylene)

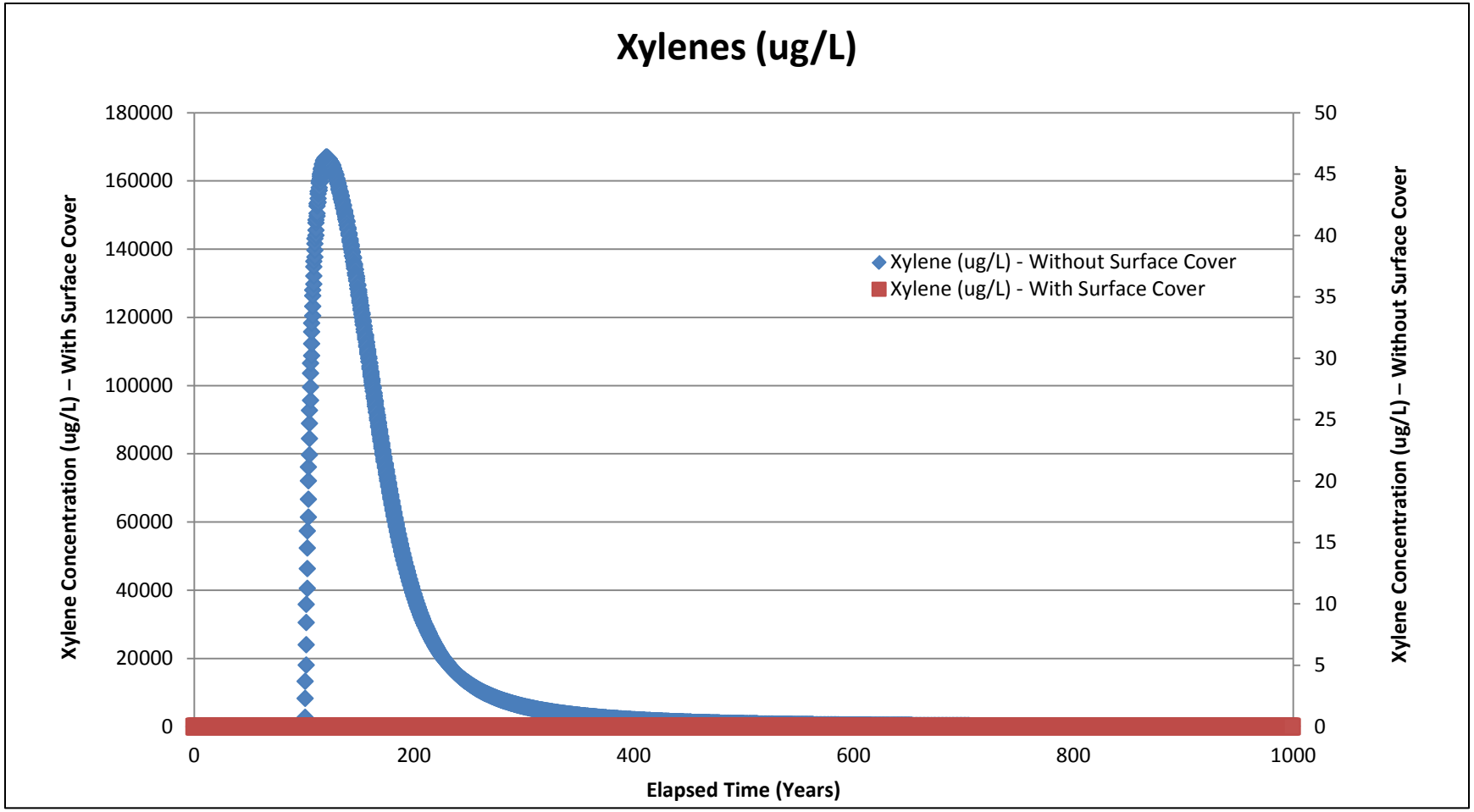
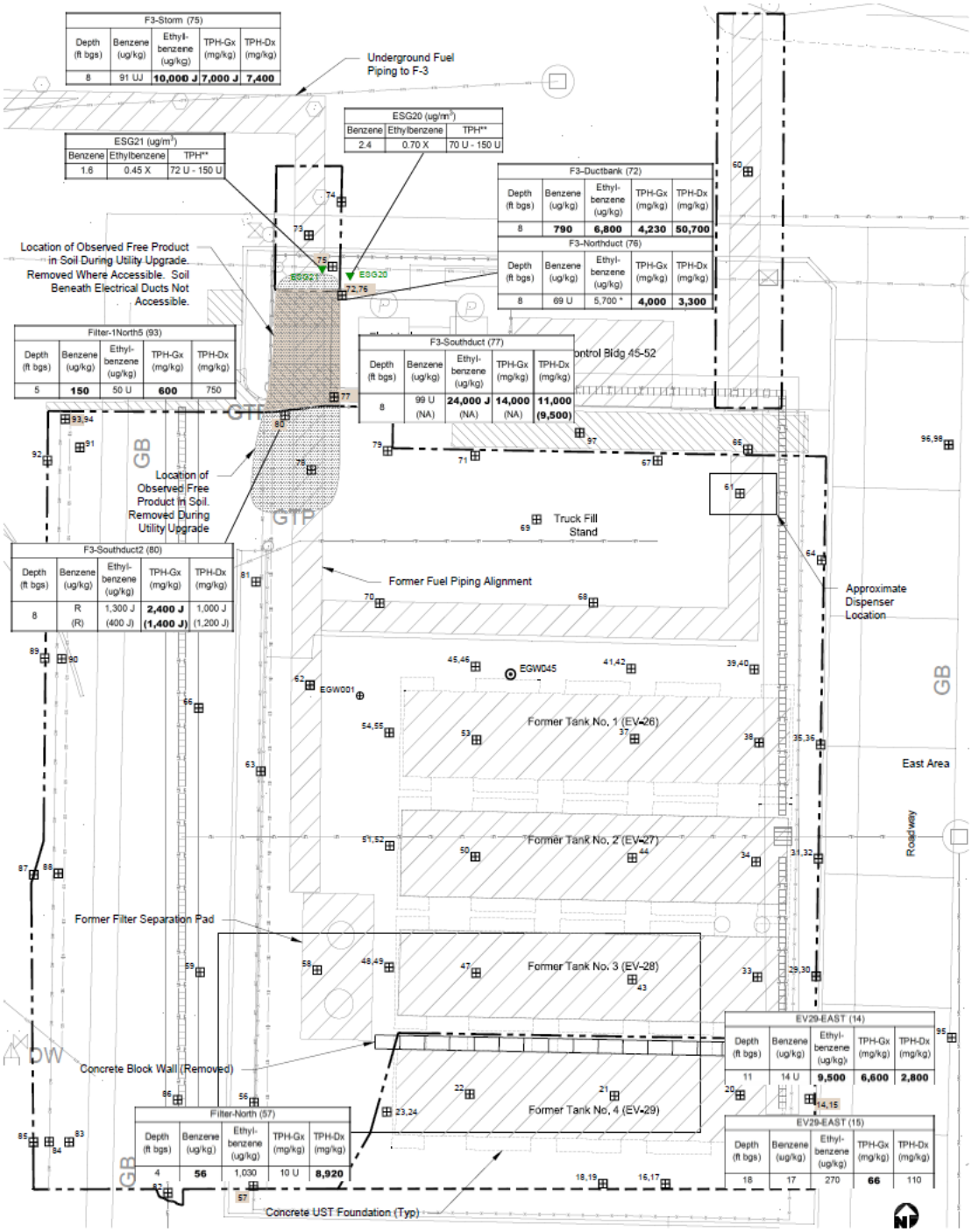


Figure B-49
Building 45-52, Former Fuel Farm USTs (SWMU/AOC No. 165) Sample Locations



F3-Storm (75)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	91 UJ	**10,000 J**	**7,000 J**	**7,400**

ESG21 (ug/m³)		
Benzene	Ethylbenzene	TPH**
1.6	0.45 X	72 U - 150 U

ESG20 (ug/m³)		
Benzene	Ethylbenzene	TPH**
2.4	0.70 X	70 U - 150 U

F3-Ductbank (72)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	**790**	**6,800**	**4,230**	**50,700**

F3-Northduct (76)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	69 U	5,700 *	**4,000**	**3,300**

Filter-1North5 (93)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
5	**150**	50 U	**600**	750

F3-Southduct (77)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	99 U (NA)	**24,000 J** (NA)	**14,000** (NA)	**11,000 (9,500)**

F3-Southduct2 (80)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
8	R (R)	1,300 J (400 J)	**2,400 J (1,400 J)**	1,000 J (1,200 J)

Filter-North (57)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	**56**	1,030	10 U	**8,920**

EV29-EAST (14)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
11	14 U	**9,500**	**6,600**	**2,800**

EV29-EAST (15)				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
18	17	270	**66**	110

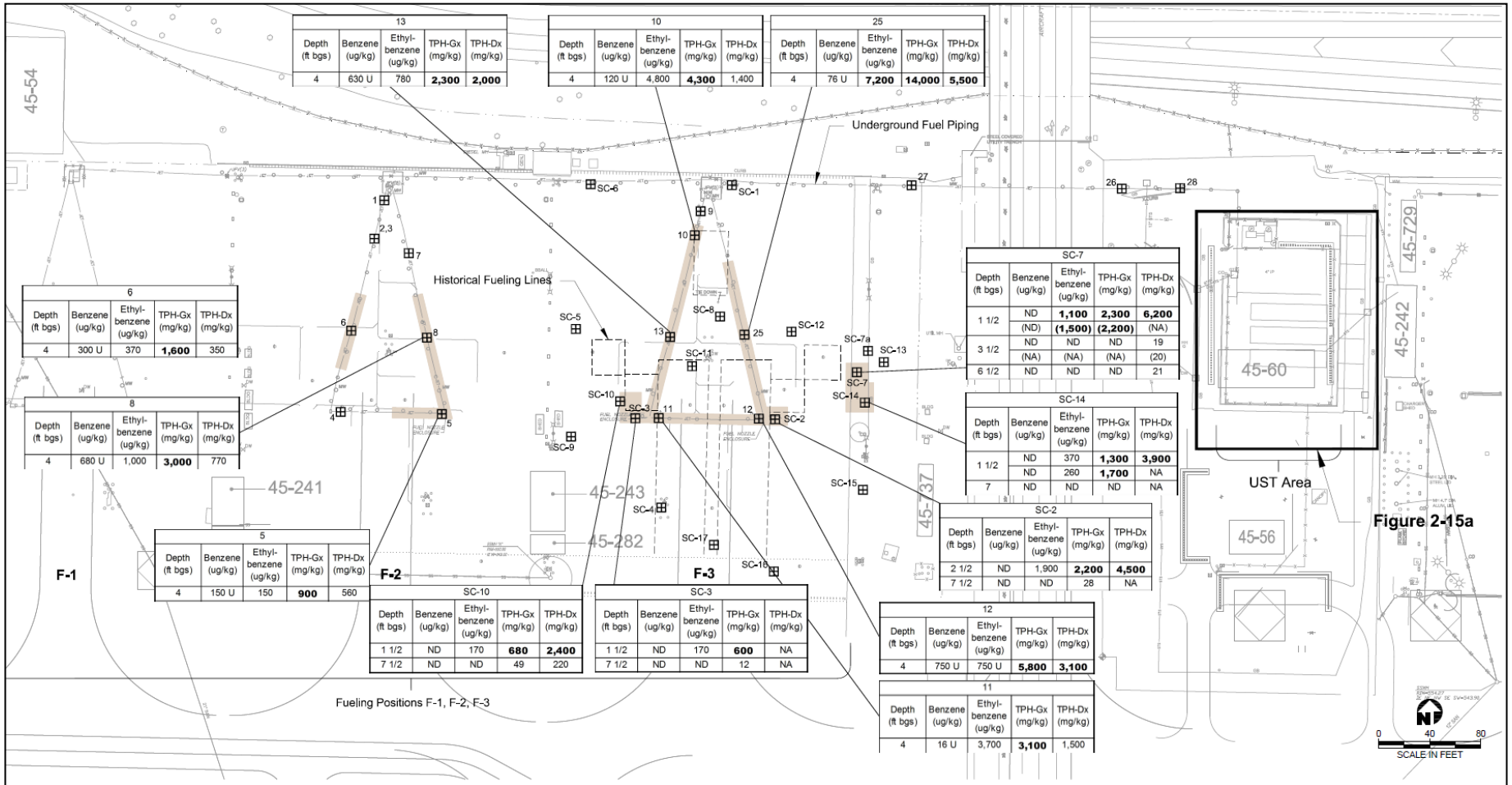
Legend

- Abandoned Groundwater Monitoring Well
- Abandoned Groundwater Recovery Well
- Historical Excavation Sample
- FS Soil Gas or Sub-Slab Vapor Sample
- * Sample Result Reported From TPH-VPH Analysis
- ** TPH Range from Hydrocarbons by Modified TO-15
- Estimated Area or Location of Soil Contamination
- 2008 Excavation Outline
- 2007 Excavation Outline
- Storm Drain Line
- Water Line
- Electrical Duct

Notes:

1. Tank No. 1, 2 & 3 removed November 2008. Tank No. 4 removed February 2007.
2. Concrete UST foundations were left in place during UST removals.
3. Highlighted areas and samples have petroleum constituent concentrations in soil exceeding MTCA Method A or B Soil Cleanup Levels.
4. Data boxes shown for locations with exceedances. All other locations are representative of current conditions and nondetect.

Figure B-50
Former Fuel Farm System (SWMU/AOC No. 165)
Sample Locations



13				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	630 U	780	**2,300**	**2,000**

10				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	120 U	4,800	**4,300**	1,400

25				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	76 U	**7,200**	**14,000**	**5,500**

6				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	300 U	370	**1,600**	350

8				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	680 U	1,000	**3,000**	770

5				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	150 U	150	**900**	560

SC-10				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
1 1/2	ND	170	**680**	**2,400**
7 1/2	ND	ND	49	220

SC-3				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
1 1/2	ND	170	**600**	NA
7 1/2	ND	ND	12	NA

12				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	750 U	750 U	**5,800**	**3,100**

11				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
4	16 U	3,700	**3,100**	1,500

SC-7				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
1 1/2	ND	**1,100**	**2,300**	**6,200**
	(ND)	**(1,500)**	**(2,200)**	(NA)
3 1/2	ND	ND	ND	19
	(NA)	(NA)	(NA)	(20)
6 1/2	ND	ND	ND	21

SC-14				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
1 1/2	ND	370	**1,300**	**3,900**
	ND	260	**1,700**	NA
7	ND	ND	ND	NA

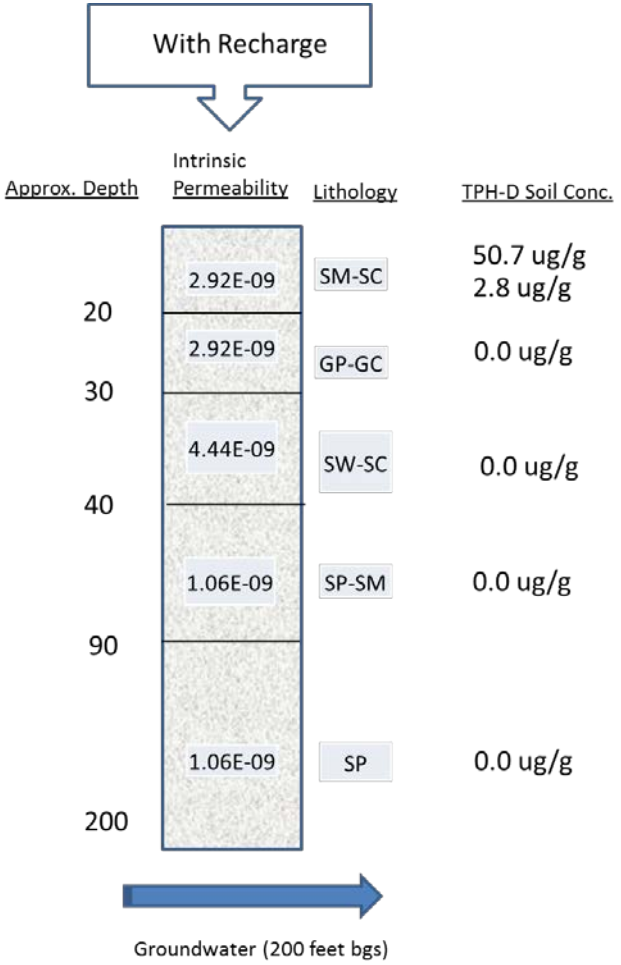
SC-2				
Depth (ft bgs)	Benzene (ug/kg)	Ethyl-benzene (ug/kg)	TPH-Gx (mg/kg)	TPH-Dx (mg/kg)
2 1/2	ND	1,900	**2,200**	**4,500**
7 1/2	ND	ND	28	NA

Legend

- ⊞ Historical Excavation Sample
- **F-1** Fueling Position
- Estimated Area of Soil Contamination
- * Sample Result Reported From TPH-VPH Analysis

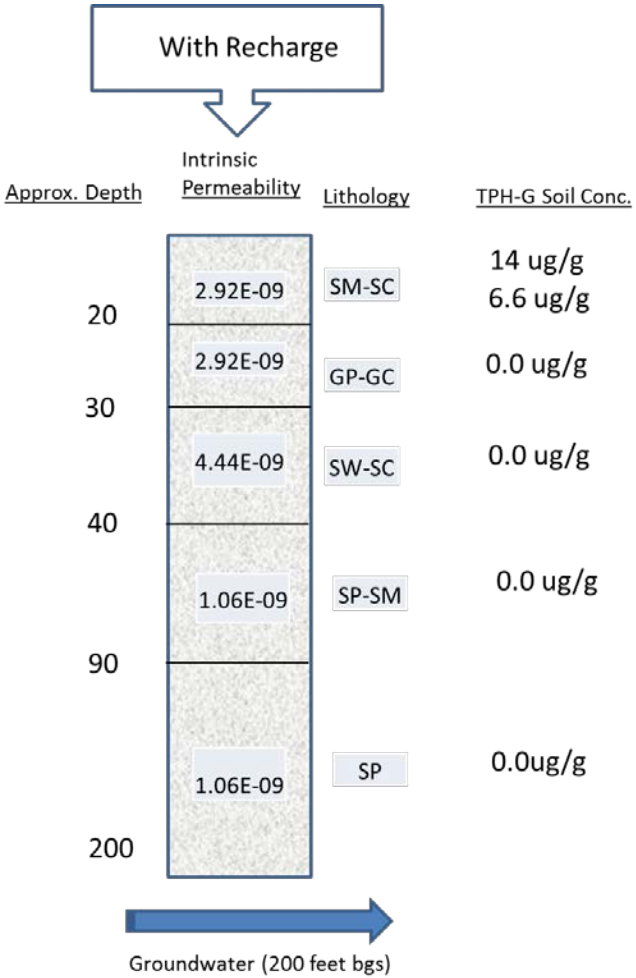
Note:
Data boxes shown for locations with exceedances. All other locations are representative of current conditions and have soil concentraions below proposed FS CULs or are non-detect.

Figure B-51
Former Fuel Farm System and Fuel Stall Piping (SWMU/AOC No. 165)
Conceptual Site Models (TPH-D)



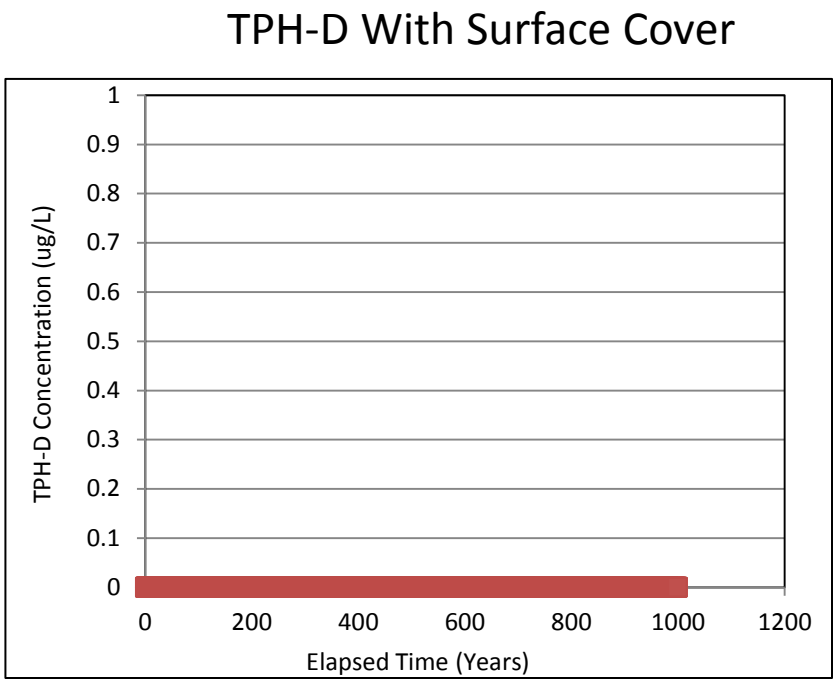
Note:
See Table B14 for input parameters

Figure B-52
Former Fuel Farm System and Fuel Stall Piping (SWMU/AOC No. 165)
Conceptual Site Models (TPH-G)



Note:
See Table B14 for input parameters

Figure B-53a
Former Fuel Farm System and Fuel Stall Piping (SWMU/AOC No. 165)
Model Results (TPH-D)



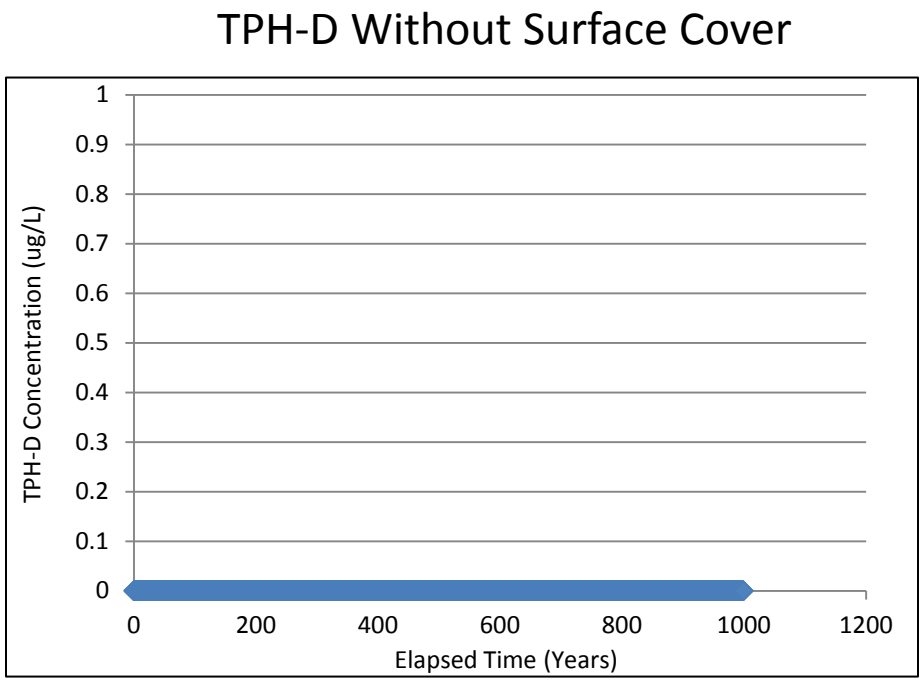
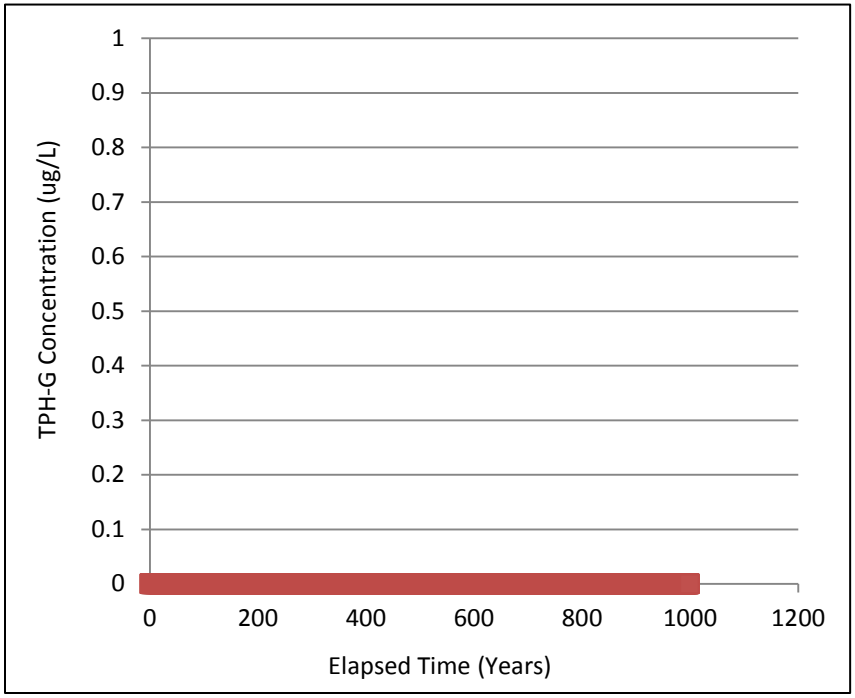


Figure B-53b
Former Fuel Farm System and Fuel Stall Piping (SWMU/AOC No. 165)
Model Results (TPH-G)

TPH-G With Surface Cover



TPH-G Without Surface Cover

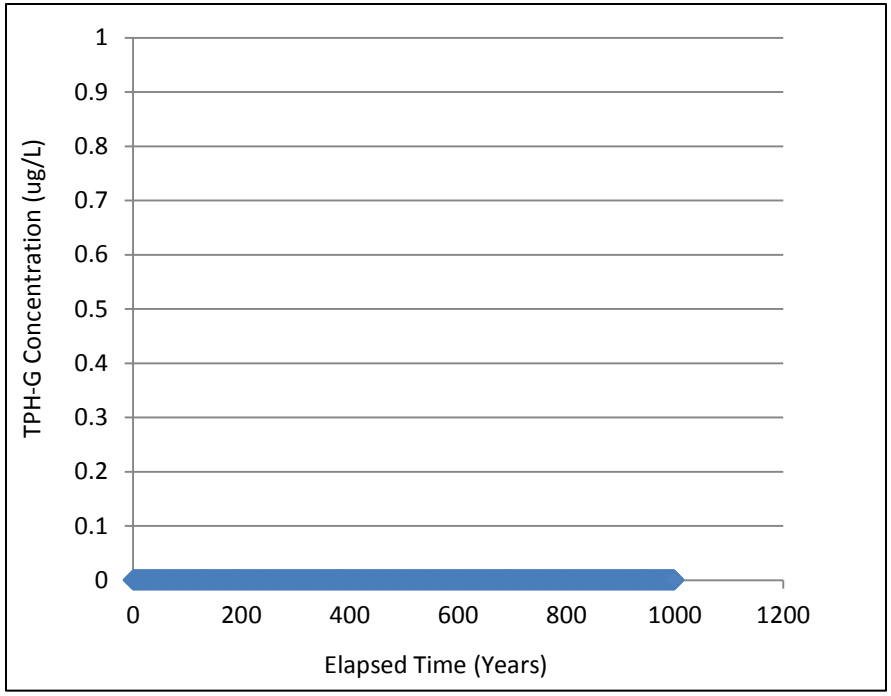
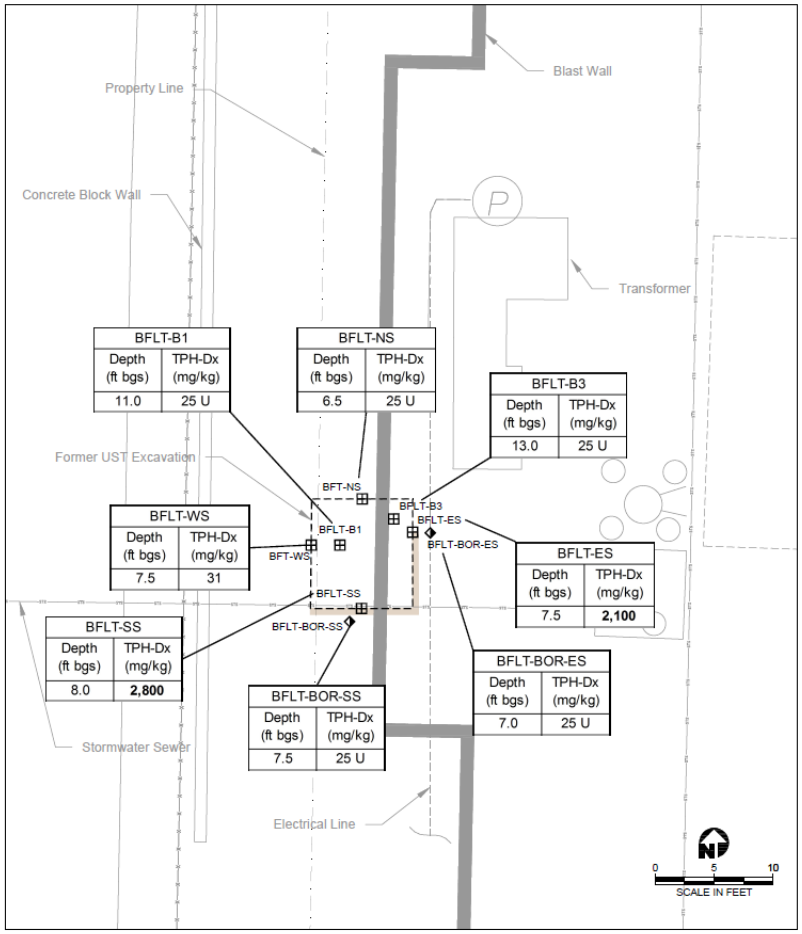
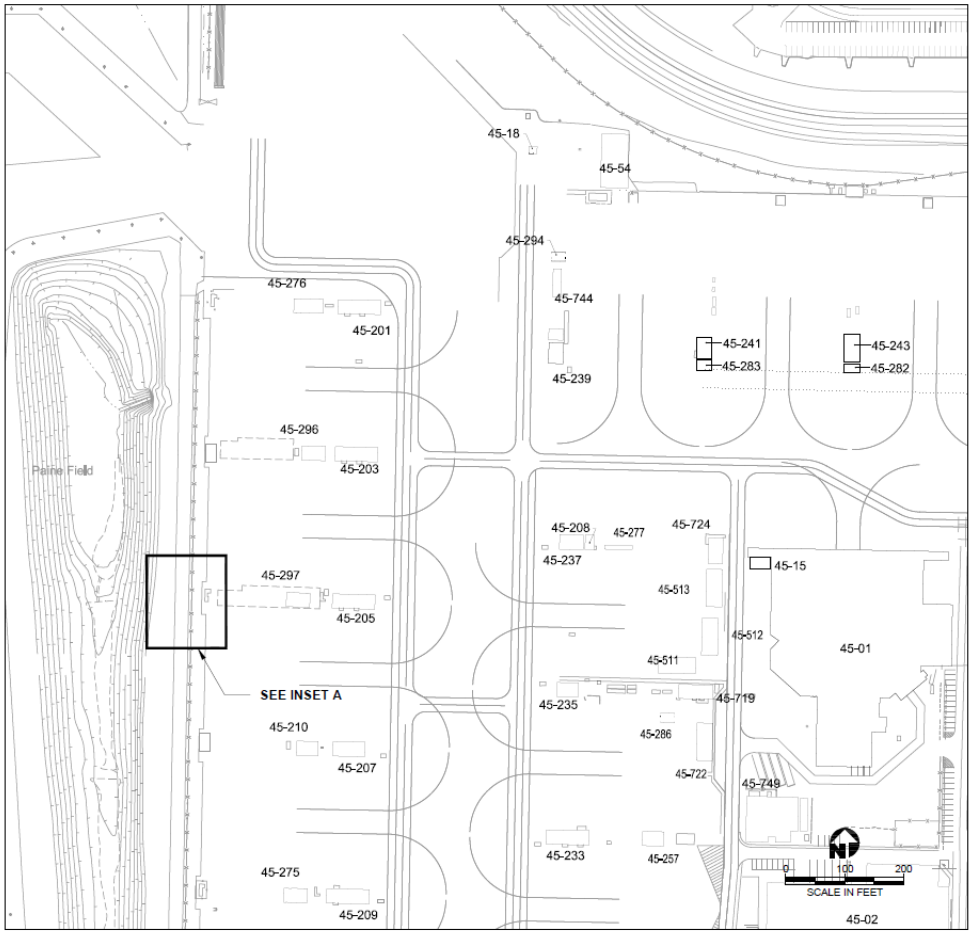


Figure B-54
Former UST EV-15 (SWMU/AOC No. 083)
Sample Locations



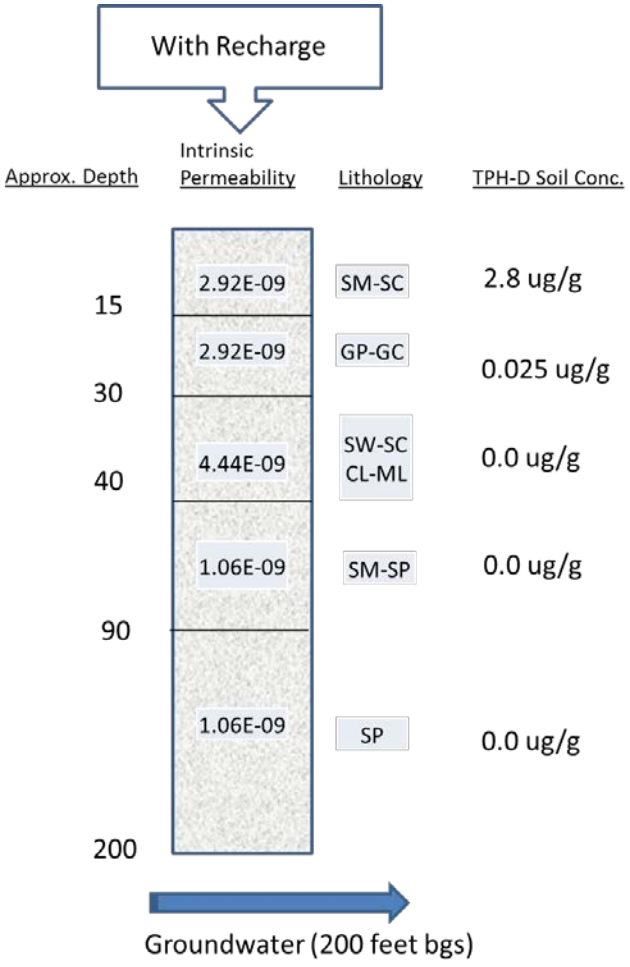
Inset A



Legend

- Historical Soil Boring (O'Sullivan Omega 1994)
- Historical Excavation Sample (O'Sullivan Omega 1994)
- Estimated Area of Soil Contamination

Figure B-55
Former UST EV-15 (SWMU/AOC No. 083)
Conceptual Site Model



Note:
See Table B15 for input parameters

Figure B-56
Former UST EV-15 (SWMU/AOC No. 083)
Model Results

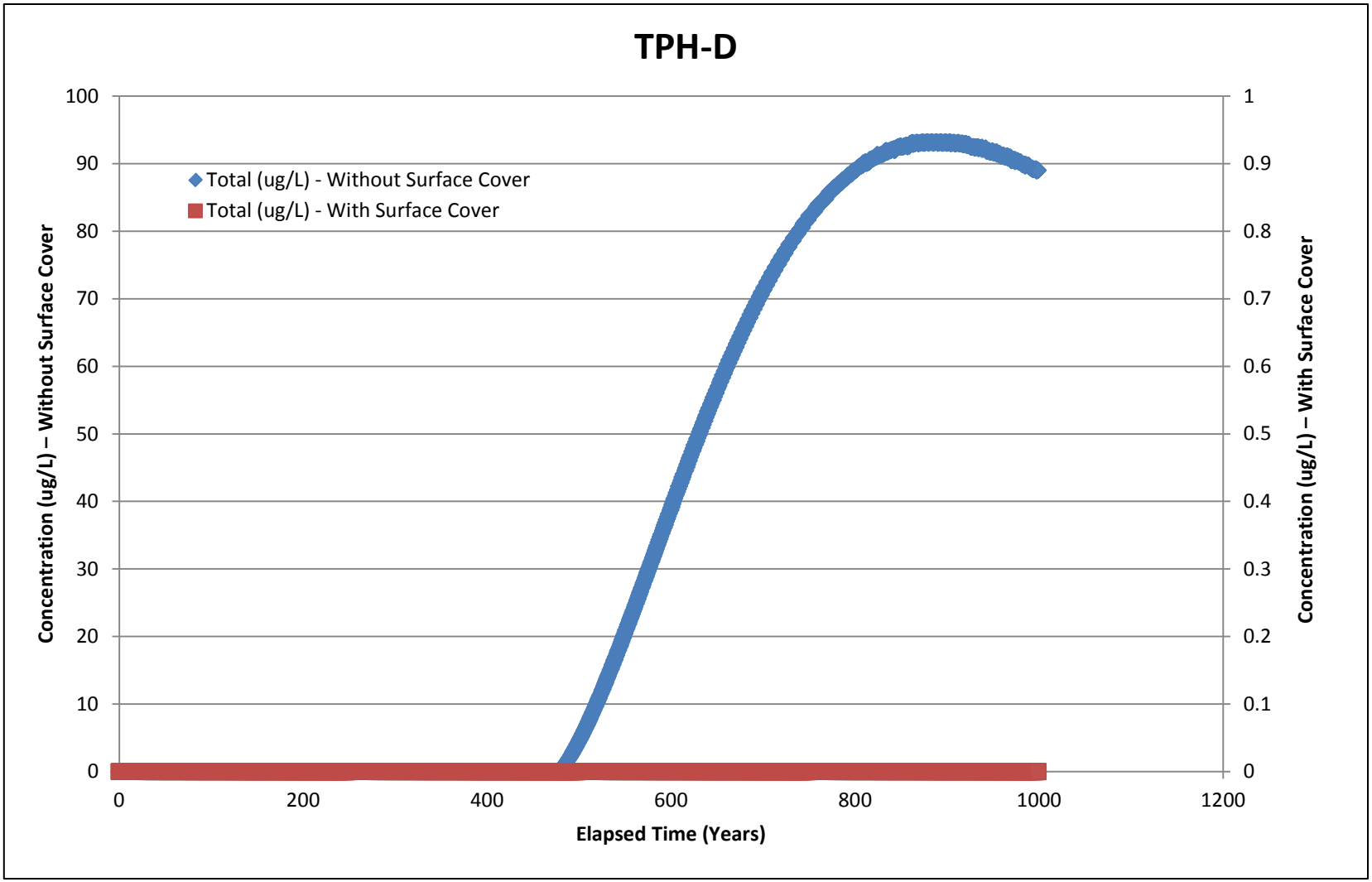


Figure B-57
Building 45-01, Former Solvent Tanks (SWMU/AOC No. 093)
Sample Locations

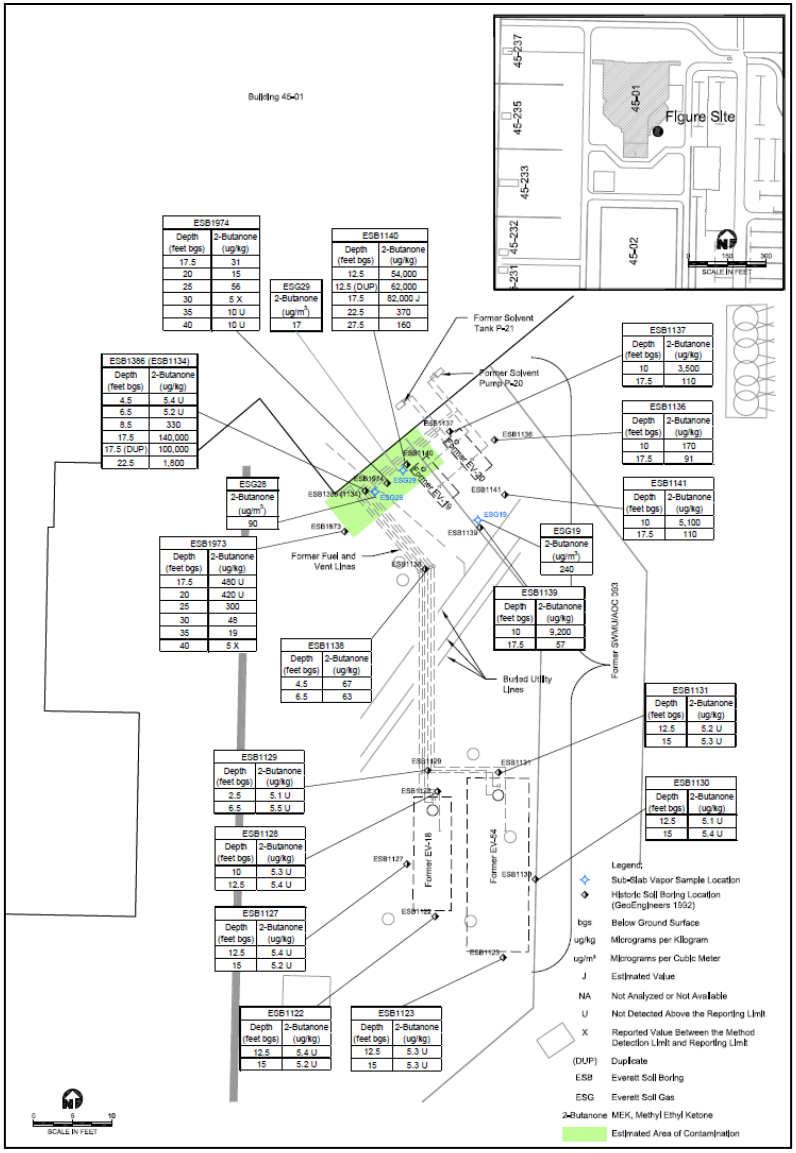
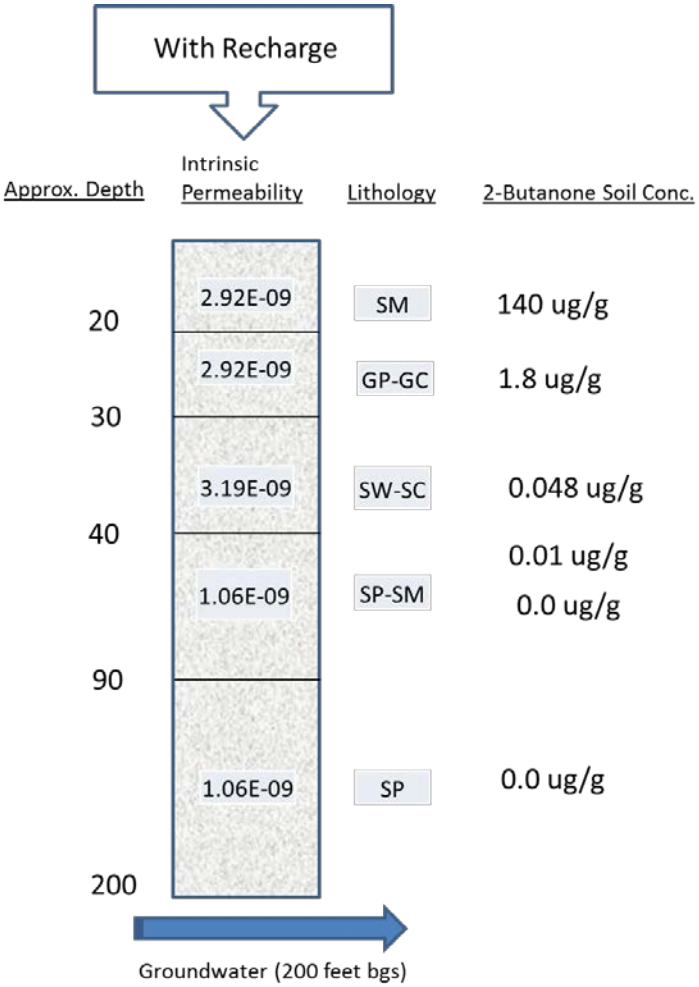
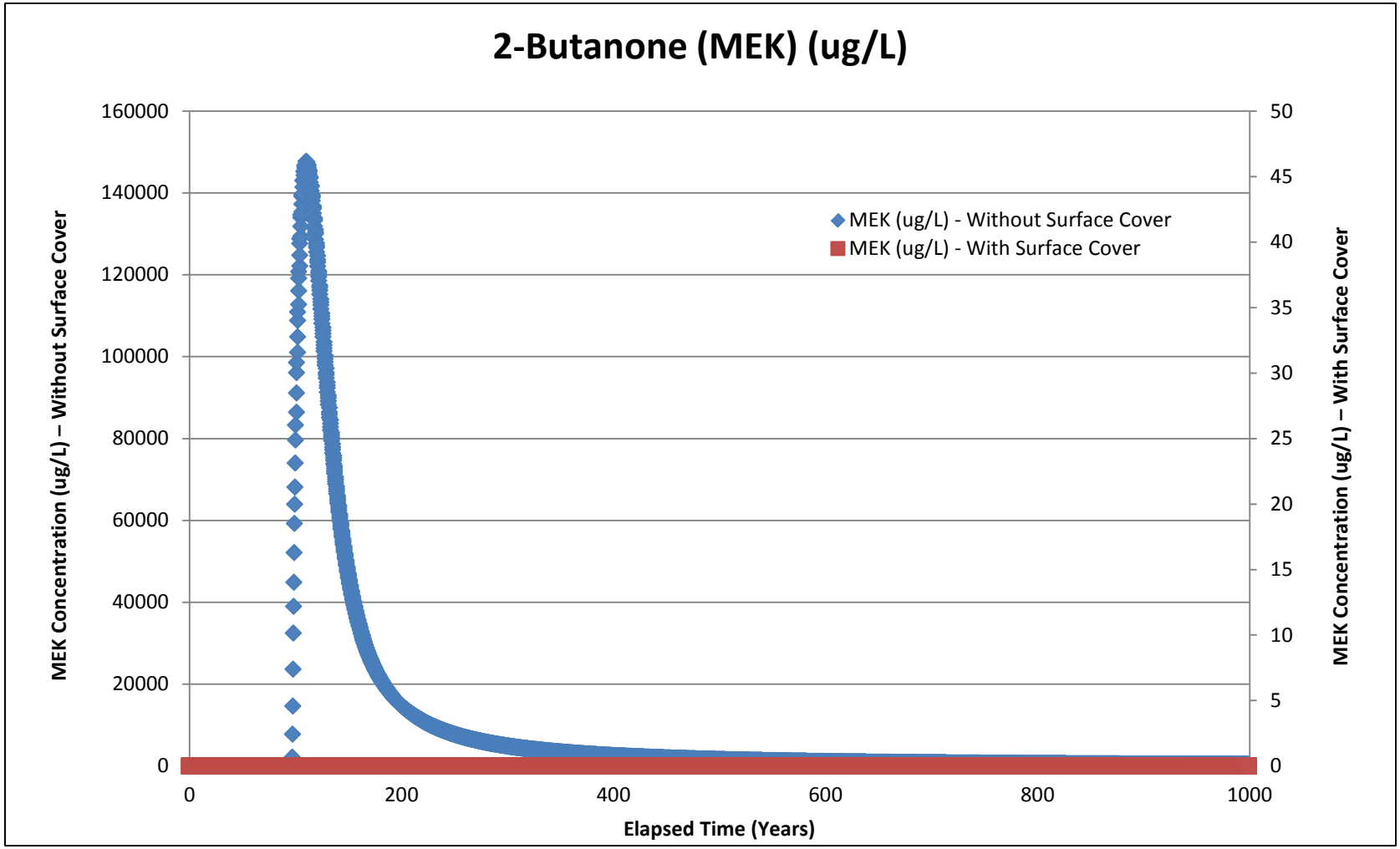


Figure B-58
Building 45-01, Former Solvent Tanks (SWMU/AOC No. 093)
Conceptual Site Model



Note:
See Table B16 for input parameters

Figure B-59
Building 45-01, Former Solvent Tanks (SWMU/AOC No. 093)
Model Results



Tables

Table B-1
Summary of Recharge Parameters for SWMU/AOC No. 054 Former Wastewater AST

Month	Net Infiltration (cm)	Surface Runoff (cm)	Soil Moisture Retention (cm)	Evapotranspiration (cm)	Groundwater Recharge (cm)
Oct	5.877	1.63	0.381	2.851	2.645
Nov	6.376	1.384	1.779	1.81	2.788
Dec	5.597	1.013	2.287	0.304	3.006
Jan	4.748	0.614	1.27	0.304	3.174
Feb	4.992	0.927	1.016	0.304	3.671
Mar	6.33	1.163	-1.143	3.609	3.864
Apr	7.244	1.336	-1.143	4.341	4.045
May	7.993	1.346	-1.016	4.795	4.214
Jun	6.993	1.471	-1.524	4.559	3.958
Jul	7.107	2.166	-1.016	4.41	3.713
Aug	6.418	1.17	-0.889	4.024	3.283
Sep	6.489	1.215	0	3.506	2.983

Table B-2
Building 40-51, SWMU/AOC No. 054, Former Wastewater AST Vadose Zone Model Input Parameters

Depth (feet bgs)	Soil Conc (ug/kg)								Soil Conc (ug/g)		Soil Parameters									Lithology	Model Layer
	ESB 1989	ESB 1991	ESB 1990	ESB 1988	ESB 1987	ESB 1992	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/mg)	Fraction of Organic Carbon (g/g)	USCS Classification	
										0		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
10	4	3300	6	86	8500	5300	2866	8500	2	8.5	5.75	1.77	2.17E-09	1.45E-01	2.00E-01	0.17	7.37	0.14	1.40E-03	SC-SM	1
15	4	3	4	5	5700	5U	1143	5700			5.75										
20	3	4	5	7	10	5	6	10	0.005	0.01	5.86	1.7	1.06E-09	1.40E-01	2.33E-01	0.168	7.29	0.21	2.05E-03	SC-SM	
25		4	4		4	5	4	4			6.1										
30		6			4		5	6	0.005	0.006	10.55	1.45	2.92E-10	3.06E-01	1.59E-01	0.152	7.44	0.28	2.75E-03	CL-ML	2
40											5.3	1.65	1.06E-09	9.20E-02	2.95E-01	0.162	8.00	0.07	7.10E-04	SP-SM	3
50												1.78								SM	
60																					
70																					
80																					
90											5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	4
100																					
110																					
120																					
130																					
140																					
150																					
160																					
170																					
180												**1.69**									
190																					GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TCE was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-3
Building 40-51, SWMU/AOC No. 151, Southern Air Scrubber Sump Vadose Zone Model Input Parameters

Depth (feet bgs)	TCE Soil Conc (ug/kg)	TCE (ug/g)	Soil Parameters									Lithology	Model Layer
	ESB1121		CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/kg)	Fraction of Organic Carbon (g/g)	USCS Classification	
				1.77	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
5				1.75								SM	1
10												SM	
12.5	18	0.018											
15	1.1	0.0011											
20			6.8	1.62	4.54E-09	1.32E-01	2.69E-01	4.01E-01	7.56	1500	1.50E-03	SW-SC	2
22.5	1	0.001											
25													
30			6.1	1.77	1.99E-09	1.27E-01	2.21E-01	3.47E-01	7.77	1100	1.10E-03	SW-SC	
35													
39			5.2	1.65	1.58-08	9.20E-02	2.95E-01	3.88E-01	8	710	7.10E-04	SP-SM	3
40			3.6	1.64	1.20E-08	1.14E-01	2.83E-01	0.397	9.13	710	7.10E-04	SM	
50													
60													
70													
80													
90			5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	4
100													
110													
120													
130													
140													
150													
160													
170													
180				**1.64**									
190													GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TCE was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-4
Building 40-56, SWMU/AOC Nos. 086, 089, 094, Former USTs Vadose Zone Model Input Parameters

Depth (feet bgs)	Total Xylenes Soil Conc in Fill (ug/kg)	Total Xylenes Soil Conc in Fill (ug/g)	Total Xylenes Soil Conc in Till (ug/kg)	Total Xylenes Soil Conc in Till (ug/g)	Soil Parameters																		Lithology	Model Layer
	EGW206 (ESB1997)		EGW211 (ESB2000)		CEC (meq/100g)		Density (g/cm^3)		Intrinsic Permeability (cm^2)		Water Filled Porosity (cm^3/cm^3)		Air Filled Porosity (cm^3/cm^3)		Total Porosity (cm^3/cm^3)		pH		Total Organic Carbon (mg/kg)		Fraction of Organic Carbon (g/g)		USCS Classification	
							1.77		**7.00E-12**		**1.45E-01**		**2.00E-01**		**0.17**		**7**		**0**		**0**			Cap
10							1.87																	
11	8,550,000	8,550																						
13							1.81																SM	
15																								1
16.5							1.79																	
20			55,200	55.2																				
25							1.49		2.51E-09		0.137		0.314		0.451		8.36		2050		2.02E-03		SC-SM	
30					6.8		1.45		2.70E-09		1.20E-01		3.50E-01		0.47		8.28		1700		1.70E-03		CL-ML	2
35					6.9		1.67		1.64E-09		1.69E-01		2.15E-01		0.384		8.5		2200		2.20E-03		CL-ML	
40					5.3	6.1	1.64	1.55	2.25E-09	1.26E-08	1.39E-01	1.27E-01	2.58E-01	3.00E-01	0.397	0.426	7.80	8.36	1200	1800	1.20E-03	1.80E-03	SC-SM/SW-SC	
50																								
60																							SM	3
70																								
80																								
90					5.3		1.64		1.06E-09		9.20E-02		2.95E-01		0.162		7.44		0				SP	
100																								
110																								
120																								
130																								
140																								4
150																								
160																								
170																								
180							**1.64**																	
190																								GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface

Table B-5
Building 40-56, SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153 Vadose Zone Model Input Parameters

Depth (feet bgs)	Total Xylenes Soil Conc (ug/kg)	Total Xylenes Soil Conc (ug/g)	Soil Parameters																Lithology	Model Layer
	S-5	Average	CEC (meq/100g)		Density (g/cm^3)		Intrinsic Permeability (cm^2)		Water Filled Porosity (cm^3/cm^3)		Air Filled Porosity (cm^3/cm^3)		Total Porosity (cm^3/cm^3)		pH		Total Organic Carbon (mg/kg)		Fraction of Organic Carbon (g/g)		USCS Classification	
					1.77		**7.00E-12**		**1.45E-01**		**2.00E-01**		**0.17**		**7**		**0**		**0**			Cap
10					1.87																	
13	6,900,000	6900			1.81																	
15																					SM	1
16.5					1.79																	
20	16,000	16																				
25					1.49		2.51E-09		0.137		0.314		0.451		8.36		2050		2.02E-03		SC-SM	
30	230	0.23	6.8		1.45		2.70E-09		1.20E-01		3.50E-01		0.47		8.28		1700		1.70E-03		CL-ML	2
35			6.9		1.67		1.64E-09		1.69E-01		2.15E-01		0.384		8.5		2200		2.20E-03		CL-ML	
40	2.7	0.0027	5.3	6.1	1.64	1.55	2.25E-09	1.26E-08	1.39E-01	1.27E-01	2.58E-01	3.00E-01	0.397	0.426	7.80	8.36	1200	1800	1.20E-03	1.80E-03	SC-SM/SW-SC	
50																						
60																					SM	3
70																						
80																						
90			5.3		1.64		1.06E-09		9.20E-02		2.95E-01		0.162		7.44		0				SP	
100																						
110																						
120																						
130																						4
140																						
150																						
160																						
170																						
180					**1.64**																	
190																						GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface

Table B-6
Building 40-24, SWMU/AOC Nos. 055 and 168, Utility Trenches and Sumps Vadose Zone Model Input Parameters

Depth (feet bgs)	TBP Soil Concentrations (mg/kg)								TBP Soil Conc (ug/g)		Soil Parameters									Lithology	Model Layer
	PVB-4	ESB1333	ESB1288	PVB-2	ESB1286	ESB1287	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/kg)	Fraction of Organic Carbon (g/g)	USCS Classification	
										0		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
10				160			160	160	0.160	0.16											
12			440		2300	2700	1813	2700	1.813	2.7											1
12.5		220					220	220	0.220	1.9											
15		1		61			31	61	0.031	1.9		1.83	1.48E-10	47.7						SM	
17.5	1900	1.5					951	1900	0.951	1.9											
20		29					29	29	0.029	0.085											
25		14		85			50	85	0.050	0.085		1.77 1.75	5.39E-10 8.31E-10	42.5 49.8						SM	2
30	4						4	4	0.004	0.004											
35		0.093		0.44			0	0.44	0.00027	0.00044										ML	
39	0.26									0.000072											
40										0.000072											
45		0.071					0	0.071	0.000071	0.000072										SM	
50		0.072					0	0.072	0.000072	0.000072											
55										0.000071		1.58	1.67E-08	20.8						SW-SM	3
60		0.071					0	0.071	0.000071	0.000071											
70										0.000000											
80																					
90											5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100																					
110																					
120																					
130																					
140																					4
150																					
160																					
170																					
180												**1.64**									
190																					GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TBP was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-7
Building 40-31, SWMU/AOC No. 171, Former Bluestreak Degreaser Vadose Zone Model Input Parameters

Depth (feet bgs)	TCE Soil Conc (ug/kg)																TCE Soil Conc (ug/g)		Soil Parameters									Lithology	Model Layer
	ESB 1993/2003	ESB 1994	ESB 2002	EXSW1	EXSW2	EXSW3	EXSW4	EXEW1	EXNW1	EXNW2	EXWW1	EXB1	EXB2	EXB4	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/kg)	Fraction of Organic Carbon (g/g)	USCS Classification	
																		0		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
5				200		13									107	200	0.11	0.20											
10			150		1400		140	1500	95	21000	180		980	510	2884	21000	2.88	21.00											
14	7100	11000										200			6100	11000	6.10	11.00											1
15			50												50	50	0.05	0.05										SC-SM	
19	1500	1400													1450	1500	1.45	1.50											
20			5												5	5	0.005	0.005	4.9	1.63	1.32E-08	1.19E-01	2.75E-01	0.393	11.03	2950	2.95E-03	SC-SM	
24	60	110													85	110	0.085	0.110											
25			5												5	5	0.005	0.005			5.33E-09						1.00E+00		
28	8														8	8	0.008	0.008											
29		2													2	2	0.002	0.002	6.1	1.53	1.74E-09	0.146	0.288	0.434	7.67	1750	1.75E-03	SC-SM	2
30	6	4	5												5	6	0.005	0.006											
35	5		5												5	5	0.005	0.005									5.76E-01		
39		6													6	6	0.006	0.006	4.2	1.46	6.62E-10	1.03E-01	3.57E-01	0.46	7.84	1700	1.70E-03	SC-SM	
40	5		5												5	5	0.005	0.005	5.3	1.65	1.06E-09	9.20E-02	2.95E-01	0.162	8.00	710	7.10E-04	SP-SM	
50																	0.000	0.000		1.78								SM	
60																	0.000	0.000									2.41E-01		3
70																	0.000	0.000											
80																	0.000	0.000											
90																			5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100																													
110																													
120																													
130																													4
140																													
150																													
160																													
170																													
180																			**1.69**										
190																													GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TCE was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-8
Building 40-11, SWMU/AOC No. 097, Former Vapor Degreaser Vadose Zone Model Input Parameters

Depth (feet bgs)	TCE Soil Conc (ug/kg)							TCE Soil Conc (ug/g)		Soil Parameters																Lithology	Model Layer
	ESB 1106	ESB 1107	ESB 1323	ESB 1324	ESB 2007	Average	Max	Average	Max	CEC (meq/100g)		Density (g/cm^3)		Intrinsic Permeability (cm^2)		Water Filled Porosity (cm^3/cm^3)		Air Filled Porosity (cm^3/cm^3)		Total Porosity (cm^3/cm^3)		pH		Total Organic Carbon (mg/kg)		Fraction of Organic Carbon (g/g)		USCS Classification	
									0			**1.77**		**7.00E-12**		**1.45E-01**		**2.00E-01**		**0.17**		**7**		**0**		**0**		Cap
1		17				17	17	0.01	0.027																				
2	27					27	27																						
3	18	2.6				10	18																						
5			1.1	1.1	3	2	3																						
10			1.1	1.1	5	2	5	0.003	0.005																			SM	
13			1.1			1	1.1																						1
15					5	5	5																						
18				1.1		1	1.1																						
20					5	5	5	0.002	0.005	10	6.3	1.55	1.61	1.57E-10	1.24E-09	1.45E-01	2.25E-01	2.83E-01	2.46E-01	4.29E-01	4.05E-01	8.16	8.84	590	1450	5.90E-04	1.45E-03	CL-ML	
23				1.1		1	1.1		0.0011																				
25				1.1		1	1.1		0.0011																				
30										3.6		1.47		7.50E-09		1.13E-01		3.45E-01		4.58E-01		9.13		910		9.10E-04		GP-GM	2
35																								1050		1.05E-03			
40										3.6		1.64		1.20E-08		1.14E-01		2.83E-01		0.397		9.13		710		7.10E-04		SM	
50																													
60																													3
70																													
80																													
90										5.3		1.64		1.06E-09		9.20E-02		2.95E-01		0.162		7.44		0				SP	
100																													
110																													
120																													
130																													4
140																													
150																													
160																													
170																													
180											**1.64**																		
190																													GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TCE was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-9
Building 40-53, SWMU/AOC No. 098, Former Mock-Up Degreaser Vadose Zone Model Input Parameters

Depth (feet bgs)	TCE Soil Conc (ug/kg)												TCE Soil Conc (ug/g)		Soil Parameters																		Lithology	Model Layer
	B-1	B-4	B-5	B-6	B-7	B-9	B-10	B-11	ESB1999	ESB2000	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)		Intrinsic Permeability (cm^2)		Water Filled Porosity (cm^3/cm^3)		Air Filled Porosity (cm^3/cm^3)		Total Porosity (cm^3/cm^3)		pH		Total Organic Carbon (mg/kg)		Fraction of Organic Carbon (g/g)		USCS Classification	
														0		**1.77**		**7.00E-12**		**1.45E-01**		**2.00E-01**		**0.17**		**7**		**0**		**0**			Cap
3.5		17			5						11	17	0.032	0.12																				
6		11	28	120							53	120																						
10				1.1					60	43	35	60	0.047	0.15	5.75		1.77		2.17E-09		1.45E-01		2.00E-01		0.17		7.37		1400		1.40E-03			
11	58										58	58																						
12	130				7.2		130				89	130																					SW-SM	
13	43			150				2.6			65	150																						1
15			1.1					1.1	39	85	32	85			5.75																			
18						1.1	1.1				1	1																						
20		1.1			1.1	1.1	1.1	1.1	76	3	12	76	0.005	0.076	4.9	5.86	1.63	1.7	1.32E-08	1.06E-09	1.19E-01	1.40E-01	2.75E-01	2.33E-01	0.393	0.168	11.03	7.29	2950	2050	2.95E-03	2.05E-03		
21							1.1	1.1			1	1																						
25			1.1							5	3	5			6.1												8.36						SW-SM	
29															6.1		1.53		1.74E-09		0.146		0.288		0.434		7.67		1750		1.75E-03			
30									5	61	33	61	0.01875	0.061	10.55		1.45		2.92E-10		3.06E-01		1.59E-01		0.152		7.44		2750		2.75E-03			
35									5	4	5	5																						2
39															4.2		1.46		6.62E-10		1.03E-01		3.57E-01		0.46		7.84		1700		1.70E-03		SM-GM	
40									5	5	5	5	0.005	0.005	5.3		1.65		1.06E-09		9.20E-02		2.95E-01		0.162		8.00		710		7.10E-04		SP-SM	
50																	1.78																SM	
60																																		3
70																																		
80																																		
90															5.3		1.64		1.06E-09		9.20E-02		2.95E-01		0.162		7.44		0				SP	
100																																		
110																																		
120																																		
130																																		4
140																																		
150																																		
160																																		
170																																		
180																	**1.69**																	
190																																		GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TCE was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-10
Building 40-02, SWMU/AOC No. 170, Large Vapor Degreaser Vadose Zone Model Input Parameters

Depth (feet bgs)	TCE Soil Conc (ug/kg)											TCE Soil Conc (ug/g)		Soil Parameters														Lithology	Model Layer
	ESB 1524	ESB 1525	ESB 1526	ESB 1527	ESB 1528	ESB 1529	ESB 1530	ESB 2005	ESB 2006	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/mg)	Fraction of Organic Carbon (g/g)	USCS Classification	
													0		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
8	2.3	4.6	3.7	8.3	0.9	28	9.9			8	28	0.008	0.028											
10	2.6	5.8		3.9		40				13	40	0.011	0.04										SM	1
15								5	11	8	11		0.011											
20								6	6	6	6	0.007	0.006	10 6.3	1.55 1.61	1.57E-10 1.24E-09	1.45E-01 2.25E-01	2.83E-01 2.46E-01	4.29E-01 4.05E-01	8.16 8.84	590 1450	5.90E-04 1.45E-03	CL-ML	
25									8	8	8													
30									7	7	7	0.0065	0.007	3.6	1.47	7.50E-09	1.13E-01	3.45E-01	4.58E-01	9.13	910	9.10E-04	GP-GM	2
35									6	6	6	0.006	0.006								1050	1.05E-03		
40									6	6	6	0.006	0.006	3.6	1.64	1.20E-08	1.14E-01	2.83E-01	0.397	9.13	0.07	7.10E-04	SM	3
50																								
60																								
70																								
80																								
90														5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	4
100																								
110																								
120																								
130																								
140																								
150																								
160																								
170																								
180															**1.64**									
190																								GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TCE was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-11
Building 40-32, Footing Excavation Vadose Zone Model Input Parameters

Depth (feet bgs)	TCE Soil Conc (ug/kg)		TCE Soil Conc (ug/g)		Total Xylenes Soil Conc (ug/kg)		Total Xylenes Soil Conc (ug/g)		TPH-Gas Soil Conc (ug/kg)		TPH-Gas Soil Conc (ug/g)		Soil Parameters									Lithology	Model Layer
	ESB1983	4032D-6	Average	Max	ESB1983	4032D-6	Average	Max	ESB1983	4032D-6	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/mg)	Fraction of Organic Carbon (g/g)	USCS Classification	
			0				**0**				**0**			**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
10	2		0.002	0.002	5		0.005	0.005	7.1		0.007	0.007											
14		3000	3.000	3.00		116000	116.0	116.0		16000	16.0	16.0										SC-SM	
15	20		0.020	0.020	5		0.005	0.005	8.9		0.009	0.009											1
20	6		0.006	0.006	4		0.004	0.004	4.6		0.005	0.005	6.2	1.74	5.47E-10	1.93E-01	1.64E-01	3.58E-01	7.69	840	8.40E-04	SC-SM	
25	6		0.006	0.006	6		0.006	0.006	10		0.010	0.010									1.00E+00		
30	2		0.002	0.002	2		0.002	0.002	8.1		0.008	0.008	5.1	1.51	4.40E-09	1.36E-01	3.02E-01	4.38E-01	7.60	690	6.90E-04	SW-SC	2
35	2		0.002	0.002	2		0.002	0.002	6.6		0.007	0.007									1.22E+00		
40	4		0.004	0.004	4		0.004	0.004	7.7		0.008	0.008	7.6	1.69	2.00E-09	1.61E-01	2.15E-01	3.76E-01	7.73	550	5.50E-04	SC-SM	
50																							
60																						SM	3
70																					1.53E+00		
80																							
90													5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100																							
110																							
120																							
130																							
140																							4
150																							
160																							
170																							
180														**1.665**									
190																							GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TCE, total xylenes or TPH were not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-12
South Complex, SWMU/AOC No. 068, South Fire Pit Vadose Zone Model Input Parameters

Depth (feet bgs)	TPH-Gx Soil Concentrations (ug/kg)													TPH-Dx Soil Conc (ug/g)		TPH-Dx Soil Concentration (ug/kg)														TPH-Dx Soil Conc (ug/g)	
	SFLP-WW-S-2	TrenchW-WW-3	TrenchW-FL-4.5	TrenchS-EW-3	TrenchS-SW-FL4.5	GP-2	GP-9	GP-10	ESB1984	ESB1985	ESB1986	Average	Max	Average	Max	SFLP-WW-S-2	TrenchW-WW-3	TrenchW-FL-4.5	TrenchS-EW-3	TrenchS-SW-FL4.5	GP-2	GP-7	GP-9	GP-10	ESB1984	ESB1985	ESB1986	Average	Max	Average	Max
															0																**0**
1.5													0	0.75	0									370				370	370	2.05	5.8
2	1600											1600	1600	0.22	1.6	5000												5000	5000		
3		1900		5		74	620	700				660	1900	0.00	1.9		5800		5		480	4000	1200	5500				2831	5800		
4.5			5		5							5	5	0.00	0.005			5		5								5	5		
10									5			5	5	0.005	0.006										7.7			7.7	7.7	0.008	0.0077
11										5	3	4	5													7.6	7.6	7.6	7.6		
15									5	6	4	5	6												7.5	7.7	7.6	7.6	7.7		
20										3		3	3	0.004	0.005											7.5	7.6	7.6	7.6	0.008	0.0076
21									4		4	4	4												7.6			7.6	7.6		
25									5	4	4	4	5													7.6	7.6	7.6	7.6		
30											4	4	4	0.00375	0.004												7.5	7.5	7.5	0.007525	0.0077
31.5									3	4		4	4												7.7	7.4		7.6	7.7		
40																															
50																															
60																															
70																															
80																															
90																															
100																															
110																															
120																															
130																															
140																															
150																															
160																															
170																															
180																															
190																															

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TPH was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B12 (continued)
South Complex, SWMU/AOC No. 068, South Fire Pit Vadose Zone Model Input Parameters

Depth (feet bgs)	TPH-Motor Oil Soil Concentration (ug/kg)															TPH-MO Soil Conc (ug/g)		Soil Parameters									Lithology	Model Layer
	SFLP-WW-S-2	TrenchW-WW-3	TrenchW-FL-4.5	TrenchS-EW-3	TrenchS-SW-FL4.5	GP-7	GP-9	GP-10	GP-11	GP-13	ESB1984	ESB1985	ESB1986	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/kg)	Fraction of Organic Carbon (g/g)	USCS Classification	
																	0		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
1.5								2200		48				1124	2200	1.33	13											
2	120													120	120												SW-SM	
3		180		20		6600	13000		450					4050	13000													
4.5			20		20									20	20													
10											33			33	33	0.032	0.033	7	1.64	8.03E-10	1.44E-01	2.46E-01	0.39	7.69	410	4.10E-04	SW-SM	1
11												32	32	32	32													
15											32	33	32	32	33													
20												32	32	32	32	0.032	0.033	4.6	1.72	3.39E-09	1.53E-01	2.12E-01	0.365	7.83	460	4.60E-04	SW-SM	
21											32			32	32													
25											33	32	33	33	33													
30													32	32	32	0.03225	0.033	6.1	1.52	4.47E-09	1.03E-01	3.36E-01	0.439	7.77	420	4.20E-04	SM	2
31.5											33	32		33	33													
40																		5.3	1.65	1.06E-09	9.20E-02	2.95E-01	0.162	8.00	710	7.10E-04	SP-SM	
50																			1.78								SM	
60																												3
70																												
80																												
90																		5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100																												
110																												
120																												
130																												4
140																												
150																												
160																												
170																												
180																			**1.69**									
190																												GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TPH was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-13
Building 40-11, UST EV-48-1 Vadose Zone Model Input Parameters

Depth (feet bgs)	Benzene Soil Conc (ug/kg)												Benzene Soil Conc (ug/g)		Toluene Soil Conc (ug/kg)												Toluene Soil Conc (ug/g)		Total Xylenes Soil Conc (ug/kg)												Total Xylenes Soil Conc (ug/g)	
	ESB 1675	ESB 1676	ESB 1677	ESB 1678	ESB 1679	ESB 1680	ESB 1975	ESB 1976	ESB 1977	ESB 1998	Average	Max	Average	Max	ESB 1675	ESB 1676	ESB 1677	ESB 1678	ESB 1679	ESB 1680	ESB 1975	ESB 1976	ESB 1977	ESB 1998	Average	Max	Average	Max	ESB 1675	ESB 1676	ESB 1677	ESB 1678	ESB 1679	ESB 1680	ESB 1975	ESB 1976	ESB 1977	ESB 1998	Average	Max	Average	Max
														0														**0**														**0**
4	37		1500		620						719	1500	0.366	1.5	140		2400		2900						1813	2900	0.913	2.9	650		122000		17400						46683	122000	23.3587	122
6						13					13	13	0.0069	0.013						13					13	13								34					34	34	0.01975	0.034
10							1	0.3	1	0.5	1	1	0.9092	5.3							6	5	6	1	5	6	5	63							6	5	6	5	6	6	19	230
11			5300	110	43						1818	5300	0.9092	5.3			63000	210	140						21117	63000	5	63			230000	1020	180						77067	230000	19	230
15								0.3	1	0.6	1	1	0.0088	0.017							1	5	5		4	5	0	0.45								5	5	1	4	5	0	0.7
18		17									17	17	0.022	0.091		17									17	17	0	0.45		17									17	17	0	0.7
20			42				0.9	0.3	91	0.4	27	91	0.0269	0.091			120				5	5	450	6	117	450	0.061	0.45			700				5	5	450	6	233	700	0.119	0.7
22.5													0.0006	0.0009														0														
25							0.9	0.3	0.8	0.3	1	0.9	0.0007	0.001							5	6	4	5	5	6		0.006							5	6	4	5	5	6		
30							0.9	1	1	0.3	1	1	0.0008	0.001							4	5	5	6	5	6	0.004625	0.006							4	5	5	6	5	6	0.00513	0.006
35							1	0.5	0.4	1	1	1	0.0007	0.001							6	5	5	1	4	6	0.00425	0.006							6	5	5	5	5	6	0.00525	0.006
39																																										
40							40	1	1	0.7	11	40	0.0107	0.04							5	5	5	5	5	5	0.005	0.005							5	5	5	5	5	5	0.005	0.005
50																																										
60																																										
70																																										
80																																										
90																																										
100																																										
110																																										
120																																										
130																																										
140																																										
150																																										
160																																										
170																																										
180																																										
190																																										

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where Benzene, Toluene and Xylenes were not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B13 (continued)
Building 40-11, UST EV-48-1 Vadose Zone Model Input Parameters

Depth (feet bgs)	Soil Parameters										Lithology	Original Model Layer
	CEC (meq/100g)			Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/mg)	Fraction of Organic Carbon (g/g)	USCS Classification	
				1.77	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
4													
6												GP-SP (fill)	
10													
11												GP-SP (fill)	
15													1
18													
20	6.8	3.2	8.5		1.37E-11	2.57E-01	9.40E-02	0.352	8.31	760	7.60E-04	SC	
22.5	13				9.95E-11	2.82E-01	8.40E-02	0.366	7.17	7950	7.95E-03	SC-SM	
25	6.4												
30	6.1	4.6	4.5		1.71E-09	1.19E-01	1.85E-01	0.305	8.2	140	1.40E-04	GW-GC	2
35													
39	5.2	3.4	7.1		9.28E-09	2.00E-01	1.32E-01	0.332	8.08	550	5.50E-04	SP	
40	5.3			1.65	1.06E-09	9.20E-02	2.95E-01	0.162	8.00	0.07	7.10E-04	SP-SM	
50				1.78								SM	3
60													
70													
80													
90	5.3			1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100													
110													
120													
130													4
140													
150													
160													
170													
180				**1.69**									
190													GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where Benzene was not detected at or above the reporting lin

Table B-14a
Building 45-52, SWMU/AOC No. 165, Former Fuel Farm USTs Vadose Zone Model Input Parameters

Depth (feet bgs)	TPH-Gx Soil Concentrations (ug/kg)														TPH-Gx Soil Conc (ug/g)		TPH-Dx Soil Concentration (ug/kg)														TPH-Dx Soil Conc (ug/g)		Soil Parameters									Lithology	Model Layer
	12	13	14	15	25	57	72	75	76	77	80	93	Average	Max	Average	Max	12	13	14	15	25	57	72	75	76	77	80	93	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/kg)	Fraction of Organic Carbon (g/g)	USCS Classification	
																0																**0**		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
4	5800	2300			14000	10							5528	14000	4.15	14	3100	2000			5500	8920	50700						14044	50700	14.04	50.7											
5												600	600	600														750	750	750												SM	
8							4230	7000	4000	14000	2400		6326	14000										7400	3300	11000	1200		5725	11000													
10															3.333	6.6															1.455	2.8											
11			6600										6600	6600					2800										2800	2800													SM	1
18				66									66	66						110									110.0	110													
20																																	3.2	1.7	2.92E-09	1.35E-01	2.39E-01	0.375	7.86	1250	1.25E-03	GP-GC	
21																																											
25																																											
30																																	4.6	1.66	4.44E-09	1.41E-01	2.49E-01	0.389	7.98	1550	1.55E-03	SW-SC	
39																																	3.4	1.76	3.19E-09	1.21E-01	2.28E-01	0.349	8.18	930	9.30E-04	SC-SM	2
40																																	5.3	1.65	1.06E-09	9.20E-02	2.95E-01	0.162	8.00	0.07	7.10E-04	SP-SM	
50																																		1.78									
60																																											3
70																																											
80																																											
90																																	5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100																																											
110																																											
120																																											
130																																											4
140																																											
150																																											
160																																											
170																																											
180																																		**1.69**									
190																																											GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TPH was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-14b
Building 45-52, SWMU/AOC No. 165, Fuel Stall Piping Vadose Zone Model Input Parameters

Depth (feet bgs)	TPH-Gx Soil Concentrations (ug/kg)												TPH-Gx Soil Conc (ug/g)		Soil Parameters									Lithology	Original Model Layer
	5	6	8	10	11	SC-2	SC-3	SC-7	SC-10	SC-14	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/kg)	Fraction of Organic Carbon (g/g)	USCS Classification	
														0		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
1.5							600	2300	680	1300	600	600	1.16	3											
2.5						2200					2200	2200													
4	900	1600	3000								1833	3000												SM	
7.5						28	12		49	1700	20	28													
10				4300							4300	4300	3.70	4.3											1
11					3100						3100	3100												SM	
15																									
20															3.2	1.7	2.92E-09	1.35E-01	2.39E-01	0.375	7.86	1250	1.25E-03	GP-GC	
21																									
25																									
30															4.6	1.66	4.44E-09	1.41E-01	2.49E-01	0.389	7.98	1550	1.55E-03	SW-SC	2
39															3.4	1.76	3.19E-09	1.21E-01	2.28E-01	0.349	8.18	930	9.30E-04	SC-SM	
40															5.3	1.65	1.06E-09	9.20E-02	2.95E-01	0.162	8.00	0.07	7.10E-04	SP-SM	
50																1.78									
60																									3
70																									
80																									
90															5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100																									
110																									
120																									
130																									4
140																									
150																									
160																									
170																									
180																**1.69**									
190																									GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TPH-Gx was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

Table B-15
Flightline, SWMU/AOC No. 083, Former UST EV-11 Vadose Zone Model Input Parameters

Depth (feet bgs)	TPH-Dx Soil Concentrations (ug/kg)										TPH-Dx Soil Conc (ug/g)		Soil Parameters									Lithology	Model Layer
	BFLT-WS	BFLT-ES	BFLT-NS	BFLT-SS	BFLT-B1	BFLT-B3	BFLT-BOR-ES	BFLT-BOR-SS	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/kg)	Fraction of Organic Carbon (g/g)	USCS Classification	
												0		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
6.5			25						25	25	1.123	2.8											
7.5	31	2100					25	25	545	2100												SM	
8				2800					2800	2800													
10											0.025	0.025											
11					25				25	25												SM	1
13						25			25	25													
15																							
20													3.2	1.7	2.92E-09	1.35E-01	2.39E-01	0.375	7.86	1250	1.25E-03	GP-GC	
25																							
30													4.6	1.66	4.44E-09	1.41E-01	2.49E-01	0.389	7.98	1550	1.55E-03	SW-SC	
39													3.4	1.76	3.19E-09	1.21E-01	2.28E-01	0.349	8.18	930	9.30E-04	CL-ML	2
40													5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP-SM	
50																							
60																							3
70																							
80																							
90													5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100																							
110																							
120																							
130																							4
140																							
150																							
160																							
170																							
180														**1.64**									
190																							GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where TPH-Dx was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers

*Use Boring (ESB1973) from Building 45-01 for physical parameters 20-40 ft bgs

Table B-16
Building 45-01, SWMU/AOC No. 093, Former Solvent USTs Vadose Zone Model Input Parameters

Depth (feet bgs)	2-Butanone (MEK) Soil Conc (ug/kg)																	2-Butanone Soil Conc (ug/g)		Soil Parameters									Lithology	Model Layer
	ESB 1122	ESB 1123	ESB 1127	ESB 1128	ESB 1129	ESB 1130	ESB 1131	ESB 1136	ESB 1137	ESB 1138	ESB 1139	ESB 1140	ESB 1141	ESB 1386 (ESB 1134)	ESB 1973	ESB 1974	Average	Max	Average	Max	CEC (meq/100g)	Density (g/cm^3)	Intrinsic Permeability (cm^2)	Water Filled Porosity (cm^3/cm^3)	Air Filled Porosity (cm^3/cm^3)	Total Porosity (cm^3/cm^3)	pH	Total Organic Carbon (mg/mg)	Fraction of Organic Carbon (g/g)	USCS Classification	
																				0		**1.77**	**7.00E-12**	**1.45E-01**	**2.00E-01**	**0.17**	**7**	**0**	**0**		Cap
3					5.1												5	5.1	0.099	0.33											
5										67				5.4			36	67													
7					5.5					63				5.2			25	63													
9														330			330	330													
10				5.3				170	3500		9200		5100				3595	9200	10.080	140											
12	5.4	5.3	5.4	5.4		5.1	5.2					62000					8862	62000												SM	1
15	5.2	5.3	5.2			5.4	5.3										5	5.4													
18								91	110		57	82000	110	140000	480	31	27860	140000													
20															420	15	218	420	0.410	1.8	3.2	1.7	2.92E-09	1.35E-01	2.39E-01	0.375	7.86	1250	1.25E-03	GP-GC	
23												370		1800			1085	1800													
25															300	56	178	178													
28												160					160	160													
30															48	5	27	48	0.0205	0.048	4.6	1.66	4.44E-09	1.41E-01	2.49E-01	0.389	7.98	1550	1.55E-03	SW-SC	
35															19	10	15	19													2
39																					3.4	1.76	3.19E-09	1.21E-01	2.28E-01	0.349	8.18	930	9.30E-04	SC-SM	
40															5	10	8	10	0.008	0.01	5.3	1.65	1.06E-09	9.20E-02	2.95E-01	0.162	8.00	0.07	7.10E-04	SP-SM	
50																						1.78								SM	
60																															3
70																															
80																															
90																					5.3	1.64	1.06E-09	9.20E-02	2.95E-01	0.162	7.44	0		SP	
100																															
110																															
120																															
130																															4
140																															
150																															
160																															
170																															
180																						**1.69**									
190																															GW @ 200'

CEC = Cation Exchange Capacity
bgs = below ground surface
Note = The reporting limit (see Table 1) is used for the soil concentration for samples where MEK was not detected at or above the reporting limit for the purpose of calculating average and max concentrations for the model layers
Pea gravel backfill observed in ESB 1974 from 2-17 ft bgs. Silty sand over same depth in ESB 1973.

Laboratory Reports

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: PTS Laboratories, Inc

ADDRESS: 8100 Secura Way Santa Fe Springs, CA 90670 (CITY / ZIP CODE)

PROJECT MANAGER: Rachel Spitz (562) 347-2500 (PHONE NUMBER)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing

PROJECT NUMBER: 33764006.12230 (FAX NUMBER)

SITE LOCATION:

SAMPLER SIGNATURE:

PO#:

TURNAROUND TIME: 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ NORMAL ☐ OTHER: _____

SAMPLE INTEGRITY (CHECK): INTACT ____ ON ICE ____

PTS QUOTE NO.:

PTS FILE: 43652

ANALYSIS REQUEST

	SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100, API RP40, D5084	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	Cation Exchange Capacity (EPA 9081)				COMMENTS
15865	ESB1972-20-130923	10/17/13	1530	N/A																			X				
66	ESB1972-30-130923	↓	↓	↓																			X				
67	ESB1972-39-130923																						X				
68	ESB1973-20-130925																						X				
69	ESB1973-30-130925																						X				
70	ESB1973-39-130925																						X				
71	ESB1975-20-130926																						X				
72	ESB1975-30-130926																						X				
73	ESB1975-39-130926																						X				

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: PTS LABS	COMPANY:	COMPANY:	COMPANY: Antest
DATE: 10/18/13 TIME: 09:05	DATE: TIME:	DATE: TIME:	DATE: 10-23-13 TIME: 910

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: PTS Laboratories, Inc.

ADDRESS: 8100 Secura Way | CITY: Santa Fe Springs | CA | ZIP CODE: 90670

PROJECT MANAGER: Rachel Spitz | email: rspitz@ptslabs.com

PROJECT NAME: Boeing Everett Upland Sampling + Pilot Testing | PHONE NUMBER:

PROJECT NUMBER: 33764006.12230 | FAX NUMBER:

SITE LOCATION: —

SAMPLER SIGNATURE: [signature]

PO#:

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☒

OTHER: _____

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) ____

PTS QUOTE NO.: —

PTS FILE: 43761

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR FILLED, WATER FILLED	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE	CEC		COMMENTS
ESB1983-20-131021		1658	N/A																					X		
ESB1983-30.5-131021		59																						X		
ESB1983-40.5-131021		60																						X		
ESB1985-10-131022		61																						X		
ESB1985-20-131022		62																						X		
ESB1986-30-131022		63																						X		
ESB1989-10-131023		64																						X		
ESB1987-20-131023		65																						X		
ESB1987-30-131023		66																						X		
ESB1990-40-131031		67																						X		
ESB1993-29-131026		68																						X		

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
[signature]	[signature]		
COMPANY: PTS Labs. Inc	COMPANY: Amtest	COMPANY:	COMPANY:
DATE: 11/27/13 TIME: 1801	DATE: 12/3/13 TIME: 1000	DATE: TIME:	DATE: TIME:

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: PTS Laboratories, Inc.

ADDRESS: 8100 Secura Way, CITY: Santa Fe Springs, ZIP CODE: CA 90670

PROJECT MANAGER: Rachel Spitz, email: rspitz@ptslabs.com

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing, PHONE NUMBER:

PROJECT NUMBER: 337641006.12230, FAX NUMBER:

SITE LOCATION:

SAMPLER SIGNATURE:

PO#:

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐

OTHER:

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F)____

PTS QUOTE NO.: –

PTS FILE: 43761

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR FILLED, WATER FILLED	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE	CEC		COMMENTS
ESB1994-39-131026		69	N/A																					X		

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: PTS Labs Inc	COMPANY: Amtest	COMPANY:	COMPANY:
DATE: 11/27/13 TIME: 1507	DATE: 12/3/13 TIME: 1000	DATE: TIME:	DATE: TIME:

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

ANALYSIS REPORT

PTS Laboratories, Inc.
8100 Secura Way
Santa Fe Springs, CA 90670
Attention: Rachel Spitz
Project Name: BOEING EVERETT UPLAND SAMPLING & PT
Project #: 33764006.12230
All results reported on an as received basis.

Date Received: 10/23/13
Date Reported: 10/29/13

AMTEST Identification Number **13-A015865**
Client Identification **ESB1972-20-130923**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.8	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015866**
Client Identification **ESB1972-30-130923**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.1	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015867**
Client Identification **ESB1972-39-130923**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	5.2	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015868**
Client Identification **ESB1973-20-130925**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	3.2	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015869**
Client Identification **ESB1973-30-130925**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	4.6	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015870**
Client Identification **ESB1973-39-130925**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	3.4	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015871**
Client Identification **ESB1975-20-130926**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	8.5	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015872**
Client Identification **ESB1975-30-130926**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	4.5	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015873**
Client Identification **ESB1975-39-130926**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	7.1	meq/100g		0.5	SW-846 9081	CG	10/25/13

Kathy Fugiel
President

Am Test Inc.
13600 NE 126th PL
Suite C
Kirkland, WA, 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

QC Summary for sample numbers: 13-A015865 to 13-A015873

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
13-A015873	Cation Exchange Capacity	meq/100g	7.1	7.0	1.4

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Cation Exchange Capacity	meq/100g	10.	10.	100. %

BLANKS

ANALYTE	UNITS	RESULT
Cation Exchange Capacity	meq/100g	< 0.5

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

ANALYSIS REPORT

PTS Laboratories, Inc.
8100 Secura Way
Santa Fe Springs, CA 90670
Attention: Rachel Spitz
Project Name: BOEING EVERETT UPLAND SAMPLING P.T.
Project #: 33764006.12230
All results reported on an as received basis.

Date Received: 12/03/13
Date Reported: 12/13/13

AMTEST Identification Number **13-A017658**
Client Identification **ESB1983-20-131021**
Sampling Date **10/21/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.2	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017659**
Client Identification **ESB1983-30.5-131021**
Sampling Date **10/21/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	5.1	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017660**
Client Identification **ESB1983-40.5-131021**
Sampling Date **10/21/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	7.6	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017661**
Client Identification **ESB1985-10-131022**
Sampling Date **10/22/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	7.0	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017662**
Client Identification **ESB1985-20-131022**
Sampling Date **10/22/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	4.6	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017663**
Client Identification **ESB1986-30-131022**
Sampling Date **10/22/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.1	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017664**
Client Identification **ESB1989-10-131023**
Sampling Date **10/23/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	4.5	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017665**
Client Identification **ESB1987-20-131023**
Sampling Date **10/23/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.9	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017666**
Client Identification **ESB1987-30-131023**
Sampling Date **10/23/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	15.	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017667**
Client Identification **ESB1996-40-131031**
Sampling Date **10/31/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	5.3	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017668**
Client Identification **ESB1993-29-131026**
Sampling Date **10/26/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.1	meq/100g		0.5	SW-846 9081	CG	12/06/13

AMTEST Identification Number **13-A017669**
Client Identification **ESV1994-39-131026**
Sampling Date **10/26/13**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	4.2	meq/100g		0.5	SW-846 9081	CG	12/06/13

Kathy Fugiel
President

Am Test Inc.
13600 NE 126th PL
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(425) 885-1664
www.amtestlab.com

Professional Analytical Services

QC Summary for sample numbers: 13-A017658 to 13-A017669

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
13-A017663	Cation Exchange Capacity	meq/100g	6.1	5.1	18.
13-A017669	Cation Exchange Capacity	meq/100g	4.2	3.8	10.

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Cation Exchange Capacity	meq/100g	4.0	4.0	100. %
Cation Exchange Capacity	meq/100g	4.0	4.0	100. %

BLANKS

ANALYTE	UNITS	RESULT
Cation Exchange Capacity	meq/100g	< 0.5
Cation Exchange Capacity	meq/100g	< 0.5

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(425) 885-1664
www.amtestlab.com

Professional Analytical Services

ANALYSIS REPORT

PTS Laboratories, Inc.
8100 Secura Way
Santa Fe Springs, CA 90670
Attention: Rachel Spitz
Project Name: Boeing Everett Upland Samp&Pilottes
Project #: 33764444.12230
PO Number: 14-029
All results reported on an as received basis.

Date Received: 01/27/14
Date Reported: 2/ 4/14

AMTEST Identification Number **14-A000996**
Client Identification **ESB1979-30-131205**
Sampling Date **01/22/14, 13:45**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.8	meq/100g		0.5	SW-846 9081	CG	02/03/14

AMTEST Identification Number **14-A000997**
Client Identification **ESB1979-35-131205**
Sampling Date **01/22/14, 13:45**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.9	meq/100g		0.5	SW-846 9081	CG	02/03/14

AMTEST Identification Number **14-A000998**
Client Identification **ESB1997-40-131207**
Sampling Date **01/22/14, 13:52**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.1	meq/100g		0.5	SW-846 9081	CG	02/03/14

AMTEST Identification Number **14-A000999**
Client Identification **ESB2000-25-131209**
Sampling Date **01/22/14, 13:57**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.4	meq/100g		0.5	SW-846 9081	CG	02/03/14

AMTEST Identification Number **14-A001000**
Client Identification **ESB1998-22.5-131116**
Sampling Date **01/22/14, 14:00**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	13.	meq/100g		0.5	SW-846 9081	CG	02/03/14

Kathy Fugiel
President

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13600 NE 126th PL
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(425) 885-1664
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Professional Analytical Services

QC Summary for sample numbers: 14-A000996 to 14-A001000

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
14-A001008	Cation Exchange Capacity	meq/100g	3.1	2.7	14.
14-A001017	Cation Exchange Capacity	meq/100g	3.3	3.8	14.

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Cation Exchange Capacity	meq/100g	4.0	3.7	92.5 %

BLANKS

ANALYTE	UNITS	RESULT
Cation Exchange Capacity	meq/100g	< 0.5

Am Test Inc.
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Professional Analytical Services

ANALYSIS REPORT

PTS Laboratories, Inc.
8100 Secura Way
Santa Fe Springs, CA 90670
Attention: Michael Mark Brady
Project Name: Boeing Everett Upland Sampling
Project #: 33764444
PO Number: 14-092
All results reported on an as received basis.

Date Received: 03/05/14
Date Reported: 3/21/14

AMTEST Identification Number **14-A002807**
Client Identification **ESB 2003-20-140215**
Sampling Date **02/28/14, 09:02**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	4.9	meq/100g		0.5	SW-846 9081	CG	03/13/14

Kathy Fugiel
President

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Professional Analytical Services

QC Summary for sample number: 14-A002807

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
14-A002946	Cation Exchange Capacity	meq/100g	4.7	5.1	8.2

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Cation Exchange Capacity	meq/100g	10.	11.	110. %

BLANKS

ANALYTE	UNITS	RESULT
Cation Exchange Capacity	meq/100g	< 0.5

Am Test Inc.
13600 NE 126TH PL
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Kirkland, WA 98034
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Professional Analytical Services

ANALYSIS REPORT

PTS Laboratories, Inc.
8100 Secura Way
Santa Fe Springs, CA 90670
Attention: Michael Mark Brady
Project Name: Boeing Evt Upland Sampling Pilot
Project #: 33764444
PO Number: 14-188
All results reported on an as received basis.

Date Received: 05/09/14
Date Reported: 5/15/14

AMTEST Identification Number **14-A006880**
Client Identification **ESB2005-20-140419**
Sampling Date **05/05/14, 13:45**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cation Exchange Capacity	10.	meq/100g		0.5	SW-846 9081	EB	05/14/14

AMTEST Identification Number **14-A006881**
Client Identification **ESB2006-20-140419**
Sampling Date **05/05/14, 13:45**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cation Exchange Capacity	6.3	meq/100g		0.5	SW-846 9081	EB	05/14/14

AMTEST Identification Number **14-A006882**
Client Identification **ESB2006-30-140419**
Sampling Date **05/05/14, 13:45**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cation Exchange Capacity	3.6	meq/100g		0.5	SW-846 9081	EB	05/14/14

AMTEST Identification Number **14-A006883**
Client Identification **ESB2006-40-140419**
Sampling Date **05/05/14, 13:45**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cation Exchange Capacity	3.6	meq/100g		0.5	SW-846 9081	EB	05/14/14

AMTEST Identification Number **14-A006884**
Client Identification **ESB2004-20-140329**
Sampling Date **05/05/14, 13:45**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cation Exchange Capacity	8.3	meq/100g		0.5	SW-846 9081	EB	05/14/14

AMTEST Identification Number **14-A006885**
Client Identification **ESB2004-30-140329**
Sampling Date **05/05/14, 13:45**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cation Exchange Capacity	4.2	meq/100g		0.5	SW-846 9081	EB	05/14/14

AMTEST Identification Number **14-A006886**
Client Identification **ESB2004-40-140329**
Sampling Date **05/05/14, 13:45**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Cation Exchange Capacity	2.2	meq/100g		0.5	SW-846 9081	EB	05/14/14

Kathy Fugiel
President

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13600 NE 126th PL
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(425) 885-1664
www.amtestlab.com

Professional Analytical Services

QC Summary for sample numbers: 14-A006880 to 14-A006886

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
14-A006886	Cation Exchange Capacity	meq/100g	2.2	2.2	0.00

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Cation Exchange Capacity	meq/100g	10.	11.	110. %

BLANKS

ANALYTE	UNITS	RESULT
Cation Exchange Capacity	meq/100g	< 0.5

Boeing Chain of Custody

(1) Client Information

Site Location: Boeing Everett
Site Project: FS
Site Program/#: 3376 ~~46444~~. 12230 New Proj. #
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: _____ # of Coolers: _____

(4) Analyses Requested

(2) Sample Identification	Collected Date	Collected Time	(3) Matrix	No. of Containers	Vapor Transport Parameters	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045
ESB1979-30-131205	12/5/13	12:0	Soil	1	X	X	X	X
ESB1979-35-131205	12/5/13	12:15	↓	↓	X	X	X	X
ESB1997-40-131207	12/7/13	12:40	↓	↓	X	X	X	X
ESB2000-25-131209	12/9/13	11:50	↓	↓	X	X	X	X
ESB1998-22.5-131116	11/16/13	11:25	↓	↓	X	X	X	X

Note: These are sample depths in feet

(5) Remarks/Comments

Mark Molinari Contact Info
206-438-2235
markimolinari@urs.com
URS P.O.# 297222-US

Don't do permeability if insufficient sample
Don't do permeability if insufficient sample

Note: ESB1979-30, ESB1997-40 and ESB2000-25 are all partial samples or disturbed at one end. Only run permeability if sufficient undisturbed sample.

(6) Turnaround Time Requested (please circle)

Standard | 5 day | 4 day
72 hour | 48 hour | 24 hour

Date needed: _____

(7)

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	11/16/14 12pm		
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Relinquished by commercial carrier (circle): UPS FedEx Other: _____

Boeing Chain of Custody

1 Client Information

Site Location: Boeing Everett
Site Project: FS
Site Program/#: 33764006
Boeing PM: Nick Gawson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler:
# of Coolers:

4 Analyses Requested

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
markmolinari@urs.com
URS P.O. # 297222-US

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Parameters (EPA 8260)	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045
ESB 1983-20 -131021	10/21/13	NA	Soil	1	X	X	X	X
ESB 1983-30 - 131021	↓	↓	↓	1	X	X	X	X
ESB 1983-40 - 131021	↓	↓	↓	1	X	X	X	X
ESB 1985-10 -131022	10/22/13	↓	↓	1	X	X	X	X
ESB 1985-20 - 131022	↓	↓	↓	1	X	X	X	X
ESB 1986-30 - 131022	↓	↓	↓	1	X	X	X	X
ESB 1987-10 - 131023	10/23/13	↓	↓	1	X	X	X	X
ESB 1987-20 - 131023	↓	↓	↓	1	X	X	X	X
ESB 1989-30 131023	↓	↓	↓	1	X	X	X	X
ESB 1996-40 - 131031	10/31/13	↓	↓	1	X	X	X	X
ESB 1993-29 - 131026	10/26/13	↓	↓	1	X	X	X	X
ESB 1994-39 - 131026	↓	↓	↓	1	X	X	X	X

6 Turnaround Time Requested (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

Date needed:

7

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	10/15/13 3pm		
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Relinquished by commercial carrier (circle): UPS FedEx Other:

Issued by Dept. 40 Management

Boeing Chain of Custody

1 Client Information

Site Location: Boeing Everett
Site Project: FS
Site Program/#: 33764444
Boeing PM: Nick Gerson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: # of Coolers:

4 Analyses Requested

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
mark.molinari@urs.com
URS PO.# 297222-US

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Parameters	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045
ESB 2003-20-140215	2/15/14		Soil	1	X	X	X	X

6 Turnaround Time Requested (please circle)

Standard | 5 day | 4 day
72 hour | 48 hour | 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	2/18/14 2:30pm		
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Relinquished by commercial carrier (circle): UPS FedEx Other: _____

7

Issued by Dept. 40 Management

Boeing Chain of Custody

43652

(1) Client Information

Site Location: Boeing Everett
Site Project: FS Bldg 40-51, Bldg 45-01, EV-48-1
Site Program/#: 3376 4006
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: Demetrio Cabanillas # of ~~Coolers~~ Box: 1

(4) Analyses Requested

(5) Remarks/Comments

Mark Molinari Contact Info
206-438-2235
markimolinari@urs.com

*As modified per URS P.O. #29722US

(2) Sample Identification	Collected Date	Collected Time	(3) Matrix	No. of Containers	Vapor Transport Packing *	EPA 9081 Cation Exchange Capacity	Specific Gravity ASTM D854	Soil pH EPA 9045	Remarks/Comments
ESB1972-20-130923	9/23/13		Soil	1	X	X	X	X	
ESB1972-30-130923	↓		↓	↓	X	X	X	X	
ESB1972-39-130923	↓		↓	↓	X	X	X	X	
ESB1971-20-130923	↓		↓	↓	—	—	—	—	Hold as backup for
ESB1971-39-130923	↓		↓	↓	—	—	—	—	ESB1972 samples
ESB1973-20-130925	9/25/13		↓	↓	X	X	X	X	
ESB1973-30-130925	↓		↓	↓	X	X	X	X	
ESB1973-39-130925	↓		↓	↓	X	X	X	X	
ESB1975-20-130926	9/26/13		↓	↓	X	X	X	X	
ESB1975-30-130926	↓		↓	↓	X	X	X	X	
ESB1975-39-130926	↓		↓	↓	X	X	X	X	
ESB1976-30-130926	↓		↓	↓	—	—	—	—	Hold as backup for ESB1975 sample

(6) Turnaround Time Requested (please circle)

Standard | 5 day | 4 day
72 hour | 48 hour | 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	10/2/13 3pm	[signature]	10/4/13 14:42

(7)

Relinquished by commercial carrier (circle): UPS FedEx Other: _____

73°F

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7063.02

Boeing Chain of Custody

43761

1 Client Information

Site Location: Boeing Everette
Site Project: FS
Site Program/#: 33764006
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: _____ # of Coolers: _____

4 Analyses Requested

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
markomolinari@urs.com
URS P.O. # 297222-05

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Parameters	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045
ESB 1983-20 -131021	10/21/13	NA	Soil	1	X	X	X	X
ESB 1983-30 - 131021	↓	↓	↓	1	X	X	X	X
ESB 1983-40 - 131021	↓	↓	↓	1	X	X	X	X
ESB 1985-10 -131022	10/22/13	↓	↓	1	X	X	X	X
ESB 1985-20 - 131022	↓	↓	↓	1	X	X	X	X
ESB 1986-30- 131022	↓	↓	↓	1	X	X	X	X
ESB 1987-10 - 131023	10/23/13	↓	↓	1	X	X	X	X
ESB 1987-20-131023	↓	↓	↓	1	X	X	X	X
ESB 1989-30 131023	↓	↓	↓	1	X	X	X	X
ESB 1996-40 -131031	10/31/13	↓	↓	1	X	X	X	X
ESB 1993 -29 - 131026	10/26/13	↓	↓	1	X	X	X	X
ESB 1994-39 - 131026	↓	↓	↓	1	X	X	X	X

6 Turnaround Time Requested (please circle)

Standard (circled) | 5 day | 4 day
72 hour | 48 hour | 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	10/15/13 3pm	[signature]	10/18/13 13:10
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Relinquished by commercial carrier (circle): UPS FedEx (circled) Other: _____

71°F

7

Issued by Dept. 40 Management
7063.02

Boeing Chain of Custody

44028

1 Client Information

Site Location: Boeing Everett
Site Project: FS
Site Program/#: 33764444.12230 New Proj. #
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: _____ # of Coolers: _____

4 Analyses Requested

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Package	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045								
ESB1979-30-131205	12/5/13	12:05	Soil	1	X	X	X	X								
ESB1979-35-131205	12/5/13	12:15	↓	↓	X	X	X	X								
ESB1997-40-131207	12/7/13	12:40	↓	↓	X	X	X	X								
ESB2000-25-131209	12/9/13	11:50	↓	↓	X	X	X	X								
ESB1998-22.5-131116	11/16/13	11:25	↓	↓	X	X	X	X								

Note: These are sample depths in feet

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
mark.molinari@urs.com
URS P.O. # 297222-US

Don't do permeability if insufficient sample

Don't do permeability if insufficient sample

Note: ESB1979-30, ESB 1997-40 and ESB 2000-25 are all partial samples or disturbed at one end. Only run permeability if sufficient undisturbed sample.

6 Turnaround Time Requested (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	1/16/14 12pm	[signature]	1/20/14 10:55

Relinquished by commercial carrier (circle): UPS FedEx Other: _____

68 °F

7

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7063.02

Boeing Chain of Custody

44250

1 Client Information

Site Location: Boeing Everett
Site Project: FS
Site Program/#: 3376 44441
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: Anthony Palmieri # of Coolers:

4 Analyses Requested

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
mark.molinari@urs.com
URS P.O. # 297222-US

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Package	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045	Remarks/Comments
ESB2005-20-140419	4/19/14		soi	1	X	X	X	X	Depth 20'
ESB 2006-20 -140419	4/19/14	13:37	↓	↓	X	X	X	X	" 20'
ESB2006-30 -140419	4/19/14	14:15	↓	↓	X	X	X	X	" 30'
ESB2006-40 -140419	4/19/14	14:45	↓	↓	X	X	X	X	" 40'
ESB2004-20-140329	3/29/14	14:25	↓	↓	X	X	X	X	note: These are
ESB2004-30-140329	3/29/14	15:05	↓	↓	X	X	X	X	partial samples
ESB2004-40-140329	3/29/14	15:25	↓	↓	X	X	X	X	or partially disturbed
									only run permeability
									if sufficient undisturbed
									sample. Rest of vapor
									transport package is
									priority over pH and
									CEC

6 Turnaround Time Requested (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
[signature]	4/23/14 1200	[signature] PES LABS	4/25/14 12100
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Relinquished by commercial carrier (circle): UPS FedEx Other: _____

71°F

7

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7063.02

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

PTS Laboratories

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1972-20-130923	N/A	20131022 / 0740	24.9	0.9988	332.49	115.75	405.91	2.73	2.73
ESB1972-30-130923	N/A	20131022 / 0740	24.9	0.9988	667.14	184.32	783.54	2.71	2.71
ESB1972-39-130923	N/A	20131022 / 0740	24.9	0.9988	332.97	142.48	423.21	2.73	2.72
ESB1973-20-130925	N/A	20131022 / 0740	24.9	0.9988	671.46	191.80	792.70	2.72	2.72
ESB1973-30-130925	N/A	20131022 / 0740	24.9	0.9988	334.91	140.38	423.94	2.73	2.73
ESB1973-39-130925	N/A	20131022 / 0740	24.9	0.9988	333.46	97.46	395.28	2.73	2.73
ESB1975-20-130926	N/A	20131022 / 0740	24.9	0.9988	348.27	137.32	435.38	2.73	2.73
ESB1975-30-130926	N/A	20131022 / 0740	24.9	0.9988	356.21	104.29	422.43	2.74	2.74
ESB1975-39-130926	N/A	20131022 / 0740	24.9	0.9988	339.27	105.73	406.70	2.76	2.76

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

PTS Laboratories

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1983-20-131021	N/A	20131206/1435	20.7	0.9999	348.54	86.75	403.27	2.71	2.71
ESB1983-30.5-131021	N/A	20131206/1435	20.7	0.9999	356.48	103.99	422.07	2.71	2.71
ESB1983-40.5-131021	N/A	20131206/1435	20.7	0.9999	340.52	107.94	408.54	2.70	2.70
ESB1985-10-131022	N/A	20131206/1435	20.7	0.9999	332.75	120.54	408.81	2.71	2.71
ESB1985-20-131022	N/A	20131206/1435	20.7	0.9999	333.23	130.12	415.05	2.69	2.69
ESB1986-30-131022	N/A	20131206/1435	20.7	0.9999	335.17	112.63	406.55	2.73	2.73
ESB1989-10-131023	N/A	20131209/0944	21.5	0.9997	348.48	103.34	413.51	2.70	2.70
ESB1987-20-131023	N/A	20131209/0944	21.5	0.9997	356.42	130.19	438.63	2.71	2.71
ESB1987-30-131023	N/A	20131209/0944	21.5	0.9997	340.47	109.57	408.99	2.67	2.67
ESB1996-40-131031	N/A	20131209/0944	21.5	0.9997	332.70	107.52	400.29	2.69	2.69
ESB1993-29-131026	N/A	20131209/0944	21.5	0.9997	333.18	103.63	398.27	2.69	2.69
ESB1994-39-131026	N/A	20131209/0944	21.5	0.9997	335.12	102.47	399.54	2.69	2.69

PTS Laboratories

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1979-30-131205	30.4	20140206/1014	22.3	0.9995	356.37	127.09	436.71	2.72	2.72
ESB1979-35-131205	35.35	20140206/1014	22.3	0.9995	339.42	134.68	424.64	2.72	2.72
ESB1997-40-131207	40.4	20140206/1014	22.3	0.9995	332.64	132.12	416.34	2.73	2.73
ESB2000-25-131209	25.4	20140206/1014	22.3	0.9995	333.12	138.66	420.84	2.72	2.72
ESB1998-22.5-131116	22.9	20140206/1014	22.3	0.9995	335.06	157.61	434.05	2.69	2.69

PTS Laboratories

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB2003-20-140215	20	20140304/1110	23.3	0.9992	332.59	96.43	393.36	2.70	2.70

PTS Laboratories, Inc.

URS Corporation
PTS File No: 44028

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764444.12230

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
ESB2000-25-131209	25.25	Medium sand	0.504	21.22	1.66	31.38	33.41	12.33
ESB1998-22.5-131116	22.75	Gravel	0.497	27.79	1.38	24.34	32.32	14.16

(1) Based on Mean fromTrask

PTS Laboratories, Inc.

URS Corporation
PTS File No: 44112

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764444

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
ESB200320140215	20	Fine sand	0.276	3.34	4.51	28.24	45.76	18.15

(1) Based on Mean fromTrask

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

Soil pH
(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1972-20-130923	N/A	20131017	1415	78.6	Soil	7.56
ESB1972-30-130923	N/A	20131017	1415	78.6	Soil	7.77
ESB1972-39-130923	N/A	20131017	1415	78.6	Soil	8.00
ESB1973-20-130925	N/A	20131017	1415	78.6	Soil	7.86
ESB1973-30-130925	N/A	20131017	1415	78.6	Soil	7.98
ESB1973-39-130925	N/A	20131017	1415	78.6	Soil	8.18
ESB1975-20-130926	N/A	20131017	1415	78.6	Soil	8.31
ESB1975-30-130926	N/A	20131017	1415	78.6	Soil	8.20
ESB1975-39-130926	N/A	20131017	1415	78.6	Soil	8.08

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131017/1555
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

Soil pH
(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1983-20-131021	N/A	20131127	1512	77.7	SOIL	7.69
ESB1983-30.5-131021	N/A	20131127	1512	77.7	SOIL	7.60
ESB1983-40.5-131021	N/A	20131127	1512	77.7	SOIL	7.73
ESB1985-10-131022	N/A	20131127	1512	77.7	SOIL	7.69
ESB1985-20-131022	N/A	20131127	1512	77.7	SOIL	7.83
ESB1986-30-131022	N/A	20131127	1512	77.7	SOIL	7.77
ESB1989-10-131023	N/A	20131127	1512	77.7	SOIL	7.37
ESB1987-20-131023	N/A	20131127	1512	77.7	SOIL	7.29
ESB1987-30-131023	N/A	20131127	1512	77.7	SOIL	7.44
ESB1996-40-131031	N/A	20131127	1512	77.7	SOIL	7.80
ESB1993-29-131026	N/A	20131127	1512	77.7	SOIL	7.67
ESB1994-39-131026	N/A	20131127	1512	77.7	SOIL	7.84

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131127/1512
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1979-30-131205	30	20140204	1455	74.8	Soil	8.28
ESB1979-35-131205	35	20140204	1455	74.8	Soil	8.50
ESB1997-40-131207	40	20140204	1455	74.8	Soil	8.41
ESB2000-25-131209	25	20140204	1455	74.8	Soil	8.36
ESB1998-22.5-131116	22.5	20140204	1455	74.8	Soil	7.17

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20140204/1446
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB2003-20-140215	20	20140228	1343	76.8	Soil	11.03

QC DATA

Meter Model/Type: Corning pH Meter 240

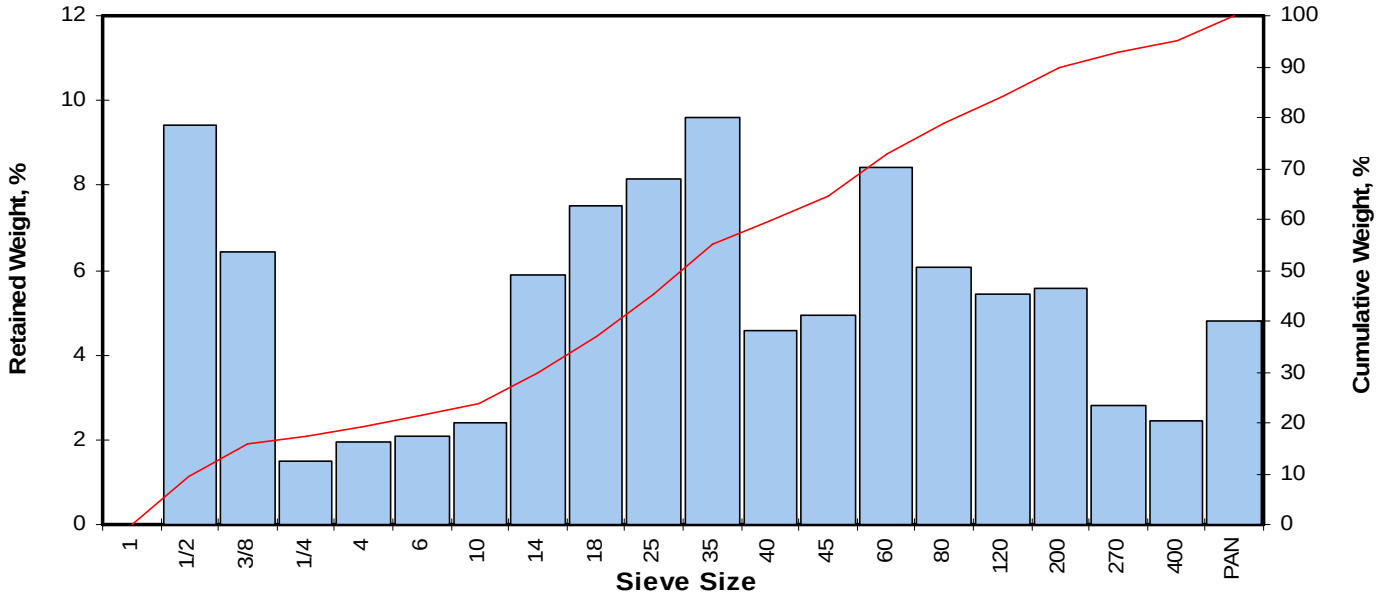
METER CALIBRATION	Date/Time: 20140228/1329
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-20-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	15.78	9.43	9.43
0.3740	9.500	-3.25	3/8	10.74	6.42	15.85
0.2500	6.351	-2.67	1/4	2.51	1.50	17.35
0.1873	4.757	-2.25	4	3.27	1.95	19.31
0.1324	3.364	-1.75	6	3.45	2.06	21.37
0.0787	2.000	-1.00	10	4.01	2.40	23.77
0.0557	1.414	-0.50	14	9.81	5.86	29.63
0.0394	1.000	0.00	18	12.60	7.53	37.17
0.0278	0.707	0.50	25	13.65	8.16	45.33
0.0197	0.500	1.00	35	16.08	9.61	54.94
0.0166	0.420	1.25	40	7.63	4.56	59.50
0.0139	0.354	1.50	45	8.23	4.92	64.42
0.0098	0.250	2.00	60	14.06	8.41	72.82
0.0070	0.177	2.50	80	10.17	6.08	78.90
0.0049	0.125	3.00	120	9.09	5.43	84.34
0.0029	0.074	3.75	200	9.34	5.58	89.92
0.0021	0.053	4.25	270	4.70	2.81	92.73
0.0015	0.037	4.75	400	4.12	2.46	95.19
			PAN	8.04	4.81	100.00
TOTALS				167.28	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.11	0.6817	17.315
10	-3.61	0.4804	12.202
16	-3.19	0.3596	9.135
25	-0.90	0.0732	1.860
40	0.17	0.0349	0.887
50	0.74	0.0235	0.597
60	1.28	0.0163	0.413
75	2.18	0.0087	0.221
84	2.97	0.0050	0.128
90	3.76	0.0029	0.074
95	4.71	0.0015	0.038

Measure	Trask	Inman	Folk-Ward
Median, phi	0.74	0.74	0.74
Median, in.	0.0235	0.0235	0.0235
Median, mm	0.597	0.597	0.597
Mean, phi	-0.06	-0.11	0.17
Mean, in.	0.0410	0.0425	0.0349
Mean, mm	1.040	1.080	0.887
Sorting	2.902	3.080	2.877
Skewness	1.073	-0.277	-0.189
Kurtosis	0.068	0.433	1.177
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	19.31
Coarse Sand	10	4.46
Medium Sand	40	35.73
Fine Sand	200	30.42
Silt/Clay	<200	10.08
	Total	100

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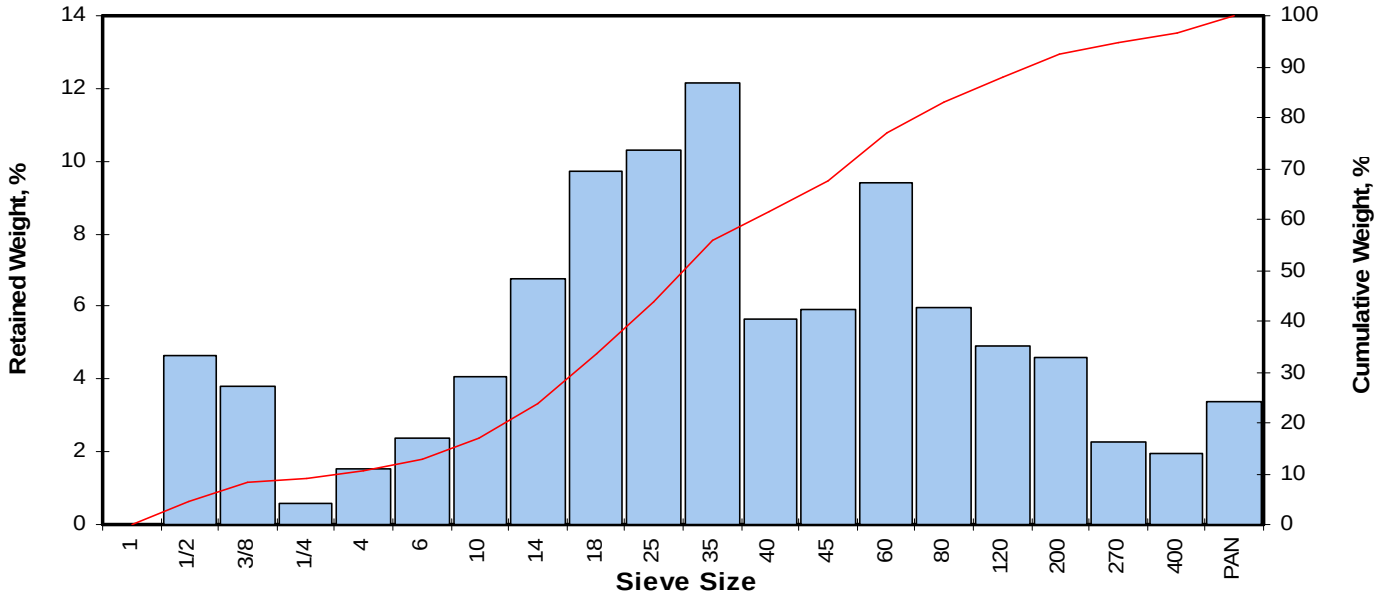
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-30-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	5.67	4.67	4.67
0.3740	9.500	-3.25	3/8	4.64	3.82	8.48
0.2500	6.351	-2.67	1/4	0.71	0.58	9.07
0.1873	4.757	-2.25	4	1.88	1.55	10.62
0.1324	3.364	-1.75	6	2.88	2.37	12.99
0.0787	2.000	-1.00	10	4.96	4.08	17.07
0.0557	1.414	-0.50	14	8.23	6.77	23.84
0.0394	1.000	0.00	18	11.80	9.71	33.55
0.0278	0.707	0.50	25	12.53	10.31	43.86
0.0197	0.500	1.00	35	14.78	12.16	56.02
0.0166	0.420	1.25	40	6.89	5.67	61.69
0.0139	0.354	1.50	45	7.20	5.92	67.62
0.0098	0.250	2.00	60	11.40	9.38	77.00
0.0070	0.177	2.50	80	7.24	5.96	82.96
0.0049	0.125	3.00	120	5.95	4.90	87.85
0.0029	0.074	3.75	200	5.59	4.60	92.45
0.0021	0.053	4.25	270	2.73	2.25	94.70
0.0015	0.037	4.75	400	2.35	1.93	96.63
			PAN	4.09	3.37	100.00
TOTALS				121.52	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.61	0.4805	12.205
10	-2.42	0.2101	5.337
16	-1.20	0.0902	2.291
25	-0.44	0.0534	1.357
40	0.31	0.0317	0.805
50	0.75	0.0234	0.594
60	1.18	0.0174	0.443
75	1.89	0.0106	0.269
84	2.61	0.0065	0.164
90	3.35	0.0039	0.098
95	4.33	0.0020	0.050

Measure	Trask	Inman	Folk-Ward
Median, phi	0.75	0.75	0.75
Median, in.	0.0234	0.0234	0.0234
Median, mm	0.594	0.594	0.594
Mean, phi	0.30	0.71	0.72
Mean, in.	0.0320	0.0241	0.0239
Mean, mm	0.813	0.613	0.607
Sorting	2.245	1.901	2.153
Skewness	1.018	-0.025	-0.062
Kurtosis	0.104	1.087	1.394
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	10.62
Coarse Sand	10	6.45
Medium Sand	40	44.63
Fine Sand	200	30.76
Silt/Clay	<200	7.55
	Total	100

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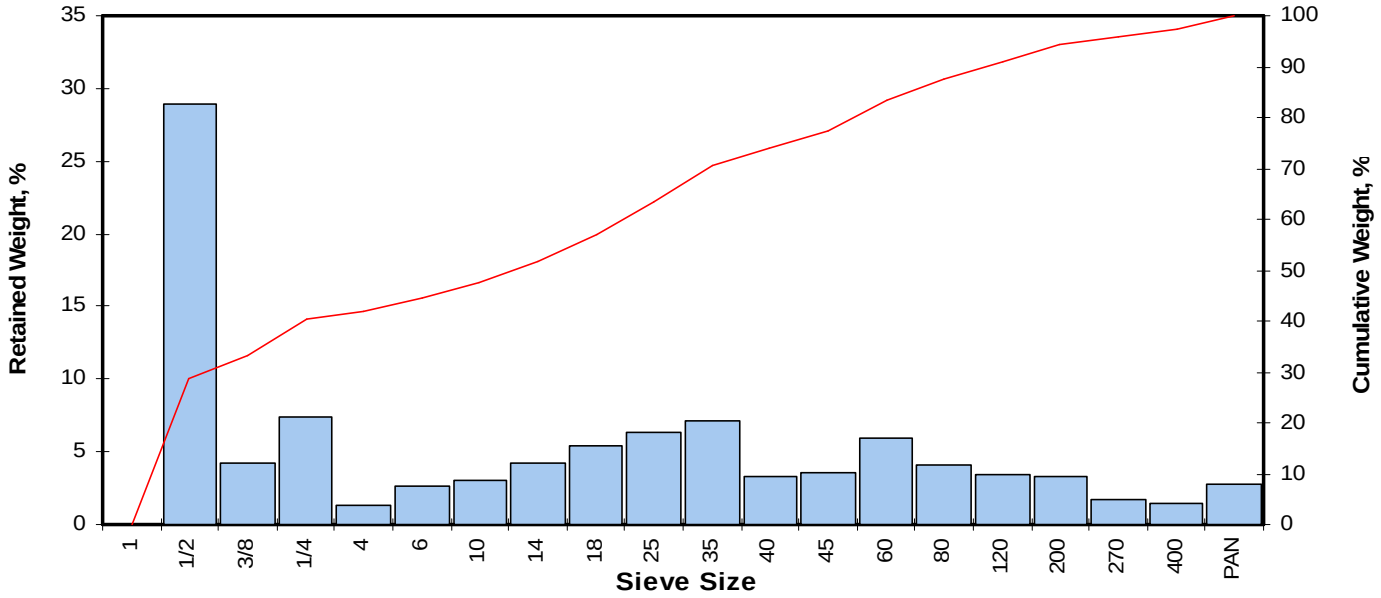
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-39-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	43.56	28.87	28.87
0.3740	9.500	-3.25	3/8	6.32	4.19	33.06
0.2500	6.351	-2.67	1/4	11.16	7.40	40.45
0.1873	4.757	-2.25	4	2.08	1.38	41.83
0.1324	3.364	-1.75	6	3.98	2.64	44.47
0.0787	2.000	-1.00	10	4.54	3.01	47.48
0.0557	1.414	-0.50	14	6.29	4.17	51.64
0.0394	1.000	0.00	18	8.13	5.39	57.03
0.0278	0.707	0.50	25	9.60	6.36	63.39
0.0197	0.500	1.00	35	10.73	7.11	70.50
0.0166	0.420	1.25	40	4.99	3.31	73.81
0.0139	0.354	1.50	45	5.29	3.51	77.32
0.0098	0.250	2.00	60	9.03	5.98	83.30
0.0070	0.177	2.50	80	6.23	4.13	87.43
0.0049	0.125	3.00	120	5.22	3.46	90.89
0.0029	0.074	3.75	200	4.95	3.28	94.17
0.0021	0.053	4.25	270	2.50	1.66	95.83
0.0015	0.037	4.75	400	2.19	1.45	97.28
			PAN	4.11	2.72	100.00
TOTALS				150.90	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.47	0.8730	22.174
10	-4.30	0.7742	19.665
16	-4.09	0.6703	17.027
25	-3.78	0.5401	13.718
40	-2.70	0.2563	6.509
50	-0.70	0.0638	1.621
60	0.23	0.0335	0.851
75	1.33	0.0156	0.396
84	2.08	0.0093	0.236
90	2.87	0.0054	0.137
95	4.00	0.0025	0.062

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.70	-0.70	-0.70
Median, in.	0.0638	0.0638	0.0638
Median, mm	1.621	1.621	1.621
Mean, phi	-2.82	-1.00	-0.90
Mean, in.	0.2778	0.0789	0.0735
Mean, mm	7.057	2.003	1.867
Sorting	5.882	3.087	2.827
Skewness	1.438	-0.099	0.005
Kurtosis	0.341	0.372	0.679
Grain Size Description (ASTM-USCS Scale)		Gravel (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	41.83
Coarse Sand	10	5.65
Medium Sand	40	26.34
Fine Sand	200	20.36
Silt/Clay	<200	5.83
	Total	100

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PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

November 1, 2013

Mark Molinari
URS Corporation
1501 4th Ave., Ste. 1400
Seattle, WA 98101

Re: PTS File No: 43652
Physical Properties Data
Boeing Everett Upland Sampling & Pilot Testing; 33764006.12230

Dear Mr. Molinari:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your Boeing Everett Upland Sampling & Pilot Testing; 33764006.12230 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact Rachel Spitz at (562) 347-2504.

Sincerely,
PTS Laboratories, Inc.

for Rachel Spitz

Michael Mark Brady, P.G.
District Manager

Encl.

PTS Laboratories

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project Number: 33764006.12230

PTS File No: 43652
Client: URS Corporation

TEST PROGRAM - 20131004

CORE ID	Depth ft.	Core Recovery ft.	Vapor Transport Package	*Cation Exchange Capacity	Specific Gravity ASTM D854	Soil pH EPA 9045	Notes
		Plugs:	Various	Grab	Grab	Grab	
Date Received: 20131004							
ESB1972-20-130923	N/A	0.50	X	X	X	X	
ESB1972-30-130923	N/A	0.50	X	X	X	X	
ESB1972-39-130923	N/A	0.50	X	X	X	X	
ESB1971-20-130923	N/A	0.50					Hold as backup for ESB1972 samples
ESB1971-39-130923	N/A	0.50					Hold as backup for ESB1972 samples
ESB1973-20-130925	N/A	0.50	X	X	X	X	
ESB1973-30-130925	N/A	0.50	X	X	X	X	
ESB1973-39-130925	N/A	0.50	X	X	X	X	
ESB1975-20-130926	N/A	0.50	X	X	X	X	
ESB1975-30-130926	N/A	0.50	X	X	X	X	
ESB1975-39-130926	N/A	0.50	X	X	X	X	Sample ID on core: ESB197**6**-39-130926
ESB1976-30-130926	N/A	0.50					Hold as backup for ESB1975 samples
TOTALS:	12 cores	6.00	9	9	9	9	12

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 10 business days.

* Analyses to be conducted by PTS Subcontract Laboratory.

Vapor Transport Package (Johnson-Ettinger): Input parameters for Johnson-Ettinger Model; Air permeability (native + specific); porosity (total, effective, air-filled, water-filled), volumetric air and water, moisture content, intrinsic permeability/hydraulic conductivity, grain density, dry bulk density, TOC/foc, soil classification USDA/USCS (grain size + Atterberg limits).

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40 API RP40
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
ESB1972-20-130923	N/A	V	20131025	8.2	0.132	1.62	2.71	0.401	0.269	0.132	0.181	33.0
ESB1972-30-130923	N/A	V	20131025	7.2	0.127	1.77	2.71	0.347	0.221	0.127	0.166	36.5
ESB1972-39-130923	N/A	V	20131025	5.6	0.092	1.65	2.70	0.388	0.295	0.092	0.162	23.8
ESB1973-20-130925	N/A	V	20131025	8.0	0.135	1.70	2.71	0.375	0.239	0.135	0.188	36.1
ESB1973-30-130925	N/A	V	20131025	8.5	0.141	1.66	2.72	0.389	0.249	0.141	0.187	36.1
ESB1973-39-130925	N/A	V	20131025	6.8	0.121	1.76	2.71	0.349	0.228	0.121	0.198	34.5
ESB1975-20-130926	N/A	V	20131025	14.8	0.257	1.74	2.69	0.352	0.094	0.257	0.094	73.2
ESB1975-30-130926	N/A	V	20131025	6.3	0.119	1.89	2.72	0.305	0.185	0.119	0.188	39.1
ESB1975-39-130926	N/A	V	20131025	11.1	0.200	1.81	2.71	0.332	0.132	0.200	0.144	60.3

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

PTS Laboratories

PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	API RP40		API RP40 / EPA 9100		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm2
ESB1972-20-130923	N/A	V	883	1180	460	4.37E-04	4.54E-09
ESB1972-30-130923	N/A	V	679	893	202	1.93E-04	1.99E-09
ESB1972-39-130923	N/A	V	3000	3940	1600	1.54E-03	1.58E-08
ESB1973-20-130925	N/A	V	475	598	296	2.86E-04	2.92E-09
ESB1973-30-130925	N/A	V	634	842	450	4.32E-04	4.44E-09
ESB1973-39-130925	N/A	V	528	598	324	3.15E-04	3.19E-09
ESB1975-20-130926	N/A	V	0.38	19.8	1.39	1.35E-06	1.37E-11
ESB1975-30-130926	N/A	V	619	802	173	1.67E-04	1.71E-09
ESB1975-39-130926	N/A	V	175	6440	940	9.09E-04	9.28E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Specific = No pore fluids in place.
(4) Permeability to water and hydraulic conductivity measured at saturated conditions.
Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB1972-20-130923	N/A	20131029	16.3	10.9	5.4	CL-ML	SW-SC: Well-graded sand with silty clay and gravel	Sand
ESB1972-30-130923	N/A	20131029	13.7	9.4	4.3	CL-ML	SW-SC: Well-graded sand with silty clay	Sand
ESB1972-39-130923	N/A	20131029	11.0	Non-Plastic		NP	SP-SM: Poorly graded sand with silt and gravel	Sand
ESB1973-20-130925	N/A	20131029	14.5	9.9	4.6	CL-ML	GP-GC: Poorly graded gravel with silty clay and sand	Sand
ESB1973-30-130925	N/A	20131029	14.8	10.1	4.7	CL-ML	SW-SC: Well-graded sand with silty clay and gravel	Sand
ESB1973-39-130925	N/A	20131029	14.1	10.2	3.9	CL-ML	SC-SM: Silty, clayey sand with gravel	Loamy sand
ESB1975-20-130926	N/A	20131029	21.6	13.4	8.2	CL	SC: Clayey sand	Loam
ESB1975-30-130926	N/A	20131029	13.1	9.7	3.4	CL-ML	GW-GC: Well-graded gravel with silty clay and sand	Sand
ESB1975-39-130926	N/A	20131029	5.6	Non-Plastic		NP	SP: Poorly graded sand with gravel	Sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1972-20-130923	N/A	20131023	1039	SOIL	1500	1.50E-03
ESB1972-30-130923	N/A	20131023	1039	SOIL	1100	1.10E-03
ESB1972-39-130923	N/A	20131023	1039	SOIL	710	7.10E-04
ESB1973-20-130925	N/A	20131023	1039	SOIL	1250	1.25E-03
ESB1973-30-130925	N/A	20131023	1039	SOIL	1550	1.55E-03
ESB1973-39-130925	N/A	20131023	1039	SOIL	930	9.30E-04
ESB1975-20-130926	N/A	20131023	1039	SOIL	760	7.60E-04
ESB1975-30-130926	N/A	20131023	1039	SOIL	140	1.40E-04
ESB1975-39-130926	N/A	20131023	1039	SOIL	550	5.50E-04
Blank	N/A	20131023	1039	BLANK	ND	ND
SRM D081-542	N/A	20131023	1039	SRM	2340	2.34E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	95	75-125	2460	1845	3075

ND = Not Detected

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PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1972-20-130923	N/A	20131022 / 0740	24.9	0.9988	332.49	115.75	405.91	2.73	2.73
ESB1972-30-130923	N/A	20131022 / 0740	24.9	0.9988	667.14	184.32	783.54	2.71	2.71
ESB1972-39-130923	N/A	20131022 / 0740	24.9	0.9988	332.97	142.48	423.21	2.73	2.72
ESB1973-20-130925	N/A	20131022 / 0740	24.9	0.9988	671.46	191.80	792.70	2.72	2.72
ESB1973-30-130925	N/A	20131022 / 0740	24.9	0.9988	334.91	140.38	423.94	2.73	2.73
ESB1973-39-130925	N/A	20131022 / 0740	24.9	0.9988	333.46	97.46	395.28	2.73	2.73
ESB1975-20-130926	N/A	20131022 / 0740	24.9	0.9988	348.27	137.32	435.38	2.73	2.73
ESB1975-30-130926	N/A	20131022 / 0740	24.9	0.9988	356.21	104.29	422.43	2.74	2.74
ESB1975-39-130926	N/A	20131022 / 0740	24.9	0.9988	339.27	105.73	406.70	2.76	2.76

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

Soil pH
(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1972-20-130923	N/A	20131017	1415	78.6	Soil	7.56
ESB1972-30-130923	N/A	20131017	1415	78.6	Soil	7.77
ESB1972-39-130923	N/A	20131017	1415	78.6	Soil	8.00
ESB1973-20-130925	N/A	20131017	1415	78.6	Soil	7.86
ESB1973-30-130925	N/A	20131017	1415	78.6	Soil	7.98
ESB1973-39-130925	N/A	20131017	1415	78.6	Soil	8.18
ESB1975-20-130926	N/A	20131017	1415	78.6	Soil	8.31
ESB1975-30-130926	N/A	20131017	1415	78.6	Soil	8.20
ESB1975-39-130926	N/A	20131017	1415	78.6	Soil	8.08

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131017/1555
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

URS Corporation
PTS File No: 43652

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1972-20-130923	N/A	Medium sand	0.597	19.31	4.46	35.73	30.42	(2)	(2)	10.08
ESB1972-30-130923	N/A	Medium sand	0.594	10.62	6.45	44.63	30.76	(2)	(2)	7.55
ESB1972-39-130923	N/A	Gravel	1.621	41.83	5.65	26.34	20.36	(2)	(2)	5.83
ESB1973-20-130925	N/A	Gravel	1.739	46.60	2.60	19.89	23.93	(2)	(2)	6.98
ESB1973-30-130925	N/A	Medium sand	0.396	15.86	2.92	29.34	40.23	(2)	(2)	11.65
ESB1973-39-130925	N/A	Medium sand	0.336	15.03	4.79	22.49	40.27	(2)	(2)	17.42
ESB1975-20-130926	N/A	Fine sand	0.077	0.00	0.00	18.73	31.65	32.48	17.15	49.62
ESB1975-30-130926	N/A	Gravel	13.526	61.96	7.13	14.75	10.83	(2)	(2)	5.33
ESB1975-39-130926	N/A	Coarse sand	1.843	34.71	13.40	39.14	10.56	(2)	(2)	2.19

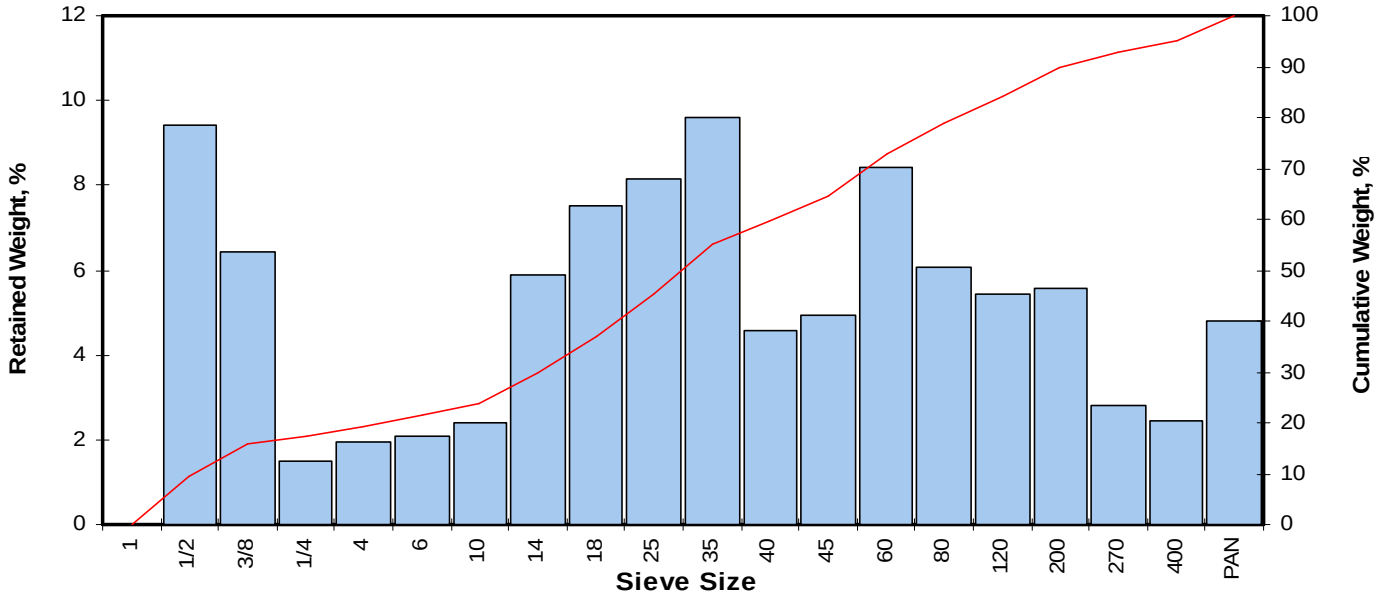
(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-20-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	15.78	9.43	9.43
0.3740	9.500	-3.25	3/8	10.74	6.42	15.85
0.2500	6.351	-2.67	1/4	2.51	1.50	17.35
0.1873	4.757	-2.25	4	3.27	1.95	19.31
0.1324	3.364	-1.75	6	3.45	2.06	21.37
0.0787	2.000	-1.00	10	4.01	2.40	23.77
0.0557	1.414	-0.50	14	9.81	5.86	29.63
0.0394	1.000	0.00	18	12.60	7.53	37.17
0.0278	0.707	0.50	25	13.65	8.16	45.33
0.0197	0.500	1.00	35	16.08	9.61	54.94
0.0166	0.420	1.25	40	7.63	4.56	59.50
0.0139	0.354	1.50	45	8.23	4.92	64.42
0.0098	0.250	2.00	60	14.06	8.41	72.82
0.0070	0.177	2.50	80	10.17	6.08	78.90
0.0049	0.125	3.00	120	9.09	5.43	84.34
0.0029	0.074	3.75	200	9.34	5.58	89.92
0.0021	0.053	4.25	270	4.70	2.81	92.73
0.0015	0.037	4.75	400	4.12	2.46	95.19
			PAN	8.04	4.81	100.00
TOTALS				167.28	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.11	0.6817	17.315
10	-3.61	0.4804	12.202
16	-3.19	0.3596	9.135
25	-0.90	0.0732	1.860
40	0.17	0.0349	0.887
50	0.74	0.0235	0.597
60	1.28	0.0163	0.413
75	2.18	0.0087	0.221
84	2.97	0.0050	0.128
90	3.76	0.0029	0.074
95	4.71	0.0015	0.038

Measure	Trask	Inman	Folk-Ward
Median, phi	0.74	0.74	0.74
Median, in.	0.0235	0.0235	0.0235
Median, mm	0.597	0.597	0.597
Mean, phi	-0.06	-0.11	0.17
Mean, in.	0.0410	0.0425	0.0349
Mean, mm	1.040	1.080	0.887
Sorting	2.902	3.080	2.877
Skewness	1.073	-0.277	-0.189
Kurtosis	0.068	0.433	1.177
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	19.31
Coarse Sand	10	4.46
Medium Sand	40	35.73
Fine Sand	200	30.42
Silt/Clay	<200	10.08
	Total	100

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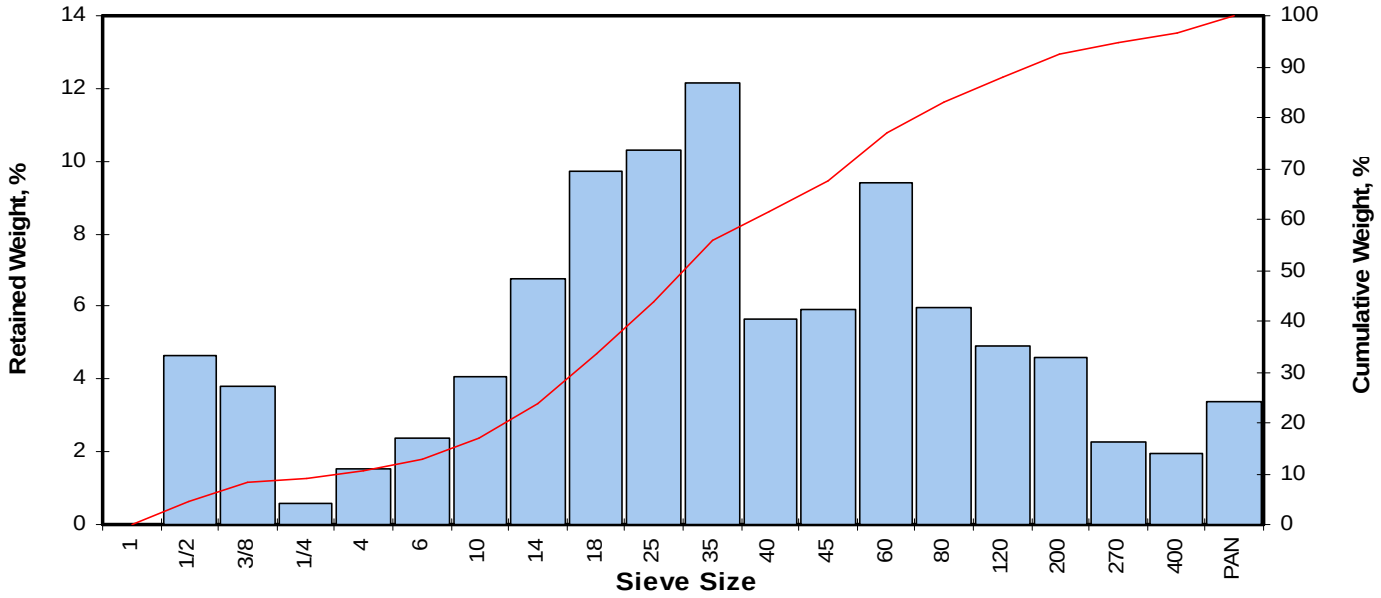
Phone: (562) 907-3607 Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-30-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	5.67	4.67	4.67
0.3740	9.500	-3.25	3/8	4.64	3.82	8.48
0.2500	6.351	-2.67	1/4	0.71	0.58	9.07
0.1873	4.757	-2.25	4	1.88	1.55	10.62
0.1324	3.364	-1.75	6	2.88	2.37	12.99
0.0787	2.000	-1.00	10	4.96	4.08	17.07
0.0557	1.414	-0.50	14	8.23	6.77	23.84
0.0394	1.000	0.00	18	11.80	9.71	33.55
0.0278	0.707	0.50	25	12.53	10.31	43.86
0.0197	0.500	1.00	35	14.78	12.16	56.02
0.0166	0.420	1.25	40	6.89	5.67	61.69
0.0139	0.354	1.50	45	7.20	5.92	67.62
0.0098	0.250	2.00	60	11.40	9.38	77.00
0.0070	0.177	2.50	80	7.24	5.96	82.96
0.0049	0.125	3.00	120	5.95	4.90	87.85
0.0029	0.074	3.75	200	5.59	4.60	92.45
0.0021	0.053	4.25	270	2.73	2.25	94.70
0.0015	0.037	4.75	400	2.35	1.93	96.63
			PAN	4.09	3.37	100.00
TOTALS				121.52	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.61	0.4805	12.205
10	-2.42	0.2101	5.337
16	-1.20	0.0902	2.291
25	-0.44	0.0534	1.357
40	0.31	0.0317	0.805
50	0.75	0.0234	0.594
60	1.18	0.0174	0.443
75	1.89	0.0106	0.269
84	2.61	0.0065	0.164
90	3.35	0.0039	0.098
95	4.33	0.0020	0.050

Measure	Trask	Inman	Folk-Ward
Median, phi	0.75	0.75	0.75
Median, in.	0.0234	0.0234	0.0234
Median, mm	0.594	0.594	0.594
Mean, phi	0.30	0.71	0.72
Mean, in.	0.0320	0.0241	0.0239
Mean, mm	0.813	0.613	0.607
Sorting	2.245	1.901	2.153
Skewness	1.018	-0.025	-0.062
Kurtosis	0.104	1.087	1.394
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	10.62
Coarse Sand	10	6.45
Medium Sand	40	44.63
Fine Sand	200	30.76
Silt/Clay	<200	7.55
	Total	100

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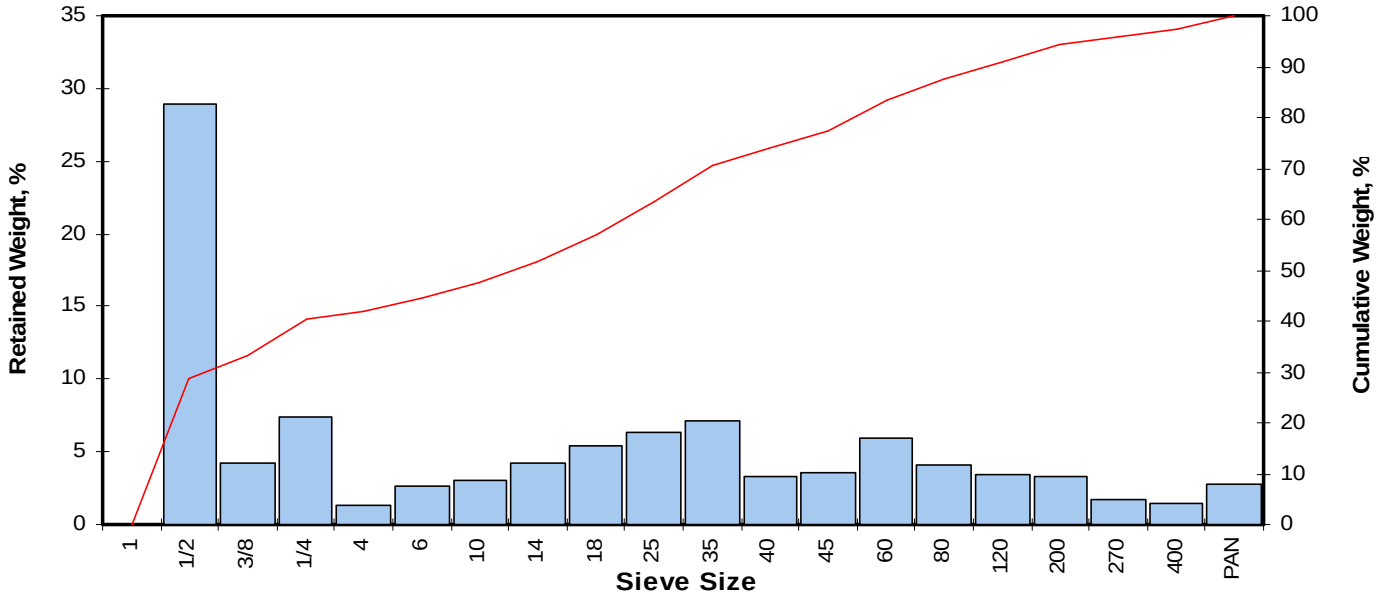
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-39-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	43.56	28.87	28.87
0.3740	9.500	-3.25	3/8	6.32	4.19	33.06
0.2500	6.351	-2.67	1/4	11.16	7.40	40.45
0.1873	4.757	-2.25	4	2.08	1.38	41.83
0.1324	3.364	-1.75	6	3.98	2.64	44.47
0.0787	2.000	-1.00	10	4.54	3.01	47.48
0.0557	1.414	-0.50	14	6.29	4.17	51.64
0.0394	1.000	0.00	18	8.13	5.39	57.03
0.0278	0.707	0.50	25	9.60	6.36	63.39
0.0197	0.500	1.00	35	10.73	7.11	70.50
0.0166	0.420	1.25	40	4.99	3.31	73.81
0.0139	0.354	1.50	45	5.29	3.51	77.32
0.0098	0.250	2.00	60	9.03	5.98	83.30
0.0070	0.177	2.50	80	6.23	4.13	87.43
0.0049	0.125	3.00	120	5.22	3.46	90.89
0.0029	0.074	3.75	200	4.95	3.28	94.17
0.0021	0.053	4.25	270	2.50	1.66	95.83
0.0015	0.037	4.75	400	2.19	1.45	97.28
			PAN	4.11	2.72	100.00
TOTALS				150.90	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.47	0.8730	22.174
10	-4.30	0.7742	19.665
16	-4.09	0.6703	17.027
25	-3.78	0.5401	13.718
40	-2.70	0.2563	6.509
50	-0.70	0.0638	1.621
60	0.23	0.0335	0.851
75	1.33	0.0156	0.396
84	2.08	0.0093	0.236
90	2.87	0.0054	0.137
95	4.00	0.0025	0.062

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.70	-0.70	-0.70
Median, in.	0.0638	0.0638	0.0638
Median, mm	1.621	1.621	1.621
Mean, phi	-2.82	-1.00	-0.90
Mean, in.	0.2778	0.0789	0.0735
Mean, mm	7.057	2.003	1.867
Sorting	5.882	3.087	2.827
Skewness	1.438	-0.099	0.005
Kurtosis	0.341	0.372	0.679
Grain Size Description (ASTM-USCS Scale)		Gravel (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	41.83
Coarse Sand	10	5.65
Medium Sand	40	26.34
Fine Sand	200	20.36
Silt/Clay	<200	5.83
	Total	100

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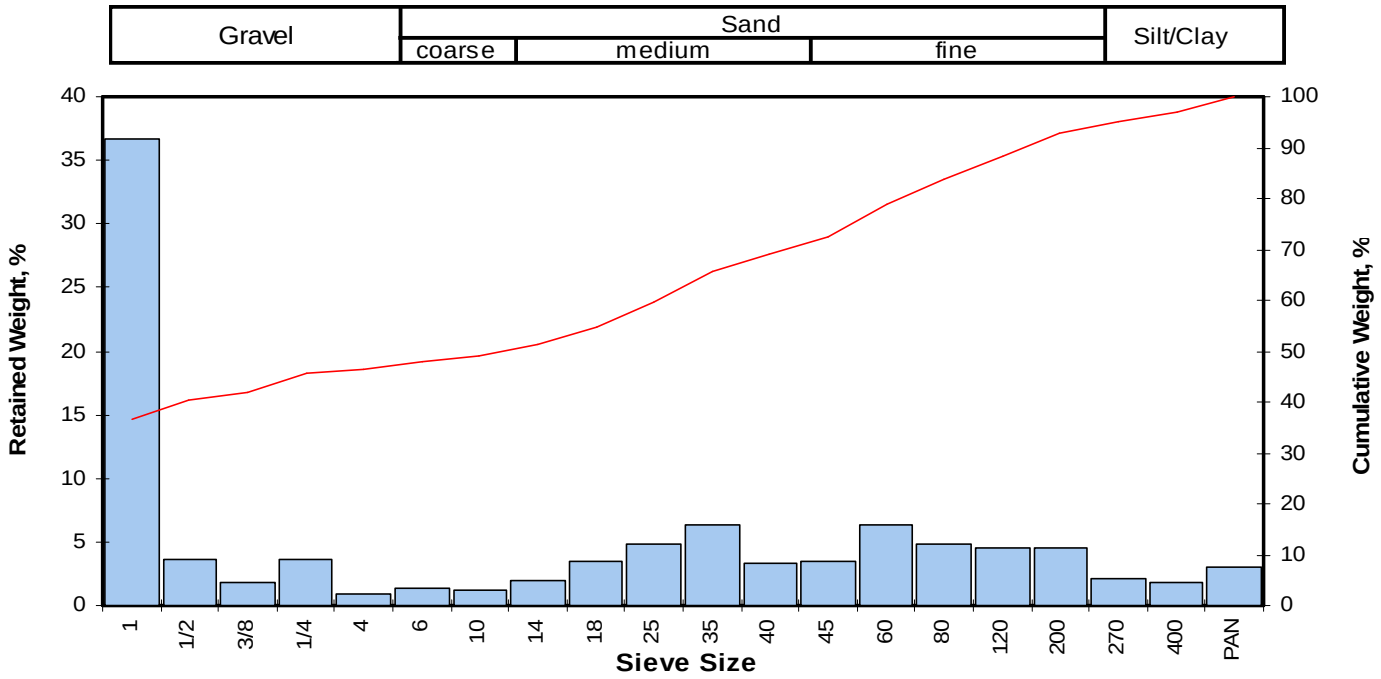
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1973-20-130925
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	120.73	36.63	36.63
0.4922	12.501	-3.64	1/2	11.84	3.59	40.22
0.3740	9.500	-3.25	3/8	5.73	1.74	41.96
0.2500	6.351	-2.67	1/4	12.08	3.67	45.63
0.1873	4.757	-2.25	4	3.21	0.97	46.60
0.1324	3.364	-1.75	6	4.61	1.40	48.00
0.0787	2.000	-1.00	10	3.96	1.20	49.20
0.0557	1.414	-0.50	14	6.55	1.99	51.19
0.0394	1.000	0.00	18	11.54	3.50	54.69
0.0278	0.707	0.50	25	16.00	4.85	59.54
0.0197	0.500	1.00	35	20.71	6.28	65.83
0.0166	0.420	1.25	40	10.77	3.27	69.09
0.0139	0.354	1.50	45	11.67	3.54	72.63
0.0098	0.250	2.00	60	21.06	6.39	79.02
0.0070	0.177	2.50	80	15.93	4.83	83.86
0.0049	0.125	3.00	120	15.08	4.58	88.43
0.0029	0.074	3.75	200	15.12	4.59	93.02
0.0021	0.053	4.25	270	7.15	2.17	95.19
0.0015	0.037	4.75	400	5.91	1.79	96.98
			PAN	9.95	3.02	100.00
TOTALS				329.60	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5			
10			
16			
25			
40	-3.71	0.5137	13.047
50	-0.80	0.0685	1.739
60	0.54	0.0271	0.689
75	1.69	0.0122	0.311
84	2.52	0.0069	0.175
90	3.26	0.0041	0.105
95	4.21	0.0021	0.054

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.80	-0.80	-0.80
Median, in.	0.0685	0.0685	0.0685
Median, mm	1.739	1.739	1.739
Mean, phi			
Mean, in.			
Mean, mm			
Sorting			
Skewness			
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	46.60
Coarse Sand	10	2.60
Medium Sand	40	19.89
Fine Sand	200	23.93
Silt/Clay	<200	6.98
	Total	100

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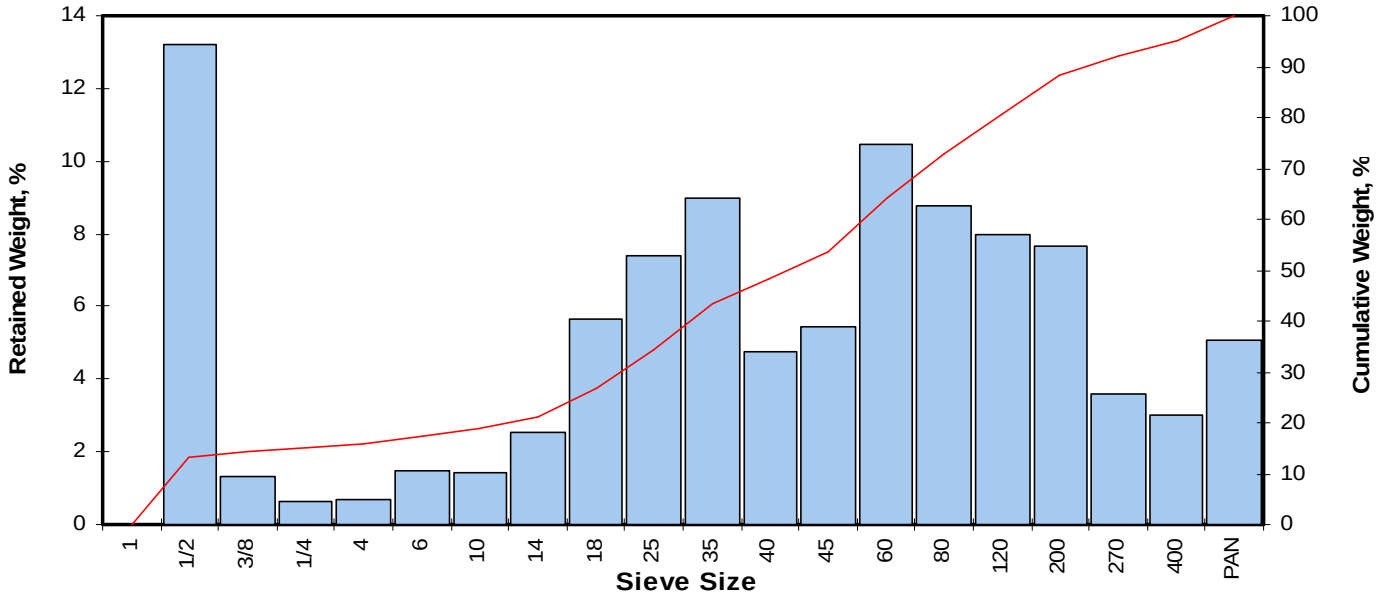
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1973-30-130925
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	22.02	13.18	13.18
0.3740	9.500	-3.25	3/8	2.23	1.33	14.52
0.2500	6.351	-2.67	1/4	1.10	0.66	15.18
0.1873	4.757	-2.25	4	1.14	0.68	15.86
0.1324	3.364	-1.75	6	2.51	1.50	17.36
0.0787	2.000	-1.00	10	2.36	1.41	18.77
0.0557	1.414	-0.50	14	4.21	2.52	21.29
0.0394	1.000	0.00	18	9.43	5.65	26.94
0.0278	0.707	0.50	25	12.39	7.42	34.35
0.0197	0.500	1.00	35	15.03	9.00	43.35
0.0166	0.420	1.25	40	7.96	4.77	48.12
0.0139	0.354	1.50	45	9.05	5.42	53.53
0.0098	0.250	2.00	60	17.43	10.43	63.97
0.0070	0.177	2.50	80	14.62	8.75	72.72
0.0049	0.125	3.00	120	13.33	7.98	80.70
0.0029	0.074	3.75	200	12.78	7.65	88.35
0.0021	0.053	4.25	270	5.99	3.59	91.94
0.0015	0.037	4.75	400	5.04	3.02	94.95
			PAN	8.43	5.05	100.00
TOTALS				167.05	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.26	0.7568	19.222
10	-3.89	0.5818	14.778
16	-2.20	0.1812	4.603
25	-0.17	0.0443	1.126
40	0.81	0.0224	0.569
50	1.34	0.0156	0.396
60	1.81	0.0112	0.285
75	2.64	0.0063	0.160
84	3.32	0.0039	0.100
90	3.98	0.0025	0.063
95	4.71	0.0015	0.038

Measure	Trask	Inman	Folk-Ward
Median, phi	1.34	1.34	1.34
Median, in.	0.0156	0.0156	0.0156
Median, mm	0.396	0.396	0.396
Mean, phi	0.64	0.56	0.82
Mean, in.	0.0253	0.0267	0.0223
Mean, mm	0.643	0.678	0.567
Sorting	2.652	2.763	2.741
Skewness	1.073	-0.281	-0.265
Kurtosis	0.033	0.623	1.306
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	15.86
Coarse Sand	10	2.92
Medium Sand	40	29.34
Fine Sand	200	40.23
Silt/Clay	<200	11.65
	Total	100

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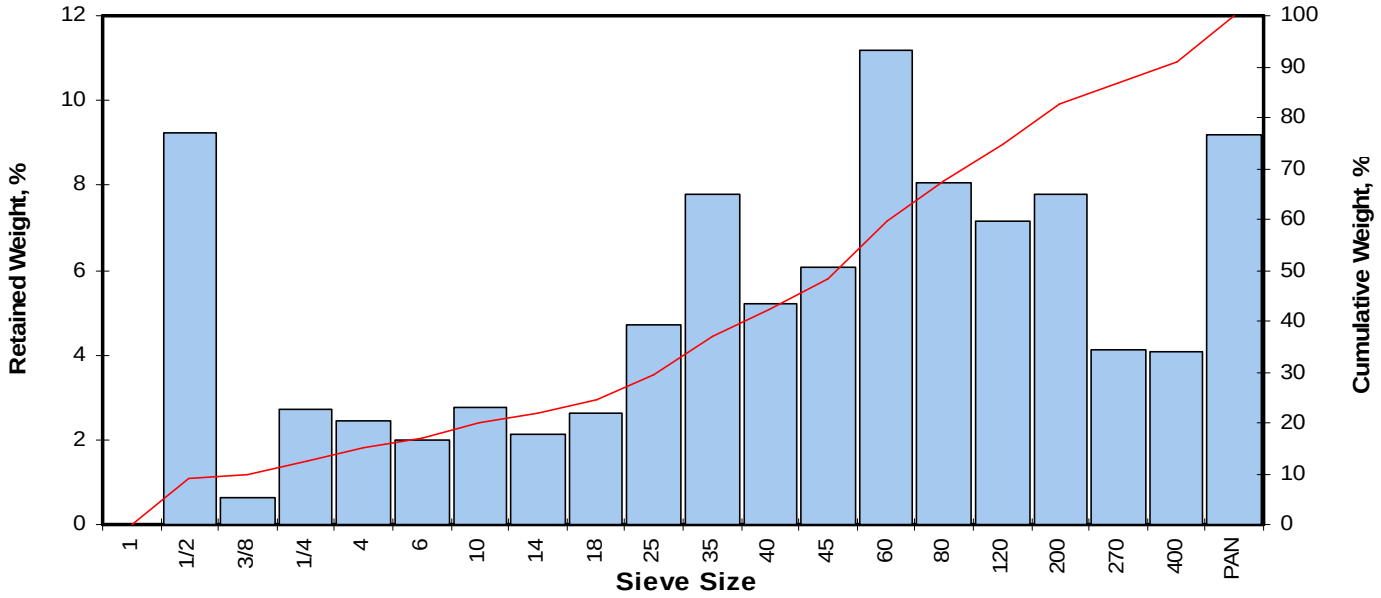
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1973-39-130925
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	16.53	9.22	9.22
0.3740	9.500	-3.25	3/8	1.15	0.64	9.86
0.2500	6.351	-2.67	1/4	4.90	2.73	12.59
0.1873	4.757	-2.25	4	4.37	2.44	15.03
0.1324	3.364	-1.75	6	3.60	2.01	17.03
0.0787	2.000	-1.00	10	4.99	2.78	19.81
0.0557	1.414	-0.50	14	3.84	2.14	21.96
0.0394	1.000	0.00	18	4.69	2.61	24.57
0.0278	0.707	0.50	25	8.45	4.71	29.28
0.0197	0.500	1.00	35	13.99	7.80	37.08
0.0166	0.420	1.25	40	9.37	5.22	42.31
0.0139	0.354	1.50	45	10.89	6.07	48.38
0.0098	0.250	2.00	60	20.08	11.20	59.57
0.0070	0.177	2.50	80	14.47	8.07	67.64
0.0049	0.125	3.00	120	12.84	7.16	74.80
0.0029	0.074	3.75	200	13.95	7.78	82.58
0.0021	0.053	4.25	270	7.38	4.11	86.69
0.0015	0.037	4.75	400	7.35	4.10	90.79
			PAN	16.52	9.21	100.00
TOTALS				179.36	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.10	0.6758	17.166
10	-3.22	0.3662	9.303
16	-2.01	0.1583	4.020
25	0.05	0.0381	0.969
40	1.14	0.0179	0.454
50	1.57	0.0132	0.336
60	2.03	0.0097	0.245
75	3.02	0.0049	0.123
84	3.92	0.0026	0.066
90	4.65	0.0016	0.040
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	1.57	1.57	1.57
Median, in.	0.0132	0.0132	0.0132
Median, mm	0.336	0.336	0.336
Mean, phi	0.87	0.96	1.16
Mean, in.	0.0215	0.0203	0.0176
Mean, mm	0.546	0.515	0.447
Sorting	2.803	2.965	
Skewness	1.028	-0.207	
Kurtosis	0.046		

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	15.03
Coarse Sand	10	4.79
Medium Sand	40	22.49
Fine Sand	200	40.27
Silt/Clay	<200	17.42
	Total	100

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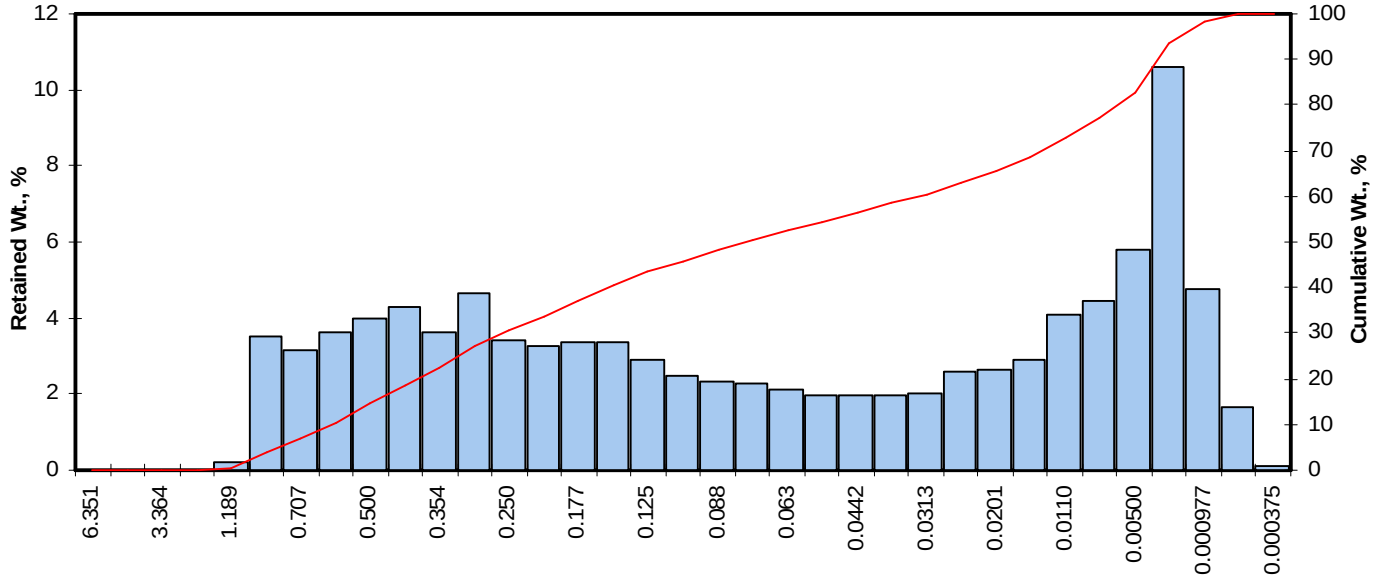
Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1975-20-130926
Project No:	#######	**Depth, ft:**	N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.22	0.22	0.22
0.0331	0.841	0.25	20	3.51	3.51	3.73
0.0278	0.707	0.50	25	3.15	3.15	6.88
0.0234	0.595	0.75	30	3.61	3.61	10.50
0.0197	0.500	1.00	35	3.96	3.96	14.46
0.0166	0.420	1.25	40	4.27	4.27	18.73
0.0139	0.354	1.50	45	3.64	3.64	22.37
0.0117	0.297	1.75	50	4.64	4.64	27.01
0.0098	0.250	2.00	60	3.42	3.42	30.44
0.0083	0.210	2.25	70	3.24	3.24	33.68
0.0070	0.177	2.50	80	3.38	3.38	37.06
0.0059	0.149	2.75	100	3.36	3.36	40.42
0.0049	0.125	3.00	120	2.91	2.91	43.33
0.0041	0.105	3.25	140	2.48	2.48	45.81
0.0035	0.088	3.50	170	2.31	2.31	48.12
0.0029	0.074	3.75	200	2.25	2.25	50.38
0.0025	0.063	4.00	230	2.14	2.14	52.52
0.0021	0.053	4.25	270	1.99	1.99	54.51
0.00174	0.0442	4.50	325	1.94	1.94	56.45
0.00146	0.0372	4.75	400	1.96	1.96	58.41
0.00123	0.0313	5.00	450	2.01	2.01	60.42
0.000986	0.0250	5.32	500	2.61	2.61	63.03
0.000790	0.0201	5.64	635	2.65	2.65	65.68
0.000615	0.0156	6.00		2.88	2.88	68.56
0.000435	0.0110	6.50		4.07	4.07	72.64
0.000308	0.00781	7.00		4.43	4.43	77.07
0.000197	0.00500	7.65		5.78	5.78	82.85
0.000077	0.00195	9.00		10.60	10.61	93.46
0.000038	0.000977	10.00		4.77	4.77	98.23
0.000019	0.000488	11.00		1.65	1.65	99.88
0.000015	0.000375	11.38		0.12	0.12	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.35	0.0309	0.784
10	0.72	0.0240	0.609
16	1.09	0.0185	0.470
25	1.64	0.0126	0.321
40	2.72	0.0060	0.152
50	3.71	0.0030	0.077
60	4.95	0.0013	0.032
75	6.77	0.0004	0.009
84	7.79	0.0002	0.005
90	8.56	0.0001	0.003
95	9.32	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	3.71	3.71	3.71
Median, in.	0.0030	0.0030	0.0030
Median, mm	0.077	0.077	0.077
Mean, phi	2.60	4.44	4.20
Mean, in.	0.0065	0.0018	0.0021
Mean, mm	0.165	0.046	0.055
Sorting	5.907	3.351	3.035
Skewness	0.709	0.219	0.235
Kurtosis	0.257	0.339	0.718
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

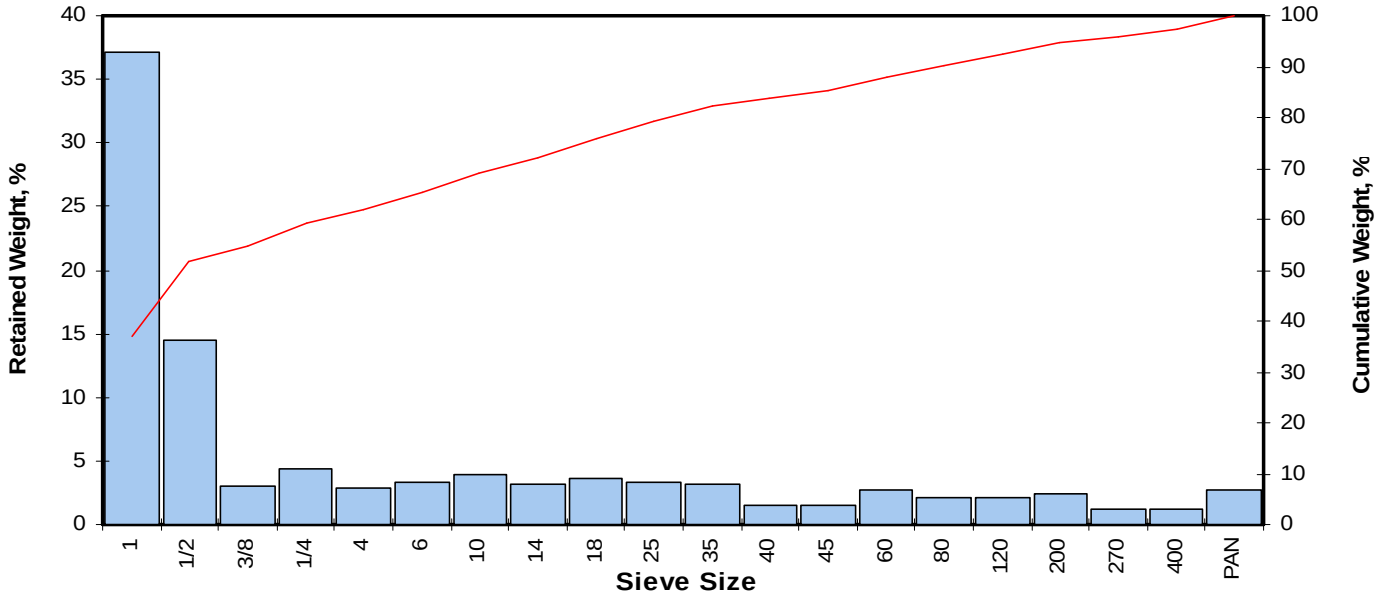
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	18.73
Fine Sand	200	31.65
Silt	>0.005 mm	32.48
Clay	<0.005 mm	17.15
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1975-30-130926
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	123.99	37.13	37.13
0.4922	12.501	-3.64	1/2	48.51	14.53	51.65
0.3740	9.500	-3.25	3/8	10.11	3.03	54.68
0.2500	6.351	-2.67	1/4	14.76	4.42	59.10
0.1873	4.757	-2.25	4	9.56	2.86	61.96
0.1324	3.364	-1.75	6	10.87	3.25	65.22
0.0787	2.000	-1.00	10	12.93	3.87	69.09
0.0557	1.414	-0.50	14	10.58	3.17	72.25
0.0394	1.000	0.00	18	12.03	3.60	75.86
0.0278	0.707	0.50	25	11.03	3.30	79.16
0.0197	0.500	1.00	35	10.58	3.17	82.33
0.0166	0.420	1.25	40	5.05	1.51	83.84
0.0139	0.354	1.50	45	5.09	1.52	85.36
0.0098	0.250	2.00	60	8.91	2.67	88.03
0.0070	0.177	2.50	80	7.23	2.16	90.20
0.0049	0.125	3.00	120	7.01	2.10	92.30
0.0029	0.074	3.75	200	7.94	2.38	94.67
0.0021	0.053	4.25	270	4.25	1.27	95.95
0.0015	0.037	4.75	400	4.24	1.27	97.22
			PAN	9.30	2.78	100.00
TOTALS				333.97	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5			
10			
16			
25			
40	-4.45	0.8582	21.798
50	-3.76	0.5325	13.526
60	-2.54	0.2283	5.798
75	-0.12	0.0428	1.086
84	1.28	0.0163	0.413
90	2.45	0.0072	0.182
95	3.88	0.0027	0.068

Measure	Trask	Inman	Folk-Ward
Median, phi	-3.76	-3.76	-3.76
Median, in.	0.5325	0.5325	0.5325
Median, mm	13.526	13.526	13.526
Mean, phi			
Mean, in.			
Mean, mm			
Sorting			
Skewness			
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	61.96
Coarse Sand	10	7.13
Medium Sand	40	14.75
Fine Sand	200	10.83
Silt/Clay	<200	5.33
	Total	100

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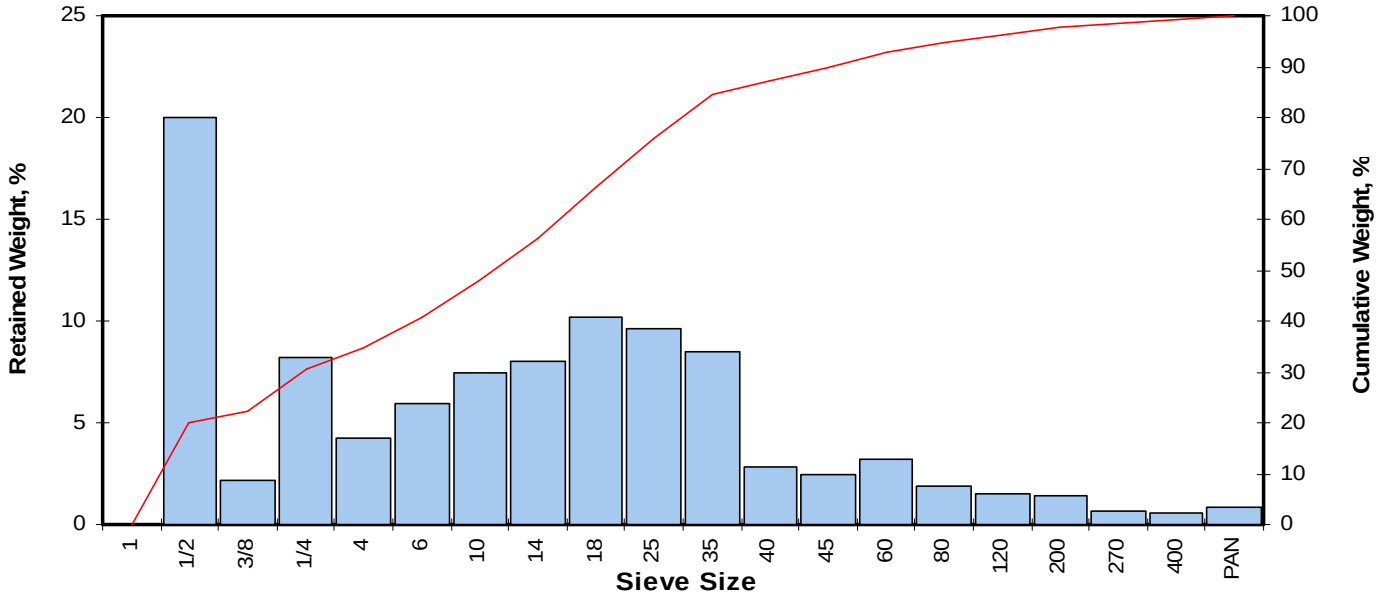
Phone: (562) 907-3607 Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1975-39-130926
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	37.46	20.02	20.02
0.3740	9.500	-3.25	3/8	4.01	2.14	22.16
0.2500	6.351	-2.67	1/4	15.44	8.25	30.42
0.1873	4.757	-2.25	4	8.03	4.29	34.71
0.1324	3.364	-1.75	6	11.07	5.92	40.62
0.0787	2.000	-1.00	10	14.00	7.48	48.11
0.0557	1.414	-0.50	14	15.01	8.02	56.13
0.0394	1.000	0.00	18	18.98	10.14	66.27
0.0278	0.707	0.50	25	18.00	9.62	75.89
0.0197	0.500	1.00	35	15.92	8.51	84.40
0.0166	0.420	1.25	40	5.33	2.85	87.25
0.0139	0.354	1.50	45	4.60	2.46	89.71
0.0098	0.250	2.00	60	6.07	3.24	92.95
0.0070	0.177	2.50	80	3.50	1.87	94.82
0.0049	0.125	3.00	120	2.89	1.54	96.37
0.0029	0.074	3.75	200	2.70	1.44	97.81
0.0021	0.053	4.25	270	1.32	0.71	98.51
0.0015	0.037	4.75	400	1.13	0.60	99.12
			PAN	1.65	0.88	100.00
TOTALS				187.11	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.39	0.8279	21.028
10	-4.14	0.6963	17.686
16	-3.84	0.5657	14.368
25	-3.05	0.3257	8.272
40	-1.80	0.1373	3.489
50	-0.88	0.0726	1.843
60	-0.31	0.0488	1.239
75	0.45	0.0287	0.730
84	0.98	0.0200	0.508
90	1.55	0.0135	0.343
95	2.56	0.0067	0.170

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.88	-0.88	-0.88
Median, in.	0.0726	0.0726	0.0726
Median, mm	1.843	1.843	1.843
Mean, phi	-2.17	-1.43	-1.25
Mean, in.	0.1772	0.1064	0.0936
Mean, mm	4.501	2.702	2.379
Sorting	3.366	2.411	2.259
Skewness	1.334	-0.229	-0.120
Kurtosis	0.217	0.442	0.814
Grain Size Description (ASTM-USCS Scale)		Coarse sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	34.71
Coarse Sand	10	13.40
Medium Sand	40	39.14
Fine Sand	200	10.56
Silt/Clay	<200	2.19
	Total	100

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Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

ANALYSIS REPORT

PTS Laboratories, Inc.
8100 Secura Way
Santa Fe Springs, CA 90670
Attention: Rachel Spitz
Project Name: BOEING EVERETT UPLAND SAMPLING & PT
Project #: 33764006.12230
All results reported on an as received basis.

Date Received: 10/23/13
Date Reported: 10/29/13

AMTEST Identification Number **13-A015865**
Client Identification **ESB1972-20-130923**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.8	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015866**
Client Identification **ESB1972-30-130923**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	6.1	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015867**
Client Identification **ESB1972-39-130923**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	5.2	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015868**
Client Identification **ESB1973-20-130925**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	3.2	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015869**
Client Identification **ESB1973-30-130925**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	4.6	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015870**
Client Identification **ESB1973-39-130925**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	3.4	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015871**
Client Identification **ESB1975-20-130926**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	8.5	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015872**
Client Identification **ESB1975-30-130926**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	4.5	meq/100g		0.5	SW-846 9081	CG	10/25/13

AMTEST Identification Number **13-A015873**
Client Identification **ESB1975-39-130926**
Sampling Date **10/17/13, 15:30**

Miscellaneous

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANLST	DATE
Cation Exchange Capacity	7.1	meq/100g		0.5	SW-846 9081	CG	10/25/13

Kathy Fugiel
President

Am Test Inc.
13600 NE 126th PL
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Kirkland, WA, 98034
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www.amtestlab.com

Professional Analytical Services

QC Summary for sample numbers: 13-A015865 to 13-A015873

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
13-A015873	Cation Exchange Capacity	meq/100g	7.1	7.0	1.4

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Cation Exchange Capacity	meq/100g	10.	10.	100. %

BLANKS

ANALYTE	UNITS	RESULT
Cation Exchange Capacity	meq/100g	< 0.5

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: PTS Laboratories, Inc

ADDRESS: 8100 Secura Way Santa Fe Springs, CA 90670 (CITY / ZIP CODE)

PROJECT MANAGER: Rachel Spitz (562) 347-2500 (PHONE NUMBER)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing

PROJECT NUMBER: 33764006.12230 (FAX NUMBER)

SITE LOCATION:

SAMPLER SIGNATURE:

PO#:

TURNAROUND TIME: 24 HOURS ☐ 48 HOURS ☐ 72 HOURS ☐ 5 DAYS ☐ NORMAL ☐ OTHER: _____

SAMPLE INTEGRITY (CHECK): INTACT ____ ON ICE ____

PTS QUOTE NO.:

PTS FILE: 43652

ANALYSIS REQUEST

	SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	MOISTURE CONTENT, ASTM D2216	POROSITY: TOTAL, API RP40	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100, API RP40, D5084	GRAIN SIZE DISTRIBUTION, ASTM D422/4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	Cation Exchange Capacity (EPA 9081)				COMMENTS
15865	ESB1972-20-130923	10/17/13	1530	N/A																			X				
66	ESB1972-30-130923	↓	↓	↓																			X				
67	ESB1972-39-130923																						X				
68	ESB1973-20-130925																						X				
69	ESB1973-30-130925																						X				
70	ESB1973-39-130925																						X				
71	ESB1975-20-130926																						X				
72	ESB1975-30-130926																						X				
73	ESB1975-39-130926																						X				

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: PTS LABS	COMPANY:	COMPANY:	COMPANY: Antest
DATE: 10/18/13 TIME: 09:05	DATE: TIME:	DATE: TIME:	DATE: 10-23-13 TIME: 910

Boeing Chain of Custody

43652

(1) Client Information

Site Location: Boeing Everett
Site Project: FS Bldg 40-51, Bldg 45-01, EV-48-1
Site Program/#: 3376 4006
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: Demetrio Cabanillas # of ~~Coolers~~ Box: 1

(4) Analyses Requested

(5) Remarks/Comments

Mark Molinari Contact Info
206-438-2235
markimolinari@urs.com

*As modified per URS P.O. #29722US

(2) Sample Identification	Collected Date	Collected Time	(3) Matrix	No. of Containers	Vapor Transport Packing *	EPA 9081 Cation Exchange Capacity	Specific Gravity ASTM D854	Soil pH EPA 9045	Remarks/Comments
ESB1972-20-130923	9/23/13		Soil	1	X	X	X	X	
ESB1972-30-130923	↓		↓	↓	X	X	X	X	
ESB1972-39-130923	↓		↓	↓	X	X	X	X	
ESB1971-20-130923	↓		↓	↓	—	—	—	—	Hold as backup for
ESB1971-39-130923	↓		↓	↓	—	—	—	—	ESB1972 samples
ESB1973-20-130925	9/25/13		↓	↓	X	X	X	X	
ESB1973-30-130925	↓		↓	↓	X	X	X	X	
ESB1973-39-130925	↓		↓	↓	X	X	X	X	
ESB1975-20-130926	9/26/13		↓	↓	X	X	X	X	
ESB1975-30-130926	↓		↓	↓	X	X	X	X	
ESB1975-39-130926	↓		↓	↓	X	X	X	X	
ESB1976-30-130926	↓		↓	↓	—	—	—	—	Hold as backup for ESB1975 sample

(6) Turnaround Time Requested (please circle)

Standard | 5 day | 4 day
72 hour | 48 hour | 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	10/2/13 3pm	[signature]	10/4/13 14:42

(7)

Relinquished by commercial carrier (circle): UPS FedEx Other: _____

73°F

Issued by Dept. 40 Management
7063.02

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

December 19, 2013

Mark Molinari
URS Corporation
1501 4th Ave., Ste. 1400
Seattle, WA 98101

Re: PTS File No: 43761
Physical Properties Data
Boeing Everett Upland Sampling & Pilot Testing; 33764006.12230

Dear Mr. Molinari:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your Boeing Everett Upland Sampling & Pilot Testing; 33764006.12230 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact Rachel Spitz at (562) 347-2504.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
District Manager

Encl.

PTS Laboratories

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project Number: 33764006.12230

PTS File No: 43761
Client: URS Corporation

TEST PROGRAM - 20131119

CORE ID	Depth ft.	Core Recovery ft.	Vapor Transport Package	*Cation Exchange Capacity	Specific Gravity ASTM D854	Soil pH EPA 9045	Notes
		Plugs:	Various	Grab	Grab	Grab	
Date Received: 20131118							
ESB1983-20-131021	N/A	0.50	X	X	X	X	
ESB1983-30.5-131021	N/A	0.50	X	X	X	X	COC ID ESB1983-30-131021 (don't use this ID)
ESB1983-40.5-131021	N/A	0.50	X	X	X	X	Received with sample ID ESB1983-131021 add 40.5 for depth
ESB1985-10-131022	N/A	0.50	X	X	X	X	
ESB1985-20-131022	N/A	0.50	X	X	X	X	
ESB1986-30-131022	N/A	0.50	X	X	X	X	
ESB1989-10-131023	N/A	0.50	X	X	X	X	Core ID ESB1987-10-131023 (don't use this ID)
ESB1987-20-131023	N/A	0.50	X	X	X	X	
ESB1987-30-131023	N/A	0.50	X	X	X	X	COC ID ID ESB1989-30-131023 (don't use this ID)
ESB1996-40-131031	N/A	0.50	X	X	X	X	
ESB1993-29-131026	N/A	0.50	X	X	X	X	
ESB1994-39-131026	N/A	0.50	X	X	X	X	
TOTALS:	12 - Cores	6.00	12	12	12	12	12

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 15 business days. However, due to the number of samples requested, the turnaround time may be a few weeks longer dependent upon lithology and test method.

* Analyses to be conducted by PTS Subcontract Laboratory.

Vapor Transport Package (Johnson-Ettinger): Input parameters for Johnson-Ettinger Model; Air permeability (native + specific); porosity (total, effective, air-filled, water-filled), volumetric air and water, moisture content, intrinsic permeability/hydraulic conductivity, grain density, dry bulk density, TOC/foc, soil classification USDA/USCS (grain size + Atterberg limits).

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1983-20-131021	N/A	20131206/1435	20.7	0.9999	348.54	86.75	403.27	2.71	2.71
ESB1983-30.5-131021	N/A	20131206/1435	20.7	0.9999	356.48	103.99	422.07	2.71	2.71
ESB1983-40.5-131021	N/A	20131206/1435	20.7	0.9999	340.52	107.94	408.54	2.70	2.70
ESB1985-10-131022	N/A	20131206/1435	20.7	0.9999	332.75	120.54	408.81	2.71	2.71
ESB1985-20-131022	N/A	20131206/1435	20.7	0.9999	333.23	130.12	415.05	2.69	2.69
ESB1986-30-131022	N/A	20131206/1435	20.7	0.9999	335.17	112.63	406.55	2.73	2.73
ESB1989-10-131023	N/A	20131209/0944	21.5	0.9997	348.48	103.34	413.51	2.70	2.70
ESB1987-20-131023	N/A	20131209/0944	21.5	0.9997	356.42	130.19	438.63	2.71	2.71
ESB1987-30-131023	N/A	20131209/0944	21.5	0.9997	340.47	109.57	408.99	2.67	2.67
ESB1996-40-131031	N/A	20131209/0944	21.5	0.9997	332.70	107.52	400.29	2.69	2.69
ESB1993-29-131026	N/A	20131209/0944	21.5	0.9997	333.18	103.63	398.27	2.69	2.69
ESB1994-39-131026	N/A	20131209/0944	21.5	0.9997	335.12	102.47	399.54	2.69	2.69

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

Soil pH
(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1983-20-131021	N/A	20131127	1512	77.7	SOIL	7.69
ESB1983-30.5-131021	N/A	20131127	1512	77.7	SOIL	7.60
ESB1983-40.5-131021	N/A	20131127	1512	77.7	SOIL	7.73
ESB1985-10-131022	N/A	20131127	1512	77.7	SOIL	7.69
ESB1985-20-131022	N/A	20131127	1512	77.7	SOIL	7.83
ESB1986-30-131022	N/A	20131127	1512	77.7	SOIL	7.77
ESB1989-10-131023	N/A	20131127	1512	77.7	SOIL	7.37
ESB1987-20-131023	N/A	20131127	1512	77.7	SOIL	7.29
ESB1987-30-131023	N/A	20131127	1512	77.7	SOIL	7.44
ESB1996-40-131031	N/A	20131127	1512	77.7	SOIL	7.80
ESB1993-29-131026	N/A	20131127	1512	77.7	SOIL	7.67
ESB1994-39-131026	N/A	20131127	1512	77.7	SOIL	7.84

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131127/1512
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40 API RP40
		SAMPLE		MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
ESB1983-20-131021	N/A	V	20131204	11.1	0.193	1.74	2.71	0.358	0.164	0.193	0.206	54.0
ESB1983-30.5-131021	N/A	V	20131204	9.0	0.136	1.51	2.69	0.438	0.302	0.136	0.231	31.1
ESB1983-40.5-131021	N/A	V	20131204	9.5	0.161	1.69	2.71	0.376	0.215	0.161	0.150	42.8
ESB1985-10-131022	N/A	V	20131204	8.7	0.144	1.64	2.70	0.390	0.246	0.144	0.170	36.9
ESB1985-20-131022	N/A	V	20131204	8.9	0.153	1.72	2.71	0.365	0.212	0.153	0.222	41.9
ESB1986-30-131022	N/A	V	20131204	6.8	0.103	1.52	2.70	0.439	0.336	0.103	0.221	23.4
ESB1989-10-131023	N/A	V	20131204	8.2	0.145	1.77	2.71	0.345	0.200	0.145	0.170	42.0
ESB1987-20-131023	N/A	V	20131204	8.2	0.140	1.70	2.71	0.372	0.233	0.140	0.168	37.5
ESB1987-30-131023	N/A	V	20131204	21.1	0.306	1.45	2.71	0.465	0.159	0.306	0.152	65.9
ESB1996-40-131031	N/A	V	20131204	8.2	0.127	1.55	2.70	0.426	0.300	0.127	0.215	29.7
ESB1993-29-131026	N/A	V	20131204	9.5	0.146	1.53	2.71	0.434	0.288	0.146	0.178	33.7
ESB1994-39-131026	N/A	V	20131204	7.0	0.103	1.46	2.70	0.460	0.357	0.103	0.189	22.3

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

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PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	API RP40		API RP40 / EPA 9100		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm2
ESB1983-20-131021	N/A	V	239	573	55.4	5.48E-05	5.47E-10
ESB1983-30.5-131021	N/A	V	1050	1650	446	4.42E-04	4.40E-09
ESB1983-40.5-131021	N/A	V	985	1620	203	2.02E-04	2.00E-09
ESB1985-10-131022	N/A	V	1130	1460	81.3	8.08E-05	8.03E-10
ESB1985-20-131022	N/A	V	624	1040	343	3.43E-04	3.39E-09
ESB1986-30-131022	N/A	V	1660	2100	453	4.54E-04	4.47E-09
ESB1989-10-131023	N/A	V	592	812	220	2.23E-04	2.17E-09
ESB1987-20-131023	N/A	V	615	680	107	1.08E-04	1.06E-09
ESB1987-30-131023	N/A	V	75.7	285	29.6	2.98E-05	2.92E-10
ESB1996-40-131031	N/A	V	2010	2750	1280	1.26E-03	1.26E-08
ESB1993-29-131026	N/A	V	1690	2500	176	1.74E-04	1.74E-09
ESB1994-39-131026	N/A	V	1450	1630	67.1	6.67E-05	6.62E-10

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Specific = No pore fluids in place.
(4) Permeability to water and hydraulic conductivity measured at saturated conditions.
Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB1983-20-131021	N/A	20131209	17.8	12.3	5.5	CL-ML	SC-SM: Silty, clayey sand	Loamy sand
ESB1983-30.5-131021	N/A	20131209	18.7	14.3	4.4	CL-ML	SW-SC: Well-graded sand with clay and gravel	Sand
ESB1983-40.5-131021	N/A	20131209	18.3	14.1	4.2	CL-ML	SC-SM: Silty, clayey sand with gravel	Loamy sand
ESB1985-10-131022	N/A	20131209	15.8	12.6	3.2	ML	SW-SM: Well-graded sand with silt	Sand
ESB1985-20-131022	N/A	20131210	15.2	12.2	3.0	ML	SW-SM: Well-graded sand with silt	Sand
ESB1986-30-131022	N/A	20131210	12.6	N/A	Non-Plastic	NP	SM: Silty sand	Sandy loam
ESB1989-10-131023	N/A	20131210	17.8	11.6	6.2	CL-ML	SC-SM: Silty, clayey sand	Loamy sand
ESB1987-20-131023	N/A	20131210	18.0	11.4	6.6	CL-ML	SC-SM: Silty, clayey sand	Loamy sand
ESB1987-30-131023	N/A	20131210	19.2	14.8	4.4	CL-ML	CL-ML: Silty clay with sand	Silt loam
ESB1996-40-131031	N/A	20131210	16.7	12.1	4.6	CL-ML	SW-SC: Well-graded sand with clay and gravel	Sand
ESB1993-29-131026	N/A	20131210	17.8	12.4	5.4	CL-ML	SC-SM: Silty, clayey sand	Loamy sand
ESB1994-39-131026	N/A	20131210	18.2	13.1	5.1	CL-ML	SC-SM: Silty, clayey sand	Loamy sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1983-20-131021	N/A	20131210	1035	SOIL	840	8.40E-04
ESB1983-30.5-131021	N/A	20131210	1035	SOIL	690	6.90E-04
ESB1983-40.5-131021	N/A	20131210	1035	SOIL	550	5.50E-04
ESB1985-10-131022	N/A	20131210	1035	SOIL	410	4.10E-04
ESB1985-20-131022	N/A	20131210	1035	SOIL	460	4.60E-04
ESB1986-30-131022	N/A	20131210	1035	SOIL	420	4.20E-04
ESB1989-10-131023	N/A	20131210	1035	SOIL	1400	1.40E-03
ESB1987-20-131023	N/A	20131210	1035	SOIL	2050	2.05E-03
ESB1987-30-131023	N/A	20131210	1035	SOIL	2750	2.75E-03
ESB1996-40-131031	N/A	20131210	1035	SOIL	1200	1.20E-03
ESB1993-29-131026	N/A	20131210	1035	SOIL	1750	1.75E-03
ESB1994-39-131026	N/A	20131210	1035	SOIL	1700	1.70E-03
Blank	N/A	20131210	1035	BLANK	ND	ND
SRM D081-542	N/A	20131210	1035	SRM	2280	2.28E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	93	75-125	2460	1845	3075

ND = Not Detected

PTS Laboratories, Inc.

URS Corporation
PTS File No: 43761

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12230

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1983-20-131021	N/A	Medium sand	0.399	10.22	4.48	33.47	37.88	(2)	(2)	13.94
ESB1983-30.5-131021	N/A	Medium sand	0.511	18.37	6.17	30.05	33.58	(2)	(2)	11.83
ESB1983-40.5-131021	N/A	Coarse sand	0.570	24.32	5.58	26.45	31.00	(2)	(2)	12.65
ESB1985-10-131022	N/A	Fine sand	0.339	5.00	3.40	32.21	48.95	(2)	(2)	10.45
ESB1985-20-131022	N/A	Medium sand	0.364	8.79	3.79	31.72	45.86	(2)	(2)	9.85
ESB1986-30-131022	N/A	Fine sand	0.146	0.72	1.40	11.40	59.55	(2)	(2)	26.93
ESB1989-10-131023	N/A	Fine sand	0.308	3.38	2.44	32.44	49.41	(2)	(2)	12.33
ESB1987-20-131023	N/A	Medium sand	0.425	12.51	2.36	35.42	36.96	(2)	(2)	12.75
ESB1987-30-131023	N/A	Silt	0.016	0.00	0.00	0.00	17.63	58.99	23.38	82.37
ESB1996-40-131031	N/A	Coarse sand	0.563	27.27	4.57	24.91	31.67	(2)	(2)	11.58
ESB1993-29-131026	N/A	Medium sand	0.317	8.44	2.84	29.46	46.36	(2)	(2)	12.90
ESB1994-39-131026	N/A	Fine sand	0.284	5.48	2.88	29.77	44.47	(2)	(2)	17.40

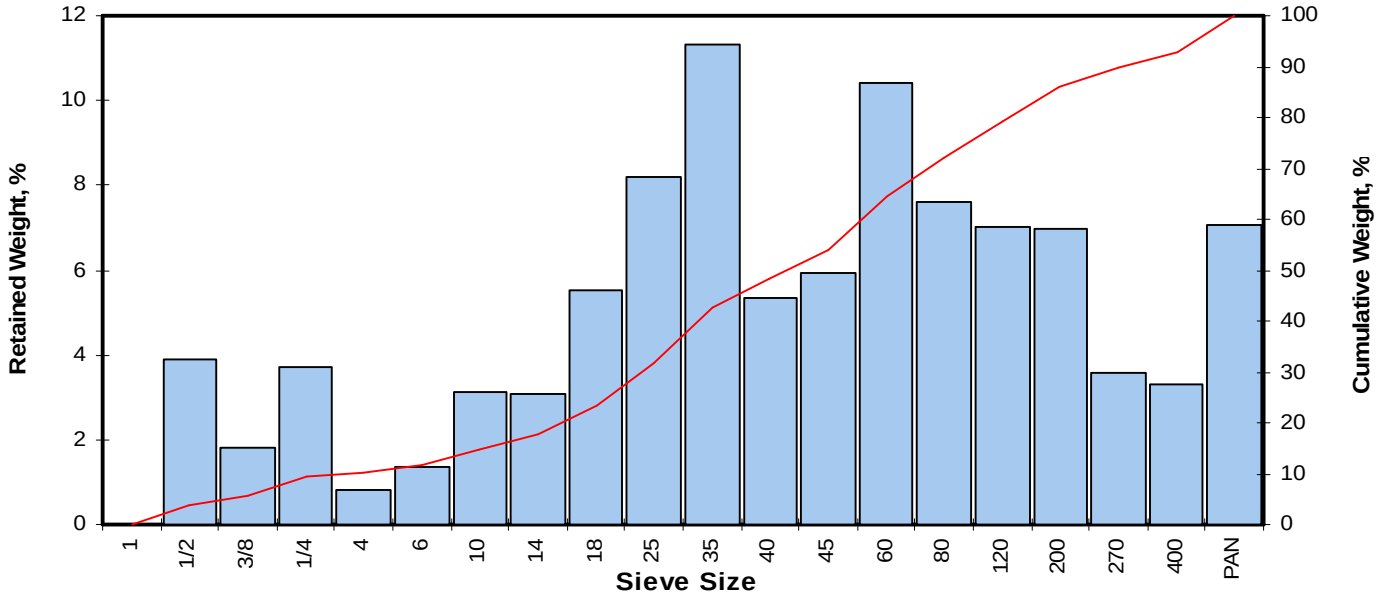
(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1983-20-131021
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	3.51	3.91	3.91
0.3740	9.500	-3.25	3/8	1.61	1.79	5.70
0.2500	6.351	-2.67	1/4	3.32	3.70	9.40
0.1873	4.757	-2.25	4	0.74	0.82	10.22
0.1324	3.364	-1.75	6	1.23	1.37	11.59
0.0787	2.000	-1.00	10	2.79	3.11	14.70
0.0557	1.414	-0.50	14	2.77	3.08	17.78
0.0394	1.000	0.00	18	4.96	5.52	23.31
0.0278	0.707	0.50	25	7.38	8.22	31.53
0.0197	0.500	1.00	35	10.15	11.30	42.83
0.0166	0.420	1.25	40	4.80	5.35	48.17
0.0139	0.354	1.50	45	5.31	5.91	54.09
0.0098	0.250	2.00	60	9.34	10.40	64.49
0.0070	0.177	2.50	80	6.83	7.61	72.09
0.0049	0.125	3.00	120	6.29	7.00	79.10
0.0029	0.074	3.75	200	6.25	6.96	86.06
0.0021	0.053	4.25	270	3.21	3.57	89.63
0.0015	0.037	4.75	400	2.95	3.29	92.92
			PAN	6.36	7.08	100.00
TOTALS				89.80	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.40	0.4164	10.578
10	-2.36	0.2025	5.143
16	-0.79	0.0680	1.728
25	0.10	0.0367	0.931
40	0.87	0.0215	0.545
50	1.33	0.0157	0.399
60	1.78	0.0114	0.290
75	2.71	0.0060	0.153
84	3.53	0.0034	0.087
90	4.31	0.0020	0.051

Measure	Trask	Inman	Folk-Ward
Median, phi	1.33	1.33	1.33
Median, in.	0.0157	0.0157	0.0157
Median, mm	0.399	0.399	0.399
Mean, phi	0.88	1.37	1.36
Mean, in.	0.0213	0.0152	0.0154
Mean, mm	0.542	0.387	0.391
Sorting	2.466	2.159	2.103
Skewness	0.947	0.020	-0.190
Kurtosis	0.076	0.565	1.063
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	10.22
Coarse Sand	10	4.48
Medium Sand	40	33.47
Fine Sand	200	37.88
Silt/Clay	<200	13.94
	Total	100

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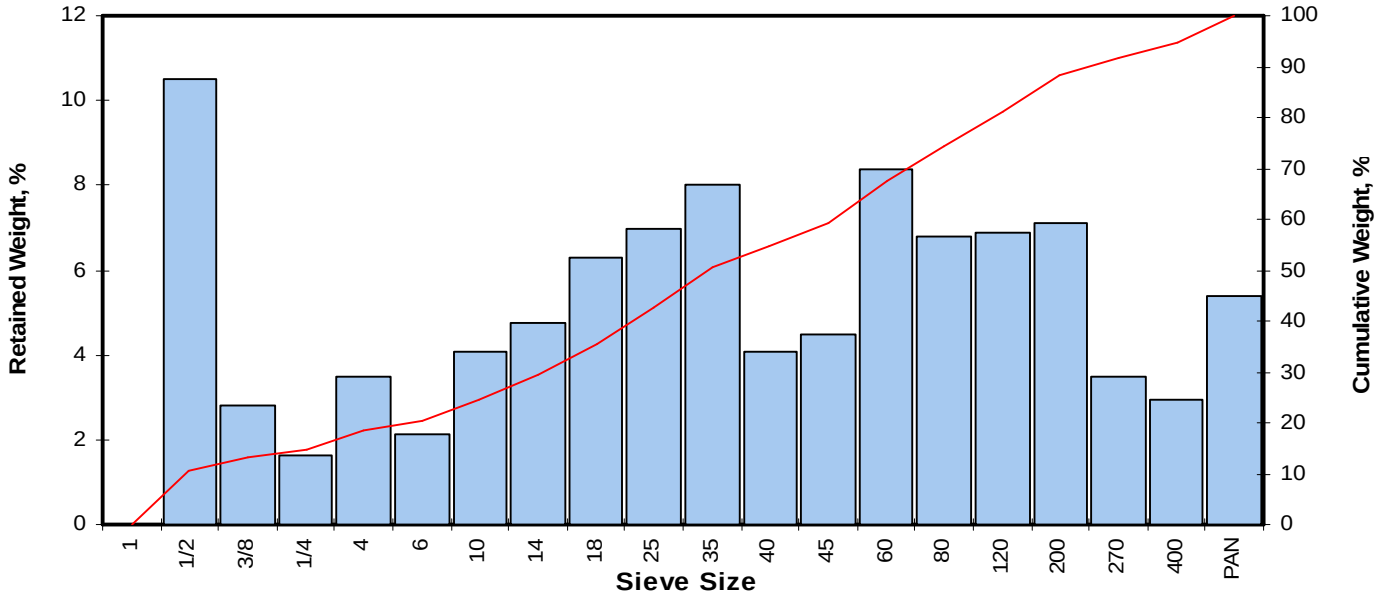
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1983-30.5-131021
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	7.11	10.49	10.49
0.3740	9.500	-3.25	3/8	1.89	2.79	13.28
0.2500	6.351	-2.67	1/4	1.10	1.62	14.90
0.1873	4.757	-2.25	4	2.35	3.47	18.37
0.1324	3.364	-1.75	6	1.43	2.11	20.48
0.0787	2.000	-1.00	10	2.75	4.06	24.54
0.0557	1.414	-0.50	14	3.21	4.74	29.27
0.0394	1.000	0.00	18	4.26	6.29	35.56
0.0278	0.707	0.50	25	4.72	6.96	42.52
0.0197	0.500	1.00	35	5.42	8.00	50.52
0.0166	0.420	1.25	40	2.76	4.07	54.59
0.0139	0.354	1.50	45	3.03	4.47	59.06
0.0098	0.250	2.00	60	5.68	8.38	67.44
0.0070	0.177	2.50	80	4.59	6.77	74.21
0.0049	0.125	3.00	120	4.65	6.86	81.07
0.0029	0.074	3.75	200	4.81	7.10	88.17
0.0021	0.053	4.25	270	2.36	3.48	91.65
0.0015	0.037	4.75	400	2.01	2.97	94.61
			PAN	3.65	5.39	100.00
TOTALS				67.78	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.17	0.7074	17.968
10	-3.69	0.5084	12.912
16	-2.53	0.2282	5.795
25	-0.95	0.0761	1.933
40	0.32	0.0316	0.802
50	0.97	0.0201	0.511
60	1.56	0.0134	0.340
75	2.56	0.0067	0.170
84	3.31	0.0040	0.101
90	4.01	0.0024	0.062
95	4.41	0.0019	0.047

Measure	Trask	Inman	Folk-Ward
Median, phi	0.97	0.97	0.97
Median, in.	0.0201	0.0201	0.0201
Median, mm	0.511	0.511	0.511
Mean, phi	-0.07	0.39	0.58
Mean, in.	0.0414	0.0301	0.0263
Mean, mm	1.051	0.765	0.669
Sorting	3.373	2.922	2.761
Skewness	1.121	-0.199	-0.198
Kurtosis	0.069	0.468	1.002
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	18.37
Coarse Sand	10	6.17
Medium Sand	40	30.05
Fine Sand	200	33.58
Silt/Clay	<200	11.83
	Total	100

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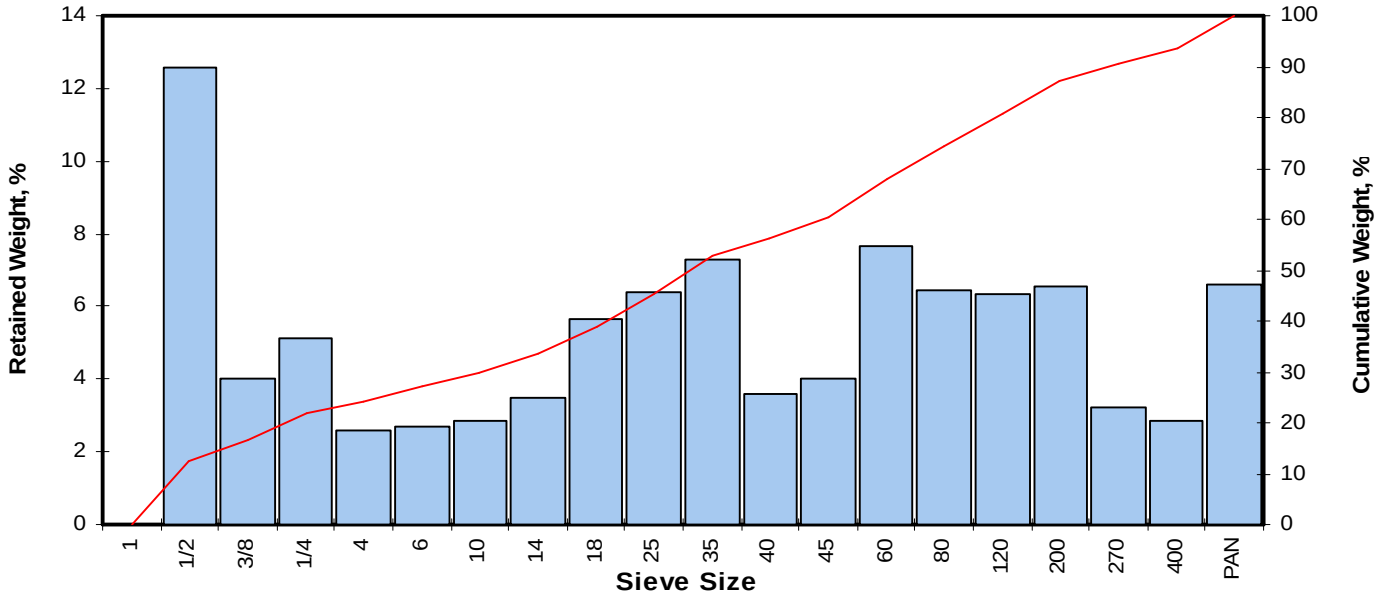
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1983-40.5-131021
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	20.19	12.60	12.60
0.3740	9.500	-3.25	3/8	6.45	4.02	16.62
0.2500	6.351	-2.67	1/4	8.23	5.13	21.76
0.1873	4.757	-2.25	4	4.11	2.56	24.32
0.1324	3.364	-1.75	6	4.34	2.71	27.03
0.0787	2.000	-1.00	10	4.61	2.88	29.90
0.0557	1.414	-0.50	14	5.61	3.50	33.40
0.0394	1.000	0.00	18	9.04	5.64	39.04
0.0278	0.707	0.50	25	10.28	6.41	45.46
0.0197	0.500	1.00	35	11.67	7.28	52.74
0.0166	0.420	1.25	40	5.79	3.61	56.35
0.0139	0.354	1.50	45	6.41	4.00	60.35
0.0098	0.250	2.00	60	12.28	7.66	68.01
0.0070	0.177	2.50	80	10.34	6.45	74.46
0.0049	0.125	3.00	120	10.18	6.35	80.81
0.0029	0.074	3.75	200	10.48	6.54	87.35
0.0021	0.053	4.25	270	5.17	3.23	90.58
0.0015	0.037	4.75	400	4.55	2.84	93.42
			PAN	10.55	6.58	100.00
TOTALS				160.28	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.25	0.7476	18.989
10	-3.85	0.5678	14.421
16	-3.31	0.3902	9.911
25	-2.12	0.1717	4.360
40	0.07	0.0374	0.950
50	0.81	0.0224	0.570
60	1.48	0.0141	0.359
75	2.54	0.0068	0.172
84	3.37	0.0038	0.097
90	4.16	0.0022	0.056

Measure	Trask	Inman	Folk-Ward
Median, phi	0.81	0.81	0.81
Median, in.	0.0224	0.0224	0.0224
Median, mm	0.570	0.570	0.570
Mean, phi	-1.18	0.03	0.29
Mean, in.	0.0892	0.0386	0.0322
Mean, mm	2.266	0.981	0.818
Sorting	5.040	3.337	2.859
Skewness	1.519	-0.235	-0.261
Kurtosis	0.146	0.177	0.690

Grain Size Description (ASTM-USCS Scale)	Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	24.32
Coarse Sand	10	5.58
Medium Sand	40	26.45
Fine Sand	200	31.00
Silt/Clay	<200	12.65
	Total	100

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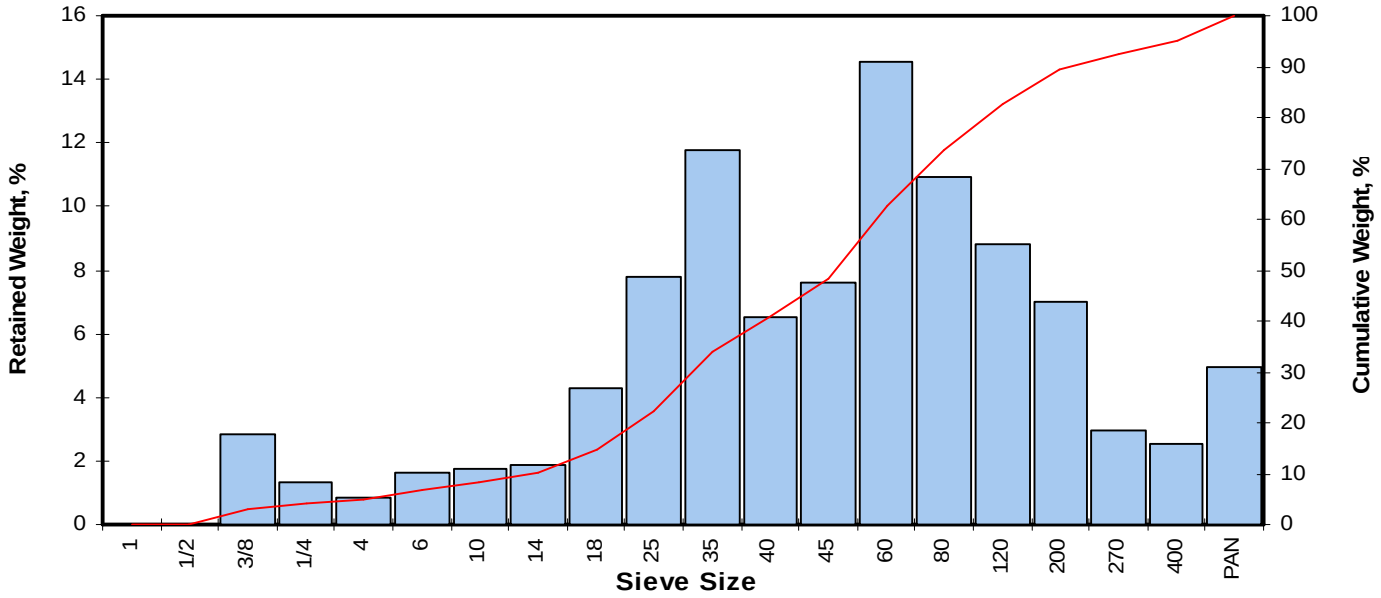
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1985-10-131022
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	2.53	2.84	2.84
0.2500	6.351	-2.67	1/4	1.18	1.32	4.16
0.1873	4.757	-2.25	4	0.75	0.84	5.00
0.1324	3.364	-1.75	6	1.46	1.64	6.64
0.0787	2.000	-1.00	10	1.57	1.76	8.40
0.0557	1.414	-0.50	14	1.68	1.88	10.28
0.0394	1.000	0.00	18	3.80	4.26	14.54
0.0278	0.707	0.50	25	6.94	7.78	22.32
0.0197	0.500	1.00	35	10.49	11.76	34.08
0.0166	0.420	1.25	40	5.82	6.52	40.61
0.0139	0.354	1.50	45	6.81	7.63	48.24
0.0098	0.250	2.00	60	13.00	14.57	62.81
0.0070	0.177	2.50	80	9.74	10.92	73.73
0.0049	0.125	3.00	120	7.86	8.81	82.54
0.0029	0.074	3.75	200	6.25	7.01	89.55
0.0021	0.053	4.25	270	2.66	2.98	92.53
0.0015	0.037	4.75	400	2.24	2.51	95.04
			PAN	4.42	4.96	100.00
TOTALS				89.20	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-2.25	0.1873	4.757
10	-0.57	0.0586	1.489
16	0.09	0.0369	0.937
25	0.61	0.0257	0.653
40	1.23	0.0168	0.427
50	1.56	0.0133	0.339
60	1.90	0.0105	0.267
75	2.57	0.0066	0.168
84	3.16	0.0044	0.112
90	3.83	0.0028	0.071
95	4.74	0.0015	0.037

Measure	Trask	Inman	Folk-Ward
Median, phi	1.56	1.56	1.56
Median, in.	0.0133	0.0133	0.0133
Median, mm	0.339	0.339	0.339
Mean, phi	1.28	1.62	1.60
Mean, in.	0.0162	0.0128	0.0130
Mean, mm	0.411	0.324	0.329
Sorting	1.971	1.531	1.825
Skewness	0.978	0.042	-0.024
Kurtosis	0.171	1.283	1.463
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	5.00
Coarse Sand	10	3.40
Medium Sand	40	32.21
Fine Sand	200	48.95
Silt/Clay	<200	10.45
	Total	100

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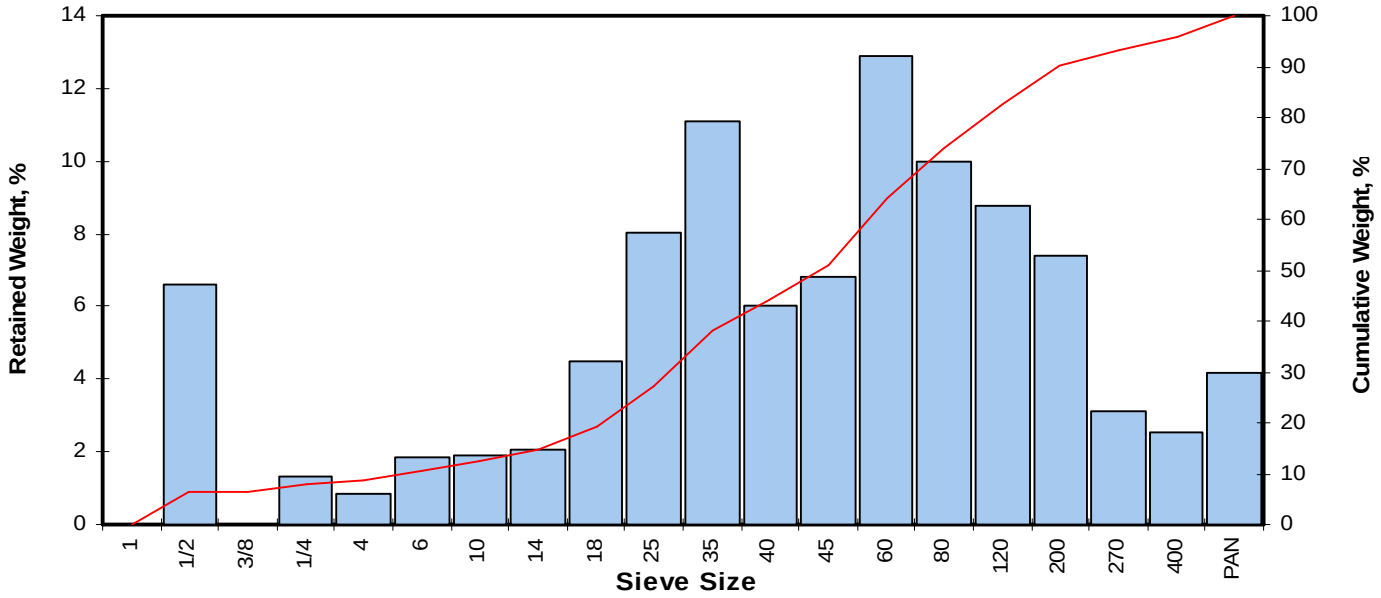
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1985-20-131022
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	6.13	6.59	6.59
0.3740	9.500	-3.25	3/8	0.00	0.00	6.59
0.2500	6.351	-2.67	1/4	1.23	1.32	7.92
0.1873	4.757	-2.25	4	0.81	0.87	8.79
0.1324	3.364	-1.75	6	1.73	1.86	10.65
0.0787	2.000	-1.00	10	1.79	1.93	12.57
0.0557	1.414	-0.50	14	1.91	2.05	14.63
0.0394	1.000	0.00	18	4.16	4.47	19.10
0.0278	0.707	0.50	25	7.48	8.04	27.15
0.0197	0.500	1.00	35	10.34	11.12	38.27
0.0166	0.420	1.25	40	5.60	6.02	44.29
0.0139	0.354	1.50	45	6.36	6.84	51.13
0.0098	0.250	2.00	60	12.01	12.92	64.05
0.0070	0.177	2.50	80	9.26	9.96	74.01
0.0049	0.125	3.00	120	8.14	8.75	82.76
0.0029	0.074	3.75	200	6.87	7.39	90.15
0.0021	0.053	4.25	270	2.92	3.14	93.29
0.0015	0.037	4.75	400	2.37	2.55	95.84
			PAN	3.87	4.16	100.00
TOTALS				92.98	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.59	0.4725	12.003
10	-1.92	0.1494	3.795
16	-0.35	0.0501	1.272
25	0.37	0.0305	0.776
40	1.07	0.0187	0.476
50	1.46	0.0143	0.364
60	1.84	0.0110	0.279
75	2.56	0.0067	0.170
84	3.13	0.0045	0.115
90	3.73	0.0030	0.075
95	4.59	0.0016	0.042

Measure	Trask	Inman	Folk-Ward
Median, phi	1.46	1.46	1.46
Median, in.	0.0143	0.0143	0.0143
Median, mm	0.364	0.364	0.364
Mean, phi	1.08	1.39	1.41
Mean, in.	0.0186	0.0150	0.0148
Mean, mm	0.473	0.382	0.376
Sorting	2.136	1.736	2.106
Skewness	0.998	-0.040	-0.137
Kurtosis	0.081	1.353	1.529
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	8.79
Coarse Sand	10	3.79
Medium Sand	40	31.72
Fine Sand	200	45.86
Silt/Clay	<200	9.85
	Total	100

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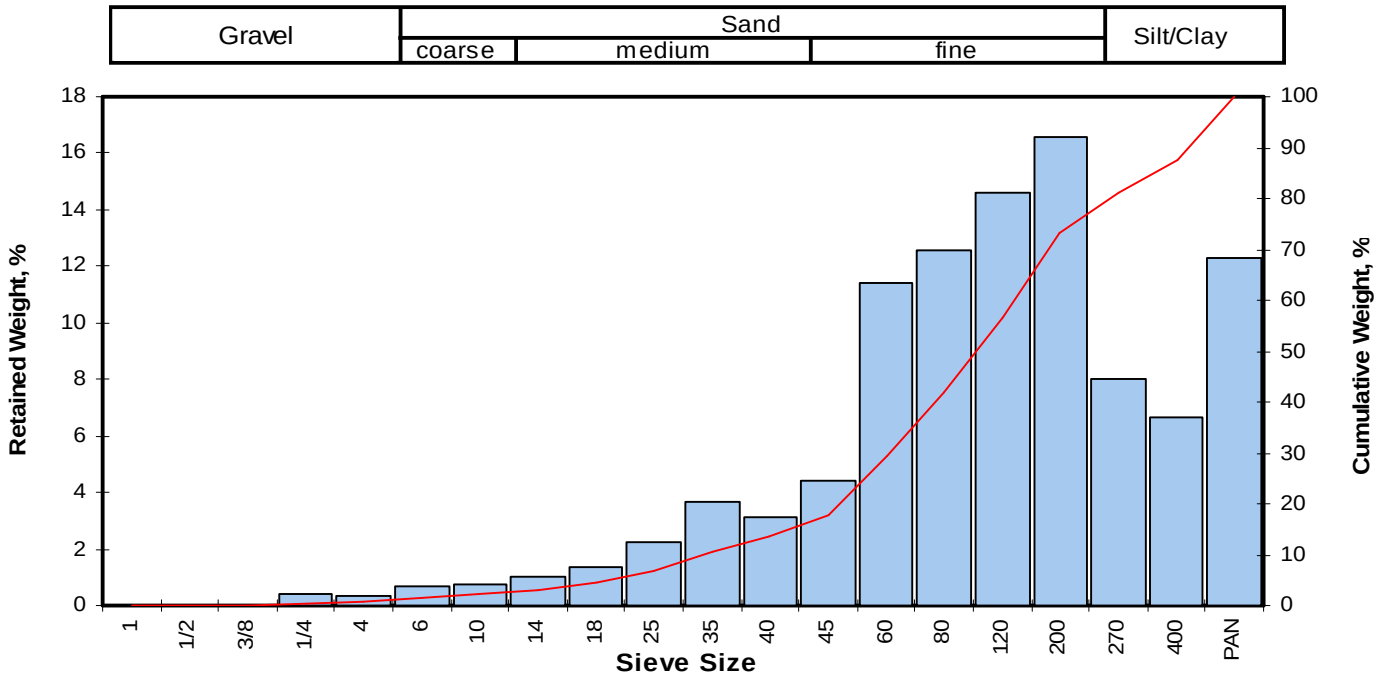
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1986-30-131022
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	0.27	0.38	0.38
0.1873	4.757	-2.25	4	0.24	0.34	0.72
0.1324	3.364	-1.75	6	0.47	0.66	1.39
0.0787	2.000	-1.00	10	0.52	0.74	2.12
0.0557	1.414	-0.50	14	0.73	1.03	3.15
0.0394	1.000	0.00	18	0.95	1.34	4.50
0.0278	0.707	0.50	25	1.57	2.22	6.72
0.0197	0.500	1.00	35	2.61	3.69	10.41
0.0166	0.420	1.25	40	2.20	3.11	13.52
0.0139	0.354	1.50	45	3.11	4.40	17.91
0.0098	0.250	2.00	60	8.08	11.42	29.34
0.0070	0.177	2.50	80	8.88	12.55	41.89
0.0049	0.125	3.00	120	10.35	14.63	56.52
0.0029	0.074	3.75	200	11.70	16.54	73.07
0.0021	0.053	4.25	270	5.67	8.02	81.08
0.0015	0.037	4.75	400	4.70	6.64	87.73
			PAN	8.68	12.27	100.00
TOTALS				70.73	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.11	0.0364	0.924
10	0.95	0.0204	0.519
16	1.39	0.0150	0.381
25	1.81	0.0112	0.285
40	2.42	0.0073	0.186
50	2.78	0.0057	0.146
60	3.16	0.0044	0.112
75	3.87	0.0027	0.068
84	4.47	0.0018	0.045

Measure	Trask	Inman	Folk-Ward
Median, phi	2.78	2.78	2.78
Median, in.	0.0057	0.0057	0.0057
Median, mm	0.146	0.146	0.146
Mean, phi	2.50	2.93	2.88
Mean, in.	0.0070	0.0052	0.0054
Mean, mm	0.177	0.131	0.136
Sorting	2.042	1.539	1.046
Skewness	0.957	0.100	-0.912
Kurtosis	0.240	-0.408	0.362

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.72
Coarse Sand	10	1.40
Medium Sand	40	11.40
Fine Sand	200	59.55
Silt/Clay	<200	26.93
	Total	100

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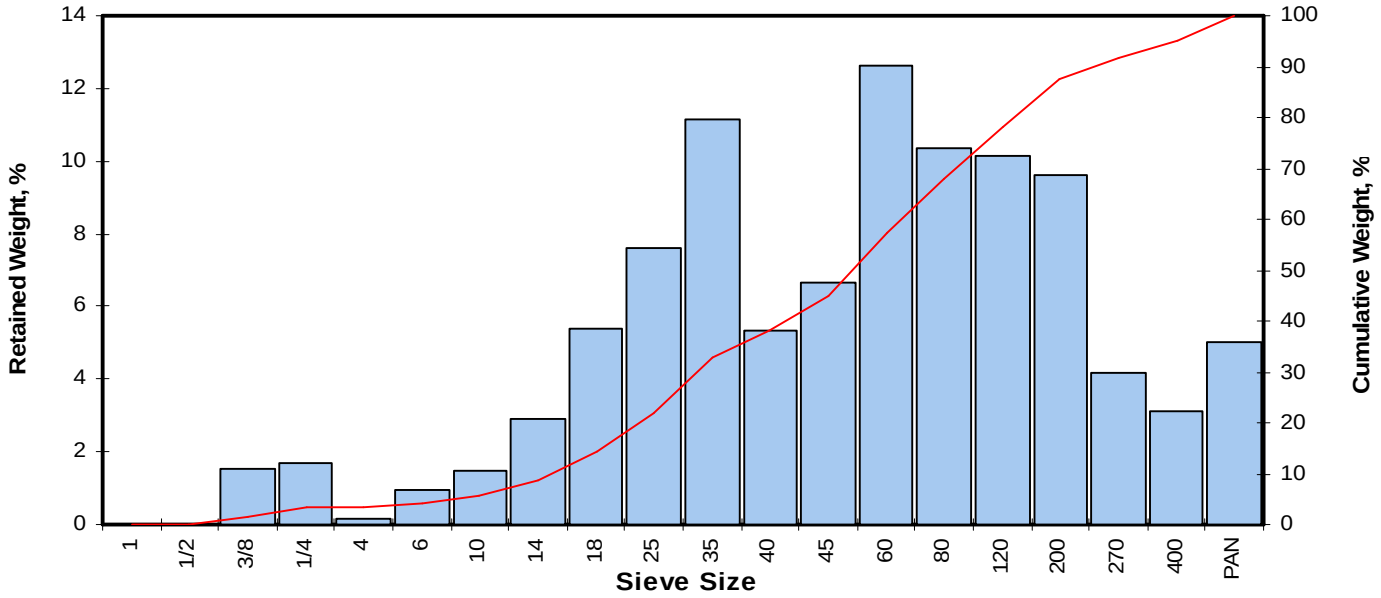
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1989-10-131023
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	1.84	1.54	1.54
0.2500	6.351	-2.67	1/4	2.00	1.67	3.22
0.1873	4.757	-2.25	4	0.20	0.17	3.38
0.1324	3.364	-1.75	6	1.13	0.95	4.33
0.0787	2.000	-1.00	10	1.78	1.49	5.82
0.0557	1.414	-0.50	14	3.50	2.93	8.75
0.0394	1.000	0.00	18	6.46	5.41	14.16
0.0278	0.707	0.50	25	9.10	7.62	21.78
0.0197	0.500	1.00	35	13.29	11.13	32.90
0.0166	0.420	1.25	40	6.40	5.36	38.26
0.0139	0.354	1.50	45	7.96	6.66	44.93
0.0098	0.250	2.00	60	15.05	12.60	57.53
0.0070	0.177	2.50	80	12.39	10.37	67.90
0.0049	0.125	3.00	120	12.11	10.14	78.04
0.0029	0.074	3.75	200	11.50	9.63	87.67
0.0021	0.053	4.25	270	4.97	4.16	91.83
0.0015	0.037	4.75	400	3.75	3.14	94.97
			PAN	6.01	5.03	100.00
TOTALS				119.44	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-1.41	0.1048	2.661
10	-0.38	0.0514	1.305
16	0.12	0.0362	0.920
25	0.64	0.0252	0.640
40	1.32	0.0158	0.402
50	1.70	0.0121	0.308
60	2.12	0.0091	0.230
75	2.85	0.0055	0.139
84	3.46	0.0036	0.091
90	4.03	0.0024	0.061
95	4.72	0.0015	0.038

Measure	Trask	Inman	Folk-Ward
Median, phi	1.70	1.70	1.70
Median, in.	0.0121	0.0121	0.0121
Median, mm	0.308	0.308	0.308
Mean, phi	1.36	1.79	1.76
Mean, in.	0.0153	0.0114	0.0116
Mean, mm	0.389	0.289	0.295
Sorting	2.147	1.672	1.765
Skewness	0.969	0.055	0.020
Kurtosis	0.201	0.834	1.140

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	3.38
Coarse Sand	10	2.44
Medium Sand	40	32.44
Fine Sand	200	49.41
Silt/Clay	<200	12.33
	Total	100

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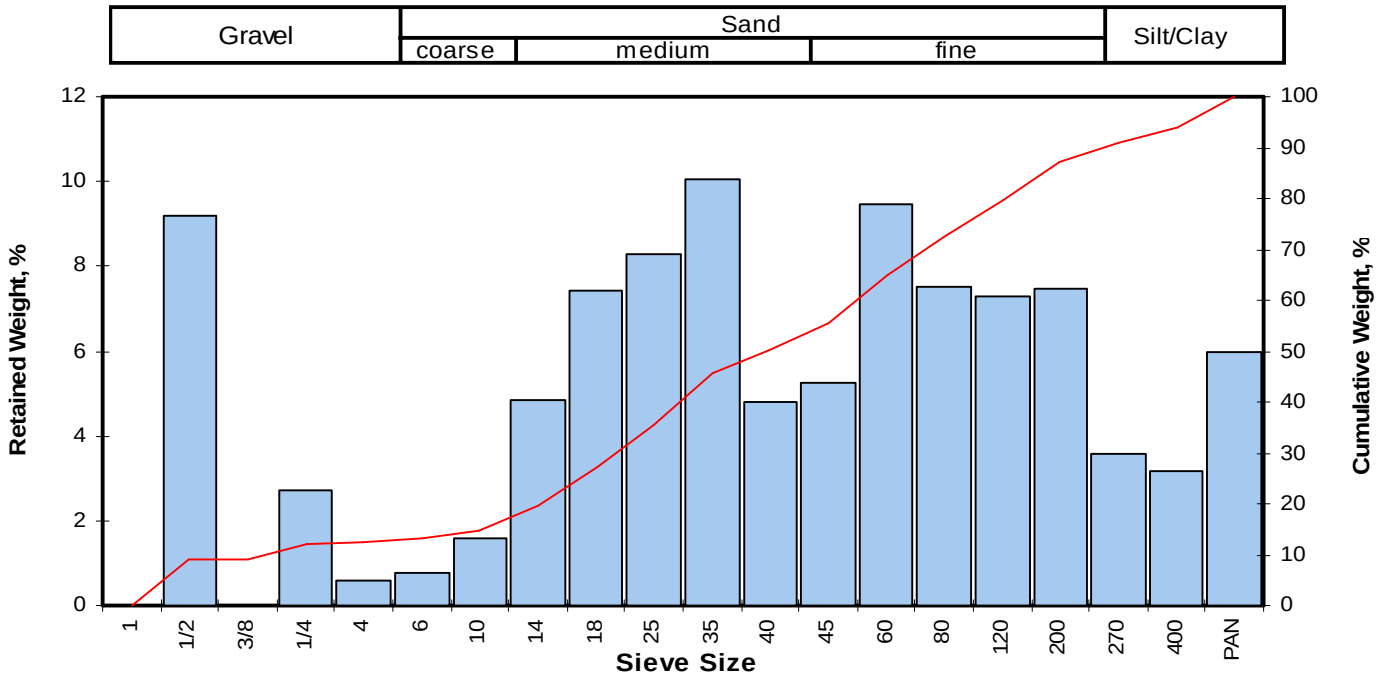
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1987-20-131023
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	23.91	9.17	9.17
0.3740	9.500	-3.25	3/8	0.00	0.00	9.17
0.2500	6.351	-2.67	1/4	7.12	2.73	11.90
0.1873	4.757	-2.25	4	1.58	0.61	12.51
0.1324	3.364	-1.75	6	1.98	0.76	13.27
0.0787	2.000	-1.00	10	4.17	1.60	14.87
0.0557	1.414	-0.50	14	12.67	4.86	19.73
0.0394	1.000	0.00	18	19.36	7.43	27.16
0.0278	0.707	0.50	25	21.58	8.28	35.43
0.0197	0.500	1.00	35	26.20	10.05	45.48
0.0166	0.420	1.25	40	12.52	4.80	50.29
0.0139	0.354	1.50	45	13.70	5.26	55.54
0.0098	0.250	2.00	60	24.66	9.46	65.00
0.0070	0.177	2.50	80	19.58	7.51	72.51
0.0049	0.125	3.00	120	18.95	7.27	79.78
0.0029	0.074	3.75	200	19.46	7.47	87.25
0.0021	0.053	4.25	270	9.36	3.59	90.84
0.0015	0.037	4.75	400	8.29	3.18	94.02
			PAN	15.59	5.98	100.00
TOTALS				260.68	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.88	0.5809	14.754
10	-3.07	0.3311	8.409
16	-0.88	0.0726	1.845
25	-0.15	0.0435	1.106
40	0.73	0.0238	0.604
50	1.24	0.0167	0.425
60	1.74	0.0118	0.300
75	2.67	0.0062	0.157
84	3.42	0.0037	0.093
90	4.13	0.0022	0.057

Measure	Trask	Inman	Folk-Ward
Median, phi	1.24	1.24	1.24
Median, in.	0.0167	0.0167	0.0167
Median, mm	0.425	0.425	0.425
Mean, phi	0.66	1.27	1.26
Mean, in.	0.0249	0.0163	0.0165
Mean, mm	0.631	0.415	0.418
Sorting	2.654	2.154	2.267
Skewness	0.981	0.016	-0.144
Kurtosis	0.057	0.823	1.143
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	12.51
Coarse Sand	10	2.36
Medium Sand	40	35.42
Fine Sand	200	36.96
Silt/Clay	<200	12.75
	Total	100

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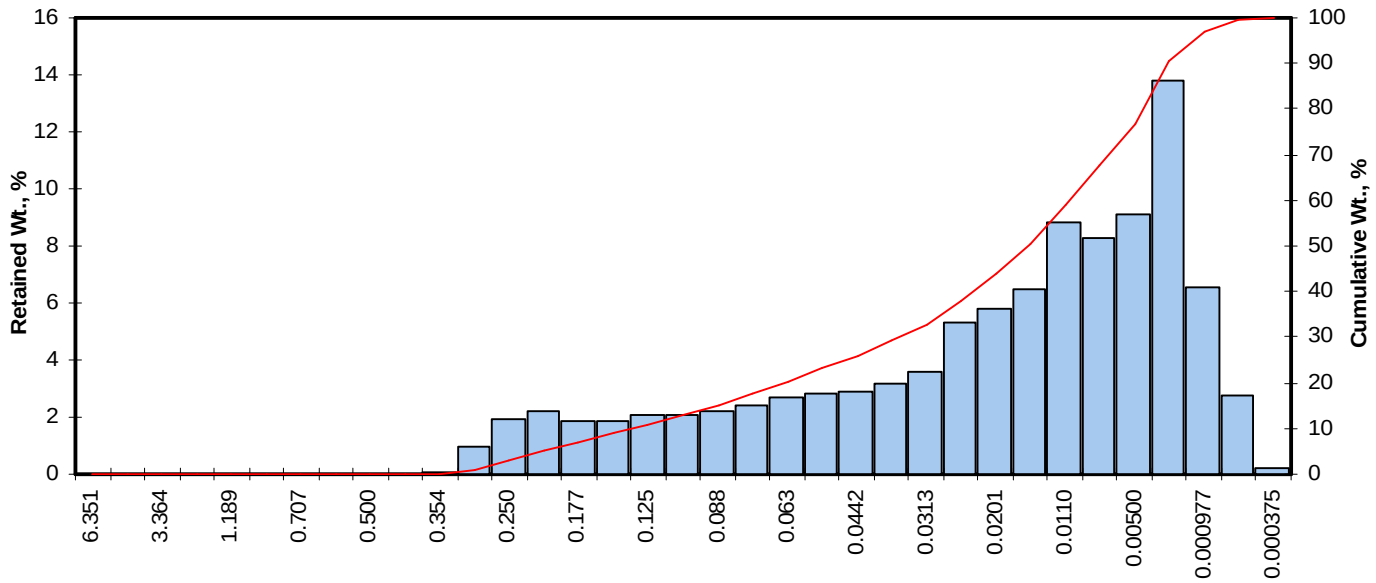
Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1987-30-131023
Project No:	33764006.12230	**Depth, ft:**	N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.08	0.08	0.08
0.0117	0.297	1.75	50	0.94	0.94	1.02
0.0098	0.250	2.00	60	1.94	1.94	2.96
0.0083	0.210	2.25	70	2.20	2.20	5.16
0.0070	0.177	2.50	80	1.88	1.88	7.04
0.0059	0.149	2.75	100	1.84	1.84	8.88
0.0049	0.125	3.00	120	2.04	2.04	10.92
0.0041	0.105	3.25	140	2.10	2.10	13.02
0.0035	0.088	3.50	170	2.18	2.18	15.20
0.0029	0.074	3.75	200	2.43	2.43	17.63
0.0025	0.063	4.00	230	2.70	2.70	20.33
0.0021	0.053	4.25	270	2.81	2.81	23.14
0.00174	0.0442	4.50	325	2.90	2.90	26.04
0.00146	0.0372	4.75	400	3.16	3.16	29.20
0.00123	0.0313	5.00	450	3.62	3.62	32.82
0.000986	0.0250	5.32	500	5.31	5.31	38.13
0.000790	0.0201	5.64	635	5.79	5.79	43.92
0.000615	0.0156	6.00		6.46	6.46	50.38
0.000435	0.0110	6.50		8.81	8.81	59.19
0.000308	0.00781	7.00		8.31	8.31	67.50
0.000197	0.00500	7.65		9.12	9.12	76.62
0.000077	0.00195	9.00		13.80	13.80	90.42
0.000038	0.000977	10.00		6.57	6.57	96.99
0.000019	0.000488	11.00		2.77	2.77	99.76
0.000015	0.000375	11.38		0.24	0.24	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	2.23	0.0084	0.213
10	2.89	0.0053	0.135
16	3.58	0.0033	0.083
25	4.41	0.0019	0.047
40	5.42	0.0009	0.023
50	5.98	0.0006	0.016
60	6.55	0.0004	0.011
75	7.53	0.0002	0.005
84	8.37	0.0001	0.003
90	8.96	0.0001	0.002
95	9.70	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.98	5.98	5.98
Median, in.	0.0006	0.0006	0.0006
Median, mm	0.016	0.016	0.016
Mean, phi	5.25	5.98	5.98
Mean, in.	0.0010	0.0006	0.0006
Mean, mm	0.026	0.016	0.016
Sorting	2.949	2.394	2.328
Skewness	1.006	-0.001	-0.003
Kurtosis	0.156	0.559	0.981
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	17.63
Silt	>0.005 mm	58.99
Clay	<0.005 mm	23.38
	Total	**100**

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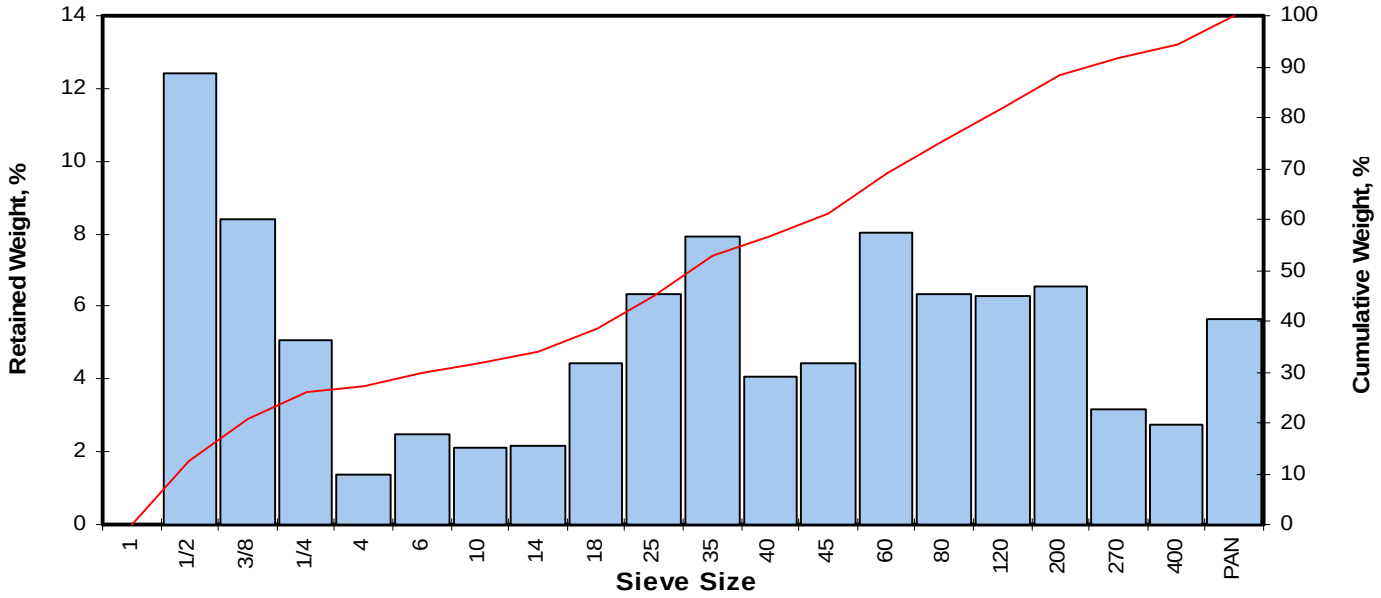
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1996-40-131031
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	21.97	12.40	12.40
0.3740	9.500	-3.25	3/8	14.87	8.39	20.79
0.2500	6.351	-2.67	1/4	9.03	5.10	25.88
0.1873	4.757	-2.25	4	2.46	1.39	27.27
0.1324	3.364	-1.75	6	4.38	2.47	29.74
0.0787	2.000	-1.00	10	3.72	2.10	31.84
0.0557	1.414	-0.50	14	3.83	2.16	34.00
0.0394	1.000	0.00	18	7.87	4.44	38.44
0.0278	0.707	0.50	25	11.22	6.33	44.77
0.0197	0.500	1.00	35	14.04	7.92	52.69
0.0166	0.420	1.25	40	7.18	4.05	56.75
0.0139	0.354	1.50	45	7.83	4.42	61.16
0.0098	0.250	2.00	60	14.25	8.04	69.20
0.0070	0.177	2.50	80	11.25	6.35	75.55
0.0049	0.125	3.00	120	11.16	6.30	81.85
0.0029	0.074	3.75	200	11.64	6.57	88.42
0.0021	0.053	4.25	270	5.63	3.18	91.59
0.0015	0.037	4.75	400	4.86	2.74	94.34
			PAN	10.04	5.66	100.00
TOTALS				177.23	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.24	0.7443	18.904
10	-3.84	0.5627	14.294
16	-3.47	0.4374	11.111
25	-2.77	0.2681	6.809
40	0.12	0.0362	0.918
50	0.83	0.0221	0.563
60	1.43	0.0146	0.370
75	2.46	0.0072	0.182
84	3.25	0.0042	0.105
90	4.00	0.0025	0.063
95	4.19	0.0022	0.055

Measure	Trask	Inman	Folk-Ward
Median, phi	0.83	0.83	0.83
Median, in.	0.0221	0.0221	0.0221
Median, mm	0.563	0.563	0.563
Mean, phi	-1.81	-0.11	0.20
Mean, in.	0.1376	0.0426	0.0343
Mean, mm	3.496	1.082	0.870
Sorting	6.114	3.360	2.958
Skewness	1.980	-0.281	-0.242
Kurtosis	0.233	0.255	0.662
Grain Size Description (ASTM-USCS Scale)		Coarse sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	27.27
Coarse Sand	10	4.57
Medium Sand	40	24.91
Fine Sand	200	31.67
Silt/Clay	<200	11.58
	Total	100

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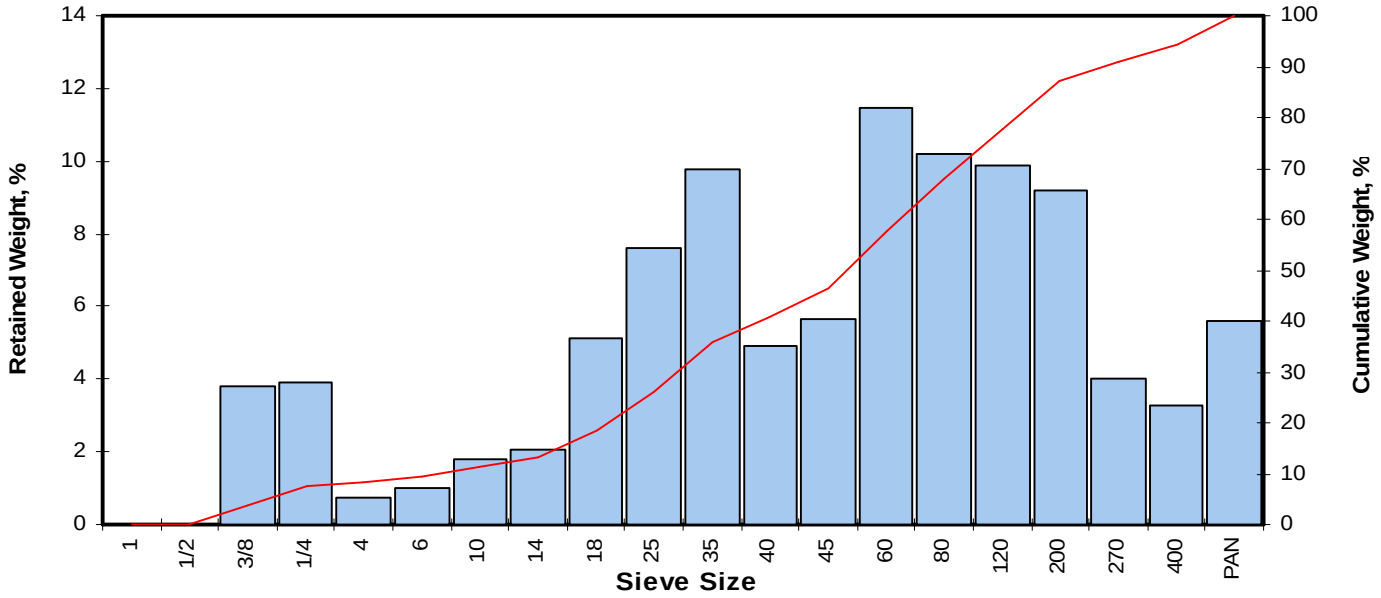
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1993-29-131026
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	5.37	3.79	3.79
0.2500	6.351	-2.67	1/4	5.56	3.92	7.71
0.1873	4.757	-2.25	4	1.04	0.73	8.44
0.1324	3.364	-1.75	6	1.46	1.03	9.47
0.0787	2.000	-1.00	10	2.57	1.81	11.28
0.0557	1.414	-0.50	14	2.90	2.04	13.33
0.0394	1.000	0.00	18	7.27	5.13	18.45
0.0278	0.707	0.50	25	10.81	7.62	26.07
0.0197	0.500	1.00	35	13.87	9.78	35.85
0.0166	0.420	1.25	40	6.94	4.89	40.75
0.0139	0.354	1.50	45	8.02	5.65	46.40
0.0098	0.250	2.00	60	16.23	11.44	57.84
0.0070	0.177	2.50	80	14.46	10.20	68.04
0.0049	0.125	3.00	120	14.00	9.87	77.91
0.0029	0.074	3.75	200	13.04	9.19	87.10
0.0021	0.053	4.25	270	5.69	4.01	91.12
0.0015	0.037	4.75	400	4.66	3.29	94.40
			PAN	7.94	5.60	100.00
TOTALS				141.83	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.07	0.3302	8.387
10	-1.53	0.1137	2.888
16	-0.24	0.0465	1.180
25	0.43	0.0292	0.742
40	1.21	0.0170	0.432
50	1.66	0.0125	0.317
60	2.11	0.0091	0.232
75	2.85	0.0055	0.138
84	3.50	0.0035	0.089
90	4.11	0.0023	0.058
95	4.24	0.0021	0.053

Measure	Trask	Inman	Folk-Ward
Median, phi	1.66	1.66	1.66
Median, in.	0.0125	0.0125	0.0125
Median, mm	0.317	0.317	0.317
Mean, phi	1.18	1.63	1.64
Mean, in.	0.0173	0.0127	0.0126
Mean, mm	0.440	0.323	0.321
Sorting	2.316	1.868	2.042
Skewness	1.011	-0.015	-0.154
Kurtosis	0.107	0.957	1.237

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	8.44
Coarse Sand	10	2.84
Medium Sand	40	29.46
Fine Sand	200	46.36
Silt/Clay	<200	12.90
	Total	100

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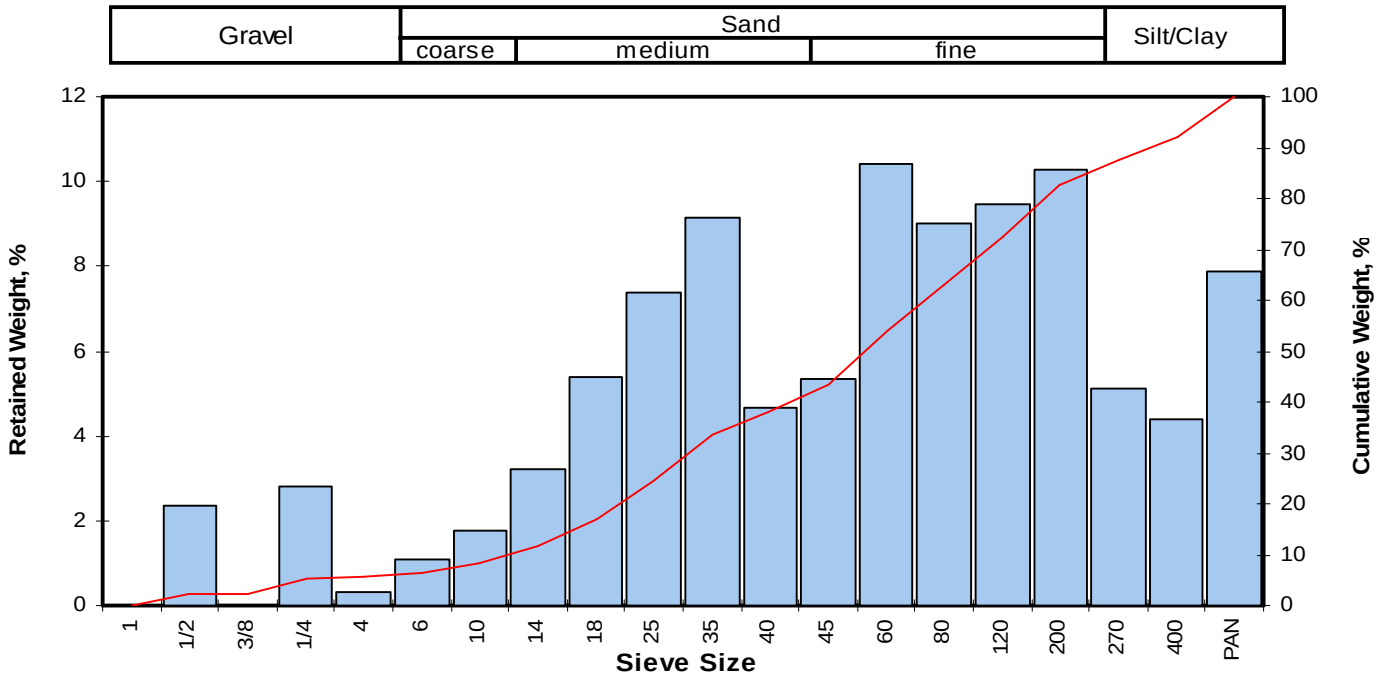
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1994-39-131026
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	2.83	2.37	2.37
0.3740	9.500	-3.25	3/8	0.00	0.00	2.37
0.2500	6.351	-2.67	1/4	3.34	2.79	5.16
0.1873	4.757	-2.25	4	0.38	0.32	5.48
0.1324	3.364	-1.75	6	1.31	1.10	6.58
0.0787	2.000	-1.00	10	2.13	1.78	8.36
0.0557	1.414	-0.50	14	3.84	3.21	11.57
0.0394	1.000	0.00	18	6.45	5.40	16.97
0.0278	0.707	0.50	25	8.83	7.39	24.35
0.0197	0.500	1.00	35	10.92	9.14	33.49
0.0166	0.420	1.25	40	5.55	4.64	38.13
0.0139	0.354	1.50	45	6.36	5.32	43.45
0.0098	0.250	2.00	60	12.43	10.40	53.85
0.0070	0.177	2.50	80	10.75	8.99	62.85
0.0049	0.125	3.00	120	11.31	9.46	72.31
0.0029	0.074	3.75	200	12.30	10.29	82.60
0.0021	0.053	4.25	270	6.11	5.11	87.71
0.0015	0.037	4.75	400	5.26	4.40	92.11
			PAN	9.43	7.89	100.00
TOTALS				119.53	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-2.70	0.2559	6.501
10	-0.74	0.0660	1.675
16	-0.09	0.0419	1.064
25	0.54	0.0272	0.690
40	1.34	0.0156	0.396
50	1.81	0.0112	0.284
60	2.34	0.0078	0.197
75	3.20	0.0043	0.109
84	3.89	0.0027	0.068
90	4.51	0.0017	0.044

Measure	Trask	Inman	Folk-Ward
Median, phi	1.81	1.81	1.81
Median, in.	0.0112	0.0112	0.0112
Median, mm	0.284	0.284	0.284
Mean, phi	1.32	1.90	1.87
Mean, in.	0.0157	0.0106	0.0108
Mean, mm	0.400	0.268	0.273
Sorting	2.515	1.988	1.859
Skewness	0.965	0.042	-0.270
Kurtosis	0.178	0.436	0.880

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	5.48
Coarse Sand	10	2.88
Medium Sand	40	29.77
Fine Sand	200	44.47
Silt/Clay	<200	17.40
	Total	100

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PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: PTS Laboratories, Inc.

ADDRESS: 8100 Secura Way | CITY: Santa Fe Springs | CA | ZIP CODE: 90670

PROJECT MANAGER: Rachel Spitz | email: rspitz@ptslabs.com

PROJECT NAME: Boeing Everett Upland Sampling + Pilot Testing | PHONE NUMBER:

PROJECT NUMBER: 33764006.12230 | FAX NUMBER:

SITE LOCATION: —

SAMPLER SIGNATURE: [signature]

PO#:

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☒

OTHER: _____

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F) ____

PTS QUOTE NO.: —

PTS FILE: 43761

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR FILLED, WATER FILLED	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE	CEC		COMMENTS
ESB1983-20-131021		1658	N/A																					X		
ESB1983-30.5-131021		59																						X		
ESB1983-40.5-131021		60																						X		
ESB1985-10-131022		61																						X		
ESB1985-20-131022		62																						X		
ESB1986-30-131022		63																						X		
ESB1989-10-131023		64																						X		
ESB1987-20-131023		65																						X		
ESB1987-30-131023		66																						X		
ESB1990-40-131031		67																						X		
ESB1993-29-131026		68																						X		

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
[signature]	[signature]		
COMPANY: PTS Labs. Inc	COMPANY: Amtest	COMPANY:	COMPANY:
DATE: 11/27/13 TIME: 1801	DATE: 12/3/13 TIME: 1000	DATE: TIME:	DATE: TIME:

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: PTS Laboratories, Inc.

ADDRESS: 8100 Secura Way, CITY: Santa Fe Springs, ZIP CODE: CA 90670

PROJECT MANAGER: Rachel Spitz, email: rspitz@ptslabs.com

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing, PHONE NUMBER:

PROJECT NUMBER: 337641006.12230, FAX NUMBER:

SITE LOCATION:

SAMPLER SIGNATURE:

PO#:

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐

OTHER:

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F)____

PTS QUOTE NO.: –

PTS FILE: 43761

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR FILLED, WATER FILLED	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE	CEC		COMMENTS
ESB1994-39-131026		69	N/A																					X		

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: PTS Labs Inc	COMPANY: Amtest	COMPANY:	COMPANY:
DATE: 11/27/13 TIME: 1507	DATE: 12/3/13 TIME: 1000	DATE: TIME:	DATE: TIME:

Boeing Chain of Custody

43761

1 Client Information

Site Location: Boeing Everette
Site Project: FS
Site Program/#: 33764006
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: _____ # of Coolers: _____

4 Analyses Requested

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
markomolinari@urs.com
URS P.O. # 297222-05

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Parameters	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045
ESB 1983-20 -131021	10/21/13	NA	Soil	1	X	X	X	X
ESB 1983-30 - 131021	↓	↓	↓	1	X	X	X	X
ESB 1983-40 - 131021	↓	↓	↓	1	X	X	X	X
ESB 1985-10 -131022	10/22/13	↓	↓	1	X	X	X	X
ESB 1985-20 - 131022	↓	↓	↓	1	X	X	X	X
ESB 1986-30- 131022	↓	↓	↓	1	X	X	X	X
ESB 1987-10 - 131023	10/23/13	↓	↓	1	X	X	X	X
ESB 1987-20-131023	↓	↓	↓	1	X	X	X	X
ESB 1989-30 131023	↓	↓	↓	1	X	X	X	X
ESB 1996-40 -131031	10/31/13	↓	↓	1	X	X	X	X
ESB 1993 -29 - 131026	10/26/13	↓	↓	1	X	X	X	X
ESB 1994-39 - 131026	↓	↓	↓	1	X	X	X	X

6 Turnaround Time Requested (please circle)

Standard (circled) | 5 day | 4 day
72 hour | 48 hour | 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	10/15/13 3pm	[signature]	10/18/13 13:10
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Relinquished by commercial carrier (circle): UPS FedEx (circled) Other: _____

71°F

7

Issued by Dept. 40 Management
7063.02

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

February 11, 2014

Mark Molinari
URS Corporation
1501 4th Ave., Ste. 1400
Seattle, WA 98101

Re: PTS File No: 44028
Physical Properties Data
Boeing Everett Upland Sampling & Pilot Testing; 33764444.12230

Dear Mr. Molinari:

Please find enclosed report for Physical Properties analyses conducted upon cores received from your Boeing Everett Upland Sampling & Pilot Testing; 33764444.12230 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2502.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
District Manager

Encl.

PTS Laboratories

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project Number: 33764444.12230

PTS File No: 44028
Client: URS Corporation

TEST PROGRAM - 20140120

CORE ID	Depth ft.	Core Recovery ft.	Vapor Transport Package	*Cation Exchange Capacity	Specific Gravity ASTM D854	Soil pH EPA 9045	Notes
		Plugs:	Various	Grab	Grab	Grab	
Date Received: 20140120							
ESB1979-30-131205	**30**	**0.50**	**X**	**X**	**X**	**X**	**
ESB1979-35-131205	**35**	**0.50**	**X**	**X**	**X**	**X**	
ESB1997-40-131207	**40**	**0.50**	**X**	**X**	**X**	**X**	**
ESB2000-25-131209	**25**	**0.50**	**X**	**X**	**X**	**X**	**
ESB1998-22.5-131116	**22.5**	**0.50**	**X**	**X**	**X**	**X**	Mold cylinder
TOTALS:		**2.50**	**5**	**5**	**5**	**5**	**5**

Laboratory Test Program Notes

Contaminant identification: xylenes, toluene and ethylbenzene.

Standard TAT for basic analysis is 10 business days.

* Analyses to be conducted by PTS Subcontract Laboratory.

** Per COC, samples are either partial samples or disturbed at one end, therefore, only run permeability if there is sufficient undisturbed sample.

Vapor Transport Package (Johnson-Ettinger): Input parameters for Johnson-Ettinger Model; Air permeability (native + specific); porosity (total, effective, air-filled, water-filled), volumetric air and water, moisture content, intrinsic permeability/hydraulic conductivity, grain density, dry bulk density, TOC/foc, soil classification USDA/USCS (grain size + Atterberg limits).

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID SATURATIONS (3), % Pv
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	
ESB1979-30-131205	30.2	V	20140207	8.3	0.120	1.45	2.73	0.470	0.350	0.120	0.197	25.6
ESB1979-35-131205	35.15	V	20140207	10.1	0.169	1.67	2.71	0.384	0.215	0.169	0.142	43.9
ESB1997-40-131207	40.15	V	20140207	8.5	0.139	1.64	2.71	0.397	0.258	0.139	0.179	35.0
ESB2000-25-131209	25.2	V	20140207	9.2	0.137	1.49	2.71	0.451	0.314	0.137	0.182	30.3
ESB1998-22.5-131116	22.7	V	20140207	16.5	0.282	1.71	2.69	0.366	0.084	0.282	0.110	77.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

PTS Laboratories

PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

		METHODS:	API RP40		API RP40 / EPA 9100		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm2
ESB1979-30-131205	30.2	V	2780	3740	274	2.69E-04	2.70E-09
ESB1979-35-131205	35.15	V	409	649	167	1.66E-04	1.64E-09
ESB1997-40-131207	40.15	V	871	1250	228	2.28E-04	2.25E-09
ESB2000-25-131209	25.2	V	1950	2620	254	2.53E-04	2.51E-09
ESB1998-22.5-131116	22.7	V	0.02	28.2	10.1	1.01E-05	9.95E-11

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Specific = No pore fluids in place.
(4) Permeability to water and hydraulic conductivity measured at saturated conditions.
Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS Laboratories

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB1979-30-131205	30.35	20140210	18.3	12.6	5.7	CL-ML	CL-ML: Sandy silty clay	Loam
ESB1979-35-131205	35.35	20140210	20.0	14.3	5.7	CL-ML	CL-ML: Sandy silty clay	Loam
ESB1997-40-131207	40.35	20140210	18.0	13.2	4.8	CL-ML	SC-SM: Silty, clayey sand	Loam
ESB2000-25-131209	25.35	20140211	18.9	12.2	6.7	CL-ML	SC-SM: Silty, clayey sand with gravel	Loamy sand
ESB1998-22.5-131116	22.8	20140211	19.7	14.9	4.8	CL-ML	SC-SM: Silty, clayey sand with gravel	Loamy sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS Laboratories

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1979-30-131205	30.3	20140210	1300	SOIL	1700	1.70E-03
ESB1979-35-131205	35.2	20140210	1300	SOIL	2200	2.20E-03
ESB1997-40-131207	40.25	20140210	1300	SOIL	1800	1.80E-03
ESB2000-25-131209	25.25	20140210	1300	SOIL	2050	2.05E-03
ESB1998-22.5-131116	22.75	20140210	1300	SOIL	7950	7.95E-03
Blank	N/A	20140210	1300	BLANK	ND	ND
SRM D082-542	N/A	20140210	1300	SRM	5420	5.42E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D082-542	100	75-125	5420	4065	6775

ND = Not Detected

PTS Laboratories

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1979-30-131205	30.4	20140206/1014	22.3	0.9995	356.37	127.09	436.71	2.72	2.72
ESB1979-35-131205	35.35	20140206/1014	22.3	0.9995	339.42	134.68	424.64	2.72	2.72
ESB1997-40-131207	40.4	20140206/1014	22.3	0.9995	332.64	132.12	416.34	2.73	2.73
ESB2000-25-131209	25.4	20140206/1014	22.3	0.9995	333.12	138.66	420.84	2.72	2.72
ESB1998-22.5-131116	22.9	20140206/1014	22.3	0.9995	335.06	157.61	434.05	2.69	2.69

PTS Laboratories

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1979-30-131205	30	20140204	1455	74.8	Soil	8.28
ESB1979-35-131205	35	20140204	1455	74.8	Soil	8.50
ESB1997-40-131207	40	20140204	1455	74.8	Soil	8.41
ESB2000-25-131209	25	20140204	1455	74.8	Soil	8.36
ESB1998-22.5-131116	22.5	20140204	1455	74.8	Soil	7.17

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20140204/1446
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

URS Corporation
PTS File No: 44028

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764444.12230

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1979-30-131205	30.3	Fine sand	0.061	0.00	0.00	19.36	27.74	40.53	12.37	52.89
ESB1979-35-131205	35.2	Fine sand	0.051	0.00	0.00	19.11	26.27	38.04	16.58	54.62
ESB1997-40-131207	40.25	Fine sand	0.083	0.00	0.00	25.40	25.89	37.66	11.04	48.70

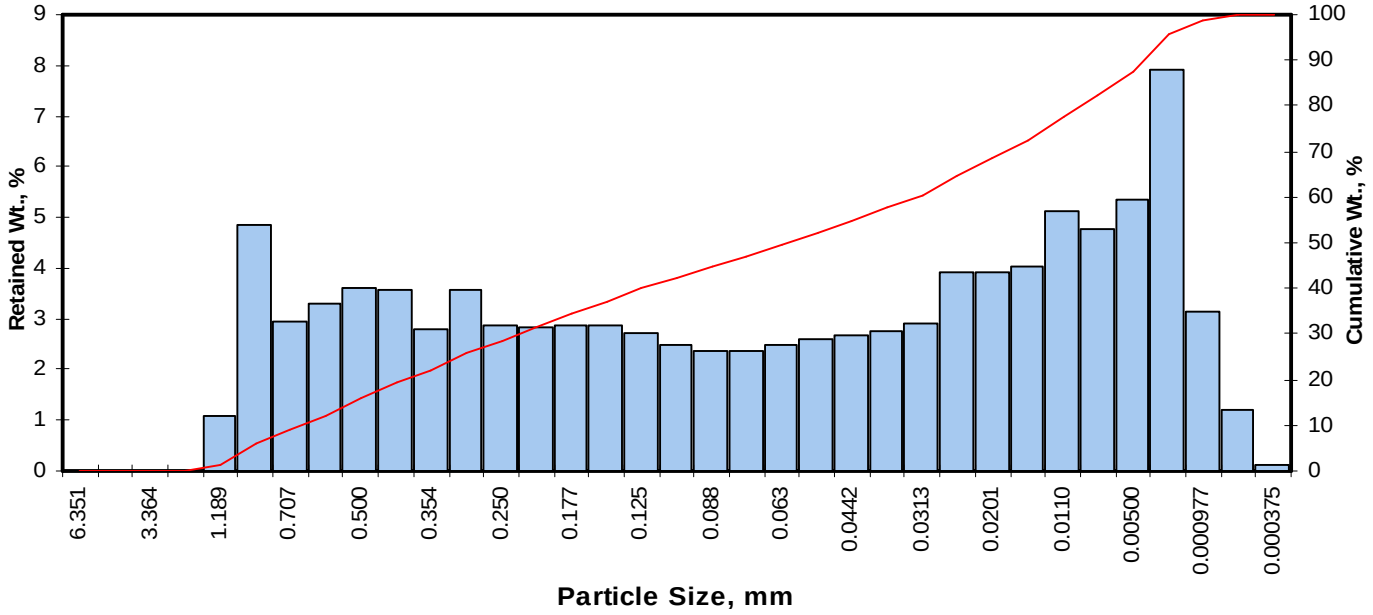
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	44028
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1979-30-131205
Project No:	33764444.12230	**Depth, ft:**	30.3

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.08	1.08	1.08
0.0331	0.841	0.25	20	4.86	4.86	5.94
0.0278	0.707	0.50	25	2.94	2.94	8.88
0.0234	0.595	0.75	30	3.31	3.31	12.19
0.0197	0.500	1.00	35	3.60	3.60	15.79
0.0166	0.420	1.25	40	3.58	3.58	19.36
0.0139	0.354	1.50	45	2.81	2.81	22.17
0.0117	0.297	1.75	50	3.57	3.57	25.74
0.0098	0.250	2.00	60	2.87	2.87	28.61
0.0083	0.210	2.25	70	2.84	2.84	31.45
0.0070	0.177	2.50	80	2.87	2.87	34.32
0.0059	0.149	2.75	100	2.87	2.87	37.19
0.0049	0.125	3.00	120	2.71	2.71	39.90
0.0041	0.105	3.25	140	2.49	2.49	42.39
0.0035	0.088	3.50	170	2.35	2.35	44.74
0.0029	0.074	3.75	200	2.37	2.37	47.11
0.0025	0.063	4.00	230	2.49	2.49	49.60
0.0021	0.053	4.25	270	2.60	2.60	52.19
0.00174	0.0442	4.50	325	2.68	2.68	54.87
0.00146	0.0372	4.75	400	2.76	2.76	57.63
0.00123	0.0313	5.00	450	2.91	2.91	60.54
0.000986	0.0250	5.32	500	3.90	3.90	64.44
0.000790	0.0201	5.64	635	3.91	3.91	68.35
0.000615	0.0156	6.00		4.04	4.04	72.39
0.000435	0.0110	6.50		5.13	5.13	77.52
0.000308	0.00781	7.00		4.76	4.76	82.28
0.000197	0.00500	7.65		5.36	5.36	87.63
0.000077	0.00195	9.00		7.90	7.90	95.53
0.000038	0.000977	10.00		3.15	3.15	98.68
0.000019	0.000488	11.00		1.22	1.22	99.90
0.000015	0.000375	11.38		0.10	0.10	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.15	0.0354	0.899
10	0.58	0.0262	0.667
16	1.02	0.0195	0.495
25	1.70	0.0121	0.308
40	3.01	0.0049	0.124
50	4.04	0.0024	0.061
60	4.95	0.0013	0.032
75	6.25	0.0005	0.013
84	7.21	0.0003	0.007
90	8.05	0.0001	0.004
95	8.91	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	4.04	4.04	4.04
Median, in.	0.0024	0.0024	0.0024
Median, mm	0.061	0.061	0.061
Mean, phi	2.64	4.11	4.09
Mean, in.	0.0063	0.0023	0.0023
Mean, mm	0.161	0.058	0.059
Sorting	4.851	3.096	2.875
Skewness	1.044	0.023	0.068
Kurtosis	0.223	0.414	0.787
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

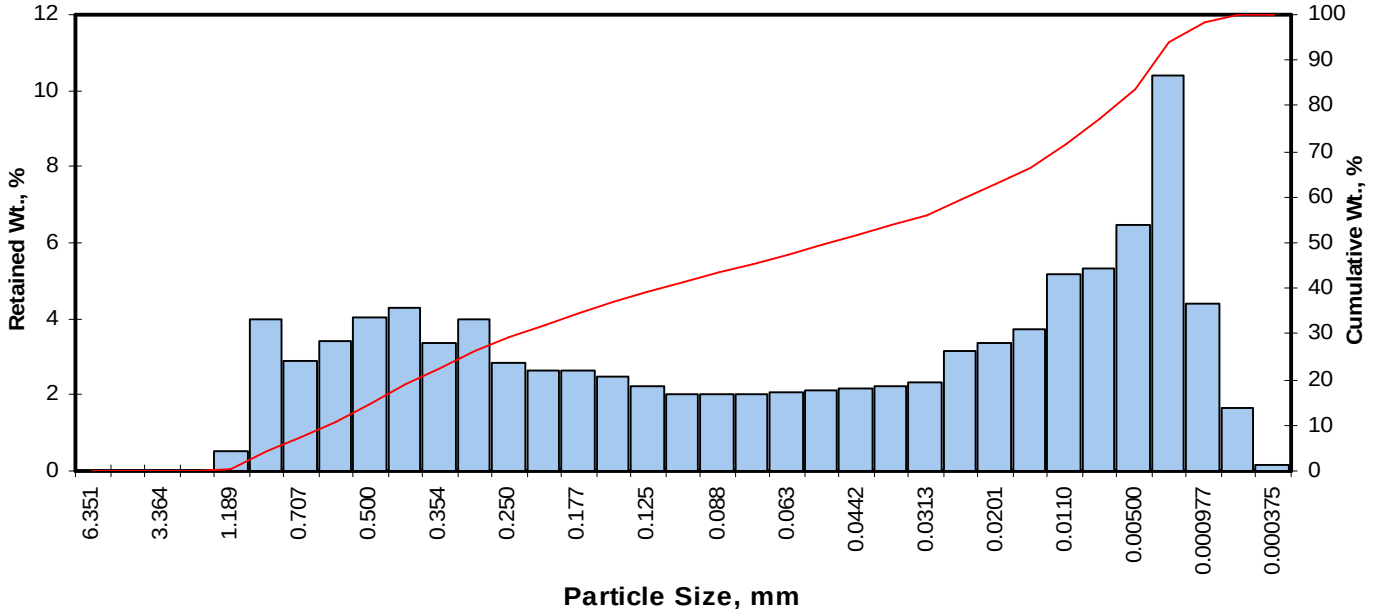
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	19.36
Fine Sand	200	27.74
Silt	>0.005 mm	40.53
Clay	<0.005 mm	12.37
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	44028
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1979-35-131205
Project No:	33764444.12230	**Depth, ft:**	35.2

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.51	0.51	0.51
0.0331	0.841	0.25	20	3.96	3.96	4.47
0.0278	0.707	0.50	25	2.90	2.90	7.37
0.0234	0.595	0.75	30	3.41	3.41	10.78
0.0197	0.500	1.00	35	4.04	4.04	14.82
0.0166	0.420	1.25	40	4.29	4.29	19.11
0.0139	0.354	1.50	45	3.36	3.36	22.47
0.0117	0.297	1.75	50	3.96	3.96	26.43
0.0098	0.250	2.00	60	2.85	2.85	29.28
0.0083	0.210	2.25	70	2.66	2.66	31.94
0.0070	0.177	2.50	80	2.62	2.62	34.56
0.0059	0.149	2.75	100	2.50	2.50	37.06
0.0049	0.125	3.00	120	2.24	2.24	39.30
0.0041	0.105	3.25	140	2.04	2.04	41.34
0.0035	0.088	3.50	170	2.00	2.00	43.34
0.0029	0.074	3.75	200	2.04	2.04	45.38
0.0025	0.063	4.00	230	2.09	2.09	47.47
0.0021	0.053	4.25	270	2.12	2.12	49.59
0.00174	0.0442	4.50	325	2.15	2.15	51.74
0.00146	0.0372	4.75	400	2.20	2.20	53.94
0.00123	0.0313	5.00	450	2.31	2.31	56.25
0.000986	0.0250	5.32	500	3.16	3.16	59.41
0.000790	0.0201	5.64	635	3.36	3.36	62.77
0.000615	0.0156	6.00		3.70	3.70	66.47
0.000435	0.0110	6.50		5.16	5.16	71.63
0.000308	0.00781	7.00		5.33	5.33	76.96
0.000197	0.00500	7.65		6.46	6.46	83.42
0.000077	0.00195	9.00		10.40	10.40	93.82
0.000038	0.000977	10.00		4.38	4.38	98.20
0.000019	0.000488	11.00		1.66	1.66	99.86
0.000015	0.000375	11.38		0.14	0.14	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.30	0.0321	0.815
10	0.69	0.0244	0.619
16	1.07	0.0188	0.477
25	1.66	0.0125	0.317
40	3.09	0.0046	0.118
50	4.30	0.0020	0.051
60	5.38	0.0009	0.024
75	6.82	0.0003	0.009
84	7.72	0.0002	0.005
90	8.50	0.0001	0.003
95	9.27	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	4.30	4.30	4.30
Median, in.	0.0020	0.0020	0.0020
Median, mm	0.051	0.051	0.051
Mean, phi	2.62	4.39	4.36
Mean, in.	0.0064	0.0019	0.0019
Mean, mm	0.163	0.048	0.049
Sorting	5.972	3.326	3.023
Skewness	1.042	0.029	0.069
Kurtosis	0.250	0.349	0.713
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	19.11
Fine Sand	200	26.27
Silt	>0.005 mm	38.04
Clay	<0.005 mm	16.58
	Total	**100**

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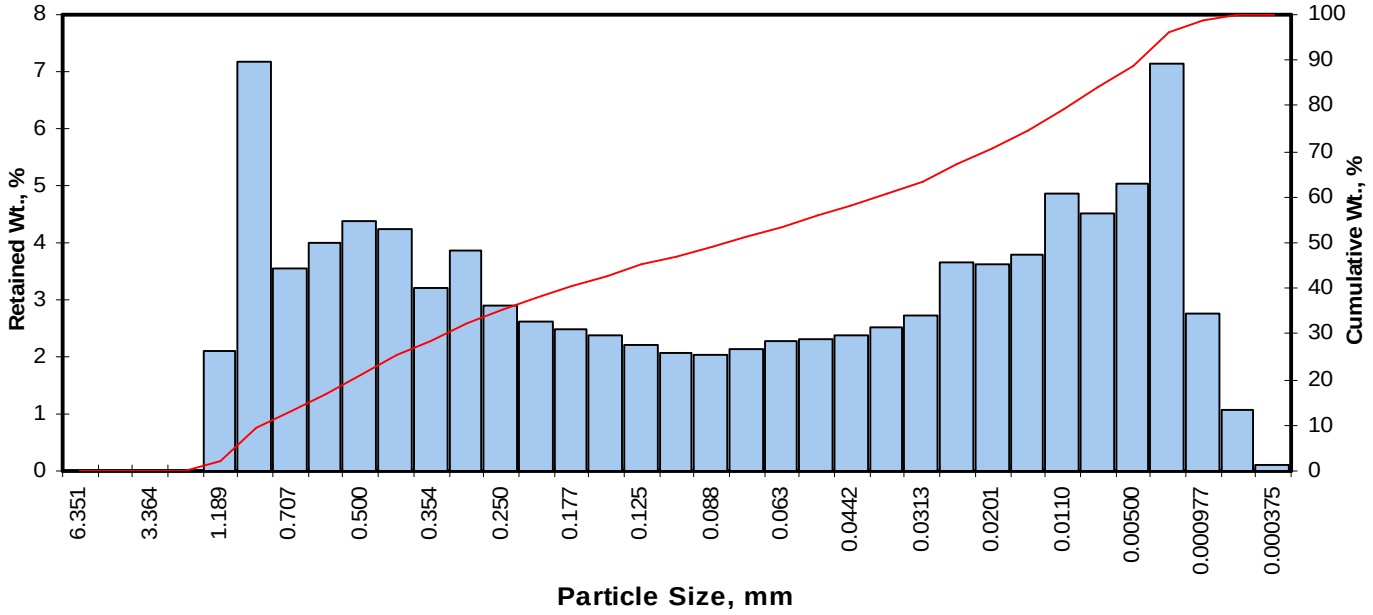
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	44028
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1997-40-131207
Project No:	33764444.12230	**Depth, ft:**	40.25

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	2.09	2.09	2.09
0.0331	0.841	0.25	20	7.19	7.19	9.28
0.0278	0.707	0.50	25	3.54	3.54	12.82
0.0234	0.595	0.75	30	3.99	3.99	16.81
0.0197	0.500	1.00	35	4.37	4.37	21.18
0.0166	0.420	1.25	40	4.23	4.23	25.40
0.0139	0.354	1.50	45	3.21	3.21	28.61
0.0117	0.297	1.75	50	3.87	3.87	32.48
0.0098	0.250	2.00	60	2.88	2.88	35.36
0.0083	0.210	2.25	70	2.61	2.61	37.97
0.0070	0.177	2.50	80	2.47	2.47	40.44
0.0059	0.149	2.75	100	2.39	2.39	42.83
0.0049	0.125	3.00	120	2.22	2.22	45.05
0.0041	0.105	3.25	140	2.06	2.06	47.11
0.0035	0.088	3.50	170	2.04	2.04	49.15
0.0029	0.074	3.75	200	2.15	2.15	51.30
0.0025	0.063	4.00	230	2.26	2.26	53.56
0.0021	0.053	4.25	270	2.31	2.31	55.87
0.00174	0.0442	4.50	325	2.39	2.39	58.26
0.00146	0.0372	4.75	400	2.53	2.53	60.79
0.00123	0.0313	5.00	450	2.71	2.71	63.50
0.000986	0.0250	5.32	500	3.65	3.65	67.15
0.000790	0.0201	5.64	635	3.63	3.63	70.78
0.000615	0.0156	6.00		3.78	3.78	74.56
0.000435	0.0110	6.50		4.87	4.87	79.42
0.000308	0.00781	7.00		4.52	4.52	83.94
0.000197	0.00500	7.65		5.02	5.02	88.96
0.000077	0.00195	9.00		7.14	7.14	96.10
0.000038	0.000977	10.00		2.75	2.75	98.85
0.000019	0.000488	11.00		1.06	1.06	99.91
0.000015	0.000375	11.38		0.09	0.09	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.05	0.0407	1.034
10	0.30	0.0320	0.812
16	0.70	0.0242	0.616
25	1.23	0.0168	0.427
40	2.46	0.0072	0.182
50	3.60	0.0032	0.083
60	4.67	0.0015	0.039
75	6.05	0.0006	0.015
84	7.01	0.0003	0.008
90	7.84	0.0002	0.004
95	8.79	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	3.60	3.60	3.60
Median, in.	0.0032	0.0032	0.0032
Median, mm	0.083	0.083	0.083
Mean, phi	2.18	3.85	3.77
Mean, in.	0.0087	0.0027	0.0029
Mean, mm	0.221	0.069	0.073
Sorting	5.314	3.154	2.916
Skewness	0.975	0.081	0.128
Kurtosis	0.255	0.401	0.752
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	25.40
Fine Sand	200	25.89
Silt	>0.005 mm	37.66
Clay	<0.005 mm	11.04
	Total	**100**

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Fax: (562) 907-3610

PTS Laboratories, Inc.

URS Corporation
PTS File No: 44028

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764444.12230

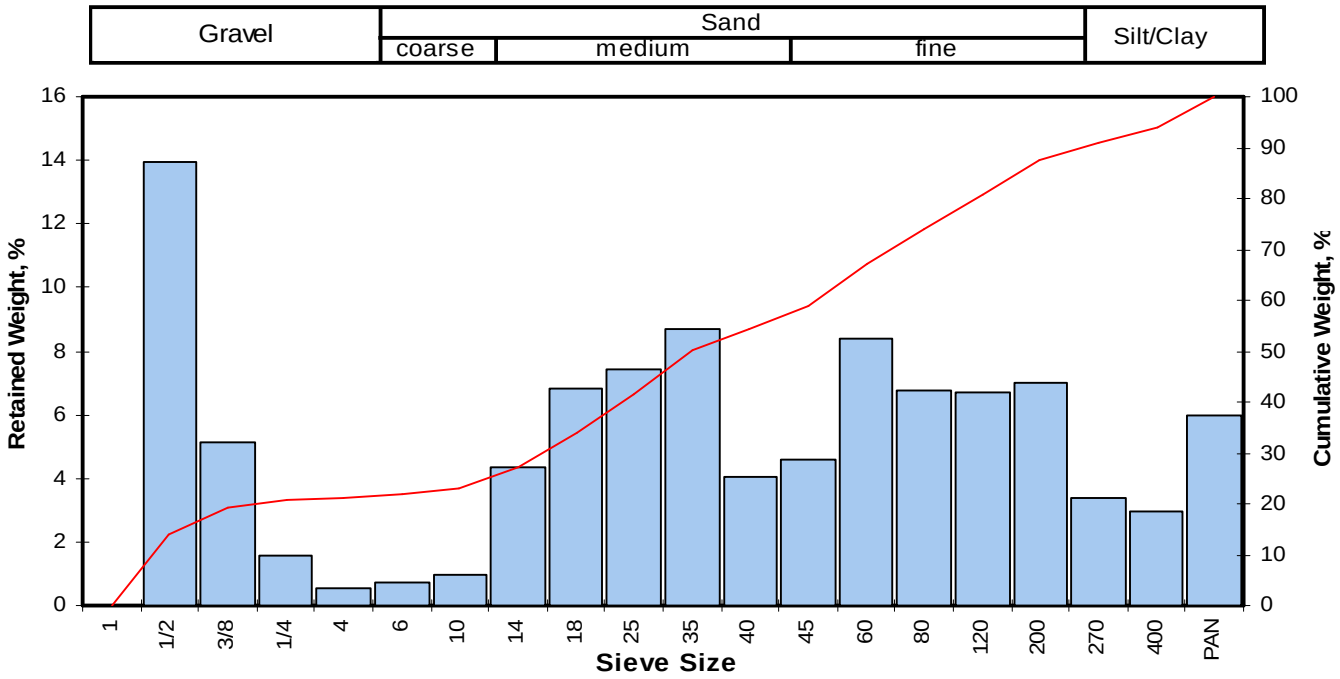
Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
ESB2000-25-131209	25.25	Medium sand	0.504	21.22	1.66	31.38	33.41	12.33
ESB1998-22.5-131116	22.75	Gravel	0.497	27.79	1.38	24.34	32.32	14.16

(1) Based on Mean fromTrask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	44028
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB2000-25-131209
Project No:	33764444.12230	**Depth, ft:**	25.25



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	23.16	13.93	13.93
0.3740	9.500	-3.25	3/8	8.57	5.16	19.09
0.2500	6.351	-2.67	1/4	2.60	1.56	20.65
0.1873	4.757	-2.25	4	0.94	0.57	21.22
0.1324	3.364	-1.75	6	1.18	0.71	21.93
0.0787	2.000	-1.00	10	1.58	0.95	22.88
0.0557	1.414	-0.50	14	7.27	4.37	27.25
0.0394	1.000	0.00	18	11.29	6.79	34.05
0.0278	0.707	0.50	25	12.35	7.43	41.48
0.0197	0.500	1.00	35	14.48	8.71	50.19
0.0166	0.420	1.25	40	6.77	4.07	54.26
0.0139	0.354	1.50	45	7.59	4.57	58.83
0.0098	0.250	2.00	60	13.94	8.39	67.22
0.0070	0.177	2.50	80	11.19	6.73	73.95
0.0049	0.125	3.00	120	11.13	6.70	80.64
0.0029	0.074	3.75	200	11.68	7.03	87.67
0.0021	0.053	4.25	270	5.58	3.36	91.03
0.0015	0.037	4.75	400	4.94	2.97	94.00
			PAN	9.97	6.00	100.00
TOTALS				166.21	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.29	0.7676	19.497
10	-3.93	0.5986	15.204
16	-3.49	0.4409	11.199
25	-0.76	0.0666	1.691
40	0.40	0.0298	0.758
50	0.99	0.0198	0.504
60	1.57	0.0133	0.337
75	2.58	0.0066	0.167
84	3.36	0.0038	0.098
90	4.10	0.0023	0.058
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	0.99	0.99	0.99
Median, in.	0.0198	0.0198	0.0198
Median, mm	0.504	0.504	0.504
Mean, phi	0.11	-0.06	0.29
Mean, in.	0.0366	0.0411	0.0323
Mean, mm	0.929	1.045	0.819
Sorting	3.178	3.422	
Skewness	1.056	-0.308	
Kurtosis	0.050		

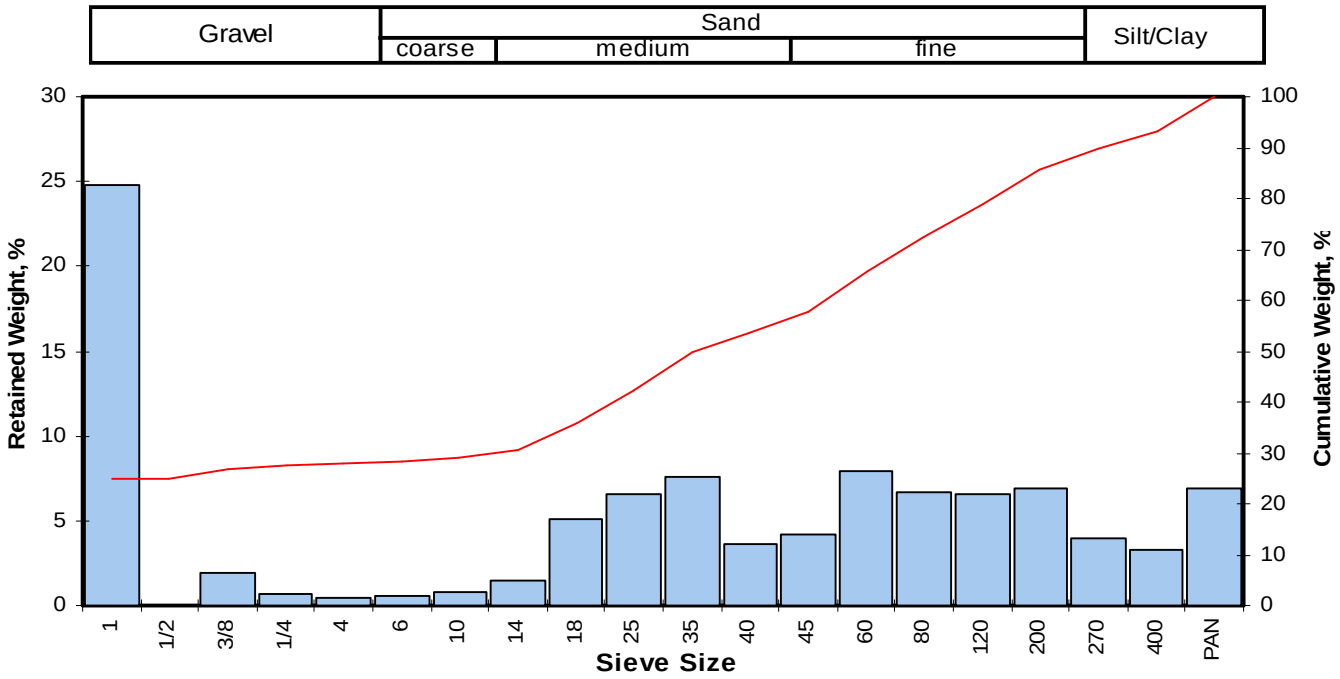
Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	21.22
Coarse Sand	10	1.66
Medium Sand	40	31.38
Fine Sand	200	33.41
Silt/Clay	<200	12.33
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	44028
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1998-22.5-131116
Project No:	33764444.12230	**Depth, ft:**	22.75



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	42.64	24.78	24.78
0.4922	12.501	-3.64	1/2	0.00	0.00	24.78
0.3740	9.500	-3.25	3/8	3.30	1.92	26.70
0.2500	6.351	-2.67	1/4	1.19	0.69	27.39
0.1873	4.757	-2.25	4	0.69	0.40	27.79
0.1324	3.364	-1.75	6	0.96	0.56	28.35
0.0787	2.000	-1.00	10	1.42	0.83	29.18
0.0557	1.414	-0.50	14	2.47	1.44	30.61
0.0394	1.000	0.00	18	8.80	5.11	35.73
0.0278	0.707	0.50	25	11.28	6.56	42.28
0.0197	0.500	1.00	35	13.03	7.57	49.86
0.0166	0.420	1.25	40	6.30	3.66	53.52
0.0139	0.354	1.50	45	7.24	4.21	57.73
0.0098	0.250	2.00	60	13.67	7.95	65.67
0.0070	0.177	2.50	80	11.45	6.66	72.33
0.0049	0.125	3.00	120	11.36	6.60	78.93
0.0029	0.074	3.75	200	11.88	6.90	85.84
0.0021	0.053	4.25	270	6.74	3.92	89.75
0.0015	0.037	4.75	400	5.68	3.30	93.05
			PAN	11.95	6.95	100.00
TOTALS				172.05	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5			
10			
16			
25	-3.60	0.4772	12.120
40	0.33	0.0314	0.798
50	1.01	0.0196	0.497
60	1.64	0.0126	0.320
75	2.70	0.0060	0.154
84	3.55	0.0034	0.085
90	4.29	0.0020	0.051
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	1.01	1.01	1.01
Median, in.	0.0196	0.0196	0.0196
Median, mm	0.497	0.497	0.497
Mean, phi	-2.62		
Mean, in.	0.2416		
Mean, mm	6.137		
Sorting	8.882		
Skewness	2.748		
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	27.79
Coarse Sand	10	1.38
Medium Sand	40	24.34
Fine Sand	200	32.32
Silt/Clay	<200	14.16
	Total	100

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PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

PAGE OF

COMPANY: PTS Laboratories, Inc. 90670

ADDRESS: 8100 Secura Way | CITY: Santa Fe Springs, CA | ZIP CODE:

PROJECT MANAGER: Rachel Spitz | email:

PROJECT NAME: Brain, Everett Upland Sampling + Pilot Test | PHONE NUMBER:

PROJECT NUMBER: 337104444.12230 | FAX NUMBER:

SITE LOCATION: –

SAMPLER SIGNATURE:

PO# 14-029

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☒

OTHER:

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F)____

PTS QUOTE NO.

PTS FILE: 44028

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR FILLED, WATER FILLED	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE	VOC	COMMENTS
ESB1979-30-131205	1/22/14	13:45	30																					X	
ESB1979-35-131205	1/22/14	13:48	35																					X	
ESB1997-40-131207	1/22/14	13:52	40																					X	
ESB2000-25-131209	1/22/14	13:57	25																					X	
ESB1998-22.5-131116	1/22/14	14:00	22.5																					X	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: PTS LABS	COMPANY:	COMPANY:	COMPANY:
DATE: 1/22/14 TIME: 14:10	DATE: TIME:	DATE: TIME:	DATE: TIME:

Boeing Chain of Custody

44028

1 Client Information

Site Location: Boeing Everett
Site Project: FS
Site Program/#: 33764444.12230 New Proj. #
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: _____ # of Coolers: _____

4 Analyses Requested

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Package	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045								
ESB1979-30-131205	12/5/13	12:05	Soil	1	X	X	X	X								
ESB1979-35-131205	12/5/13	12:15	↓	↓	X	X	X	X								
ESB1997-40-131207	12/7/13	12:40	↓	↓	X	X	X	X								
ESB2000-25-131209	12/9/13	11:50	↓	↓	X	X	X	X								
ESB1998-22.5-131116	11/16/13	11:25	↓	↓	X	X	X	X								

Note: These are sample depths in feet

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
mark.molinari@urs.com
URS P.O. # 297222-US

Don't do permeability if insufficient sample

Don't do permeability if insufficient sample

Note: ESB1979-30, ESB 1997-40 and ESB 2000-25 are all partial samples or disturbed at one end. Only run permeability if sufficient undisturbed sample.

6 Turnaround Time Requested (please circle)

Standard (circled) | 5 day | 4 day
72 hour | 48 hour | 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	1/16/14 12pm	[signature]	1/20/14 10:55

Relinquished by commercial carrier (circle): UPS FedEx Other: _____

68 °F

7

Issued by Dept. 40 Management
7063.02

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

March 21, 2014

Mark Molinari
URS Corporation
1501 4th Ave., Ste. 1400
Seattle, WA 98101

Re: PTS File No: 44112
Physical Properties Data
Boeing Everett Upland Sampling & Pilot Testing; 33764444

Dear Mr. Molinari:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your Boeing Everett Upland Sampling & Pilot Testing; 33764444 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2502.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
District Manager

Encl.

PTS Laboratories

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project Number: 33764444

PTS File No: 44112
Client: URS Corporation

TEST PROGRAM - 20140120

CORE ID	Depth ft.	Core Recovery ft.	Vapor Transport Package	*Cation Exchange Capacity	Specific Gravity ASTM D854	Soil pH EPA 9045	Notes
		Plugs:	Various	Grab	Grab	Grab	
Date Received: 20140220							
ESB2003-20-140215	20	0.50	X	X	X	X	cylinder w/rings
TOTALS:		0.50	1	1	1	1	1

Laboratory Test Program Notes

Contaminant identification: xylenes, toluene and ethylbenzene.

Standard TAT for basic analysis is 10 business days.

* Analyses to be conducted by PTS Subcontract Laboratory.

Vapor Transport Package (Johnson-Ettinger): Input parameters for Johnson-Ettinger Model; Air permeability (native + specific); porosity (total, effective, air-filled, water-filled), volumetric air and water, moisture content, intrinsic permeability/hydraulic conductivity, grain density, dry bulk density, TOC/foc, soil classification USDA/USCS (grain size + Atterberg limits).

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID SATURATIONS (3), % Pv
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	
ESB2003-20-140215	20	V	20140228	7.3	0.119	1.63	2.69	0.393	0.275	0.119	0.216	30.2

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

PTS Laboratories

PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

		METHODS:	API RP40		API RP40 / EPA 9100		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm2
ESB2003-20-140215	20	V	2070	2490	1340	1.32E-03	1.32E-08

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Specific = No pore fluids in place.
(4) Permeability to water and hydraulic conductivity measured at saturated conditions.
Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB2003-20-140215	20	20140304	18.4	13.5	4.9	CL-ML	SC-SM: Silty clayey sand	Loamy sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

PTS Laboratories

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB2003-20-140215	20	20140304	1255	SOIL	2950	2.95E-03
Blank	N/A	20140304	1255	BLANK	ND	ND
SRM D082-542	N/A	20140304	1255	SRM	5660	5.66E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D082-542	104	75-125	5420	4065	6775

ND = Not Detected

PTS Laboratories

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB2003-20-140215	20	20140304/1110	23.3	0.9992	332.59	96.43	393.36	2.70	2.70

PTS Laboratories

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

Soil pH
(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB2003-20-140215	20	20140228	1343	76.8	Soil	11.03

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20140228/1329
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

URS Corporation
PTS File No: 44112

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764444

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
ESB200320140215	20	Fine sand	0.276	3.34	4.51	28.24	45.76	18.15

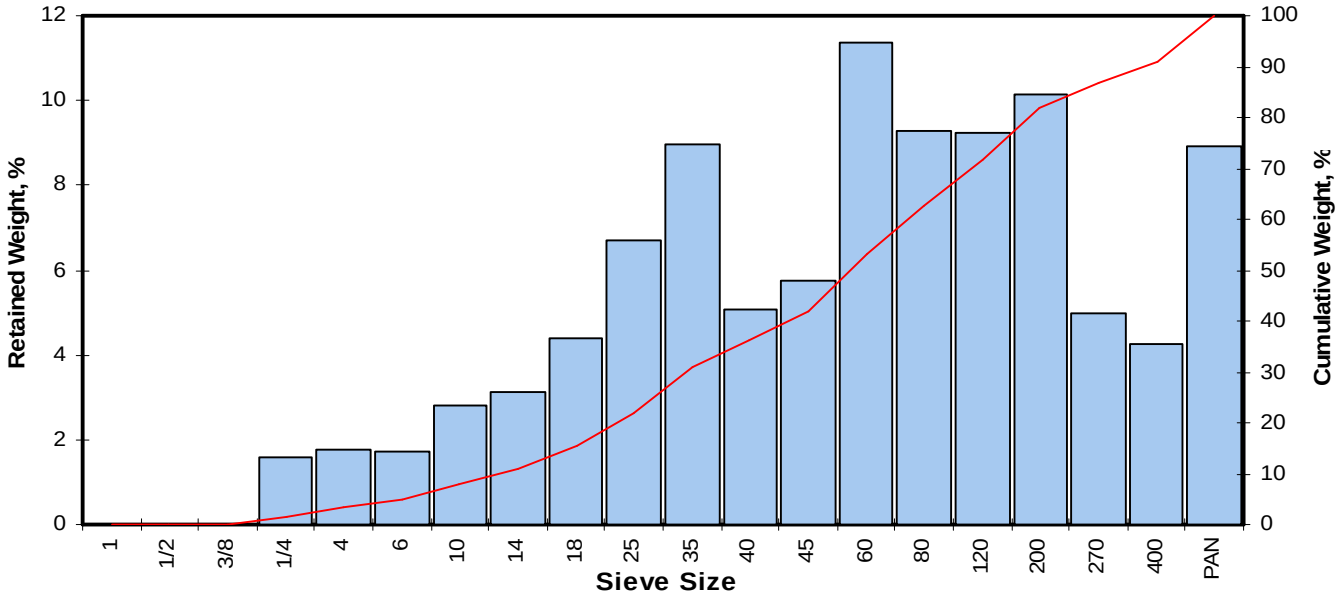
(1) Based on Mean fromTrask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	44112
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB200320140215
Project No:	33764444	**Depth, ft:**	20

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	1.46	1.59	1.59
0.1873	4.757	-2.25	4	1.61	1.75	3.34
0.1324	3.364	-1.75	6	1.57	1.71	5.05
0.0787	2.000	-1.00	10	2.57	2.80	7.85
0.0557	1.414	-0.50	14	2.86	3.11	10.96
0.0394	1.000	0.00	18	4.02	4.37	15.33
0.0278	0.707	0.50	25	6.15	6.69	22.03
0.0197	0.500	1.00	35	8.24	8.97	30.99
0.0166	0.420	1.25	40	4.68	5.09	36.09
0.0139	0.354	1.50	45	5.28	5.75	41.83
0.0098	0.250	2.00	60	10.43	11.35	53.18
0.0070	0.177	2.50	80	8.54	9.29	62.48
0.0049	0.125	3.00	120	8.49	9.24	71.72
0.0029	0.074	3.75	200	9.31	10.13	81.85
0.0021	0.053	4.25	270	4.57	4.97	86.82
0.0015	0.037	4.75	400	3.93	4.28	91.10
			PAN	8.18	8.90	100.00
TOTALS				91.89	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-1.76	0.1338	3.398
10	-0.65	0.0620	1.574
16	0.05	0.0380	0.966
25	0.67	0.0248	0.630
40	1.42	0.0147	0.374
50	1.86	0.0108	0.276
60	2.37	0.0076	0.194
75	3.24	0.0042	0.106
84	3.97	0.0025	0.064
90	4.62	0.0016	0.041
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	1.86	1.86	1.86
Median, in.	0.0108	0.0108	0.0108
Median, mm	0.276	0.276	0.276
Mean, phi	1.44	2.01	1.96
Mean, in.	0.0145	0.0098	0.0101
Mean, mm	0.368	0.249	0.257
Sorting	2.443	1.958	
Skewness	0.936	0.076	
Kurtosis	0.171		

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	3.34
Coarse Sand	10	4.51
Medium Sand	40	28.24
Fine Sand	200	45.76
Silt/Clay	<200	18.15
	Total	100

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Phone: (562) 907-3607
Fax: (562) 907-3610

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY: PTS Laboratories, Inc.

ADDRESS: 8100 Secura Way, CITY: Santa Fe Springs, ZIP CODE: CA 90670

PROJECT MANAGER: Michael Mark Brady email: mmbrady@ptslabs.com

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing PHONE NUMBER: (562) 347-2500

PROJECT NUMBER: 33764444 FAX NUMBER: (562) 279-1150

SITE LOCATION:

SAMPLER SIGNATURE:

PO#: 14-092

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☐

OTHER:

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F)____

PTS QUOTE NO.:

PTS FILE: 44112

ANALYSIS REQUEST

3807 SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR FILLED, WATER FILLED	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE	Cation Exchange Capacity		COMMENTS
ESB 2003-20-140215	2/28/14	9:02	20	1																				X		

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: PTS LABS	COMPANY:	COMPANY:	COMPANY: AmTest
DATE: 2/28/14 TIME: 10:20	DATE: TIME:	DATE: TIME:	DATE: 3/5/14 TIME: 10:39

PTS Laboratories, Inc. • 8100 Secura Way • Santa Fe Springs, CA 90670 • Phone (562) 347-2500 • Fax (562) 279-1150

Boeing Chain of Custody

44112

1 Client Information

Site Location: Boeing Everett
Site Project: FS
Site Program/#: 33764444
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: # of Coolers:

4 Analyses Requested

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
markimolinari@urs.com
URS P.O. # 297222-US

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Packing	Cation Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH SPA 9045
SSB 2003-20-140215	2/15/14		Soil	1	X	X	X	X

6 Turnaround Time Requested (please circle)

Standard | 5 day | 4 day
72 hour | 48 hour | 24 hour

Date needed:

Relinquished by:	Date/Time	Received by:	Date/Time
Mark Molinari	2/18/14 2:30pm	PTS LABS	2/20/14 12:39
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Relinquished by commercial carrier (circle): UPS FedEx Other:

67 °F

7

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7063.02

PTS Laboratories, Inc.

8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

June 3, 2014

Mark Molinari
URS Corporation
1501 4th Ave., Ste. 1400
Seattle, WA 98101

Re: PTS File No: 44250
Physical Properties Data
Boeing Everett Upland Sampling & Pilot Testing; 33764444

Dear Mr. Molinari:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your Boeing Everett Upland Sampling & Pilot Testing; 33764444 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. An electronic version of the report has previously been sent to your attention via the internet. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples.

PTS Laboratories Inc. appreciates the opportunity to be of service. If you have any questions or require additional information, please contact Morgan Richards at (562) 347-2509.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady

Michael Mark Brady, P.G.
District Manager

Encl.

PTS Laboratories

Project Name: **Boeing Everett Upland Sampling & Pilot Testing** **PTS File No: 44250**
Project Number: **33764444** **Client: URS Corporation**

TEST PROGRAM - 20140425

CORE ID	Depth ft.	Core Recovery ft.	Vapor Transport Package	Specific Gravity ASTM D854	Soil pH EPA 9045	*Cation Exchange Capacity			
		Plugs:	Various	Grab	Grab	Grab			
Date Received: 20140425									
ESB2005-20-140419	**20**	**0.50**	**X**	**X**	**X**	**X**			
ESB2006-20-140419	**20**	**0.50**	**X**	**X**	**X**	**X**			
ESB2006-30-140419	**30**	**0.50**	**X**	**X**	**X**	**X**			
ESB2006-40-140419	**40**	**0.50**	**X**	**X**	**X**	**X**			
ESB2004-20-140329	**20**	**0.50**	**X**	**X**	**X**	**X**			* See Note
ESB2004-30-140329	**30**	**0.50**	**X**	**X**	**X**	**X**			* See Note
ESB2004-40-140329	**40**	**0.50**	**X**	**X**	**X**	**X**			* See Note
TOTALS:	**7 cores**	**3.50**	**7**	**7**	**7**	**7**			**7**

Laboratory Test Program Notes

Contaminant identification: _____

Standard TAT for basic analysis is 10 business days.

* Analyses to be conducted by PTS Subcontract Laboratory.

Vapor Transport Package (Johnson-Ettinger): Input parameters for Johnson-Ettinger Model; Air permeability (native + specific); porosity (total, effective, air-filled, water-filled), volumetric air and water, moisture content, intrinsic permeability/hydraulic conductivity, grain density, dry bulk density, TOC/foc, soil classification USDA/USCS (grain size + Atterberg limits).

*Note: These are partial samples or partially disturbed. Only run permeability if sufficient undisturbed sample. The rest of Vapor Transport Package is priority over pH and CEC.

PTS File No: 44250
Client: URS Corporation
Report Date: 06/03/14

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID SATURATIONS (3), % Pv
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	
ESB2005-20-140419	20.4	V	20140506	9.4	0.145	1.55	2.71	0.429	0.283	0.145	0.225	33.9
ESB2006-20-140419	20.4	V	20140506	9.9	0.159	1.61	2.71	0.405	0.246	0.159	0.201	39.3
ESB2006-30-140419	30.2	V	20140506	7.7	0.113	1.47	2.72	0.458	0.345	0.113	0.216	24.7
ESB2006-40-140419	40.25	V	20140506	7.0	0.114	1.64	2.72	0.397	0.283	0.114	0.262	28.8
ESB2004-20-140329	20.2	V	20140506	7.4	0.120	1.62	2.64	0.388	0.268	0.120	0.216	30.9
ESB2004-30-140329	30.4	V	20140506	5.0	0.097	1.95	2.71	0.280	0.183	0.097	0.149	34.6
ESB2004-40-140329	40.0	V	20140506	5.9	0.112	1.89	2.73	0.307	0.195	0.112	0.216	36.4

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 44250
Client: URS Corporation
Report Date: 06/03/14

PTS Laboratories

PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

		METHODS:	API RP40		API RP40 / EPA 9100		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm2
ESB2005-20-140419	20.4	V	1360	2450	15.9	1.57E-05	1.57E-10
ESB2006-20-140419	20.4	V	647	1040	125	1.25E-04	1.24E-09
ESB2006-30-140419	30.2	V	2390	2835	760	7.51E-04	7.50E-09
ESB2006-40-140419	40.25	V	1470	1870	1220	1.21E-03	1.20E-08
ESB2004-20-140329	20.2	V	1780	2630	22.0	2.20E-05	2.18E-10
ESB2004-30-140329	30.4	V	881	1110	357	3.59E-04	3.53E-09
ESB2004-40-140329	40.0	V	663	972	442	4.46E-04	4.36E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Specific = No pore fluids in place.
(4) Permeability to water and hydraulic conductivity measured at saturated conditions.
Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS File No: 44250
Client: URS Corporation
Report Date: 06/03/14

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB2005-20-140419	20.45	20140506	19.0	10.5	8.5	CL	CL: Sandy lean clay	Loam
ESB2006-20-140419	20.45	20140506	17.4	10.6	6.8	CL-ML	CL-ML: Sandy silty clay	Loam
ESB2006-30-140419	30.3	20140506	*14.4	10.5	3.9	ML	GP-GM: Poorly graded gravel with silt and sand	Sand
ESB2006-40-140419	40.2	20140506	*14.3	10.4	3.9	ML	SM: Silty sand	Loamy sand
ESB2004-20-140329	20.4	20140506	19.0	11.3	7.7	CL	CL: Sandy lean clay	Loam
ESB2004-30-140329	30.3	20140506	*13.9	10.4	3.5	ML	SM: Silty sand with gravel	Loamy sand
ESB2004-40-140329	40.4	20140506	*11.4	10.2	1.2	ML	SM: Silty sand	Loamy sand

*Note: Liquid Limit (LL) results plot above U-Line (U-line indicates the upper bound for general soils). Data check and remeasure of LL did not show improvement.
Atypical Liquid Limit results may be due to lithology and/or limited sample volume available for test.

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764444

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB2005-20-140419	20.45	Fine sand	0.037	0.00	0.00	16.38	25.89	36.31	21.42	57.73
ESB2006-20-140419	20.45	Fine sand	0.065	0.00	0.00	25.66	22.88	34.44	17.01	51.46
ESB2004-20-140329	20.4	Fine sand	0.040	0.00	0.00	15.87	25.57	41.89	16.67	58.56

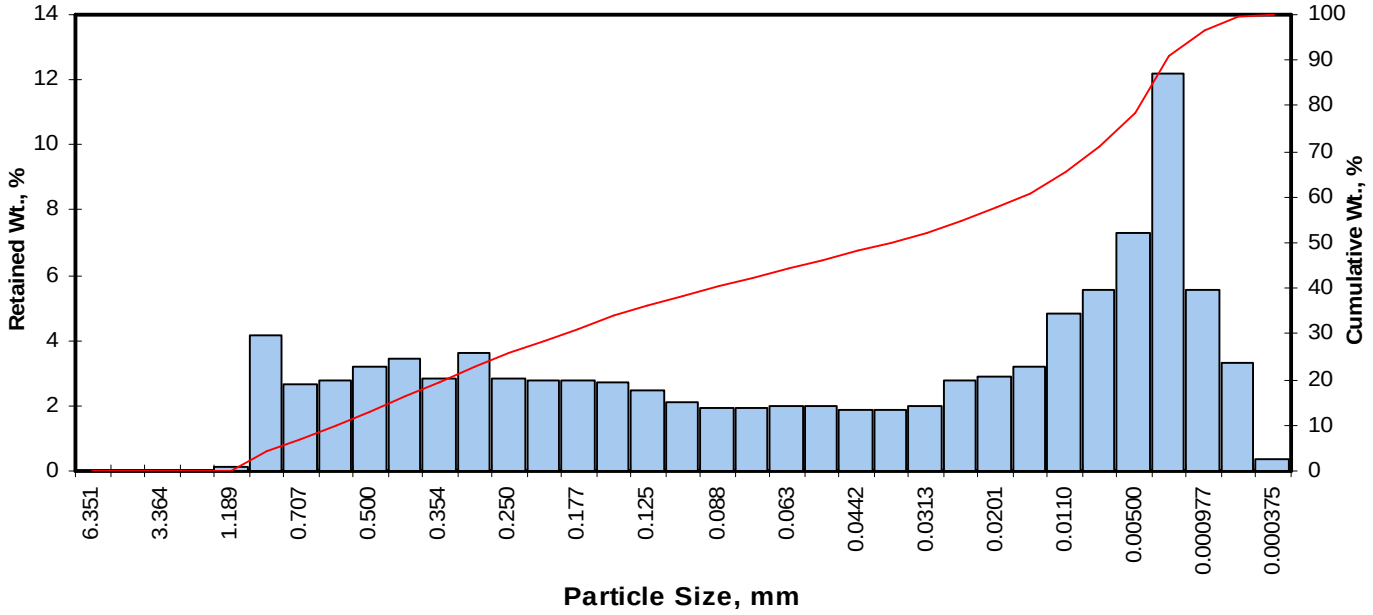
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	44250
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB2005-20-140419
Project No:	33764444	**Depth, ft:**	20.45

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.14	0.14	0.14
0.0331	0.841	0.25	20	4.17	4.17	4.31
0.0278	0.707	0.50	25	2.66	2.66	6.97
0.0234	0.595	0.75	30	2.75	2.75	9.72
0.0197	0.500	1.00	35	3.19	3.19	12.91
0.0166	0.420	1.25	40	3.47	3.47	16.38
0.0139	0.354	1.50	45	2.85	2.85	19.23
0.0117	0.297	1.75	50	3.62	3.62	22.85
0.0098	0.250	2.00	60	2.84	2.84	25.68
0.0083	0.210	2.25	70	2.75	2.75	28.43
0.0070	0.177	2.50	80	2.75	2.75	31.18
0.0059	0.149	2.75	100	2.70	2.70	33.88
0.0049	0.125	3.00	120	2.45	2.45	36.33
0.0041	0.105	3.25	140	2.11	2.11	38.44
0.0035	0.088	3.50	170	1.91	1.91	40.35
0.0029	0.074	3.75	200	1.92	1.92	42.27
0.0025	0.063	4.00	230	2.01	2.01	44.28
0.0021	0.053	4.25	270	1.98	1.98	46.26
0.00174	0.0442	4.50	325	1.88	1.88	48.14
0.00146	0.0372	4.75	400	1.85	1.85	49.99
0.00123	0.0313	5.00	450	1.97	1.97	51.96
0.000986	0.0250	5.32	500	2.76	2.76	54.72
0.000790	0.0201	5.64	635	2.91	2.91	57.63
0.000615	0.0156	6.00		3.21	3.21	60.84
0.000435	0.0110	6.50		4.85	4.85	65.69
0.000308	0.00781	7.00		5.57	5.57	71.26
0.000197	0.00500	7.65		7.33	7.33	78.58
0.000077	0.00195	9.00		12.20	12.20	90.78
0.000038	0.000977	10.00		5.56	5.56	96.34
0.000019	0.000488	11.00		3.30	3.30	99.64
0.000015	0.000375	11.38		0.36	0.36	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.31	0.0316	0.804
10	0.77	0.0231	0.586
16	1.22	0.0169	0.428
25	1.94	0.0103	0.261
40	3.45	0.0036	0.091
50	4.75	0.0015	0.037
60	5.91	0.0007	0.017
75	7.33	0.0002	0.006
84	8.25	0.0001	0.003
90	8.91	0.0001	0.002
95	9.76	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	4.75	4.75	4.75
Median, in.	0.0015	0.0015	0.0015
Median, mm	0.037	0.037	0.037
Mean, phi	2.91	4.73	4.74
Mean, in.	0.0053	0.0015	0.0015
Mean, mm	0.133	0.038	0.037
Sorting	6.475	3.512	3.187
Skewness	1.084	-0.005	0.028
Kurtosis	0.218	0.345	0.718
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

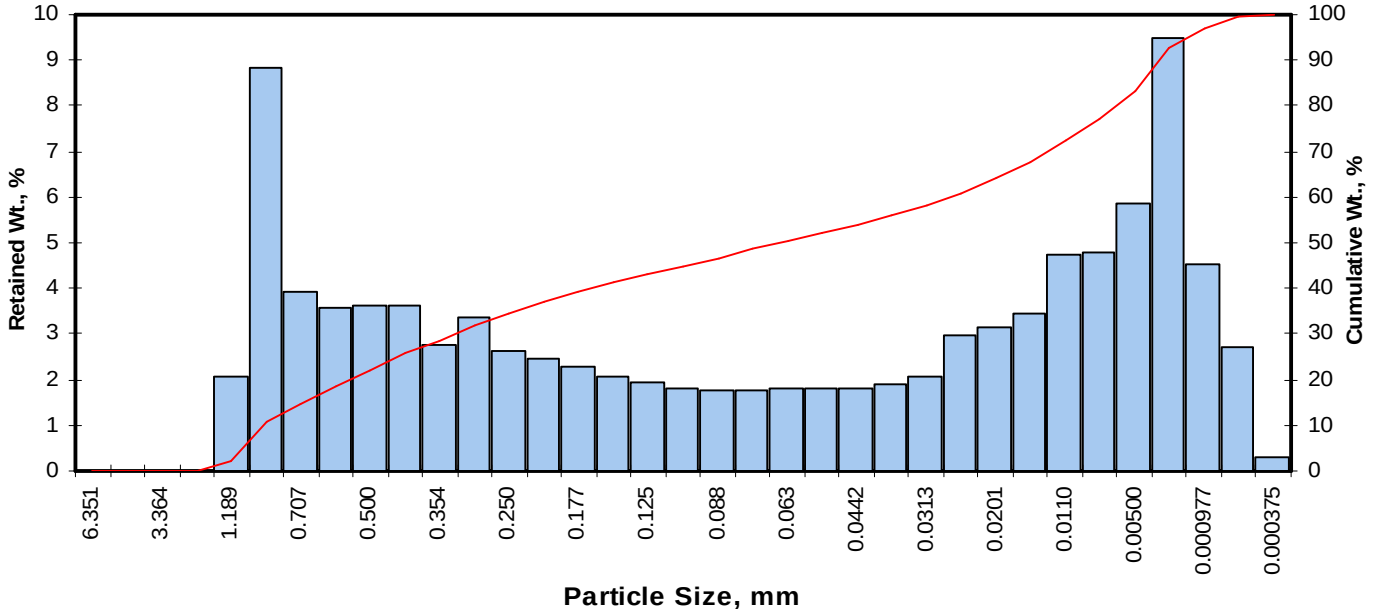
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	16.38
Fine Sand	200	25.89
Silt	>0.005 mm	36.31
Clay	<0.005 mm	21.42
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	44250
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB2006-20-140419
Project No:	33764444	**Depth, ft:**	20.45

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	2.08	2.08	2.08
0.0331	0.841	0.25	20	8.82	8.82	10.90
0.0278	0.707	0.50	25	3.94	3.94	14.84
0.0234	0.595	0.75	30	3.57	3.57	18.41
0.0197	0.500	1.00	35	3.64	3.64	22.05
0.0166	0.420	1.25	40	3.61	3.61	25.66
0.0139	0.354	1.50	45	2.76	2.76	28.42
0.0117	0.297	1.75	50	3.35	3.35	31.77
0.0098	0.250	2.00	60	2.61	2.61	34.38
0.0083	0.210	2.25	70	2.47	2.47	36.85
0.0070	0.177	2.50	80	2.29	2.29	39.14
0.0059	0.149	2.75	100	2.09	2.09	41.23
0.0049	0.125	3.00	120	1.94	1.94	43.17
0.0041	0.105	3.25	140	1.83	1.83	45.00
0.0035	0.088	3.50	170	1.76	1.76	46.76
0.0029	0.074	3.75	200	1.78	1.78	48.54
0.0025	0.063	4.00	230	1.83	1.83	50.38
0.0021	0.053	4.25	270	1.83	1.83	52.21
0.00174	0.0442	4.50	325	1.83	1.83	54.04
0.00146	0.0372	4.75	400	1.90	1.90	55.94
0.00123	0.0313	5.00	450	2.08	2.08	58.02
0.000986	0.0250	5.32	500	2.96	2.96	60.98
0.000790	0.0201	5.64	635	3.15	3.15	64.13
0.000615	0.0156	6.00		3.44	3.44	67.57
0.000435	0.0110	6.50		4.74	4.74	72.31
0.000308	0.00781	7.00		4.80	4.80	77.11
0.000197	0.00500	7.65		5.88	5.88	82.99
0.000077	0.00195	9.00		9.48	9.48	92.47
0.000038	0.000977	10.00		4.51	4.51	96.98
0.000019	0.000488	11.00		2.72	2.72	99.70
0.000015	0.000375	11.38		0.30	0.30	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.08	0.0417	1.060
10	0.20	0.0343	0.871
16	0.58	0.0263	0.668
25	1.20	0.0171	0.434
40	2.60	0.0065	0.165
50	3.95	0.0025	0.065
60	5.21	0.0011	0.027
75	6.78	0.0004	0.009
84	7.79	0.0002	0.005
90	8.65	0.0001	0.002
95	9.56	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	3.95	3.95	3.95
Median, in.	0.0025	0.0025	0.0025
Median, mm	0.065	0.065	0.065
Mean, phi	2.17	4.19	4.11
Mean, in.	0.0087	0.0022	0.0023
Mean, mm	0.222	0.055	0.058
Sorting	6.908	3.604	3.264
Skewness	0.970	0.066	0.115
Kurtosis	0.245	0.338	0.709
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

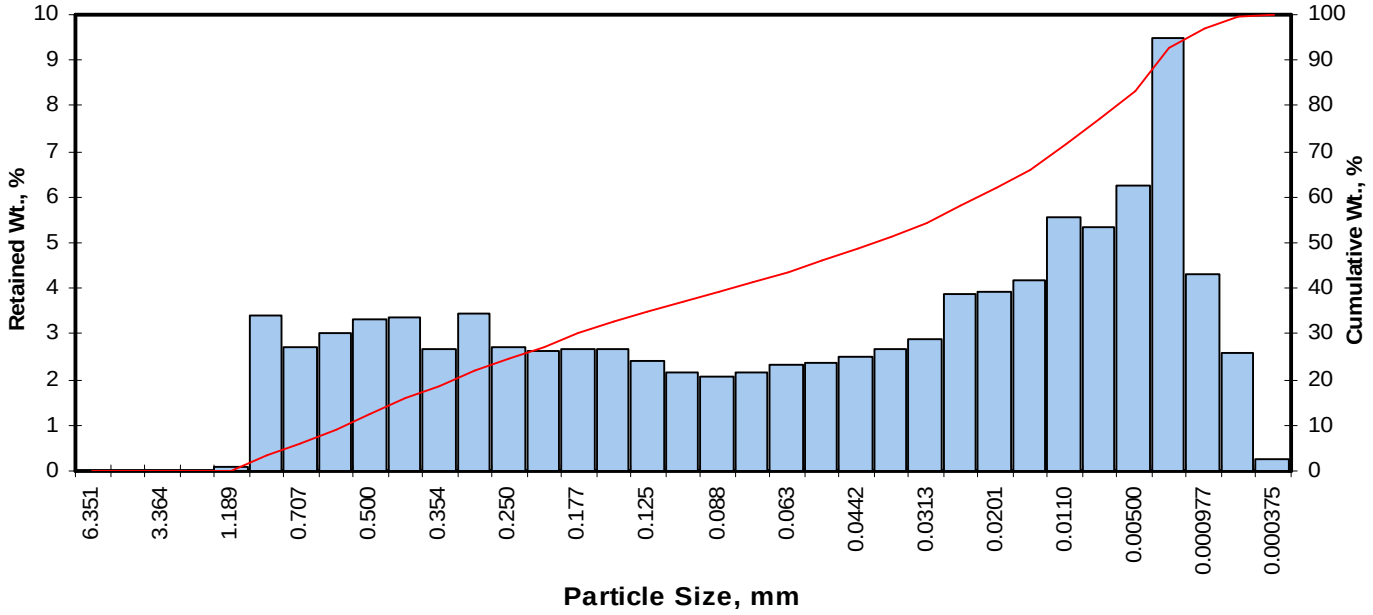
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	25.66
Fine Sand	200	22.88
Silt	>0.005 mm	34.44
Clay	<0.005 mm	17.01
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	44250
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB2004-20-140329
Project No:	33764444	**Depth, ft:**	20.4

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.10	0.10	0.10
0.0331	0.841	0.25	20	3.41	3.41	3.51
0.0278	0.707	0.50	25	2.70	2.70	6.21
0.0234	0.595	0.75	30	3.01	3.01	9.22
0.0197	0.500	1.00	35	3.30	3.30	12.52
0.0166	0.420	1.25	40	3.35	3.35	15.87
0.0139	0.354	1.50	45	2.68	2.68	18.55
0.0117	0.297	1.75	50	3.43	3.43	21.98
0.0098	0.250	2.00	60	2.71	2.71	24.69
0.0083	0.210	2.25	70	2.64	2.64	27.33
0.0070	0.177	2.50	80	2.67	2.67	30.00
0.0059	0.149	2.75	100	2.66	2.66	32.66
0.0049	0.125	3.00	120	2.43	2.43	35.09
0.0041	0.105	3.25	140	2.15	2.15	37.24
0.0035	0.088	3.50	170	2.05	2.05	39.29
0.0029	0.074	3.75	200	2.15	2.15	41.44
0.0025	0.063	4.00	230	2.31	2.31	43.75
0.0021	0.053	4.25	270	2.39	2.39	46.14
0.00174	0.0442	4.50	325	2.50	2.50	48.64
0.00146	0.0372	4.75	400	2.66	2.66	51.30
0.00123	0.0313	5.00	450	2.87	2.87	54.17
0.000986	0.0250	5.32	500	3.87	3.87	58.04
0.000790	0.0201	5.64	635	3.93	3.93	61.97
0.000615	0.0156	6.00		4.18	4.18	66.15
0.000435	0.0110	6.50		5.56	5.56	71.71
0.000308	0.00781	7.00		5.36	5.36	77.07
0.000197	0.00500	7.65		6.26	6.26	83.33
0.000077	0.00195	9.00		9.50	9.50	92.83
0.000038	0.000977	10.00		4.31	4.31	97.14
0.000019	0.000488	11.00		2.58	2.58	99.72
0.000015	0.000375	11.38		0.28	0.28	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.39	0.0301	0.764
10	0.81	0.0225	0.571
16	1.26	0.0164	0.417
25	2.03	0.0096	0.245
40	3.58	0.0033	0.083
50	4.63	0.0016	0.040
60	5.48	0.0009	0.022
75	6.81	0.0004	0.009
84	7.74	0.0002	0.005
90	8.60	0.0001	0.003
95	9.50	0.0001	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	4.63	4.63	4.63
Median, in.	0.0016	0.0016	0.0016
Median, mm	0.040	0.040	0.040
Mean, phi	2.98	4.50	4.54
Mean, in.	0.0050	0.0017	0.0017
Mean, mm	0.127	0.044	0.043
Sorting	5.237	3.239	3.001
Skewness	1.156	-0.039	0.015
Kurtosis	0.208	0.407	0.782
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	15.87
Fine Sand	200	25.57
Silt	>0.005 mm	41.89
Clay	<0.005 mm	16.67
	Total	**100**

PTS Laboratories, Inc.

URS Corporation
PTS File No: 44250

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764444

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
ESB2006-30-140419	30.4	Gravel	9.510	53.26	3.68	12.03	20.41	10.63
ESB2006-40-140419	40.25	Medium sand	0.321	9.84	7.75	25.45	37.70	19.26
ESB2004-30-140329	30.3	Medium sand	0.526	20.67	9.33	24.90	29.52	15.57
ESB2004-40-140329	40.4	Medium sand	0.426	11.46	13.94	24.87	30.98	18.75

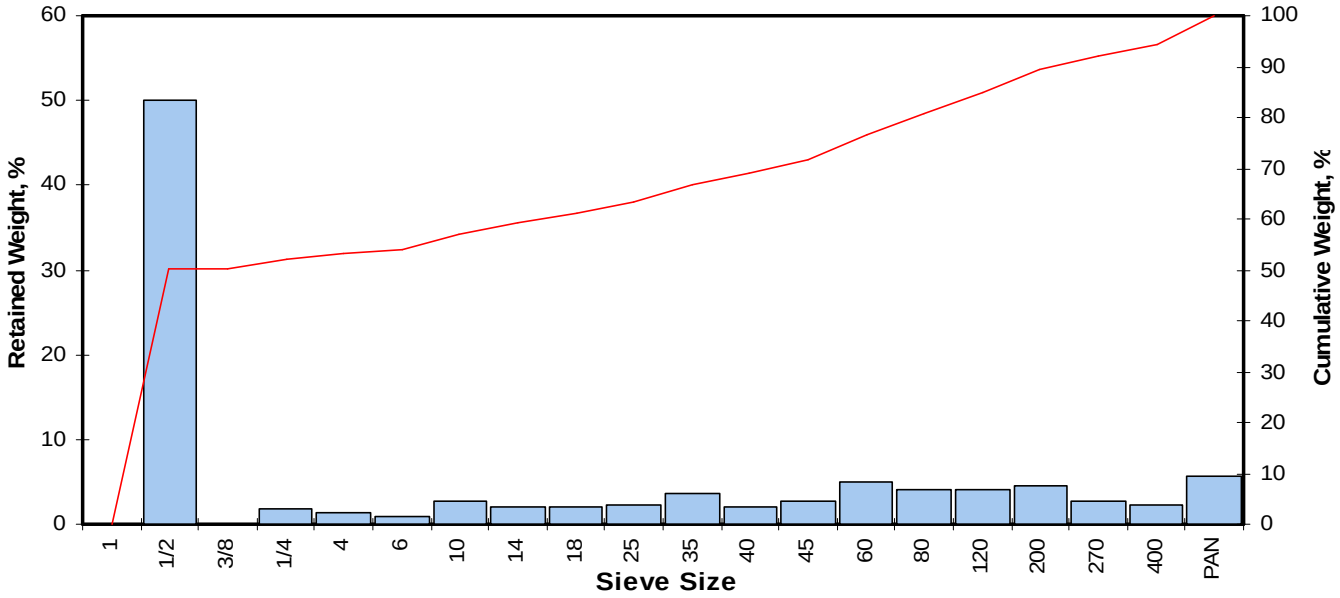
(1) Based on Mean fromTrask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	44250
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB2006-30-140419
Project No:	33764444	**Depth, ft:**	30.4

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	73.11	50.05	50.05
0.3740	9.500	-3.25	3/8	0.00	0.00	50.05
0.2500	6.351	-2.67	1/4	2.72	1.86	51.91
0.1873	4.757	-2.25	4	1.97	1.35	53.26
0.1324	3.364	-1.75	6	1.27	0.87	54.13
0.0787	2.000	-1.00	10	4.10	2.81	56.94
0.0557	1.414	-0.50	14	3.12	2.14	59.07
0.0394	1.000	0.00	18	2.86	1.96	61.03
0.0278	0.707	0.50	25	3.33	2.28	63.31
0.0197	0.500	1.00	35	5.24	3.59	66.90
0.0166	0.420	1.25	40	3.02	2.07	68.97
0.0139	0.354	1.50	45	4.03	2.76	71.73
0.0098	0.250	2.00	60	7.28	4.98	76.71
0.0070	0.177	2.50	80	5.95	4.07	80.78
0.0049	0.125	3.00	120	5.92	4.05	84.84
0.0029	0.074	3.75	200	6.63	4.54	89.37
0.0021	0.053	4.25	270	3.91	2.68	92.05
0.0015	0.037	4.75	400	3.42	2.34	94.39
			PAN	8.19	5.61	100.00
TOTALS				146.07	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.50	0.8937	22.699
10	-4.37	0.8113	20.607
16	-4.20	0.7225	18.350
25	-3.95	0.6071	15.420
40	-3.53	0.4543	11.538
50	-3.25	0.3744	9.510
60	-0.26	0.0473	1.201
75	1.83	0.0111	0.282
84	2.90	0.0053	0.134
90	3.87	0.0027	0.069
95	4.24	0.0021	0.053

Measure	Trask	Inman	Folk-Ward
Median, phi	-3.25	-3.25	-3.25
Median, in.	0.3744	0.3744	0.3744
Median, mm	9.510	9.510	9.510
Mean, phi	-2.97	-0.65	-1.52
Mean, in.	0.3091	0.0618	0.1127
Mean, mm	7.851	1.570	2.861
Sorting	7.400	3.547	3.098
Skewness	0.219	0.733	0.723
Kurtosis	0.369	0.232	0.620
Grain Size Description (ASTM-USCS Scale)		Gravel (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	53.26
Coarse Sand	10	3.68
Medium Sand	40	12.03
Fine Sand	200	20.41
Silt/Clay	<200	10.63
	Total	100

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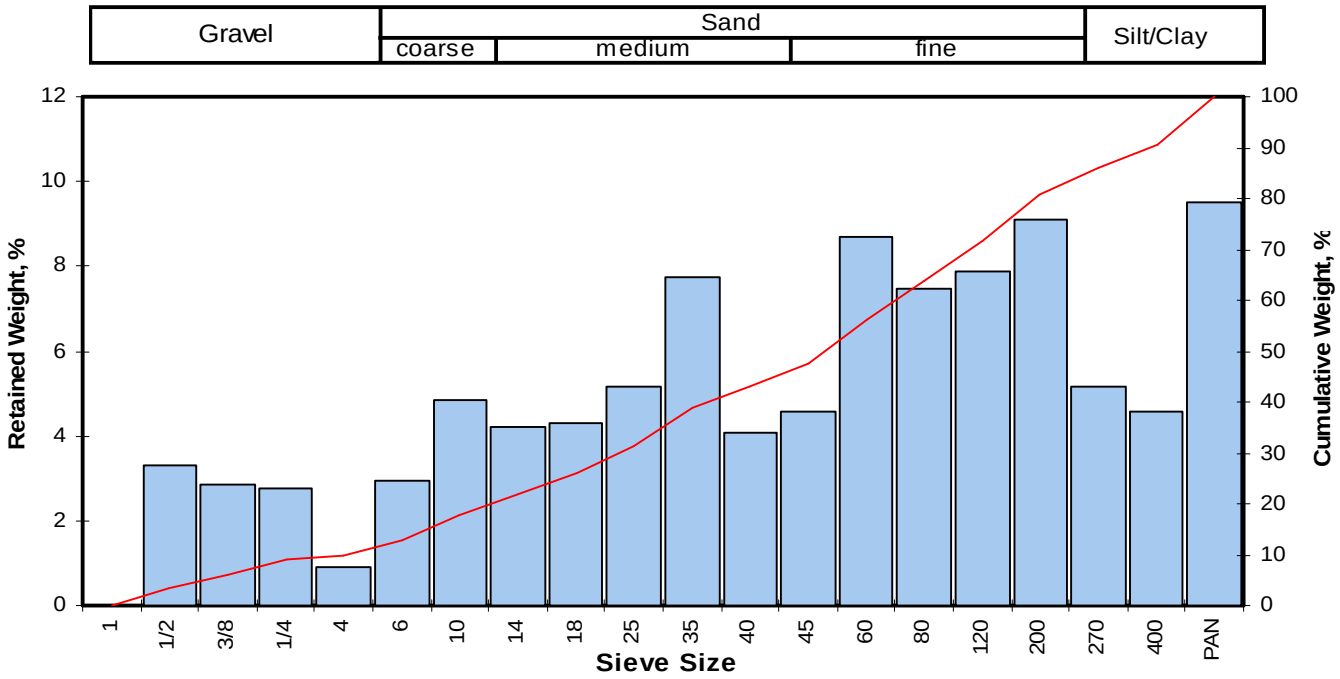
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	44250
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB2006-40-140419
Project No:	33764444	**Depth, ft:**	40.25



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	3.17	3.33	3.33
0.3740	9.500	-3.25	3/8	2.73	2.86	6.19
0.2500	6.351	-2.67	1/4	2.62	2.75	8.94
0.1873	4.757	-2.25	4	0.86	0.90	9.84
0.1324	3.364	-1.75	6	2.79	2.93	12.77
0.0787	2.000	-1.00	10	4.60	4.83	17.59
0.0557	1.414	-0.50	14	4.00	4.20	21.79
0.0394	1.000	0.00	18	4.09	4.29	26.08
0.0278	0.707	0.50	25	4.90	5.14	31.22
0.0197	0.500	1.00	35	7.37	7.73	38.95
0.0166	0.420	1.25	40	3.90	4.09	43.04
0.0139	0.354	1.50	45	4.35	4.56	47.60
0.0098	0.250	2.00	60	8.30	8.71	56.31
0.0070	0.177	2.50	80	7.12	7.47	63.78
0.0049	0.125	3.00	120	7.51	7.88	71.66
0.0029	0.074	3.75	200	8.66	9.08	80.74
0.0021	0.053	4.25	270	4.94	5.18	85.92
0.0015	0.037	4.75	400	4.34	4.55	90.48
			PAN	9.08	9.52	100.00
TOTALS				95.33	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.41	0.4192	10.647
10	-2.22	0.1838	4.667
16	-1.25	0.0935	2.374
25	-0.13	0.0430	1.091
40	1.06	0.0188	0.478
50	1.64	0.0127	0.321
60	2.25	0.0083	0.211
75	3.28	0.0041	0.103
84	4.06	0.0024	0.060
90	4.70	0.0015	0.039
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	1.64	1.64	1.64
Median, in.	0.0127	0.0127	0.0127
Median, mm	0.321	0.321	0.321
Mean, phi	0.74	1.41	1.48
Mean, in.	0.0235	0.0148	0.0141
Mean, mm	0.597	0.377	0.357
Sorting	3.251	2.656	
Skewness	1.044	-0.086	
Kurtosis	0.107		

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	9.84
Coarse Sand	10	7.75
Medium Sand	40	25.45
Fine Sand	200	37.70
Silt/Clay	<200	19.26
	Total	100

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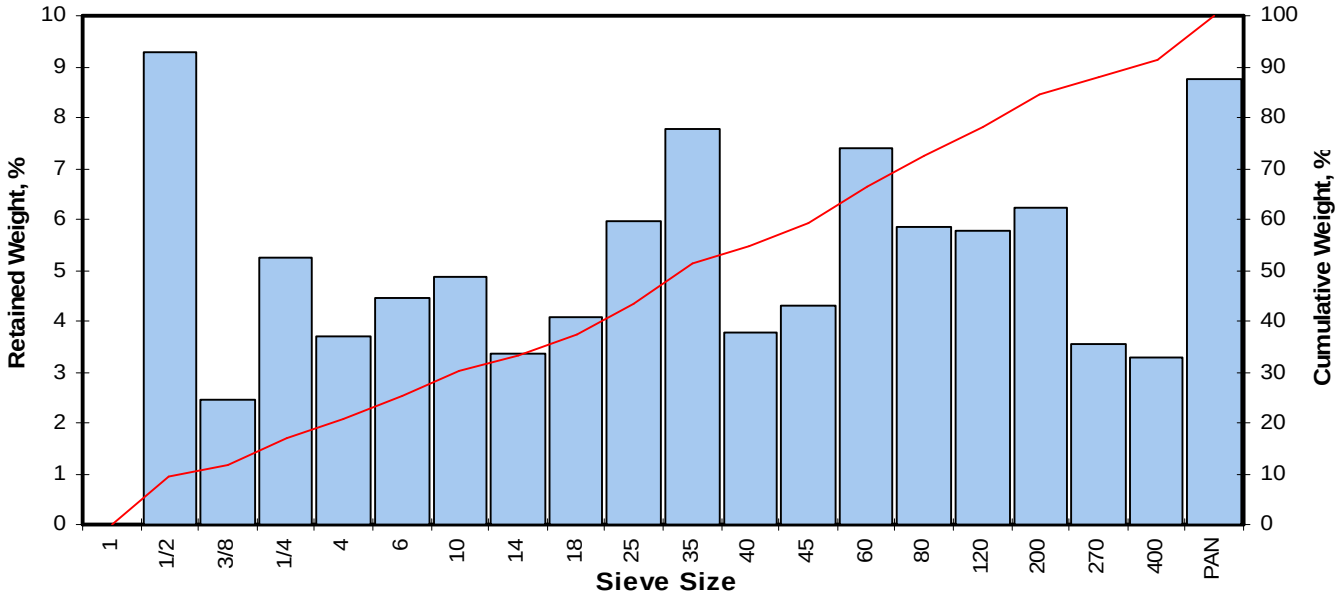
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	44250
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB2004-30-140329
Project No:	33764444	**Depth, ft:**	30.3

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	10.21	9.27	9.27
0.3740	9.500	-3.25	3/8	2.70	2.45	11.72
0.2500	6.351	-2.67	1/4	5.80	5.26	16.98
0.1873	4.757	-2.25	4	4.07	3.69	20.67
0.1324	3.364	-1.75	6	4.92	4.47	25.14
0.0787	2.000	-1.00	10	5.36	4.86	30.00
0.0557	1.414	-0.50	14	3.71	3.37	33.37
0.0394	1.000	0.00	18	4.47	4.06	37.43
0.0278	0.707	0.50	25	6.57	5.96	43.39
0.0197	0.500	1.00	35	8.55	7.76	51.15
0.0166	0.420	1.25	40	4.14	3.76	54.91
0.0139	0.354	1.50	45	4.73	4.29	59.20
0.0098	0.250	2.00	60	8.16	7.41	66.60
0.0070	0.177	2.50	80	6.43	5.84	72.44
0.0049	0.125	3.00	120	6.35	5.76	78.20
0.0029	0.074	3.75	200	6.86	6.23	84.43
0.0021	0.053	4.25	270	3.89	3.53	87.96
0.0015	0.037	4.75	400	3.61	3.28	91.23
			PAN	9.66	8.77	100.00
TOTALS				110.19	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.10	0.6772	17.201
10	-3.53	0.4533	11.514
16	-2.78	0.2695	6.845
25	-1.77	0.1339	3.400
40	0.22	0.0339	0.861
50	0.93	0.0207	0.526
60	1.55	0.0134	0.341
75	2.72	0.0060	0.152
84	3.70	0.0030	0.077
90	4.56	0.0017	0.042
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	0.93	0.93	0.93
Median, in.	0.0207	0.0207	0.0207
Median, mm	0.526	0.526	0.526
Mean, phi	-0.83	0.46	0.62
Mean, in.	0.0699	0.0286	0.0257
Mean, mm	1.776	0.726	0.652
Sorting	4.737	3.237	
Skewness	1.364	-0.143	
Kurtosis	0.142		

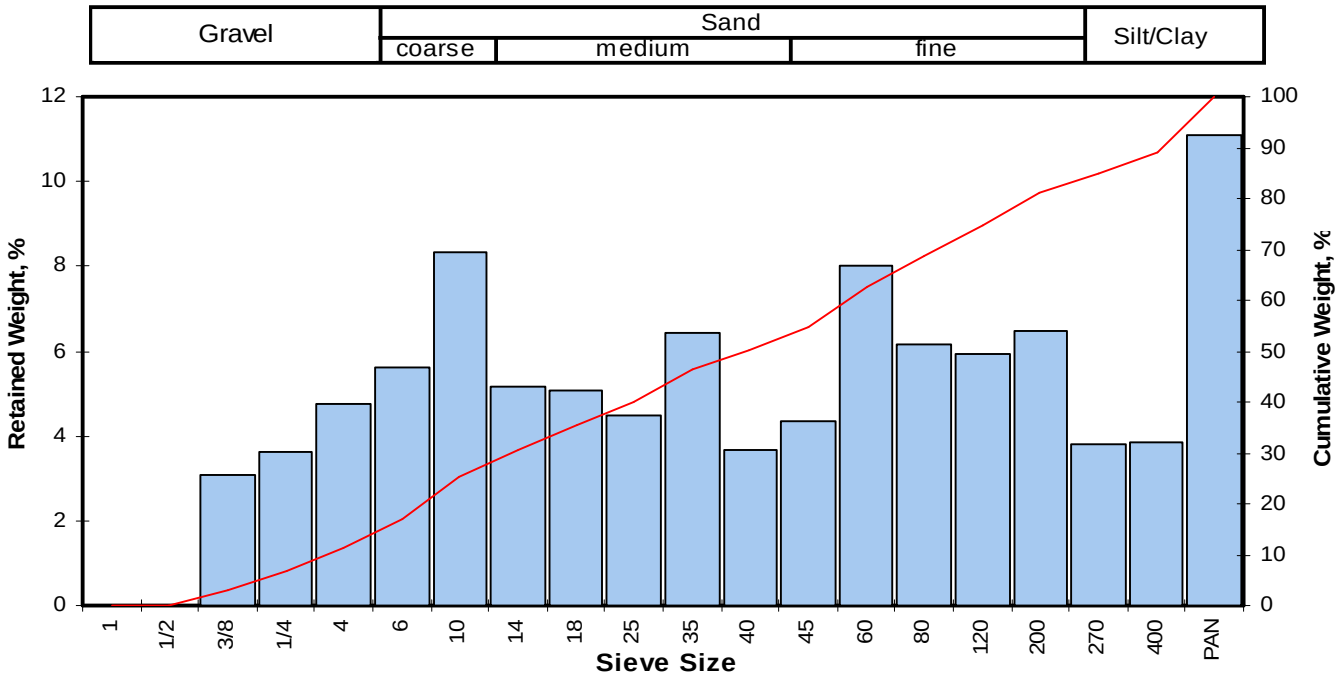
Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	20.67
Coarse Sand	10	9.33
Medium Sand	40	24.90
Fine Sand	200	29.52
Silt/Clay	<200	15.57
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	44250
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB2004-40-140329
Project No:	33764444	**Depth, ft:**	40.4



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	2.85	3.08	3.08
0.2500	6.351	-2.67	1/4	3.37	3.64	6.72
0.1873	4.757	-2.25	4	4.39	4.74	11.46
0.1324	3.364	-1.75	6	5.18	5.60	17.06
0.0787	2.000	-1.00	10	7.72	8.34	25.40
0.0557	1.414	-0.50	14	4.79	5.18	30.58
0.0394	1.000	0.00	18	4.70	5.08	35.66
0.0278	0.707	0.50	25	4.15	4.48	40.14
0.0197	0.500	1.00	35	5.97	6.45	46.59
0.0166	0.420	1.25	40	3.41	3.68	50.28
0.0139	0.354	1.50	45	4.01	4.33	54.61
0.0098	0.250	2.00	60	7.43	8.03	62.64
0.0070	0.177	2.50	80	5.71	6.17	68.81
0.0049	0.125	3.00	120	5.51	5.95	74.76
0.0029	0.074	3.75	200	6.01	6.49	81.25
0.0021	0.053	4.25	270	3.54	3.82	85.08
0.0015	0.037	4.75	400	3.56	3.85	88.92
			PAN	10.25	11.08	100.00
TOTALS				92.55	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-2.94	0.3025	7.682
10	-2.38	0.2048	5.201
16	-1.84	0.1414	3.592
25	-1.04	0.0807	2.051
40	0.48	0.0281	0.715
50	1.23	0.0168	0.426
60	1.84	0.0110	0.280
75	3.03	0.0048	0.123
84	4.11	0.0023	0.058
90	4.29	0.0020	0.051
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	1.23	1.23	1.23
Median, in.	0.0168	0.0168	0.0168
Median, mm	0.426	0.426	0.426
Mean, phi	-0.12	1.13	1.17
Mean, in.	0.0428	0.0180	0.0176
Mean, mm	1.087	0.456	0.446
Sorting	4.090	2.977	
Skewness	1.177	-0.033	
Kurtosis	0.187		

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	11.46
Coarse Sand	10	13.94
Medium Sand	40	24.87
Fine Sand	200	30.98
Silt/Clay	<200	18.75
	Total	100

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PTS File No: 44250
Client: URS Corporation
Report Date: 06/03/14

PTS Laboratories

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB2005-20-140419	20.0	20140509	1000	SOIL	590	5.90E-04
ESB2006-20-140419	20.0	20140509	1000	SOIL	1450	1.45E-03
ESB2006-30-140419	30.35	20140509	1000	SOIL	910	9.10E-04
ESB2006-40-140419	40.2	20140509	1000	SOIL	1050	1.05E-03
ESB2004-20-140329	20.3	20140509	1000	SOIL	1300	1.30E-03
ESB2004-30-140329	30.3	20140509	1000	SOIL	810	8.10E-04
ESB2004-40-140329	40.3	20140509	1000	SOIL	980	9.80E-04
Blank	N/A	20140509	1000	BLANK	ND	ND
SRM D083-542	N/A	20140509	1000	SRM	2910	2.91E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D083-542	84	75-125	3470	2603	4338

ND = Not Detected

PTS Laboratories

PTS File No: 44250
Client: URS Corporation
Report Date: 06/03/14

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB2005-20-140419	20.95	20140506/1427	23.8	0.9991	332.55	101.12	396.47	2.72	2.72
ESB2006-20-140419	20.95	20140506/1427	23.8	0.9991	333.03	102.14	397.36	2.70	2.70
ESB2006-30-140419	30.45	20140506/1427	23.8	0.9991	334.97	86.33	389.27	2.70	2.69
ESB2006-40-140419	40.3	20140506/1427	23.8	0.9991	333.52	77.41	382.55	2.73	2.72
ESB2004-20-140329	20.4	20140506/1427	23.8	0.9991	348.34	106.01	415.30	2.71	2.71
ESB2004-30-140329	30.4	20140506/1427	23.8	0.9991	356.28	61.67	395.38	2.73	2.73
ESB2004-40-140329	40.4	20140506/1427	23.8	0.9991	339.33	113.56	411.24	2.73	2.72

PTS Laboratories

PTS File No: 44250
Client: URS Corporation
Report Date: 06/03/14

Soil pH
(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB2005-20-140419	20.0	20140505	1515	73.9	Soil	8.16
ESB2006-20-140419	20.0	20140505	1515	74.9	Soil	8.84
ESB2006-30-140419	30.0	20140505	1515	75.9	Soil	9.13
ESB2006-40-140419	40.0	20140505	1515	76.9	Soil	9.13
ESB2004-20-140329	20.0	20140505	1515	77.9	Soil	9.23
ESB2004-30-140329	30.0	20140505	1515	78.9	Soil	9.32
ESB2004-40-140329	40.0	20140505	1515	79.9	Soil	9.27

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20140505/1515
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

CHAIN OF CUSTODY RECORD

COMPANY	PTS Laboratories, Inc.
ADDRESS	8100 Secura Way
CITY	Santa Fe Springs, CA
ZIP CODE	90670
PROJECT MANAGER	Michael Mark Brady
email	mmbrady@ptslabs.com
PROJECT NAME	Boeing Everett Upland Sampling & Pilot Testing
PHONE NUMBER	(562) 347-2502
PROJECT NUMBER	33764444
FAX NUMBER	(562) 907-3610
SITE LOCATION	
SAMPLER SIGNATURE	

PO# 14-188

TURNAROUND TIME: 24 HOURS ☐ 5 DAYS ☐ 72 HOURS ☐ NORMAL ☒

OTHER: _____

SAMPLE INTEGRITY (CHECK): INTACT ____ TEMP(F)____

PTS QUOTE NO.

PTS FILE: 44250

ANALYSIS REQUEST

	SAMPLE ID	DATE	TIME	DEPTH, FT	NUMBER OF SAMPLES	SOIL PROPERTIES PACKAGE	HYDRAULIC CONDUCTIVITY PACKAGE	PORE FLUID SATURATIONS PACKAGE	TCEQ/TNRCC PROPERTIES PACKAGE	CAPILLARITY PACKAGE	FLUID PROPERTIES PACKAGE	PHOTOLOG: CORE PHOTOGRAPHY	VAPOR TRANSPORT PACKAGE	POROSITY: TOTAL, AIR FILLED, WATER FILLED	POROSITY: EFFECTIVE, ASTM D425M	SPECIFIC GRAVITY, ASTM D854	BULK DENSITY (DRY), API RP40 or ASTM D2937	AIR PERMEABILITY, API RP40	HYDRAULIC CONDUCTIVITY, EPA9100/API RP40 or D5084	GRAIN SIZE DISTRIBUTION, ASTM D422 or 4464M	TOC: WALKLEY-BLACK	ATTERBERG LIMITS, ASTM D4318	VAPOR INTRUSION PACKAGE	FREE PRODUCT MOBILITY PACKAGE	Cation Exchange Capacity	COMMENTS
6880	ESB2005-20-140419	5-5-14	1345	20																					X	
81	ESB2006-20-140419	5-5-14	1345	20																						
82	ESB2006-30-140419	5-5-14	1345	30																						
83	ESB2006-40-140419	5-5-14	1345	40																						
84	ESB2004-20-140329	5-5-14	1345	20																						
85	ESB2004-30-140329	5-5-14	1345	30																						
86	ESB2004-40-140329	5-5-14	1345	40																						

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: PTS Laboratories	COMPANY: Antech	COMPANY	COMPANY
DATE: 5-5-14 TIME: 1415	DATE: 5-9-14 TIME: 9:30	DATE TIME	DATE TIME

Boeing Chain of Custody

44250

1 Client Information

Site Location: Boeing Everett
Site Project: FS
Site Program/#: 3376 44441
Boeing PM: Nick Garson
Consultant Contact: URS Corporation, 1501 4th Ave Suite 1400
Report To: Seattle, WA 98101 Attn: Mark Molinari
Invoice To: ☐ Boeing EHS ☒ Other (specify): URS
Sampler: Anthony Palmieri # of Coolers:

4 Analyses Requested

5 Remarks/Comments

Mark Molinari Contact Info
206-438-2235
mark.molinari@urs.com
URS P.O. # 297222-US

2 Sample Identification	Collected Date	Collected Time	3 Matrix	No. of Containers	Vapor Transport Package	Carbon Exchange Capacity (EPA 9081)	Specific Gravity ASTM D854	Soil pH EPA 9045	Remarks/Comments
ESB2005-20-140419	4/19/14		soi	1	X	X	X	X	Depth 20'
ESB 2006-20 -140419	4/19/14	13:37	↓	↓	X	X	X	X	" 20'
ESB2006-30 -140419	4/19/14	14:15	↓	↓	X	X	X	X	" 30'
ESB2006-40 -140419	4/19/14	14:45	↓	↓	X	X	X	X	" 40'
ESB2004-20-140329	3/29/14	14:25	↓	↓	X	X	X	X	note: These are
ESB2004-30-140329	3/29/14	15:05	↓	↓	X	X	X	X	partial samples
ESB2004-40-140329	3/29/14	15:25	↓	↓	X	X	X	X	or partially disturbed
									only run permeability
									if sufficient undisturbed
									sample. Rest of vapor
									transport package is
									priority over pH and
									CEC

6 Turnaround Time Requested (please circle)

Standard 5 day 4 day
72 hour 48 hour 24 hour

Date needed: _____

Relinquished by:	Date/Time	Received by:	Date/Time
[signature]	4/23/14 1200	[signature] PES LABS	4/25/14 12100
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Relinquished by commercial carrier (circle): UPS FedEx Other: _____

71°F

7

PTS Laboratories, Inc.

URS Corporation
PTS File No: 43652

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1972-20-130923	N/A	Medium sand	0.597	19.31	4.46	35.73	30.42	(2)	(2)	10.08
ESB1972-30-130923	N/A	Medium sand	0.594	10.62	6.45	44.63	30.76	(2)	(2)	7.55
ESB1972-39-130923	N/A	Gravel	1.621	41.83	5.65	26.34	20.36	(2)	(2)	5.83
ESB1973-20-130925	N/A	Gravel	1.739	46.60	2.60	19.89	23.93	(2)	(2)	6.98
ESB1973-30-130925	N/A	Medium sand	0.396	15.86	2.92	29.34	40.23	(2)	(2)	11.65
ESB1973-39-130925	N/A	Medium sand	0.336	15.03	4.79	22.49	40.27	(2)	(2)	17.42
ESB1975-20-130926	N/A	Fine sand	0.077	0.00	0.00	18.73	31.65	32.48	17.15	49.62
ESB1975-30-130926	N/A	Gravel	13.526	61.96	7.13	14.75	10.83	(2)	(2)	5.33
ESB1975-39-130926	N/A	Coarse sand	1.843	34.71	13.40	39.14	10.56	(2)	(2)	2.19

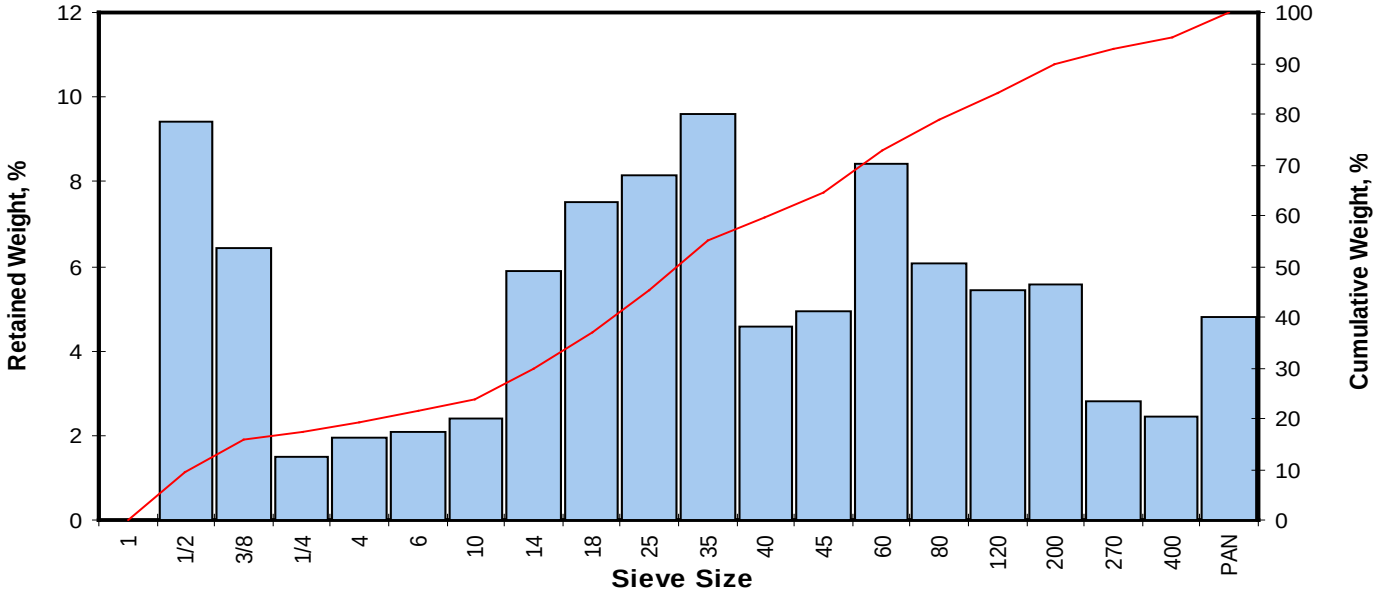
(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-20-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	15.78	9.43	9.43
0.3740	9.500	-3.25	3/8	10.74	6.42	15.85
0.2500	6.351	-2.67	1/4	2.51	1.50	17.35
0.1873	4.757	-2.25	4	3.27	1.95	19.31
0.1324	3.364	-1.75	6	3.45	2.06	21.37
0.0787	2.000	-1.00	10	4.01	2.40	23.77
0.0557	1.414	-0.50	14	9.81	5.86	29.63
0.0394	1.000	0.00	18	12.60	7.53	37.17
0.0278	0.707	0.50	25	13.65	8.16	45.33
0.0197	0.500	1.00	35	16.08	9.61	54.94
0.0166	0.420	1.25	40	7.63	4.56	59.50
0.0139	0.354	1.50	45	8.23	4.92	64.42
0.0098	0.250	2.00	60	14.06	8.41	72.82
0.0070	0.177	2.50	80	10.17	6.08	78.90
0.0049	0.125	3.00	120	9.09	5.43	84.34
0.0029	0.074	3.75	200	9.34	5.58	89.92
0.0021	0.053	4.25	270	4.70	2.81	92.73
0.0015	0.037	4.75	400	4.12	2.46	95.19
			PAN	8.04	4.81	100.00
TOTALS				167.28	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.11	0.6817	17.315
10	-3.61	0.4804	12.202
16	-3.19	0.3596	9.135
25	-0.90	0.0732	1.860
40	0.17	0.0349	0.887
50	0.74	0.0235	0.597
60	1.28	0.0163	0.413
75	2.18	0.0087	0.221
84	2.97	0.0050	0.128
90	3.76	0.0029	0.074
95	4.71	0.0015	0.038

Measure	Trask	Inman	Folk-Ward
Median, phi	0.74	0.74	0.74
Median, in.	0.0235	0.0235	0.0235
Median, mm	0.597	0.597	0.597
Mean, phi	-0.06	-0.11	0.17
Mean, in.	0.0410	0.0425	0.0349
Mean, mm	1.040	1.080	0.887
Sorting	2.902	3.080	2.877
Skewness	1.073	-0.277	-0.189
Kurtosis	0.068	0.433	1.177
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

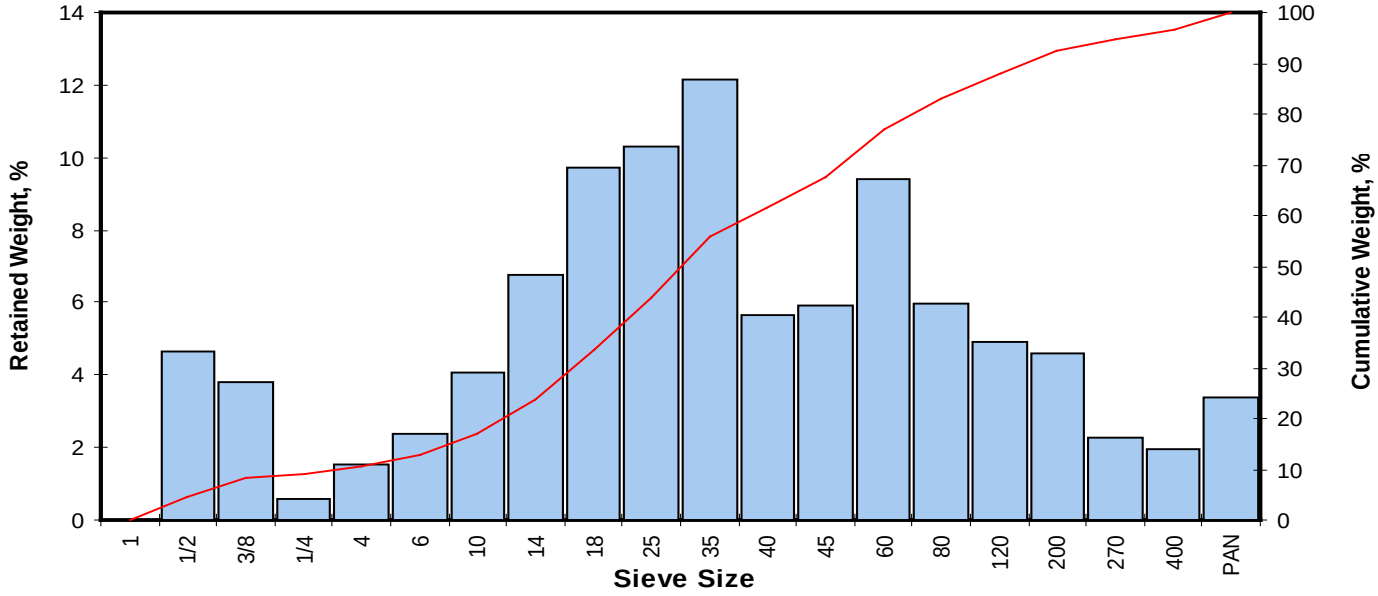
Description	Retained on Sieve #	Weight Percent
Gravel	4	19.31
Coarse Sand	10	4.46
Medium Sand	40	35.73
Fine Sand	200	30.42
Silt/Clay	<200	10.08
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-30-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	5.67	4.67	4.67
0.3740	9.500	-3.25	3/8	4.64	3.82	8.48
0.2500	6.351	-2.67	1/4	0.71	0.58	9.07
0.1873	4.757	-2.25	4	1.88	1.55	10.62
0.1324	3.364	-1.75	6	2.88	2.37	12.99
0.0787	2.000	-1.00	10	4.96	4.08	17.07
0.0557	1.414	-0.50	14	8.23	6.77	23.84
0.0394	1.000	0.00	18	11.80	9.71	33.55
0.0278	0.707	0.50	25	12.53	10.31	43.86
0.0197	0.500	1.00	35	14.78	12.16	56.02
0.0166	0.420	1.25	40	6.89	5.67	61.69
0.0139	0.354	1.50	45	7.20	5.92	67.62
0.0098	0.250	2.00	60	11.40	9.38	77.00
0.0070	0.177	2.50	80	7.24	5.96	82.96
0.0049	0.125	3.00	120	5.95	4.90	87.85
0.0029	0.074	3.75	200	5.59	4.60	92.45
0.0021	0.053	4.25	270	2.73	2.25	94.70
0.0015	0.037	4.75	400	2.35	1.93	96.63
			PAN	4.09	3.37	100.00
TOTALS				121.52	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.61	0.4805	12.205
10	-2.42	0.2101	5.337
16	-1.20	0.0902	2.291
25	-0.44	0.0534	1.357
40	0.31	0.0317	0.805
50	0.75	0.0234	0.594
60	1.18	0.0174	0.443
75	1.89	0.0106	0.269
84	2.61	0.0065	0.164
90	3.35	0.0039	0.098
95	4.33	0.0020	0.050

Measure	Trask	Inman	Folk-Ward
Median, phi	0.75	0.75	0.75
Median, in.	0.0234	0.0234	0.0234
Median, mm	0.594	0.594	0.594
Mean, phi	0.30	0.71	0.72
Mean, in.	0.0320	0.0241	0.0239
Mean, mm	0.813	0.613	0.607
Sorting	2.245	1.901	2.153
Skewness	1.018	-0.025	-0.062
Kurtosis	0.104	1.087	1.394
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

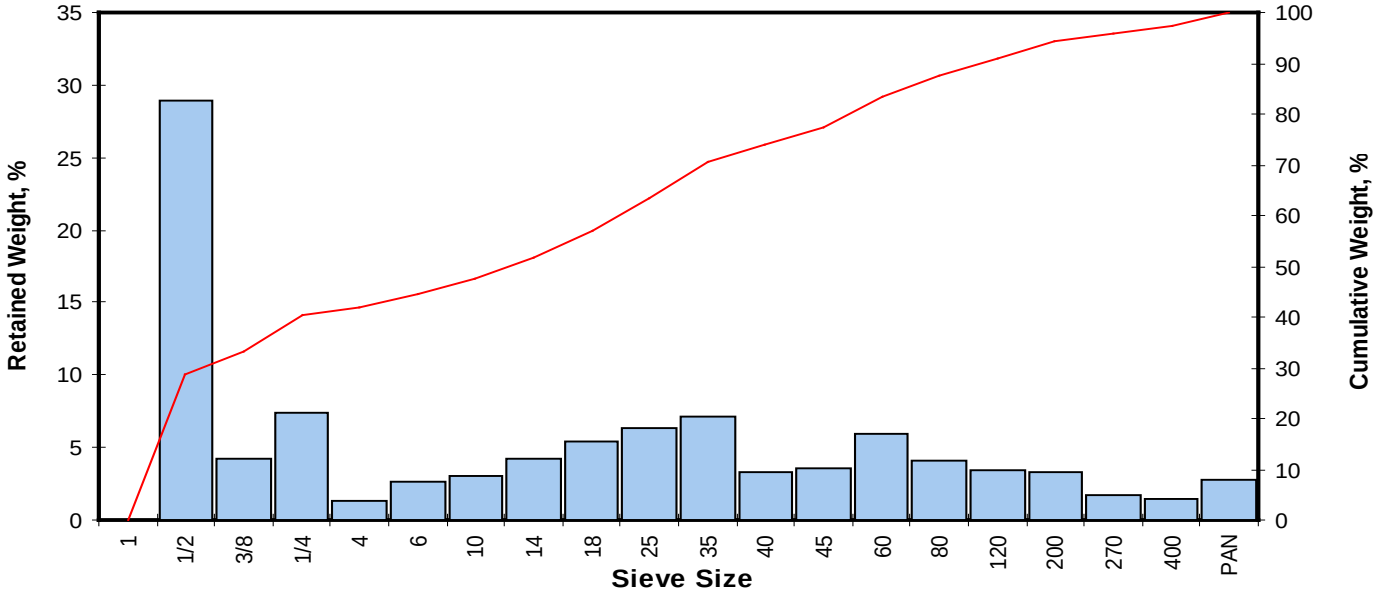
Description	Retained on Sieve #	Weight Percent
Gravel	4	10.62
Coarse Sand	10	6.45
Medium Sand	40	44.63
Fine Sand	200	30.76
Silt/Clay	<200	7.55
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-39-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	43.56	28.87	28.87
0.3740	9.500	-3.25	3/8	6.32	4.19	33.06
0.2500	6.351	-2.67	1/4	11.16	7.40	40.45
0.1873	4.757	-2.25	4	2.08	1.38	41.83
0.1324	3.364	-1.75	6	3.98	2.64	44.47
0.0787	2.000	-1.00	10	4.54	3.01	47.48
0.0557	1.414	-0.50	14	6.29	4.17	51.64
0.0394	1.000	0.00	18	8.13	5.39	57.03
0.0278	0.707	0.50	25	9.60	6.36	63.39
0.0197	0.500	1.00	35	10.73	7.11	70.50
0.0166	0.420	1.25	40	4.99	3.31	73.81
0.0139	0.354	1.50	45	5.29	3.51	77.32
0.0098	0.250	2.00	60	9.03	5.98	83.30
0.0070	0.177	2.50	80	6.23	4.13	87.43
0.0049	0.125	3.00	120	5.22	3.46	90.89
0.0029	0.074	3.75	200	4.95	3.28	94.17
0.0021	0.053	4.25	270	2.50	1.66	95.83
0.0015	0.037	4.75	400	2.19	1.45	97.28
			PAN	4.11	2.72	100.00
TOTALS				150.90	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.47	0.8730	22.174
10	-4.30	0.7742	19.665
16	-4.09	0.6703	17.027
25	-3.78	0.5401	13.718
40	-2.70	0.2563	6.509
50	-0.70	0.0638	1.621
60	0.23	0.0335	0.851
75	1.33	0.0156	0.396
84	2.08	0.0093	0.236
90	2.87	0.0054	0.137
95	4.00	0.0025	0.062

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.70	-0.70	-0.70
Median, in.	0.0638	0.0638	0.0638
Median, mm	1.621	1.621	1.621
Mean, phi	-2.82	-1.00	-0.90
Mean, in.	0.2778	0.0789	0.0735
Mean, mm	7.057	2.003	1.867
Sorting	5.882	3.087	2.827
Skewness	1.438	-0.099	0.005
Kurtosis	0.341	0.372	0.679
Grain Size Description (ASTM-USCS Scale)		Gravel (based on Mean from Trask)	

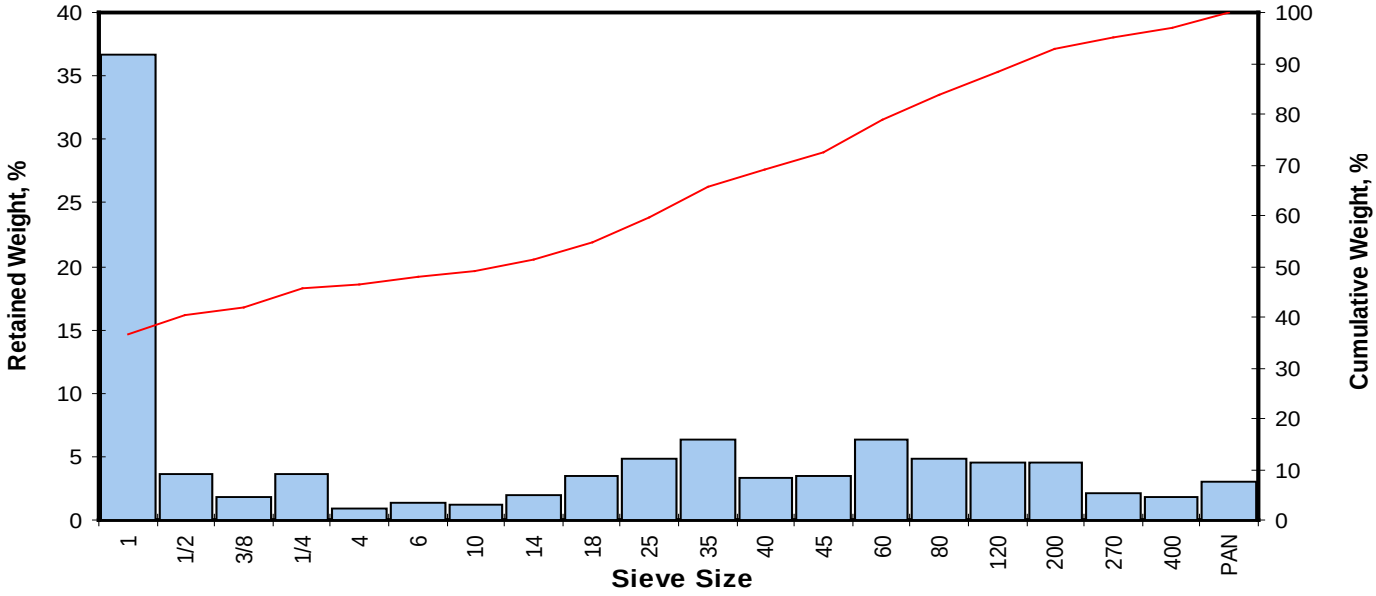
Description	Retained on Sieve #	Weight Percent
Gravel	4	41.83
Coarse Sand	10	5.65
Medium Sand	40	26.34
Fine Sand	200	20.36
Silt/Clay	<200	5.83
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1973-20-130925
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	120.73	36.63	36.63
0.4922	12.501	-3.64	1/2	11.84	3.59	40.22
0.3740	9.500	-3.25	3/8	5.73	1.74	41.96
0.2500	6.351	-2.67	1/4	12.08	3.67	45.63
0.1873	4.757	-2.25	4	3.21	0.97	46.60
0.1324	3.364	-1.75	6	4.61	1.40	48.00
0.0787	2.000	-1.00	10	3.96	1.20	49.20
0.0557	1.414	-0.50	14	6.55	1.99	51.19
0.0394	1.000	0.00	18	11.54	3.50	54.69
0.0278	0.707	0.50	25	16.00	4.85	59.54
0.0197	0.500	1.00	35	20.71	6.28	65.83
0.0166	0.420	1.25	40	10.77	3.27	69.09
0.0139	0.354	1.50	45	11.67	3.54	72.63
0.0098	0.250	2.00	60	21.06	6.39	79.02
0.0070	0.177	2.50	80	15.93	4.83	83.86
0.0049	0.125	3.00	120	15.08	4.58	88.43
0.0029	0.074	3.75	200	15.12	4.59	93.02
0.0021	0.053	4.25	270	7.15	2.17	95.19
0.0015	0.037	4.75	400	5.91	1.79	96.98
			PAN	9.95	3.02	100.00
TOTALS				329.60	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5			
10			
16			
25			
40	-3.71	0.5137	13.047
50	-0.80	0.0685	1.739
60	0.54	0.0271	0.689
75	1.69	0.0122	0.311
84	2.52	0.0069	0.175
90	3.26	0.0041	0.105
95	4.21	0.0021	0.054

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.80	-0.80	-0.80
Median, in.	0.0685	0.0685	0.0685
Median, mm	1.739	1.739	1.739
Mean, phi			
Mean, in.			
Mean, mm			
Sorting			
Skewness			
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

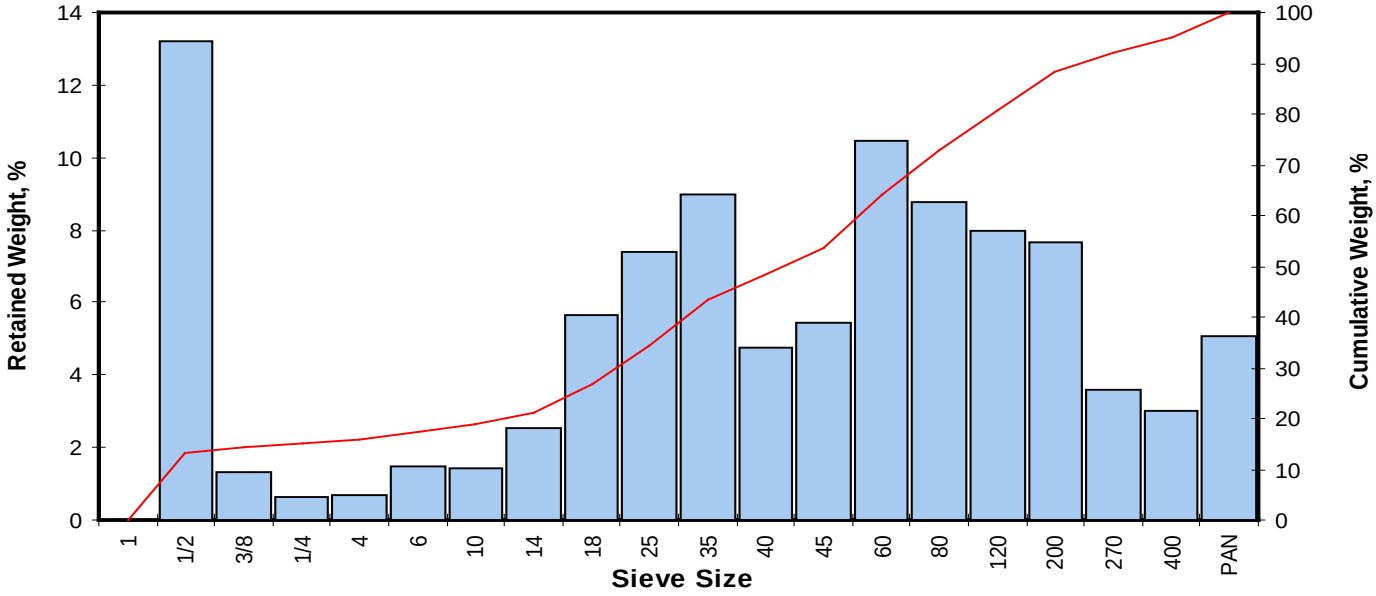
Description	Retained on Sieve #	Weight Percent
Gravel	4	46.60
Coarse Sand	10	2.60
Medium Sand	40	19.89
Fine Sand	200	23.93
Silt/Clay	<200	6.98
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1973-30-130925
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	22.02	13.18	13.18
0.3740	9.500	-3.25	3/8	2.23	1.33	14.52
0.2500	6.351	-2.67	1/4	1.10	0.66	15.18
0.1873	4.757	-2.25	4	1.14	0.68	15.86
0.1324	3.364	-1.75	6	2.51	1.50	17.36
0.0787	2.000	-1.00	10	2.36	1.41	18.77
0.0557	1.414	-0.50	14	4.21	2.52	21.29
0.0394	1.000	0.00	18	9.43	5.65	26.94
0.0278	0.707	0.50	25	12.39	7.42	34.35
0.0197	0.500	1.00	35	15.03	9.00	43.35
0.0166	0.420	1.25	40	7.96	4.77	48.12
0.0139	0.354	1.50	45	9.05	5.42	53.53
0.0098	0.250	2.00	60	17.43	10.43	63.97
0.0070	0.177	2.50	80	14.62	8.75	72.72
0.0049	0.125	3.00	120	13.33	7.98	80.70
0.0029	0.074	3.75	200	12.78	7.65	88.35
0.0021	0.053	4.25	270	5.99	3.59	91.94
0.0015	0.037	4.75	400	5.04	3.02	94.95
			PAN	8.43	5.05	100.00
TOTALS				167.05	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.26	0.7568	19.222
10	-3.89	0.5818	14.778
16	-2.20	0.1812	4.603
25	-0.17	0.0443	1.126
40	0.81	0.0224	0.569
50	1.34	0.0156	0.396
60	1.81	0.0112	0.285
75	2.64	0.0063	0.160
84	3.32	0.0039	0.100
90	3.98	0.0025	0.063
95	4.71	0.0015	0.038

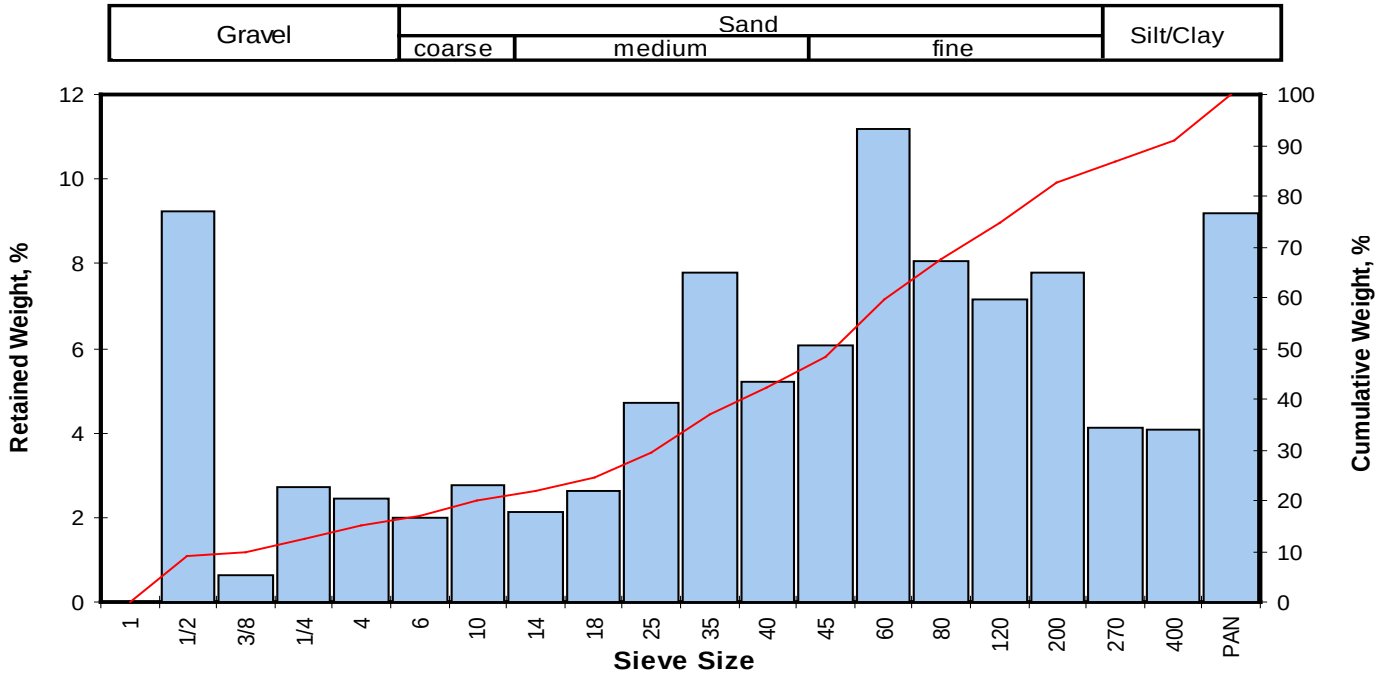
Measure	Trask	Inman	Folk-Ward
Median, phi	1.34	1.34	1.34
Median, in.	0.0156	0.0156	0.0156
Median, mm	0.396	0.396	0.396
Mean, phi	0.64	0.56	0.82
Mean, in.	0.0253	0.0267	0.0223
Mean, mm	0.643	0.678	0.567
Sorting	2.652	2.763	2.741
Skewness	1.073	-0.281	-0.265
Kurtosis	0.033	0.623	1.306
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	15.86
Coarse Sand	10	2.92
Medium Sand	40	29.34
Fine Sand	200	40.23
Silt/Clay	<200	11.65
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1973-39-130925
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	16.53	9.22	9.22
0.3740	9.500	-3.25	3/8	1.15	0.64	9.86
0.2500	6.351	-2.67	1/4	4.90	2.73	12.59
0.1873	4.757	-2.25	4	4.37	2.44	15.03
0.1324	3.364	-1.75	6	3.60	2.01	17.03
0.0787	2.000	-1.00	10	4.99	2.78	19.81
0.0557	1.414	-0.50	14	3.84	2.14	21.96
0.0394	1.000	0.00	18	4.69	2.61	24.57
0.0278	0.707	0.50	25	8.45	4.71	29.28
0.0197	0.500	1.00	35	13.99	7.80	37.08
0.0166	0.420	1.25	40	9.37	5.22	42.31
0.0139	0.354	1.50	45	10.89	6.07	48.38
0.0098	0.250	2.00	60	20.08	11.20	59.57
0.0070	0.177	2.50	80	14.47	8.07	67.64
0.0049	0.125	3.00	120	12.84	7.16	74.80
0.0029	0.074	3.75	200	13.95	7.78	82.58
0.0021	0.053	4.25	270	7.38	4.11	86.69
0.0015	0.037	4.75	400	7.35	4.10	90.79
			PAN	16.52	9.21	100.00
TOTALS				179.36	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.10	0.6758	17.166
10	-3.22	0.3662	9.303
16	-2.01	0.1583	4.020
25	0.05	0.0381	0.969
40	1.14	0.0179	0.454
50	1.57	0.0132	0.336
60	2.03	0.0097	0.245
75	3.02	0.0049	0.123
84	3.92	0.0026	0.066
90	4.65	0.0016	0.040
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	1.57	1.57	1.57
Median, in.	0.0132	0.0132	0.0132
Median, mm	0.336	0.336	0.336
Mean, phi	0.87	0.96	1.16
Mean, in.	0.0215	0.0203	0.0176
Mean, mm	0.546	0.515	0.447
Sorting	2.803	2.965	
Skewness	1.028	-0.207	
Kurtosis	0.046		

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

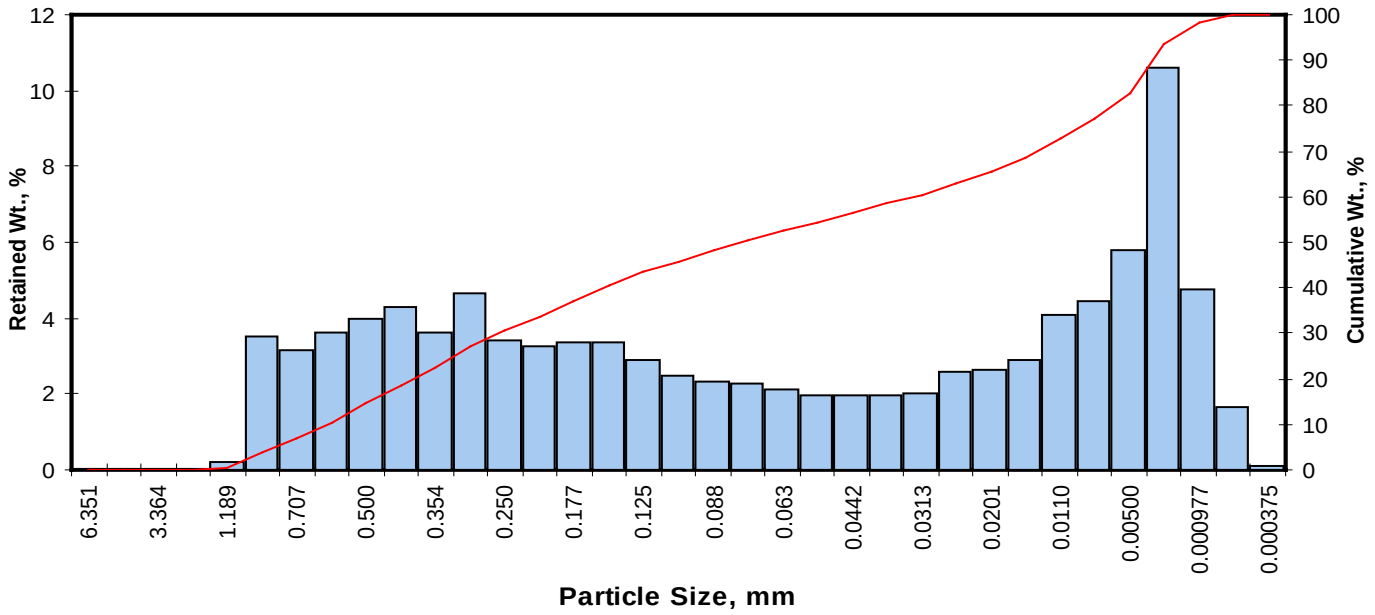
Description	Retained on Sieve #	Weight Percent
Gravel	4	15.03
Coarse Sand	10	4.79
Medium Sand	40	22.49
Fine Sand	200	40.27
Silt/Clay	<200	17.42
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1975-20-130926
Project No:	#######	**Depth, ft:**	N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.22	0.22	0.22
0.0331	0.841	0.25	20	3.51	3.51	3.73
0.0278	0.707	0.50	25	3.15	3.15	6.88
0.0234	0.595	0.75	30	3.61	3.61	10.50
0.0197	0.500	1.00	35	3.96	3.96	14.46
0.0166	0.420	1.25	40	4.27	4.27	18.73
0.0139	0.354	1.50	45	3.64	3.64	22.37
0.0117	0.297	1.75	50	4.64	4.64	27.01
0.0098	0.250	2.00	60	3.42	3.42	30.44
0.0083	0.210	2.25	70	3.24	3.24	33.68
0.0070	0.177	2.50	80	3.38	3.38	37.06
0.0059	0.149	2.75	100	3.36	3.36	40.42
0.0049	0.125	3.00	120	2.91	2.91	43.33
0.0041	0.105	3.25	140	2.48	2.48	45.81
0.0035	0.088	3.50	170	2.31	2.31	48.12
0.0029	0.074	3.75	200	2.25	2.25	50.38
0.0025	0.063	4.00	230	2.14	2.14	52.52
0.0021	0.053	4.25	270	1.99	1.99	54.51
0.00174	0.0442	4.50	325	1.94	1.94	56.45
0.00146	0.0372	4.75	400	1.96	1.96	58.41
0.00123	0.0313	5.00	450	2.01	2.01	60.42
0.000986	0.0250	5.32	500	2.61	2.61	63.03
0.000790	0.0201	5.64	635	2.65	2.65	65.68
0.000615	0.0156	6.00		2.88	2.88	68.56
0.000435	0.0110	6.50		4.07	4.07	72.64
0.000308	0.00781	7.00		4.43	4.43	77.07
0.000197	0.00500	7.65		5.78	5.78	82.85
0.000077	0.00195	9.00		10.60	10.61	93.46
0.000038	0.000977	10.00		4.77	4.77	98.23
0.000019	0.000488	11.00		1.65	1.65	99.88
0.000015	0.000375	11.38		0.12	0.12	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.35	0.0309	0.784
10	0.72	0.0240	0.609
16	1.09	0.0185	0.470
25	1.64	0.0126	0.321
40	2.72	0.0060	0.152
50	3.71	0.0030	0.077
60	4.95	0.0013	0.032
75	6.77	0.0004	0.009
84	7.79	0.0002	0.005
90	8.56	0.0001	0.003
95	9.32	0.0001	0.002

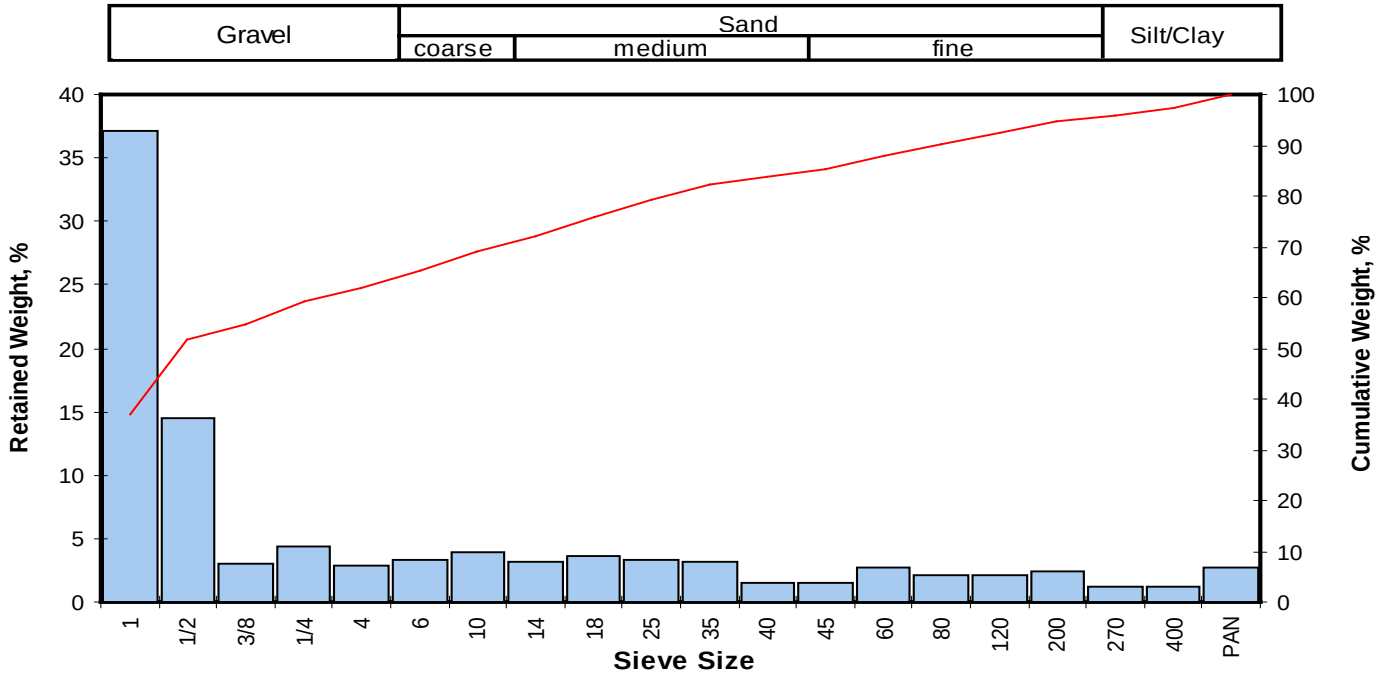
Measure	Trask	Inman	Folk-Ward
Median, phi	3.71	3.71	3.71
Median, in.	0.0030	0.0030	0.0030
Median, mm	0.077	0.077	0.077
Mean, phi	2.60	4.44	4.20
Mean, in.	0.0065	0.0018	0.0021
Mean, mm	0.165	0.046	0.055
Sorting	5.907	3.351	3.035
Skewness	0.709	0.219	0.235
Kurtosis	0.257	0.339	0.718
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	18.73
Fine Sand	200	31.65
Silt	>0.005 mm	32.48
Clay	<0.005 mm	17.15
	Total	**100**

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1975-30-130926
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	123.99	37.13	37.13
0.4922	12.501	-3.64	1/2	48.51	14.53	51.65
0.3740	9.500	-3.25	3/8	10.11	3.03	54.68
0.2500	6.351	-2.67	1/4	14.76	4.42	59.10
0.1873	4.757	-2.25	4	9.56	2.86	61.96
0.1324	3.364	-1.75	6	10.87	3.25	65.22
0.0787	2.000	-1.00	10	12.93	3.87	69.09
0.0557	1.414	-0.50	14	10.58	3.17	72.25
0.0394	1.000	0.00	18	12.03	3.60	75.86
0.0278	0.707	0.50	25	11.03	3.30	79.16
0.0197	0.500	1.00	35	10.58	3.17	82.33
0.0166	0.420	1.25	40	5.05	1.51	83.84
0.0139	0.354	1.50	45	5.09	1.52	85.36
0.0098	0.250	2.00	60	8.91	2.67	88.03
0.0070	0.177	2.50	80	7.23	2.16	90.20
0.0049	0.125	3.00	120	7.01	2.10	92.30
0.0029	0.074	3.75	200	7.94	2.38	94.67
0.0021	0.053	4.25	270	4.25	1.27	95.95
0.0015	0.037	4.75	400	4.24	1.27	97.22
			PAN	9.30	2.78	100.00
TOTALS				333.97	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5			
10			
16			
25			
40	-4.45	0.8582	21.798
50	-3.76	0.5325	13.526
60	-2.54	0.2283	5.798
75	-0.12	0.0428	1.086
84	1.28	0.0163	0.413
90	2.45	0.0072	0.182
95	3.88	0.0027	0.068

Measure	Trask	Inman	Folk-Ward
Median, phi	-3.76	-3.76	-3.76
Median, in.	0.5325	0.5325	0.5325
Median, mm	13.526	13.526	13.526
Mean, phi			
Mean, in.			
Mean, mm			
Sorting			
Skewness			
Kurtosis			

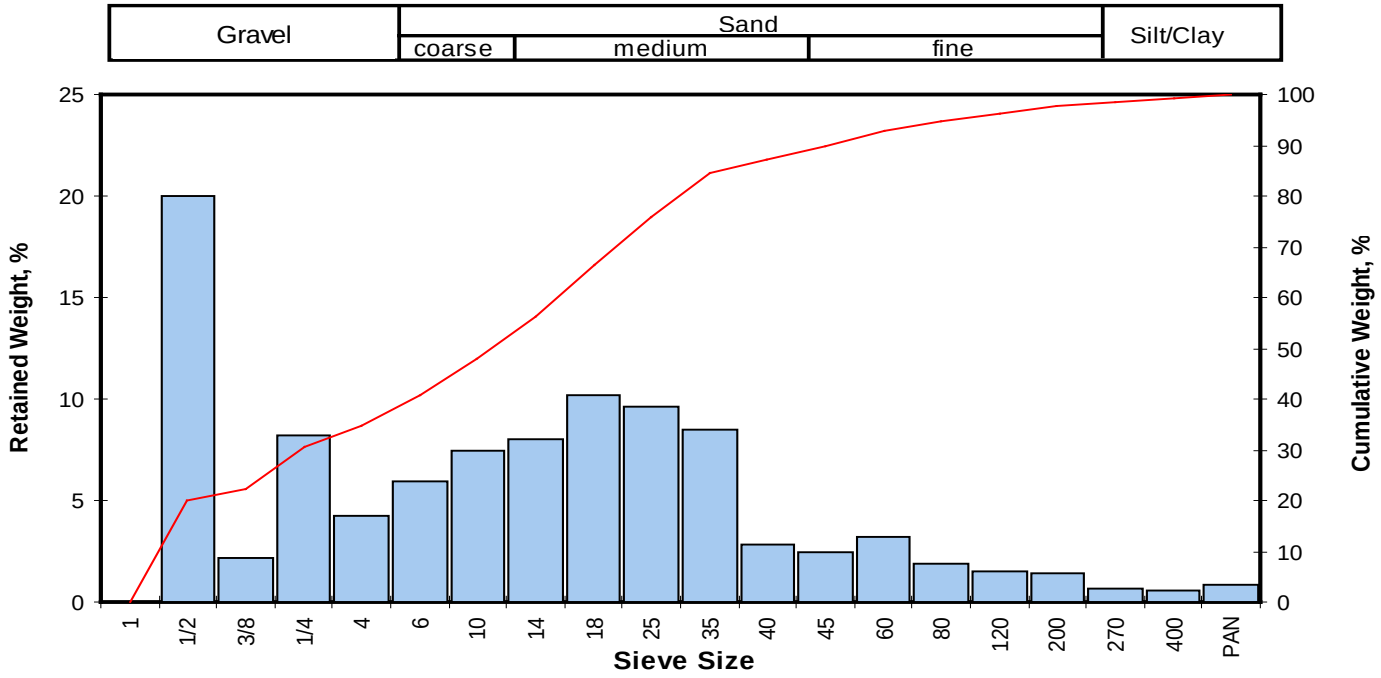
Grain Size Description (ASTM-USCS Scale)	Gravel (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	61.96
Coarse Sand	10	7.13
Medium Sand	40	14.75
Fine Sand	200	10.83
Silt/Clay	<200	5.33
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1975-39-130926
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	37.46	20.02	20.02
0.3740	9.500	-3.25	3/8	4.01	2.14	22.16
0.2500	6.351	-2.67	1/4	15.44	8.25	30.42
0.1873	4.757	-2.25	4	8.03	4.29	34.71
0.1324	3.364	-1.75	6	11.07	5.92	40.62
0.0787	2.000	-1.00	10	14.00	7.48	48.11
0.0557	1.414	-0.50	14	15.01	8.02	56.13
0.0394	1.000	0.00	18	18.98	10.14	66.27
0.0278	0.707	0.50	25	18.00	9.62	75.89
0.0197	0.500	1.00	35	15.92	8.51	84.40
0.0166	0.420	1.25	40	5.33	2.85	87.25
0.0139	0.354	1.50	45	4.60	2.46	89.71
0.0098	0.250	2.00	60	6.07	3.24	92.95
0.0070	0.177	2.50	80	3.50	1.87	94.82
0.0049	0.125	3.00	120	2.89	1.54	96.37
0.0029	0.074	3.75	200	2.70	1.44	97.81
0.0021	0.053	4.25	270	1.32	0.71	98.51
0.0015	0.037	4.75	400	1.13	0.60	99.12
			PAN	1.65	0.88	100.00
TOTALS				187.11	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.39	0.8279	21.028
10	-4.14	0.6963	17.686
16	-3.84	0.5657	14.368
25	-3.05	0.3257	8.272
40	-1.80	0.1373	3.489
50	-0.88	0.0726	1.843
60	-0.31	0.0488	1.239
75	0.45	0.0287	0.730
84	0.98	0.0200	0.508
90	1.55	0.0135	0.343
95	2.56	0.0067	0.170

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.88	-0.88	-0.88
Median, in.	0.0726	0.0726	0.0726
Median, mm	1.843	1.843	1.843
Mean, phi	-2.17	-1.43	-1.25
Mean, in.	0.1772	0.1064	0.0936
Mean, mm	4.501	2.702	2.379
Sorting	3.366	2.411	2.259
Skewness	1.334	-0.229	-0.120
Kurtosis	0.217	0.442	0.814
Grain Size Description (ASTM-USCS Scale)		Coarse sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	34.71
Coarse Sand	10	13.40
Medium Sand	40	39.14
Fine Sand	200	10.56
Silt/Clay	<200	2.19
	Total	100

PTS Laboratories, Inc.

URS Corporation
PTS File No: 43761

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12230

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1983-20-131021	N/A	Medium sand	0.399	10.22	4.48	33.47	37.88	(2)	(2)	13.94
ESB1983-30.5-131021	N/A	Medium sand	0.511	18.37	6.17	30.05	33.58	(2)	(2)	11.83
ESB1983-40.5-131021	N/A	Coarse sand	0.570	24.32	5.58	26.45	31.00	(2)	(2)	12.65
ESB1985-10-131022	N/A	Fine sand	0.339	5.00	3.40	32.21	48.95	(2)	(2)	10.45
ESB1985-20-131022	N/A	Medium sand	0.364	8.79	3.79	31.72	45.86	(2)	(2)	9.85
ESB1986-30-131022	N/A	Fine sand	0.146	0.72	1.40	11.40	59.55	(2)	(2)	26.93
ESB1989-10-131023	N/A	Fine sand	0.308	3.38	2.44	32.44	49.41	(2)	(2)	12.33
ESB1987-20-131023	N/A	Medium sand	0.425	12.51	2.36	35.42	36.96	(2)	(2)	12.75
ESB1987-30-131023	N/A	Silt	0.016	0.00	0.00	0.00	17.63	58.99	23.38	82.37
ESB1996-40-131031	N/A	Coarse sand	0.563	27.27	4.57	24.91	31.67	(2)	(2)	11.58
ESB1993-29-131026	N/A	Medium sand	0.317	8.44	2.84	29.46	46.36	(2)	(2)	12.90
ESB1994-39-131026	N/A	Fine sand	0.284	5.48	2.88	29.77	44.47	(2)	(2)	17.40

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

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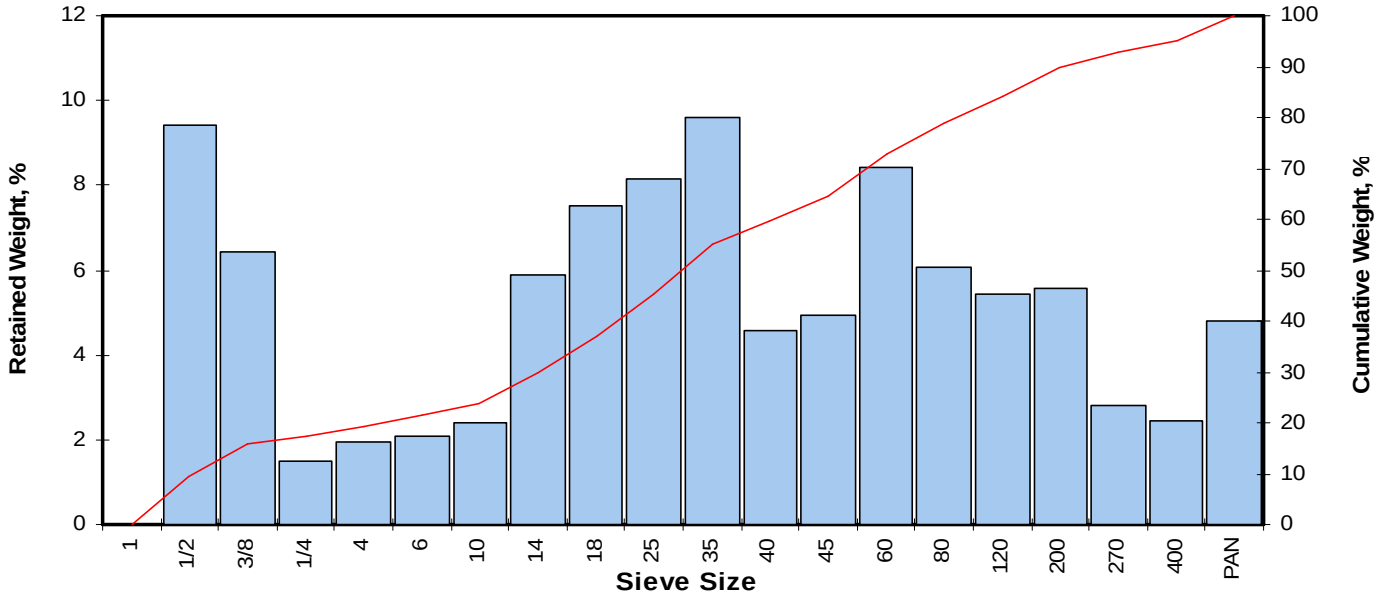
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-20-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	15.78	9.43	9.43
0.3740	9.500	-3.25	3/8	10.74	6.42	15.85
0.2500	6.351	-2.67	1/4	2.51	1.50	17.35
0.1873	4.757	-2.25	4	3.27	1.95	19.31
0.1324	3.364	-1.75	6	3.45	2.06	21.37
0.0787	2.000	-1.00	10	4.01	2.40	23.77
0.0557	1.414	-0.50	14	9.81	5.86	29.63
0.0394	1.000	0.00	18	12.60	7.53	37.17
0.0278	0.707	0.50	25	13.65	8.16	45.33
0.0197	0.500	1.00	35	16.08	9.61	54.94
0.0166	0.420	1.25	40	7.63	4.56	59.50
0.0139	0.354	1.50	45	8.23	4.92	64.42
0.0098	0.250	2.00	60	14.06	8.41	72.82
0.0070	0.177	2.50	80	10.17	6.08	78.90
0.0049	0.125	3.00	120	9.09	5.43	84.34
0.0029	0.074	3.75	200	9.34	5.58	89.92
0.0021	0.053	4.25	270	4.70	2.81	92.73
0.0015	0.037	4.75	400	4.12	2.46	95.19
			PAN	8.04	4.81	100.00
TOTALS				167.28	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.11	0.6817	17.315
10	-3.61	0.4804	12.202
16	-3.19	0.3596	9.135
25	-0.90	0.0732	1.860
40	0.17	0.0349	0.887
50	0.74	0.0235	0.597
60	1.28	0.0163	0.413
75	2.18	0.0087	0.221
84	2.97	0.0050	0.128
90	3.76	0.0029	0.074
95	4.71	0.0015	0.038

Measure	Trask	Inman	Folk-Ward
Median, phi	0.74	0.74	0.74
Median, in.	0.0235	0.0235	0.0235
Median, mm	0.597	0.597	0.597
Mean, phi	-0.06	-0.11	0.17
Mean, in.	0.0410	0.0425	0.0349
Mean, mm	1.040	1.080	0.887
Sorting	2.902	3.080	2.877
Skewness	1.073	-0.277	-0.189
Kurtosis	0.068	0.433	1.177
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	19.31
Coarse Sand	10	4.46
Medium Sand	40	35.73
Fine Sand	200	30.42
Silt/Clay	<200	10.08
	Total	100

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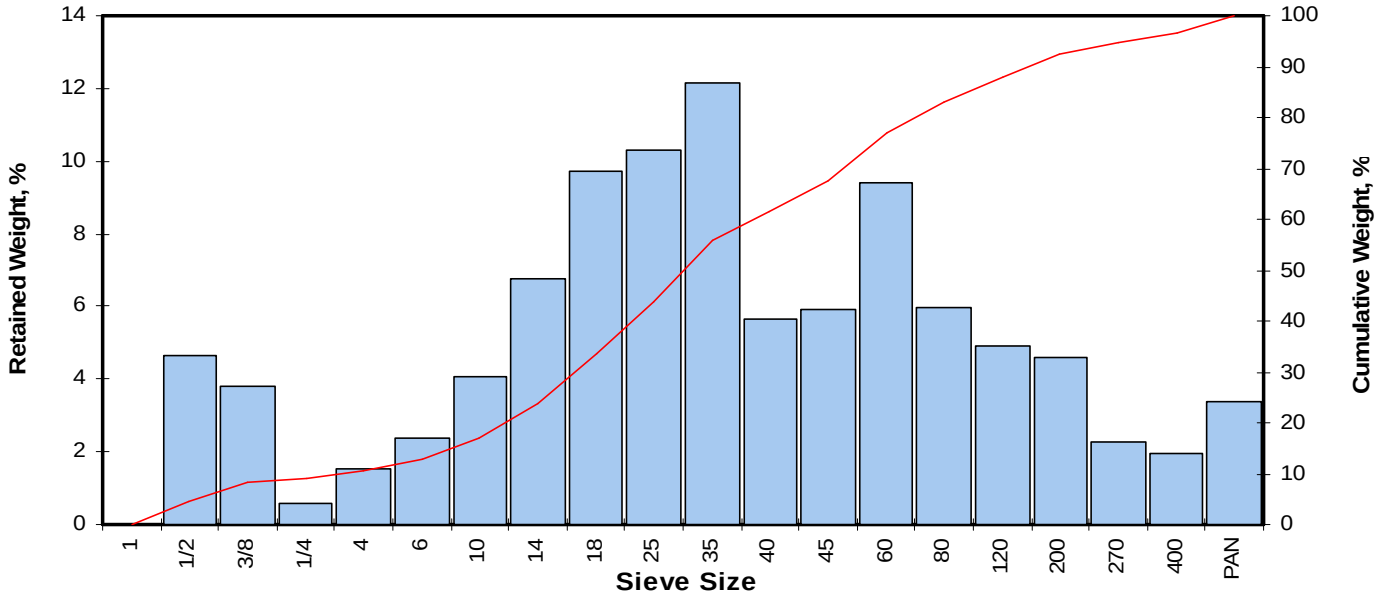
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-30-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	5.67	4.67	4.67
0.3740	9.500	-3.25	3/8	4.64	3.82	8.48
0.2500	6.351	-2.67	1/4	0.71	0.58	9.07
0.1873	4.757	-2.25	4	1.88	1.55	10.62
0.1324	3.364	-1.75	6	2.88	2.37	12.99
0.0787	2.000	-1.00	10	4.96	4.08	17.07
0.0557	1.414	-0.50	14	8.23	6.77	23.84
0.0394	1.000	0.00	18	11.80	9.71	33.55
0.0278	0.707	0.50	25	12.53	10.31	43.86
0.0197	0.500	1.00	35	14.78	12.16	56.02
0.0166	0.420	1.25	40	6.89	5.67	61.69
0.0139	0.354	1.50	45	7.20	5.92	67.62
0.0098	0.250	2.00	60	11.40	9.38	77.00
0.0070	0.177	2.50	80	7.24	5.96	82.96
0.0049	0.125	3.00	120	5.95	4.90	87.85
0.0029	0.074	3.75	200	5.59	4.60	92.45
0.0021	0.053	4.25	270	2.73	2.25	94.70
0.0015	0.037	4.75	400	2.35	1.93	96.63
			PAN	4.09	3.37	100.00
TOTALS				121.52	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.61	0.4805	12.205
10	-2.42	0.2101	5.337
16	-1.20	0.0902	2.291
25	-0.44	0.0534	1.357
40	0.31	0.0317	0.805
50	0.75	0.0234	0.594
60	1.18	0.0174	0.443
75	1.89	0.0106	0.269
84	2.61	0.0065	0.164
90	3.35	0.0039	0.098
95	4.33	0.0020	0.050

Measure	Trask	Inman	Folk-Ward
Median, phi	0.75	0.75	0.75
Median, in.	0.0234	0.0234	0.0234
Median, mm	0.594	0.594	0.594
Mean, phi	0.30	0.71	0.72
Mean, in.	0.0320	0.0241	0.0239
Mean, mm	0.813	0.613	0.607
Sorting	2.245	1.901	2.153
Skewness	1.018	-0.025	-0.062
Kurtosis	0.104	1.087	1.394
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	10.62
Coarse Sand	10	6.45
Medium Sand	40	44.63
Fine Sand	200	30.76
Silt/Clay	<200	7.55
	Total	100

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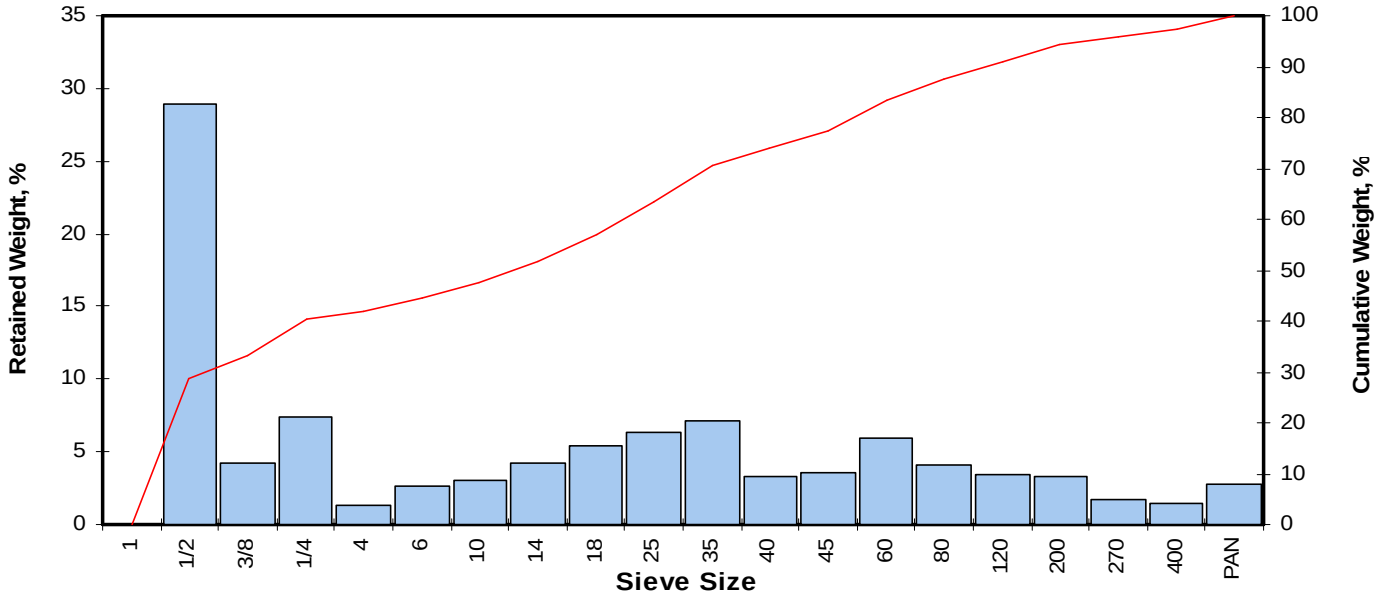
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1972-39-130923
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	43.56	28.87	28.87
0.3740	9.500	-3.25	3/8	6.32	4.19	33.06
0.2500	6.351	-2.67	1/4	11.16	7.40	40.45
0.1873	4.757	-2.25	4	2.08	1.38	41.83
0.1324	3.364	-1.75	6	3.98	2.64	44.47
0.0787	2.000	-1.00	10	4.54	3.01	47.48
0.0557	1.414	-0.50	14	6.29	4.17	51.64
0.0394	1.000	0.00	18	8.13	5.39	57.03
0.0278	0.707	0.50	25	9.60	6.36	63.39
0.0197	0.500	1.00	35	10.73	7.11	70.50
0.0166	0.420	1.25	40	4.99	3.31	73.81
0.0139	0.354	1.50	45	5.29	3.51	77.32
0.0098	0.250	2.00	60	9.03	5.98	83.30
0.0070	0.177	2.50	80	6.23	4.13	87.43
0.0049	0.125	3.00	120	5.22	3.46	90.89
0.0029	0.074	3.75	200	4.95	3.28	94.17
0.0021	0.053	4.25	270	2.50	1.66	95.83
0.0015	0.037	4.75	400	2.19	1.45	97.28
			PAN	4.11	2.72	100.00
TOTALS				150.90	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.47	0.8730	22.174
10	-4.30	0.7742	19.665
16	-4.09	0.6703	17.027
25	-3.78	0.5401	13.718
40	-2.70	0.2563	6.509
50	-0.70	0.0638	1.621
60	0.23	0.0335	0.851
75	1.33	0.0156	0.396
84	2.08	0.0093	0.236
90	2.87	0.0054	0.137
95	4.00	0.0025	0.062

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.70	-0.70	-0.70
Median, in.	0.0638	0.0638	0.0638
Median, mm	1.621	1.621	1.621
Mean, phi	-2.82	-1.00	-0.90
Mean, in.	0.2778	0.0789	0.0735
Mean, mm	7.057	2.003	1.867
Sorting	5.882	3.087	2.827
Skewness	1.438	-0.099	0.005
Kurtosis	0.341	0.372	0.679
Grain Size Description (ASTM-USCS Scale)		Gravel (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	41.83
Coarse Sand	10	5.65
Medium Sand	40	26.34
Fine Sand	200	20.36
Silt/Clay	<200	5.83
	Total	100

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URS Corporation
PTS File No: 44028

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764444.12230

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1979-30-131205	30.3	Fine sand	0.061	0.00	0.00	19.36	27.74	40.53	12.37	52.89
ESB1979-35-131205	35.2	Fine sand	0.051	0.00	0.00	19.11	26.27	38.04	16.58	54.62
ESB1997-40-131207	40.25	Fine sand	0.083	0.00	0.00	25.40	25.89	37.66	11.04	48.70

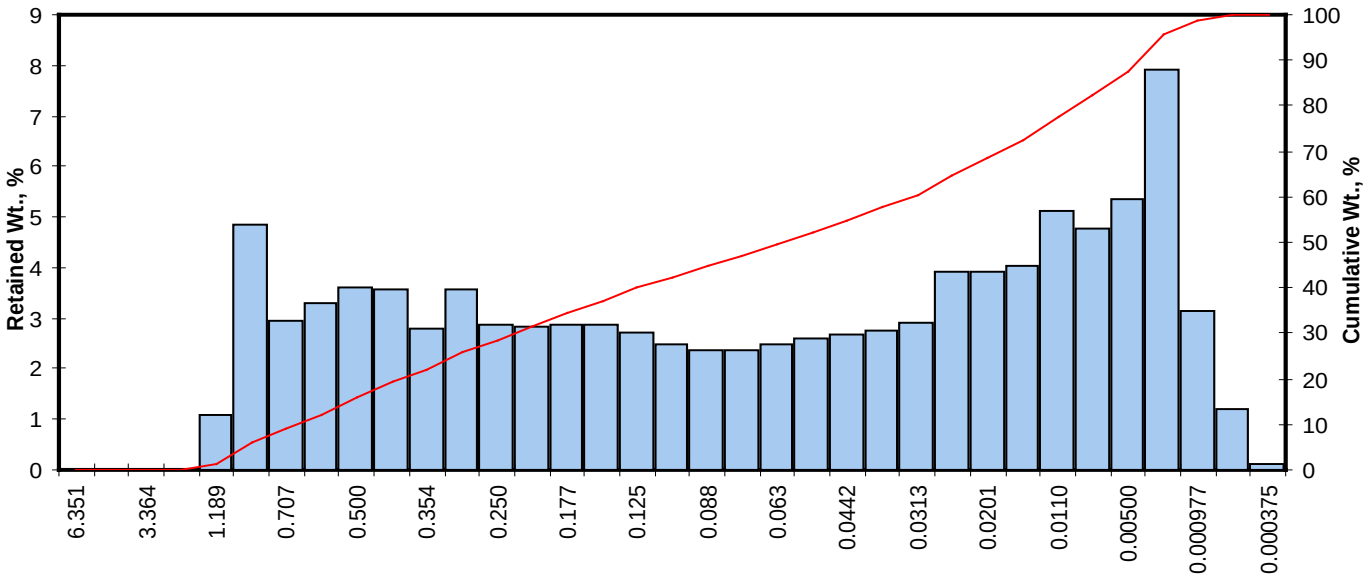
(1) Based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	44028
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1979-30-131205
Project No:	33764444.12230	**Depth, ft:**	30.3

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Particle Size, mm

Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.08	1.08	1.08
0.0331	0.841	0.25	20	4.86	4.86	5.94
0.0278	0.707	0.50	25	2.94	2.94	8.88
0.0234	0.595	0.75	30	3.31	3.31	12.19
0.0197	0.500	1.00	35	3.60	3.60	15.79
0.0166	0.420	1.25	40	3.58	3.58	19.36
0.0139	0.354	1.50	45	2.81	2.81	22.17
0.0117	0.297	1.75	50	3.57	3.57	25.74
0.0098	0.250	2.00	60	2.87	2.87	28.61
0.0083	0.210	2.25	70	2.84	2.84	31.45
0.0070	0.177	2.50	80	2.87	2.87	34.32
0.0059	0.149	2.75	100	2.87	2.87	37.19
0.0049	0.125	3.00	120	2.71	2.71	39.90
0.0041	0.105	3.25	140	2.49	2.49	42.39
0.0035	0.088	3.50	170	2.35	2.35	44.74
0.0029	0.074	3.75	200	2.37	2.37	47.11
0.0025	0.063	4.00	230	2.49	2.49	49.60
0.0021	0.053	4.25	270	2.60	2.60	52.19
0.00174	0.0442	4.50	325	2.68	2.68	54.87
0.00146	0.0372	4.75	400	2.76	2.76	57.63
0.00123	0.0313	5.00	450	2.91	2.91	60.54
0.000986	0.0250	5.32	500	3.90	3.90	64.44
0.000790	0.0201	5.64	635	3.91	3.91	68.35
0.000615	0.0156	6.00		4.04	4.04	72.39
0.000435	0.0110	6.50		5.13	5.13	77.52
0.000308	0.00781	7.00		4.76	4.76	82.28
0.000197	0.00500	7.65		5.36	5.36	87.63
0.000077	0.00195	9.00		7.90	7.90	95.53
0.000038	0.000977	10.00		3.15	3.15	98.68
0.000019	0.000488	11.00		1.22	1.22	99.90
0.000015	0.000375	11.38		0.10	0.10	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.15	0.0354	0.899
10	0.58	0.0262	0.667
16	1.02	0.0195	0.495
25	1.70	0.0121	0.308
40	3.01	0.0049	0.124
50	4.04	0.0024	0.061
60	4.95	0.0013	0.032
75	6.25	0.0005	0.013
84	7.21	0.0003	0.007
90	8.05	0.0001	0.004
95	8.91	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	4.04	4.04	4.04
Median, in.	0.0024	0.0024	0.0024
Median, mm	0.061	0.061	0.061
Mean, phi	2.64	4.11	4.09
Mean, in.	0.0063	0.0023	0.0023
Mean, mm	0.161	0.058	0.059
Sorting	4.851	3.096	2.875
Skewness	1.044	0.023	0.068
Kurtosis	0.223	0.414	0.787
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	19.36
Fine Sand	200	27.74
Silt	>0.005 mm	40.53
Clay	<0.005 mm	12.37
	Total	**100**

PTS Laboratories

PTS File No: 44028, 43761 and 28462
Client: URS Corporation
Report Date: 2/11/2014, 12/19/2013 and 2/22/1999

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID SATURATIONS (3), % Pv
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	
ESB1979-30-131205	30	V	20140207	8.3	0.120	1.45	2.73	0.470	0.350	0.120	0.197	25.6
ESB1979-35-131205	35	V	20140207	10.1	0.169	1.67	2.71	0.384	0.215	0.169	0.142	43.9
ESB1997-40-131207	40	V	20140207	8.5	0.139	1.64	2.71	0.397	0.258	0.139	0.179	35.0
ESB2000-25-131209	25	V	20140207	9.2	0.137	1.49	2.71	0.451	0.314	0.137	0.182	30.3
ESB1996-40-131031	40	V	20131204	8.2	0.127	1.55	2.70	0.426	0.300	0.127	0.215	29.7
ESB1297-10-072898	10	V	1998	9.3	NT	1.87	2.70	NT	NT	NT	30.5%	60.0
ESB1297-16.5-072898	16.5	V	1998	9.8	NT	1.79	2.70	NT	NT	NT	33.6%	53.3
ESB1302-13-072898	13	V	1998	10.9	NT	1.81	0.72	NT	NT	NT	33.5%	61.0

Note: Samples from ESB1297 and ESB1302 were tested during the RI and reported in Appendix S of the RI Report

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1972-20-130923	20	20131022 / 0740	24.9	0.9988	332.49	115.75	405.91	2.73	2.73
ESB1972-30-130923	30	20131022 / 0740	24.9	0.9988	667.14	184.32	783.54	2.71	2.71
ESB1972-39-130923	39	20131022 / 0740	24.9	0.9988	332.97	142.48	423.21	2.73	2.72

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1972-20-130923	20	20131017	1415	78.6	Soil	7.56
ESB1972-30-130923	30	20131017	1415	78.6	Soil	7.77
ESB1972-39-130923	39	20131017	1415	78.6	Soil	8.00

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131017/1555
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

URS Corporation
PTS File N 43652 and

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1972-20-130923	20	Medium sand	0.597	19.31	4.46	35.73	30.42	(2)	(2)	10.08
ESB1972-30-130923	30	Medium sand	0.594	10.62	6.45	44.63	30.76	(2)	(2)	7.55
ESB1972-39-130923	39	Gravel	1.621	41.83	5.65	26.34	20.36	(2)	(2)	5.83
ESB1121-5-030498	5	Fine sand	0.076	0.00	0.00	20.63	29.71	40.31	9.35	49.67

Note: Sample from ESB1121 was tested during the RI and reported in Appendix S of the RI Report

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1972-20-130923	20	20131023	1039	SOIL	1500	1.50E-03
ESB1972-30-130923	30	20131023	1039	SOIL	1100	1.10E-03
ESB1972-39-130923	39	20131023	1039	SOIL	710	7.10E-04
Blank	N/A	20131023	1039	BLANK	ND	ND
SRM D081-542	N/A	20131023	1039	SRM	2340	2.34E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	95	75-125	2460	1845	3075

ND = Not Detected

PTS File No: 43652 and 24862
Client: URS Corporation
Report Date: 11/01/13

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB1972-20-130923	20	20131029	16.3	10.9	5.4	CL-ML	SW-SC: Well-graded sand with silty clay and gravel	Sand
ESB1972-30-130923	30	20131029	13.7	9.4	4.3	CL-ML	SW-SC: Well-graded sand with silty clay	Sand
ESB1972-39-130923	39	20131029	11.0	Non-Plastic		NP	SP-SM: Poorly graded sand with silt and gravel	Sand
ESB1121-5-030498	5	1998				ML	SM: Poorly graded silty sand	

Note: Sample from ESB1121 was tested during the RI and reported in Appendix S of the RI Report

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1973-20-130925	20	20131022 / 0740	24.9	0.9988	671.46	191.80	792.70	2.72	2.72
ESB1973-30-130925	30	20131022 / 0740	24.9	0.9988	334.91	140.38	423.94	2.73	2.73
ESB1973-39-130925	39	20131022 / 0740	24.9	0.9988	333.46	97.46	395.28	2.73	2.73

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1973-20-130925	20	20131017	1415	78.6	Soil	7.86
ESB1973-30-130925	30	20131017	1415	78.6	Soil	7.98
ESB1973-39-130925	39	20131017	1415	78.6	Soil	8.18

QC DATA

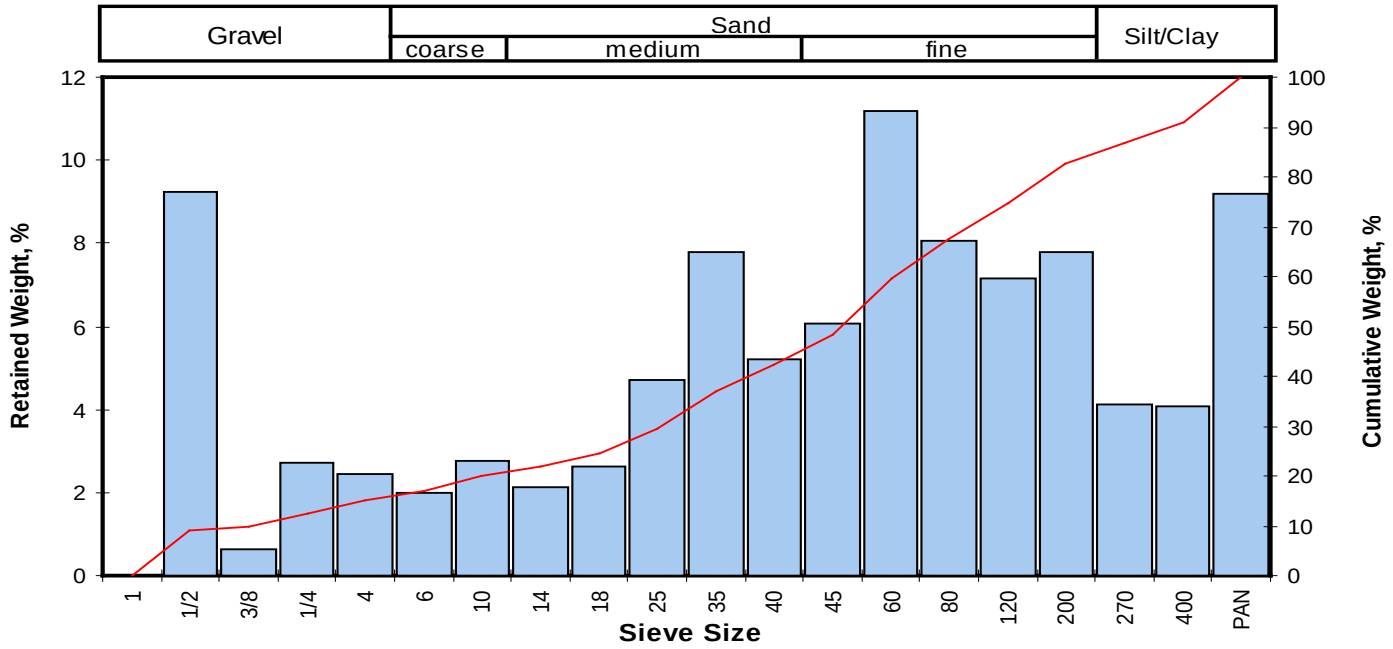
Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131017/1555
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43652
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1973-39-130925
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	16.53	9.22	9.22
0.3740	9.500	-3.25	3/8	1.15	0.64	9.86
0.2500	6.351	-2.67	1/4	4.90	2.73	12.59
0.1873	4.757	-2.25	4	4.37	2.44	15.03
0.1324	3.364	-1.75	6	3.60	2.01	17.03
0.0787	2.000	-1.00	10	4.99	2.78	19.81
0.0557	1.414	-0.50	14	3.84	2.14	21.96
0.0394	1.000	0.00	18	4.69	2.61	24.57
0.0278	0.707	0.50	25	8.45	4.71	29.28
0.0197	0.500	1.00	35	13.99	7.80	37.08
0.0166	0.420	1.25	40	9.37	5.22	42.31
0.0139	0.354	1.50	45	10.89	6.07	48.38
0.0098	0.250	2.00	60	20.08	11.20	59.57
0.0070	0.177	2.50	80	14.47	8.07	67.64
0.0049	0.125	3.00	120	12.84	7.16	74.80
0.0029	0.074	3.75	200	13.95	7.78	82.58
0.0021	0.053	4.25	270	7.38	4.11	86.69
0.0015	0.037	4.75	400	7.35	4.10	90.79
			PAN	16.52	9.21	100.00
TOTALS				179.36	100.00	100.00

Cumulative Weight Percent greater than

Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.10	0.6758	17.166
10	-3.22	0.3662	9.303
16	-2.01	0.1583	4.020
25	0.05	0.0381	0.969
40	1.14	0.0179	0.454
50	1.57	0.0132	0.336
60	2.03	0.0097	0.245
75	3.02	0.0049	0.123
84	3.92	0.0026	0.066
90	4.65	0.0016	0.040
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	1.57	1.57	1.57
Median, in.	0.0132	0.0132	0.0132
Median, mm	0.336	0.336	0.336
Mean, phi	0.87	0.96	1.16
Mean, in.	0.0215	0.0203	0.0176
Mean, mm	0.546	0.515	0.447
Sorting	2.803	2.965	
Skewness	1.028	-0.207	
Kurtosis	0.046		

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	15.03
Coarse Sand	10	4.79
Medium Sand	40	22.49
Fine Sand	200	40.27
Silt/Clay	<200	17.42
	Total	100

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PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1973-20-130925	N/A	20131023	1039	SOIL	1250	1.25E-03
ESB1973-30-130925	N/A	20131023	1039	SOIL	1550	1.55E-03
ESB1973-39-130925	N/A	20131023	1039	SOIL	930	9.30E-04
Blank	N/A	20131023	1039	BLANK	ND	ND
SRM D081-542	N/A	20131023	1039	SRM	2340	2.34E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	95	75-125	2460	1845	3075

ND = Not Detected

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB1973-20-130925	N/A	20131029	14.5	9.9	4.6	CL-ML	GP-GC: Poorly graded gravel with silty clay and sand	Sand
ESB1973-30-130925	N/A	20131029	14.8	10.1	4.7	CL-ML	SW-SC: Well-graded sand with silty clay and gravel	Sand
ESB1973-39-130925	N/A	20131029	14.1	10.2	3.9	CL-ML	SC-SM: Silty, clayey sand with gravel	Loamy sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS Laboratories

PTS File No: 43652 and 44028
Client: URS Corporation
Report Date: 11/1/2013 and 2/11/14

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1975-20-130926	20	20131022 / 0740	24.9	0.9988	348.27	137.32	435.38	2.73	2.73
ESB1975-30-130926	30	20131022 / 0740	24.9	0.9988	356.21	104.29	422.43	2.74	2.74
ESB1975-39-130926	39	20131022 / 0740	24.9	0.9988	339.27	105.73	406.70	2.76	2.76
ESB1998-22.5-131116	22.5	20140206/1014	22.3	0.9995	335.06	157.61	434.05	2.69	2.69

PTS Laboratories

PTS File No: 43652 and 44028
Client: URS Corporation
Report Date: 11/1/2013 and 2/11/2014

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1975-20-130926	20	20131017	1415	78.6	Soil	8.31
ESB1975-30-130926	30	20131017	1415	78.6	Soil	8.20
ESB1975-39-130926	39	20131017	1415	78.6	Soil	8.08
ESB1998-22.5-131116	22.5	20140204	1455	74.8	Soil	7.17

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131017/1555
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

URS Corporation
PTS File No: 43652 and 44028

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1975-20-130926	20	Fine sand	0.077	0.00	0.00	18.73	31.65	32.48	17.15	49.62
ESB1975-30-130926	30	Gravel	13.526	61.96	7.13	14.75	10.83	(2)	(2)	5.33
ESB1975-39-130926	39	Coarse sand	1.843	34.71	13.40	39.14	10.56	(2)	(2)	2.19
ESB1998-22.5-131116	22.5	Gravel	0.497	27.79	1.38	24.34	32.32	(2)	(2)	14.16

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

PTS Laboratories

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1975-20-130926	20	20131023	1039	SOIL	760	7.60E-04
ESB1975-30-130926	30	20131023	1039	SOIL	140	1.40E-04
ESB1975-39-130926	39	20131023	1039	SOIL	550	5.50E-04
Blank	N/A	20131023	1039	BLANK	ND	ND
SRM D081-542	N/A	20131023	1039	SRM	2340	2.34E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	95	75-125	2460	1845	3075

ND = Not Detected

PTS Laboratories

PTS File No: 43652 and 44028
Client: URS Corporation
Report Date: 11/1/2013 and 2/11/2014

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40 API RP40
		SAMPLE		MOISTURE		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	ANALYSIS DATE	CONTENT, % weight	CONTENT, cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
ESB1975-20-130926	20	V	20131025	14.8	0.257	1.74	2.69	0.352	0.094	0.257	0.094	73.2
ESB1975-30-130926	30	V	20131025	6.3	0.119	1.89	2.72	0.305	0.185	0.119	0.188	39.1
ESB1975-39-130926	39	V	20131025	11.1	0.200	1.81	2.71	0.332	0.132	0.200	0.144	60.3
ESB1998-22.5-131116	22.5	V	20140207	16.5	0.282	1.71	2.69	0.366	0.084	0.282	0.110	77.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 44028 and 43761
Client: URS Corporation
Report Date: 2/11/2014 and 12/19/13

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1979-30-131205	30	20140206/1014	22.3	0.9995	356.37	127.09	436.71	2.72	2.72
ESB1979-35-131205	35	20140206/1014	22.3	0.9995	339.42	134.68	424.64	2.72	2.72
ESB1997-40-131207	40	20140206/1014	22.3	0.9995	332.64	132.12	416.34	2.73	2.73
ESB2000-25-131209	25	20140206/1014	22.3	0.9995	333.12	138.66	420.84	2.72	2.72
ESB1996-40-131031	40	20131209/0944	21.5	0.9997	332.70	107.52	400.29	2.69	2.69

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1996-40-131031	N/A	20131210	1035	SOIL	1200	1.20E-03
Blank	N/A	20131210	1035	BLANK	ND	ND
SRM D081-542	N/A	20131210	1035	SRM	2280	2.28E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	93	75-125	2460	1845	3075

ND = Not Detected

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

Soil pH
(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1996-40-131031	N/A	20131127	1512	77.7	SOIL	7.80

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131127/1512
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1983-20-131021	20	20131206/1435	20.7	0.9999	348.54	86.75	403.27	2.71	2.71
ESB1983-30.5-131021	30.5	20131206/1435	20.7	0.9999	356.48	103.99	422.07	2.71	2.71
ESB1983-40.5-131021	40.5	20131206/1435	20.7	0.9999	340.52	107.94	408.54	2.70	2.70

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1983-20-131021	20	20131127	1512	77.7	SOIL	7.69
ESB1983-30.5-131021	30	20131127	1512	77.7	SOIL	7.60
ESB1983-40.5-131021	40.5	20131127	1512	77.7	SOIL	7.73

QC DATA

Meter Model/Type: Corning pH Meter 240

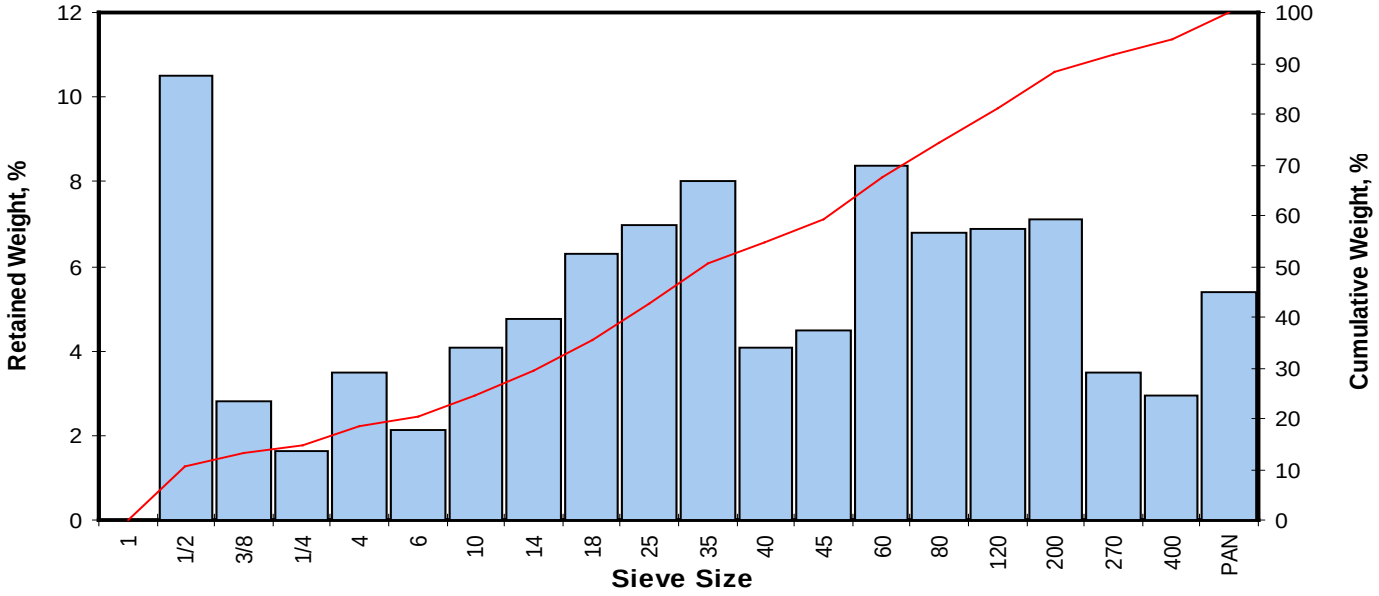
METER CALIBRATION	Date/Time: 20131127/1512
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1983-30.5-131021
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	7.11	10.49	10.49
0.3740	9.500	-3.25	3/8	1.89	2.79	13.28
0.2500	6.351	-2.67	1/4	1.10	1.62	14.90
0.1873	4.757	-2.25	4	2.35	3.47	18.37
0.1324	3.364	-1.75	6	1.43	2.11	20.48
0.0787	2.000	-1.00	10	2.75	4.06	24.54
0.0557	1.414	-0.50	14	3.21	4.74	29.27
0.0394	1.000	0.00	18	4.26	6.29	35.56
0.0278	0.707	0.50	25	4.72	6.96	42.52
0.0197	0.500	1.00	35	5.42	8.00	50.52
0.0166	0.420	1.25	40	2.76	4.07	54.59
0.0139	0.354	1.50	45	3.03	4.47	59.06
0.0098	0.250	2.00	60	5.68	8.38	67.44
0.0070	0.177	2.50	80	4.59	6.77	74.21
0.0049	0.125	3.00	120	4.65	6.86	81.07
0.0029	0.074	3.75	200	4.81	7.10	88.17
0.0021	0.053	4.25	270	2.36	3.48	91.65
0.0015	0.037	4.75	400	2.01	2.97	94.61
			PAN	3.65	5.39	100.00
TOTALS				67.78	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-4.17	0.7074	17.968
10	-3.69	0.5084	12.912
16	-2.53	0.2282	5.795
25	-0.95	0.0761	1.933
40	0.32	0.0316	0.802
50	0.97	0.0201	0.511
60	1.56	0.0134	0.340
75	2.56	0.0067	0.170
84	3.31	0.0040	0.101
90	4.01	0.0024	0.062
95	4.41	0.0019	0.047

Measure	Trask	Inman	Folk-Ward
Median, phi	0.97	0.97	0.97
Median, in.	0.0201	0.0201	0.0201
Median, mm	0.511	0.511	0.511
Mean, phi	-0.07	0.39	0.58
Mean, in.	0.0414	0.0301	0.0263
Mean, mm	1.051	0.765	0.669
Sorting	3.373	2.922	2.761
Skewness	1.121	-0.199	-0.198
Kurtosis	0.069	0.468	1.002
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	18.37
Coarse Sand	10	6.17
Medium Sand	40	30.05
Fine Sand	200	33.58
Silt/Clay	<200	11.83
	Total	100

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PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1983-20-131021	20	20131210	1035	SOIL	840	8.40E-04
ESB1983-30.5-131021	30.5	20131210	1035	SOIL	690	6.90E-04
ESB1983-40.5-131021	40.5	20131210	1035	SOIL	550	5.50E-04
Blank	N/A	20131210	1035	BLANK	ND	ND
SRM D081-542	N/A	20131210	1035	SRM	2280	2.28E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	93	75-125	2460	1845	3075

ND = Not Detected

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB1983-20-131021	20	20131209	17.8	12.3	5.5	CL-ML	SC-SM: Silty, clayey sand	Loamy sand
ESB1983-30.5-131021	30.5	20131209	18.7	14.3	4.4	CL-ML	SW-SC: Well-graded sand with clay and gravel	Sand
ESB1983-40.5-131021	40.5	20131209	18.3	14.1	4.2	CL-ML	SC-SM: Silty, clayey sand with gravel	Loamy sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1985-10-131022	10	20131206/1435	20.7	0.9999	332.75	120.54	408.81	2.71	2.71
ESB1985-20-131022	20	20131206/1435	20.7	0.9999	333.23	130.12	415.05	2.69	2.69
ESB1986-30-131022	30	20131206/1435	20.7	0.9999	335.17	112.63	406.55	2.73	2.73

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1985-10-131022	10	20131127	1512	77.7	SOIL	7.69
ESB1985-20-131022	20	20131127	1512	77.7	SOIL	7.83
ESB1986-30-131022	30	20131127	1512	77.7	SOIL	7.77

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131127/1512
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

URS Corporation
PTS File No: 43761

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12230

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1985-10-131022	10	Fine sand	0.339	5.00	3.40	32.21	48.95	(2)	(2)	10.45
ESB1985-20-131022	20	Medium sand	0.364	8.79	3.79	31.72	45.86	(2)	(2)	9.85
ESB1986-30-131022	30	Fine sand	0.146	0.72	1.40	11.40	59.55	(2)	(2)	26.93

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1985-10-131022	10	20131210	1035	SOIL	410	4.10E-04
ESB1985-20-131022	20	20131210	1035	SOIL	460	4.60E-04
ESB1986-30-131022	30	20131210	1035	SOIL	420	4.20E-04
Blank	N/A	20131210	1035	BLANK	ND	ND
SRM D081-542	N/A	20131210	1035	SRM	2280	2.28E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	93	75-125	2460	1845	3075

ND = Not Detected

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40 API RP40
		SAMPLE		MOISTURE		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	ANALYSIS DATE	CONTENT, % weight	CONTENT, cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
ESB1985-10-131022	10	V	20131204	8.7	0.144	1.64	2.70	0.390	0.246	0.144	0.170	36.9
ESB1985-20-131022	20	V	20131204	8.9	0.153	1.72	2.71	0.365	0.212	0.153	0.222	41.9
ESB1986-30-131022	30	V	20131204	6.8	0.103	1.52	2.70	0.439	0.336	0.103	0.221	23.4

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1989-10-131023	10	20131209/0944	21.5	0.9997	348.48	103.34	413.51	2.70	2.70
ESB1987-20-131023	20	20131209/0944	21.5	0.9997	356.42	130.19	438.63	2.71	2.71
ESB1987-30-131023	30	20131209/0944	21.5	0.9997	340.47	109.57	408.99	2.67	2.67

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1989-10-131023	10	20131210	1035	SOIL	1400	1.40E-03
ESB1987-20-131023	20	20131210	1035	SOIL	2050	2.05E-03
ESB1987-30-131023	30	20131210	1035	SOIL	2750	2.75E-03
Blank	N/A	20131210	1035	BLANK	ND	ND
SRM D081-542	N/A	20131210	1035	SRM	2280	2.28E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	93	75-125	2460	1845	3075

ND = Not Detected

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40 API RP40
		SAMPLE		MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
ESB1989-10-131023	10	V	20131204	8.2	0.145	1.77	2.71	0.345	0.200	0.145	0.170	42.0
ESB1987-20-131023	20	V	20131204	8.2	0.140	1.70	2.71	0.372	0.233	0.140	0.168	37.5
ESB1987-30-131023	30	V	20131204	21.1	0.306	1.45	2.71	0.465	0.159	0.306	0.152	65.9

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories, Inc.

URS Corporation
PTS File No: 43761

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12230

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1989-10-131023	10	Fine sand	0.308	3.38	2.44	32.44	49.41	(2)	(2)	12.33
ESB1987-20-131023	20	Medium sand	0.425	12.51	2.36	35.42	36.96	(2)	(2)	12.75
ESB1987-30-131023	30	Silt	0.016	0.00	0.00	0.00	17.63	58.99	23.38	82.37

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1989-10-131023	10	20131127	1512	77.7	SOIL	7.37
ESB1987-20-131023	20	20131127	1512	77.7	SOIL	7.29
ESB1987-30-131023	30	20131127	1512	77.7	SOIL	7.44

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131127/1512
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories

PTS File No: 43761 and 44112
Client: URS Corporation
Report Date: 12/19/2013 and 3/21/14

SPECIFIC GRAVITY OF SOILS BY PYCNOMETER

(Methodology: ASTM D 854-98)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE/ TIME	TEMPERATURE, °C	TEMPERATURE CORRECTION FACTOR	MASS OF PYCNOMETER AND WATER, grams	MASS OF OVEN DRY SOIL, grams	MASS OF PYCNOMETER, OVEN DRY SOIL, AND WATER, grams	SPECIFIC GRAVITY AT TEMPERATURE	SPECIFIC GRAVITY AT 20°C
ESB1993-29-131026	29	20131209/0944	21.5	0.9997	333.18	103.63	398.27	2.69	2.69
ESB1994-39-131026	39	20131209/0944	21.5	0.9997	335.12	102.47	399.54	2.69	2.69
ESB2003-20-140215	20	20140304/1110	23.3	0.9992	332.59	96.43	393.36	2.70	2.70

PTS Laboratories

PTS File No: 43761 and 44112
Client: URS Corporation
Report Date: 12/19/2013 and 3/21/14

Soil pH

(Methodology: EPA 9045)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	TEMP. °F	SAMPLE MATRIX	pH READING
ESB1993-29-131026	29	20131127	1512	77.7	SOIL	7.67
ESB1994-39-131026	39	20131127	1512	77.7	SOIL	7.84
ESB2003-20-140215	20	20140228	1343	76.8	SOIL	11.03

QC DATA

Meter Model/Type: Corning pH Meter 240

METER CALIBRATION	Date/Time: 20131127/1512
pH Buffer Standard 4.00	4.00
pH Buffer Standard 7.00	7.00
pH Buffer Standard 10.00	10.01

PTS Laboratories, Inc.

URS Corporation
PTS File No: 43761 and

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: Boeing Everett Upland Sampling & Pilot Testing
PROJECT NO: 33764006.12230

Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
ESB1993-29-131026	29	Medium sand	0.317	8.44	2.84	29.46	46.36	(2)	(2)	12.90
ESB1994-39-131026	39	Fine sand	0.284	5.48	2.88	29.77	44.47	(2)	(2)	17.40
ESB2003-20-140215	20	Fine sand	0.276	3.34	4.51	28.24	45.76	(2)	(2)	18.15

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

(1) Based on Mean from Trask
(2) Mechanical sieve does not differentiate silt/clay fractions

PTS Laboratories

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB2003-20-140215	20	20140304	1255	SOIL	2950	2.95E-03
Blank	N/A	20140304	1255	BLANK	ND	ND
SRM D082-542	N/A	20140304	1255	SRM	5660	5.66E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D082-542	104	75-125	5420	4065	6775

ND = Not Detected

PTS File No: 43761 and 44112
Client: URS Corporation
Report Date: 12/19/2013 and 3/21/2014

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40 API RP40
		SAMPLE		MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
ESB1993-29-131026	29	V	20131204	9.5	0.146	1.53	2.71	0.434	0.288	0.146	0.178	33.7
ESB1994-39-131026	39	V	20131204	7.0	0.103	1.46	2.70	0.460	0.357	0.103	0.189	22.3
ESB2003-20-140215	20	V	20140228	7.3	0.119	1.63	2.69	0.393	0.275	0.119	0.216	30.2

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.

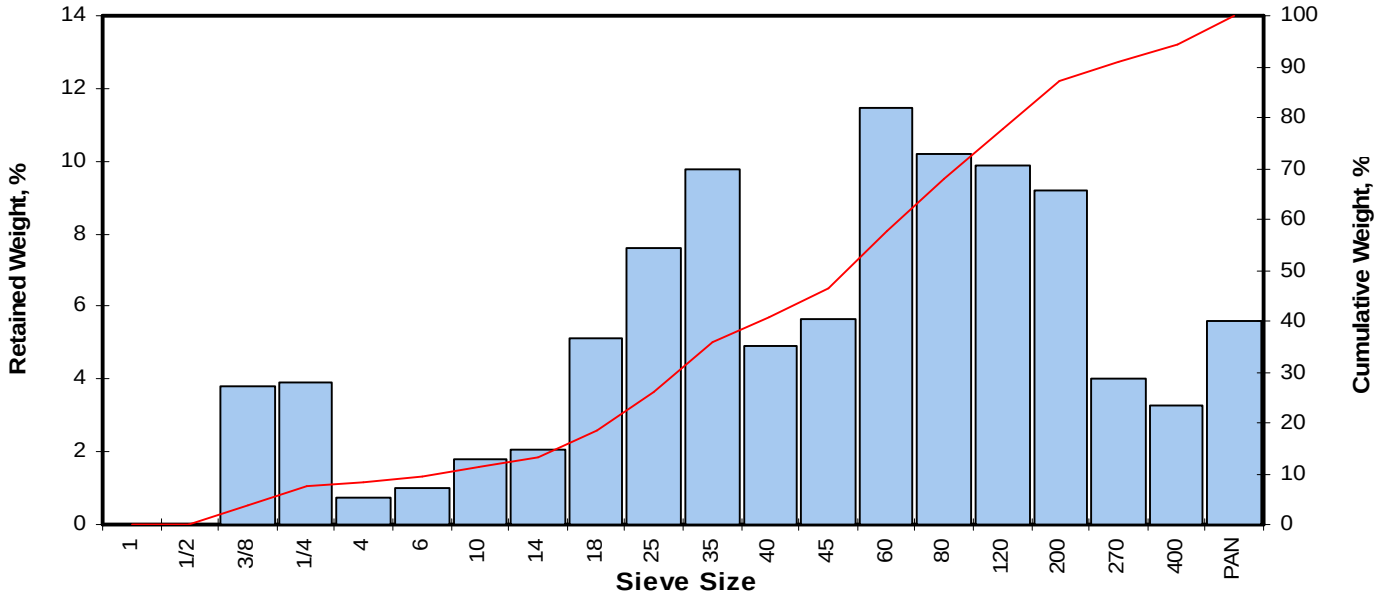
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1993-29-131026
Project No:	33764006.12230	**Depth, ft:**	N/A

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	5.37	3.79	3.79
0.2500	6.351	-2.67	1/4	5.56	3.92	7.71
0.1873	4.757	-2.25	4	1.04	0.73	8.44
0.1324	3.364	-1.75	6	1.46	1.03	9.47
0.0787	2.000	-1.00	10	2.57	1.81	11.28
0.0557	1.414	-0.50	14	2.90	2.04	13.33
0.0394	1.000	0.00	18	7.27	5.13	18.45
0.0278	0.707	0.50	25	10.81	7.62	26.07
0.0197	0.500	1.00	35	13.87	9.78	35.85
0.0166	0.420	1.25	40	6.94	4.89	40.75
0.0139	0.354	1.50	45	8.02	5.65	46.40
0.0098	0.250	2.00	60	16.23	11.44	57.84
0.0070	0.177	2.50	80	14.46	10.20	68.04
0.0049	0.125	3.00	120	14.00	9.87	77.91
0.0029	0.074	3.75	200	13.04	9.19	87.10
0.0021	0.053	4.25	270	5.69	4.01	91.12
0.0015	0.037	4.75	400	4.66	3.29	94.40
			PAN	7.94	5.60	100.00
TOTALS				141.83	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-3.07	0.3302	8.387
10	-1.53	0.1137	2.888
16	-0.24	0.0465	1.180
25	0.43	0.0292	0.742
40	1.21	0.0170	0.432
50	1.66	0.0125	0.317
60	2.11	0.0091	0.232
75	2.85	0.0055	0.138
84	3.50	0.0035	0.089
90	4.11	0.0023	0.058
95	4.24	0.0021	0.053

Measure	Trask	Inman	Folk-Ward
Median, phi	1.66	1.66	1.66
Median, in.	0.0125	0.0125	0.0125
Median, mm	0.317	0.317	0.317
Mean, phi	1.18	1.63	1.64
Mean, in.	0.0173	0.0127	0.0126
Mean, mm	0.440	0.323	0.321
Sorting	2.316	1.868	2.042
Skewness	1.011	-0.015	-0.154
Kurtosis	0.107	0.957	1.237

Grain Size Description (ASTM-USCS Scale)	Medium sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	8.44
Coarse Sand	10	2.84
Medium Sand	40	29.46
Fine Sand	200	46.36
Silt/Clay	<200	12.90
	Total	100

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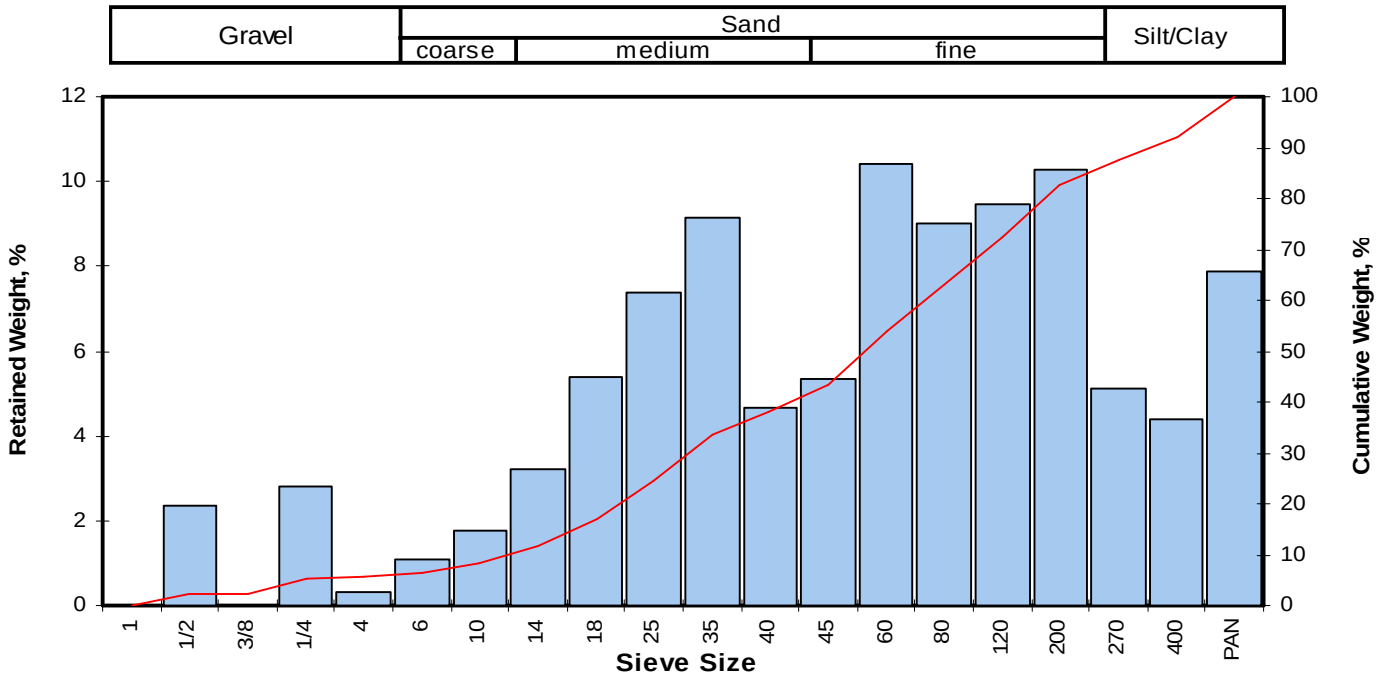
Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	43761
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB1994-39-131026
Project No:	33764006.12230	**Depth, ft:**	N/A



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	2.83	2.37	2.37
0.3740	9.500	-3.25	3/8	0.00	0.00	2.37
0.2500	6.351	-2.67	1/4	3.34	2.79	5.16
0.1873	4.757	-2.25	4	0.38	0.32	5.48
0.1324	3.364	-1.75	6	1.31	1.10	6.58
0.0787	2.000	-1.00	10	2.13	1.78	8.36
0.0557	1.414	-0.50	14	3.84	3.21	11.57
0.0394	1.000	0.00	18	6.45	5.40	16.97
0.0278	0.707	0.50	25	8.83	7.39	24.35
0.0197	0.500	1.00	35	10.92	9.14	33.49
0.0166	0.420	1.25	40	5.55	4.64	38.13
0.0139	0.354	1.50	45	6.36	5.32	43.45
0.0098	0.250	2.00	60	12.43	10.40	53.85
0.0070	0.177	2.50	80	10.75	8.99	62.85
0.0049	0.125	3.00	120	11.31	9.46	72.31
0.0029	0.074	3.75	200	12.30	10.29	82.60
0.0021	0.053	4.25	270	6.11	5.11	87.71
0.0015	0.037	4.75	400	5.26	4.40	92.11
			PAN	9.43	7.89	100.00
TOTALS				119.53	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-2.70	0.2559	6.501
10	-0.74	0.0660	1.675
16	-0.09	0.0419	1.064
25	0.54	0.0272	0.690
40	1.34	0.0156	0.396
50	1.81	0.0112	0.284
60	2.34	0.0078	0.197
75	3.20	0.0043	0.109
84	3.89	0.0027	0.068
90	4.51	0.0017	0.044

Measure	Trask	Inman	Folk-Ward
Median, phi	1.81	1.81	1.81
Median, in.	0.0112	0.0112	0.0112
Median, mm	0.284	0.284	0.284
Mean, phi	1.32	1.90	1.87
Mean, in.	0.0157	0.0106	0.0108
Mean, mm	0.400	0.268	0.273
Sorting	2.515	1.988	1.859
Skewness	0.965	0.042	-0.270
Kurtosis	0.178	0.436	0.880

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	5.48
Coarse Sand	10	2.88
Medium Sand	40	29.77
Fine Sand	200	44.47
Silt/Clay	<200	17.40
	Total	100

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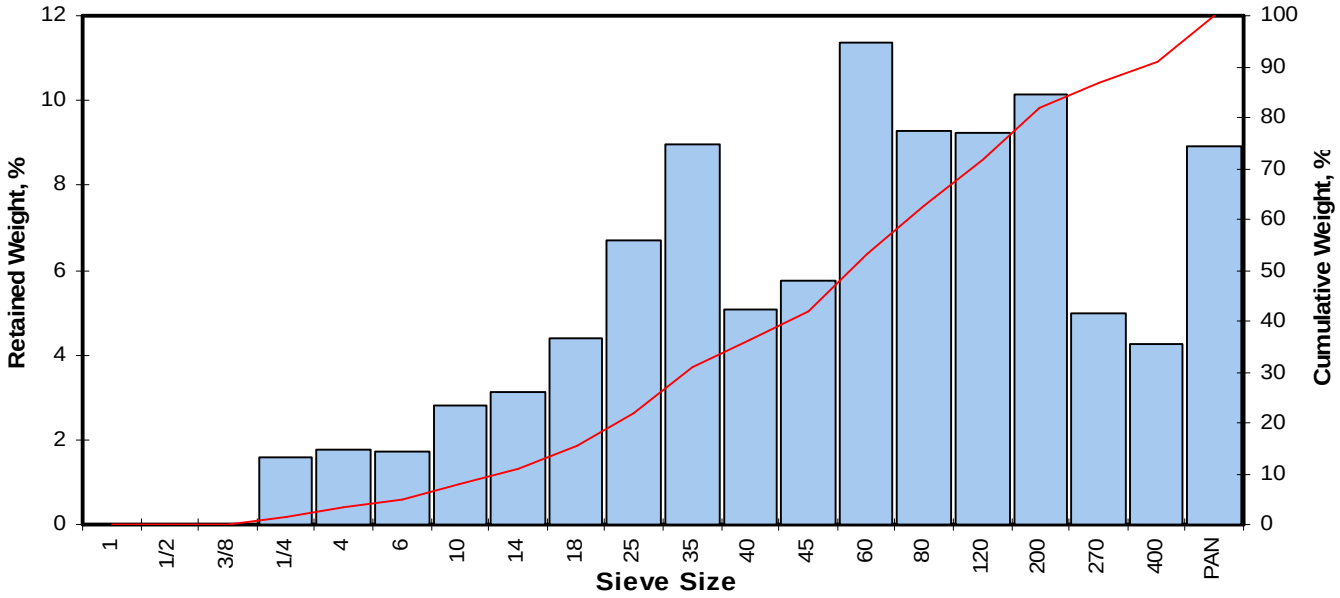
PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422M

Client:	URS Corporation	**PTS File No:**	44112
Project:	Boeing Everett Upland Sampling & Pilot Testing	**Sample ID:**	ESB200320140215
Project No:	33764444	**Depth, ft:**	20

Gravel	Sand			Silt/Clay
	coarse	medium	fine	



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.9844	25.002	-4.64	1	0.00	0.00	0.00
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00
0.2500	6.351	-2.67	1/4	1.46	1.59	1.59
0.1873	4.757	-2.25	4	1.61	1.75	3.34
0.1324	3.364	-1.75	6	1.57	1.71	5.05
0.0787	2.000	-1.00	10	2.57	2.80	7.85
0.0557	1.414	-0.50	14	2.86	3.11	10.96
0.0394	1.000	0.00	18	4.02	4.37	15.33
0.0278	0.707	0.50	25	6.15	6.69	22.03
0.0197	0.500	1.00	35	8.24	8.97	30.99
0.0166	0.420	1.25	40	4.68	5.09	36.09
0.0139	0.354	1.50	45	5.28	5.75	41.83
0.0098	0.250	2.00	60	10.43	11.35	53.18
0.0070	0.177	2.50	80	8.54	9.29	62.48
0.0049	0.125	3.00	120	8.49	9.24	71.72
0.0029	0.074	3.75	200	9.31	10.13	81.85
0.0021	0.053	4.25	270	4.57	4.97	86.82
0.0015	0.037	4.75	400	3.93	4.28	91.10
			PAN	8.18	8.90	100.00
TOTALS				91.89	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-1.76	0.1338	3.398
10	-0.65	0.0620	1.574
16	0.05	0.0380	0.966
25	0.67	0.0248	0.630
40	1.42	0.0147	0.374
50	1.86	0.0108	0.276
60	2.37	0.0076	0.194
75	3.24	0.0042	0.106
84	3.97	0.0025	0.064
90	4.62	0.0016	0.041
95			

Measure	Trask	Inman	Folk-Ward
Median, phi	1.86	1.86	1.86
Median, in.	0.0108	0.0108	0.0108
Median, mm	0.276	0.276	0.276
Mean, phi	1.44	2.01	1.96
Mean, in.	0.0145	0.0098	0.0101
Mean, mm	0.368	0.249	0.257
Sorting	2.443	1.958	
Skewness	0.936	0.076	
Kurtosis	0.171		

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	3.34
Coarse Sand	10	4.51
Medium Sand	40	28.24
Fine Sand	200	45.76
Silt/Clay	<200	18.15
	Total	100

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PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1972-20-130923	N/A	20131023	1039	SOIL	1500	1.50E-03
ESB1972-30-130923	N/A	20131023	1039	SOIL	1100	1.10E-03
ESB1972-39-130923	N/A	20131023	1039	SOIL	710	7.10E-04
ESB1973-20-130925	N/A	20131023	1039	SOIL	1250	1.25E-03
ESB1973-30-130925	N/A	20131023	1039	SOIL	1550	1.55E-03
ESB1973-39-130925	N/A	20131023	1039	SOIL	930	9.30E-04
ESB1975-20-130926	N/A	20131023	1039	SOIL	760	7.60E-04
ESB1975-30-130926	N/A	20131023	1039	SOIL	140	1.40E-04
ESB1975-39-130926	N/A	20131023	1039	SOIL	550	5.50E-04
Blank	N/A	20131023	1039	BLANK	ND	ND
SRM D081-542	N/A	20131023	1039	SRM	2340	2.34E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	95	75-125	2460	1845	3075

ND = Not Detected

PTS Laboratories

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1983-20-131021	N/A	20131210	1035	SOIL	840	8.40E-04
ESB1983-30.5-131021	N/A	20131210	1035	SOIL	690	6.90E-04
ESB1983-40.5-131021	N/A	20131210	1035	SOIL	550	5.50E-04
ESB1985-10-131022	N/A	20131210	1035	SOIL	410	4.10E-04
ESB1985-20-131022	N/A	20131210	1035	SOIL	460	4.60E-04
ESB1986-30-131022	N/A	20131210	1035	SOIL	420	4.20E-04
ESB1989-10-131023	N/A	20131210	1035	SOIL	1400	1.40E-03
ESB1987-20-131023	N/A	20131210	1035	SOIL	2050	2.05E-03
ESB1987-30-131023	N/A	20131210	1035	SOIL	2750	2.75E-03
ESB1996-40-131031	N/A	20131210	1035	SOIL	1200	1.20E-03
ESB1993-29-131026	N/A	20131210	1035	SOIL	1750	1.75E-03
ESB1994-39-131026	N/A	20131210	1035	SOIL	1700	1.70E-03
Blank	N/A	20131210	1035	BLANK	ND	ND
SRM D081-542	N/A	20131210	1035	SRM	2280	2.28E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D081-542	93	75-125	2460	1845	3075

ND = Not Detected

PTS Laboratories

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB1979-30-131205	30.3	20140210	1300	SOIL	1700	1.70E-03
ESB1979-35-131205	35.2	20140210	1300	SOIL	2200	2.20E-03
ESB1997-40-131207	40.25	20140210	1300	SOIL	1800	1.80E-03
ESB2000-25-131209	25.25	20140210	1300	SOIL	2050	2.05E-03
ESB1998-22.5-131116	22.75	20140210	1300	SOIL	7950	7.95E-03
Blank	N/A	20140210	1300	BLANK	ND	ND
SRM D082-542	N/A	20140210	1300	SRM	5420	5.42E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D082-542	100	75-125	5420	4065	6775

ND = Not Detected

PTS Laboratories

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

ORGANIC CARBON DATA - TOC (foc)

(Methodology: Walkley-Black)

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ANALYSIS TIME	SAMPLE MATRIX	TOTAL ORGANIC CARBON, mg/kg	FRACTION ORGANIC CARBON, g/g
ESB2003-20-140215	20	20140304	1255	SOIL	2950	2.95E-03
Blank	N/A	20140304	1255	BLANK	ND	ND
SRM D082-542	N/A	20140304	1255	SRM	5660	5.66E-03
				Reporting Limit:	100	1.00E-04

QC DATA

SRM ID/Lot No.	REC (%)	Control Limits	Certified Concentration mg/kg	QC Performance Acceptance Limits, mg/kg Lower	Upper
SRM D082-542	104	75-125	5420	4065	6775

ND = Not Detected

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40 API RP40
		SAMPLE		MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
ESB1972-20-130923	N/A	V	20131025	8.2	0.132	1.62	2.71	0.401	0.269	0.132	0.181	33.0
ESB1972-30-130923	N/A	V	20131025	7.2	0.127	1.77	2.71	0.347	0.221	0.127	0.166	36.5
ESB1972-39-130923	N/A	V	20131025	5.6	0.092	1.65	2.70	0.388	0.295	0.092	0.162	23.8
ESB1973-20-130925	N/A	V	20131025	8.0	0.135	1.70	2.71	0.375	0.239	0.135	0.188	36.1
ESB1973-30-130925	N/A	V	20131025	8.5	0.141	1.66	2.72	0.389	0.249	0.141	0.187	36.1
ESB1973-39-130925	N/A	V	20131025	6.8	0.121	1.76	2.71	0.349	0.228	0.121	0.198	34.5
ESB1975-20-130926	N/A	V	20131025	14.8	0.257	1.74	2.69	0.352	0.094	0.257	0.094	73.2
ESB1975-30-130926	N/A	V	20131025	6.3	0.119	1.89	2.72	0.305	0.185	0.119	0.188	39.1
ESB1975-39-130926	N/A	V	20131025	11.1	0.200	1.81	2.71	0.332	0.132	0.200	0.144	60.3

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

PTS Laboratories

PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	API RP40		API RP40 / EPA 9100		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm2
ESB1972-20-130923	N/A	V	883	1180	460	4.37E-04	4.54E-09
ESB1972-30-130923	N/A	V	679	893	202	1.93E-04	1.99E-09
ESB1972-39-130923	N/A	V	3000	3940	1600	1.54E-03	1.58E-08
ESB1973-20-130925	N/A	V	475	598	296	2.86E-04	2.92E-09
ESB1973-30-130925	N/A	V	634	842	450	4.32E-04	4.44E-09
ESB1973-39-130925	N/A	V	528	598	324	3.15E-04	3.19E-09
ESB1975-20-130926	N/A	V	0.38	19.8	1.39	1.35E-06	1.37E-11
ESB1975-30-130926	N/A	V	619	802	173	1.67E-04	1.71E-09
ESB1975-39-130926	N/A	V	175	6440	940	9.09E-04	9.28E-09

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Specific = No pore fluids in place.
(4) Permeability to water and hydraulic conductivity measured at saturated conditions.
Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS File No: 43652
Client: URS Corporation
Report Date: 11/01/13

PTS Laboratories

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB1972-20-130923	N/A	20131029	16.3	10.9	5.4	CL-ML	SW-SC: Well-graded sand with silty clay and gravel	Sand
ESB1972-30-130923	N/A	20131029	13.7	9.4	4.3	CL-ML	SW-SC: Well-graded sand with silty clay	Sand
ESB1972-39-130923	N/A	20131029	11.0	Non-Plastic		NP	SP-SM: Poorly graded sand with silt and gravel	Sand
ESB1973-20-130925	N/A	20131029	14.5	9.9	4.6	CL-ML	GP-GC: Poorly graded gravel with silty clay and sand	Sand
ESB1973-30-130925	N/A	20131029	14.8	10.1	4.7	CL-ML	SW-SC: Well-graded sand with silty clay and gravel	Sand
ESB1973-39-130925	N/A	20131029	14.1	10.2	3.9	CL-ML	SC-SM: Silty, clayey sand with gravel	Loamy sand
ESB1975-20-130926	N/A	20131029	21.6	13.4	8.2	CL	SC: Clayey sand	Loam
ESB1975-30-130926	N/A	20131029	13.1	9.7	3.4	CL-ML	GW-GC: Well-graded gravel with silty clay and sand	Sand
ESB1975-39-130926	N/A	20131029	5.6	Non-Plastic		NP	SP: Poorly graded sand with gravel	Sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS File No: 43761
Client: URS Corporation
Report Date: 12/19/13

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764006.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40 API RP40
				MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID SATURATIONS (3),
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	% Pv
ESB1983-20-131021	N/A	V	20131204	11.1	0.193	1.74	2.71	0.358	0.164	0.193	0.206	54.0
ESB1983-30.5-131021	N/A	V	20131204	9.0	0.136	1.51	2.69	0.438	0.302	0.136	0.231	31.1
ESB1983-40.5-131021	N/A	V	20131204	9.5	0.161	1.69	2.71	0.376	0.215	0.161	0.150	42.8
ESB1985-10-131022	N/A	V	20131204	8.7	0.144	1.64	2.70	0.390	0.246	0.144	0.170	36.9
ESB1985-20-131022	N/A	V	20131204	8.9	0.153	1.72	2.71	0.365	0.212	0.153	0.222	41.9
ESB1986-30-131022	N/A	V	20131204	6.8	0.103	1.52	2.70	0.439	0.336	0.103	0.221	23.4
ESB1989-10-131023	N/A	V	20131204	8.2	0.145	1.77	2.71	0.345	0.200	0.145	0.170	42.0
ESB1987-20-131023	N/A	V	20131204	8.2	0.140	1.70	2.71	0.372	0.233	0.140	0.168	37.5
ESB1987-30-131023	N/A	V	20131204	21.1	0.306	1.45	2.71	0.465	0.159	0.306	0.152	65.9
ESB1996-40-131031	N/A	V	20131204	8.2	0.127	1.55	2.70	0.426	0.300	0.127	0.215	29.7
ESB1993-29-131026	N/A	V	20131204	9.5	0.146	1.53	2.71	0.434	0.288	0.146	0.178	33.7
ESB1994-39-131026	N/A	V	20131204	7.0	0.103	1.46	2.70	0.460	0.357	0.103	0.189	22.3

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 44028
Client: URS Corporation
Report Date: 02/11/14

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444.12230

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40
		SAMPLE		MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID
SAMPLE ID.	DEPTH, ft.	ORIENTATION (1)	ANALYSIS DATE	% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	SATURATIONS (3), % Pv
ESB1979-30-131205	30.2	V	20140207	8.3	0.120	1.45	2.73	0.470	0.350	0.120	0.197	25.6
ESB1979-35-131205	35.15	V	20140207	10.1	0.169	1.67	2.71	0.384	0.215	0.169	0.142	43.9
ESB1997-40-131207	40.15	V	20140207	8.5	0.139	1.64	2.71	0.397	0.258	0.139	0.179	35.0
ESB2000-25-131209	25.2	V	20140207	9.2	0.137	1.49	2.71	0.451	0.314	0.137	0.182	30.3
ESB1998-22.5-131116	22.7	V	20140207	16.5	0.282	1.71	2.69	0.366	0.084	0.282	0.110	77.0

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

PTS Laboratories

PHYSICAL PROPERTIES DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

			METHODS:	API RP40/ ASTM D2216		API RP 40		API RP 40			Mod. ASTM D425	API RP40
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	MOISTURE CONTENT,		DENSITY		POROSITY, (2)				TOTAL PORE FLUID SATURATIONS (3), % Pv
				% weight	cm^3/cm^3	DRY BULK, g/cm^3	GRAIN, g/cm^3	TOTAL, cm^3/cm^3	AIR-FILLED, cm^3/cm^3	WATER-FILLED, cm^3/cm^3	EFFECTIVE, cm^3/cm^3	
ESB2003-20-140215	20	V	20140228	7.3	0.119	1.63	2.69	0.393	0.275	0.119	0.216	30.2

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids; Effective = drainage porosity.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc.
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

PTS Laboratories

PERMEABILITY DATA - VAPOR TRANSPORT PACKAGE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

		METHODS:	API RP40		API RP40 / EPA 9100		
			25 PSI CONFINING PRESSURE		25 PSI CONFINING PRESSURE		
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	EFFECTIVE PERMEABILITY TO AIR (2), millidarcy	SPECIFIC PERMEABILITY TO AIR (3), millidarcy	SPECIFIC PERMEABILITY TO WATER (4), millidarcy	HYDRAULIC CONDUCTIVITY (4), cm/s	INTRINSIC PERMEABILITY TO WATER (4), cm2
ESB2003-20-140215	20	V	2070	2490	1340	1.32E-03	1.32E-08

(1) Sample Orientation: H = horizontal; V = vertical; R = remold
(2) Effective (Native) = With as-received pore fluids in place.
(3) Specific = No pore fluids in place.
(4) Permeability to water and hydraulic conductivity measured at saturated conditions.
Air = Nitrogen gas, Water = filtered Laboratory Fresh (tap) or Site water.

PTS Laboratories

PTS File No: 44112
Client: URS Corporation
Report Date: 03/21/14

SOIL CLASSIFICATION DATA - VAPOR TRANSPORT PACKAGE

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: Boeing Everett Upland Sampling & Pilot Testing
Project No: 33764444

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
			ATTERBERG LIMITS (1)			USCS / PLASTICITY	USCS	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	CHART SYMBOL (Fines: <#40 Sieve)	CLASSIFICATION, Group Symbol: Name	SOIL TEXTURE SCHEME (2)
ESB2003-20-140215	20	20140304	18.4	13.5	4.9	CL-ML	SC-SM: Silty clayey sand	Loamy sand

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.
(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.
USCS: Unified Soil Classification System
USDA: US Department of Agriculture
SCS: Soil Conservation Service

PTS Laboratories, Inc.

CLIENT: Dames and Moore
PTS FILE NO: 28462

PHYSICAL PROPERTIES DATA

(METHODOLOGY: ASTM D2216, ASTM D854, API RP40, EPA 9100)

PROJECT NAME: Boeing RI Everett
PROJECT NO: 00695-610-005

	SAMPLE ID.	SAMPLE ORIENT. (1)	MOISTURE CONTENT (% wt)	BULK DENSITY (g/cc)	SPECIFIC GRAVITY	EFFECTIVE POROSITY, % Vb	PORE FLUID SATURATION, % Pv WATER (2)	PORE FLUID SATURATION, % Pv HYDROCARBON (3)	25.0 PSI CONFINING STRESS NATIVE STATE EFFECTIVE PERMEABILITY TO AIR (millidarcy)	25.0 PSI CONFINING STRESS NATIVE STATE EFFECTIVE PERMEABILITY TO WATER (millidarcy)	25.0 PSI CONFINING STRESS NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (cm/s)
Esperance Sand	EGW-060-50-100698	V	8.0	1.78	2.72	34.5	40.7	ND	3588	595	5.59E-04
	EGW-060-150-100998	V	7.3	1.69	2.71	37.7	32.6	ND	16942	6310	5.94E-03
	EGW-061-55-102098	V	2.8	1.89	2.75	31.1	16.1	ND	1342	116	1.09E-04
	EGW-061-199-102198	V	17.2	1.59	2.71	41.2	68.0	ND	5696	1656	1.55E-03
		H								5672	5.32E-03
45-01 air scrubber sumps + clarifier	ESB1125-10-030798	V	9.5	1.77	2.70	34.4	49.3	ND	1686	149	1.39E-04
	ESB1133-27.5-031098	V	7.6	1.77	2.70	34.6	38.8	ND	3044	20.7	1.93E-05
	ESB1132-40-031098	V	4.1	2.02	2.70	25.2	34.1	ND	1999	13.3	1.24E-05
		H								13.3	1.30E-05
	ESB1126-10-030798	V	10.2	1.73	2.71	36.2	48.9	ND	2409	19.6	1.82E-05
	ESB1126-40-030798	V	4.0	1.93	2.70	28.6	26.9	ND	4882	33.9	3.17E-05
		H								12.7	1.18E-05
40-56	ESB1297-10-072898	V	9.3	1.87	2.70	30.5	60.0	ND	861	41.0	3.85E-05
		H								1.35	1.30E-06
	ESB1297-16.5-072898	V	9.8	1.79	2.70	33.6	53.3	ND	1085	23.6	2.21E-05
		H								5.93	5.75E-06
	ESB1302-13-072898	V	10.9	1.81	2.72	33.5	61.0	ND	574	5.94	5.60E-06
		H								4.03	3.78E-06
40-31	ESB1152-25-032698	V	10.9	1.85	2.72	31.9	48.9	ND	319	61.4	5.76E-05
	ESB1153-10-032698	V	10.1	1.80	2.70	33.4	52.3	ND	2189	43.0	4.01E-05
		H								26.9	2.50E-05
	ESB1153-25-032698	V	13.4	1.69	2.70	37.5	59.8	ND	1529	354	3.31E-04
		H								666	6.38E-04
	ESB1155-17.5-032698	V	9.6	1.85	2.72	31.9	55.5	ND	1363	165	1.54E-04
45-06	ESB1148-17.5-032798	V	7.8	1.75	2.71	35.1	38.7	ND	1838	241	2.26E-04
		H								25.9	2.48E-05
	ESB1149-17.5-032798	V	11.7	1.85	2.71	31.7	68.1	ND	279	71.8	6.74E-05
		H								8.91	8.57E-06

(1) Sample Orientation: H = Horizontal; V = Vertical

Vb = Bulk Volume, cc
Pv = Pore Volume, cc
ND = Not Detected

PTS Laboratories, Inc.

CLIENT: Dames and Moore
PTS FILE NO: 28462

PHYSICAL PROPERTIES DATA

(METHODOLOGY: ASTM D2216, ASTM D854, API RP40, EPA 9100)

PROJECT NAME: Boeing RI Everett
PROJECT NO: 00695-810-005

	SAMPLE ID.	SAMPLE ORIENT. (1)	MOISTURE CONTENT (% wt)	BULK DENSITY (g/cc)	SPECIFIC GRAVITY	EFFECTIVE POROSITY, % Vb	PORE FLUID SATURATION, % Pv: WATER (2)	PORE FLUID SATURATION, % Pv: HYDROCARBON (3)	25.0 PSI CONFINING STRESS: NATIVE STATE EFFECTIVE PERMEABILITY TO AIR (millidarcy)	25.0 PSI CONFINING STRESS: NATIVE STATE EFFECTIVE PERMEABILITY TO WATER (millidarcy)	25.0 PSI CONFINING STRESS: NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (cm/s)
45-06	ESB1150-17.5-032798	V	8.7	1.74	2.73	36.4	41.6	ND	1315	104	9.74E-05
40-51	ESB-1121-5-030498	V	8.7	1.75	2.71	35.4	43.4	ND	2044	54.7	5.12E-05
	ESB1333-15-111898	V	8.5	1.83	2.71	32.5	47.7	ND	1998	15.0	1.40E-05
		H								2.41	2.31E-06
	ESB1333-25-111898	V	8.1	1.77	2.70	34.5	42.5	ND	2147	54.6	5.11E-05
45-01		H								12.2	1.13E-05
	ESB1333-55-111898	V	5.4	1.58	2.71	41.5	20.8	ND	8728	1695	1.59E-03
		H								1459	1.41E-03
	ESB1334-25-111798	V	9.5	1.75	2.70	35.1	49.8	ND	1948	84.2	7.85E-05
		H								18.6	1.81E-05

(1) Sample Orientation: H = Horizontal; V = Vertical

Vb = Bulk Volume, cc
Pv = Pore Volume, cc
ND = Not Detected

PTS Laboratories, Inc.

Dames and Moore
PTS File No: 28462

PARTICLE SIZE SUMMARY
(METHODOLOGY: ASTM D4464)

PROJECT NAME: Boeing RI Everett
PROJECT NO: 00695-610-005

Esperance Sand

Sample ID	Depth, ft.	Description USCS/ASTM (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size Coarse	Medium	Fine	Silt	Clay	
EGW-060-150-100998	N/A	Medium sand	0.573	7.12	6.36	55.72	26.31	(2)	(2)	4.49
EGW-060-50-100898	N/A	Fine sand	0.156	0.00	0.00	26.65	37.86	29.48	6.00	35.49
EGW-061-199-102198	N/A	Fine sand	0.409	0.00	0.00	47.86	44.42	6.08	1.63	7.72
EGW-061-55-10298	N/A	Coarse sand	3.450	45.18	9.87	10.90	24.14	(2)	(2)	9.91
ESB1121-5-030498	N/A	Fine sand	0.076	0.00	0.00	20.63	29.71	40.31	9.35	49.67
ESB1125-10-030798	N/A	Fine sand	0.192	0.00	0.00	34.91	30.61	28.50	5.98	34.48
ESB1126-10-030798	N/A	Fine sand	0.146	0.00	0.00	27.95	39.27	27.43	5.36	32.79
ESB1126-40-030798	N/A	Medium sand	0.467	21.54	10.41	20.09	30.41	(2)	(2)	17.56
ESB1132-40-031098	N/A	Coarse sand	0.353	25.94	7.76	13.88	28.42	(2)	(2)	24.03
ESB1139-27.5-031098	N/A	Fine sand	0.118	0.00	0.00	21.54	40.66	31.56	6.24	37.80
ESB1148-17.5-032798	N/A	Fine sand	0.254	2.67	3.71	23.77	51.41	(2)	(2)	18.42
ESB1149-17.5-032798	N/A	Fine sand	0.313	0.00	7.69	33.49	39.01	(2)	(2)	19.82
ESB1150-17.5-032798	N/A	Fine sand	0.120	0.00	0.00	22.89	38.12	31.12	7.87	38.99
ESB1152-25-032898	N/A	Fine sand	0.172	0.00	0.00	33.51	29.20	30.26	7.02	37.28
ESB1153-10-032898	N/A	Fine sand	0.275	0.00	0.00	40.72	28.84	24.93	5.51	30.43
ESB1153-25-032898	N/A	Fine sand	0.111	0.00	0.00	9.09	54.60	31.84	4.47	36.31
ESB1155-17.5-032698	N/A	Medium sand	0.354	0.00	0.00	46.28	31.50	18.94	3.28	22.22
ESB1297-10-072898	N/A	Fine sand	0.185	0.00	0.00	36.78	26.49	29.91	6.83	36.74
ESB1297-16.5-072898	N/A	Fine sand	0.073	0.00	0.00	15.64	33.92	40.31	10.12	50.44
ESB1302-13-072898	N/A	Fine sand	0.062	0.00	0.00	19.57	26.48	43.63	10.31	53.95
ESB1333-15-111898	N/A	Medium sand	0.337	8.83	7.68	26.99	38.34	(2)	(2)	18.16
ESB1333-25-111898	N/A	Fine sand	0.144	0.00	0.00	30.72	31.12	30.78	7.38	38.16
ESB1333-55-111898	N/A	Fine sand	0.182	0.00	0.00	9.80	69.60	18.13	2.47	20.60
ESB1334-25-111798	N/A	Fine sand	0.121	0.00	0.00	23.55	34.58	31.29	10.57	41.87

(1) based on Mean from Trask
(2) ASTM D422: Dry Sieve Method; does not differentiate between silt / clay fractions

APPENDIX C

Johnson and Ettinger Modeling Results and Cleanup Level Calculations

Johnson and Ettinger Vapor Intrusion Modeling Results

Evaluation of Vapor Intrusion From Soil Gas to Indoor Air

Introduction

Vapor intrusion is the pathway by which vapors from groundwater and/or soil contaminated with volatile organics can migrate into nearby buildings or other spaces and affect indoor air quality. Vapor intrusion is most often associated with volatile organic compounds, but also can involve other species (e.g., mercury, ammonia, and semivolatiles). An initial VAPOR INTRUSION evaluation was performed for the following:

- Building 40-11, Former Vapor Degreaser (SWMU No. 97)
- Building 40-31, Former Bluestreak Vapor Degreaser (SWMU No. 171)
- Building 40-32, Footing Excavation
- Building 40-53, Former Vapor Degreaser (SWMU No. 98)

Trichloroethene (TCE) and other chlorinated volatile organic compounds have been detected in shallow soil gas at these four locations. The chemicals of concern are listed in Table 1.

The evaluation is based on recent sub-slab soil gas data and focused on the current, industrial use of the site. There is no known preferential pathway for vapor migration.

The Washington state Model Toxics Control Act (MTCA) risk-based target concentrations are given in Table 2. These represent the acceptable or target concentrations for indoor air. For comparison, the U.S. Environmental Protection Agency (EPA) regional screening levels (RSLs) for the same compounds are shown in Table 3. The RSLs were last updated in November 2014.[1] For carcinogens, the RSLs generally are based on a risk of one-in-a-million (1E-06). For non-carcinogens, the RSLs generally are based on a hazard quotient of 1 (HQ=1).

Modeling Approach

Indoor air concentrations were predicted using soil gas values used as input to the EPA spreadsheets that contain the Johnson and Ettinger (J&E) model (USEPA 2004). The most recent publicly available version of the J&E model was used (February 2004 version of the soil gas advanced model).[2]

The EPA spreadsheet version of the J&E model incorporates soil lithology, building parameters, the extent of contamination, and the duration of exposure to estimate risks due to exposure from indoor air concentrations. The model is designed to be conservative and the model predictions are likely to over-predict the amount of vapor intrusion.

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[1] http://www.epa.gov/reg3hwmd/risk/hman/rb-concentration_table/Generic_Tables/index.him
[2] http://www.epa.gov/oswer/riskassessment/airmodel/johnson_ettinger.htm

The input values used in each set of model runs are shown in Tables 4 and 5. Appropriate model inputs were determined based on site specific information, if available. If site specific information was not available, EPA default values were used.

Sand was selected as the soil type to represent the fill material or soils beneath the buildings. The default values for sand were used for dry bulk density, total soil porosity, and water-filled porosity.

The size of the building can have an effect on the calculated rate of vapor intrusion if VAPOR INTRUSION occurs primarily through a seam or crack along the perimeter of the building. This is not thought to be the case for these buildings, so the default values for building width and length were used. Therefore, the EPA default values of 10 by 10 meters were used in the modeling for slab length and width. Note that using actual building dimensions for these parameters would not make a difference in the estimated indoor air concentration if the rate of vapor intrusion was scaled up in a linear fashion.

The rate of vapor intrusion (Q_{soil}) calculated by the model was initially set at the default value of 5 L/minute, which is appropriate for the assumed building footprint of 10m by 10m. Additional model runs were performed allowing the model to calculate the rate of vapor intrusion to provide a more realistic estimate of indoor air concentrations.

Site-specific values were used for ceiling height. If a range of ceiling heights is present at a given building, the most conservative value was used in the modeling. As shown in Table 5, the values ranged from 15 to 30 feet.

The building ventilation rates in units of air changes per hour (ACH) were based on site-specific building dimensions and the size of the air handling system for Building 40-31. For the other buildings, this information was not available so engineering judgment was used based on conditions present at the time of a site visit during spring 2015. As shown in Table 5, the assumed rates were either the EPA default value of 0.25 or 0.5 ACH. These values are quite low for industrial or commercial buildings. For example, the EPA measured the air exchange rate at 369 office buildings and found a median of 0.98 ACH (Persily and Gorfain 2004). For large, warehouse spaces a ventilation rate of 2 ACH is typically assumed. The relatively low ACH values used in the modeling, however, were selected to be consistent with the relatively high ceiling heights (there is an inverse relationship between these two parameters for a building with a given sized air handling system).

Soil Gas Data

The soil gas concentration input values are shown in Table 6.

Results

The modeling results by area are presented in Table 7. The inputs to the J&E model for a given building were the same for every run, with only the volatile organic compound and its soil gas concentration varying from run to run. The calculated attenuation factors (α) from the J&E model runs are provided in Table 7. The estimated attenuation factors were consistent from compound to compound. The predicted indoor air concentrations were compared with the risk-based screening levels for industrial indoor air. The only compound found to be a potential issue is TCE. For three of the four buildings, the predicted indoor air concentrations are slightly above the MTCA Level C value, but below a one-in-a-million risk level (when the model was allowed to calculate the rate of vapor intrusion). Building 40-53 is the only scenario where the TCE levels were well above both the MTCA Level C and a 1×10^{-6} risk level, which is not surprising given the relatively high maximum soil gas concentration used in the modeling.

Conclusion and Recommendation

Based on the available information, VAPOR INTRUSION at this site is a potential pathway of concern. The estimated indoor air concentrations for TCE are above risk-based screening values at Building 40-53 and are in the same order of magnitude as risk-based screening levels at three other locations: Buildings 40-11, 40-31, and 40-32.

It is recommended that indoor air testing be performed to characterize indoor air quality at the locations of interest. For three of the locations, it is expected that the testing will readily confirm that indoor air concentrations are below levels of concern and a single round of testing should suffice. For Building 40-53, the measured indoor air concentrations are expected to be well below the values predicted from the J&E modeling, but whether or not indoor air screening levels are exceeded will depend on the extent of the soil gas "hot spot" beneath the building slab and the rate of vapor intrusion. For Building 40-53, two rounds of indoor air testing are recommended.

References

Persily, A., and J. Gorfain. 2004. *Analysis of Ventilation Data from the U.S. Environmental Protection Agency Building Assessment Survey and Evaluation (BASE) Study*. NISTIR 7145. December 2004.

U.S. Environmental Protection Agency (USEPA). 2004. *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings.* Office of Emergency and Remedial Response. February 2004.

Table 1
Chemicals of Concern

Compound	Formula	CAS #	Molecular Weight	Gas-Phase Conversion Factor[a]
Tetrachloroethene (PCE)	C_2Cl_4	127-18-4	165.8	1 ppbv = 6.78 μg/m^3
Trichloroethene (TCE)	C_2HCl_3	79-01-6	131.4	1 ppbv = 5.37 μg/m^3
1,1-Dichloroethene (1,1-DCE)	$C_2H_2Cl_2$	75-35-4	96.9	1 ppbv = 3.97 μg/m^3
Vinyl chloride (VC)	CH_2Cl_2	75-01-4	62.5	1 ppbv = 2.56 μg/m^3
Chloroform	$CHCl_3$	67-66-3	119.38	1 ppbv = 4.88 μg/m^3

[a]At room temperature and one atmosphere pressure

Table 2
Washington Department of Ecology
Indoor Air Screening Levels

Compound	Indoor Air Screening Level (µg/m^3)	
	Method B (unrestricted)	Method C (industrial)
Tetrachloroethene (PCE)	0.42	4.2
Trichloroethene (TCE)	0.1	1
1,1-Dichloroethene (1,1-DCE)	91	200
Vinyl chloride (VC)	0.28	2.8
Chloroform	0.11	1.1

Note: All values are based on carcinogenic effects except for 1,1-DCE.

Table 3
EPA Regional Screening Levels (RSLs)
Indoor Air Screening Levels

Compound	Indoor Air Screening Level (µg/m^3)	
	Cancer Risk	Noncancer Hazard
Tetrachloroethene (PCE)	47	180
Trichloroethene (TCE)	3.0	8.8
1,1-Dichloroethene (1,1-DCE)	n/a	880
Vinyl chloride (VC)	2.8	440
Chloroform	0.53	430

Note: Based on cancer risk of 1 x 10^{-6} and noncancer hazard of HI = 1.

Table 4
Input Values for Vapor Intrusion Modeling

Parameter[a]	Input Value	Comment
VOC Concentration	See Table 6	
Soil temperature	12.8°C (55°F)	Typical value for Washington
Depth to bottom of slab	15 cm	Typical value for commercial building
Soil type	Sand (S)	Conservative assumption
Soil bulk density	1.66	Default value for sand
Soil total porosity	0.375	Default value for sand
Soil water-filled porosity	0.054	Default value for sand
Soil-Building Pressure Differential, ΔP	40 g/cm-s^2	Default value
Floor-Wall Seam Crack Width, w	0.1 cm	Default value
Average vapor flow rate into building (Q_{soil})	5 L/min	Default value
Building width and length	1,000 x 1,000 cm	Default values
Exposure duration	25 years	Default value for industrial scenario
Exposure frequency	250 days/year	Default value for industrial scenario

[a]EPA default values were used for any parameters not listed in this table.

Table 5
Input Values for Vapor Intrusion Modeling

Parameter	Building	Value	Comment
Ceiling height	40-11	457 cm (15 ft)	Site-specific value
	40-31	914 cm (30 ft)	Site-specific value
	40-32	550 cm (18 ft)	Site-specific value
	40-53	610 cm (20 ft)	Minimum site-specific value
Building ventilation rate	40-11	0.5 ACH	Low end of estimated range of 0.5 to 1.0 ACH
	40-31	1.5 ACH	Estimated site-specific value based on building volume and air handling system
	40-32	0.25 ACH	Estimated site-specific value (= EPA default value)
	40-53	0.25 ACH	Estimated site-specific value (= EPA default value)

Table 6
Model Input Values for Soil-Gas Concentration

Building	Compound	Basis	Soil Gas Concentration ($\mu g/m^3$)
40-11	TCE	Maximum	6,500
40-31	PCE	Maximum	690
	TCE	Maximum	48,000
	Vinyl Chloride	Maximum	150
40-32	TCE	Maximum	6,200
	Chloroform	Maximum	21
40-53	PCE	Maximum	290
	TCE	Maximum	240,000
	1,1-DCE	Maximum	7,100
	Vinyl Chloride	Maximum	20

Notes:
DCE - dichloroethene
TCE - trichloroethene
PCE - tetrachloroethene

Table 7
Predicted Indoor Air Quality Impacts

Building	Compound	Predicted Attenuation Factor (α) from Model	Predicted Indoor Air Concentration (µg/m^3)	
			Q_{soil} = 5 L/min	Q_{soil} Calculated by Model
40-11	TCE	1.3E-3	8.3	1.0
40-31	PCE	2.1E-04	0.15	
	TCE	2.1E-04	10.2	1.3
	Vinyl Chloride	2.1E-04	0.03	
40-32	TCE	2.1E-03	13.1	1.6
	Chloroform	2.1E-03	0.04	
40-53	PCE	1.9E-03	0.55	
	TCE	1.9E-03	457	56
	1,1-DCE	1.9E-03	13.6	
	Vinyl chloride	1.9E-03	0.04	

Note: Value in yellow exceeds MTCA Method C value and EPA RSL. Value in blue equals or exceeds MTCA value but is below the EPA RSL (i.e., have a risk of less than one in a million).

Perched Groundwater
Cleanup Levels

Table C-1: Volatilization Factor - Virginia Trench Model

Table 3.8 Exposure-point concentration (inhalation) for construction/utility worker in a trench: Groundwater less than 15 feet deep revised 10/5/07	CAS No.	Molecular Weight MWi g/mol	Henry's Law Constant at 13° C Hi atm-m3/mol	Gas-Phase Mass Transfer Coefficient KiG cm/s	Liquid-Phase Mass Transfer Coefficient KiL cm/s	Overall Mass Transfer Coefficient Ki cm/s	Concentration of Contaminant in Groundwater Cgw ug/L	Volatilization Factor VF L/m3	Concentration of Contaminant in Trench Ctrench ug/m3	Concentration of Contaminant in Trench Ctrench mg/m3
TAL Inorganics										
Benzene	**71-43-2**	**78.11**	**3.12E-03**	**5.09E-01**	**1.28E-03**	**1.26E-03**	**--**	**4.94E+00**	**--**	**--**
1,1-Dichloroethane	**75-34-3**	**98.96**	**3.31E-03**	**4.71E-01**	**1.14E-03**	**1.12E-03**	**--**	**4.40E+00**	**--**	**--**
1,1-Dichloroethene	**75-35-4**	**96.94**	**1.66E-02**	**4.74E-01**	**1.15E-03**	**1.15E-03**	**--**	**4.51E+00**	**--**	**--**
cis-1,2-Dichloroethene	**156-59-2**	**96.94**	**2.35E-03**	**4.74E-01**	**1.15E-03**	**1.12E-03**	**--**	**4.41E+00**	**--**	**--**
trans-1,2-Dichloroethene	**156-60-5**	**96.94**	**5.66E-03**	**4.74E-01**	**1.15E-03**	**1.14E-03**	**--**	**4.48E+00**	**--**	**--**
Ethylbenzene	**100-41-4**	**106.17**	**7.88E-03**	**4.60E-01**	**1.10E-03**	**1.09E-03**	**--**	**4.29E+00**	**--**	**--**
Tetrachloroethene	**127-18-4**	**165.83**	**9.34E-03**	**3.96E-01**	**8.79E-04**	**8.73E-04**	**--**	**3.44E+00**	**--**	**--**
Toluene	**108-88-3**	**92.14**	**3.47E-03**	**4.82E-01**	**1.18E-03**	**1.16E-03**	**--**	**4.56E+00**	**--**	**--**
Trichloroethene	**79-01-6**	**131.39**	**5.61E-03**	**4.28E-01**	**9.87E-04**	**9.77E-04**	**--**	**3.85E+00**	**--**	**--**
Vinyl Chloride	**75-01-4**	**62.50**	**1.89E-02**	**5.49E-01**	**1.43E-03**	**1.43E-03**	**--**	**5.62E+00**	**--**	**--**
Total Xylenes	**1330-20-7**	**106.16**	**3.24E-03**	**4.60E-01**	**1.10E-03**	**1.08E-03**	**--**	**4.25E+00**	**--**	**--**

Inputs - Virginia Trench Model

For Mass-Transfer Coefficients			For Emission Flux and Concentration in Trench			Trench dimensions		
Kg,H2O	0.833	cm/s	CF1	1.00E-03	L/cm3	Length	**8**	ft
MWH2O	18		CF2	1.00E+04	cm2/m2		2.44	m
Kl,O2	0.002	cm/s	CF3	3600	s/hr	Width	**3**	ft
MWO2	32		F	**1**			0.91	m
T	**77**	F	ACH	2	hr-1	Depth	**15**	ft
T	298	K					4.57	m
R	8.20E-05	atm-m3/mol-K				Width/Depth	0.20	

Table C-2: Construction Worker Exposures
Inhalation - Groundwater Cleanup Level

Exposure Medium: Groundwater
Exposure Point: Excavation/Trench Groundwater
Receptor Population: Construction Worker
Receptor Age: Adult

Noncancer CUL = (RfD x THQ) / (SIFnc x VFw)
Cancer CUL = TCR / (CSF x SIFc x VFw)

Parameter	Unit	RME Adult
Chemical Conc'n of Water (CW)	ug/L	chem-specific
Inhalation Rate (InhR)	m3/day	20
Exposure Time (ET)	hours/day	8
Exposure Frequency (EF)	days/year	60
Exposure Duration (ED)	years	1
Conversion Factor (CF)	mg/ug	1.0E-03
Body Weight (BW)	kg	80
Averaging Time (noncancer) (ATnc)	hours	8,760
Averaging Time (cancer) (ATc)	hours	613,200
SIFnc = (InhR*ET*EF*ED*CF)/(BW*ATnc)	m3-mg/ug-kg-day	1.37E-05
SIFc = (InhR*ET*EF*ED*CF)/(BW*ATc)	m3-mg/ug-kg-day	1.96E-07

Chemical	RfDi (mg/kg-d)	CSFi (mg/kg-d)-1	VFw[a] (L/m3)
Arsenic	4.3E-06	1.5E+01	--
Benzene	8.6E-03	2.7E-02	4.9E+00
Butylated Hydroxytoluene (BHT)	--	--	--
1,1-DCE	5.7E-02	--	4.5E+00
cis-1,2-DCE	--	--	4.4E+00
trans-1,2-DCE	--	--	4.5E+00
Ethylbenzene	2.9E-01	--	4.3E+00
Tetrachloroethene	1.1E-02	9.1E-04	3.4E+00
Toluene	1.4E+00	--	4.6E+00
Tributyl Phosphate (TBP)	--	--	--
Trichloroethene	5.7E-04	1.4E-02	3.8E+00
Vinyl Chloride	2.9E-02	1.6E-02	5.6E+00
Total Xylenes	2.9E-02	--	4.2E+00

[a] A volitilazation factor (VFw) calculated using Virginia Trench Model and is only applicable for volatile chemicals.

	THQ unitless	TCR unitless	CUL-nc-adult ug/L	CUL-ca-adult ug/L
Arsenic	1	1.0E-05	--	--
Benzene	1	1.0E-05	126.6	378.7
Butylated Hydroxytoluene (BHT)	1	1.0E-05	--	--
1,1-DCE	1	1.0E-05	923.1	--
cis-1,2-DCE	1	1.0E-05	--	--
trans-1,2-DCE	1	1.0E-05	--	--
Ethylbenzene	1	1.0E-05	4,865	--
Tetrachloroethene	1	1.0E-05	242	16,328.8
Toluene	1	1.0E-05	22,884	--
Tributyl Phosphate (TBP)	1	1.0E-05	--	--
Trichloroethene	1	1.0E-05	10.82	925.6
Vinyl Chloride	1	1.0E-05	371.8	568.8
Total Xylenes	1	1.0E-05	492	--

Table C-3: Construction Worker Exposures
Dermal - Groundwater Cleanup Level

Exposure Medium: Groundwater
Exposure Point: Excavation/Trench Groundwater
Receptor Population: Construction Worker
Receptor Age: Adult

ORGANIC CHEMICALS:

Cw-nc = If $t_{event} \leq t^*$, then Cw-nc = $\dfrac{DA_{event\text{-}nc} \times CF1}{2 \times FA \times PC \times (6 \times T_{event} \times t_{event}/Pi)^{0.5}}$

If $t_{event} > t^*$, then CW-nc = $\dfrac{DA_{event\text{-}nc} \times CF1}{FA \times PC \times [(t_{event}/1 + B) + (2 \times T_{event}) \times (1 + 3B + 3B^2/(1 + B)^2)]}$

Cw-ca = If $t_{event} \leq t^*$, then Cw-ca = $\dfrac{DA_{event\text{-}ca} \times CF1}{2 \times FA \times PC \times (6 \times T_{event} \times t_{event}/Pi)^{0.5}}$

If $t_{event} > t^*$, then CW-ca = $\dfrac{DA_{event\text{-}ca} \times CF1}{FA \times PC \times [(t_{event}/1 + B) + (2 \times T_{event}) \times (1 + 3B + 3B^2/(1 + B)^2)]}$

INORGANIC CHEMICALS:

Cw-nc = $\dfrac{DA_{event\text{-}nc} \times CF1}{PC \times t_{event}}$

Cw-ca = $\dfrac{DA_{event\text{-}ca} \times CF1}{PC \times t_{event}}$

Where:

$DA_{event\text{-}ca} = \dfrac{TR \times AT\text{-}ca \times CF2}{(SFo / ABSGI) \times (EV \times ED \times EF \times SA / BW)}$

$DA_{event\text{-}nc} = \dfrac{THQ \times AT\text{-}nc \times CF2 \times BW \times RfDo \times ABSGI}{EV \times ED \times EF \times SA}$

Variable	Variable Definition	Units	Value	Reference
FA	Fraction absorbed	unitless	Chemical-Specific	Table B-3 RAGS Part E
PC	Dermal permeability coefficient (Kp)	cm/hour	Chemical-Specific	Kp value - RAIS
T event	Lag time per event	hour/event	Chemical-Specific	Table B-3 RAGS Part E
t*	Time to reach steady state	hours	Chemical-Specific	Table B-3 RAGS Part E
t event	Event duration	hour/event	8	Default (USEPA 2014)
Pi		unitless	3.14	NA
B	Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis	unitless	Chemical-Specific	Table B-3 RAGS Part E
Cw-ca	Chemical concentration in water (cancer)	ug/L	Chemical-specific calculated value	PRG User's Guide
Cw-nc	Chemical concentration in water (noncancer)	ug/L	Chemical-specific calculated value	PRG User's Guide
TR	Target risk	unitless	1.00E-05	Industrial Risk Level
THQ	Target hazard quotient	unitless	1	EPA's/Ecology's Target Goal
AT-ca	Averaging Time (cancer)	days	25550	Default (USEPA 2014)
AT-nc	Averaging Time (noncancer)	days	365	Default (USEPA 2014)
ED	Exposure Duration	years	1	Default (USEPA 2014)
CF1	Conversion factor	cm3/L	1000	NA
CF2	Conversion factor	ug/mg	1000	NA
BW	Body Weight	kg	80	Default (USEPA 2014)
EV	Event Frequency	events/day	1	Default (USEPA 2002)
EF	Exposure Frequency	days/year	60	Site-Specific (see text)
SA	Surface Area Available for Contact	cm2	3470	Default (USEPA 2014)
RfDo	Reference dose (ingestion)	mg/kg-day	Chemical-specific tabulated value	RSL Table (USEPA 2015)
SFo	Slope factor (ingestion)	kg-day/mg	Chemical-specific tabulated value	RSL Table (USEPA 2015)
ABSGI	Fraction of contaminant absorbed GI tract	unitless	Chemical-specific tabulated value	RAGS Part E (Exhibit 4-1)
DA event-nc	Absorbed dose per event (noncancer)	ug/cm2-event	Calculated	RAIS Equations Dermal Contact Water
DA event-ca	Absorbed dose per event (cancer)	ug/cm2-event	Calculated	RAIS Equations Dermal Contact Water

CAS	CAS	Chemical	FA (Source: RAGs E) unitless	PC (Kp) (Source: RAIS) cm/hr	T_{event} (Source: RAGs E) hr/event	t* (Source: RAGs E) hours	B (Source: RAGs E) unitless	Site-Specific DA event-nc Adult ug/cm2-event	Site-Specific DA event-ca Adult ug/cm2-event	RfDo (mg/kg-d)	SFo $(mg/kg\text{-}d)^{-1}$	ABSGI unitless	GW Cleanup Levels CW-nc ug/L	GW Cleanup Levels CW-ca ug/L
7440-38-2	7440382	Arsenic	--	1.00E-03	--	--	--	0.0420749	0.0654499	3.0E-04	1.5E+00	1.0	**5,259**	**8,181**
71-43-2	71432	Benzene	1	1.49E-02	0.29	0.7	0.1	0.5609990	1.7849969	4.0E-03	5.5E-02	1.0	**4,760**	**15,145**
128-37-0	128370	Butylated Hydroxytoluene (BHT)	1	2.23E-01	1.79	1.06	1	42.0749280	27.2707866	3.0E-01	3.6E-03	1.0	**18,439**	**11,951**
75-35-4	75354	1,1-DCE	1	1.17E-02	0.37	0.89	0.0	7.0124880	--	5.0E-02	--	1.0	**68,576**	**--**
156-59-2	156592	cis-1,2-DCE	1	1.10E-02	0.37	0.879104576	0.0	0.2804995	--	2.0E-03	--	1.0	**3,020**	**--**
156-60-5	156605	trans-1,2-DCE	1	1.10E-02	0.37	0.879104576	0.0	2.8049952	--	2.0E-02	--	1.0	**30,202**	**--**
100-41-4	100414	Ethylbenzene	1	4.93E-02	0.42	1.01	0.2	14.0249760	8.9249847	1.0E-01	1.1E-02	1.0	**37,090**	**23,603**
127-18-4	127184	Tetrachloroethene	1	3.34E-02	0.91	2.18	0.2	0.8414986	46.7499199	6.0E-03	2.1E-03	1.0	**2,850**	**158,327**
108-88-3	108883	Toluene	1	3.11E-02	0.35	0.84	0.1	11.2199808	--	8.0E-02	--	1.0	**44,860**	**--**
126-73-8	126738	Tributyl Phosphate (TBP)	1	2.28E-02	3.24	7.8	0.1	1.4024976	10.9083147	1.0E-02	9.0E-03	1.0	**4,273**	**33,235**
79-01-6	79016	Trichloroethene	1	1.16E-02	0.58	1.39	0.1	0.0701249	2.1342355	5.0E-04	4.6E-02	1.0	**707**	**21,524**
75-01-4	75014	Vinyl Chloride	1	8.38E-03	0.24	0.57	0	0.4207493	0.1363539	3.0E-03	7.2E-01	1.0	**5,921**	**1,919**
1330-20-7	108383	Total Xylenes	1	5.00E-02	0.42	1.01	0.2	28.0499520	--	2.0E-01	--	1.0	**73,142**	**--**

Notes:
1. Input fields with "green" background require data entry.
2. Input fields with "tan" background are calculated.

Table C.4. Boeing - Summary of Groundwater Cleanup Levels Revision: 8/26/2015

Construction Worker Exposure to Groundwater in Excavation/Trench

		Construction Worker						
		Inhalation		Dermal		Total		Final
Chemical	**Units**	**Cancer**	**Noncancer**	**Cancer**	**Noncancer**	**Cancer**	**Noncancer**	**CUL**
Arsenic	ug/L	--	--	8,181	5,259	8,181	5,259	5,259
Benzene	ug/L	379	126.6	15,145	4,760	369	123	123
Butylated Hydroxytoluene (BHT)	ug/L	--	--	11,951	18,439	11,951	18,439	11,951
1,1-DCE	ug/L	--	923.1	--	68,576	--	911	911
cis-1,2-DCE	ug/L	--	--	--	3,020.2	--	3,020	3,020
trans-1,2-DCE	ug/L	--	--	--	30,202	--	30,202	30,202
Ethylbenzene	ug/L	--	4,865	23,603	37,090	--	4,301	4,301
Tetrachloroethene	ug/L	16329	242	158,327	2,850	14,802	223	223
Toluene	ug/L	--	22,884	--	44,860	--	15,154	15,154
Tributyl Phosphate (TBP)	ug/L	--	--	33,235	4,273	33,235	4,273	4,273
Trichloroethene	ug/L	926	10.8	21,524	707	887	11	11
Vinyl Chloride	ug/L	569	371.8	1,918.8	5,921	439	350	350
Total Xylenes	ug/L	--	492	--	73,142	--	488	488

Skydrol Cleanup Levels
Calculations

Derivation of Cleanup Levels for Chemical Components of Hydraulic Fluids

Skydrol LD4 and Hyjet IVA have been used as fire resistant hydraulic fluids at the Boeing Everett Facility. Through various site activities, releases of these hydraulic fluids to the environment have occurred and detectable concentrations have been observed in both soil and groundwater. This memorandum calculates cleanup levels for the primary constituents of the hydraulic fluids. In future site evaluations, site concentrations will be compared to cleanup levels to assess whether remediation of groundwater or soil containing these chemicals is required to protect human health.

Model Toxics Control Act MTCA regulations (Washington Administrative Code [WAC] 173-340) provide various methods for developing cleanup levels that protect human health by establishing concentration of chemicals in soil and groundwater that represent acceptable levels of health risk. Method A is used for routine sites and contains values for a limited number of chemicals. Method B provides procedures to calculate cleanup levels protective of residential (or unrestricted) land use. Method B cleanup levels may be used at any site. Method C provides procedures to calculate cleanup levels protective of industrial land use. In order to calculate an appropriate cleanup level for a chemical contaminant in a particular medium, toxicity data are needed to assess the toxic potency of the chemical. The following discussion includes the toxicity assessment and the subsequent derivation of cleanup levels for these hydraulic fluids.

Toxicity Assessment

Toxicity data are not available for either Skydrol LD4 or Hyjet IVA, which are mixtures of organophosphate esters, mostly tributyl phosphate (TBP). In addition, Skydrol LD4 and Hyjet IVA are proprietary compounds, and their specific chemical compositions are not publicly available. Therefore, derivation of toxicity criteria specific to the hydraulic fluids would be difficult. However, some product composition data are available from the material safety data sheets, and available toxicity data for each of the primary constituents of the hydraulic fluids were reviewed. Skydrol LD4 and Hyjet IVA are comprised mostly of phosphate-based compounds, primarily TBP which accounts for 70 to 80 percent of the hydraulic fluids, followed by dibutyl phenyl phosphate, butyl diphenyl phosphate, and triphenyl phosphate which together account for approximately 10 to 15 percent of the hydraulic fluid compositions. In addition, to these four phosphate-based compounds, butylated hydroxytoluene (BHT) is also a small component (<1 percent) of Skydrol LD4. BHT is used as a stabilizer in the hydraulic fluids.

Available toxicity data for each of these chemicals were reviewed so that cleanup levels for soil and groundwater could be derived for each of the individual constituents, rather than for the hydraulic fluid itself. The purpose of the toxicity assessment is to weigh the available and relevant evidence regarding the potential for chemicals to cause adverse health effects in exposed individuals and to provide a quantitative estimate of the relationship between the magnitude of

exposure and the likelihood of adverse effects (USEPA 1989). A fundamental principle of toxicology is that the dose determines the severity of the effect. Accordingly, the toxicity criteria describe the quantitative relationship between the dose of a chemical and the type and incidence of the toxic effect. This is referred to as the dose-response relationship.

A dose-response evaluation is the process of quantitatively evaluating toxicity information and characterizing the relationship between the dose of the chemical and the incidence of adverse health effects in the exposed population. From this quantitative dose-response relationship, toxicity criteria are derived that can be used to estimate the potential for adverse health effects as a function of exposure to the chemical.

Exposure to chemicals can result in cancer or noncancer effects. Non-cancer effects are evaluated on the basis that the chemical exhibits a "threshold," i.e., a level below which no adverse effects are seen. Chemicals that may cause cancer are called carcinogens. Some carcinogens appear to exhibit a threshold (a level below which cancer does not occur) while others are considered non-threshold carcinogens (the mechanism of toxic action affects gene expression and therefore, no dose of the chemical is considered to be without some level of adverse effect).

Non-threshold toxicity criteria are developed only for those carcinogens which appear to cause cancer through a genotoxic mechanism. Specifically, for genotoxic chemicals, the cancer dose-response model is based on high- to low-dose extrapolation, and assumes that there is no lower threshold for the initiation of toxic effects. These models are essentially linear at low doses, such that no dose is without some risk of cancer. The U.S. Environmental Protection Agency (EPA) has published (2005) revised cancer guidelines where they have modified their former position of assuming non-threshold action for all carcinogens. The new guidelines emphasize establishing the specific toxicokinetic mode of action that leads to development of cancer. None of the chemical components of the hydraulic fluids exhibit carcinogenic effects through genotoxic modes of action, as discussed below. Therefore, non-threshold toxicity criteria were not used in the development of cleanup levels for these chemicals.

Chronic threshold criteria (referred to as reference doses [RfDs] by EPA) are defined as an estimate of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without appreciable risk of noncancer effects during a lifetime of exposure (USEPA 1989). Chronic RfDs are specifically developed to be protective for long-term exposure to a chemical and are generally used to evaluate the potential noncancer effects associated with exposure periods of 7 years to a lifetime.

RfD values are based on the no observed adverse effect level (NOAEL) or lowest observed adverse effect level (LOAEL) identified from experimental data in animals or humans. The NOAEL is the highest tested chemical dose given to animals or humans that has not been associated with any adverse effects. The LOAEL is the lowest chemical dose at which effects

have been reported. RfDs are calculated by dividing the NOAEL or LOAEL by a total uncertainty factor, which represents a combination of individual factors for various sources of uncertainty associated with the database for a particular chemical or with the extrapolation of animal data to humans.

The available toxicity information for the phosphate-based constituents and BHT are discussed separately below.

Phosphate-Based Constituents

Considerable information is available for TBP, the main constituent of these hydraulic fluids. This compound exerts its toxic effects as both a carcinogen and a non-carcinogen. In 2010, EPA published provisional peer reviewed toxicity values (PPRTVs) for TBP (USEPA 2010). PPRTVs are defined as toxicity values derived for use in the Superfund Program when such a value is not available in EPA's Integrated Risk Information System (IRIS). PPRTVs are developed according to EPA's guidelines for establishing toxicity criteria and are subjected to a rigorous peer review process before being published.

A 2-year rat bioassay by Auletta et al. (1998), as cited in EPA (2010), was considered as the principal study for the derivation of the provisional RfD for TBP, where urinary bladder hyperplasia in rats was the critical noncarcinogenic effect. However, EPA (2010) discussed that the critical effect appears likely to be a preneoplastic effect, in light of tumors reported in the same tissue in rats and mice (Auletta et al., 1998). Thus, this effect was not chosen for derivation of the p-RfD. The subchronic LOAEL of 32.5 mg/kg-day for salivation in male and female rats was selected by EPA (2010) as the point of departure (POD) for calculation of the chronic p-RfD because it was lower than other potential PODs. A composite UF of 3000 was applied to the POD to calculate a chronic provisional RfD of 0.01 mg/kg-day. EPA's confidence in the chronic provisional RfD is moderate due to medium confidence in the data base and the use of a subchronic study to derive a chronic RfD.

The 2-year rat bioassay by Auletta et al. (1998), as cited in EPA (2010)was selected as the principal study for derivation of a provisional slope factor (SF) for TBP where urinary bladder tumors were the critical carcinogenic effect. Review of the pertinent literature by EPA indicated that a non-genotoxic mode of action with a threshold is plausible. However, even though the literature indicate that a non-genotoxic mode of action is likely, EPA (2010) used the linear approaches for deriving quantitative risk estimates for oral exposure to TBP. A provisional oral slope factor of 0.0092 $(mg/kg\text{-}day)^{-1}$ was established using the linear approach to evaluate potential non-threshold, genotoxic modes of action. To evaluate carcinogenicity based on a threshold mode of action, EPA recommends a margin of exposure analysis in which the RfD is used. Because review of the pertinent literature by EPA indicated that a non-genotoxic mode of action is more likely for TBP carcinogenicity and following EPA's revised cancer guidelines (USEPA 2005), the provisional oral RfD of 0.01 mg/kg-day was used in the calculation of the cleanup level for TBP, rather than the provisional slope factor of 0.0092 $(mg/kg\text{-}day)^{-1}$.

Much less information is available for the other phosphate-based constituents of the hydraulic fluids (dibutyl phenyl phosphate, butyl diphenyl phosphate, and triphenyl phosphate), which account for approximately 10 to 15 percent of the hydraulic fluids. The toxicity data of a surrogate chemical are often used to assess the toxic potency of structurally similar compounds (Moudgal 2003). For example, the surrogate approach is regularly applied in the evaluation of petroleum contaminated sites. Each of these chemicals is structurally very similar to each other and to TBP, containing one central phosphate compound with satellite butyl and phenyl groups. Their mechanisms of toxic action and toxic potency are also expected to be reasonably similar. The available information for these constituents indicates that they are no more toxic than TBP. A study performed by Solutia (2003) on the toxicity of dibutyl phenyl phosphate reported a NOAEL of 5 mg/kg-day for mammalian toxicity endpoints. The NOAEL from this study is within an order of magnitude of the POD for TBP from the critical study selected as the basis for the provisional RfD, which indicates that dibutyl phenyl phosphate has similar toxic potency to TBP. In addition, derivation of toxicity criteria is not an exact science, because of the many uncertainties and assumptions that surround the derivation of the toxicity criteria for chemicals. Therefore, because of a lack of better information, the toxicity data used for TBP can reasonably be applied to these other phosphate constituents in order to approximate toxicity criteria for these chemicals so cleanup levels can be derived.

BHT

Considerable toxicity information is available for BHT. EPA published PPRTVs for BHT (USEPA 2013). BHT is an antioxidant, licensed for food products and cosmetics and is also commonly used in the manufacturing of petroleum products and plastics. In 1995, the Joint Food and Agricultural Organization (FAO)/World Health Organization (WHO) Expert Committee on Food Additives (JECFA) reevaluated the toxicological information on BHT and adjusted their recommended acceptable daily intake level (ADI) (JECFA 1995). The ADI is defined as the amount of a food additive that can be ingested daily in the diet without appreciable risk after a lifetime of exposure. It is calculated in a manner similar to EPA's methodology for calculating RfDs and is based on scientific review of all available toxicological data. A chronic oral rat study by Price (1994), as cited in JECFA (1995), was selected as the principal study for the basis of the ADI where thyroid hyperactivity, enlargement of the liver, and liver enzyme induction were the critical effects. The ADI was calculated by applying a safety factor of 100 to the study NOAEL of 25 mg/kg-day to account for interspecies and intraspecies variability. An ADI of 0.3 mg/kg-day was derived for BHT. EPA (2013) also reviewed the abundance of toxicology data for BHT. A 138-week rat study by Olsen et al. (1986), as cited by EPA (2013) was selected as the principal study for derivation of a provisional RfD. In the study by Olsen et al. (1986) as cited by EPA (2013), biologically and statistically deceases in body weight were observed in F1 Wistar rats, throughout the duration of the experiment. A NOAEL of 25 mg/kg-day is identified with a corresponding LOAEL of 100 mg/kg-day for an 11 percent decrease in body weight of male rats. The NOAEL of 25 mg/kg-day based on this effect was chosen as the POD to derive a chronic p-RfD. A composite UF of 100 for inter- and intra-species variability was applied to the POD to calculate a chronic provisional RfD of 0.3 mg/kg-day, the same as the ADI.

EPA (2013) concluded that there was "suggestive evidence of carcinogenic potential." Review of the pertinent literature by EPA (20103) and UNEP (2002) indicated a non-genotoxic mode of action is likely. Even though the literature indicate that a non-genotoxic mode of action is likely, EPA (2013) used the linear approaches for deriving quantitative risk estimates for oral exposure to BHT. A provisional oral slope factor of 0.0036 $(mg/kg\text{-}day)^{-1}$ was established using the linear approach to evaluate potential non-threshold, genotoxic modes of action. To evaluate carcinogenicity based on a threshold mode of action, EPA recommends a margin of exposure analysis in which the RfD is used. Because review of the pertinent literature by EPA indicated that a non-genotoxic mode of action is more likely for BHT carcinogenicity and following EPA's revised cancer guidelines (EPA 2005), the provisional oral RfD of 0.3 mg/kg-day was used in the calculation of the cleanup level for BHT, rather than the provisional slope factor of 0.0036 $(mg/kg\text{-}day)^{-1}$.

Calculation of Cleanup Levels

As discussed above, MTCA regulations (WAC 173-340) provide various methods for developing cleanup levels protective of exposures to chemical contaminants in soil and groundwater. Method A (WAC 173-340-704) is used for routine sites and contains values for a limited number of chemicals. Method B (WAC 173-340-705) provides procedures to calculate cleanup levels protective of residential (or unrestricted) land use. Method C (WAC 173-340-706) provides procedures to calculate cleanup levels protective of industrial land use. According to the MTCA cleanup guidance, the soil cleanup levels are calculated not only depending upon whether the most beneficial use of the site is residential or industrial, but also depending on whether a drinking water source is potentially affected. Within each land use designation, MTCA requires that the soil cleanup level be determined based on the lowest of two values, one based on direct contact and the other based on protection of groundwater.

If the site were treated as potentially having residential land use, the Method B soil and groundwater cleanup levels would apply. The Method B cleanup levels are calculated using the following assumptions:

- Soil cleanup level (direct contact): The Method B soil cleanup level based on soil ingestion is calculated using equation 740-1, which assumes an average body weight of 16 kg, soil ingestion rate of 200 mg/day, an exposure duration of 6 years, and a frequency of contact equal to 1 (WAC 173-340-740).

- Groundwater cleanup level: The Method B groundwater cleanup level is calculated using equation 720-1, which assumes an average body weight of 16 kg and water consumption rate of 1 liter per day (WAC 173-340-720).

- Soil cleanup level (protection of groundwater): The Method B soil cleanup level based on protection of groundwater is calculated using equation 747-1, and is based upon the Method B groundwater cleanup level (described above) and subsurface soil characteristics (WAC 173-340-747).

If the site were treated as potentially having industrial land use, the Method C soil and groundwater cleanup levels would apply. The Method C cleanup levels are calculated using the following assumptions:

- Soil cleanup level (direct contact): The Method C soil cleanup level based on soil ingestion is calculated using equation 745-1, which assumes an average body weight of 70 kg, a soil ingestion rate of 50 mg of soil per day, an exposure duration of 20 years, and a frequency of contact equal to 0.4 (WAC 173-340-745).

- Groundwater cleanup level: The Method C groundwater cleanup level is calculated using equation 720-1, but assumes an average body weight of 70 kg and water consumption rate of 2 liters per day (WAC 173-340-720 [5]).

- Soil cleanup level (protection of groundwater): The Method C soil cleanup level based on protection of groundwater is calculated using equation 747-1 and is based upon the Method C groundwater cleanup level (described above) and subsurface soil characteristics (WAC 173-340-747).

MTCA regulations provide workbook tools for calculating cleanup levels consistent with Methods B and C cleanup levels (Ecology 2001). The workbook tools, available on the MTCA website (http://www.ecy.wa.gov/programs/tcp/tools/toolmain.html), were used to calculate cleanup levels for each of the individual components of the hydraulic fluids. The workbook tools use the equations and exposure factors provided in the MTCA regulations for calculating Methods B and C cleanup levels in conjunction with some chemical-specific information. The chemical specific information required in the workbooks is summarized in Table 1 and includes the toxicity criteria, which are discussed above, and chemical properties (such as Henry's Law constants). All other information required in the workbooks are MTCA default values. Table 2 summarizes the cleanup levels that were calculated for these chemicals using the MTCA workbook tools.

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Table 1
Summary of Chemical-Specific Information Required for the MTCA Workbook Tool Spreadsheets

Chemical Specific Parameter	Unit	Phosphates (Based on TBP)	Source	BHT	Source
Oral reference dose (RfDo)	mg/kg-day	0.01	USEPA 2010	0.3	USEPA 2013
Henry's law constant (H_{cc})	unitless	5.8×10^{-5}	USEPA 2015	1.754×10^{-4}	SRC
Soil Organic carbon-water partitioning coefficient (K_{oc})	L/kg	2350	USEPA 2015	7,079	SRC

Notes:
BHT - Butylated hydroxytoluene
L/kg - liter per kilogram
mg/kg-day - milligram per kilogram-day
SRC - Syracuse Research Corporation Physical Properties Data Base (http://esc.syrres.com/interkow/webprop.exe?CAS=128-37-0)
TBP - tributyl phosphate

Table 2
Summary of MTCA Cleanup Levels for Components of Hydraulic Fluid

Hydraulic Fluid Component	Method B Groundwater (µg/L)	Method B Soil Protection of Groundwater (mg/kg)	Method B Soil Direct Contact[a] (mg/kg)	Method C Groundwater (µg/L)	Method C Soil Protection of Groundwater (mg/kg)	Method C Soil Direct Contact[a] (mg/kg)
TBP	160	8.16	800	350	17.85	35,000
Dibutyl phenyl phosphate	160	8.16	800	350	17.85	35,000
Butyl diphenyl phosphate	160	8.16	800	350	17.85	35,000
Triphenyl phosphate	160	8.16	800	350	17.85	35,000
BHT	4,800	699	24,000	10,500	1,529	1,000,000

[a]Direct contact assumes exposure through the ingestion pathway.

APPENDIX D

Cost Estimates with Assumptions

COST ESTIMATE APPROACH AND ASSUMPTIONS

Costs were estimated for each alternative to evaluate if they are cost effective and how the alternatives compare to each other. Total implementation cost and total operational, maintenance, and monitoring (OM&M) cost for up to 30 years are presented for each alternative in this appendix. OM&M costs include operation, maintenance, monitoring, reporting, nonroutine, and closure costs that are anticipated to occur over the life of the project. Total project cost is the straight addition of the implementation cost and the total OM&M cost for the project up to a maximum of 30 years. Annualized O&M and monitoring costs are calculated individually from their respective total cost divided by number of years assumed. The cost estimates also include the calculated present-worth costs for each alternative.

The present-worth cost is composed of estimated net present value of implementation cost and the net present value of OM&M costs which are calculated separately. Present-worth analysis evaluates expenditures that occur over different time periods by discounting all future costs to a common base year. A discount rate of 1.4 percent was used, which assumes an interest rate of 3.4 percent minus the inflation rate of 2.0 percent. The discount rate assumed is based on the Office of Management and Budget, Circular A-94 Appendix C, Revised December 2014. Present-worth costs represent the amount of money that, if invested in the base year (i.e., 2015) and dispersed as needed, would cover all anticipated costs associated with the alternative. Factors are calculated as shown below and multiplied by the applicable future cost to determine its present worth.

The equation used to calculate the present worth factor for reoccurring annual costs is as follows:

$$PW = ((1+i)^{n-1})/(i(1+i)^{n})$$

The equation used to calculate the present worth factor for a single future event costs is as follows:

$$PW = ((1+i)^{-n})$$

Where: PW = present worth factor
i = discount interest rate
n = number of reoccurring years or year of future event

The cost estimates presented herein are considered order-of-magnitude estimates (i.e., the estimated costs are expected to be within −30 to +50 percent of the actual costs of the completed project). Implementation and OM&M costs are based on 2015 dollars. The validity of the estimates is subject to the assumptions used in the development of these alternatives which are included at the beginning of each cost estimate. To improve the accuracy of the estimates, factors were applied to increase costs to account for unforeseen conditions and unlisted

incidental items which are unknown at this time. In general, the factors used are applied consistently to each alternative, however if unique conditions exist the factors may be adjusted up or down as appropriate. The following baseline factors were used to calculate extra costs for each cost estimate category independently:

- Engineering Services (15 percent)
- Construction (25 percent)
- O&M (25 percent)
- Monitoring and reporting (20 percent)
- Non-Routine and closure (30 percent)

These five line items cover extra costs for unforeseen conditions that may be encountered at the site in the future as well as materials, equipment, and services that are unlisted because they are too detailed for this conceptual level of cost estimating. The factors used are applied as a percentage of the total estimated cost for the category and are based on engineering judgment and experience with similar projects. Lower factors are used when there is a higher degree of confidence and higher factors are used where there are more unknowns. Washington State sales tax has been added to the contractor cost category at a rate of 9.5 percent and site inspection and overhead (SIOH) is added to the total implementation cost at 8 percent. SIOH is intended to represent Boeing's cost to manage the project and 8 percent is based on what is typically used for government projects. Because of the accuracy level intended, the primary use of these estimates is to allow comparison between alternatives during the selection process, not for establishing project budgets.

The estimated total project cost (with and without present-worth analysis) to implement each alternative is summarized in tables within this appendix. Individual cost estimates prepared for each alternative, with back up information are also presented.

Table D-1
Comparison of Alternative Costs
Exposure Pathway Model: EPM A
SWMU/AOC No. 090, BUILDING 40-51, FORMER UST EV-11

Task	Alternative 1: Maintain Containment	Alternative 2: In-Situ Chemical Reduction	Alternative 3: Periodic Groundwater Extraction
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$102,500	$85,900
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$79,300	$102,900
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$14,600	$15,200
Total Implementation Costs	**$4,800**	**$196,400**	**$204,000**
OMM COSTS			
Annualized O&M Costs	$0	$3,500	$43,000
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	5	4
Annualized Monitoring & Reporting Costs	$3,360	$54,600	$23,880
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	2	4
Non-Routine OMM and/or Decommissioning Costs (Closure)	$92,040	$39,130	$30,160
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30
Total OMM Costs	**$192,900**	**$165,900**	**$297,700**
TOTALS			
Total Implementation and OMM Costs	**$197,700**	**$362,300**	**$501,700**
Estimated Agency Oversight Costs [a]	$8,000	$17,500	$24,200
Total Project Present Worth [b]	**$167,000**	**$367,000**	**$506,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	A
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 090, Former UST EV-11
Project	Upland Area Feasibility Study	**Building**	40-51
Estimator	Genevieve Fujimoto	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	2 to 7 FT bgs
Last Updated	10/5/15	**Surface Area**	610 SF
QA Reviewer	Debbie Rodenhizer	**Volume**	6,400 GAL
QA Review Date	7/14/15		

Site/Problem Description

Residual VOCs are detected in perched groundwater within the utility trench fill outside of the Building 40-51. TCE exceeded the risk-based non-potable perched groundwater cleanup level in one well, EGW031, in 2014. All other constituent concentrations are below the risk-based cleanup level in this area. TCE concentrations in sub-slab vapor at locations ESG13 and ESG14 outside of the building exceed MTCA Method C Air Screening Level. Injection pilot testing was conducted in 2014 at this site. The source of perched water is not known.

Proposed Cleanup Action

Alternative 1 consists of containment of the perched water zone. The existing concrete and pavement above the area of concern will remain in place and in good condition to prevent the leaching of contaminants to groundwater and exposure to sub-slab vapors. It will be inspected annually and maintained as needed. Future building construction in the area will be required to address potential vapor intrusion. Containment and institutional controls will be implemented until cleanup levels are

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Concrete and pavement outside of the building will be maintained by Boeing Site Services.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the land use, concrete, and pavement in the area will be conducted.
7. Groundwater monitoring (VOCs) of EGW030 through EGW032, EGW065, and EGW066 once every 5 years.
8. Containment and annual inspections will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$70,800	1	Groundwater Monitoring (Year 5)	1	LS	$11,791	$11,800
	With Contingency	2	Groundwater Monitoring (Year 10)	1	LS	$11,791	$11,800
	$92,040	3	Groundwater Monitoring (Year 15)	1	LS	$11,791	$11,800
		4	Groundwater Monitoring (Year 20)	1	LS	$11,791	$11,800
		5	Groundwater Monitoring (Year 25)	1	LS	$11,791	$11,800
		6	Groundwater Monitoring (Year 30)	1	LS	$11,791	$11,800
	Subtotal Costs						**$70,800**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$70,800	$21,240
	TOTAL CLOSURE COST						**$92,100**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$72,700**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$92,100		$72,700
	TOTAL OMM COSTS				**$192,900**		**$154,600**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$154,600	**$159,300**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$8,000	**$167,300**
	TOTAL PRESENT-WORTH COST				**$167,000**

ALTERNATIVE 2 In-Situ Chemical Reduction

Client	Boeing	**EPM Group**	A
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 090, Former UST EV-11
Project	Upland Area Feasibility Study	**Building**	40-51
Estimator	Genevieve Fujimoto	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	2 to 7 FT bgs
Last Updated	9/8/15	**Surface Area**	610 SF
QA Reviewer	Paul McCullough	**Volume**	6,400 GAL
QA Review Date	9/8/15		

Site/Problem Description

Residual VOCs are detected in perched groundwater within the utility trench fill outside of the Building 40-51. TCE exceeded the risk-based non-potable perched groundwater cleanup level in one well, EGW031, in 2014. All other constituent concentrations are below the risk-based cleanup level in this area. TCE concentrations in sub-slab vapor at locations ESG13 and ESG14 outside of the building exceed MTCA Method C Air Screening Level. Injection pilot testing was conducted in 2014 at this site. The source of perched water is not known.

Proposed Cleanup Action

Alternative 2 consists of in-situ treatment of the residual TCE present in perched groundwater. In-situ chemical reduction (ISCR) will be performed via five (5) injection points in the permeable backfill utility trenches. Air knifing will used to a depth of 5 ft for utility clearance and the borings will be backfilled with bentonite prior to using a direct push injection. EHC will be used as the reagent. Groundwater sampling will be performed for 5 years following treatment. Institutional controls will be implemented until cleanup levels are achieved (5-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Use 5 injection points with a target depth of 4-8 ft bgs and assumed ROI of 5-ft to inject ISCR reagent.
5. For each injection point, air knife boring until 4 ft bgs and backfill with grout or bentonite.
6. Assume two injection events consisting of 5 injections each will be needed for treatment.
7. Core through grout/bentonite to inject reagent.
8. Use existing wells (EGW030 through EGW032, EGW065, and EGW066) for groundwater monitoring.
9. Perform quarterly groundwater monitoring for initial period of 2 years following injection for analysis of injection-related parameters and COCs
10. Perform groundwater sampling once every two years after initial period for analysis of COCs.
11. A 2-person crew will perform sampling of the 5 wells in one day.
12. Establish institutional controls and perform annual IC inspections during duration of injection treatment.
13. Assume O&M period of 5 years following initial baseline sampling.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$89,100	1	Project Management (4 hrs per week)	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$102,500	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$15,000	$15,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	6	%	$79,300	$4,800
		11	Reporting	100	HR	$108	$10,800
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$89,100**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$89,100	$13,365
	TOTAL INDIRECT COST						**$102,500**

ALTERNATIVE 2 (Continued) **In-Situ Chemical Reduction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$46,800	1	Driller Mobilization	2	LS	$1,000	$2,000
	With Contingency	2	EHC Reagent	2	LS	$6,775	$13,600
	$58,500	3	Survey	2	LS	$1,600	$3,200
		4	Utility Locate	16	HR	$80	$1,300
		5	Probe, Sample, Injection, and Backfill	2	DY	$1,800	$3,600
		6	Flat bed Truck	2	DY	$400	$800
		7	Injection Equipment	2	DY	$450	$900
		8	Air Compressor	2	DY	$300	$600
		9	WA Start Cards	10	EA	$65	$700
		10	WA Decommission Cards	10	EA	$35	$400
		11	Soil/Water Drum	2	LS	$75	$200
		12	Secondary Containment	8	HR	$60	$500
		13	Vacuum Truck Extraction/Air Knife	10	EA	$937	$9,400
		14	Bentonite Backfill	10	EA	$125	$1,300
		15	Concrete/Asphalt Patch	10	EA	$50	$500
		16	Concrete Coring	10	EA	$275	$2,800
		17	Forklift Rental	2	DY	$350	$700
		18	Decontamination/Demobilization	2	DY	$250	$500
		19	AECOM Oversight	36	HR	$90	$3,300
		20	Rental Vehicle - AECOM Oversight	4	DY	$113	$500
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$1,400	1	Transportation and Disposal Coordination	4	HR	$100	$400
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	2	LS	$500	$1,000
	$1,800	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$48,200**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$48,200	$12,100
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$60,300	$12,100
	Washington State Sales Tax (%)			**9.5**	%	$72,400	$6,900
	TOTAL DIRECT COST						**$79,300**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$102,500
		2	Total Direct Costs (see above)	--	--	--	$79,300
		3	Site Inspection and Overhead Costs	8	%	$181,800	$14,600
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$196,400**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$188,400**

ALTERNATIVE 2 (Continued) **In-Situ Chemical Reduction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,500	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$2,800
	Subtotal Costs		***Years of Annual O&M***	***5***			**$14,000**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$14,000	$3,500
	TOTAL O&M COST						**$17,500**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$16,800**
	ANNUAL MONITORING & REPORTING						
	$45,500	1	Project Management and Coordination	32	HR	$154	$5,000
	With Contingency	2	Quarterly Baseline Sampling (4 events)	4	DY	$3,987	$16,000
	$54,600	3	Quarterly Analytical Testing	32	EA	$536	$17,200
		4	Annual Reporting	1	LS	$6,092	$6,100
		5	Quarterly Data Packages	1	LS	$1,200	$1,200
	Total Routine Annual Monitoring Cost						$45,500
	Subtotal Costs		***Years of Annual Monitoring***	***2***			**$91,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$91,000	$18,200
	TOTAL MONITORING & REPORTING COST						**$109,200**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$107,000**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$30,100	1	Groundwater Sampling (Year 3)	1	LS	$11,791	$11,800
		2	Groundwater Sampling (Year 5)	1	LS	$11,791	$11,800
	With Contingency	3	Monitoring Well Decommissioning (Year 6)	5	EA	$1,293	$6,500
		4	Not Used	0	EA	$0	$0
	$39,130	5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$30,100**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$30,100	$9,030
	TOTAL CLOSURE COST						**$39,200**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$37,000**
	OMM COSTS				**TOTAL**	**ESCALATED**	**PRESENT WORTH**
		1	Total O&M Costs (see above)		$17,500	$18,300	$16,800
		2	Total Monitoring Costs (see above)		$109,200	$110,300	$107,000
		3	Total Non-Routine OMM & Decommissioning		$39,200	$42,400	$37,000
	TOTAL OMM COSTS				**$165,900**	**$171,000**	**$160,800**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$188,400	**$188,400**
	TOTAL PRESENT-WORTH OMM COST			$160,800	**$349,200**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$17,500	**$366,700**
	TOTAL PRESENT-WORTH COST				**$367,000**

ALTERNATIVE 3 Periodic Groundwater Extraction

Client	Boeing	**EPM Group**	A
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 090, Former UST EV-11
Project	Upland Area Feasibility Study	**Building**	40-51
Estimator	Genevieve Fujimoto	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	2 to 7 FT bgs
Last Updated	9/29/15	**Surface Area**	610 SF
QA Reviewer	Cary Brown	**Volume**	6,400 GAL
QA Review Date	8/10/15		

Site/Problem Description

Residual VOCs are detected in perched groundwater within the utility trench fill outside of the Building 40-51. TCE exceeded the risk-based non-potable perched groundwater cleanup level in one well, EGW031, in 2014. All other constituent concentrations are below the risk-based cleanup level in this area. TCE concentrations in sub-slab vapor at locations ESG13 and ESG14 outside of the building exceed MTCA Method C Air Screening Level. Injection pilot testing was conducted in 2014 at this site. The source of perched water is not known.

Proposed Cleanup Action

Alternative 3 consists of extracting perched groundwater from the utility trench on periodic basis for 5 years. A new well will be installed within the backfill of the trench. Perched groundwater will then be extracted monthly using a portable polypropylene tank and vacuum pump until concentrations are below the cleanup level. Groundwater sampling will be used to track concentration trends and for long-term monitoring up to 6 years. Institutional controls will be implemented until cleanup

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Install one (1) groundwater extraction well within the backfilled utility trench to a depth of 8 ft bgs.
5. Use a portable poly tank to extract groundwater on a monthly basis for a period of 5 years.
6. Use existing wells (EGW030 through EGW032, EGW065A, and EGW066) for groundwater monitoring.
7. Perform quarterly groundwater monitoring for initial period of 1 year concurrent with monthly groundwater extraction
8. Perform semiannual passive diffusion bag sampling after initial period.
9. Perform groundwater sampling by pumping once a year in Years 4-6.
10. Groundwater analytical testing will be for VOCs.
11. A 2-person crew will perform sampling of the 5 wells in one day.
12. Assume O&M period of 5 years following initial baseline sampling.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$74,700	1	Project Management (4-hr/week)	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$85,900	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	20	HR	$108	$2,200
		5	Design Plans and Specs	1	LS	$5,000	$5,000
		6	Engineers Estimate	4	HR	$108	$500
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	8	HR	$108	$900
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$102,900	$5,200
		11	Reporting (Implementation)	150	HR	$108	$16,200
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$74,700**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$74,700	$11,205
	TOTAL INDIRECT COST						**$85,900**

ALTERNATIVE 3 (Continued) **Periodic Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$61,800	1	Survey	1	DY	$1,600	$1,600
	With Contingency	2	Utility Locate	4	HR	$80	$400
	$77,250	3	Groundwater Extraction Well Installation	1	EA	$3,860	$3,900
		4	Vacuum Truck Extraction/Air Knife	1	EA	$780	$800
		5	Concrete Coring	1	EA	$275	$300
		6	IBC Poly Tank - 330 gallons	2	EA	$530	$1,100
		7	Influent/Discharge Hoses	1	LS	$200	$200
		8	AECOM Labor (First Year Sampling)	128	HR	$82	$10,500
		9	Supplies and Equipment (First Year Sampling)	4	DY	$1,051	$4,300
		10	First Year Analytical Testing	32	EA	$60	$2,000
		11	First Year Quarterly Data Packages	1	LS	$1,200	$1,200
		12	First Year Installation & Monitoring Report	1	LS	$6,092	$6,100
		13	First Year AECOM O&M Vehicle Rental	12	DY	$113	$1,400
		14	First Year AECOM O&M Oversight	12	DY	$656	$7,900
		15	First Year Extraction Labor	12	DY	$928	$11,200
		16	First Year Extraction Supplies and Equipment	12	DY	$740	$8,900
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$700	1	Transportation and Disposal Coordination	2	HR	$100	$200
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	1	LS	$500	$500
	$880	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$62,500**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$62,500	$15,700
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$78,200	$15,700
	Washington State Sales Tax (%)			**9.5**	%	$93,900	$9,000
	TOTAL DIRECT COST						**$102,900**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$85,900
		2	Total Direct Costs (see above)	--	--	--	$102,900
		3	Site Inspection and Overhead Costs	8	%	$188,800	$15,200
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$204,000**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$195,700**

ALTERNATIVE 3 (Continued) **Periodic Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$34,400	1	Project Management and Coordination	32	HR	$154	$5,000
	With Contingency	2	AECOM Vehicle Rental	12	DY	$113	$1,400
	$43,000	3	AECOM O&M Oversight	12	DY	$656	$7,900
		4	Monthly Extraction Labor	12	DY	$928	$11,200
		5	Monthly Extraction Supplies and Equipment	12	DY	$740	$8,900
	Total Routine Annual O&M Cost						$34,400
	Subtotal Costs		***Years of Annual O&M***	***4***			**$137,600**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$137,600	$34,400
	TOTAL O&M COST						**$172,000**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$166,200**
	ANNUAL MONITORING & REPORTING						
	$19,900	1	Project Management and Coordination	16	HR	$154	$2,500
	With Contingency	2	Semiannual Monitoring Labor	64	HR	$82	$5,300
	$23,880	3	Passive Diffusion Bags (PDB), 2 events	10	EA	$30	$300
		4	PDB Monitoring Supplies and Equipment	2	EA	$411	$900
		5	Semiannual Analytical Testing	10	EA	$60	$600
		6	Semiannual Data Packages	5	EA	$370	$1,900
		7	Annual Reporting	1	LS	$6,092	$6,100
		8	IC Inspection (6 years)	1	LS	$2,250	$2,300
	Total Routine Annual Monitoring Cost						$19,900
	Subtotal Costs		***Years of Annual Monitoring***	***4***			**$79,600**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$79,600	$15,920
	TOTAL MONITORING & REPORTING COST						**$95,600**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$92,300**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$23,200	1	Additional Monitoring (Pumping) (Year 4)	1	LS	$1,120	$1,200
	With Contingency	2	Additional Monitoring (Pumping) (Year 5)	1	LS	$1,120	$1,200
	$30,160	3	Extraction Well Decommissioning (Year 5)	1	LS	$2,500	$2,500
		4	Closure Monitoring (Pumping) (Year 6)	1	LS	$11,791	$11,800
		5	Monitoring Well Decommissioning (Year 6)	5	EA	$1,293	$6,500
	Subtotal Costs						**$23,200**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$23,200	$6,960
	TOTAL CLOSURE COST						**$30,200**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$27,900**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$172,000		$166,200
		2	Total Monitoring Costs (see above)		$95,600		$92,300
		3	Total Non-Routine OMM & Decommissioning		$30,200		$27,900
	TOTAL OMM COSTS				**$297,800**		**$286,400**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$195,700	**$195,700**
	TOTAL PRESENT-WORTH OMM COST			$286,400	**$482,100**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$24,200	**$506,300**
	TOTAL PRESENT-WORTH COST				**$506,000**

Table D-2
Comparison of Alternative Costs
Exposure Pathway Model: EPM A
SWMU/AOC No. 112, BUILDING 40-11, Oil/Water Separator

Task	Alternative 1: Maintain Containment	Alternative 2: In-Situ Sorption and Bioremediation	Alternative 3: Continuous Groundwater Extraction	Alternative 4: Near-Term Excavation and Dewatering
IMPLEMENATION COSTS				
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$108,600	$122,800	$190,200
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$168,100	$140,400	$668,100
Direct Contingency and Unlisted Items Assumed (%)	25	25	25	25
Site Inspection and Overhead	$400	$22,200	$21,100	$68,700
Total Implementation Costs	**$4,800**	**$298,900**	**$284,300**	**$927,000**
OMM COSTS				
Annualized O&M Costs	$0	$3,500	$16,880	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25	25
O&M Duration (years)	0	5	4	0
Annualized Monitoring & Reporting Costs	$3,360	$51,120	$23,160	$0
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20	20
Monitoring Duration (years)	30	2	4	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$88,140	$34,450	$28,860	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30	30
Total OMM Costs	**$189,000**	**$154,200**	**$189,100**	**$0**
TOTALS				
Total Implementation and OMM Costs	**$193,800**	**$453,100**	**$473,400**	**$927,000**
Estimated Agency Oversight Costs [a]	$7,900	$21,900	$22,800	$44,500
Total Project Present Worth [b, c]	**$164,000**	**$458,000**	**$477,000**	**$934,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	A
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 112, Oil/Water Separator
Project	Upland Area Feasibility Study	**Building**	40-11
Estimator	Genevieve Fujimoto	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	10-16 FT bgs
Last Updated	10/5/15	**Surface Area**	580 SF
QA Reviewer	Debbie Rodenhizer	**Volume**	2,300 GAL - Perched Water
QA Review Date	7/28/15		

Site/Problem Description

A 12,000 gallon, double-wall, steel oil/water separator (OWS) is located below ground in the parked vehicle area outside Building 40-11. The OWS is used to treat water from vehicle maintenance and is surrounded by pea gravel backfill and the adjacent native soil consists of till. Perched water exists within the backfill to a depth ranging from approximately 11 ft to 16 ft. Groundwater analyses from the existing dewatering well and monitoring well within the fill indicate concentrations of TPH-Dx and TPH-MO exceed the risk-based cleanup levels for non-potable perched water. Injection pilot testing was conducted at the OWS in 2013 using ISCR and ERD.

Proposed Cleanup Action

Alternative 1 consists of containment of the perched water zone. Concrete and pavement overlying the OWS and pea gravel backfill will be required to remain in place and in good condition to prevent the leaching of contaminants to groundwater. It will be inspected annually and maintained as needed. Groundwater monitoring will be continued at the existing wells EGW046 and EGW054 to track trends in concentrations. The existing dewatering pump in EGW046 will continue to operate automatically. Future removal/replacement or any construction involving the oil/water separator will be required to address the perched water. Containment and institutional controls will be implemented until cleanup levels are achieved (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Concrete and pavement outside of the building will be maintained by Boeing Site Services.
5. Institutional controls for containment of the area will be established under a sitewide plan.
6. Annual inspection of the land use, concrete, and pavement in the area will be conducted.
7. Groundwater monitoring (TPH-Dx, TPH-MO, and VOCs) of existing wells EGW046 and EGW054 every 5 years.
8. Containment and annual inspections will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	934000	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$67,800	1	Groundwater Monitoring (Year 5)	1	LS	$11,270	$11,300
	With Contingency	2	Groundwater Monitoring (Year 10)	1	LS	$11,270	$11,300
	$88,140	3	Groundwater Monitoring (Year 15)	1	LS	$11,270	$11,300
		4	Groundwater Monitoring (Year 20)	1	LS	$11,270	$11,300
		5	Groundwater Monitoring (Year 25)	1	LS	$11,270	$11,300
		6	Groundwater Monitoring (Year 30)	1	LS	$11,270	$11,300
	Subtotal Costs						**$67,800**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$67,800	$20,340
	TOTAL CLOSURE COST						**$88,200**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$69,600**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$88,200		$69,600
	TOTAL OMM COSTS				**$189,000**		**$151,500**

	ALTERNATIVE COST SUMMARY			**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$151,500	**$156,200**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$7,900	**$164,100**
	TOTAL PRESENT-WORTH COST				**$164,000**

ALTERNATIVE 2 **In-Situ Sorption and Bioremediation**

Client	Boeing	**EPM Group**	A
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 112, Oil/Water Separator
Project	Upland Area Feasibility Study	**Building**	40-11
Estimator	Genevieve Fujimoto	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	10-16 FT bgs
Last Updated	9/8/15	**Surface Area**	580 SF
QA Reviewer	Paul McCullough	**Volume**	2,300 GAL - Perched Water
QA Review Date	9/8/15		

Site/Problem Description

A 12,000 gallon, double-wall, steel oil/water separator is located below ground in the parked vehicle area at Building 40-11. The separator is backfilled with pea gravel; the surrounding native soil consists of till. Perched water exists within the backfill to a depth ranging from approximately 11 ft to 16 ft. Groundwater analyses from the existing dewatering well and monitoring well within the fill indicate concentrations of TPH-Dx and TPH-MO exceed the risk-based cleanup levels for non-potable perched water. Injection pilot testing was conducted at the separator in 2013 using ISCR and ERD.

Proposed Cleanup Action

Alternative 2 consists of utilizing in-situ sorption and bioremediation to reduce TPH-Dx and TPH-MO concentrations to below the cleanup level. Injection wells will be installed in the backfill surrounding the oil/water separator. PlumeStop, a liquid carbon, will be injected in the wells to the depth of the fill. The perched groundwater will continue to be monitored using existing wells EGW046 and EGW054 for 5 years following treatment or until cleanup levels are achieved. Institutional controls will be implemented until cleanup levels are achieved (5-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Pre-application assessment will be completed to characterize groundwater conditions.
5. Regensis products PlumeStop and ORC Advanced will be injected during two events, each consisting of 8 points.
6. An additional Regensis product RegenOx may be injected prior to PlumeStop depending on the groundwater conditions.
7. Use existing wells EGW046 and EGW054 for groundwater monitoring.
8. Perform quarterly groundwater monitoring for initial period of 2 years following injection for analysis of injection-related parameters and COCs
9. Perform groundwater sampling using passive diffusion bag sampling once every two years after initial period for analysis of COCs for total of 2 events.
10. A 2-person crew will perform sampling of the 2 wells in one day.
11. 934000
12. Assume a total O&M period of 5 years, including the initial baseline.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$94,400	1	Project Management (4 hr/week)	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$108,600	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$15,000	$15,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	6	%	$168,100	$10,100
		11	Reporting	100	HR	$108	$10,800
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$94,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$94,400	$14,160
	TOTAL INDIRECT COST						**$108,600**

ALTERNATIVE 2 (Continued) **In-Situ Sorption and Bioremediation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$86,300	1	Survey	2	DY	$1,600	$3,200
	With Contingency	2	Utility Locate	16	HR	$80	$1,300
	$129,680	3	Pre-Application Assessment	1	LS	$6,400	$6,400
		4	PlumeStop, ORC-A, and Application	2	LS	$34,997	$70,000
		5	PID Rental	4	DY	$88	$400
		6	General Site Cleanup and Misc. Restoration	2	LS	$2,500	$5,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$1,400	1	Transportation and Disposal Coordination	4	HR	$100	$400
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	2	LS	$500	$1,000
	$1,750	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$87,700**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$87,700	$22,000
	RegenOx Contingency - Dependent upon Groundwater Conditions			**1**	LS	$21,750	$21,800
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$109,700	$22,000
	Washington State Sales Tax (%)			**9.5**	%	$153,500	$14,600
	TOTAL DIRECT COST						**$168,100**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$108,600
		2	Total Direct Costs (see above)	--	--	--	$168,100
		3	Site Inspection and Overhead Costs	8	%	$276,700	$22,200
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$298,900**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$286,700**

ALTERNATIVE 2 (Continued) **In-Situ Sorption and Bioremediation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,500	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$2,800
	Subtotal Costs		***Years of Annual O&M***	***5***			**$14,000**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$14,000	$3,500
	TOTAL O&M COST						**$17,500**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$16,800**
	ANNUAL MONITORING & REPORTING						
	$42,600	1	Project Management and Coordination	32	HR	$154	$5,000
	With Contingency	2	Quarterly Baseline Sampling	4	DY	$3,987	$16,000
	$51,120	3	Quarterly Analytical Testing	20	EA	$714	$14,300
		4	Annual Reporting	1	LS	$6,092	$6,100
		5	Quarterly Data Packages	1	LS	$1,200	$1,200
	Total Routine Annual Monitoring Cost						$42,600
	Subtotal Costs		***Years of Annual Monitoring***	***2***			**$85,200**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$85,200	$17,040
	TOTAL MONITORING & REPORTING COST						**$102,300**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$100,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$26,500	1	Groundwater Monitoring (Year 3)	1	LS	$11,270	$11,300
	With Contingency	2	Groundwater Monitoring (Year 5)	1	LS	$11,270	$11,300
	$34,450	3	Monitoring Well Decommissioning (Year 5)	2	EA	$1,933	$3,900
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$26,500**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$26,500	$7,950
	TOTAL CLOSURE COST						**$34,500**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$32,600**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$17,500		$16,800
		2	Total Monitoring Costs (see above)		$102,300		$100,200
		3	Total Non-Routine OMM & Decommissioning		$34,500		$32,600
	TOTAL OMM COSTS				**$154,300**		**$149,600**

	ALTERNATIVE COST SUMMARY				**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)				$286,700	**$286,700**
	TOTAL PRESENT-WORTH OMM COST				$149,600	**$436,300**
	AGENCY OVERSIGHT (ECOLOGY)		**5**	%	$21,900	**$458,200**
	TOTAL PRESENT-WORTH COST					**$458,000**

ALTERNATIVE 3 **Continuous Groundwater Extraction**

Client	Boeing	**EPM Group**	A
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 112, Oil/Water Separator
Project	Upland Area Feasibility Study	**Building**	40-11
Estimator	Genevieve Fujimoto	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	10-16 FT bgs
Last Updated	8/10/15	**Surface Area**	580 SF
QA Reviewer	Cary Brown	**Volume**	2,300 GAL - Perched Water
QA Review Date	8/10/15		

Site/Problem Description

A 12,000 gallon, double-wall, steel oil/water separator is located below ground in the parked vehicle area at Building 40-11. The separator is backfilled with pea gravel; the surrounding native soil consists of till. Perched water exists within the backfill to a depth ranging from approximately 11 ft to 16 ft. Groundwater analyses from the existing dewatering well and monitoring well within the fill indicate concentrations of TPH-Dx and TPH-MO exceed the risk-based cleanup levels for non-potable perched water. Injection pilot testing was conducted at the OWS in 2013 using ISCR and ERD.

Proposed Cleanup Action

Alternative 3 consists of extracting perched groundwater using the existing dewatering well EGW046 and one new well installed in the backfill of the OWS. The new well will be installed to the depth of till underlying the pea gravel backfill to capture perched water at the bottom of the fill. New piping will be installed to tie in the new well to the nearby industrial wastewater line. Extraction at the new well will implemented for approximately 5 years. Institutional controls will be implemented until cleanup levels are achieved (6-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Install one (1) groundwater extraction well within the backfill of oil/water separator to a depth of 16 ft bgs.
5. Install piping to connect the new well to the nearby industrial wastewater line.
6. Use existing wells (EGW046 and EGW054) and new well for groundwater monitoring (3 wells total).
7. Perform quarterly groundwater monitoring for initial period of 1 year using passive diffusion bags.
8. Perform semiannual groundwater sampling after initial period using passive diffusion bags for 5 years.
9. Perform semiannual groundwater sampling using external pump in EGW054 and sampling ports in recovery/extraction wells in Years 4, 5, and 6.
10. Groundwater analytical testing will include TPH-Gx, TPH-Dx, and VOCs.
11. A 2-person crew will perform sampling of the 3 wells in one day.
12. Assume O&M period of 6 years total, consisting of 5 years of extraction and 6 years of monitoring.

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DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$106,800	1	Project Management (4 hrs/week)	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$122,800	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$140,400	$7,100
		11	Reporting (Implementation)	150	HR	$108	$16,200
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$106,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$106,800	$16,020
	TOTAL INDIRECT COST						**$122,800**

ALTERNATIVE 3 (Continued) **Continuous Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$84,300	1	Survey	1	DY	$1,600	$1,600
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$105,380	3	Contractor Mobilization	1	LS	$5,000	$5,000
		4	Installation of New Recovery Well	1	EA	$4,280	$4,300
		5	Vacuum Truck Extraction/Air Knife	1	DY	$780	$800
		6	Concrete Coring	1	EA	$275	$300
		7	Saw Cutting Concrete	54	LF	$15	$800
		8	Construction Labor	5	DY	$2,490	$12,500
		9	Trench Backfill - CDF	4	CY	$106	$500
		10	Trench Base Course	5	TN	$16	$100
		11	Base Course Delivery	1	HR	$240	$300
		12	Concrete Replacement	3	CY	$225	$700
		13	PVC Effluent Pipe	25	LF	$4	$100
		14	Sump Pump for New Well	1	EA	$500	$500
		15	Concrete Vault	1	EA	$2,642	$2,700
		16	Pump Electric Panel Install	1	LS	$5,000	$5,000
		17	Vault Piping, Gauges, and Equipment Gauges	1	LS	$3,000	$3,000
		18	Electrical Install between Vault and Panel	1	LS	$10,000	$10,000
		19	PID Rental	5	DY	$88	$500
		20	General Site Cleanup and Misc. Restoration	1	LS	$2,500	$2,500
		21	AECOM Labor (First Year Sampling)	128	HR	$82	$10,500
		22	Supplies and Equipment (First Year Sampling)	4	DY	$1,051	$4,300
		23	First Year Analytical Testing	24	EA	$123	$3,000
		24	First Year Quarterly Data Packages	1	LS	$1,200	$1,200
		25	First Year Installation & Monitoring Report	1	LS	$6,092	$6,100
		26	First Year O&M Supplies and Equipment	1	LS	$2,000	$2,000
		27	First Year O&M Event	1	LS	$2,293	$2,300
		28	First Year Pump Electricity (2 pumps)	2	LS	$1,493	$3,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$1,100	1	Transportation and Disposal Coordination Soil	2	HR	$100	$200
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	1	LS	$500	$500
	$1,380	3	Concrete Disposal - Transportation	2	HR	$120	$300
		4	Concrete Disposal Fee	3	CY	$30	$100
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$85,400**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$85,400	$21,400
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$106,800	$21,400
	Washington State Sales Tax (%)			**9.5**	%	$128,200	$12,200
	TOTAL DIRECT COST						**$140,400**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$122,800
		2	Total Direct Costs (see above)	--	--	--	$140,400
		3	Site Inspection and Overhead Costs	8	%	$263,200	$21,100
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$284,300**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$272,700**

ALTERNATIVE 3 (Continued) **Continuous Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$13,500	1	Project Management and Coordination	40	HR	$154	$6,200
	With Contingency	2	O&M Supplies and Equipment	1	LS	$2,000	$2,000
	$16,880	3	O&M Event	1	LS	$2,293	$2,300
		4	Annual Pump Electricity (2 pumps)	2	LS	$1,493	$3,000
		5	Not Used	1	EA	$0	$0
	Total Routine Annual O&M Cost						$13,500
	Subtotal Costs		***Years of Annual O&M***	***4***			**$54,000**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$54,000	$13,500
	TOTAL O&M COST						**$67,500**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$65,300**
	ANNUAL MONITORING & REPORTING						
	$19,300	1	Project Management and Coordination	16	HR	$154	$2,500
	With Contingency	2	Semiannual Monitoring Labor	64	HR	$82	$5,300
	$23,160	3	Passive Diffusion Bags (PDB), 2 events	6	EA	$30	$200
		4	PDB Monitoring Supplies and Equipment	2	EA	$411	$900
		5	Semiannual Analytical Testing	6	EA	$123	$800
		6	Semiannual Data Packages	1	LS	$1,200	$1,200
		7	Annual Reporting	1	LS	$6,092	$6,100
		8	IC Inspection (6 years)	1	LS	$2,250	$2,300
	Total Routine Annual Monitoring Cost						$19,300
	Subtotal Costs		***Years of Annual Monitoring***	***4***			**$77,200**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$77,200	$15,440
	TOTAL MONITORING & REPORTING COST						**$92,700**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$89,500**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$22,200	1	General Repair (Year 3)	1	LS	$5,000	$5,000
	With Contingency	2	Non-Routine Monitoring (Pumping) (Year 4)	1	LS	$1,378	$1,400
	$28,860	3	Non-Routine Monitoring (Pumping) (Year 5)	1	LS	$1,378	$1,400
		4	Well Decommissioning (Year 5)	1	LS	$2,500	$2,500
		5	Non-Routine Monitoring (Pumping) (Year 6)	1	LS	$11,803	$11,900
		6	Monitoring Well Decommissioning (Year 6)	2	EA	$1,933	$3,900
	Subtotal Costs						**$22,200**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$22,200	$6,660
	TOTAL CLOSURE COST						**$28,900**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$26,700**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$67,500		$65,300
		2	Total Monitoring Costs (see above)		$92,700		$89,500
		3	Total Non-Routine OMM & Decommissioning		$28,900		$26,700
	TOTAL OMM COSTS				**$189,100**		**$181,500**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$272,700	**$272,700**
	TOTAL PRESENT-WORTH OMM COST			$181,500	**$454,200**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$22,800	**$477,000**
	TOTAL PRESENT-WORTH COST				**$477,000**

ALTERNATIVE 4 Near-Term Excavation and Dewatering

Client	Boeing	**EPM Group**	A
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 112, Oil/Water Separator
Project	Upland Area Feasibility Study	**Building**	40-11
Estimator	Genevieve Fujimoto	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	10-16 FT bgs
Last Updated	8/25/15	**Surface Area**	580 SF
QA Reviewer	Cary Brown	**Volumes**	2,300 GAL - Perched Water
QA Review Date	8/24/15		

Site/Problem Description

A 12,000 gallon, double-wall, steel oil/water separator is located below ground in the parked vehicle area at Building 40-11. The separator is backfilled with pea gravel; the surrounding native soil consists of till. Perched water exists within the backfill to a depth ranging from approximately 11 ft to 16 ft. Groundwater analyses from the existing dewatering well and monitoring well within the fill indicate concentrations of TPH-Dx and TPH-MO exceed the risk-based cleanup levels for non-potable perched water. Injection pilot testing was conducted at the OWS in 2013 using ISCR and ERD.

Proposed Cleanup Action

Alternative 4 consists of excavating the OWS and dewatering the excavation of any perched water until only a negligible amount of water remains. This alternative assumes that a new OWS will be installed after the cleanup action is complete. The new OWS will be backfilled with suitable backfill and the surrounding area with CDF.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Existing wells EGW046 and EGW054 will be removed prior to excavation.
5. Existing pavement and concrete will be cut and removed.
6. Concrete vault around EGW046 will be demolished and existing pumping equipment removed.
7. Oil/water separator will be removed and disposed.
8. The oil/water separator area will be excavated to a depth of 16-ft bgs.
9. All soil, including pea gravel backfill, will be disposed of as hazardous waste.
10. Excavation will be dewatered and liquid disposed as industrial wastewater.
11. A new oil/water separator will be installed in the excavation.
12. The new oil/water separator will be installed with CDF to subgrade elevation.
13. The area will be paved to match surrounding grade.

$934,000

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$165,400	1	Project Management (4 hr/week)	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$190,200	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	6	%	$668,100	$40,100
		11	Reporting (Implementation)	230	HR	$108	$24,900
	Subtotal Costs						**$165,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$165,400	$24,810
	TOTAL INDIRECT COST						**$190,200**

ALTERNATIVE 4 (Continued) **Near-Term Excavation and Dewatering**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$288,500	1	Survey	1	DY	$1,600	$1,600
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$360,630	3	Monitoring Well Decommissioning	2	EA	$1,933	$3,900
		4	Oil/Water Separator Removal and Replacement	1	LS	$75,700	$75,700
		5	Tank Removal to Certified Salvage Dump	1	EA	$880	$900
		6	New Fiberglass Oil/Water Separator - 12,000 gal	1	EA	$70,000	$70,000
		7	Temporary Poly Tank, Sump, and Pump	1	LS	$5,414	$5,500
		8	Construction Labor (Over-excavation in Till)	1	WK	$8,080	$8,100
		9	Equipment Rental (Over-excavation in Till)	1	WK	$3,459	$3,500
		10	CDF Backfill (Over-excavation in Till)	540	CY	$106	$57,300
		11	Base Course (Over-excavation in Till)	30	TN	$16	$500
		12	Base Course - Truck and Trailer	1	HR	$120	$200
		13	Dust Control (Sweeper/Scrubber)	1	DY	$765	$800
		14	Plate Compactor (Over-excavation in Till)	1	DY	$275	$300
		15	PID Rental	5	DY	$88	$500
		16	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		17	Contractor Standby for Ongoing Operations	3	WK	$10,000	$30,000
		18	Lost Worker Efficiency	1	LS	$24,000	$24,000
		19	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$118,200	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	1,260	TN	$90	$113,400
	$147,750	3	Concrete Transportation	8	HR	$120	$1,000
		4	Concrete Disposal Fee	60	CY	$30	$1,800
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$406,700**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$406,700	$101,700
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$508,400	$101,700
	Washington State Sales Tax (%)			**9.5**	%	$610,100	$58,000
	TOTAL DIRECT COST						**$668,100**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$190,200
		2	Total Direct Costs (see above)	--	--	--	$668,100
		3	Site Inspection and Overhead Costs	8	%	$858,300	$68,700
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$927,000**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$889,100**

ALTERNATIVE 4 (Continued) **Near-Term Excavation and Dewatering**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$0**		**$0**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$889,100	**$889,100**
	TOTAL PRESENT-WORTH OMM COST			$0	**$889,100**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$44,500	**$933,600**
	TOTAL PRESENT-WORTH COST				**$934,000**

Table D-3
Comparison of Alternative Costs
Exposure Pathway Model: EPM A
SWMU/AOC No. 151, BUILDING 40-51, SOUTHERN AIR SCRUBBER SUMP

Task	Alternative 1: Institutional Controls
IMPLEMENATION COSTS	
Cleanup Design, Planning, and General (Indirect Costs)	$4,400
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0
Direct Contingency and Unlisted Items Assumed (%)	25
Site Inspection and Overhead	$400
Total Implementation Costs	**$4,800**
OMM COSTS	
Annualized O&M Costs	$0
O&M Contingency and Unlisted Items Assumed (%)	25
O&M Duration (years)	0
Annualized Monitoring & Reporting Costs	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20
Monitoring Duration (years)	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30
Total OMM Costs	**$100,800**
TOTALS	
Total Implementation and OMM Costs	**$105,600**
Estimated Agency Oversight Costs [a]	$4,400
Total Project Present Worth [b]	**$91,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimate due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Institutional Controls**

Client	Boeing	**EPM Group**	A	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 151, Southern Air Scrubber Sump	
Project	Upland Area Feasibility Study	**Building**	40-51	
Estimator	Genevieve Fujimoto	**Media**	Soil Vapor	
Report Date	10/30/15	**Depth Range**	N/A	FT bgs
Last Updated	10/5/15	**Surface Area**	N/A	SF
QA Reviewer	Debbie Rodenhizer	**Volume**	N/A	CY
QA Review Date	7/14/15			

Site/Problem Description

TCE was detected in the soil gas at one location, ESG15, outside of Building 40-51. TCE was not detected in the sub-slab vapor at location ESSV1 inside the building. TCE and cis-1,2,-DCE detected in soil outside of the building do not exceed the MTCA B cleanup level or MTCA Method C Air Screening levels. TCE concentrations in groundwater do not exceed the risk-based cleanup level for non-potable perched groundwater.

Proposed Cleanup Action

Alternative 1 consists of institutional controls which will limit the land use of this area to industrial use only. Any future building construction in the area will be required to address potential vapor intrusion. Institutional controls for this SWMU/AOC will be established under a sitewide institutional controls plan and annual inspections conducted. Institutional controls will be implemented to maintain industrial land use. (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Institutional controls for the area will be established under a sitewide plan.
5. Annual inspection of the land use in the area will be conducted.
6. Institutional controls and annual inspections will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Institutional Controls**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Institutional Controls**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Escalated Monitoring Cost		Presumed Inflation Rate	***2.00***	%		**$136,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

Table D-4
Comparison of Alternative Costs
Exposure Pathway Model: EPM B
SWMU/AOC Nos. 86, 89, and 94, BUILDING 40-56, Former USTs

Task	Alternative 1: Maintain Containment	Alternative 2: Soil Vapor and Groundwater Extraction	Alternative 3: Near-Term Excavation and Dewatering
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$322,000	$499,400
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$1,003,600	$3,842,000
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$106,100	$347,400
Total Implementation Costs	**$4,800**	**$1,431,700**	**$4,688,800**
OMM COSTS			
Annualized O&M Costs	$0	$129,000	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	5	0
Annualized Monitoring & Reporting Costs	$3,360	$35,640	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	20	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$116,220	$113,100	$128,700
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30
Total OMM Costs	**$217,100**	**$1,470,900**	**$229,500**
TOTALS			
Total Implementation and OMM Costs	**$221,900**	**$2,902,600**	**$4,918,300**
Estimated Agency Oversight Costs [a]	$9,000	$137,000	$234,700
Total Project Present Worth [b]	**$187,000**	**$2,875,000**	**$4,927,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.
OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	B	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 86, 89, 94, Former USTs	
Project	Upland Area Feasibility Study	**Building**	Building 40-56	
Estimator	Elyssa Dixon	**Media**	Soil and Perched Groundwater	
Report Date	10/30/15	**Soil Depth Range**	7-43	FT bgs
Last Updated	10/5/15	**Soil Surface Area**	3,300	SF
QA Reviewer	Debbie Rodenhizer	**Soil Volume**	510	CY
QA Review Date	7/30/15	**Perched GW Volume**	64,600	GAL

Site/Problem Description

Soil and perched groundwater contaminated with TEX around historical excavations outside of building 40-56 including USTs, a steamline, and a recovery trench. There are many underground utilities in the area reducing access to the contaminated soil and the buildings HVAC intake ducts are also adjacent to the area of concern.

Proposed Cleanup Action

Alternative 1 consists of containment of shallow contaminated soil and perched groundwater. Alternative 1 will require that the asphalt and concrete above the area of concern remain in place and in good condition to prevent the leaching of contaminants to groundwater. Groundwater monitoring will continue as a part of this alternative and the area will be inspected annually and maintained as necessary. Containment and institutional controls will be implemented for as long as soil and perched groundwater concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
3. Washington State Sales Tax is applied to Direct Costs only
4. Asphalt and concrete in the area will be maintained by Boeing Site Services.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the land use and concrete in the area will be conducted.
7. Containment and annaul inspections will be implemented for 30 years.
8. Groundwater monitoring will be completed once every 5 years at existing wells (VOCs).

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$100	$0
	With Contingency	2	Not Used	0	EA	$1	$0
	$0	3	Not Used	0	EA	$1	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$89,400	1	Groundwater Monitoring (Year 5)	1	LS	$14,834	$14,900
	With Contingency	2	Groundwater Monitoring (Year 10)	1	LS	$14,834	$14,900
	$116,220	3	Groundwater Monitoring (Year 15)	1	LS	$14,834	$14,900
		4	Groundwater Monitoring (Year 20)	1	LS	$14,834	$14,900
		5	Groundwater Monitoring (Year 25)	1	LS	$14,834	$14,900
		6	Groundwater Monitoring (Year 30)	1	LS	$14,834	$14,900
	Subtotal Costs						**$89,400**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$89,400	$26,820
	TOTAL CLOSURE COST						**$116,300**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$91,800**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$116,300		$91,800
	TOTAL OMM COSTS				**$217,100**		**$173,700**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$173,700	**$178,400**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$9,000	**$187,400**
	TOTAL PRESENT-WORTH COST				**$187,000**

ALTERNATIVE 2 **Soil Vapor and Groundwater Extraction**

Client	Boeing	**EPM Group**	B	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 86, 89, 94, Former USTs	
Project	Upland Area Feasibility Study	**Building**	Building 40-56	
Estimator	Elyssa Dixon	**Media**	Soil and Perched Groundwater	
Report Date	10/30/15	**Soil Depth Range**	7-43	FT bgs
Last Updated	10/7/15	**Soil Surface Area**	3,300	SF
QA Reviewer	Cary Brown	**Soil Volume**	510	CY
QA Review Date	8/10/15	**Perched GW Volume**	64,600	GAL

Site/Problem Description

Soil and perched groundwater contaminated with TEX around historical excavations outside of building 40-56 including USTs, a steamline, and a recovery trench. There are many underground utilities in the area reducing access to the contaminated soil and the buildings HVAC intake ducts are also adjacent to the area of concern.

Proposed Cleanup Action

Alternative 2 consists of installation of additional pumping capacity for continuous groundwater extraction and a large SVE system. Continuous groundwater pumping will occur at EGW007, EGW043 (currently pumping), EGW050, EGW207 and EGW210 with new effluent connections to the industrial wastewater line. A total of 18 SVE wells will be installed in two areas. SVE will performed for 5 years and groundwater extraction for 20 years. Groundwater sampling will be done for 22 years using two different methods. Institutional controls will be implemented for as long as soil and perched groundwater concentrations exceed cleanup levels (30-year assumption for cost) and inspections made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Soil weighs 1.8 tons/CY
5. Four geoprobe samples will be collected within the FS Pilot Test Area to better characterize the area prior to SVE well installation. Geoprobing will take one day.
6. A new well will be installed near EGW007 for pumping monitoring. Installation will take one day.
7. Actual locations of geoprobe samples, the new monitoring well and SVE wells will be determined during the design of the alternative.
8. A large 20 hp blower rated at 200 cfm with 50 inches of H_2O and a 7.5 hp blower rated at 200 cfm with 50 inches of H2O will be installed outside and run for 4 years.
9. Installation of SVE wells and piping will take 18 days.
10. Installation of groundwater extraction trenches and pumping system will take 6 days.
11. Pumped wells will be monitored at the central vault.
12. Semi-annual passive diffusion bag sampling will begin following the first year of pumping.
13. Sampling with a pump will occur once every three years following the first year of pumping.
14. Groundwater sampling for 16 wells will take two days per event using a two person crew.
15. Groundwater extraction will continue for 20 years based on pumping conducted at other SWMUs.
16. Semi-annual sampling with a pump will occur for two years following closeout.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$280,000	1	Project management (4 hrs per week)	6	WK	$616	$3,700
	With Contingency	2	General coordination, meetings, and planning	2	%	$1,003,600	$20,100
	$322,000	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	230	HR	$108	$24,900
		5	Design Plans and Specs	1	LS	$80,000	$80,000
		6	Engineers Estimate	80	HR	$108	$8,700
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	60	HR	$108	$6,500
		9	Work Plan (CMP/SAP)	160	HR	$108	$17,300
		10	Construction oversight and QA (% of DC)	5	%	$1,003,600	$50,200
		11	Reporting (Implementation)	440	HR	$108	$47,600
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
		13	Not Used	0	EA	$0	$0
	Subtotal Costs						**$280,000**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$280,000	$42,000
	TOTAL INDIRECT COST						**$322,000**

ALTERNATIVE 2 (Continued) **Soil Vapor and Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION - FIRST YEAR QUARTERLY EXTRACTION AND SAMPLING (Direct Costs)**						
	$561,600	1	Mobilization	1	LS	$30,000	$30,000
	With Contingency	2	Utility locate	8	HR	$80	$700
	$702,000	3	Surveyor	1	DY	$1,600	$1,600
		4	Construction Equipment Rentals	4	WK	$3,459	$13,900
		5	Construction Labor	4	WK	$8,080	$32,400
		6	TESC/Site Preparation	1	LS	$1,000	$1,000
		7	Sampling Supplies	1	LS	$500	$500
	Pre-design sampling	8	Geoprobe Sampling	1	LS	$2,450	$2,500
		9	AECOM Geoprobe Sampling Oversight	12	HR	$82	$1,000
		10	AECOM Geoprobe Sampling Vehicle Rental	2	DY	$113	$300
		11	PID Rental (Geoprobe Sampling)	2	DY	$88	$200
		12	Geoprobe Soil Samples Analytical Testing	15	EA	$72	$1,100
	SVE System	13	Air Knife (SVE)	22	HR	$195	$4,300
		14	SVE Well Installation	30	EA	$1,684	$50,600
		15	SVE Well Installation Sample Analytical Testing	100	EA	$72	$7,200
		16	AECOM SVE Sampling Oversight	3	WK	$3,280	$9,900
		17	AECOM SVE Sampling Vehicle Rental	21	DY	$113	$2,400
		18	PID Rental	21	DY	$88	$1,900
		19	Sawcut Concrete (SVE Trench)	610	LF	$10	$6,300
		20	SVE System Piping	600	LF	$4	$2,400
		21	SVE Trench Backfill (CDF)	49	CY	$106	$5,200
		22	SVE Trench Asphalt Base Course	19	TN	$16	$300
		23	SVE Trench Asphalt Base Course Delivery	1	HR	$120	$200
		24	SVE Trench Asphalt	67	SY	$32	$2,200
		25	SVE System	1	LS	$63,000	$63,000
		26	SVE Carbon Vessels with Initial Load	1	LS	$35,650	$35,700
	GW Monitoring Install	27	MW Installation	1	LS	$4,600	$4,600
		28	AECOM MW Install Sampling Oversight	8	HR	$82	$700
		29	AECOM MW Install Sampling Vehicle Rental	2	DY	$113	$300
		30	PID Rental (MW Install)	2	DY	$88	$200
		31	MW Samples Analytical Testing	3	EA	$72	$300
	Pumping System	32	Air Knife (GW)	22	HR	$195	$4,300
		33	AECOM GW System Install Oversight	1	WK	$3,280	$3,300
		34	AECOM GW System Install Vehicle Rental	5	DY	$113	$600
		35	Sawcut Concrete (GW Trench)	554	LF	$10	$5,700
		36	GW System Piping	275	LF	$4	$1,100
		37	GW System Backfill (CDF)	25	CY	$106	$2,700
		38	GW System Trench Asphalt Base Course	10	TN	$16	$200
		39	GW System Trench Asphalt Base Course Delivery	1	HR	$110	$200
		40	GW System Trench Asphalt	33	SY	$32	$1,100
		41	GW Extraction System At Well	4	EA	$3,600	$14,400
		42	GW Extraction Central System	1	LS	$12,809	$12,900
		43	AECOM O&M Labor (First Year GW Sampling)	240	HR	$108	$26,000
		44	Supplies and Equipment (First Year GW Sampling)	4	EA	$1,051	$4,300
		45	First Year GW Analytical Testing	76	EA	$60	$4,600
		46	First Year GW Data Packages	1	LS	$5,920	$6,000
		47	First Year GW Annual Report	1	LS	$6,092	$6,100
		48	PIDs (Monitoring)	42	DY	$88	$3,700
		49	Ventilation (Drilling and Trenching)	3	WK	$38,013	$114,100
		50	Compactor	5	DY	$467	$2,400
		51	Loader	5	DY	$615	$3,100
		52	Dust Control (Street Sweeper)	5	DY	$765	$3,900
		53	General Site Cleanup and Misc Restoration	1	LS	$30,000	$30,000
		54	Contractor Standby for Ongoing Operations	4	WK	$7,000	$28,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$49,300	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Hazardous Soil Transportation and Disposal	183	TN	$255	$46,700
	$61,630	3	Asphalt Transportation	2	HR	$120	$300
		4	Asphalt Disposal Fee	11	CY	$22	$300
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$610,900**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$610,900	$152,800
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$763,700	$152,800
	Washington State Sales Tax (%)			**9.5**	%	$916,500	$87,100
	TOTAL DIRECT COST						**$1,003,600**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$322,000
		2	Total Direct Costs (see above)	--	--	--	$1,003,600
		3	Site Inspection and Overhead Costs	8	%	$1,325,600	$106,100
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$1,431,700**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$1,373,200**

ALTERNATIVE 2 (Continued) **Soil Vapor and Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$103,200	1	Project Management and Coordination	80	HR	$154	$12,400
	With Contingency	2	Pump & SVE O&M Site Visit	14	DY	$1,213	$17,000
	$129,000	3	Pump & SVE O&M Supplies and Equipment	1	LS	$6,000	$6,000
		4	Pump & SVE Blower Electricity (20 hp)	1	LS	$16,312	$16,400
		5	SVE Carbon Changeout	7,500	LB	$2	$15,000
		6	SVE O&M Sampling	32	EA	$596	$19,100
		7	Pump & SVE Annual Reporting	160	HR	$108	$17,300
	Total Routine Annual O&M Cost						$103,200
	Subtotal Costs		***Years of Annual O&M***	***5***			**$516,000**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$516,000	$129,000
	TOTAL O&M COST						**$645,000**
	Escalated O&M Cost		Presumed Inflation Rate	***2.00***	%		**$671,400**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$618,800**
	ANNUAL MONITORING & REPORTING						
	$29,700	1	Project Management and Coordination	16	HR	$154	$2,500
	With Contingency	2	GW Monitoring Labor	104	HR	$82	$8,600
	$35,640	3	Passive Diffusion Bags (PDB)	32	EA	$30	$1,000
		4	PDB Monitoring Supplies and Equipment	2	EA	$411	$900
		5	GW Analytical Testing	38	EA	$60	$2,300
		6	GW Data Packages	1	LS	$5,920	$6,000
		7	GW Annual Reporting	1	LS	$6,092	$6,100
		8	IC Inspection (for 30 years)	1	LS	$2,250	$2,300
	Total Routine Annual Monitoring Cost						$29,700
	Subtotal Costs		***Years of Annual Monitoring***	***20***			**$594,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$594,000	$118,800
	TOTAL MONITORING & REPORTING COST						**$712,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$618,000**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$87,000	1	SVE System General Repair (Year 2)	1	LS	$2,000	$2,000
	With Contingency	2	SVE System General Repair (Year 4)	1	LS	$2,000	$2,000
	$113,100	3	Non-Routine Monitoring (Pumping) (Year 4)	1	LS	$3,420	$3,500
		4	SVE System Decommissioning (Year 5)	1	LS	$10,000	$10,000
		5	SVE Well Abandonment (Year 5)	1	LS	$22,500	$22,500
		6	Closeout Confirmation Borings (Year 5)	10	EA	$1,900	$19,000
		7	Non-Routine Monitoring (Pumping) (Year 7)	1	LS	$3,420	$3,500
		8	Non-Routine Monitoring (Pumping) (Year 10)	1	LS	$3,420	$3,500
		9	Non-Routine Monitoring (Pumping) (Year 13)	1	LS	$3,420	$3,500
		10	Non-Routine Monitoring (Pumping) (Year 16)	1	LS	$3,420	$3,500
		11	Non-Routine Monitoring (Pumping) (Year 19)	1	LS	$3,420	$3,500
		12	Non-Routine Monitoring (Pumping) (Year 20)	1	LS	$3,420	$3,500
		13	Non-Routine Monitoring (Pumping) (Year 21)	1	LS	$3,420	$3,500
		14	Non-Routine Monitoring (Pumping) (Year 22)	1	LS	$3,420	$3,500
		15	Monitoring Well Decommissioning (Year 22)	21	EA	$1,343	$28,300
	Subtotal Costs						**$87,000**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$87,000	$26,100
	TOTAL CLOSURE COST						**$113,100**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$128,200**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$645,000		$618,800
		2	Total Monitoring Costs (see above)		$712,800		$618,000
		3	Total Non-Routine OMM & Decommissioning		$113,100		$128,200
	TOTAL OMM COSTS				**$1,470,900**		**$1,365,000**

	ALTERNATIVE COST SUMMARY				**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)				$1,373,200	**$1,373,200**
	TOTAL PRESENT-WORTH OMM COST				$1,365,000	**$2,738,200**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%		$137,000	**$2,875,200**
	TOTAL PRESENT-WORTH COST					**$2,875,000**

ALTERNATIVE 3 **Excavation with Dewatering**

Client	Boeing	**EPM Group**	B	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 86, 89, 94, Former USTs	
Project	Upland Area Feasibility Study	**Building**	Building 40-56	
Estimator	Elyssa Dixon	**Media**	Soil and Perched Groundwater	
Report Date	10/30/15	**Soil Depth Range**	7-43	FT bgs
Last Updated	10/7/15	**Soil Surface Area**	3,300	SF
QA Reviewer	Cary Brown	**Soil Volume**	510	CY
QA Review Date	8/21/15	**Perched GW Volume**	64,600	GAL

Site/Problem Description

Soil and perched groundwater contaminated with TEX around historical excavations outside of building 40-56 including USTs, a steamline, and a recovery trench. There are many underground utilities in the area reducing access to the contaminated soil

Proposed Cleanup Action

Alternative 3 consists of hot spot excavation around utilities to remove contaminated soil were practical. Some contaminated soil under utilities and the building foundation may remain in place so institutional controls will be used to limit the land use of this area to industrial use only. Twelve existing wells will be removed to complete the excavation activities. The excavation area will be dewatered during the work and backfilled with CDF to reduce future presence of perched groundwater. Remaining wells will be monitored following excavation every 5 years. Institutional controls will be implemented for as long as soil and perched groundwater concentrations exceed cleanup levels (30-year assumption for cost) and annual inspection made.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Soil weighs 1.8 tons/CY
5. Abandon wells EGW002, EGW005, EGW007, EGW050, EGW051A, EGW063, EGW206, EGW207, EGW208, EGW209, EGW210, and EGW211. Overdrilling wells will take 3 days.
6. Continue monitoring wells EGW006, EGW008, EGW009, EGW010, EGW043, EGW044, EGW062, EGW212.
7. The eastern excavation area will be excavated utilizing trench boxes, which will take approximately 1 week.
8. The western excavation area will be excavated by utilizing a freeze wall shoring system around the excavation perimeter, which will take approximately a month and a half.
9. Some contaminated soil will remain in place following excavation work.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$434,300	1	Project management (4 hours per week)	10	WK	$616	$6,200
	With Contingency	2	General coordination, meetings, and planning	1	LS	$30,000	$30,000
	$499,400	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	230	HR	$108	$24,900
		5	Design Plans and Specs	1	LS	$80,000	$80,000
		6	Engineers Estimate	80	HR	$108	$8,700
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	60	HR	$108	$6,500
		9	Work Plan (CMP/SAP)	160	HR	$108	$17,300
		10	Construction oversight and QA (% of DC)	5	%	$3,842,000	$192,100
		11	Reporting (Implementation)	440	HR	$108	$47,600
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$434,300**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$434,300	$65,145
	TOTAL INDIRECT COST						**$499,400**

ALTERNATIVE 3 (Continued) **Excavation with Dewatering**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$1,203,600	1	Mobilization	1	LS	$20,000	$20,000
	With Contingency	2	Utility locate	16	HR	$80	$1,300
	$1,504,500	3	Surveyor	3	DY	$1,600	$4,800
		4	Construction Equipment Rentals	8	WK	$5,990	$48,000
		5	Labor (4 man crew)	8	LWK	$18,970	$151,800
		6	TESC/Site Preparation	1	LS	$1,000	$1,000
		7	Reroute HVAC Intake Ducting	450	FT	$29	$13,100
		8	Reroute HVAC Intake Fittings	3	EA	$1,000	$3,000
		9	Ventilation (overdrilling and excavation)	7	WK	$38,013	$266,100
		10	Abandon Wells (Overdrill)	11	EA	$1,540	$17,000
		11	Sawcut Asphalt	425	LF	$15	$6,300
		12	Air Knife (Excavation)	6	HR	$195	$1,200
		13	Trench Box Rental and Delivery	1	LS	$969	$1,000
		14	Dewatering Equipment	8	WK	$455	$3,700
		15	Install Freeze Wall Adjacent to Building	1,750	SF	$34	$59,500
		16	Install Freeze Wall on Excavation Perimeter	6,125	SF	$31	$189,900
		17	Sampling Supplies	1	LS	$500	$500
		18	Confirmation Soil Samples	80	EA	$132	$10,600
		19	AECOM Sampling Oversight	7	WK	$4,100	$28,700
		20	AECOM Sampling Vehicle Rental	49	DY	$113	$5,600
		21	PID Rental	49	DY	$88	$4,400
		22	CDF Backfill	2,444	CY	$106	$259,100
		23	Asphalt Base Course	68	TN	$16	$1,100
		24	Asphalt Base Course Delivery	4	HR	$230	$1,000
		25	Compactor	2	DY	$467	$1,000
		26	Replace Asphalt	367	SY	$100	$36,700
		27	Dust Control (Street Sweeper)	8	DY	$765	$6,200
		28	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		29	Contractor Standby for Ongoing Operations	8	WK	$7,000	$56,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$1,135,400	1	Transportation and Disposal Coordination	40	HR	$100	$4,000
	With Contingency	2	Hazardous Soil Transportation and Disposal	4,435	TN	$255	$1,131,000
	$1,419,250	3	Asphalt Transportation	2	HR	$120	$300
		4	Asphalt Disposal Fee	3	CY	$22	$100
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$2,339,000**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$2,339,000	$584,800
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$2,923,800	$584,800
	Washington State Sales Tax (%)			**9.5**	%	$3,508,600	$333,400
	TOTAL DIRECT COST						**$3,842,000**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$499,400
		2	Total Direct Costs (see above)	--	--	--	$3,842,000
		3	Site Inspection and Overhead Costs	8	%	$4,341,400	$347,400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$4,688,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,497,300**

ALTERNATIVE 3 (Continued) **Excavation with Dewatering**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$99,000	1	Groundwater Monitoring (Year 5)	1	LS	$16,414	$16,500
	With Contingency	2	Groundwater Monitoring (Year 10)	1	LS	$16,414	$16,500
	$128,700	3	Groundwater Monitoring (Year 15)	1	LS	$16,414	$16,500
		4	Groundwater Monitoring (Year 20)	1	LS	$16,414	$16,500
		5	Groundwater Monitoring (Year 25)	1	LS	$16,414	$16,500
		6	Groundwater Monitoring (Year 30)	1	LS	$16,414	$16,500
		7	Monitoring Well Decommissioning (Year 30)	9	EA	$1,483	$13,400
	Subtotal Costs						**$99,000**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$99,000	$29,700
	TOTAL CLOSURE COST						**$128,700**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$113,100**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$128,700		$113,100
	TOTAL OMM COSTS				**$229,500**		**$195,000**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,497,300	**$4,497,300**
	TOTAL PRESENT-WORTH OMM COST			$195,000	**$4,692,300**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$234,700	**$4,927,000**
	TOTAL PRESENT-WORTH COST				**$4,927,000**

Table D-5
Comparison of Alternative Costs
Exposure Pathway Model: EPM C
SWMU/AOC No. 166, BUILDING 45-53, Former UST EV-110-1

Task	Alternative 1: Maintain Containment	Alternative 2: Groundwater Extraction
IMPLEMENATION COSTS		
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$53,600
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$52,400
Direct Contingency and Unlisted Items Assumed (%)	25	25
Site Inspection and Overhead	$400	$8,500
Total Implementation Costs	**$4,800**	**$114,500**
OMM COSTS		
Annualized O&M Costs	$0	$20,630
O&M Contingency and Unlisted Items Assumed (%)	25	25
O&M Duration (years)	0	4
Annualized Monitoring & Reporting Costs	$3,360	$20,640
Monitoring Contingency and Unlisted Items Assumed (%)	20	20
Monitoring Duration (years)	30	4
Non-Routine OMM and/or Decommissioning Costs (Closure)	$85,020	$25,740
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30
Total OMM Costs	**$185,900**	**$190,900**
TOTALS		
Total Implementation and OMM Costs	**$190,700**	**$305,400**
Estimated Agency Oversight Costs [a]	$7,700	$14,700
Total Project Present Worth [b]	**$162,000**	**$308,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.
OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	C
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 166, Former UST EV-110-1
Project	Upland Area Feasibility Study	**Building**	45-53
Estimator	Gina Franco	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	Not Estimated
Last Updated	10/5/15	**Surface Area**	Not Estimated
QA Reviewer	Debbie Rodenhizer	**Volume**	Not Estimated
QA Review Date	7/28/15		

Site/Problem Description Perched groundwater contaminated with TPH compounds exists outside of Building 45-53 northwest of a former UST. Jet A fuel was in a double wall steel UST, which was removed in 1997. Soil samples are below CULs.

Proposed Cleanup Action Alternative 1 consists of containing the contaminated perched groundwater in place. The existing concrete and pavement above the area of concern will remain in place to prevent the leaching of contaminants. The surface will be inspected annually and maintained as needed. Containment and institutional controls will be implemented until cleanup levels are achieved (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only.
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Concrete and asphalt pavement outside of building will be maintained by Boeing Site Services.
5. Institutional controls for containment of the area will be established under a sitewide plan.
6. Annual inspection of the land use, concrete, and pavement in the area will be conducted.
7. Groundwater monitoring at the existing well will be completed once every 5 years (for TPH-Gx).
8. Containment and annual inspections will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**SHORT TERM MONITORING**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual Inspection and Reporting	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$65,400	1	Groundwater Monitoring (Year 5)	1	LS	$10,835	$10,900
	With Contingency	2	Groundwater Monitoring (Year 10)	1	LS	$10,835	$10,900
	$85,020	3	Groundwater Monitoring (Year 15)	1	LS	$10,835	$10,900
		4	Groundwater Monitoring (Year 20)	1	LS	$10,835	$10,900
		5	Groundwater Monitoring (Year 25)	1	LS	$10,835	$10,900
		6	Groundwater Monitoring (Year 30)	1	LS	$10,835	$10,900
	Subtotal Costs						**$65,400**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$65,400	$19,620
	TOTAL CLOSURE COST						**$85,100**
	Escalated Closure Cost		Presumed Inflation Rate	***2.00***	%		**$122,000**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$67,200**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$85,100		$67,200
	TOTAL OMM COSTS				**$185,900**		**$149,100**

	ALTERNATIVE COST SUMMARY			**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$149,100	**$153,800**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$7,700	**$161,500**
	TOTAL PRESENT-WORTH COST				**$162,000**

ALTERNATIVE 2 **Periodic Groundwater Extraction**

Client	Boeing	**EPM Group**	C
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 166, Former UST EV-110-1
Project	Upland Area Feasibility Study	**Building**	45-53
Estimator	Gina Franco	**Media**	Perched Groundwater
Report Date	10/30/15	**Depth Range**	Not Estimated
Last Updated	10/7/15	**Surface Area**	Not Estimated
QA Reviewer	Cary Brown	**Volume**	Not Estimated
QA Review Date	8/10/15		

Site/Problem Description Perched groundwater contaminated with TPH compounds exists outside of Building 45-53 northwest of a former UST. Jet A fuel was in a double wall steel UST, which was removed in 1997. Soil samples are below CULs.

Proposed Cleanup Action Alternative 2 consists of periodic perched groundwater extraction from contaminated well (EGW035) using a portable poly tank and vacuum pump. Discharge of extracted groundwater to the industrial wastewater treatment plant. Extraction is assumed to be implemented for 5 years. Groundwater sampling will be done for 5 years using two different methods. Institutional controls will be implemented until cleanup levels are achieved (6-year assumption for cost) with annual inspections.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Use existing well (EGW035) for extraction and groundwater monitoring.
5. Quarterly extraction for 5 years using portable poly tank and vacuum pump.
5. Perform quarterly groundwater monitoring for initial period of 1 year.
6. Perform semi-annual passive diffusion bag sampling after initial period for 5 years.
7. Perform groundwater sampling using bladder-pump collection once every three years after initial sampling period and during final two years.
8. A 2-person crew will perform sampling of the well in one day (6 hours).
9. Assume O&M period of 5 years following initial baseline sampling.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$46,600	1	Project Management (4 hrs per week)	4	WK	$616	$2,500
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$53,600	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Permitting	1	LS	$2,820	$2,900
		5	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		6	Reporting (Implementation)	40	HR	$108	$4,400
		7	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$46,600**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$46,600	$6,990
	TOTAL INDIRECT COST						**$53,600**

ALTERNATIVE 2 (Continued) **Periodic Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$31,800	1	IBC Poly Tank - 330 gallons	2	EA	$530	$1,100
	With Contingency	2	Influent/Discharge Hoses	1	LS	$200	$200
	$39,750	3	AECOM Labor (First Year Sampling)	96	HR	$82	$7,900
		4	Supplies and Equipment (First Year Sampling)	4	DY	$1,051	$4,300
		5	First Year Analytical Testing	16	EA	$60	$1,000
		6	First Year Quarterly Data Packages	1	LS	$1,200	$1,200
		7	First Year Installation & Monitoring Report	1	LS	$6,092	$6,100
		8	First Year AECOM O&M Vehicle Rental	4	DY	$113	$500
		9	First Year AECOM O&M Oversight	4	DY	$656	$2,700
		10	First Year Extraction Labor	4	DY	$928	$3,800
		11	First Year Extraction Supplies and Equipment	4	DY	$740	$3,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$31,800**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$31,800	$8,000
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$39,800	$8,000
	Washington State Sales Tax (%)			**9.5**	%	$47,800	$4,600
	TOTAL DIRECT COST						**$52,400**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$53,600
		2	Total Direct Costs (see above)	--	--	--	$52,400
		3	Site Inspection and Overhead Costs	8	%	$106,000	$8,500
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$114,500**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$109,800**

ALTERNATIVE 2 (Continued) **Periodic Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$16,500	1	Project Management and Coordination	32	HR	$154	$5,000
	With Contingency	2	AECOM Vehicle Rental	4	DY	$113	$500
	$20,630	3	AECOM O&M Oversight	40	HR	$82	$3,300
		4	Contractor Labor	4	DY	$1,160	$4,700
		5	O&M Supplies and Equipment	4	EA	$740	$3,000
	Total Routine Annual O&M Cost						$16,500
	Subtotal Costs		***Years of Annual O&M***	***4***			**$66,000**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$66,000	$16,500
	TOTAL O&M COST						**$82,500**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$79,700**
	ANNUAL MONITORING & REPORTING						
	$17,200	1	Project Management and Coordination	16	HR	$154	$2,500
	With Contingency	2	Semiannual Monitoring Labor	48	HR	$82	$4,000
	$20,640	3	Passive Diffusion Bags (PDB)	2	EA	$30	$100
		4	PDB Monitoring Supplies and Equipment	2	EA	$411	$900
		5	Semiannual Analytical Testing	2	EA	$45	$100
		6	Semiannual Data Packages	1	LS	$1,200	$1,200
		7	Annual Reporting	1	LS	$6,092	$6,100
		8	IC Inspection	1	LS	$2,250	$2,300
	Total Routine Annual Monitoring Cost						$17,200
	Subtotal Costs		***Years of Annual Monitoring***	***4***			**$68,800**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$68,800	$13,760
	TOTAL MONITORING & REPORTING COST						**$82,600**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$79,800**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$19,800	1	Additional Monitoring (Pumping) (Year 4)	1	LS	$1,120	$1,200
	With Contingency	2	Additional Monitoring (Pumping) (Year 5)	1	LS	$1,120	$1,200
	$25,740	3	Additional Monitoring (Pumping) (Year 6)	1	LS	$10,835	$10,900
		4	Monitoring Well Decommissioning (Year 6)	5	EA	$1,293	$6,500
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$19,800**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$19,800	$5,940
	TOTAL CLOSURE COST						**$25,800**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$23,800**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$82,500		$79,700
		2	Total Monitoring Costs (see above)		$82,600		$79,800
		3	Total Non-Routine OMM & Decommissioning		$25,800		$23,800
	TOTAL OMM COSTS				**$190,900**		**$183,300**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$109,800	**$109,800**
	TOTAL PRESENT-WORTH OMM COST			$183,300	**$293,100**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$14,700	**$307,800**
	TOTAL PRESENT-WORTH COST				**$308,000**

Table D-6
Comparison of Alternative Costs
Exposure Pathway Model: EPM D
SWMU/AOC Nos. 055, 168, BUILDING 40-24, UTILITY TRENCHES AND SUMPS

Task	Alternative 1: Maintain Containment	Alternative 2: Periodic Groundwater Extraction	Alternative 3: Continuous Groundwater Extraction	Alternative 4: Near-term Excavation with Dewatering
IMPLEMENATION COSTS				
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$52,800	$132,700	$186,600
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$61,700	$164,100	$641,100
Direct Contingency and Unlisted Items Assumed (%)	25	25	Alternative 4 consists of decommissioning	25
Site Inspection and Overhead	$400	$9,200	$23,800	$66,300
Total Implementation Costs	**$4,800**	**$123,700**	**$320,600**	**$894,000**
OMM COSTS				
Annualized O&M Costs	$0	$24,880	$14,000	$23,500
O&M Contingency and Unlisted Items Assumed (%)	25	25	25	25
O&M Duration (years)	0	20	7	20
Annualized Monitoring & Reporting Costs	$3,360	$39,120	$32,400	$25,560
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20	20
Monitoring Duration (years)	30	21	21	21
Non-Routine OMM and/or Decommissioning Costs (Closure)	$96,720	$12,610	$38,610	$40,560
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30	30
Total OMM Costs	**$197,600**	**$1,331,800**	**$817,100**	**$1,047,400**
TOTALS				
Total Implementation and OMM Costs	**$202,400**	**$1,455,500**	**$1,137,700**	**$1,941,400**
Estimated Agency Oversight Costs [a]	$8,200	$63,400	$51,000	$88,000
Total Project Present Worth [b]	**$171,000**	**$1,330,000**	**$1,070,000**	**$1,847,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding. $0

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	D			
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 55,168, Utility Trenches and Sumps			
Project	Upland Area Feasibility Study	**Building**	Building 40-24			
Estimator	Elyssa Dixon	**Media**	Soil and Perched Groundwater			
Report Date	10/30/15		**Soil**		**Perched Groundwater**	
Last Updated	10/5/15	**Depth Range**	1 to 30	FT bgs	10.5 to 14	FT bgs
QA Reviewer	Debbie Rodenhizer	**Surface Area**	3,500	SF	4,200	SF
QA Review Date	7/28/15	**Volume**	2,100	CY	18,800	GAL

Site/Problem Description

Soil and perched groundwater contaminated with Skydrol (phosphate compounds) in limited areas around the existing utility tunnel both in both external and internal building locations. The area inside the building is used for aircraft production so access is difficult.

Proposed Cleanup Action

Alternative 1 consists of containment of shallow contaminated soil and perched groundwater. Alternative 1 will require that the concrete above the area of concern remain in place and in good condition to prevent the leaching of contaminants to groundwater. The surface will be inspected annually and maintained as needed and groundwater monitoring will be conducted every 5 years. Containment and institutional controls will be implemented for as long as soil and perched groundwater concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Boeing Site Services will maintain the concrete, pavement, and building covering the area of concern.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the land use and concrete in the area will be conducted.
7. Containment and monitoring will be implemented for 30 years.
8. Groundwater monitoring for Skydrol of wells EGW 37, 55 and 70 through 74 will be conducted every five years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	HR	$100	$0
	With Contingency	2	Not Used	0	tons	$1	$0
	$0	3	Not Used	0	tons	$1	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,600**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$74,400	1	Groundwater Monitoring (Year 5)	1	LS	$12,399	$12,400
	With Contingency	2	Groundwater Monitoring (Year 10)	1	LS	$12,399	$12,400
	$96,720	3	Groundwater Monitoring (Year 15)	1	LS	$12,399	$12,400
		4	Groundwater Monitoring (Year 20)	1	LS	$12,399	$12,400
		5	Groundwater Monitoring (Year 25)	1	LS	$12,399	$12,400
		6	Groundwater Monitoring (Year 30)	1	LS	$12,399	$12,400
	Subtotal Costs						**$74,400**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$74,400	$22,320
	TOTAL CLOSURE COST						**$96,800**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$76,400**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$96,800		$76,400
	TOTAL OMM COSTS				**$197,600**		**$158,300**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,600	**$4,600**
	TOTAL PRESENT-WORTH OMM COST			$158,300	**$162,900**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$8,200	**$171,100**
	TOTAL PRESENT-WORTH COST				**$171,000**

ALTERNATIVE 2 **Periodic Groundwater Extraction**

Client	Boeing	**EPM Group**	D			
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 55,168, Utility Trenches and Sumps			
Project	Upland Area Feasibility Study	**Building**	Building 40-24			
Estimator	Elyssa Dixon	**Media**	Soil and Perched Groundwater			
Report Date	10/30/15		**Soil**		**Perched Groundwater**	
Last Updated	10/7/15	**Depth Range**	1 to 30	FT bgs	10.5 to 14	FT bgs
QA Reviewer	Cary Brown	**Surface Area**	3,500	SF	4,200	SF
QA Review Date	8/10/15	**Volume**	2,100	CY	18,800	GAL

Site/Problem Description Soil and perched groundwater contaminated with Skydrol (phosphate compounds) in limited areas around the existing utility tunnel both in both external and internal building locations. The area inside the building is used for aircraft production so access is difficult.

Proposed Cleanup Action Alternative 2 consists of quarterly perched groundwater extraction from 4 contaminated wells (EGW055, EGW070, EGW071, EGW074) with discharge to the industrial wastewater treatment plant. Quarterly extraction will be implemented for 20 years with monitoring completed over 22 years total. Groundwater sampling will be done for 22 years using two different methods. Institutional controls will be implemented for as long as soil and perched groundwater concentrations exceed cleanup levels (30-year assumption for cost) and annual inspections made.

ter extraction from EGW037 and discharge to the industrial wastewater treatment plant. Extraction will be implemented for 20 years, with monitoring completed o

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Extraction and sampling with pumps will occur quarterly for the first year.
4. Perched groundwater samples will be collected using pumps twice every year following the first year of groundwater extraction pumping.
5. Groundwater extraction for 4 wells will take one day per event.
6. Groundwater sampling for 7 wells will take two days per event.
7. Groundwater extraction will continue for 20 years based on pumping conducted at other SWMUs.
8. Semi-annual sampling with a pump will occur for two years following closeout.
9. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$45,900	1	Project management	40	HR	$154	$6,200
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$52,800	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Permitting	1	LS	$2,820	$2,900
		5	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		6	IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$45,900**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$45,900	$6,885
	TOTAL INDIRECT COST						**$52,800**

ALTERNATIVE 2 (Continued) **Periodic Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION - FIRST YEAR QUARTERLY EXTRACTION AND SAMPLING (Direct Costs)**						
	$37,500	1	AECOM O&M Labor (First Year Sampling)	160	HR	$108	$17,300
	With Contingency	2	Supplies and Equipment (First Year Sampling)	4	EA	$1,051	$4,300
	$46,880	3	First Year Analytical Testing	40	EA	$180	$7,200
		4	First Year Data Packages	1	LS	$2,590	$2,600
		5	First Year Annual Report	1	LS	$6,092	$6,100
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$37,500**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$37,500	$9,400
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$46,900	$9,400
	Washington State Sales Tax (%)			**9.5**	%	$56,300	$5,400
	TOTAL DIRECT COST						**$61,700**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$52,800
		2	Total Direct Costs (see above)	--	--	--	$61,700
		3	Site Inspection and Overhead Costs	8	%	$114,500	$9,200
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$123,700**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$118,600**

ALTERNATIVE 2 (Continued) **Periodic Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE (Quarterly Groundwater Extraction)**						
	$19,900	1	Project Management and Coordination	32	HR	$154	$5,000
	With Contingency	2	AECOM Vehicle Rental	4	DY	$113	$500
	$24,880	3	AECOM O&M Oversight	40	HR	$108	$4,400
		4	Contractor Labor	4	DY	$1,160	$4,700
		5	O&M Supplies and Equipment	4	EA	$1,315	$5,300
	Total Routine Annual O&M Cost						$19,900
	Subtotal Costs		***Years of Annual O&M***	***20***			**$398,000**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$398,000	$99,500
	TOTAL O&M COST						**$497,500**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$431,400**
	ANNUAL MONITORING & REPORTING						
	$32,600	1	Project Management and Coordination	16	HR	$154	$2,500
	With Contingency	2	Monitoring Labor	104	HR	$108	$11,300
	$39,120	3	Monitoring Supplies and Equipment	4	DY	$1,051	$4,300
		4	Analytical Testing	20	EA	$180	$3,600
		5	Data Packages	7	EA	$370	$2,600
		6	Annual Reporting	1	LS	$6,092	$6,100
		7	IC Inspection (every year for 30 years)	1	LS	$2,143	$2,200
	Total Routine Annual Monitoring Cost						$32,600
	Subtotal Costs		***Years of Annual Monitoring***	***21***			**$684,600**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$684,600	$136,920
	TOTAL MONITORING & REPORTING COST						**$821,600**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$707,600**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$9,700	1	Monitoring Well Decommissioning (Year 22)	7	LS	$1,376	$9,700
	With Contingency	2	Not Used	0	EA	$0	$0
	$12,610	3	Not Used	0	EA	$0	$0
	Subtotal Costs						**$9,700**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$9,700	$2,910
	TOTAL CLOSURE COST						**$12,700**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$9,300**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$497,500		$431,400
		2	Total Monitoring Costs (see above)		$821,600		$707,600
		3	Total Non-Routine OMM & Decommissioning		$12,700		$9,300
	TOTAL OMM COSTS				**$1,331,800**		**$1,148,300**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$118,600	**$118,600**
	TOTAL PRESENT-WORTH OMM COST			$1,148,300	**$1,266,900**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$63,400	**$1,330,300**
	TOTAL PRESENT-WORTH COST				**$1,330,000**

ALTERNATIVE 3 **Continuous Groundwater Extraction**

Client	Boeing	**EPM Group**	D			
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 55,168, Utility Trenches and Sumps			
Project	Upland Area Feasibility Study	**Building**	Building 40-24			
Estimator	Elyssa Dixon	**Media**	Soil and Perched Groundwater			
Report Date	10/30/15		**Soil**		**Perched Groundwater**	
Last Updated	10/7/15	**Depth Range**	1 to 30	FT bgs	10.5 to 14	FT bgs
QA Reviewer	Cary Brown	**Surface Area**	3,500	SF	4,200	SF
QA Review Date	8/10/15	**Volume**	2,100	CY	18,800	GAL

Site/Problem Description

Soil and perched groundwater contaminated with Skydrol (phosphate compounds) in limited areas around the existing utility tunnel both in both external and internal building locations. The area inside the building is used for aircraft production so access is difficult.

Proposed Cleanup Action

Alternative 3 consists of installing low flow pumps to extract perched groundwater continuously from 5 contaminated wells (EGW037, EGW055, EGW070, EGW071, EGW074) with discharge connected directly to the industrial wastewater treatment plant lines. Extraction will be performed for 8 years total, with monitoring over 22 years using two different methods. Institutional controls will be implemented for as long as soil and perched groundwater concentrations exceed cleanup levels (30-year assumption for cost) with annual inspections made.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. 1.8 tons/CY
4. Groundwater extraction will continue for 20 years based on pumping conducted at other SWMUs.
5. Quarterly sampling will occur for the first year from existing pumps.
6. Perched groundwater samples will be collected twice every year following the first year of groundwater extraction pumping. Samples will be collected from sample ports for wells that will have low-flow pumps installed.
7. Installation of pumps, tote and piping will take one week.
8. Semi-annual sampling with a pump will occur for two years following closeout.
9. Soil will be collected in roll-off provided by Boeing.
10. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$115,400	1	Project management	80	HR	$154	$12,400
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$132,700	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Continuous Groundwater Extraction	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$164,100	$8,300
		11	Reporting	150	HR	$108	$16,200
		12	IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$115,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$115,400	$17,310
	TOTAL INDIRECT COST						**$132,700**

ALTERNATIVE 3 (Continued) **Continuous Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$98,400	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Utility locate	8	HR	$80	$700
	$123,000	3	Surveyor	1	DY	$1,600	$1,600
		4	Equipment Rentals	1	DY	$1,039	$1,100
		5	Labor	1	LWK	$18,970	$19,000
		6	TESC/Site Preparation	1	LS	$1,000	$1,000
		7	Sawcut Concrete	22	LF	$15	$400
		8	Peristaltic Pumps	5	EA	$2,562	$12,900
		9	Sump Pump	1	LS	$731	$800
		10	Tubing	100	FT	$9	$1,000
		11	PVC Pipe	1,000	FT	$6	$6,000
		12	Tote	1	LS	$500	$500
		13	Black Box (Gauges, backflow preventer, etc.)	1	LS	$2,235	$2,300
		14	Industrial Wastewater Line Connection Labor	16	HR	$58	$1,000
		15	Industrial Wastewater Line Connection Supplies	1	LS	$200	$200
		16	Concrete Base Course/PVC Pipe Backfill	2	TN	$16	$100
		17	Continuous Groundwater Extraction	1	LS	$110	$200
		18	Dozer	1	DY	$577	$600
		19	Compactor	1	DY	$467	$500
		20	Replace Concrete	1	SY	$100	$200
		21	Dust Control (Street Sweeper)	1	DY	$765	$800
		22	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		23	AECOM Labor (First Year Sampling)	160	HR	$108	$17,300
		24	Supplies and Equipment (First Year Sampling)	4	EA	$1,051	$4,300
		25	First Year Analytical Testing	40	EA	$180	$7,200
		26	First Year Data Packages	1	LS	$2,590	$2,600
		27	First Year Annual Report	1	LS	$6,092	$6,100
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$1,400	1	Transportation and Disposal Coordination	10	HR	$100	$1,000
	With Contingency	2	Concrete Transportation	2	HR	$120	$300
	$1,750	3	Concrete Disposal Fee	1	CY	$30	$100
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$99,800**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$99,800	$25,000
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$124,800	$25,000
	Washington State Sales Tax (%)			**9.5**	%	$149,800	$14,300
	TOTAL DIRECT COST						**$164,100**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$132,700
		2	Total Direct Costs (see above)	--	--	--	$164,100
		3	Site Inspection and Overhead Costs	8	%	$296,800	$23,800
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$320,600**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$307,500**

ALTERNATIVE 3 (Continued) **Continuous Groundwater Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$11,200	1	Project Management and Coordination	40	HR	$154	$6,200
	With Contingency	2	O&M Site Visit	1	LS	$2,293	$2,300
	$14,000	3	O&M Supplies and Equipment	1	LS	$2,000	$2,000
		4	Pump Electricity	1	LS	$653	$700
	Total Routine Annual O&M Cost						$11,200
	Subtotal Costs		***Years of Annual O&M***	***7***			**$78,400**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$78,400	$19,600
	TOTAL O&M COST						**$98,000**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$92,800**
	ANNUAL MONITORING & REPORTING						
	$27,000	1	Project Management and Coordination	16	HR	$154	$2,500
	With Contingency	2	Monitoring Labor	72	HR	$108	$7,800
	$32,400	3	Monitoring Supplies and Equipment	2	DY	$1,051	$2,200
		4	Analytical Testing	20	EA	$180	$3,600
		5	Data Packages	7	EA	$370	$2,600
		6	Annual Reporting	1	LS	$6,092	$6,100
		7	IC Inspection (every year for 30 years)	1	LS	$2,143	$2,200
	Total Routine Annual Monitoring Cost						$27,000
	Subtotal Costs		***Years of Annual Monitoring***	***21***			**$567,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$567,000	$113,400
	TOTAL MONITORING & REPORTING COST						**$680,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$586,000**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$29,700	1	General Repairs (Year 5)	1	LS	$5,000	$5,000
	With Contingency	2	General Repairs (Year 10)	1	LS	$5,000	$5,000
	$38,610	3	General Repairs (Year 15)	1	LS	$5,000	$5,000
		4	General Repairs (Year 20)	1	LS	$5,000	$5,000
		5	Monitoring Well Decommissioning (Year 22)	7	LS	$1,376	$9,700
	Subtotal Costs						**$29,700**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$29,700	$8,910
	TOTAL CLOSURE COST						**$38,700**
	Escalated Closure Cost		Presumed Inflation Rate	***2.00***	%		**$42,600**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$98,000		$92,800
		2	Total Monitoring Costs (see above)		$680,400		$586,000
		3	Total Non-Routine OMM & Decommissioning		$38,700		$33,000
	TOTAL OMM COSTS				**$817,100**		**$711,800**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$307,500	**$307,500**
	TOTAL PRESENT-WORTH OMM COST			$711,800	**$1,019,300**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$51,000	**$1,070,300**
	TOTAL PRESENT-WORTH COST				**$1,070,000**

ALTERNATIVE 4 **Near-term Excavation with Dewatering**

Client	Boeing	**EPM Group**	D			
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 55,168, Utility Trenches and Sumps			
Project	Upland Area Feasibility Study	**Building**	Building 40-24			
Estimator	Elyssa Dixon	**Media**	Soil and Perched Groundwater			
Report Date	10/30/15		**Soil**		**Perched Groundwater**	
Last Updated	10/7/15	**Depth Range**	1 to 30	FT bgs	10.5 to 14	FT bgs
QA Reviewer	Cary Brown	**Surface Area**	3,500	SF	4,200	SF
QA Review Date	8/17/15	**Volume**	2,100	CY	18,800	GAL

Site/Problem Description

Soil and perched groundwater contaminated with Skydrol (phosphate compounds) in limited areas around the existing utility tunnel both in both external and internal building locations. The area inside the building is used for aircraft production so access is difficult.

Proposed Cleanup Action

Alternative 4 consists of decommissioning Vault E and removing soil outside Building 40-24 with concentrations above CULs. Dewater area during excavation. Install pipe to EGW037 inside building and route to reconstructed smaller vault in the same area where Vault E was removed. Complete periodic groundwater extraction from EGW037 and discharge to the industrial wastewater treatment plant. Extraction will be implemented for 20 years, with monitoring completed over 22 years total using two different methods. Institutional controls will be implemented for as long as soil and perched groundwater concentrations exceed cleanup levels (30-year assumption for cost) with annual inspections made.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. 1.8 tons/CY
5. Groundwater extraction will continue for 20 years with quarterly O&M visits based on pumping conducted at other SWMUs.
6. Quarterly sampling with a Pumping pump will occur for the first year.
7. Excavation and construction of the new vault will take 4 weeks based on disposal of approximately 5 trucks per day (limited by backfill)
8. Semi-annual passive diffusion bag sampling will begin following the first year of pumping.
9. Pumping pump collection will occur once every three years following the first year of pumping.
10. Semi-annual sampling with a Pumping pump will occur for two years following closeout.
11. 6 existing wells will be abandoned by overdrilling.
12. Trench boxes will be used for excavation near the building.
13. Contaminated soil will remain in place following excavation.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$162,300	1	Project management (4 hours per week)	7	WK	$616	$4,400
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$186,600	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$130	$10,400
		5	Near-term Excavation with Dewatering	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$130	$3,900
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$130	$2,100
		9	Work Plan (CMP/SAP)	80	HR	$130	$10,400
		10	Construction oversight and QA (% of DC)	5	%	$641,100	$32,100
		11	Reporting (Implementation)	230	HR	$100	$23,000
		12	IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$162,300**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$162,300	$24,345
	TOTAL INDIRECT COST						**$186,600**

ALTERNATIVE 4 (Continued) **Near-term Excavation with Dewatering**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$275,500	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Utility locate	8	HR	$80	$700
	$344,380	3	Surveyor	1	DY	$1,600	$1,600
		4	Equipment Rentals	4	WK	$5,990	$24,000
		5	Labor (4 man crew)	4	LWK	$18,970	$75,900
		6	TESC/Site Preparation	1	LS	$1,000	$1,000
		7	Abandon 6 Wells (Overdrill)	1	LS	$20,080	$20,100
		8	Sawcut Concrete	150	LF	$15	$2,200
		9	Air Knife (Excavation)	5	HR	$195	$1,000
		10	Trench Box Rental and Delivery	1	LS	$969	$1,000
		11	Dewatering Equipment	1	LS	$10,000	$10,000
		12	Sampling Supplies	1	LS	$500	$500
		13	Near-term Excavation with Dewatering	16	EA	$266	$4,300
		14	AECOM Sampling Oversight	3	WK	$3,280	$9,900
		15	AECOM Sampling Vehicle Rental	18	DY	$113	$2,100
		16	PID Rental	10	DY	$88	$900
		17	CDF Backfill	653	CY	$106	$69,300
		18	Periodic Groundwater System Construction	1	LS	$1,039	$1,100
		19	Concrete Base Course	42	TN	$16	$700
		20	Concrete Base Course Delivery	1	HR	$230	$300
		21	Compactor	2	DY	$467	$1,000
		22	Replace Concrete	148	SY	$100	$14,800
		23	Dust Control (Street Sweeper)	4	DY	$765	$3,100
		24	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		26	Contractor Standby for Ongoing Operations	4	WK	$5,000	$20,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$114,700	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	1,221	TN	$90	$109,900
	$143,380	3	Concrete Transportation	8	HR	$120	$1,000
		4	Concrete Disposal Fee	59	CY	$30	$1,800
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$390,200**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$390,200	$97,600
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$487,800	$97,600
	Washington State Sales Tax (%)			**9.5**	%	$585,400	$55,700
	TOTAL DIRECT COST						**$641,100**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$186,600
		2	Total Direct Costs (see above)	--	--	--	$641,100
		3	Site Inspection and Overhead Costs	8	%	$827,700	$66,300
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$894,000**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$857,500**

ALTERNATIVE 4 (Continued) **Near-term Excavation with Dewatering**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE (Periodic Groundwater Extraction)**						
	$18,800	1	Project Management and Coordination	32	HR	$120	$3,900
	With Contingency	2	AECOM Vehicle Rental	4	DY	$113	$500
	$23,500	3	AECOM O&M Oversight	40	HR	$108	$4,400
		4	Contractor Labor	4	DY	$1,160	$4,700
		5	O&M Supplies and Equipment	4	EA	$1,315	$5,300
	Total Routine Annual O&M Cost						$18,800
	Subtotal Costs		***Years of Annual O&M***	***20***			**$376,000**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$376,000	$94,000
	TOTAL O&M COST						**$470,000**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$407,500**
	ANNUAL MONITORING & REPORTING						
	$21,300	1	Project Management and Coordination	16	HR	$154	$2,500
	With Contingency	2	Monitoring Labor	56	HR	$108	$6,100
	$25,560	3	Passive Diffusion Bags (PDB), 2 events	2	EA	$30	$100
		4	PDB Monitoring Supplies and Equipment	2	EA	$411	$900
		5	Analytical Testing	4	EA	$180	$800
		6	Data Packages	1	LS	$2,590	$2,600
		7	Annual Reporting	1	LS	$6,092	$6,100
		8	IC Inspection (every year for 30 years)	1	LS	$2,143	$2,200
	Total Routine Annual Monitoring Cost						$21,300
	Subtotal Costs		***Years of Annual Monitoring***	***21***			**$447,300**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$447,300	$89,460
	TOTAL MONITORING & REPORTING COST						**$536,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$462,300**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$31,200	1	Non-Routine Monitoring (Pumping) (Year 4)	1	LS	$1,360	$1,400
	With Contingency	2	Non-Routine Monitoring (Pumping) (Year 7)	1	LS	$1,360	$1,400
	$40,560	3	Non-Routine Monitoring (Pumping) (Year 10)	1	LS	$1,360	$1,400
		4	Non-Routine Monitoring (Pumping) (Year 13)	1	LS	$1,360	$1,400
		5	Non-Routine Monitoring (Pumping) (Year 16)	1	LS	$1,360	$1,400
		6	Non-Routine Monitoring (Pumping) (Year 19)	1	LS	$1,360	$1,400
		7	Non-Routine Monitoring (Pumping) (Year 20)	1	LS	$1,360	$1,400
		8	Non-Routine Monitoring (Pumping) (Year 21)	1	LS	$1,360	$1,400
		9	Non-Routine Monitoring & Well Abandonment (Pumping) (Year 22)	1	LS	$20,000	$20,000
	Subtotal Costs						**$31,200**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$31,200	$9,360
	TOTAL CLOSURE COST						**$40,600**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$31,300**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$470,000		$407,500
		2	Total Monitoring Costs (see above)		$536,800		$462,300
		3	Total Non-Routine OMM & Decommissioning		$40,600		$31,300
	TOTAL OMM COSTS				**$1,047,400**		**$901,100**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$857,500	**$857,500**
	TOTAL PRESENT-WORTH OMM COST			$901,100	**$1,758,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$88,000	**$1,846,600**
	TOTAL PRESENT-WORTH COST				**$1,847,000**

Table D-7
Comparison of Alternative Costs
Exposure Pathway Model: EPM E
SWMU/AOC No. 171, BUILDING 40-31, Former Bluestreak Vapor Degreaser

Task	Alternative 1: Maintain Containment	Alternative 2: Soil Vapor Extraction	Alternative 3: Future Excavation	Alternative 4: Near-Term Excavation
IMPLEMENATION COSTS				
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$173,900	$335,100	$325,000
Indirect Unforseen and Unlisted Incidental Engineering Services Assumed (%)	15	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$398,000	$2,175,700	$2,042,400
Direct Unforseen Conditions and Unlisted Incidental Items Assumed (%)	25	25	25	25
Site Inspection and Overhead	$400	$45,800	$200,900	$189,400
Total Implementation Costs	**$4,800**	**$617,700**	**$2,711,700**	**$2,556,800**
OMM COSTS				
Annualized O&M Costs	$0	$78,880	$0	$0
O&M Unforseen Conditions and Unlisted Incidental Items Assumed (%)	25	25	25	25
O&M Duration (years)	0	5	0	2
Annualized Monitoring & Reporting Costs	$3,360	$0	$3,360	$3,360
Monitoring Unforseen Conditions and Unlisted Incidental Items Assumed (%)	20	20	20	20
Monitoring Duration (years)	30	0	30	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$70,850	$0	$0
Non-Routine Unforseen Conditions and Unlisted Incidental Items Assumed (%)	30	30	30	30
Total OMM Costs	**$100,800**	**$465,300**	**$100,800**	**$100,800**
TOTALS				
Total Implementation and OMM Costs	**$105,600**	**$1,083,000**	**$2,812,500**	**$2,657,600**
Estimated Agency Oversight Costs [a]	$4,400	$51,900	$114,200	$126,800
Total Project Present Worth [b, c]	**$91,000**	**$1,089,000**	**$2,397,000**	**$2,661,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.

[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 171, Former Bluestreak Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-31
Estimator	Demetrio Cabanillas	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	5 to 26 FT bgs
Last Updated	10/5/15	**Surface Area**	2,000 SF
QA Reviewer	Debbie Rodenhizer	**Volume**	940 CY
QA Review Date	7/14/15		

Site/Problem Description

Historical soil borings and sub-slab vapor sampling indicate TCE exceedances in the soil and vapors present beneath the concrete slab floor where a large vapor degreaser was removed. This area is inside a building which is currently being used by the carpet shop and has buried utilidors in the area.

Proposed Cleanup Action

Alternative 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. Future building construction in the area will address potential vapor intrusion. The existing concrete building floor will remain in place and annual monitoring will be done to inspect the floor and make repairs if necessary. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Boeing Site Services will maintain the concrete and building covering the area of concern.
5. Institutional controls for containment of the area will be established under a sitewide plan.
6. Annual inspection of the land use, concrete, and pavement in the area will be conducted.
7. Containment and monitoring will be implemented for a period of 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection and Reporting	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Soil Vapor Extraction**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 171, Former Bluestreak Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-31
Estimator	Demetrio Cabanillas	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	5 to 26 FT bgs
Last Updated	10/7/15	**Surface Area**	2,000 SF
QA Reviewer	Cary Brown	**Volume**	940 CY
QA Review Date	8/10/15		

Site/Problem Description Historical soil borings and sub-slab vapor sampling indicate TCE exceedances in the soil and vapors present beneath the concrete slab floor where a large vapor degreaser was removed. This area is inside a building which is currently being used by the carpet shop and has buried utilidors in the area.

Proposed Cleanup Action Alternative 2 consists of installing a SVE system to treat the soil beneath the existing building floors, institutional controls would be applicable until cleanup levels are reached. Confirmation soil sampling would be conducted at the end of SVE treatment. The SVE system is assumed to operate for 5 years. Institutional controls in place during the SVE operation and for as long as contaminant concentrations exceed cleanup levels (5-year assumption for cost) with annual inspections made.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. A 20-hp blower rated at 200 cfm with 50 inches of water will be used to extract vapors.
5. Installation of 15 SVE wells
6. Assume all wells are installed to a depth of 25 ft bgs
7. Trenching for SVE system is 2 foot wide by 3 ft deep
8. Approximately 240 ft of trenched 2" Sch 40 SVE piping
9. Approximately 200 ft of above ground 4" Sch 40 SVE header piping
10. SVE blower system will be set outside bldg 40-31 on the north side
11. 1-AECOM employee for sampling/oversight
12. 5-day of drilling/setting wells
13. Site Preparation/Restoration (Removing and then re-installing shelving units)
14. Concrete is estimated to be 10 to 12-inches inside buildings
15. 1.8 Tons per CY of soil
16. Exhaust system required for equipment operating inside buildings
17. Conformation soil sampling (6 samples)
18. 50 LF/day for trenching and backfilling 5 days of work

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$151,200	1	Project management (4 hrs per week)	6	WK	$616	$3,700
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$173,900	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	150	HR	$108	$16,200
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	60	HR	$108	$6,500
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	32	HR	$108	$3,500
		9	Work Plan (CMP/SAP)	120	HR	$108	$13,000
		10	Construction oversight and QA (% of DC)	5	%	$398,000	$19,900
		11	Reporting (Implementation)	300	HR	$108	$32,400
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$151,200**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$151,200	$22,680
	TOTAL INDIRECT COST						**$173,900**

ALTERNATIVE 2 (Continued) **Soil Vapor Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$228,000	1	Utility Locate	8	HR	$80	$700
	With Contingency	2	Site Preparation (Removing shelving units)	900	SF	$2	$1,800
	$285,000	3	Construction Equipment Rentals	2	WK	$5,990	$12,000
		4	Temporary Shop Move	1	LS	$5,000	$5,000
		5	Drilling/Installation of SVE wells	15	EA	$2,743	$41,200
		6	Mobilization/Demobilization	1	EA	$5,000	$5,000
		7	Concrete Saw Cutting	240	LF	$23	$5,600
		8	Equipment Venting and Setup	200	LF	$35	$7,000
		9	Mini-Excavator	5	DY	$425	$2,200
		10	Fork Lift	5	DY	$190	$1,000
		11	Surveyor	1	DY	$1,600	$1,600
		12	Construction Labor	2	WK	$8,080	$16,200
		13	AECOM sampling	5	DY	$820	$4,100
		14	Backfill with CDF	30	CY	$106	$3,200
		15	Delivery of Base Course	1.0	HR	$110	$200
		16	Base Course	20	TN	$16	$400
		17	Pour new Concrete	20	CY	$225	$4,500
		18	General Site Cleanup and Misc. Restoration	1	LS	$5,000	$5,000
		19	SVE system package	1	LS	$38,000	$38,000
		20	Blower for venting	8	DY	$42	$400
		21	PID rental	5	DY	$88	$500
		22	Vehicle rental for AECOM Sampling	5	DY	$113	$600
		23	SCH 40 Header Pipe	240	LF	$4	$1,000
		24	Concrete Coring	15	EA	$275	$4,200
		25	Air Knife	19	HR	$195	$3,800
		26	Sampling Supplies	1	LS	$500	$500
		27	SVE Well Installation Sampling	66	EA	$62	$4,100
		28	Carbon Vessels with initial 4,000 LB of GAC	1	LS	$18,650	$18,700
		29	Dust Control	7	DY	$765	$5,400
		30	Plate Compactor	3	DY	$275	$900
		31	Contractor Standby for Ongoing Operations	2	WK	$7,000	$14,000
		32	Lost Worker Efficiency	1	LS	$19,200	$19,200
		33	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$14,200	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	80	TN	$90	$7,200
	$17,750	3	Hazardous Soil Transportation and Disposal	17	TN	$225	$3,900
		4	Concrete Transportation	4	HR	$120	$500
		5	Concrete Disposal Fee	20	CY	$30	$600
	Subtotal Costs						**$242,200**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$242,200	$60,600
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$302,800	$60,600
	Washington State Sales Tax (%)			**9.5**	%	$363,400	$34,600
	TOTAL DIRECT COST						**$398,000**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$173,900
		2	Total Direct Costs (see above)	--	--	--	$398,000
		3	Site Inspection and Overhead Costs	8	%	$571,900	$45,800
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$617,700**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$592,500**

ALTERNATIVE 2 (Continued) **Soil Vapor Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$63,100	1	Project Management and Coordination	40	HR	$154	$6,200
	With Contingency	2	SVE O&M Event	14	DY	$1,213	$17,000
	$78,880	3	Carbon Change out	4,000	LB	$2	$8,000
		4	O&M Supplies and Equipment	1	LS	$3,000	$3,000
		5	Blower Electricity (20-hp motor)	1	LS	$14,184	$14,200
		6	O&M Sampling	20	EA	$298	$6,000
		7	Annual Reporting (SVE)	80	HR	$108	$8,700
	Total Routine Annual O&M Cost						$63,100
	Subtotal Costs		***Years of Annual O&M***	***5***			**$315,500**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$315,500	$78,875
	TOTAL O&M COST						**$394,400**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$378,400**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***0***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$54,500	1	General System Repair (Year 2)	1	LS	$2,000	$2,000
	With Contingency	2	General System Repair (Year 4)	1	LS	$2,000	$2,000
	$70,850	3	SVE System Decommissioning (Year 5)	1	LS	$10,000	$10,000
		4	SVE Well Abandonment (Year 5)	1	LS	$7,500	$7,500
		5	Closeout Confirmation Borings (Year 5)	15	EA	$2,200	$33,000
	Subtotal Costs						**$54,500**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$54,500	$16,350
	TOTAL CLOSURE COST						**$70,900**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$66,300**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$394,400		$378,400
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$70,900		$66,300
	TOTAL OMM COSTS				**$465,300**		**$444,700**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$592,500	**$592,500**
	TOTAL PRESENT-WORTH OMM COST			$444,700	**$1,037,200**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$51,900	**$1,089,100**
	TOTAL PRESENT-WORTH COST				**$1,089,000**

ALTERNATIVE 3 Future Excavation

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 171, Former Bluestreak Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-31
Estimator	Demetrio Cabanillas	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	5 to 26 FT bgs
Last Updated	10/7/15	**Surface Area**	2,000 SF
QA Reviewer	Phil Newton	**Volume**	940 CY
QA Review Date	9/16/15		

Site/Problem Description

Historical soil borings and sub-slab vapor sampling indicate TCE exceedances in the soil and vapors present beneath the concrete slab floor where a large vapor degreaser was removed. This area is inside a building which is currently being used by the carpet shop and has buried utilidors in the area.

Proposed Cleanup Action

Alternative 3 consists of excavation during a future time when the indoor area is accessible for construction, such as during site redevelopment or change of use. Cleanup action includes excavation of the contaminated soil and confirmation soil sampling. Prior to excavation activities the existing concrete above the area of concern will remain in place and be inspected annually and maintained as needed. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels. Because of inaccessible soils beneath the utilidor, institutional controls are assumed to be implemented prior to excavation and after (30-year assumption for cost; excavation assumed to occur in Year 15). IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. NE portion of excavation contamination is between 1 to 24 ft bgs
5. The rest of the excavation contamination is between 1 to 18 ft bgs
6. Excavation depth is between the maximum depth of known contamination and known clean sample depths.
7. Excavation alongside utility corridor will be done with a trench box in slot cuts and immediately backfill with CDF
8. 5 trucks at 18 CY per truck per day for slot cut areas using a trench box
9. 8 trucks at 18 CY per truck per day for general excavation and backfill for all areas
10. Construction crew will work 40 hrs/week
11. Boeing will not be able to use the area for 9 weeks
12. CDF will be used as backfill inside buildings
13. Slot cut excavation 8 days; General excavation 11 days; 14 days of backfill
14. Site preparation has already occurred
15. Concrete is estimated to be 10 to 12-inches inside buildings
16. 1.8 Tons per CY of soil
17. Exhaust venting system will be required inside buildings
18. 3-day Concrete demo and 2 days site restoration
19. Previously excavated areas contain non-hazardous soil while un-excavated areas have hazardous soil
20. Contaminated soil will remain in place under utilidor

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$291,400	1	Project management (4 hrs per week)	13	WK	$616	$8,100
	With Contingency	2	General coordination, meetings, and planning (% of DC)	2	%	$2,175,700	$43,600
	$335,100	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	150	HR	$108	$16,200
		5	Design Plans and Specs	1	LS	$60,000	$60,000
		6	Engineers Estimate	60	HR	$108	$6,500
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	32	HR	$108	$3,500
		9	Work Plan (CMP/SAP)	120	HR	$108	$13,000
		10	Construction oversight and QA (% of DC)	4	%	$2,175,700	$87,100
		11	Reporting (Implementation)	300	HR	$108	$32,400
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$291,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$291,400	$43,710
	TOTAL INDIRECT COST						**$335,100**

ALTERNATIVE 3 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$447,200	1	Mobilization/Demobilization	1	LS	$15,000	$15,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$559,000	3	Concrete Saw Cutting	200	LF	$23	$4,600
		4	General Site Preparation	1	LS	$5,000	$5,000
		5	Equipment Exhaust Venting and Setup	200	LF	$35	$7,000
		6	Trench Box Rental	1	LS	$2,526	$2,600
		7	Equipment Rental	9	WK	$6,465	$58,200
		8	Labor (3 man crew)	9	WK	$8,080	$72,800
		9	Backfill with CDF	1,600	CY	$106	$169,800
		10	Delivery of Base course	3	HR	$120	$400
		11	Base course	90	TN	$16	$1,500
		12	AECOM sampling	19	DY	$820	$15,600
		13	Pour new Concrete	19	CY	$225	$4,300
		14	Dust Control	9	DY	$765	$6,900
		15	Vehicle Rental for AECOM Sampling	4	WK	$791	$3,200
		16	Sampling Supplies	1	LS	$500	$500
		17	PID rental	5	WK	$616	$3,100
		18	Analytical Testing (TCE)	14	EA	$112	$1,600
		19	Compactor	5	DY	$467	$2,400
		20	General Site Cleanup and Misc. Restoration	1	LS	$5,000	$5,000
		21	Blower for exhaust venting	57	DY	$42	$2,400
		22	Air Knife (Excavation)	8	HR	$195	$1,600
		23	Contractor Standby for Ongoing Operations	9	WK	$7,000	$63,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$877,300	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	690	TN	$115	$79,400
	$1,096,630	3	Hazardous Soil Transportation and Disposal	2,400	TN	$330	$792,000
		4	Concrete Transportation	10	HR	$120	$1,200
		5	Concrete Disposal Fee	90	CY	$30	$2,700
	Subtotal Costs						**$1,324,500**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$1,324,500	$331,200
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$1,655,700	$331,200
	Washington State Sales Tax (%)			**9.5**	%	$1,986,900	$188,800
	TOTAL DIRECT COST						**$2,175,700**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$335,100
		2	Total Direct Costs (see above)	--	--	--	$2,175,700
		3	Site Inspection and Overhead Costs	8	%	$2,510,800	$200,900
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	#		**$2,711,700**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$2,201,300**

ALTERNATIVE 3 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	DY	$0	$0
		4	Not Used	0	DY	$0	$0
		5	Not Used	0	LS	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$2,201,300	**$2,201,300**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$2,283,200**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$114,200	**$2,397,400**
	TOTAL PRESENT-WORTH COST				**$2,397,000**

ALTERNATIVE 4 **Near Term Excavation**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 171, Former Bluestreak Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-31
Estimator	Demetrio Cabanillas	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	5 to 26 FT bgs
Last Updated	10/7/15	**Surface Area**	2,000 SF
QA Reviewer	Cary Brown	**Volume**	940 CY
QA Review Date	8/24/15		

Site/Problem Description

Historical soil borings and sub-slab vapor sampling indicate TCE exceedances in the soil and vapors present beneath the concrete slab floor where a large vapor degreaser was removed. This area is inside a building which is currently being used by the carpet shop and has buried utilidors in the area.

Proposed Cleanup Action

Alternate 4 consists of removing contaminated soil by excavation in the near term when there will be significant disruption in Boeing production activities. Relocation of the existing shop will be necessary and increased logistical challenges encountered associated with obstacles and Boeing operations. The work area/furnishings will be temporarily relocated and restored after completion of work. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost due to inaccessible soils beneath the utilidor) with annual inspections made.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. NE portion of excavation contamination is between 1 to 24 ft bgs.
5. The rest of the excavation contamination is between 1 to 18 ft bgs.
6. Excavation depth is between the maximum depth of known contamination and known clean sample depths.
7. Excavation alongside utility corridor will be done with a trench box in slot cuts and immediately backfill with CDF.
8. 5 trucks at 18 CY per truck per day for slot cut areas using a trench box.
9. 8 trucks at 18 CY per truck per day for general excavation and backfill for all areas.
10. Construction crew will work 60 hrs/week.
11. Boeing will not be able to use the area for 6 weeks.
12. CDF will be used as backfill inside buildings.
13. Slot cut excavation will take 6 days; general excavation 9 days; and 11 days of backfill.
14. Site Preparation/Restoration includes removing and then re-installing shelving units.
15. Concrete is estimated to be 10 to 12-inches inside buildings.
16. 1.8 Tons per CY of soil.
17. Exhaust venting system will be required inside buildings.
18. 2-day Concrete demo and 2 days site restoration.
19. Previously excavated areas contain non-hazardous soil while un-excavated areas have hazardous soil.
20. Contaminated soil will remain in place under utilidor.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$282,600	1	Project management (4 hrs per week)	12	WK	$616	$7,400
	With Contingency	2	General coordination, meetings, and planning (% of DC)	2	%	$2,042,400	$40,900
	$325,000						
		3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	150	HR	$108	$16,200
		5	Design Plans and Specs	1	LS	$60,000	$60,000
		6	Engineers Estimate	60	HR	$108	$6,500
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	32	HR	$108	$3,500
		9	Work Plan (CMP/SAP)	120	HR	$108	$13,000
		10	Construction oversight and QA (% of DC)	4	%	$2,042,400	$81,700
		11	Reporting (Implementation)	300	HR	$108	$32,400
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$282,600**
	Indirect Unforeseen and Unlisted Incidental Engineering Services (%)			**15**	%	$282,600	$42,390
	TOTAL INDIRECT COST						**$325,000**

ALTERNATIVE 4 (Continued) **Near Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$563,400	1	Mobilization/Demobilization	1	LS	$15,000	$15,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$704,250	3	General Site Preparation	1	LS	$5,000	$5,000
		4	Concrete Saw Cutting	200	LF	$23	$4,600
		5	Temporary Shop Move and Restoration	1	LS	$100,000	$100,000
		6	Equipment Exhaust Venting and Setup	200	LF	$35	$7,000
		7	Trench Box Rental	1	LS	$2,007	$2,100
		8	Equipment Rental	6	WK	$6,465	$38,800
		9	Labor (3 man crew)	6	LWK	$14,140	$84,900
		10	Backfill with CDF	1,600	CY	$106	$169,800
		11	Delivery of Base course	3	HR	$120	$400
		12	Base course	90	TN	$16	$1,500
		13	AECOM sampling	15	DY	$820	$12,300
		14	Pour new Concrete	90	CY	$225	$20,300
		15	Dust Control	6	DY	$765	$4,600
		16	Vehicle Rental for AECOM Sampling	2	WK	$791	$1,600
		17	Sampling Supplies	1	LS	$500	$500
		18	PID rental	3	WK	$616	$1,900
		19	Analytical Testing (TCE)	14	EA	$112	$1,600
		20	Compactor	5	DY	$467	$2,400
		21	General Site Cleanup and Misc. Restoration	1	LS	$5,000	$5,000
		22	Blower for exhaust venting	31	DY	$42	$1,400
		23	Air Knife (Excavation)	8	HR	$195	$1,600
		24	Contractor Standby for Ongoing Operations	6	WK	$7,000	$42,000
		25	Lost Worker Efficiency	1	LS	$38,400	$38,400
		26	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$680,000	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	690	TN	$90	$62,100
	$850,000	3	Hazardous Soil Transportation and Disposal	2,400	TN	$255	$612,000
		4	Concrete Transportation	10	HR	$120	$1,200
		5	Concrete Disposal Fee	90	CY	$30	$2,700
	Subtotal Costs						**$1,243,400**
	Direct Unforeseen Conditions and Unlisted Incidental Item Costs (%)			**25**	%	$1,243,400	$310,900
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$1,554,300	$310,900
	Washington State Sales Tax (%)			**9.5**	%	$1,865,200	$177,200
	TOTAL DIRECT COST						**$2,042,400**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$325,000
		2	Total Direct Costs (see above)	--	--	--	$2,042,400
		3	Site Inspection and Overhead Costs	8	%	$2,367,400	$189,400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$2,556,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$2,452,400**

ALTERNATIVE 4 (Continued) **Near Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***2***			**$0**
	O&M Unforeseen Conditions and Unlisted Incidental Item Costs (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	DY	$0	$0
		4	Not Used	0	DY	$0	$0
		5	Not Used	0	LS	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Unforeseen Conditions and Unlisted Incidental Item Costs (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	LS	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Unforeseen Conditions and Unlisted Incidental Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

	ALTERNATIVE COST SUMMARY			**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$2,452,400	**$2,452,400**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$2,534,300**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$126,800	**$2,661,100**
	TOTAL PRESENT-WORTH COST				**$2,661,000**

Table D-8
Comparison of Alternative Costs
Exposure Pathway Model: EPM E
SWMU/AOC No. 097, Building 40-11, Former Vapor Degreaser

Task	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$99,400	$98,000
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$62,100	$126,500
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$13,000	$18,000
Total Implementation Costs	**$4,800**	**$174,500**	**$242,500**
OMM COSTS			
Annualized O&M Costs	$0	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360	$0
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	15	0
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30
Total OMM Costs	**$100,800**	**$50,400**	**$0**
TOTALS			
Total Implementation and OMM Costs	**$105,600**	**$224,900**	**$242,500**
Estimated Agency Oversight Costs [a]	$4,400	$9,400	$11,700
Total Project Present Worth [b, c]	**$91,000**	**$196,000**	**$244,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.
OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 097, Former Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-11
Estimator	Demetrio Cabanillas	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	0.5-2.25 FT bgs
Last Updated	10/5/15	**Surface Area**	8 SF
QA Reviewer	Debbie Rodenhizer	**Volume**	0.52 CY
QA Review Date	7/15/15		

Site/Problem Description Historical soil borings and sub slab vapor sampling indicate TCE exceedances in the soil and vapors present in the sub slab. The area is inside a building and is currently used as office workspace and storage.

Proposed Cleanup Action Alternate 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete floor above the area of concern will remain in place to prevent the leaching of contaminants and exposure to sub-slab vapors. The surface will be inspected annually and maintained as needed. Any future building construction in the area will address potential vapor intrusion. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Boeing Site Services will maintain the concrete and building covering the area of concern.
5. Institutional controls for containment of the area will be established under a sitewide plan.
6. Annual inspection of the land use, concrete, and pavement in the area will be conducted.
7. Containment and monitoring will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) Maintain Containment

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 097, Former Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-11
Estimator	Demetrio Cabanillas	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	0.5-2.25 FT bgs
Last Updated	10/7/15	**Surface Area**	8 SF
QA Reviewer	Phil Newton	**Volume**	0.52 CY
QA Review Date	7/15/15		

Site/Problem Description Historical soil borings and sub slab vapor sampling indicate TCE exceedances in the soil and vapors present in the sub slab. The area is inside a building and is currently used as office workspace and storage.

Proposed Cleanup Action Alternative 2 consists of excavation at a future time when the indoor area is accessible for construction, such as during site redevelopment or a change of use. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15) with annual inspections made.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Demolition of southern wall in excavation area will be required.
5. Construction will consist of 5 days of excavation and site restoration work.
6. One AECOM employee will be on-site for sampling/oversight.
7. Concrete is estimated to be 12 inches inside buildings.
8. Contaminated soil is from 1 to 3 ft below ground surface.
9. 1.8 Tons per CY of soil.
10. Institutional controls will be implemented until excavation is completed (assume 15 years).
11. Excavation will extend 1 foot past contaminated soil to ensure clean confirmation samples.
12. Construction crew will work 8 hr days.
13. All contaminated soil will be removed.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$86,400	1	Project management	5	WK	$616	$3,100
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$99,400	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Permitting	1	LS	$2,820	$2,900
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	25	HR	$108	$2,700
		7	Engineering Design and Report	40	HR	$108	$4,400
		8	Bid and RFI support	8	HR	$108	$900
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	3	%	$62,100	$1,900
		11	Reporting (Implementation)	80	HR	$108	$8,700
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$86,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$86,400	$12,960
	TOTAL INDIRECT COST						**$99,400**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$35,100	1	Mobilization/Demobilization	1	LS	$2,500	$2,500
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$43,880	3	Concrete Saw Cutting	20	LF	$23	$500
		4	Equipment Venting and Setup	100	LF	$35	$3,500
		5	Office Space Demolition of wall	11	SF	$15	$200
		6	Equipment Rental	5	DY	$615	$3,100
		7	Construction Labor (2 person crew)	1	WK	$5,080	$5,100
		8	Surveyor	1	DY	$1,600	$1,600
		9	AECOM sampling	16	HR	$82	$1,400
		10	Backfill with CDF	2.0	CY	$106	$300
		11	Delivery of Base course	1.0	HR	$110	$200
		12	Base course	2.0	TN	$16	$100
		13	Pour new Concrete	1	CY	$225	$300
		14	General Site Cleanup and Restoration	1	LS	$2,500	$2,500
		15	Vehicle Rental for AECOM Sampling	1	DY	$113	$200
		16	Sampling Supplies	1	LS	$500	$500
		17	PID rental	2	DY	$88	$200
		18	Analytical Testing (TCE)	8	EA	$112	$900
		19	Blower for venting	5	DY	$42	$300
		20	General Site Preparation	1	LS	$1,000	$1,000
		21	Contractor Standby Time	1	LS	$10,000	$10,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$2,600	1	Transportation and Disposal Coordination	2	HR	$100	$200
	With Contingency	2	Hazardous Soil Transportation and Disposal	6	TN	$330	$2,000
	$3,250	3	Concrete Transportation	2	HR	$120	$300
		4	Concrete Disposal Fee	1	CY	$30	$100
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$37,700**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$37,700	$9,500
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$47,200	$9,500
	Washington State Sales Tax (%)			**9.5**	%	$56,700	$5,400
	TOTAL DIRECT COST						**$62,100**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$99,400
		2	Total Direct Costs (see above)	--	--	--	$62,100
		3	Site Inspection and Overhead Costs	8	%	$161,500	$13,000
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	**#**		**$174,500**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$141,700**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	HR	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	DY	$0	$0
		4	Not Used	0	DY	$0	$0
		5	Not Used	0	LS	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$50,400**		**$45,200**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$141,700	**$141,700**
	TOTAL PRESENT-WORTH OMM COST			$45,200	**$186,900**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$9,400	**$196,300**
	TOTAL PRESENT-WORTH COST				**$196,000**

ALTERNATIVE 3 **Near-Term Excavation**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 097 Former Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-11
Estimator	Demetrio Cabanillas	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	0.5-2.25 FT bgs
Last Updated	10/7/15	**Surface Area**	8 SF
QA Reviewer	Cary Brown	**Volume**	0.52 CY
QA Review Date	7/15/15		

Site/Problem Description Historical soil borings and sub slab vapor sampling indicate TCE exceedances in the soil and vapors present in the sub slab. The area is inside a building and is currently used as office workspace and storage.

Proposed Cleanup Action Alternative 3 consists of removing contaminated soil by excavation in the near term when there will be significant disruption in Boeing production activities. Relocation of the existing shop will be necessary and increased logistical challenges encountered associated with obstacles and Boeing operations. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. The work area/furnishings will be temporarily relocated and restored after completion of work.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Relocation of shelving units in excavation will be required.
5. Demolition and repair of southern wall in excavation area will be required.
6. Construction will consist of 5 days of excavation and site restoration work.
7. One AECOM employee will be on-site for sampling/oversight.
8. Concrete is estimated to be 12-inches inside buildings
9. Contaminated soil is from 1 to 3 ft below ground surface.
10. 1.8 Tons per CY of soil.
11. Excavation will extend 1 foot past contaminated soil to ensure clean confirmation samples.
12. Existing bay production activities will be temporarily relocated for 3 weeks.
13. Construction crew will work 8 hr days.
14. All contaminated soil will be removed.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$85,200	1	Project management	5	WK	$616	$3,100
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$98,000	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Permitting	1	LS	$2,820	$2,900
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	25	HR	$108	$2,700
		7	Engineering Design and Report	40	HR	$108	$4,400
		8	Bid and RFI support	8	HR	$108	$900
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	3	%	$126,500	$3,800
		11	Reporting (Implementation)	80	HR	$108	$8,700
	Subtotal Costs						**$85,200**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$85,200	$12,780
	TOTAL INDIRECT COST						**$98,000**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$74,700	1	Mobilization/Demobilization	1	LS	$2,500	$2,500
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$93,380	3	Temporary Bay Shop Relocation	1	LS	$10,000	$10,000
		4	Concrete Saw Cutting	20	LF	$23	$500
		5	Equipment Venting and Setup	100	LF	$35	$3,500
		6	Office Space Demolition of wall	11	SF	$15	$200
		7	Equipment Rental	5	DY	$615	$3,100
		8	Construction Labor (2 person crew)	1	WK	$5,080	$5,100
		9	Surveyor	1	DY	$1,600	$1,600
		10	AECOM Sampling	16	HR	$82	$1,400
		11	Backfill with CDF	2	CY	$106	$300
		12	Delivery of Base course	1	HR	$110	$200
		13	Base course	2	TN	$16	$100
		14	Pour new Concrete	1	CY	$225	$300
		15	General Site Cleanup and Restoration	1	LS	$2,500	$2,500
		16	Vehicle Rental for AECOM Sampling	1	DY	$113	$200
		17	Sampling Supplies	1	LS	$500	$500
		18	PID rental	2	DY	$88	$200
		19	Analytical Testing (TCE)	8	EA	$112	$900
		20	Blower for venting	5	DY	$42	$300
		21	Installing new wall	11	EA	$325	$3,600
		22	General Site Preparation	1	LS	$1,000	$1,000
		23	Re-installing shelving units	200	SF	$2	$400
		24	Contractor Standby for Ongoing Operations	2	WK	$7,000	$14,000
		26	Lost Worker Efficiency	1	LS	$21,600	$21,600
		26	Boeing Production Loss	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$2,200	1	Transportation and Disposal Coordination	2	HR	$100	$200
	With Contingency	2	Hazardous Soil Transportation and Disposal	6	TN	$255	$1,600
	$2,750	3	Concrete Disposal	1	CY	$30	$100
		4	Concrete Pick Up Fee	2	HR	$120	$300
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$76,900**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$76,900	$19,300
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$96,200	$19,300
	Washington State Sales Tax (%)			**9.5**	%	$115,500	$11,000
	TOTAL DIRECT COST						**$126,500**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$98,000
		2	Total Direct Costs (see above)	--	--	--	$126,500
		3	Site Inspection and Overhead Costs	8	%	$224,500	$18,000
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$242,500**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$232,600**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***0***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$0**		**$0**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$232,600	**$232,600**
	TOTAL PRESENT-WORTH OMM COST			$0	**$232,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$11,700	**$244,300**
	TOTAL PRESENT-WORTH COST				**$244,000**

Table D-9
Comparison of Alternative Costs
Exposure Pathway Model: EPM E
SWMU/AOC No. 098, BUILDING 40-53 Mock-Up Degreaser

Task	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$416,500	$327,900
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$3,368,400	$2,903,700
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$302,800	$258,600
Total Implementation Costs	**$4,800**	**$4,087,700**	**$3,490,200**
OMM COSTS			
Annualized O&M Costs	$0	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	2	0
Annualized Monitoring & Reporting Costs	$3,400	$3,360	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	30	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0	$0
Closure Cost Contingency and Unlisted Items (%)	30	30	30
Total OMM Costs	**$102,000**	**$100,800**	**$100,800**
TOTALS			
Total Implementation and OMM Costs	**$106,800**	**$4,188,500**	**$3,591,000**
Estimated Agency Oversight Costs [a]	$4,400	$170,100	$171,500
Total Project Present Worth [b, c]	**$91,000**	**$3,570,000**	**$3,601,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.

[b] Present worth costs were calculated using a 1.4% discount rate per office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014.

[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.
OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	E	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 098, Mock-Up Degreaser	
Project	Upland Area Feasibility Study	**Building**	40-53	
Estimator	Gina Franco	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 33	FT bgs
Last Updated	10/5/15	**Surface Area**	2,700	SF
QA Reviewer	Debbie Rodenhizer	**Volume**	2,500	CY
QA Review Date	7/28/15			

Site/Problem Description

The vapor degreaser system was located inside the west-central portion of Building 40-53 and decommissioned in 1991. Buried concrete which previously surrounded the vapor degreaser remain in place. TCE contaminants are found in soils and sub slab vapor in the area surrounding the former mock-up degreaser. The area is currently used for storage and is located immediately adjacent to large electrical equipment for the building. Underground utilidors are also present in the area.

Proposed Cleanup Action

Alternative 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. Future building construction in the area will be required to address potential vapor intrusion. The existing concrete floor above the area of concern will remain in place and be inspected annually and maintained as needed. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Boeing Site Services will maintain the concrete and building covering the area of concern.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the land use and concrete in the area will be conducted.
7. Containment and monitoring will be implemented for a period of 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	E	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 098, Mock-Up Degreaser	
Project	Upland Area Feasibility Study	**Building**	40-53	
Estimator	Gina Franco	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 33	FT bgs
Last Updated	10/7/15	**Surface Area**	2,700	SF
QA Reviewer	Cary Brown	**Volume**	2,500	CY
QA Review Date	8/24/15			

Site/Problem Description

The vapor degreaser system was located inside the west-central portion of Building 40-53 and decommissioned in 1991. Buried concrete which previously surrounded the vapor degreaser remain in place. TCE contaminants are found in soils and sub slab vapor in the area surrounding the former mock-up degreaser. The area is currently used for storage and is located immediately adjacent to large electrical equipment for the building. Underground utilidors are also present in the area.

Proposed Cleanup Action

Alternative 2 consists of future excavation from beneath the existing building floor at a time when the area is accessible for construction, such as during site redevelopment or change of use. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Part of buried concrete degreaser pit will be removed as well. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels. Due to inaccessible soils that will remain in-place, institutional controls are assumed to be implemented prior to excavation and after (30-year assumption for cost). IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Maintain institutional controls before and after excavation because COCs will be left in place.
5. Soil will be disposed of as non-hazardous waste.
6. Site prep, excavation and clean-up will take approximately 13 weeks to complete. 11 weeks for excavation and backfill. 4 day for prep, 3 days for concrete saw cutting and 1 week for site restoration.
7. Assume 5 trucks/day for soil removal.
8. Excavation will be backfilled with CDF.
9. Construction crew will work 40 hrs/week
10. Contaminated soil will remain in place under utilidor
11. Boeing will not be able to use the area for 13 weeks
12. Equipment exhaust venting will be required inside building

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$362,200	1	Project management	12	WK	$616	$7,400
	With Contingency	2	General coordination, meetings, and planning	2	%	$3,368,400	$67,400
	$416,500	3	Regulatory coordination and meetings (% of DC)	1	LS	$15,000	$15,000
		4	Engineering Design Report	150	HR	$108	$16,200
		5	Design Plans and Specs	1	LS	$60,000	$60,000
		6	Engineers Estimate	60	HR	$108	$6,500
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	32	HR	$108	$3,500
		9	Work Plan (CMP/SAP)	120	HR	$108	$13,000
		10	Construction oversight and QA (% of DC)	4	%	$3,368,400	$134,800
		11	Reporting (Implementation)	300	HR	$108	$32,400
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$362,200**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$362,200	$54,330
	TOTAL INDIRECT COST						**$416,500**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$592,800	1	Mobilization/Demobilization	1	EA	$5,000	$5,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$741,000	3	General Site Preparation	1	LS	$10,000	$10,000
		4	Concrete Saw Cutting	204	LF	$23	$4,700
		5	Setting up exhaust venting for equipment	350	LF	$35	$12,300
		6	Equipment Rentals	13	WK	$6,465	$84,100
		7	Compactor	14	DY	$467	$6,600
		8	AECOM sampling	30	DY	$820	$24,600
		9	Labor (3 man crew)	13	WK	$8,080	$105,100
		10	Dust Control (Sweeper)	13	DY	$765	$10,000
		11	Backfill with CDF	2,374	CY	$106	$252,000
		12	Base course	109	TN	$16	$1,800
		13	Pour new Concrete	132	CY	$225	$29,700
		14	General Site Cleanup/Restoration	1	LS	$5,000	$5,000
		15	Vehicle rental for AECOM sampling	30	DY	$113	$3,400
		16	Sampling Supplies	1	LS	$500	$500
		17	PID rental	6	WK	$616	$3,700
		18	Analytical Testing (TCE)	21	EA	$62	$1,400
		19	Blower for exhaust venting	79	DY	$42	$3,400
		20	Air Knife (Excavation)	8	HR	$195	$1,600
		21	Trench Boxes	1	LS	$7,197	$7,200
		22	Contractor Standby Time	1	LS	$20,000	$20,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$1,457,900	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Hazardous Soil Transportation and Disposal	4,394	TN	$330	$1,450,100
	$1,822,380	3	Concrete Transportation	15	HR	$120	$1,800
		4	Concrete Disposal Fee	132	CY	$30	$4,000
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$2,050,700**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$2,050,700	$512,700
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$2,563,400	$512,700
	Washington State Sales Tax (%)			**9.5**	%	$3,076,100	$292,300
	TOTAL DIRECT COST						**$3,368,400**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$416,500
		2	Total Direct Costs (see above)	--	--	--	$3,368,400
		3	Site Inspection and Overhead Costs	8	%	$3,784,900	$302,800
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	**#**		**$4,087,700**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$3,318,300**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	DY	$0	$0
	With Contingency	2	Not Used	0	DY	$0	$0
	$0	3	Not Used	0	DY	$0	$0
		4	Not Used	0	DY	$0	$0
		5	Not Used	0	LS	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***2***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$3,318,300	**$3,318,300**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$3,400,200**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$170,100	**$3,570,300**
	TOTAL PRESENT-WORTH COST				**$3,570,000**

ALTERNATIVE 3 **Near-Term Excavation**

Client	Boeing	**EPM Group**	E	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 098, Mock-Up Degreaser	
Project	Upland Area Feasibility Study	**Building**	40-53	
Estimator	Gina Franco	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 33	FT bgs
Last Updated	10/7/15	**Surface Area**	2,700	SF
QA Reviewer	Cary Brown	**Volume**	2,500	CY
QA Review Date	8/17/15			

Site/Problem Description

The vapor degreaser system was located inside the west-central portion of Building 40-53 and decommissioned in 1991. Buried concrete which previously surrounded the vapor degreaser remain in place. TCE contaminants are found in soils and sub slab vapor in the area surrounding the former mock-up degreaser. The area is currently used for storage and is located immediately adjacent to large electrical equipment for the building. Underground utilidors are also present in the area.

Proposed Cleanup Action

Alternative 3 consists of removing contaminated soil beneath the existing building floor by excavation in the near term when there will be significant disruption in Boeing production activities. Relocation of the existing shop will be necessary and increased logistical challenges encountered associated with obstacles and Boeing operations. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. The work area/furnishings will be temporarily relocated and restored after completion of work. Part of the buried concrete degreaser pit will be removed as well. Due to inaccessible soils that will remain in-place, institutional controls are assumed to be implemented following excavation (30-year assumption for cost). IC inspections will be made annually. Near term excavation accounts for the interruption of plant operations, but not production losses.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Maintain institutional controls before and after excavation because COCs will be left in place.
5. Soil will be disposed of as non-hazardous waste.
6. Site prep, excavation and clean-up will take approximately 9 weeks to complete. 7.5 weeks for excavation and backfill. 3 day for prep, 2 days for concrete saw cutting and 1 week for site restoration.
7. Assume 5 trucks per day for soil removal.
8. Excavation will be backfilled with CDF.
9. Construction crew will work 60 hrs/week
10. Contaminated soil will remain in place under utilidor.
11. Boeing will not be able to use the area for 9 weeks.
12. Equipment exhaust venting will be required inside building
13. All existing Boeing equipment will be temporarily relocated for construction.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$285,100	1	Project management	12	WK	$616	$7,400
	With Contingency	2	General coordination, meetings, and planning	2	%	$442,000	$8,900
	$327,900	3	Regulatory coordination and meetings (% of DC)	1	LS	$15,000	$15,000
		4	Engineering Design Report	150	HR	$108	$16,200
		5	Design Plans and Specs	1	LS	$60,000	$60,000
		6	Engineers Estimate	60	HR	$108	$6,500
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	32	HR	$108	$3,500
		9	Work Plan (CMP/SAP)	120	HR	$108	$13,000
		10	Construction oversight and QA (% of DC)	4	%	$2,903,700	$116,200
		11	Reporting (Implementation)	300	HR	$108	$32,400
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$285,100**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$285,100	$42,765
	TOTAL INDIRECT COST						**$327,900**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$693,500	1	Mobilization/Demobilization	1	EA	$15,000	$15,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$866,880	3	General Site Preparation	1	LS	$10,000	$10,000
		4	Concrete Saw Cutting	204	LF	$23	$4,700
		5	Setting up exhaust venting for equipment	350	LF	$35	$12,300
		6	Equipment Rentals	9	WK	$6,465	$58,200
		7	Compactor	14	DY	$467	$6,600
		8	AECOM sampling	24	DY	$820	$19,700
		9	Labor (3 man crew)	9	LWK	$14,140	$127,300
		10	Dust Control (Sweeper)	9	DY	$765	$6,900
		11	Backfill with CDF	2,263	CY	$106	$240,200
		12	Base course	99	TN	$16	$1,600
		13	Pour new Concrete	119	CY	$225	$26,800
		14	General Site cleanup/Restoration	1	LS	$5,000	$5,000
		15	Vehicle rental for AECOM sampling	24	DY	$113	$2,800
		16	Sampling Supplies	1	LS	$500	$500
		17	PID rental	4	WK	$616	$2,500
		18	Analytical Testing (TCE)	21	EA	$62	$1,400
		19	Blower for exhaust venting	62	DY	$42	$2,700
		20	Air Knife (Excavation)	8	HR	$195	$1,600
		21	Trench Boxes	1	LS	$5,121	$5,200
		22	Contractor Standby Time	9	WK	$7,000	$63,000
		23	Temporary Shop Move and Restoration	1	LS	$50,000	$50,000
		24	Lost Worker Efficiency	1	LS	$28,800	$28,800
		25	Boeing Production Loss	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$1,074,200	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Hazardous Soil Transportation and Disposal	4,184	TN	$255	$1,067,000
	$1,342,750	3	Concrete Pickup Fee	13	HR	$120	$1,600
		4	Concrete Disposal	119	CY	$30	$3,600
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$1,767,700**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$1,767,700	$442,000
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$2,209,700	$442,000
	Washington State Sales Tax (%)			**9.5**	%	$2,651,700	$252,000
	TOTAL DIRECT COST						**$2,903,700**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$327,900
		2	Total Direct Costs (see above)	--	--	--	$2,903,700
		3	Site Inspection and Overhead Costs	8	%	$3,231,600	$258,600
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$3,490,200**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$3,347,600**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$3,347,600	**$3,347,600**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$3,429,500**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$171,500	**$3,601,000**
	TOTAL PRESENT-WORTH COST				**$3,601,000**

Table D-10
Comparison of Alternative Costs
Exposure Pathway Model: EPM E
SWMU/AOC No. 170, BUILDING 40-02, Former Large Vapor Degreaser

Task	Alternative 1: Maintain Containment	Alternative 2: Soil Vapor Extraction	Alternative 3: Future Excavation	Alternative 4: Near-Term Excavation
IMPLEMENATION COSTS				
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$219,800	$163,000	$529,200
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$1,727,100	$301,300	$54,806,300
Direct Contingency and Unlisted Items Assumed (%)	25	25	25	25
Site Inspection and Overhead	$400	$155,800	$37,200	$4,426,900
Total Implementation Costs	**$4,800**	**$2,102,700**	**$501,500**	**$59,762,400**
OMM COSTS				
Annualized O&M Costs	$0	$61,380	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25	25
O&M Duration (years)	0	5	0	0
Annualized Monitoring & Reporting Costs	$3,360	$0	$3,360	$0
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20	20
Monitoring Duration (years)	30	2	15	0
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$32,890	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30	30
Total OMM Costs	**$100,800**	**$339,800**	**$50,400**	**$0**
TOTALS				
Total Implementation and OMM Costs	**$105,600**	**$2,442,500**	**$551,900**	**$59,762,400**
Estimated Agency Oversight Costs [a]	$4,400	$117,200	$22,700	$2,866,100
Total Project Present Worth [b, c]	**$91,000**	**$2,459,000**	**$475,000**	**$60,187,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.
OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 170, Former Large Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-02
Estimator	Gina Franco	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	7 to 10 FT bgs
Last Updated	10/5/15	**Surface Area**	170 SF
QA Reviewer	Debbie Rodenhizer	**Volume**	20 CY
QA Review Date	7/15/15		

Site/Problem Description

The former large vapor degreaser system was situated inside the building within a stainless-steel-lined concrete containment pit below grade. TCE is present in the soil and benzene and TCE are present in the sub-slab vapor. The pit was backfilled with CDF when the degreaser was removed. The subsurface beneath the building floor currently consists of CDF approximately 6 feet deep, a buried reinforced concrete floor of the former degreaser pit, and native glacial till. The area is currently used by the wire shop but a new spar shop is being constructed.

Proposed Cleanup Action

Alternate 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete floor above the area of concern will remain in place to prevent the leaching of contaminants and exposure to sub-slab vapors. The surface will be inspected annually and maintained as needed. Future building construction in the area will address potential vapor intrusion. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Boeing Site Services will maintain the concrete and building covering the area of concern.
5. Institutional controls for containment of the area will be established under a sitewide plan.
6. Annual inspection of the land use and concrete in area willl be conducted.
7. Containment and site inspection will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Soil Vapor Extraction**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 170, Former Large Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-02
Estimator	Gina Franco	**Media**	Soil and Soil Vapor
Report Date	10/30/15	**Depth Range**	7 to 10 FT bgs
Last Updated	10/7/15	**Surface Area**	170 SF
QA Reviewer	Cary Brown	**Volume**	20 CY
QA Review Date	8/10/15		

Site/Problem Description

The former large vapor degreaser system was situated inside the building within a stainless-steel-lined concrete containment pit below grade. TCE is present in the soil and benzene and TCE are present in the sub-slab vapor. The pit was backfilled with CDF when the degreaser was removed. The subsurface beneath the building floor currently consists of CDF approximately 6 feet deep, a buried reinforced concrete floor of the former degreaser pit, and native glacial till. The area is currently used by the wire shop but a new spar shop is being constructed.

Proposed Cleanup Action

Alternative 2 consists of soil vapor extraction (SVE) from beneath the existing building floor, institutional controls, and monitoring. Periodic sampling and analysis of the vapors extracted by the SVE system. Operation and monitoring of the SVE system is assumed to occur for 5 years. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (5-year assumption for cost). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Maintain institutional controls (maintain pavement and concrete in good condition).
4. Install 2 SVE wells, 1 at each end of the contaminated soil (10 ft bgs).
5. Install SVE equipment enclosure with blower outside of building.
6. A small 3-hp blower rated at 100 cfm with 50 inches of water will extract the vapors.
7. Use 100 ft of piping to connect SVE wells to blower located on roof
8. Assume a 20-ft radius of influence for each SVE well.
9. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$191,100	1	Project Management (4 hrs per week)	2	WK	$616	$1,300
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$219,800	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$1,727,100	$86,400
		11	Reporting (Implementation)	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$191,100**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$191,100	$28,665
	TOTAL INDIRECT COST						**$219,800**

ALTERNATIVE 2 (Continued) **Soil Vapor Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$1,047,100	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$1,308,880	3	Survey	1	DY	$1,600	$1,600
		4	Equipment Rentals	1	WK	$1,759	$1,800
		5	Construction Labor	1	WK	$8,080	$8,100
		6	SVE Well Installation	2	EA	$2,360	$4,800
		7	Sampling supplies	1	LS	$500	$500
		8	AECOM oversight	1	DY	$82	$100
		9	Vehicle rental for AECOM oversight	1	DY	$113	$200
		10	PID Rental	21	DY	$88	$1,900
		11	SVE Piping	80	LF	$4	$400
		12	Saw Cut Concrete (SVE Trench)	104	LF	$23	$2,400
		14	SVE Piping Backfill (CDF)	15	CY	$106	$1,600
		15	SVE System	1	LS	$20,000	$20,000
		16	Carbon Vessels with Initial 1,000 lbs	1	LS	$17,600	$17,600
		17	Forklift	1	WK	$475	$500
		18	Compactor	1	DY	$467	$500
		19	Dust Control (Street Sweeper)	1	WK	$1,234	$1,300
		20	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		21	Vacuum Truck Extraction/Air Knife	4	HR	$195	$800
		23	SVE Well Installation Sampling	7	EA	$62	$500
		24	Concrete Coring	2	EA	$275	$600
		25	Material and Delivery for 6" of Base Course	1	LS	$189	$200
		26	Replace Concrete	6	CY	$164	$1,000
		27	Contractor Standby for Ongoing Operations	1	WK	$10,000	$10,000
		28	Lost Worker Efficiency	1	LS	$960,000	$960,000
		29	Boeing Production Loss	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$4,300	1	Transportation and Disposal Coordination	8	HR	$100	$800
	With Contingency	2	Hazardous Soil Transportation and Disposal	14	TN	$225	$3,100
	$5,380	3	Concrete Transportation	2	EA	$120	$300
		4	Concrete Disposal	1	CY	$30	$100
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$1,051,400**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$1,051,400	$262,900
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$1,314,300	$262,900
	Washington State Sales Tax (%)			**9.5**	%	$1,577,200	$149,900
	TOTAL DIRECT COST						**$1,727,100**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$219,800
		2	Total Direct Costs (see above)	--	--	--	$1,727,100
		3	Site Inspection and Overhead Costs	8	%	$1,946,900	$155,800
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$2,102,700**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$2,016,800**

ALTERNATIVE 2 (Continued) **Soil Vapor Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$49,100	1	Project Management and Coordination	40	HR	$154	$6,200
	With Contingency	2	SVE O&M Event	14	DY	$1,213	$17,000
	$61,380	3	Carbon Change Out	1,000	LB	$2	$2,000
		4	O&M Sampling	20	EA	$596	$12,000
		5	O&M Supplies and Equipment	1	LS	$1,000	$1,000
		6	Blower Electricity (3-hp blower)	1	EA	$2,128	$2,200
		7	Annual Reporting	80	HR	$108	$8,700
	Total Routine Annual O&M Cost						$49,100
	Subtotal Costs		***Years of Annual O&M***	***5***			**$245,500**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$245,500	$61,375
	TOTAL O&M COST						**$306,900**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$294,400**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***2***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$25,300	1	General System Repair (Year 2)	1	LS	$2,000	$2,000
	With Contingency	2	General System Repair (Year 4)	1	LS	$2,000	$2,000
	$32,890	3	SVE System Decommissioning (Year 5)	1	LS	$5,000	$5,000
		4	SVE Well Abandonment (Year 5)	1	LS	$2,500	$2,500
		5	Closeout Conformation Sampling (Year 5)	1	LS	$13,723	$13,800
	Subtotal Costs						**$25,300**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$25,300	$7,590
	TOTAL CLOSURE COST						**$32,900**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$30,900**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$306,900		$294,400
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$32,900		$30,900
	TOTAL OMM COSTS				**$339,800**		**$325,300**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$2,016,800	**$2,016,800**
	TOTAL PRESENT-WORTH OMM COST			$325,300	**$2,342,100**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$117,200	**$2,459,300**
	TOTAL PRESENT-WORTH COST				**$2,459,000**

ALTERNATIVE 3 Future Excavation

Client	Boeing	**EPM Group**	E	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 170, Former Large Vapor Degreaser	
Project	Upland Area Feasibility Study	**Building**	40-02	
Estimator	Gina Franco	**Media**	Soil and Sub-Slap Vapor	
Report Date	10/30/15	**Depth Range**	7 to 10	FT bgs
Last Updated	10/7/15	**Surface Area**	170	SF
QA Reviewer	Phil Newton	**Volume**	20	CY
QA Review Date	7/15/15			

Site/Problem Description

The former large vapor degreaser system was situated inside the building within a stainless-steel-lined concrete containment pit below grade. TCE is present in the soil and benzene and TCE are present in the sub-slab vapor. The pit was backfilled with CDF when the degreaser was removed. The subsurface beneath the building floor currently consists of CDF approximately 6 feet deep, a buried reinforced concrete floor of the former degreaser pit, and native glacial till. The area is currently used by the wire shop but a new spar shop is being constructed.

Proposed Cleanup Action

Alternative 3 consists of future excavation from beneath the existing building floor at a time when the area becomes accessible for construction, such as during site redevelopment or a change of use. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Prior to excavation activities the existing concrete above the area of concern will remain in place and be inspected annually and maintained as needed. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15). IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Maintain institutional controls until excavation work is complete.
4. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
5. Soil will be disposed of as non-hazardous waste.
6. Site prep, excavation and clean-up will take approximately 3 weeks to complete.
7. Assume 5 trucks/day for soil removal.
8. Backfill area with CDF.
9. Institutional Controls will be in place for 15 years prior to completion of Alternative 3.
10. Total depth of excavation is 22 feet bgs, including 3 ft of concrete, 13.5 ft of CDF, and 5.5 ft of soil.
11. Construction crew will work 40hrs/wk.
12. All contaminated soil will be removed.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$141,700	1	Project management (4 hrs per week)	10	WK	$616	$6,200
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$163,000	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	4	%	$301,300	$12,100
		11	Reporting	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$141,700**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$141,700	$21,255
	TOTAL INDIRECT COST						**$163,000**

ALTERNATIVE 3 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$111,600	1	Mobilization/Demobilization	1	LS	$5,000	$5,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$139,500	3	Survey	1	DY	$1,600	$1,600
		4	TESC/Site Preparation	1	LS	$1,000	$1,000
		5	Concrete Saw Cutting	100	LF	$23	$2,300
		6	Construction Labor - 3 man crew	3	WK	$8,080	$24,300
		7	Equipment Rentals	3	WK	$4,765	$14,300
		8	Equipment Venting and Setup	150	LF	$35	$5,300
		9	AECOM sampling/oversight	3	DY	$82	$300
		10	Backfill with CDF	223	CY	$106	$23,700
		11	Base Course	1	LS	$283	$300
		12	Compactor	3	DY	$467	$1,500
		13	Pour new Concrete	17	CY	$225	$3,900
		14	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		15	Vehicle rental for AECOM oversight	3	DY	$113	$400
		16	PID rental	8	DY	$88	$800
		17	Dust Control (Sweeper)	5	DY	$765	$3,900
		18	Confirmation Soil Samples	8	EA	$112	$900
		19	Blower for venting	21	DY	$42	$900
		20	Sampling Supplies	1	LS	$500	$500
		21	Contractor Standby Time for Ongoing Boeing Operation	1	LS	$15,000	$15,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$71,700	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Hazardous Soil Transportation and Disposal	112	TN	$330	$37,000
	$89,630	3	Non-Hazardous Soil (CDF) Transportation and Disposal	270	TN	$115	$31,100
		4	Concrete Transportation	4	HR	$120	$500
		5	Concrete Disposal	34	CY	$30	$1,100
	Subtotal Costs						**$183,300**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$183,300	$45,900
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$229,200	$45,900
	Washington State Sales Tax (%)			**9.5**	%	$275,100	$26,200
	TOTAL DIRECT COST						**$301,300**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$163,000
		2	Total Direct Costs (see above)	--	--	--	$301,300
		3	Site Inspection and Overhead Costs	8	%	$464,300	$37,200
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	**#**		**$501,500**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$407,100**

ALTERNATIVE 3 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OM&M	**SHORT TERM MONITORING**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OM&M & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	LS	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	LS	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OM&M COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OM&M & Decommissioning		$0		$0
	TOTAL OM&M COSTS				**$50,400**		**$45,200**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$407,100	**$407,100**
	TOTAL PRESENT-WORTH OM&M COST			$45,200	**$452,300**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$22,700	**$475,000**
	TOTAL PRESENT-WORTH COST				**$475,000**

ALTERNATIVE 4 Near-Term Excavation

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 170, Former Large Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-02
Estimator	Gina Franco	**Media**	Soil and Sub-Slab Vapor
Report Date	10/30/15	**Depth Range**	7 to 10 FT bgs
Last Updated	10/7/15	**Surface Area**	170 SF
QA Reviewer	Cary Brown	**Volume**	20 CY
QA Review Date	8/17/15		

Site/Problem Description

The former large vapor degreaser system was situated inside the building within a stainless-steel-lined concrete containment pit below grade. TCE is present in the soil and benzene and TCE are present in the sub-slab vapor. The pit was backfilled with CDF when the degreaser was removed. The subsurface beneath the building floor currently consists of CDF approximately 6 feet deep, a buried reinforced concrete floor of the former degreaser pit, and native glacial till. The area is currently used by the wire shop but a new spar shop is being constructed.

Proposed Cleanup Action

Alternative 4 consists of removing contaminated soil beneath the existing building floor by excavation in the near term when there will be significant disruption in Boeing production activities. Permanent relocation of this production area will be necessary and increased logistical challenges encountered associated with obstacles and Boeing operations. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Operations in Building 40-02 will need to be permanently relocated to a new building because the spar shop is a critical production area. Near term excavation accounts for the interruption of plant operations, but not production losses.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Maintain institutional controls until excavation work is complete.
5. Soil will be disposed of as non-hazardous waste.
6. Site prep, excavation and clean-up will take approximately 4 weeks to complete.
7. Assume 5 trucks per day for soil removal.
8. Total depth of excavation is 22 feet bgs, including 3 ft of concrete, 13.5 ft of CDF, and 5.5 ft of soil.
9. Existing Boeing production activities will be permanently relocated to a new building.
10. Construction crew will work 60 hrs/wk.
11. All contaminated soil will be removed.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$460,200	1	Project management (4 hrs per week)	10	WK	$616	$6,200
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$529,200	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	4	%	$8,341,900	$333,700
		11	Reporting (Implementation)	230	HR	$108	$24,900
	Subtotal Costs						**$460,200**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$460,200	$69,030
	TOTAL INDIRECT COST						**$529,200**

ALTERNATIVE 4 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$33,311,100	1	Mobilization/Demobilization	1	EA	$5,000	$5,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$41,638,880	3	TESC/Site Preparation	1	LS	$1,000	$1,000
		4	Survey	2	DY	$1,600	$3,200
		5	New Building Construction for Shop Move	150,000	SF	$200	$30,000,000
		6	Shop Relocation to New Building	150,000	SF	$8	$1,200,000
		7	Concrete Saw Cutting	100	LF	$23	$2,300
		8	Equipment Venting and Setup	150	LF	$35	$5,300
		9	Equipment Rentals	3	WK	$4,765	$14,300
		10	Construction Labor - 3 man crew	4	LWK	$14,140	$56,600
		11	AECOM sampling/oversight	3	DY	$82	$300
		12	Backfill with CDF	223	CY	$106	$23,700
		13	Base Course	1	LS	$283	$300
		14	Pour new Concrete	17	CY	$225	$3,900
		15	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		16	Vehicle rental for AECOM oversight	3	DY	$113	$400
		17	Sampling Supplies	1	LS	$500	$500
		18	PID rental	21	DY	$88	$1,900
		19	Confirmation Soil Samples	8	EA	$112	$900
		20	Blower for venting	21	DY	$42	$900
		21	Compactor	2	DY	$467	$1,000
		22	Dust Control (Sweeper)	5	DY	$765	$3,900
		23	Contractor Standby for Ongoing Operations	6	WK	$10,000	$60,000
		24	Lost Worker Efficiency	1	LS	$1,920,000	$1,920,000
		25	Boeing Production Loss	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$56,500	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Hazardous Soil Transportation and Disposal	112	TN	$255	$28,600
	$70,630	3	Non-Hazardous Soil (CDF) Transportation and Disposal	270	TN	$90	$24,300
		4	Concrete Transportation	4	HR	$120	$500
		5	Concrete Disposal	34	CY	$30	$1,100
	Subtotal Costs						**$33,367,600**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$33,367,600	$8,341,900
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$41,709,500	$8,341,900
	Washington State Sales Tax (%)			**9.5**	%	$50,051,400	$4,754,900
	TOTAL DIRECT COST						**$54,806,300**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$529,200
		2	Total Direct Costs (see above)	--	--	--	$54,806,300
		3	Site Inspection and Overhead Costs	8	%	$55,335,500	$4,426,900
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$59,762,400**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$57,321,100**

ALTERNATIVE 4 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**SHORT TERM MONITORING**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***0***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	LS	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	LS	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$0**		**$0**

	ALTERNATIVE COST SUMMARY			Rounded Total	Cumulative Total
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$57,321,100	**$57,321,100**
	TOTAL PRESENT-WORTH OMM COST			$0	**$57,321,100**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$2,866,100	**$60,187,200**
	TOTAL PRESENT-WORTH COST				**$60,187,000**

Table D-11
Comparison of Alternative Costs
Exposure Pathway Model: EPM E
SWMU/AOC No. 169, BUILDING 40-02, Former Small Vapor Degreaser

Task	Alternative 1: Maintain Containment
IMPLEMENATION COSTS	
Cleanup Design, Planning, and General (Indirect Costs)	$4,400
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0
Direct Contingency and Unlisted Items Assumed (%)	25
Site Inspection and Overhead	$400
Total Implementation Costs	**$4,800**
OMM COSTS	
Annualized O&M Costs	$0
O&M Contingency and Unlisted Items Assumed (%)	25
O&M Duration (years)	2
Annualized Monitoring & Reporting Costs	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20
Monitoring Duration (years)	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30
Total OMM Costs	**$100,800**
TOTALS	
Total Implementation and OMM Costs	**$105,600**
Estimated Agency Oversight Costs [a]	$4,400
Total Project Present Worth [b]	**$91,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.
OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 169, Former Small Vapor Degreaser
Project	Upland Area Feasibility Study	**Building**	40-02
Estimator	Gina Franco	**Media**	Soil Vapor
Report Date	10/30/15	**Depth Range**	N/A
Last Updated	10/5/15	**Surface Area**	N/A
QA Reviewer	Debbie Rodenhizer	**Volume**	N/A
QA Review Date	7/15/15		

Site/Problem Description

The former small vapor degreaser pit was located inside a room within Building 40-02. Sub-slab vapor indicates TCE and Freon 12 is present but soil is below CULs. The degreaser was situated within a stainless-steel-lined concrete containment pit constructed below grade. The pit was backfilled with CDF after the degreaser was decommissioned and removed.

Proposed Cleanup Action

Alternative 1 consists of containing the contaminated soil vapor in place. The existing concrete floor above the area of concern will remain in place and be inspected annually and maintained as needed. There is no active treatment component to this alternative. Future building construction in the area will address potential vapor intrusion. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Boeing Site Services will maintain the concrete and building covering the area of concern.
5. Institutional controls for containment of the area will be established under a sitewide plan.
6. Annual inspection of the land use and concrete in area willl be conducted.
7. Containment and site inspection will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***2***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

Table D-12
Comparison of Alternative Costs
Exposure Pathway Model: EPM E
FORMER PAINT CRIB, BUILDING 40-02

Task	Alternative 1: Maintain Containment
IMPLEMENATION COSTS	
Cleanup Design, Planning, and General (Indirect Costs)	$4,400
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0
Direct Contingency and Unlisted Items Assumed (%)	25
Site Inspection and Overhead	$400
Total Implementation Costs	**$4,800**
OMM COSTS	
Annualized O&M Costs	$0
O&M Contingency and Unlisted Items Assumed (%)	25
O&M Duration (years)	0
Annualized Monitoring & Reporting Costs	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20
Monitoring Duration (years)	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30
Total OMM Costs	**$100,800**
TOTALS	
Total Implementation and OMM Costs	**$105,600**
Estimated Agency Oversight Costs [a]	$4,400
Total Project Present Worth [b]	**$91,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.
OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	Former Paint Crib
Project	Upland Area Feasibility Study	**Building**	40-02
Estimator	Gina Franco	**Media**	Soil Vapor
Report Date	10/30/15	**Depth Range**	N/A
Last Updated	10/5/15	**Surface Area**	N/A
QA Reviewer	Debbie Rodenhizer	**Volume**	N/A
QA Review Date	7/28/15		

Site/Problem The former paint crib is located inside the southwest portion of Building 40-02. TCE are present in sub-slab vapors but soil is below CULs. It is located in a small room on the southwestern side of Building 40-02 and is currently used for chemical storage.

Proposed Cleanup Action Alternative 1 consists of containing the contaminated soil vapor in place. The existing concrete floor above the area of concern will remain in place and be inspected annually and maintained as needed. There is no active treatment component to this alternative. Future building construction in the area will address potential vapor intrusion. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Institutional controls for the area will be established under a site wide plan.
5. Boeing Site Services will maintain the concrete and building covering the area of concern.
6. Annual inspection of the land use and asphalt in the area will be conducted.
7. Institutional controls and monitoring will remain in effect for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

Table D-13
Comparison of Alternative Costs
Exposure Pathway Model: EPM E
SWMU/AOC No. 054, Building 40-51, Former Wastewater AST

Task	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$265,300	$258,400
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$1,206,600	$1,105,600
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$117,800	$109,200
Total Implementation Costs	**$4,800**	**$1,589,700**	**$1,473,200**
OMM COSTS			
Annualized O&M Costs	$0	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	30	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30
Total OMM Costs	**$100,800**	**$100,800**	**$100,800**
TOTALS			
Total Implementation and OMM Costs	**$105,600**	**$1,690,500**	**$1,574,000**
Estimated Agency Oversight Costs [a]	$4,400	$68,700	$74,800
Total Project Present Worth [b]	**$91,000**	**$1,441,000**	**$1,570,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.
OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 054, Former Wastewater AST
Project	Upland Area Feasibility Study	**Building**	40-51
Estimator	Demetrio Cabanillas	**Media**	Soil and Soil Vapor
Report Date	10/30/15	**Depth Range**	1 to 18 FT bgs
Last Updated	10/5/15	**Surface Area**	4,400 SF
QA Reviewer	Debbie Rodenhizer	**Volume**	2,100 CY
QA Review Date	7/15/15		

Site/Problem Description Historical soil borings and soil gas sampling indicate TCE exceedances in the soil and vapors present in the sub slab. The area of concern is outside building 40-51 and a utilidor is located through the center of the soil plume.

Proposed Cleanup Action Alternate 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete floor above the area of concern will remain in place and be inspected annually and maintained as needed. Future building construction in the area will address soil gas. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Concrete and pavement outside of building will be maintained by Boeing Site Services
5. Institutional controls for containment of the area will be established under a sitewide plan.
6. Annual inspection of the land use, concrete, and pavement in the area will be conducted.
7. Containment and monitoring will be implemented for a period of 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$100	$0
		4	Not Used	0	EA	$100	$0
		5	Not Used	0	EA	$100	$0
		6	Not Used	0	EA	$100	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) Maintain Containment

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) Maintain Containment

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 054, Former Wastewater AST
Project	Upland Area Feasibility Study	**Building**	40-51
Estimator	Demetrio Cabanillas	**Media**	Soil and Soil Vapor
Report Date	10/30/15	**Depth Range**	1 to 18 FT bgs
Last Updated	10/7/15	**Surface Area**	4,400 SF
QA Reviewer	Phil Newton	**Volume**	2,100 CY
QA Review Date	7/15/15		

Site/Problem Description

Historical soil borings and soil gas sampling indicate TCE exceedances in the soil and vapors present in the sub slab. The area of concern is outside building 40-51 and a utilidor is located through the center of the soil plume.

Proposed Cleanup Action

Alternative 2 consists of future excavation at a time when the area is accessible for construction, such as during site redevelopment or change of use. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels. Due to inaccessible soils under that will remain in-place under the utilidor, institutional controls are assumed to be implemented prior to and after excavation (30-year assumption for cost). IC inspections will be made annually. The excavation work is assumed to occur in Year 15.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. NW portion of excavation contamination is between 1 to 17 ft bgs
5. The remainder of the excavation contamination is between 1 to 10 ft bgs
6. Excavation depth will be between contaminated sample and clean sample locations per Figure 2-2c
7. Excavation next to buildings and utility trench requires the use of a trench box and slot cuts
8. 5 trucks at 18 cy per truck excavation rate for slot cut areas
9. 8 trucks at 18 cy per truck excavation rate for not-slot cut areas and backfill for all areas
10. Approximately 14 slot cuts on site. Slot cuts range from 5 x 16 feet to 10 x 16 feet.
11. No slot cuts required on east edge of excavation
12. Slot cut excavation 16 days; General excavation 8 days; 14 days of backfill
13. The work will take 8 weeks to complete at 40 hrs/wk
14. 1-AECOM employee for sampling/oversight
15. 1 day concrete demo and 2 days site restoration
16. Concrete is estimated to be 12-inches outside buildings
17. 1.8 Tons per CY of soil
18. All excavation sites are being backfilled with CDF
19. 30 years of institutional controls since contaminated soil might remain under buildings and utility corridor
20. Work in the adjacent Building 40-51 will not be impacted by excavation.
21. Contaminated soil will remain in place following excavation

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$230,700	1	Project management (4 hrs per week)	9	WK	$616	$5,600
	With Contingency	2	General coordination, meetings, and planning (% o	2	%	$1,206,600	$24,200
	$265,300	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	150	HR	$108	$16,200
		5	Design Plans and Specs	1	LS	$60,000	$60,000
		6	Engineers Estimate	60	HR	$108	$6,500
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	32	HR	$108	$3,500
		9	Work Plan (CMP/SAP)	120	HR	$108	$13,000
		10	Construction oversight and QA (% of DC)	4	%	$1,206,600	$48,300
		11	Reporting (Implementation)	300	HR	$108	$32,400
		12	IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$230,700**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$230,700	$34,605
	TOTAL INDIRECT COST						**$265,300**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$375,500	1	Mobilization/Demobilization	1	LS	$15,000	$15,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$469,380	3	Site Preparation/Erosion control	1	LS	$1,000	$1,000
		4	Concrete Saw Cutting	350	LF	$15	$5,200
		5	Trench Box (4 weeks)	1	LS	$2,526	$2,600
		6	Surveyor	3	DY	$1,600	$4,800
		7	Equipment Rental	8	WK	$5,990	$48,000
		8	Construction Labor	8	WK	$8,080	$64,700
		9	Air Knife (Excavation)	16	HR	$195	$3,200
		10	Backfill with CDF	1,600	CY	$106	$169,800
		11	Delivery of Base course	4	HR	$120	$500
		12	Base course	120	TN	$16	$1,900
		13	AECOM Sampling	14	DY	$820	$11,500
		14	Pour new Concrete	130	CY	$225	$29,300
		15	Dust Control	5	DY	$765	$3,900
		16	Vehicle Rental for AECOM Sampling	2	WK	$791	$1,600
		17	Sampling Supplies	1	LS	$500	$500
		18	PID rental	5	WK	$616	$3,100
		19	Analytical Testing (TCE)	19	EA	$112	$2,200
		20	Compactor	2	DY	$467	$1,000
		21	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		22	Not Used	0	EA	$0	$0
		23	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$359,000	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	3,050	TN	$115	$350,800
	$448,750	3	Concrete Transportation	16	HR	$120	$2,000
		4	Concrete Disposal Fee	140	CY	$30	$4,200
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$734,500**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$734,500	$183,700
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$918,200	$183,700
	Washington State Sales Tax (%)			**9.5**	%	$1,101,900	$104,700
	TOTAL DIRECT COST						**$1,206,600**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$265,300
		2	Total Direct Costs (see above)	--	--	--	$1,206,600
		3	Site Inspection and Overhead Costs	8	%	$1,471,900	$117,800
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	**#**		**$1,589,700**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$1,290,500**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$1,290,500	**$1,290,500**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$1,372,400**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$68,700	**$1,441,100**
	TOTAL PRESENT-WORTH COST				**$1,441,000**

ALTERNATIVE 3 **Near-Term Excavation**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 054, Former Wastewater AST
Project	Upland Area Feasibility Study	**Building**	40-51
Estimator	Demetrio Cabanillas	**Media**	Soil and Soil Vapor
Report Date	10/30/15	**Depth Range**	1 to 18 FT bgs
Last Updated	10/7/15	**Surface Area**	4,400 SF
QA Reviewer	Cary Brown	**Volume**	2,100 CY
QA Review Date	8/15/15		

Site/Problem Description Historical soil borings and soil gas sampling indicate TCE exceedances in the soil and vapors present in the sub slab. The area of concern is outside building 40-51 and a utilidor is located through the center of the soil plume.

Proposed Cleanup Action Alternative 3 consists of removing contaminated soil by excavation in the near term when there will be disruption to normal Boeing activities. There will be increased logistical challenges encountered associated with obstacles and Boeing operations. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Due to inaccessible soils under that will remain in-place under the utilidor, institutional controls are assumed to be implemented after excavation (30-year assumption for cost). IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. NW portion of excavation contamination is between 1 to 17 ft bgs
5. The remainder of the excavation contamination is between 1 to 10 ft bgs
6. Excavation depth will be between contaminated sample and clean sample locations per Figure 2-2c
7. Excavation next to buildings and utility trench requires the use of a trench box and slot cuts
8. 5 trucks at 18 cy per truck excavation rate for slot cut areas
9. 8 trucks at 18 cy per truck excavation rate for not-slot cut areas and backfill for all areas
10. Approximately 14 slot cuts on site. Slot cuts range from 5 x 16 feet to 10 x 16 feet.
11. No slot cuts required on east edge of excavation
12. Slot cut excavation 11 days; General excavation 5 days; 12 days of backfill
13. The work will take 5 weeks to complete at 60 hrs/wk
14. 1-AECOM employee for sampling/oversight
15. 1 day concrete demo and 2 days site restoration
16. Concrete is estimated to be 12-inches outside buildings
17. 1.8 Tons per CY of soil
18. All excavation sites will be being backfilled with CDF
19. 30 years of institutional controls since contaminated soil might remain under buildings and utility corridor
20. Work in the adjacent Building 40-51 will not be impacted by excavation.
21. Contaminated soil will remain in place following excavation

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$224,700	1	Project management	9	WK	$616	$5,600
	With Contingency	2	General coordination, meetings, and planning (% o	2	%	$1,105,600	$22,200
	$258,400	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	150	HR	$108	$16,200
		5	Design Plans and Specs	1	LS	$60,000	$60,000
		6	Engineers Estimate	60	HR	$108	$6,500
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	32	HR	$108	$3,500
		9	Work Plan (CMP/SAP)	120	HR	$108	$13,000
		10	Construction oversight and QA (% of DC)	4	%	$1,105,600	$44,300
		11	Reporting (Implementation)	300	HR	$108	$32,400
		12	IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$224,700**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$224,700	$33,705
	TOTAL INDIRECT COST						**$258,400**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$390,300	1	Mobilization/Demobilization	1	LS	$15,000	$15,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$487,880	3	Site Preparation/Erosion control	1	LS	$1,000	$1,000
		4	Concrete Saw Cutting	350	LF	$15	$5,200
		5	Trench Box (2 weeks)	1	LS	$1,488	$1,500
		6	Surveyor	3	DY	$1,600	$4,800
		7	Equipment Rental	5	WK	$5,990	$31,200
		8	Labor	5	LWK	$14,140	$73,600
		9	Air Knife (Excavation)	16	HR	$195	$3,200
		10	Backfill with CDF	1,600	CY	$106	$169,800
		11	Delivery of Base course	4	HR	$120	$500
		12	Base course	120	TN	$16	$1,900
		13	AECOM Sampling	14	DY	$820	$11,500
		14	Pour new Concrete	130	CY	$225	$29,300
		15	Dust Control	5	DY	$765	$3,900
		16	Vehicle Rental for AECOM Sampling	2	WK	$791	$1,600
		17	Sampling Supplies	1	LS	$500	$500
		18	PID rental	3	WK	$616	$1,900
		19	Analytical Testing (TCE)	19	EA	$112	$2,200
		20	Compactor	2	DY	$467	$1,000
		21	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		22	Contractor Standby for Ongoing Operations	5	WK	$5,000	$25,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$282,700	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	3,050	TN	$90	$274,500
	$353,380	3	Concrete Transportation	16	HR	$120	$2,000
		4	Concrete Disposal Fee	140	CY	$30	$4,200
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$673,000**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$673,000	$168,300
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$841,300	$168,300
	Washington State Sales Tax (%)			**9.5**	%	$1,009,600	$96,000
	TOTAL DIRECT COST						**$1,105,600**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$258,400
		2	Total Direct Costs (see above)	--	--	--	$1,105,600
		3	Site Inspection and Overhead Costs	8	%	$1,364,000	$109,200
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$1,473,200**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$1,413,000**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	HR	$120	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	DY	$0	$0
		4	Not Used	0	DY	$500	$0
		5	Not Used	0	LS	$2,000	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	EA	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$1,413,000	**$1,413,000**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$1,494,900**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$74,800	**$1,569,700**
	TOTAL PRESENT-WORTH COST				**$1,570,000**

Table D-14
Comparison of Alternative Costs
Exposure Pathway Model: EPM E
BUILDING 40-32, FOOTING EXCAVATION

Task	Alternative 1: Maintain Containment	Alternative 2: Soil Vapor Extraction
IMPLEMENATION COSTS		
Cleanup Design, Planning, and General (Indirect Costs)	$4,500	$127,000
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$100,400
Direct Contingency and Unlisted Items Assumed (%)	25	25
Site Inspection and Overhead	$400	$18,200
Total Implementation Costs	**$4,900**	**$245,600**
OMM COSTS		
Annualized O&M Costs	$0	$63,880
O&M Contingency and Unlisted Items Assumed (%)	25	25
O&M Duration (years)	0	5
Annualized Monitoring & Reporting Costs	$3,360	$0
Monitoring Contingency and Unlisted Items Assumed (%)	20	20
Monitoring Duration (years)	30	0
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$12,870
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30
Total OMM Costs	**$100,800**	**$332,300**
TOTALS		
Total Implementation and OMM Costs	**$105,700**	**$577,900**
Estimated Agency Oversight Costs [a]	$4,400	$27,800
Total Project Present Worth [b]	**$91,000**	**$582,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	Footing Excavation
Project	Upland Area Feasibility Study	**Building**	40-32
Estimator	Genevieve Fujimoto	**Media**	Soil and Soil Vapor
Report Date	10/30/15	**Depth Range**	14 to 16 FT bgs
Last Updated	10/5/15	**Surface Area**	7 SF
QA Reviewer	Debbie Rodenhizer	**Volume**	0.5 CY
QA Review Date	7/13/15		

Site/Problem Description

Petroleum contamination is present deep underneath a footing for a Building 40-32 hangar door and adjacent to a underground pedestrian tunnel. The soil contamination was discovered during the footing installation excavation, which was backfilled with CDF prior to constructing the concrete pile cap. One sub-slab vapor sample inside the adjacent underground pedestrian tunnel also exceeds cleanup levels.

Proposed Cleanup Action

Alternative 1 consists of containment of the in-place soils and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete above the area of concern will remain in place to prevent the leaching of contaminants and exposure to sub-slab vapors. The surface will be inspected annually and maintained as needed. Future building construction in this area will address potential vapor intrusion. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. The Building 40-32 footing and cover will be maintained by Boeing Site Services.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the land use and existing building structure over the area of concern will be conducted.
7. Containment and annual inspection will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,900	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,500	3	Not Used	0	EA	$0	$0
		4	Not Used	1	EA	$1	$100
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,900**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,900	$585
	TOTAL INDIRECT COST						**$4,500**

ALTERNATIVE 1 (Continued) **Maintain Containment**

IMPLEMENTATION (Continued)						
CLEANUP ACTION CONSTRUCTION (Direct Costs)						
$0	1	Not Used	0	EA	$0	$0
With Contingency	2	Not Used	0	LS	$0	$0
$0	3	Not Used	0	EA	$0	$0
	4	Not Used	0	EA	$0	$0
	5	Not Used	0	EA	$0	$0
CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
$0	1	Not Used	0	EA	$0	$0
With Contingency	2	Not Used	0	EA	$0	$0
$0	3	Not Used	0	EA	$0	$0
	4	Not Used	0	EA	$0	$0
	5	Not Used	0	EA	$0	$0
Subtotal Costs						**$0**
Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
Washington State Sales Tax (%)			**9.5**	%	$0	$0
TOTAL DIRECT COST						**$0**
TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
	1	Total Indirect Costs (see above)	--	--	--	$4,500
	2	Total Direct Costs (see above)	--	--	--	$0
	3	Site Inspection and Overhead Costs	8	%	$4,500	$400
TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,900**
Escalated Implementation Cost		Presumed Inflation Rate	***2.00***	%		**$5,100**
Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,800**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Escalated O&M Cost		Presumed Inflation Rate	***2.00***	%		**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Escalated Monitoring Cost		Presumed Inflation Rate	***2.00***	%		**$136,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Escalated Closure Cost		Presumed Inflation Rate	***2.00***	%		**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,800	**$4,800**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,700**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,100**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Soil Vapor Extraction**

Client	Boeing	**EPM Group**	E
Location	BCA Everett Plant	**Site Name**	Footing Excavation
Project	Upland Area Feasibility Study	**Building**	40-32
Estimator	Genevieve Fujimoto	**Media**	Soil and Soil Vapor
Report Date	10/30/15	**Depth Range**	14 to 16 FT bgs
Last Updated	10/6/15	**Surface Area**	7 SF
QA Reviewer	Cary Brown	**Volume**	0.5 CY
QA Review Date	8/10/15		

Site/Problem Description

Petroleum contamination is present deep underneath a footing for a Building 40-32 hangar door and adjacent to a underground pedestrian tunnel. The soil contamination was discovered during the footing installation excavation, which was backfilled with CDF prior to constructing the concrete pile cap. One sub-slab vapor sample inside the adjacent underground pedestrian tunnel also exceeds cleanup levels.

Proposed Cleanup Action

Alternative 2 consists of soil vapor extraction using one perforated pipe installed below the floor of the pedestrian tunnel. The pipe will be oriented parallel to the length of the tunnel between the RI sub-slab vapor sample and the CDF backfill. Piping will be installed to connect the SVE pipe to the equipment enclosure located at surface elevation outside of the building. Operation and monitoring of the SVE system is assumed to operate for 5 years. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (5-year assumption for cost). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. The SVE system will consist of an equipment skid outside at ground level and one underground 10-ft perforated pipe located below the floor of the pedestrian tunnel. Approximately 40-ft of process piping will connect the perforated
5. A small 3-hp blower rated at 100 cfm with 50 inches of water will extract the vapors.
6. The 10-ft perforated piping (screened interval) will be backfilled with pea gravel overlain by CDF, base course, and concrete. The process piping will be backfilled with CDF and overlain by base course and concrete.
7. SVE system will operate for 5 years.
8. Confirmation soil sampling will be completed at 2 soil borings and 1 sub-slab vapor location prior to decommissioning.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$110,400	1	Project Management (4 hrs per week)	3	WK	$616	$1,900
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$127,000	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$100,400	$5,100
		11	Reporting (Implementation)	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$110,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$110,400	$16,560
	TOTAL INDIRECT COST						**$127,000**

ALTERNATIVE 2 (Continued) **Soil Vapor Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$57,900	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	DY	$1,600	$1,600
	$72,380	3	Utility Locate	8	HR	$80	$700
		4	Construction Rentals	1	WK	$1,759	$1,800
		5	Forklift - SVE Skid Installation	1	WK	$475	$500
		6	Construction Labor	1	WK	$10,400	$10,400
		7	SVE System Enclosure (Equipment and Install)	1	LS	$20,000	$20,000
		8	Two Carbon Vessels with Initial 500 lbs Each	1	LS	$850	$900
		9	Saw Cutting Concrete	66	LF	$23	$1,600
		10	SVE Horizontal Screened Piping	10	LF	$25	$300
		11	SVE Process Piping	40	LF	$4	$200
		12	SVE Trench - CDF Backfill	4	CY	$106	$500
		13	SVE Screened Interval - Pea Gravel	2	CY	$41	$100
		14	Pea Gravel Delivery	1	LS	$100	$100
		15	SVE Trench - Base Course	5	TN	$16	$100
		16	SVE Trench - Base Course, Delivery	1	HR	$230	$300
		17	SVE Trench - Concrete Construction	16	CY	$225	$3,600
		18	Dust Control (Street Sweeper)	1	DY	$765	$800
		19	General Site Cleanup and Misc Restoration	1	LS	$2,500	$2,500
		20	SVE Piping Installation Samples	2	EA	$81	$200
		21	Sampling Supplies	1	LS	$500	$500
		22	PID Rental	2	DY	$88	$200
		23	AECOM Sampling	1	DY	$656	$700
		24	Vehicle Rental for AECOM Sampling	2	DY	$113	$300
		25	Contractor Standby for Ongoing Operations	1	WK	$5,000	$5,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$3,100	1	Transportation and Disposal Coordination	8	HR	$100	$800
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	20	TN	$90	$1,800
	$3,880	3	Concrete Transportation	2	HR	$120	$300
		4	Concrete Disposal Fee	4	CY	$30	$200
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$61,000**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$61,000	$15,300
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$76,300	$15,300
	Washington State Sales Tax (%)			**9.5**	%	$91,600	$8,800
	TOTAL DIRECT COST						**$100,400**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$127,000
		2	Total Direct Costs (see above)	--	--	--	$100,400
		3	Site Inspection and Overhead Costs	8	%	$227,400	$18,200
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$245,600**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$235,600**

ALTERNATIVE 2 (Continued) **Soil Vapor Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$51,100	1	Project Management and Coordination	40	HR	$154	$6,200
	With Contingency	2	O&M Site Visit	14	DY	$1,213	$17,000
	$63,880	3	O&M Supplies and Equipment	1	LS	$3,000	$3,000
		4	Blower Electricity (3-hp motor)	1	LS	$2,128	$2,200
		5	Carbon Change out	1,000	LB	$2	$2,000
		6	O&M Sampling	20	EA	$596	$12,000
		7	Annual Reporting	80	HR	$108	$8,700
	Total Routine Annual O&M Cost						$51,100
	Subtotal Costs		***Years of Annual O&M***	***5***			**$255,500**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$255,500	$63,875
	TOTAL O&M COST						**$319,400**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$306,400**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***0***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Escalated Monitoring Cost		Presumed Inflation Rate	***2.00***	%		**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$9,900	1	General Repair (Year 2)	1	LS	$2,000	$2,000
	With Contingency	2	General Repair (Year 4)	1	LS	$2,000	$2,000
	$12,870	3	SVE System Decommissioning (Year 5)	1	LS	$5,000	$5,000
		4	Closeout Confirmation Sampling (Year 5)	1	LS	$894	$900
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$9,900**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$9,900	$2,970
	TOTAL CLOSURE COST						**$12,900**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$12,200**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$319,400		$306,400
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$12,900		$12,200
	TOTAL OMM COSTS				**$332,300**		**$318,600**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$235,600	**$235,600**
	TOTAL PRESENT-WORTH OMM COST			$318,600	**$554,200**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$27,800	**$582,000**
	TOTAL PRESENT-WORTH COST				**$582,000**

Table D-15
Comparison of Alternative Costs
Exposure Pathway Model: EPM F
SWMU/AOC No. 068, South Fire Pit

Task	Alternative 1: Maintain Containment	Alternative 2: Soil Vapor Extraction	Alternative 3: Future Excavation	Alternative 4: Near-Term Excavation
IMPLEMENATION COSTS				
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$140,200	$174,000	$186,100
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$331,100	$450,400	$564,400
Direct Contingency and Unlisted Items Assumed (%)	25	25	25	25
Site Inspection and Overhead	$400	$37,800	$50,000	$60,100
Total Implementation Costs	**$4,800**	**$509,100**	**$674,400**	**$810,600**
OMM COSTS				
Annualized O&M Costs	$0	$86,380	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25	25
O&M Duration (years)	0	5	0	0
Annualized Monitoring & Reporting Costs	$3,360	$0	$3,360	$0
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20	20
Monitoring Duration (years)	30	5	15	0
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$36,400	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30	30
Total OMM Costs	**$100,800**	**$468,300**	**$50,400**	**$0**
TOTALS				
Total Implementation and OMM Costs	**$105,600**	**$977,400**	**$724,800**	**$810,600**
Estimated Agency Oversight Costs [a]	$4,400	$46,900	$34,700	$38,900
Total Project Present Worth [b]	**$91,000**	**$984,000**	**$727,000**	**$816,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	F
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 068, South Fire Pit
Project	Upland Area Feasibility Study	**Building**	South Complex
Estimator	Elyssa Dixon	**Media**	Soil
Report Date	10/30/15	**Depth Range**	0.5 to 4 FT bgs
Last Updated	10/5/15	**Surface Area**	3,400 SF
QA Reviewer	Debbie Rodenhizer	**Volume**	470 CY
QA Review Date	7/30/15		

Site/Problem Description

TPH-Gx, TPH-Dx, TPH-Motor Oil, and TPH-Jet A concentrations in fill soil are present above proposed cleanup levels at five shallow sample locations between 1.5 and 3.5 ft bgs. Four locations are within the limits of the historical South Fire Pit and one is located southwest adjacent to a 2012 utility relocation trench. FS borings support the shallow extent of contaminated soil at the site. The area is outside but is covered by asphalt and is used for vehicle parking and traffic exiting the main gate.

Proposed Cleanup Action

Alternative 1 consists of containment of shallow contaminated soil and includes institutional controls which will limit the land use of this area to industrial use only. The existing asphalt above the area of concern will remain in place to prevent the leaching of contaminants and exposure to sub-slab vapors. The surface will be inspected annually and maintained as needed. Future building construction in the area will address potential vapor intrusion. Containment and institutional controls will be implemented for as long as contaminant concentration exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014
4. Asphalt in the area will be maintained by Boeing Site Services.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the land use and asphalt in the area will be conducted.
7. Containment and monitoring will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Soil Vapor Extraction**

Client	Boeing	**EPM Group**	F
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 068, South Fire Pit
Project	Upland Area Feasibility Study	**Building**	South Complex
Estimator	Elyssa Dixon	**Media**	Soil
Report Date	10/30/15	**Depth Range**	0.5 to 4 FT bgs
Last Updated	10/7/15	**Surface Area**	3,400 SF
QA Reviewer	Cary Brown	**Volume**	470 CY
QA Review Date	8/10/15		

Site/Problem Description

TPH-Gx, TPH-Dx, TPH-Motor Oil, and TPH-Jet A concentrations in fill soil are present above proposed cleanup levels at five shallow sample locations between 1.5 and 3.5 ft bgs. Four locations are within the limits of the historical South Fire Pit and one is located southwest adjacent to a 2012 utility relocation trench. FS borings support the shallow extent of contaminated soil at the site. The area is outside but is covered by asphalt and is used for vehicle parking and traffic exiting the main gate.

Proposed Cleanup Action

Alternative 2 consists of soil vapor extraction and installs SVE piping in the vicinity of the former south fire pit and in the contaminated area to the southwest. The SVE system equipment will be located within the limits of existing parking spaces. Operation and monitoring of the SVE system is assumed to be completed for 5 years. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (5-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014
4. Soil weighs 1.8 TN/CY
5. Fill/till interface at approximately 6 ft bgs. SVE piping to be screened 2-3 ft bgs.
6. SVE trenches and system construction will take approximately two weeks to complete.
7. Traffic Control will be required during SVE construction within the road for approximately a week.
8. Site prep and installation of the SVE system will take approximately one week.
9. Soil will be disposed of as non-hazardous waste.
10. The SVE system will operate for 5 years.
11. A large 20 hp blower rated at 200 cfm with 50 inches of H2O will be installed outside.
12. Approximately 12 separate SVE laterals will be used to extract vapors.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$121,900	1	Project management (4 hours per week)	3	WK	$616	$1,900
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$140,200	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$331,100	$16,600
		11	Reporting (Implementation)	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$121,900**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$121,900	$18,285
	TOTAL INDIRECT COST						**$140,200**

ALTERNATIVE 2 (Continued) **Soil Vapor Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$175,600	1	Pre-Design Sampling (Geoprobe)	1	DY	$2,000	$2,000
	With Contingency	2	AECOM Pre-Design Sampling Oversight	12	HR	$82	$1,000
	$219,500	3	AECOM Pre-Design Sampling Vehicle Rental	2	DY	$113	$300
		4	Sampling Supplies	1	LS	$500	$500
		5	Pre-Design Sampling PID Rental	2	DY	$88	$200
		6	Pre-Design Sampling Analytical Testing	6	EA	$143	$900
		7	Mobilization	1	LS	$5,000	$5,000
		8	Utility locate	8	HR	$80	$700
		9	Construction Surveyor	1	DY	$1,600	$1,600
		10	Equipment Rentals	3	WK	$5,990	$18,000
		11	Construction Labor	3	WK	$8,080	$24,300
		12	Traffic Control	1	WK	$4,200	$4,200
		13	Air Knife (SVE)	5	HR	$195	$1,000
		14	Sawcut Asphalt (SVE Trench)	1,054	LF	$10	$10,900
		15	AECOM Sampling Oversight	2	WK	$3,280	$6,600
		16	AECOM Sampling Vehicle Rental	14	DY	$113	$1,600
		17	PID Rental	14	DY	$88	$1,300
		18	Trench Analytical Testing	27	EA	$266	$7,200
		19	SVE Horizontal Screened Piping	350	LF	$25	$8,800
		20	SVE System Process Piping	1,050	LF	$4	$4,200
		21	SVE Trench Backfill (Pea Gravel)	20	CY	$44	$900
		22	SVE System (Equipment Install)	1	LS	$38,000	$38,000
		23	Two 2,000 lb Carbon Vessels with Initial 4,000 lbs of GAC	1	LS	$18,000	$18,000
		24	Asphalt Base Course	33	TN	$16	$600
		25	Asphalt Base Course Delivery	1	HR	$120	$200
		26	Loader	3	DY	$615	$1,900
		27	Compactor	3	DY	$467	$1,500
		28	Replace Asphalt	117	SY	$32	$3,800
		29	Dust Control (Street Sweeper)	7	DY	$765	$5,400
		30	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$25,900	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	258	TN	$90	$23,300
	$32,380	3	Asphalt Transportation	2	HR	$120	$300
		4	Asphalt Disposal Fee	13	CY	$22	$300
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$201,500**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$201,500	$50,400
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$251,900	$50,400
	Washington State Sales Tax (%)			**9.5**	%	$302,300	$28,800
	TOTAL DIRECT COST						**$331,100**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$140,200
		2	Total Direct Costs (see above)	--	--	--	$331,100
		3	Site Inspection and Overhead Costs	8	%	$471,300	$37,800
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$509,100**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$488,300**

ALTERNATIVE 2 (Continued) **Soil Vapor Extraction**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$69,100	1	Project Management and Coordination	40	HR	$154	$6,200
	With Contingency	2	O&M Site Visit	14	DY	$1,213	$17,000
	$86,380	3	O&M Supplies and Equipment	1	LS	$3,000	$3,000
		4	Blower Electricity (20 hp motor)	1	LS	$14,184	$14,200
		5	Carbon Changeout	4,000	LB	$2	$8,000
		6	O&M Sampling	20	EA	$596	$12,000
		7	Annual Reporting (SVE)	80	HR	$108	$8,700
	Total Routine Annual O&M Cost						$69,100
	Subtotal Costs		***Years of Annual O&M***	***5***			**$345,500**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$345,500	$86,375
	TOTAL O&M COST						**$431,900**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$414,400**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***5***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$28,000	1	General Repair (Year 2)	1	LS	$2,000	$2,000
	With Contingency	2	General Repair (Year 4)	1	LS	$2,000	$2,000
	$36,400	3	SVE System Decommissioning (Year 5)	1	LS	$10,000	$10,000
		4	SVE Piping Abandonment (Year 5)	1	DY	$5,000	$5,000
		5	Closeout Confirmation Borings (Year 5)	10	EA	$900	$9,000
	Subtotal Costs						**$28,000**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$28,000	$8,400
	TOTAL CLOSURE COST						**$36,400**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$34,100**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$431,900		$414,400
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$36,400		$34,100
	TOTAL OMM COSTS				**$468,300**		**$448,500**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$488,300	**$488,300**
	TOTAL PRESENT-WORTH OMM COST			$448,500	**$936,800**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$46,900	**$983,700**
	TOTAL PRESENT-WORTH COST				**$984,000**

ALTERNATIVE 3 **Future Excavation**

Client	Boeing	**EPM Group**	F
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 068, South Fire Pit
Project	Upland Area Feasibility Study	**Building**	South Complex
Estimator	Elyssa Dixon	**Media**	Soil
Report Date	10/30/15	**Depth Range**	0.5 to 4 FT bgs
Last Updated	10/7/15	**Surface Area**	3,400 SF
QA Reviewer	Phil Newton	**Volume**	470 CY
QA Review Date	9/16/15		

Site/Problem Description

TPH-Gx, TPH-Dx, TPH-Motor Oil, and TPH-Jet A concentrations in fill soil are present above proposed cleanup levels at five shallow sample locations between 1.5 and 3.5 ft bgs. Four locations are within the limits of the historical South Fire Pit and one is located southwest adjacent to a 2012 utility relocation trench. FS borings support the shallow extent of contaminated soil at the site. The area is outside but is covered by asphalt and is used for vehicle parking and traffic exiting the main gate.

Proposed Cleanup Action

Alternative 3 consists of excavation during a future time when the indoor area is accessible for construction, such as during site redevelopment or change of use. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Prior to excavation activities the existing asphalt above the area of concern will remain in place and be inspected annually and maintained as needed. Contaminated soil will be removed to 4 feet bgs and backfilled with clean fill. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014
4. Soil weighs 1.8 TN/CY
5. Soil will be disposed of as non-hazardous waste.
6. Site prep, excavation and clean-up will take approximately 12 days to complete.
7. 470 CY of soil will be removed.
8. Assume 5 trucks/day for soil removal.
9. Parking lot, chain-link fence and security gate are no longer in place or operational.
10. Institutional Controls will be in place for 15 years prior to completion of Alternative 3.
11. Construction crew will work 40 hrs/week
12. All contaminated soil will be removed.
13. Pre-design sampling will be completed with a Geoprobe to 4 ft bgs to confirm lateral extent.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$151,300	1	Project management (4 hours per week)	10	WK	$616	$6,200
	With Contingency	2	General coordination, meetings, and planning	2	%	$450,400	$9,100
	$174,000	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$450,400	$22,600
		11	Reporting	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$151,300**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$151,300	$22,695
	TOTAL INDIRECT COST						**$174,000**

ALTERNATIVE 3 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$157,500	1	Pre-Design Sampling (Geoprobe)	1	LS	$2,000	$2,000
	With Contingency	2	AECOM Pre-Design Sampling Oversight	8	HR	$82	$700
	$196,880	3	AECOM Pre-Design Sampling Vehicle Rental	1	DY	$113	$200
		4	Sampling Supplies	1	LS	$500	$500
		5	Pre-Design Sampling PID Rental	1	DY	$88	$100
		6	Pre-Design Sampling Analytical Testing	6	EA	$143	$900
		7	Mobilization	1	EA	$5,000	$5,000
		8	Utility locate	8	HR	$80	$700
		9	Surveyor	1	DY	$1,600	$1,600
		10	Construction Equipment Rentals	12	DY	$1,814	$21,800
		11	Construction Labor	12	DY	$2,168	$26,100
		12	TESC/Site Preparation	1	LS	$1,000	$1,000
		13	Sawcut Asphalt	550	LF	$10	$5,700
		14	Air Knife (Excavation)	8	HR	$195	$1,600
		15	Sampling Supplies	1	LS	$500	$500
		16	Confirmation Samples	56	EA	$266	$14,900
		17	AECOM Sampling Oversight	8	DY	$656	$5,300
		18	AECOM Sampling Vehicle Rental	10	DY	$113	$1,200
		19	PID Rental	10	DY	$88	$900
		20	CDF Backfill	400	CY	$106	$42,400
		21	Asphalt Base Course	105	TN	$16	$1,700
		22	Asphalt Base Course Delivery	4	HR	$120	$500
		23	Compactor	1	DY	$467	$500
		24	Replace Asphalt	444	SY	$32	$14,400
		25	Dust Control (Street Sweeper)	3	DY	$765	$2,300
		26	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$116,600	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	980	TN	$115	$112,700
	$145,750	3	Transportation Asphalt	6	HR	$120	$800
		4	Disposal Asphalt by Recycling	50	CY	$22	$1,100
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$274,100**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$274,100	$68,600
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$342,700	$68,600
	Washington State Sales Tax (%)			**9.5**	%	$411,300	$39,100
	TOTAL DIRECT COST						**$450,400**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$174,000
		2	Total Direct Costs (see above)	--	--	--	$450,400
		3	Site Inspection and Overhead Costs	8	%	$624,400	$50,000
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$674,400**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$646,900**

ALTERNATIVE 3 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	IC Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$50,400**		**$45,200**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$646,900	**$646,900**
	TOTAL PRESENT-WORTH OMM COST			$45,200	**$692,100**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$34,700	**$726,800**
	TOTAL PRESENT-WORTH COST				**$727,000**

ALTERNATIVE 4 **Near-Term Excavation**

Client	Boeing	**EPM Group**	F
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 068, South Fire Pit
Project	Upland Area Feasibility Study	**Building**	South Complex
Estimator	Elyssa Dixon	**Media**	Soil
Report Date	10/30/15	**Depth Range**	0.5 to 4 FT bgs
Last Updated	10/7/15	**Surface Area**	3,400 SF
QA Reviewer	Cary Brown	**Volume**	470 CY
QA Review Date	8/24/15		

Site/Problem Description

TPH-Gx, TPH-Dx, TPH-Motor Oil, and TPH-Jet A concentrations in fill soil are present above proposed cleanup levels at five shallow sample locations between 1.5 and 3.5 ft bgs. Four locations are within the limits of the historical South Fire Pit and one is located southwest adjacent to a 2012 utility relocation trench. FS borings support the shallow extent of contaminated soil at the site. The area is outside but is covered by asphalt and is used for vehicle parking and traffic exiting the main gate.

Proposed Cleanup Action

Alternate 4 consists of removing contaminated soil by excavation to 4 feet bgs in the near term when there will be disruption in normal Boeing operations. Re-route of vehicle and pedestrian traffic and closing a section of the parking lot will be necessary and there will be increased logistical challenges encountered associated with Boeing operations. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. The work area will be fully restored after completion of work.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014
4. 1.8 tons/CY
5. Soil will be disposed of as non-hazardous waste.
6. Site prep, excavation and clean-up will take approximately 20 long days (10hr/day) to complete.
7. 470 CY of soil will be removed. Asphalt will be recycled.
8. Assume 5 trucks per day for soil removal.
9. Construction crews will work 60 hrs/week.
10. All contaminated soil will be removed.
11. Pre-design sampling will be completed with a Geoprobe to 4 ft bgs to confirm lateral extent.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$161,800	1	Project management (4 hours per week)	10	WK	$616	$6,200
	With Contingency	2	General coordination, meetings, and planning	3	%	$564,400	$17,000
	$186,100	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$564,400	$28,300
		11	Reporting (Implementation)	230	HR	$108	$24,900
	Subtotal Costs						**$161,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$161,800	$24,270
	TOTAL INDIRECT COST						**$186,100**

ALTERNATIVE 4 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$251,500	1	Pre-Design Sampling (Geoprobe)	1	LS	$2,000	$2,000
	With Contingency	2	AECOM Pre-Design Sampling Oversight	8	HR	$82	$700
	$314,380	3	AECOM Pre-Design Sampling Vehicle Rental	1	DY	$113	$200
		4	Sampling Supplies	1	LS	$500	$500
		5	Pre-Design Sampling PID Rental	1	DY	$88	$100
		6	Pre-Design Sampling Analytical Testing	6	EA	$143	$900
		7	Mobilization	1	LS	$5,000	$5,000
		8	Utility locate	8	HR	$80	$700
		9	Surveyor	1	DY	$1,600	$1,600
		10	Equipment Rentals	20	DY	$1,814	$36,300
		11	Construction Labor (4 man crew)	20	LDY	$2,981	$59,700
		12	TESC/Site Preparation	1	LS	$1,000	$1,000
		13	Traffic Control	15	LDY	$770	$11,600
		14	Site Demo (chain-link fence)	10	HR	$58	$600
		15	Sawcut Asphalt	550	LF	$10	$5,700
		16	Air Knife (Excavation)	8	HR	$195	$1,600
		17	Sampling Supplies	1	LS	$500	$500
		18	Confirmation Samples (BTEX & NWTPH)	56	EA	$266	$14,900
		19	AECOM Sampling Oversight	16	LDY	$820	$13,200
		20	AECOM Sampling Vehicle Rental	20	DY	$113	$2,300
		21	PID Rental	20	DY	$88	$1,800
		22	CDF Backfill	400	CY	$106	$42,400
		23	Asphalt Base Course	105	TN	$16	$1,700
		24	Asphalt Base Course Delivery	5	HR	$120	$600
		25	Compactor	3	DY	$467	$1,500
		26	Replace Asphalt	444	SY	$32	$14,400
		27	Dust Control (Street Sweeper)	2	DY	$765	$1,600
		28	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		29	Contractor Standy for Ongoing Operations	20	DY	$1,167	$23,400
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$92,100	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	980	TN	$90	$88,200
	$115,130	3	Transportation Asphalt	6	HR	$120	$800
		4	Disposal Asphalt by Recycling	50	CY	$22	$1,100
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$343,600**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$343,600	$85,900
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$429,500	$85,900
	Washington State Sales Tax (%)			**9.5**	%	$515,400	$49,000
	TOTAL DIRECT COST						**$564,400**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$186,100
		2	Total Direct Costs (see above)	--	--	--	$564,400
		3	Site Inspection and Overhead Costs	8	%	$750,500	$60,100
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$810,600**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$777,500**

ALTERNATIVE 4 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***0***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$0**		**$0**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$777,500	**$777,500**
	TOTAL PRESENT-WORTH OMM COST			$0	**$777,500**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$38,900	**$816,400**
	TOTAL PRESENT-WORTH COST				**$816,000**

Table D-16
Comparison of Alternative Costs
Exposure Pathway Model: EPM G
SWMU/AOC No. 065, BUILDING 40-51, FORMER PAINT STRIPPING TANKLINE

Task	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$125,500	$146,600
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$260,700	$652,500
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$30,900	$64,000
Total Implementation Costs	**$4,800**	**$417,100**	**$863,100**
OMM COSTS			
Annualized O&M Costs	$0	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360	$0
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	15	0
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30
Total OMM Costs	**$100,800**	**$50,400**	**$0**
TOTALS			
Total Implementation and OMM Costs	**$105,600**	**$467,500**	**$863,100**
Estimated Agency Oversight Costs [a]	$4,400	$19,200	$41,400
Total Project Present Worth [b, c]	**$91,000**	**$403,000**	**$869,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94
[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 065, Former Paint Stripping Tankline	
Project	Upland Area Feasibility Study	**Building**	40-51	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 5	FT bgs
Last Updated	10/5/15	**Surface Area**	1,100	SF
QA Reviewer	Debbie Rodenhizer	**Volume**	160	CY
QA Review Date	7/30/15			

Site/Problem Description

Residual metals contamination (cadmium and chromium) is present within the sand backfill of the former paint stripping tankline. The tankline consists of a 9-inch thick concrete pit which is 5 feet deep and is located in the corner of building 40-51. A 7-inch concrete slab overlies the sand backfill. The area is currently used as workspace and has difficult access for equipment.

Proposed Cleanup Action

Alternate 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. The existing 7-inch concrete above the pit will remain in place to prevent leaching of contaminants and direct contact with the soil. The surface will be inspected annually and maintained as needed. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Boeing Site Services will maintain the concrete and building covering the area of concern.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the concrete floor will be conducted.
7. Containment and annual inspections will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 065, Former Paint Stripping Tankline	
Project	Upland Area Feasibility Study	**Building**	40-51	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 5	FT bgs
Last Updated	10/7/15	**Surface Area**	1,100	SF
QA Reviewer	Phil Newton	**Volume**	160	CY
QA Review Date	8/21/15			

Site/Problem Description

Residual metals contamination (cadmium and chromium) is present within the sand backfill of the former paint stripping tankline. The tankline consists of a 9-inch thick concrete pit which is 5 feet deep and is located in the corner of building 40-51. A 7-inch concrete slab overlies the sand backfill. The area is currently used as workspace and has difficult access for equipment.

Proposed Cleanup Action

Alternative 2 consists of future excavation below the building floor to the depth of the concrete pit floor. Excavation will occur at a time when the area is accessible, such as during site redevelopment or change of use. The excavation consists of demolishing the concrete floor overlying the pit, excavating the backfilled sand, and cleaning the concrete pit with a power washer. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. The pit will then be backfilled with CDF and the concrete floor reconstructed. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. The former tankline and surrounding area is accessible.
5. The 7-inch concrete floor overlying the backfilled soils is demolished.
6. The sand backfill will be removed using a mini-excavator and conveyor belt with venting to the outside.
8. The concrete-lined pit is power-washed to remove any residual contamination.
9. The area is backfilled with CDF and the concrete floor reconstructed.
10. The project duration is 12 days. It consists of 2 days of site prep, 5 days of removing the sand backfill, 3 days of washing the concrete pit and backfill with compaction, and 2 day of concrete construction/restoration. Each work day is assumed to be 8 hours (40 hrs per week).
11. All contaminated soil will be removed.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$109,100	1	Project Management (4 hrs per week)	5	WK	$616	$3,100
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$125,500	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design and Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP)	40	HR	$108	$4,400
		10	Construction oversight and QA (% of DC)	5	%	$260,700	$13,100
		11	Reporting	173	HR	$108	$18,700
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$109,100**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$109,100	$16,365
	TOTAL INDIRECT COST						**$125,500**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$86,200	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$107,750	3	Utility Locate	8	HR	$80	$700
		4	Sawcut Concrete	160	LF	$23	$3,700
		5	Construction Labor	12	DY	$2,080	$25,000
		6	Equipment Rental	1	WK	$2,585	$2,600
		7	Conveyor Belt System for Excavation	1	WK	$4,400	$4,400
		8	Pressure Washer, Hose, and Water Tank	2	DY	$275	$600
		9	Equipment Venting and Setup	50	LF	$35	$1,800
		10	Blower for Equipment Venting	14	DY	$42	$600
		11	Vacuum Truck	4	DY	$780	$3,200
		12	CDF Backfill	143	CY	$106	$15,200
		13	Base Course	35	TN	$16	$600
		14	Base Course - Truck and Trailer	2	HR	$120	$300
		15	Base Course - Transfer	2	HR	$130	$300
		16	Plate Compactor	1	DY	$275	$300
		17	PID Rental	7	DY	$88	$700
		18	Concrete Floor Construction	51	CY	$225	$11,500
		19	Scrubber/Sweeper	4	DY	$765	$3,100
		20	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$72,400	1	Transportation and Disposal Coordination	5	HR	$100	$500
	With Contingency	2	Hazardous Soil Transportation	205	TN	$330	$67,700
	$90,500	3	Concrete Transportation	8	HR	$120	$1,000
		4	Concrete Disposal Fee	51	CY	$30	$1,600
		5	Not Used	51	CY	$30	$1,600
	Subtotal Costs						**$158,600**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$158,600	$39,700
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$198,300	$39,700
	Washington State Sales Tax (%)			**9.5**	%	$238,000	$22,700
	TOTAL DIRECT COST						**$260,700**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$125,500
		2	Total Direct Costs (see above)	--	--	--	$260,700
		3	Site Inspection and Overhead Costs	8	%	$386,200	$30,900
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	**#**		**$417,100**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$338,600**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	LS	$0	$0
	With Contingency	2	Not Used	0	LS	$0	$0
	$0	3	Not Used	0	LS	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$50,400**		**$45,200**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$338,600	**$338,600**
	TOTAL PRESENT-WORTH OMM COST			$45,200	**$383,800**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$19,200	**$403,000**
	TOTAL PRESENT-WORTH COST				**$403,000**

ALTERNATIVE 3 Near-Term Excavation

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 065, Former Paint Stripping Tankline	
Project	Upland Area Feasibility Study	**Building**	40-51	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 5	FT bgs
Last Updated	10/7/15	**Surface Area**	1,100	SF
QA Reviewer	Cary Brown	**Volume**	160	CY
QA Review Date	8/21/15			

Site/Problem Description

Residual metals contamination (cadmium and chromium) is present within the sand backfill of the former paint stripping tankline. The tankline consists of a 9-inch thick concrete pit which is 5 feet deep and is located in the corner of building 40-51. A 7-inch concrete slab overlies the sand backfill. The area is currently used as workspace and has difficult access for equipment.

Proposed Cleanup Action

Alternate 3 consists of removing contaminated soil below the building floor to the depth of the concrete pit floor in the near term when there will be significant disruption in Boeing production activities. Relocation of the existing shop will be necessary and increased logistical challenges encountered associated with obstacles and Boeing operations. Equipment in the area will be temporarily relocated for 3 weeks and any interior walls in the vicinity removed. The excavation consists of demolishing the concrete floor overlying the pit, excavating the backfilled sand, and cleaning the concrete pit with a power washer. It includes disposal of contaminated soil off-site. The pit will then be backfilled with CDF and the concrete floor and interior space reconstructed. Near term excavation accounts for the interruption of plant operations, but not production losses.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Approximately 1,375 SF of workspace/operations will be temporarily relocated and interior walls demolished.
5. The 7-inch concrete floor overlying the backfilled soils will be demolished.
6. The sand backfill will be excavated using a combination of mini excavators, vac trucks, hand-digging, wheel barrows, and conveyor belt.
7. The concrete-lined pit will be power-washed to remove any residual contamination.
8. The area will be backfilled with CDF up to 1 ft below the floor grade.
9. A 6-inch base course will be placed above the CDF and the concrete floor reconstructed.
10. Interior walls will be reconstructed and the workspace reconstructed.
11. Excluding workspace relocation, wall demolition, and reconstruction, the estimated project duration is 2 weeks. It consists of 2 days of site prep/concrete demolition, 5 days of removing the sand backfill, 1 day of washing the concrete pit, 2 days of backfill and compaction, and 2 days of concrete floor construction. Each week consists of six 10-hr work days (60 hrs per week).
12. All contaminated soil will be removed.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$127,500	1	Project Management (4 hrs per week)	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$146,600	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design and Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP)	40	HR	$108	$4,400
		10	Construction oversight and QA (% of DC)	5	%	$652,500	$32,700
		11	Reporting	173	HR	$108	$18,700
	Subtotal Costs						**$127,500**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$127,500	$19,125
	TOTAL INDIRECT COST						**$146,600**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$341,800	1	Contractor Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Utility Locate	8	HR	$80	$700
	$427,250	3	Workspace Relocation - From Area	4,100	SF	$2	$8,200
		4	Block House Demolition	4,100	SF	$15	$61,500
		5	Sawcut Concrete	160	LF	$23	$3,700
		6	Construction Labor (4-person Crew)	2	WK	$18,200	$36,400
		7	Equipment Rental	2	WK	$3,060	$6,200
		8	Conveyor Belt System for Excavation	2	WK	$4,400	$8,800
		9	Pressure Washer, Hose, and Water Tank	1	DY	$275	$300
		10	Equipment Venting and Setup	50	LF	$35	$1,800
		11	Blower for Equipment Venting	3	DY	$42	$200
		12	Vacuum Truck	5	DY	$780	$3,900
		13	CDF Backfill	143	CY	$106	$15,200
		14	Base Course (Crushed Rock)	35	TN	$16	$600
		15	Base Course - Truck and Trailer	1	HR	$120	$200
		16	Base Course - Transfer	1	HR	$130	$200
		17	Plate Compactor	1	DY	$275	$300
		18	Concrete Floor Construction	51	CY	$225	$11,500
		19	PID Rental	5	DY	$88	$500
		20	Scrubber/Sweeper	5	DY	$765	$3,900
		21	Block House Reconstruction	4,100	SF	$25	$102,500
		22	Workspace Relocation - To Area	4,100	SF	$2	$8,200
		23	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		24	Construction Standby for Ongoing Operations	3	WK	$7,000	$21,000
		25	Lost Productivity	1	LS	$36,000	$36,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$55,400	1	Transportation and Disposal Coordination	5	HR	$100	$500
	With Contingency	2	Hazardous Soil Transportation and Disposal	205	TN	$255	$52,300
	$69,250	3	Concrete Transportation	8	HR	$120	$1,000
		4	Concrete Disposal Fee	51	CY	$30	$1,600
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$397,200**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$397,200	$99,300
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$496,500	$99,300
	Washington State Sales Tax (%)			**9.5**	%	$595,800	$56,700
	TOTAL DIRECT COST						**$652,500**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$146,600
		2	Total Direct Costs (see above)	--	--	--	$652,500
		3	Site Inspection and Overhead Costs	8	%	$799,100	$64,000
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$863,100**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$827,800**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***0***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$0**		**$0**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$827,800	**$827,800**
	TOTAL PRESENT-WORTH OMM COST			$0	**$827,800**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$41,400	**$869,200**
	TOTAL PRESENT-WORTH COST				**$869,000**

Table D-17
Comparison of Alternative Costs
Exposure Pathway Model: EPM G
BUILDING 40-11, UST EV-48-1

Task	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$186,800	$236,300
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$549,200	$1,110,800
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$58,900	$107,800
Total Implementation Costs	**$4,800**	**$794,900**	**$1,454,900**
OMM COSTS			
Annualized O&M Costs	$0	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360	$0
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	15	0
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30
Total OMM Costs	**$100,800**	**$50,400**	**$0**
TOTALS			
Total Implementation and OMM Costs	**$105,600**	**$845,300**	**$1,454,900**
Estimated Agency Oversight Costs [a]	$4,400	$34,600	$69,800
Total Project Present Worth [b, c]	**$91,000**	**$725,000**	**$1,465,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Maintain Containment

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	UST EV-48-1	
Project	Upland Area Feasibility Study	**Building**	40-11	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 23	FT bgs
Last Updated	10/5/15	**Surface Area**	710	SF
QA Reviewer	Debbie Rodenhizer	**Volume**	560	CY
QA Review Date	7/15/15			

Site/Problem Description

Contamination in fill soil immediately north of UST EV-48-1 which includes TPH-Gx and BTEX to a known depth of 20-ft bgs. The EV-48-1 tank stores gasoline with a 15,000 gallons capacity and is part of the existing petroleum fueling station. It is located adjacent to a 15,000 gallon Diesel UST (EV-49-1) and the area is covered with concrete. RI soil borings were extended to 40-ft bgs.

Proposed Cleanup Action

Alternative 1 consists of maintaining the concrete overlying the existing USTs and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete will remain in place to prevent the leaching of contaminants to groundwater and direct contact with soil. The surface will be inspected annually and maintained as needed. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30 year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. The concrete will be maintained by Boeing Site Services.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the concrete floor will be conducted.
7. Containment and annual inspections will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	UST EV-48-1	
Project	Upland Area Feasibility Study	**Building**	40-11	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 23	FT bgs
Last Updated	10/7/15	**Surface Area**	710	SF
QA Reviewer	Phil Newton	**Volume**	560	CY
QA Review Date	7/15/15			

Site/Problem Description

Contamination in fill soil immediately north of UST EV-48-1 which includes TPH-Gx and BTEX to a known depth of 20-ft bgs. The EV-48-1 tank stores gasoline with a 15,000 gallons capacity and is part of the existing petroleum fueling station. It is located adjacent to a 15,000 gallon Diesel UST (EV-49-1) and the area is covered with concrete. RI soil borings were extended to 40-ft bgs.

Proposed Cleanup Action

Alternative 2 consists of excavating the contaminated soils in the future when the area is accessible for construction, such as when the two USTs are removed or being replaced. The excavation consists of demolishing any remaining concrete overlying the soil and excavating the soil to a depth of 23 ft bgs. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. The excavation will be backfilled with CDF and the concrete reconstructed. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Removal of the USTs makes the area accessible.
5. Concrete overlying the area of concern will need to demolished.
6. An area of 1,020 SF will be excavated to a depth of 23 ft bgs. Thickness of excavated soil varies.
7. The excavation will be completely backfilled with CDF (assumes USTs are not being replaced).
8. A base course of 6-inches will be placed over the CDF and the concrete reconstructed.
9. Sampling associated with removal of the USTs and not the excavation will be completed separately.
10. Excavation is assumed to take approximately 2 weeks. Site preparation, concrete demolition, backfill, and concrete reconstruction are assumed to take 2 weeks. Total project time is approximately 4 weeks.
11. Construction crew will work 40 hours per week.
12. All contaminated soil will be removed.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$162,400	1	Project management	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning (% of DC)	3	%	$549,200	$16,500
	$186,800	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design and Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$549,200	$27,500
		11	Reporting	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$162,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$162,400	$24,360
	TOTAL INDIRECT COST						**$186,800**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$190,400	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	DY	$1,600	$1,600
	$238,000	3	Utility Locate/Survey	8	HR	$80	$700
		4	Saw-Cutting Asphalt and Concrete and	100	LF	$25	$2,500
		5	Site Preparation	1	LS	$1,000	$1,000
		6	Equipment Rental	4	WK	$3,459	$13,900
		7	Construction Labor	4	WK	$10,840	$43,400
		8	CDF Backfill	662	CY	$106	$70,300
		9	Base Course	24	TN	$16	$400
		10	Base Course - Transfer	1	HR	$130	$200
		11	Base Course - Truck and Trailer	1	HR	$120	$200
		12	Compactor	1	DY	$467	$500
		13	Scrubber/Sweeper	10	DY	$765	$7,700
		14	Concrete Construction	27	CY	$225	$6,100
		15	Asphalt Paving	80	SY	$32	$2,600
		16	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		17	Confirmation Sampling	13	EA	$176	$2,300
		18	PID Rental	2	WK	$616	$1,300
		19	Sampling Supplies	1	LS	$500	$500
		20	AECOM Sampling	5	DY	$4,920	$24,600
		21	Rental Vehicle for AECOM Sampling	5	DY	$113	$600
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$143,900	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	1,217	TN	$115	$140,000
	$179,880	3	Asphalt Transportation	2	HR	$120	$300
		4	Asphalt Disposal Fee	9	CY	$22	$200
		5	Concrete Transportation	4	HR	$120	$500
		6	Concrete Disposal Fee	27	CY	$30	$900
	Subtotal Costs						**$334,300**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$334,300	$83,600
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$417,900	$83,600
	Washington State Sales Tax (%)			**9.5**	%	$501,500	$47,700
	TOTAL DIRECT COST						**$549,200**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$186,800
		2	Total Direct Costs (see above)	--	--	--	$549,200
		3	Site Inspection and Overhead Costs	8	%	$736,000	$58,900
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	**#**		**$794,900**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$645,300**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$50,400**		**$45,200**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$645,300	**$645,300**
	TOTAL PRESENT-WORTH OMM COST			$45,200	**$690,500**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$34,600	**$725,100**
	TOTAL PRESENT-WORTH COST				**$725,000**

ALTERNATIVE 3 **Near-Term Excavation**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	UST EV-48-1	
Project	Upland Area Feasibility Study	**Building**	40-11	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 23	FT bgs
Last Updated	10/7/15	**Surface Area**	710	SF
QA Reviewer	Cary Brown	**Volume**	560	CY
QA Review Date	8/21/15			

Site/Problem Description

Contamination in fill soil immediately north of UST EV-48-1 which includes TPH-Gx and BTEX to a known depth of 20-ft bgs. The EV-48-1 tank stores gasoline with a 15,000 gallons capacity and is part of the existing petroleum fueling station. It is located adjacent to a 15,000 gallon Diesel UST (EV-49-1) and the area is covered with concrete. RI soil borings were extended to 40-ft bgs.

Proposed Cleanup Action

Alternative 3 consists of excavating the contaminated soils in the near-term when there will be disruption in normal Boeing operations. There will be increased logistical challenges encountered associated with obstacles and Boeing operations. For excavation to occur, the two USTs and backfill (estimated depth to 15 ft bgs) will need to be removed. The contaminated soil by the USTs and immediately to the north will be excavated to a depth of 23 ft bgs. The contaminated soil will be disposed off-site and samples collected from the final excavation limits. The excavation will be backfilled with CDF to a depth of 15 ft bgs everywhere, and the excavation to the north will be backfilled with CDF up to subgrade elevation. The concrete overlying the entire area will be reconstructed. The USTs will be reinstalled using new backfill materials. Near term excavation accounts for the interruption of plant operations, but not production losses.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Excavation areas to remove contamination are approximately 16-ft by 45-ft and 15-ft by 20-ft.
5. Required depth of excavation is 23-ft bgs in contaminated area.
6. Additional excavation area of 700 SF to depth of 15-ft bgs is required to remove USTs.
7. Concrete overlying the area will be removed and replaced after completion of work.
8. The excavation will be backfilled with CDF to previous subgrade surface (15-ft bgs around USTs).
9. Existing USTs will be reinstalled.
10. A base course of 6-inches will be placed over the total work area prior to concrete construction.
11. Sampling associated with removal of the USTs and not the excavation will be completed separately.
12. Material, labor, and equipment costs for temporary removal of USTs and reinstallation after completion of work are estimated separate from the area of contamination.
13. Excavation is assumed to take approximately 2 weeks. Site preparation, concrete demolition, UST installation, backfill, and concrete reconstruction are assumed to take 4 weeks. Total project time is 1.5 months.
14. Construction crew will work 60 hours per week.
15. All contaminated soil will be removed.
16. Facility operations will not be able to use this area for 1 month.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$205,500	1	Project management (4 hrs per week)	10	WK	$616	$6,200
	With Contingency	2	General coordination, meetings, and planning (% of DC)	3	%	$1,110,800	$33,400
	$236,300	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design and Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$1,110,800	$55,600
		11	Reporting (Implementation)	230	HR	$108	$24,900
	Subtotal Costs						**$205,500**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$205,500	$30,825
	TOTAL INDIRECT COST						**$236,300**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$528,200	1	Mobilization (Area of Contamination)	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$660,250	3	Utility Locate	8	HR	$80	$700
		4	Site Preparation (Area of Contamination)	1	LS	$1,000	$1,000
		5	UST Removal and Replacement	2	EA	$75,700	$151,400
		6	Tank Removal to Certified Salvage Dump	2	EA	$880	$1,800
		7	New Double-Wall Fiberglass USTs - 15,000 gal	2	EA	$60,000	$120,000
		8	Saw-Cutting Asphalt and Concrete (Area of Contamination)	210	LF	$25	$5,300
		9	Equipment Rental (Area of Contamination)	4	WK	$3,459	$13,900
		10	Construction Labor (Area of Contamination)	4	WK	$18,200	$72,800
		11	CDF Backfill (Area of Contamination)	662	CY	$106	$70,300
		12	Base Course (Area of Contamination)	54	TN	$16	$900
		13	Base Course - Transfer	2	HR	$130	$300
		14	Base Course - Truck and Trailer	2	HR	$120	$300
		15	Compactor (Area of Contamination)	1	DY	$467	$500
		16	Scrubber/Sweeper (Area of Contamination)	10	DY	$765	$7,700
		17	Concrete Construction (Area of Contamination)	27	CY	$225	$6,100
		18	Asphalt Paving (Area of Contamination)	192	SY	$32	$6,300
		19	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		20	Confirmation Sampling (TPH-Gx and VOCs)	13	EA	$176	$2,300
		21	PID Rental	2	WK	$616	$1,300
		22	Sampling Supplies	1	LS	$500	$500
		23	AECOM Sampling	5	DY	$4,920	$24,600
		24	Rental Vehicle for AECOM Sampling	5	DY	$113	$600
		25	Contractor Standby for Ongoing Operations	4	WK	$7,000	$28,000
		26	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$148,000	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	1,577	TN	$90	$142,000
	$185,000	3	Asphalt Transportation	4	HR	$120	$500
		4	Asphalt Disposal Fee	21	CY	$22	$500
		5	Concrete Transportation	8	HR	$120	$1,000
		6	Concrete Disposal Fee	64	CY	$30	$2,000
	Subtotal Costs						**$676,200**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$676,200	$169,100
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$845,300	$169,100
	Washington State Sales Tax (%)			**9.5**	%	$1,014,400	$96,400
	TOTAL DIRECT COST						**$1,110,800**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$236,300
		2	Total Direct Costs (see above)	--	--	--	$1,110,800
		3	Site Inspection and Overhead Costs	8	%	$1,347,100	$107,800
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$1,454,900**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$1,395,500**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***0***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$0**		**$0**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$1,395,500	**$1,395,500**
	TOTAL PRESENT-WORTH OMM COST			$0	**$1,395,500**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$69,800	**$1,465,300**
	TOTAL PRESENT-WORTH COST				**$1,465,000**

Table D-18a
Comparison of Alternative Costs
Exposure Pathway Model: EPM G
SWMU/AOC No. 165, BUILDING 45-52, FORMER FUEL FARM USTs

Task	Alternative 1: Limited Excavation and Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$133,600	$150,000	$268,000
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$332,400	$346,600	$2,107,000
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$37,300	$39,800	$190,000
Total Implementation Costs	**$503,300**	**$536,400**	**$2,565,000**
OMM COSTS			
Annualized O&M Costs	$0	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	15	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30
Total OMM Costs	**$100,800**	**$50,400**	**$100,800**
TOTALS			
Total Implementation and OMM Costs	**$604,100**	**$586,800**	**$2,665,800**
Estimated Agency Oversight Costs [a]	$27,600	$24,100	$127,200
Total Project Present Worth [b, c]	**$579,000**	**$505,000**	**$2,669,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 Limited Excavation and Maintain Containment

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 165, Former Fuel Farm USTs	
Project	Upland Area Feasibility Study	**Building**	45-52	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 20	FT bgs
Last Updated	10/6/15	**Surface Area**	250	SF
QA Reviewer	Cary Brown	**Volume**	75	CY
QA Review Date	8/21/15			

Site/Problem Description

Residual petroleum contamination (TPH and BTEX) is present in soil around the perimeter of the former fuel farm. The area was excavated previously during removal of 4 USTs, associated piping, and equipment, before being backfilled with CDF. Two soil locations (South and West Areas) along utility lines and one soil location (East Area) between the excavation and existing roadway exceed cleanup levels. In addition, free product was observed in the North Area in the vicinity of an electrical substation. The site is covered with concrete and is still used as a fuel farm but now uses above ground storage tanks (ASTs) and a new building (45-60) has been installed. The East Area is partially covered by a new AST.

Proposed Cleanup Action

Alternative 1 consists of maintaining concrete overlying the 3 contaminated soil areas and removes the North Area with free product. The existing concrete above three areas of concern will remain in place and includes institutional controls which will limit the land use of this area to industrial use only. The concrete will be inspected annually and maintained as needed. The area where free product was observed will be excavated to remove any remaining product. The excavation will be completed concurrently with substation upgrades anticipated to be completed by 2025. Because the North Area partially extends beneath the substation concrete pad, excavation in this area will not occur until the substation is upgraded. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. The concrete overlying the areas of contamination on the eastern, western, and southern edges of the previous excavation will be maintained by Boeing Site Services.
5. The asphalt/concrete in the north area will be removed, up to the substation concrete pad.
6. The excavation will extend up to the edge of the substation concrete pad.
7. Air-knifing will be used to expose the utility ducts in the North area where free product was historically present.
8. A combination of hand digging, vac truck, and excavation equipment will be used to remove soil beneath and under the utility ducts to a depth of 9-ft bgs. Contractor is assumed to install a shoring system.
9. The area of free product (North Area) is assumed to take 12 days to excavate and backfill.
10. Shoring or trench boxes will not be required within CDF fill areas.
11. The excavation will be backfilled with excavatable CDF and 6 inches of base course.
12. The excavation work will be performed in conjunction with electrical substation upgrades by Site Services. Boeing currently plans to replace the substation in the next 5-10 years.
13. It is assumed that the substation and associated wires will be de-energized.
14. Annual inspection of the concrete overlying areas of containment will be conducted.
15. Institutional controls and monitoring will remain in effect for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$116,200	1	Project Management (4 hrs per week)	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$133,600	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		3	Engineering Design Report	60	HR	$108	$6,500
		4	Design Plans and Specs	1	LS	$15,000	$15,000
		5	Engineers Estimate	30	HR	$108	$3,300
		6	Permitting	1	LS	$2,820	$2,900
		7	Bid and RFI support	16	HR	$108	$1,800
		8	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		9	Construction oversight and QA (% of DC)	6	%	$332,400	$20,000
		10	Reporting (Implementation)	230	HR	$108	$24,900
		11	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$116,200**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$116,200	$17,430
	TOTAL INDIRECT COST						**$133,600**

ALTERNATIVE 1 (Continued) **Limited Excavation and Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$174,900	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$218,630	3	Utility Locate	8	HR	$80	$700
		4	Site Preparation/TESC	1	LS	$1,000	$1,000
		5	Saw-cutting Concrete	100	LF	$15	$1,500
		6	Construction Labor (4-person crew)	12	DY	$3,033	$36,400
		7	Equipment Rental	12	DY	$1,039	$12,500
		8	Vacuum Truck	6	DY	$780	$4,700
		9	Equipment Operator	12	DY	$690	$8,300
		10	Excavation Shoring System	1	LS	$15,000	$15,000
		11	CDF Backfill	140	CY	$106	$14,900
		12	Base Course (Crushed Rock)	15	TN	$16	$300
		13	Base Course - Truck and Trailer	1	HR	$120	$200
		14	Dust Control (Sweeper/Scrubber)	10	DY	$765	$7,700
		15	Plate Compactor	3	DY	$275	$900
		16	Concrete Construction	20	CY	$225	$4,500
		17	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		18	PID Rental	5	DY	$88	$500
		19	Confirmation Soil Samples (TPH and VOCs)	11	EA	$266	$3,000
		20	Sampling Supplies	1	LS	$500	$500
		21	AECOM Sampling Oversight	5	DY	$820	$4,100
		22	Rental Vehicle for AECOM Sampling	5	DY	$113	$600
		23	Contractor Standby for Ongoing Operations	2	WK	$7,000	$14,000
		24	Lost Productivity	1	LS	$32,000	$32,000
		25	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$27,400	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	270	TN	$90	$24,300
	$34,250	3	Concrete Transportation	4	HR	$120	$500
		4	Concrete Disposal Fee	20	CY	$30	$600
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$202,300**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$202,300	$50,600
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$252,900	$50,600
	Washington State Sales Tax (%)			**9.5**	%	$303,500	$28,900
	TOTAL DIRECT COST						**$332,400**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$133,600
		2	Total Direct Costs (see above)	--	--	--	$332,400
		3	Site Inspection and Overhead Costs	8	%	$466,000	$37,300
	TOTAL IMPLEMENTATION COST		Years until Implementation	**5**	#		**$503,300**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$469,500**

ALTERNATIVE 1 (Continued) **Limited Excavation and Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

	ALTERNATIVE COST SUMMARY			**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$469,500	**$469,500**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$551,400**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$27,600	**$579,000**
	TOTAL PRESENT-WORTH COST				**$579,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 165, Former Fuel Farm USTs	
Project	Upland Area Feasibility Study	**Building**	45-52	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 20	FT bgs
Last Updated	10/7/15	**Surface Area**	250	SF
QA Reviewer	Phil Newton	**Volume**	75	CY
QA Review Date	7/15/15			

Site/Problem Description

Residual petroleum contamination (TPH and BTEX) is present in soil around the perimeter of the former fuel farm. The area was excavated previously during removal of 4 USTs, associated piping, and equipment, before being backfilled with CDF. Two soil locations (South and West Areas) along utility lines and one soil location (East Area) between the excavation and existing roadway exceed cleanup levels. In addition, free product was observed in the North Area in the vicinity of an electrical substation. The site is covered with concrete and is still used as a fuel farm but now uses above ground storage tanks (ASTs) and a new building (45-60) has been installed. The East Area is partially covered by a new AST.

Proposed Cleanup Action

Alternative 2 consists of excavating the free product area and residual contamination in the future when the site is accessible for construction, such as during site redevelopment or change of use. Excavation will occur when construction at the electrical substation and electrical ducts make the area where free product was observed accessible and ASTs are removed. Air-knifing or hand digging will be used to a depth of 5-ft bgs around utilities. The excavation will consist of four areas total. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Excavation will occur when area by electrical substation is accessible.
4. Concrete overlying all four areas of concern will be demolished and removed.
5. Hand-digging and a vacuum truck will be used to 5-ft bgs in the two areas by utilities.
6. A 3-ft wide trench will be used to excavate the area adjacent to the roadway to a depth of 20-ft bgs.
7. Hand-digging and a vacuum truck will be used to 5-ft bgs in the area with free product. The area will be excavated to 9-ft bgs total.
8. All areas will be backfilled with CDF and 6 inches of base course.
9. Concrete will be reconstructed over all areas.
10. Assume 8 confirmation samples in area of free product and 12 samples in remaining three areas.
11. Assume one set of QA/QC samples consisting of 1 field duplicate and 1 MS/MSD set.
12. Assume 1 day of saw-cutting and concrete removal, 6 days of excavation in area of free product, 3 days of excavation around utilities and in the roadside area, and 2 days for backfill and new concrete.
13. The total work duration is twelve 8-hour days.
14. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$130,400	1	Project Management (4 hrs per week)	10	WK	$616	$6,200
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$150,000	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	6	%	$346,600	$20,800
		11	Reporting	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$130,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$130,400	$19,560
	TOTAL INDIRECT COST						**$150,000**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$163,000	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$203,750	3	Utility Locate	8	HR	$80	$700
		4	Site Preparation/TESC	1	LS	$1,000	$1,000
		5	Saw-cutting Concrete	200	LF	$15	$3,000
		6	Construction Labor (4-person crew)	25	DY	$2,080	$52,000
		7	Equipment Rental	5	WK	$3,996	$20,000
		8	Vacuum Truck	8	DY	$780	$6,300
		9	Excavation Shoring System	1	LS	$15,000	$15,000
		10	CDF Backfill	199	CY	$106	$21,200
		11	Base Course (Crushed Rock)	21	TN	$16	$400
		12	Base Course - Truck and Trailer	1	HR	$120	$200
		13	Dust Control (Sweeper/Scrubber)	20	DY	$765	$15,300
		14	Compactor	1	DY	$467	$500
		15	Concrete Construction	25	CY	$225	$5,700
		16	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		17	PID Rental	11	DY	$88	$1,000
		18	Confirmation Soil Samples (TPH and VOCs)	23	EA	$266	$6,200
		19	Sampling Supplies	1	LS	$500	$500
		20	AECOM Sampling	12	DY	$82	$1,000
		21	Rental Vehicle for AECOM Sampling	12	DY	$113	$1,400
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$47,900	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	387	TN	$115	$44,600
	$59,880	3	Concrete Transportation	4	HR	$120	$500
		4	Concrete Disposal	25	CY	$30	$800
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$210,900**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$210,900	$52,800
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$263,700	$52,800
	Washington State Sales Tax (%)			**9.5**	%	$316,500	$30,100
	TOTAL DIRECT COST						**$346,600**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$150,000
		2	Total Direct Costs (see above)	--	--	--	$346,600
		3	Site Inspection and Overhead Costs	8	%	$496,600	$39,800
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	#		**$536,400**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$435,400**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Escalated O&M Cost		Presumed Inflation Rate	***2.00***	%		**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$50,400**		**$45,200**

	ALTERNATIVE COST SUMMARY			**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$435,400	**$435,400**
	TOTAL PRESENT-WORTH OMM COST			$45,200	**$480,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$24,100	**$504,700**
	TOTAL PRESENT-WORTH COST				**$505,000**

ALTERNATIVE 3 Near-Term Excavation

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 165, Former Fuel Farm USTs	
Project	Upland Area Feasibility Study	**Building**	45-52	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 20	FT bgs
Last Updated	10/7/15	**Surface Area**	250	SF
QA Reviewer	Cary Brown	**Volume**	75	CY
QA Review Date	7/21/15			

Site/Problem Description

Residual petroleum contamination (TPH and BTEX) is present in soil around the perimeter of the former fuel farm. The area was excavated previously during removal of 4 USTs, associated piping, and equipment, before being backfilled with CDF. Two soil locations (South and West Areas) along utility lines and one soil location (East Area) between the excavation and existing roadway exceed cleanup levels. In addition, free product was observed in the North Area in the vicinity of an electrical substation. The site is covered with concrete and is still used as a fuel farm but now uses above ground storage tanks (ASTs) and a new building (45-60) has been installed. The East Area is partially covered by a new AST.

Proposed Cleanup Action

Alternative 3 consists of excavating 3 of the 4 areas where free product and residual contamination exist in the near-term when there will be disruption in normal Boeing operations. Temporary removal of some existing fuel farm equipment will be necessary and there will be increased logistical challenges encountered associated with obstacles and Boeing operations. Air-knifing or hand digging will be used to a depth of 5-ft bgs around utilities. The excavation will consist of three areas total and include partial demolition of the electrical substation concrete slab and existing equipment over the South Area. Soil in the East Area will remain in place because it is located under an existing AST; institutional controls will be implemented in this area for as long as contaminant concentrations exceed cleanup levels (30 year assumption for cost). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. A new electrical substation will be installed outside the proposed work area prior to excavation so that the existing substation can be shut down and decommissioned.
5. The asphalt/concrete in the north area will be removed.
6. Concrete overlying all four areas of concern will be demolished and removed.
7. Hand-digging will be used to 5-ft bgs in the South and West areas.
8. A 3-ft wide trench will be used to excavate the East area adjacent to the roadway to a depth of 20-ft bgs.
9. In the North area, hand digging and a vacuum truck will be used to remove soil beneath and under the utility ducts to a depth of 9-ft bgs. Excavation will be completed alternately in three 6-ft wide cuts.
10. The excavations will be backfilled with excavatable CDF and 6 inches of base course.
11. The electrical substation slab will be reconstructed.
12. Assume 8 confirmation samples in area of free product and 12 samples (4 each) in remaining three areas.
13. Assume one set of QA/QC samples consisting of 1 field duplicate and 1 MS/MSD set.
14. Assume 3 days of saw-cutting and concrete removal including site prep for substation, 9 days of excavation in the North area, 4 days of excavation in South and West areas, 3 day of excavating the East area, and 3 days for backfill and new concrete. Total work duration is 22 10-hour days (60 hrs per week).

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$233,000	1	Project Management	10	WK	$616	$6,200
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$268,000	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		3	Engineering Design Report	80	HR	$108	$8,700
		4	Design Plans and Specs	1	LS	$25,000	$25,000
		5	Engineers Estimate	30	HR	$108	$3,300
		6	Permitting	1	LS	$2,820	$2,900
		7	Bid and RFI support	16	HR	$108	$1,800
		8	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		9	Construction oversight and QA (% of DC)	6	%	$2,107,000	$126,500
		10	Reporting (Implementation)	230	HR	$108	$24,900
	Subtotal Costs						**$233,000**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$233,000	$34,950
	TOTAL INDIRECT COST						**$268,000**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$1,252,800	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$1,566,000	3	Utility Locate	8	HR	$80	$700
		4	Substation Replacement and Demolition	1	LS	$1,000,000	$1,000,000
		5	Site Preparation/TESC	1	LS	$1,000	$1,000
		6	Saw-cutting Concrete	209	LF	$15	$3,100
		7	Construction Labor (4-person crew)	22	DY	$3,033	$66,800
		8	Equipment Rental	22	DY	$1,268	$28,000
		9	Vacuum Truck	9	DY	$780	$7,100
		10	Excavation Shoring System	1	LS	$15,000	$15,000
		11	Trench Box Rental	2	DY	$434	$900
		12	CDF Backfill	150	CY	$106	$16,000
		13	Base Course (Crushed Rock)	21	TN	$16	$400
		14	Base Course - Truck	1	HR	$110	$200
		15	Dust Control (Sweeper/Scrubber)	20	DY	$765	$15,300
		16	Compactor	6	DY	$467	$2,900
		17	Plate Compactor	6	DY	$275	$1,700
		18	Concrete Construction	26	CY	$225	$5,900
		19	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		20	PID Rental	12	DY	$616	$7,400
		21	Confirmation Soil Samples (TPH and VOCs)	23	EA	$266	$6,200
		22	Sampling Supplies	1	LS	$500	$500
		23	AECOM Sampling	10	DY	$82	$900
		24	Rental Vehicle for AECOM Sampling	10	DY	$113	$1,200
		25	Contractor Standby for Ongoing Operations	4	WK	$7,000	$28,000
		26	Lost Productivity	1	LS	$32,000	$32,000
		27	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$30,000	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	300	TN	$90	$27,000
	$37,500	3	Concrete Transportation	4	HR	$120	$500
		4	Concrete Disposal	16	CY	$30	$500
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$1,282,800**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$1,282,800	$320,700
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$1,603,500	$320,700
	Washington State Sales Tax (%)			**9.5**	%	$1,924,200	$182,800
	TOTAL DIRECT COST						**$2,107,000**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$268,000
		2	Total Direct Costs (see above)	--	--	--	$2,107,000
		3	Site Inspection and Overhead Costs	8	%	$2,375,000	$190,000
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$2,565,000**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$2,460,200**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$2,460,200	**$2,460,200**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$2,542,100**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$127,200	**$2,669,300**
	TOTAL PRESENT-WORTH COST				**$2,669,000**

Table D-18b
Comparison of Alternative Costs
Exposure Pathway Model: EPM G
SWMU/AOC No. 165, BUILDING 45-52, FUELING POSITIONS

Task	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,500	$307,500	$277,000
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$1,860,600	$1,539,700
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$173,500	$145,400
Total Implementation Costs	**$4,900**	**$2,341,600**	**$1,962,100**
OMM COSTS			
Annualized O&M Costs	$0	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360	$0
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	15	0
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30	30
Total OMM Costs	**$100,800**	**$50,400**	**$0**
TOTALS			
Total Implementation and OMM Costs	**$105,700**	**$2,392,000**	**$1,962,100**
Estimated Agency Oversight Costs [a]	$4,400	$97,300	$94,100
Total Project Present Worth [b, c]	**$91,000**	**$2,043,000**	**$1,976,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 165, Fuel Stall Piping	
Project	Upland Area Feasibility Study	**Building**	45-52	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 5	FT bgs
Last Updated	10/6/15	**Surface Area**	5,900	SF
QA Reviewer	Debbie Rodenhizer	**Volume**	880	CY
QA Review Date	7/30/15			

Site/Problem Description

Petroleum constituents are present in shallow soil within the backfilled trenches for fuel piping at fueling positions F-2 and F-3. The contamination includes TPH-Gx, TPH-Dx, and BTEX constituents and the area is completely covered by concrete. Previous excavation in the area removed the majority of contaminated soils, however, soil surrounding the existing fuel piping remains. The site is actively used to test newly manufactured airplane fueling systems. Access is difficult because of ongoing use and the soil being adjacent to active pipelines.

Proposed Cleanup Action

Alternate 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete above the area of concern will prevent leaching to groundwater and direct contact. The surface will be inspected annually and maintained as needed. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. The concrete panels covering the fuel stall piping will be maintained by Boeing Site Services.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the concrete floor will be conducted.
7. Containment and annual inspection will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,900	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,500	3	Not Used	0	EA	$0	$0
		4	Not Used	1	EA	$1	$100
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,900**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,900	$585
	TOTAL INDIRECT COST						**$4,500**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,500
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,500	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,900**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,800**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,800	**$4,800**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,700**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,100**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 165, Fueling Positions	
Project	Upland Area Feasibility Study	**Building**	45-52	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 5	FT bgs
Last Updated	10/7/15	**Surface Area**	5,900	SF
QA Reviewer	Phil Newton	**Volume**	880	CY
QA Review Date	7/15/15			

Site/Problem Description

Petroleum constituents are present in shallow soil within the backfilled trenches for fuel piping at fueling positions F-2 and F-3. The contamination includes TPH-Gx, TPH-Dx, and BTEX constituents and the area is completely covered by concrete. Previous excavation in the area removed the majority of contaminated soils, however, soil surrounding the existing fuel piping remains. The site is actively used to test newly manufactured airplane fueling systems. Access is difficult because of ongoing use and the soil being adjacent to active pipelines.

Proposed Cleanup Action

Alternative 2 consists of future excavation of fuel piping at fueling position F-2 and F-3 when the area is accessible for construction, such as during site redevelopment or change of use. Excavation will occur at a time when the area is accessible and the fuel piping is removed because it is no longer needed or is being replaced. The excavation consists of six trenches completed to a depth of 5 ft bgs. The area will be backfilled with CDF, base course, and concrete. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Assume area is accessible and that fuel piping is removed.
5. The concrete flight panels will need to be removed and replaced after excavation. Flight panels will be disposed of as hazardous waste.
6. Excavate 10-ft wide trenches to a depth of 5-ft bgs along the areas of the removed fuel stall piping.
7. Collect a total of 42 wall samples and 20 floor samples for confirmation analytical testing.
8. Assume 12 days of work: 2 days of site preparation/concrete demolition, 8 days of excavation (8 trucks per day), and 2 days of concrete construction/site restoration.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$267,400	1	Project management	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning (% of DC)	3	%	$1,860,600	$55,900
	$307,500	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design and Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$1,860,600	$93,100
		11	Reporting	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$267,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$267,400	$40,110
	TOTAL INDIRECT COST						**$307,500**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$802,100	1	Mobilization	1	EA	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$1,002,630	3	Utility Locate	8	HR	$80	$700
		4	Site Preparation/TESC	1	LS	$1,000	$1,000
		5	Equipment Rentals	2	WK	$5,990	$12,000
		6	Flight Panel Removal/Demolition	5,764	SY	$25	$144,100
		7	Construction Labor	2	WK	$18,200	$36,400
		8	CDF Backfill	772	CY	$106	$82,000
		9	Base Course	2,407	TN	$16	$38,600
		10	Base Course - Truck	76	HR	$120	$9,200
		11	Base Course - Transfer	76	HR	$130	$9,900
		12	Dust Control (Sweeper/Scrubber)	2	DY	$765	$1,600
		13	Compactor	1	DY	$467	$500
		14	Dozer	1	DY	$577	$600
		15	Flight Panel Replacement	5,764	SY	$75	$432,300
		16	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		17	PID Rental	8	DY	$88	$800
		18	Confirmation Samples	62	EA	$266	$16,500
		19	Sampling Supplies	1	LS	$500	$500
		20	AECOM Sampling	4	DY	$820	$3,300
		21	Rental Vehicle for AECOM Sampling	4	DY	$113	$500
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$330,600	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	1,588	TN	$115	$182,700
	$413,250	3	Hazardous Concrete Transportation and Disposal	442	TN	$330	$145,900
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$1,132,700**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$1,132,700	$283,200
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$1,415,900	$283,200
	Washington State Sales Tax (%)			**9.5**	%	$1,699,100	$161,500
	TOTAL DIRECT COST						**$1,860,600**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$307,500
		2	Total Direct Costs (see above)	--	--	--	$1,860,600
		3	Site Inspection and Overhead Costs	8	%	$2,168,100	$173,500
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	#		**$2,341,600**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$1,900,800**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$50,400**		**$45,200**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$1,900,800	**$1,900,800**
	TOTAL PRESENT-WORTH OMM COST			$45,200	**$1,946,000**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$97,300	**$2,043,300**
	TOTAL PRESENT-WORTH COST				**$2,043,000**

ALTERNATIVE 3 **Near-Term Excavation**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 165, Fueling Positions	
Project	Upland Area Feasibility Study	**Building**	45-52	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 5	FT bgs
Last Updated	10/7/15	**Surface Area**	5,900	SF
QA Reviewer	Cary Brown	**Volume**	880	CY
QA Review Date	8/21/15			

Site/Problem Description

Petroleum constituents are present in shallow soil within the backfilled trenches for fuel piping at fueling positions F-2 and F-3. The contamination includes TPH-Gx, TPH-Dx, and BTEX constituents and the area is completely covered by concrete. Previous excavation in the area removed the majority of contaminated soils, however, soil surrounding the existing fuel piping remains. The site is actively used to test newly manufactured airplane fueling systems. Access is difficult because of ongoing use and the soil being adjacent to active pipelines.

Proposed Cleanup Action

Alternative 3 consists of excavation of fuel piping at fueling position F-2 and F-3 in the near-term when there will be disruption in normal Boeing operations. There will be increased logistical challenges encountered associated with obstacles and Boeing operations. Excavation will require closing down the fueling positions one a time. The piping will be required to be drained and closed off. The excavation will consist of six trenches completed to a depth of 5 ft bgs. Excavation will be completed in sections to prevent structural damage of lines. Each section will be backfilled with CDF following each section excavation. Base course will placed over the area and the concrete panels reinstalled following completion of work. Near term excavation accounts for the interruption of plant operations, but not production losses.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Fuel piping will be closed off and fueling position closed one at a time.
5. Fuel piping will be drained of contents.
6. Excavate 10-ft wide trenches to a depth of 5-ft bgs along the areas of the removed fuel stall piping.
7. Sections will be completed and backfilled with CDF to subgrade elevation on an alternate basis.
8. Six inches of base course will placed and concrete panels reinstalled at the end of excavation at each stall.
9. Collect a total of 42 wall samples and 20 floor samples for confirmation analytical testing.
10. Assume 25 days of work: 4 days of site preparation/concrete demolition, 16 days of excavation (6 trucks per day), and 5 days of concrete construction/site restoration.
11. All or the majority of contaminated soil will be removed.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$240,900	1	Project management	12	WK	$616	$7,400
	With Contingency	2	General coordination, meetings, and planning (% of DC)	3	%	$1,539,700	$46,200
	$277,000						
		3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design and Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$45,000	$45,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	5	%	$1,539,700	$77,000
		11	Reporting (Implementation)	230	HR	$108	$24,900
	Subtotal Costs						**$240,900**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$240,900	$36,135
	TOTAL INDIRECT COST						**$277,000**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$679,500	1	Mobilization	1	EA	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$3,200	$3,200
	$849,380	3	Utility Locate	16	HR	$80	$1,300
		4	Site Preparation/TESC	1	LS	$1,000	$1,000
		5	Drain/Clean Piping	570	LF	$3.60	$2,100
		6	Air-knifing/Vacuum Truck	1	LS	$34,950	$35,000
		7	Equipment Rentals	4	WK	$5,990	$24,000
		8	Flight Panel Removal/Demolition	5,764	SY	$25	$144,100
		9	Construction Labor (4-person crew)	25	DY	$3,033	$75,900
		10	CDF Backfill	882	CY	$106	$93,600
		11	Base Course	2,407	TN	$16	$38,600
		12	Base Course - Truck	76	HR	$120	$9,200
		13	Base Course - Transfer	76	HR	$130	$9,900
		14	Dust Control (Sweeper/Scrubber)	15	DY	$765	$11,500
		15	Compactor	5	DY	$467	$2,400
		16	Flight Panel Replacement	5,764	SY	$25	$144,100
		17	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		18	PID Rental	16	DY	$88	$1,500
		19	Confirmation Soil Samples (TPH and VOCs)	62	EA	$266	$16,500
		20	Sampling Supplies	1	LS	$500	$500
		21	AECOM Sampling	16	DY	$820	$13,200
		22	Rental Vehicle for AECOM Sampling	16	DY	$113	$1,900
		23	Contractor Standby for Ongoing Operations	4	WK	$10,000	$40,000
		25	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$257,800	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	1,588	TN	$90	$143,000
	$322,250	3	Hazardous Concrete Transportation and Disposal	442	TN	$255	$112,800
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$937,300**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$937,300	$234,400
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$1,171,700	$234,400
	Washington State Sales Tax (%)			**9.5**	%	$1,406,100	$133,600
	TOTAL DIRECT COST						**$1,539,700**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$277,000
		2	Total Direct Costs (see above)	--	--	--	$1,539,700
		3	Site Inspection and Overhead Costs	8	%	$1,816,700	$145,400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	#		**$1,962,100**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$1,881,900**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$0
	Subtotal Costs		***Years of Annual Monitoring***	***0***			**$0**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$0	$0
	TOTAL MONITORING & REPORTING COST						**$0**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$0**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$0		$0
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$0**		**$0**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$1,881,900	**$1,881,900**
	TOTAL PRESENT-WORTH OMM COST			$0	**$1,881,900**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$94,100	**$1,976,000**
	TOTAL PRESENT-WORTH COST				**$1,976,000**

Table D-19
Comparison of Alternative Costs
Exposure Pathway Model: EPM G
SWMU/AOC No. 083, Flightline, Former UST EV-15

Task	Alternative 1: Maintain Containment	Alternative 2: Future Excavation
IMPLEMENATION COSTS		
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$133,600
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$170,500
Direct Contingency and Unlisted Items Assumed (%)	25	25
Site Inspection and Overhead	$400	$24,400
Total Implementation Costs	**$4,800**	**$328,500**
OMM COSTS		
Annualized O&M Costs	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25
O&M Duration (years)	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20	20
Monitoring Duration (years)	30	15
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30
Total OMM Costs	**$100,800**	**$50,400**
TOTALS		
Total Implementation and OMM Costs	**$105,600**	**$378,900**
Estimated Agency Oversight Costs [a]	$4,400	$15,600
Total Project Present Worth [b]	**$91,000**	**$328,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.

[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 083, Former UST EV-15	
Project	Upland Area Feasibility Study	**Building**	Flightline	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 9	FT bgs
Last Updated	10/5/15	**Surface Area**	8	SF
QA Reviewer	Debbie Rodenhizer	**Volume**	2.5	CY
QA Review Date	7/15/15			

Site/Problem Description

Residual petroleum contamination in soil is present in the area of former UST EV-15. Contamination consists of diesel-range TPH concentrations that are above the cleanup levels. The area is adjacent to flight line operations and immediately below a blast wall which makes access difficult.

Proposed Cleanup Action

Alternate 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete and flight line panels above the area of concern will remain in place to prevent the leaching of contaminants to groundwater. The surface will be inspected annually and maintained as needed. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30 year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Concrete or flight panels covering the area will be maintained by Boeing Site Services.
5. Institutional controls for the area will be established under a sitewide plan.
6. Annual inspection of the land use, concrete, and pavement in the area will be conducted.
7. Containment and annual inspections will be implemented for 30 years.
8. No free product is present in this area.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	G	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 083, Former UST EV-15	
Project	Upland Area Feasibility Study	**Building**	Flightline	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	1 to 9	FT bgs
Last Updated	10/7/15	**Surface Area**	8	SF
QA Reviewer	Phil Newton	**Volume**	2.5	CY
QA Review Date	7/15/15			

Site/Problem

Residual petroleum contamination in soil is present in the area of former UST EV-15. Contamination consists of diesel-range TPH concentrations that are above the cleanup levels. The area is adjacent to flight line operations and immediately below a blast wall which makes access difficult.

Proposed Cleanup Action

Alternative 2 consist of excavating the contaminated soil in the future when the area is accessible for construction, such as during site redevelopment or change of use. Excavation will occur when the area is accessible during flight panel replacement or other similar event. It is assumed that the transformer in the vicinity will be shut down as part of other flightline work. Two trenches will be excavated to a depth of 9 ft bgs. Removal of the blast wall and soil berm in the vicinity of the soils will require temporary removal. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Part of the excavation area is located east of the existing blast wall on the flightline and part of the area is behind the wall.
5. The section of blast wall in the vicinity of contamination will be removed.
6. The soil berm in west of the wall will be excavated and stockpiled.
7. Concrete flight panels overlying the area of concern will be removed (25-ft sections).
8. The concrete flight panels will be disposed of as hazardous waste.
9. The stormwater sewer will be temporarily relocated.
10. The high voltage line and nearby transformer will be shut down as part of other flightline construction work.
11. Two 3-ft by 10-ft trenches will be excavated to a depth of 9 ft bgs.
12. The trenches will be backfilled with CDF following excavation.
13. Base course of 6 inches will be placed over the CDF and replaced where flight panels were removed. Replacement flight panels will be installed for the area.
14. The stormwater line, blast wall, and berm will be reconstructed/reinstalled.
15. Assume 2 days for site preparation, 2 days for excavation and backfill, and 2 days for reconstruction.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$116,200	1	Project Management (4 hrs per week)	4	WK	$616	$2,500
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$133,600	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$25,000	$25,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	6	%	$170,500	$10,300
		11	Reporting	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$116,200**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$116,200	$17,430
	TOTAL INDIRECT COST						**$133,600**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$64,500	1	Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$1,600	$4,000
	$80,630	3	Utility Locate	8	HR	$80	$700
		4	Site Preparation	1	LS	$5,000	$5,000
		5	Saw Cutting Concrete (Flight Panels)	150	LF	$15	$2,200
		6	Construction Labor	1	WK	$18,200	$18,200
		7	Equipment Rental	1	WK	$4,428	$4,500
		8	CDF Backfill	19	CY	$106	$2,100
		9	Base Course	39	TN	$16	$700
		10	Base Course - Truck	2	HR	$110	$300
		11	Base Course - Transfer	2	HR	$130	$300
		12	Plate Compactor	1	DY	$275	$300
		13	Dozer	1	DY	$577	$600
		14	Dust Control (Scrubber/Sweeper)	1	DY	$765	$800
		15	Replacement Flight Panels	50	CY	$225	$11,300
		16	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		17	AECOM Sampling	2	DY	$820	$1,700
		18	Rental Vehicle for AECOM Sampling	2	DY	$113	$300
		19	Confirmation Sampling	11	EA	$90	$1,000
		20	Sampling Supplies	1	LS	$500	$500
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$39,200	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	36	TN	$115	$4,200
	$49,000	3	Hazardous Concrete Transportation and Disposal	100	TN	$330	$33,000
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$103,700**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$103,700	$26,000
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$129,700	$26,000
	Washington State Sales Tax (%)			**9.5**	%	$155,700	$14,800
	TOTAL DIRECT COST						**$170,500**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$133,600
		2	Total Direct Costs (see above)	--	--	--	$170,500
		3	Site Inspection and Overhead Costs	8	%	$304,100	$24,400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	**#**		**$328,500**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$266,700**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$50,400**		**$45,200**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$266,700	**$266,700**
	TOTAL PRESENT-WORTH OMM COST			$45,200	**$311,900**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$15,600	**$327,500**
	TOTAL PRESENT-WORTH COST				**$328,000**

Table D-20
Comparison of Alternative Costs
Exposure Pathway Model: EPM H
SWMU/AOC No. 093, BUILDING 45-01, FORMER SOLVENT USTS

Task	Alternative 1: Maintain Containment	Alternative 2: Near-Term Excavation
IMPLEMENATION COSTS		
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$123,700
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$151,800
Direct Contingency and Unlisted Items Assumed (%)	25	25
Site Inspection and Overhead	$400	$22,100
Total Implementation Costs	**$4,800**	**$297,600**
OMM COSTS		
Annualized O&M Costs	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25
O&M Duration (years)	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20	20
Monitoring Duration (years)	30	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30
Total OMM Costs	**$100,800**	**$100,800**
TOTALS		
Total Implementation and OMM Costs	**$105,600**	**$398,400**
Estimated Agency Oversight Costs [a]	$4,400	$18,400
Total Project Present Worth [b, c]	**$91,000**	**$386,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.

[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	H	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 093, Former Solvent USTs	
Project	Upland Area Feasibility Study	**Building**	45-01	
Estimator	Genevieve Fujimoto	**Media**	Soil	
Report Date	10/30/15	**Depth Range**	10 to 20	FT bgs
Last Updated	10/6/15	**Surface Area**	110	SF
QA Reviewer	Debbie Rodenhizer	**Volume**	40	CY
QA Review Date	7/30/15			

Site/Problem Description

Residual soil contamination consisting of VOCs (MEK/2-butanone) present within fill and native till soils to a depth of approximately 17.5 ft where 2 solvents tanks were previously located. The area is outside adjacent to the edge of Building 45-01 and may include some contamination underneath the building footing. The surface is covered with concrete and vehicles are parked in the area. Soil consists of backfill to 6.5-11 ft bgs underlain by till.

Proposed Cleanup Action

Alternate 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete above the area of concern will remain in place to prevent the leaching of contaminants to groundwater. The surface will be inspected annually and maintained as needed. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. The concrete covering the contaminated soils will be maintained by Boeing Site Services.
5. Provisions for containment of the area will be established under a sitewide plan.
6. Annual inspection of the concrete will be conducted.
7. Containment and annual inspections will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Near-Term Excavation**

Client	Boeing	**EPM Group**	H
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 093, Former Solvent USTs
Project	Upland Area Feasibility Study	**Building**	45-01
Estimator	Genevieve Fujimoto	**Media**	Soil
Report Date	10/30/15	**Depth Range**	10 to 20 FT bgs
Last Updated	10/6/15	**Surface Area**	110 SF
QA Reviewer	Cary Brown	**Volume**	40 CY
QA Review Date	8/24/15		

Site/Problem Description

Residual soil contamination consisting of VOCs (MEK/2-butanone) present within fill and native till soils to a depth of approximately 17.5 ft where 2 solvents tanks were previously located. The area is outside adjacent to the edge of Building 45-01 and may include some contamination underneath the building footing. The surface is covered with concrete and vehicles are parked in the area. Soil consists of backfill to 6.5-11 ft bgs underlain by till.

Proposed Cleanup Action

Alternate 2 consists of removing contaminated soil to a depth of 20 ft bgs by excavation in the near term when there will be disruption in normal Boeing operations. There will be increased logistical challenges encountered associated with obstacles and Boeing operations. Trench boxes and slot cuts will be used to excavate to the target depth and protect the building. Excavation will extend to underneath the building foundation to the extent possible. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. The work area will be restored after completion of work. Near term excavation accounts for the interruption of plant operations, but not production losses.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Demolish existing concrete/asphalt in area.
5. Use trench boxes to excavate three 5-ft sections. Backfill with CDF following each section excavation.
6. Reconstruct concrete and pavement, using 6-inches of base course between CDF and overlying concrete.
7. CDF will be used to backfill area beneath building foundation (i.e., no base course).
8. Estimate excavation of slot cuts will require 1 day per cut, including CDF backfill, or 3 days total.
9. Estimate 2 days will be required for site preparation, saw-cutting concrete, and concrete removal.
10. Estimate 2 days will be required for site restoration.
11. Construction will occur during 40-hr weeks.
12. All accessible soil exceeding cleanup levels will be removed. Institutional controls will address remaining soil.
13. Excavated soil will be disposed of as non-hazardous.
14. The work will not result in significant interruptions to normal Boeing operations.

$386,000

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$107,600	1	Project Management (4 hrs per week)	8	WK	$616	$5,000
	With Contingency	2	General coordination, meetings, and planning	1	LS	$10,000	$10,000
	$123,700	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	80	HR	$108	$8,700
		5	Design Plans and Specs	1	LS	$15,000	$15,000
		6	Engineers Estimate	30	HR	$108	$3,300
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	16	HR	$108	$1,800
		9	Work Plan (CMP/SAP)	80	HR	$108	$8,700
		10	Construction oversight and QA (% of DC)	6	%	$151,800	$9,200
		11	Reporting (Implementation)	230	HR	$108	$24,900
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$107,600**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$107,600	$16,140
	TOTAL INDIRECT COST						**$123,700**

ALTERNATIVE 2 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$76,100	1	Contractor Mobilization	1	LS	$5,000	$5,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$95,130	3	Utility Locate	8	HR	$80	$700
		4	Site Preparation/TESC	1	LS	$1,000	$1,000
		5	Construction Labor (4-person crew)	2	WK	$10,840	$21,700
		6	Equipment Rental	2	WK	$4,428	$8,900
		7	Saw-Cutting Concrete	29	LF	$15	$500
		8	CDF Backfill	83	CY	$106	$8,900
		9	Base Course	5	TN	$16	$100
		10	Base Course - Truck	1	HR	$110	$200
		11	Base Course - Transfer	1	HR	$130	$200
		12	Dust Control (Sweeper/Scrubber)	5	DY	$765	$3,900
		13	Compactor	2	DY	$467	$1,000
		14	Concrete Construction	4	CY	$225	$900
		15	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		16	PID Rental	5	DY	$88	$500
		17	Confirmation Samples	14	EA	$112	$1,600
		18	Sampling Supplies	1	LS	$500	$500
		19	AECOM Oversight	5	DY	$656	$3,300
		20	Rental Vehicle for AECOM Oversight	5	DY	$113	$600
		21	Contractor Standby for Ongoing Operations	2	WK	$5,000	$10,000
		22	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$16,300	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	153	TN	$90	$13,800
	$20,380	3	Concrete Transportation	2	HR	$120	$300
		4	Concrete Disposal Fee	4	CY	$30	$200
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$92,400**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$92,400	$23,100
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$115,500	$23,100
	Washington State Sales Tax (%)			**9.5**	%	$138,600	$13,200
	TOTAL DIRECT COST						**$151,800**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$123,700
		2	Total Direct Costs (see above)	--	--	--	$151,800
		3	Site Inspection and Overhead Costs	8	%	$275,500	$22,100
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$297,600**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$285,400**

ALTERNATIVE 2 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**	**ESCALATED**	**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0	$0	$0
		2	Total Monitoring Costs (see above)		$100,800	$136,400	$81,900
		3	Total Non-Routine OMM & Decommissioning		$0	$0	$0
	TOTAL OMM COSTS				**$100,800**	**$136,400**	**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$285,400	**$285,400**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$367,300**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$18,400	**$385,700**
	TOTAL PRESENT-WORTH COST				**$386,000**

Table D-21
Comparison of Alternative Costs
Exposure Pathway Model: EPM H
SWMU/AOC Nos. 067 and 071, BUILDING 40-56, FORMER RECYCLING UNIT AND UST EV-153

Task	Alternative 1: Maintain Containment	Alternative 2: Future Excavation	Alternative 3: Near-Term Excavation
IMPLEMENATION COSTS			
Cleanup Design, Planning, and General (Indirect Costs)	$4,400	$452,200	$1,748,100
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0	$2,037,100	$18,665,900
Direct Contingency and Unlisted Items Assumed (%)	25	25	25
Site Inspection and Overhead	$400	$199,200	$1,633,200
Total Implementation Costs	**$4,800**	**$2,688,500**	**$22,047,200**
OMM COSTS			
Annualized O&M Costs	$0	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25	25
O&M Duration (years)	0	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20	20	20
Monitoring Duration (years)	30	15	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$0	$0	$0
Non-Routine Contingency and Unlisted Items Assumed (%)	30	15	30
Total OMM Costs	**$100,800**	**$50,400**	**$100,800**
TOTALS			
Total Implementation and OMM Costs	**$105,600**	**$2,738,900**	**$22,148,000**
Estimated Agency Oversight Costs [a]	$4,400	$111,400	$1,061,500
Total Project Present Worth [b, c]	**$91,000**	**$2,339,000**	**$22,290,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
[c] Cleanup alternative costs in RED indicate the total project cost does not include costs of Boeing production loss associated with cleanup action.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Maintain Containment**

Client	Boeing	**EPM Group**	H	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153	
Project	Upland Area Feasibility Study			
Estimator	Genevieve Fujimoto	**Building**	40-56	
Report Date	10/30/15	**Media**	Soil	
Last Updated	10/6/15	**Depth Range**	1 to 30	FT bgs
QA Reviewer	Debbie Rodenhizer	**Surface Area**	1,600	SF
QA Review Date	7/30/15	**Volume**	970	CY

Site/Problem Description

VOCs (TEX) exceed cleanup levels in soil below the backfilled excavation that was completed inside building 40-56 following the removal of UST EV-153. The previous excavation depth ranged from 3-ft bgs to 8-ft bgs and was backfilled with CDF. VOC contamination is present in the soil underlying the CDF to a maximum depth of 30-ft bgs. Two sub-slab vapor samples collect at depths of 8-ft bgs exceed indoor air screening levels for VOCs. The silk screen shop uses the area.

Proposed Cleanup Action

Alternate 1 consists of containing the contaminated soil in place and includes institutional controls which will limit the land use of this area to industrial use only. The existing concrete floor above the area of concern will remain in place to prevent leaching to groundwater and direct contact. The floor surface will be inspected annually and maintained as needed. Future building construction in the area will address potential vapor intrusion. Containment and institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost).

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Boeing Site Services will maintain the concrete and building covering the area of concern.
5. Provisions for containment of the area will be established under a sitewide plan.
6. Annual inspection of the concrete floor will be conducted.
7. Containment and annual inspection will be implemented for 30 years.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$3,800	1	Project Management and Coordination	4	HR	$154	$700
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$4,400	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$3,800**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$3,800	$570
	TOTAL INDIRECT COST						**$4,400**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$4,400
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$4,400	$400
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$4,800**
	Escalated Implementation Cost		Presumed Inflation Rate	***2.00***	%		**$5,000**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,700**

ALTERNATIVE 1 (Continued) **Maintain Containment**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Escalated O&M Cost		Presumed Inflation Rate	***2.00***	%		**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Escalated Monitoring Cost		Presumed Inflation Rate	***2.00***	%		**$136,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Escalated Closure Cost		Presumed Inflation Rate	***2.00***	%		**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,700	**$4,700**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$86,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$4,400	**$91,000**
	TOTAL PRESENT-WORTH COST				**$91,000**

ALTERNATIVE 2 **Future Excavation**

Client	Boeing	**EPM Group**	H	
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153	
Project	Upland Area Feasibility Study			
Estimator	Genevieve Fujimoto	**Building**	40-56	
Report Date	10/30/15	**Media**	Soil	
Last Updated	10/7/15	**Depth Range**	1 to 30	FT bgs
QA Reviewer	Phil Newton	**Surface Area**	1,600	SF
QA Review Date	7/15/15	**Volume**	970	CY

Site/Problem Description

VOCs (TEX) exceed cleanup levels in soil below the backfilled excavation that was completed inside building 40-56 following the removal of UST EV-153. The previous excavation depth ranged from 3-ft bgs to 8-ft bgs and was backfilled with CDF. VOC contamination is present in the soil underlying the CDF to a maximum depth of 30-ft bgs. Two sub-slab vapor samples collect at depths of 8-ft bgs exceed indoor air screening levels for VOCs. The silk screen shop uses the area.

Proposed Cleanup Action

Alternative 2 consists of excavating the area of concern in the future when the indoor area is accessible for construction, such as during site redevelopment or change of use. It includes disposal of contaminated soil off-site and sampling from the final excavation limits. Prior to excavation activities the existing concrete above the area of concern will remain in place and be inspected annually and maintained as needed. The excavation will consist of demolishing the concrete floor currently in place and excavating the area to various depths. Predesign soil sampling will be completed in the vicinity of sample location B7 to delineate contamination. Institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (15-year assumption for cost with excavation occurring in Year 15). Containment and IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Predesign sampling will be completed in the vicinity of sample location B7.
5. The area around sample location B7 is assumed to be clean above 15-ft bgs and contaminated below 15-ft bgs.
6. The majority of the soil will be disposed of as hazardous waste. Soil in the vicinity of sample B7 is assumed to be non hazardous to approximately 15 ft bgs.
7. The concrete floor will be demolished and is assumed to be 1-ft thick.
8. The depth of native till is approximately 15-ft bgs. Fill above 15-ft consists of dense reworked till.
9. No specialty shoring will be necessary. Sidewalls will be vertical.
10. Excavation will occur in 15 years. Institutional controls and inspections will be performed in the interim.
11. Approximately 5 trucks of soil can be excavated each day.
12. Construction duration is approximately 4 weeks, including 2 days of site preparation, 16 days of excavation and backfill, and 2 days of reconstruction. Construction weeks are assumed to be 5 8-hour days (40 hrs per week).

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$393,200	1	Project Management (4 hrs per week)	6	WK	$616	$3,700
	With Contingency $452,200	2	General coordination, meetings, and planning (% of DC)	3	%	$2,037,100	$61,200
		3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design and Report	230	HR	$108	$24,900
		5	Design Plans and Specs	1	LS	$80,000	$80,000
		6	Engineers Estimate	80	HR	$108	$8,700
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	60	HR	$108	$6,500
		9	Work Plan (CMP/SAP)	160	HR	$108	$17,300
		10	Construction oversight and QA (% of DC)	6	%	$2,037,100	$122,300
		11	Reporting	440	HR	$108	$47,600
		12	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	Subtotal Costs						**$393,200**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$393,200	$58,980
	TOTAL INDIRECT COST						**$452,200**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$332,500	1	Mobilization	1	LS	$15,000	$15,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$415,630	3	Utility Locate	8	HR	$80	$700
		4	Predesign Sampling	6	EA	$3,664	$22,000
		5	Site Preparation	1	LS	$1,000	$1,000
		6	Saw-Cutting Concrete	350	LF	$15	$5,200
		7	Equipment Rental	4	WK	$5,990	$24,000
		8	Venting and Setup	200	LF	$35	$7,000
		9	Construction Labor	4	WK	$10,840	$43,400
		10	CDF Backfill	1,593	CY	$106	$169,100
		11	Base Course	62	TN	$16	$1,000
		12	Base Course - Truck and Trailer	2	HR	$120	$300
		13	Base Course - Transfer	2	HR	$130	$300
		14	Compactor	3	DY	$467	$1,500
		15	Scrubber/Sweeper	4	DY	$765	$3,100
		16	Dozer	2	DY	$577	$1,200
		17	Concrete Construction	74	CY	$225	$16,700
		18	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		19	Confirmation Sampling	38	EA	$112	$4,300
		20	PID Rental	22	DY	$88	$2,000
		21	Sampling Supplies	1	LS	$500	$500
		22	AECOM Oversight	8	DY	$820	$6,600
		23	Rental Vehicle for AECOM Oversight	8	DY	$113	$1,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$907,600	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	391	TN	$115	$45,000
	$1,134,500	3	Hazardous Soil Transportation and Disposal	2,580	TN	$330	$851,400
		4	Concrete Transportation	10	HR	$30	$300
		5	Concrete Disposal Fee	74	CY	$120	$8,900
	Subtotal Costs						**$1,240,100**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$1,240,100	$310,100
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$1,550,200	$310,100
	Washington State Sales Tax (%)			**9.5**	%	$1,860,300	$176,800
	TOTAL DIRECT COST						**$2,037,100**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$452,200
		2	Total Direct Costs (see above)	--	--	--	$2,037,100
		3	Site Inspection and Overhead Costs	8	%	$2,489,300	$199,200
	TOTAL IMPLEMENTATION COST		Years until Implementation	**15**	**#**		**$2,688,500**
	Escalated Implementation Cost		Presumed Inflation Rate	***2.00***	%		**$3,618,400**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$2,182,400**

ALTERNATIVE 2 (Continued) **Future Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Escalated O&M Cost		Presumed Inflation Rate	***2.00***	%		**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***15***			**$42,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$42,000	$8,400
	TOTAL MONITORING & REPORTING COST						**$50,400**
	Escalated Monitoring Cost		Presumed Inflation Rate	***2.00***	%		**$58,200**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$45,200**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**15**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Escalated Closure Cost		Presumed Inflation Rate	***2.00***	%		**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$50,400		$45,200
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$50,400**		**$45,200**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$2,182,400	**$2,182,400**
	TOTAL PRESENT-WORTH OMM COST			$45,200	**$2,227,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$111,400	**$2,339,000**
	TOTAL PRESENT-WORTH COST				**$2,339,000**

ALTERNATIVE 3 Near-Term Excavation

Client	Boeing	**EPM Group**	H
Location	BCA Everett Plant	**Site Name**	SWMU/AOC Nos. 067 and 071, Former Recycling Unit and UST EV-153
Project	Upland Area Feasibility Study		
Estimator	Genevieve Fujimoto	**Building**	40-56
Report Date	10/30/15	**Media**	Soil
Last Updated	10/7/15	**Depth Range**	1 to 30 FT bgs
QA Reviewer	Cary Brown	**Surface Area**	1,600 SF
QA Review Date	8/24/15	**Volume**	970 CY

Site/Problem Description

VOCs (TEX) exceed cleanup levels in soil below the backfilled excavation that was completed inside building 40-56 following the removal of UST EV-153. The previous excavation depth ranged from 3-ft bgs to 8-ft bgs and was backfilled with CDF. VOC contamination is present in the soil underlying the CDF to a maximum depth of 30-ft bgs. Two sub-slab vapor samples collect at depths of 8-ft bgs exceed indoor air screening levels for VOCs. The silk screen shop uses the area.

Proposed Cleanup Action

Alternative 3 consists of excavating accessible soils in the near-term when there will be significant disruption in Boeing production activities. Relocation of the existing shop will be necessary and increased logistical challenges encountered associated with obstacles and Boeing operations. This alternative assumes that the silkscreen shop will need to be relocated to a new building on-site. Following relocation, the excavation will consist of demolishing the concrete floor and excavating the area to various depths. Predesign soil sampling will be completed in the vicinity of sample location B7 to delineate contamination. The concrete floor will be reconstructed for continued use of the building. Some contaminated soil will remain in-place; therefore institutional controls will be implemented for as long as contaminant concentrations exceed cleanup levels (30-year assumption for cost). Containment and IC inspections will be made annually. Near term excavation accounts for the interruption of plant operations, but not production losses.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. The silkscreen shop is assumed to be 150-ft by 325-ft and will be permanently relocated to complete excavation. A new building will be constructed to permanently move silkscreen operations prior to the start of excavation.
5. Predesign sampling will be completed in the vicinity of sample location B7.
6. The area around sample location B7 is assumed to be clean above 15-ft bgs and contaminated below 15-ft bgs.
7. The concrete floor will be demolished and is assumed to be 1-ft thick.
8. The depth of native till is approximately 15-ft. Fill above 15-ft consists of dense reworked till.
9. No specialty shoring will be necessary. Sidewalls will be vertical.
10. Approximately 480 CY of soil will remain in-place around column footing (15-ft around column to depth of native till, and 2:1 slope to maximum excavation depth) to protect the building structure.
11. The majority of the soil will be disposed of as hazardous waste. Soil in the vicinity of sample B7 is assumed to be non-hazardous to approximately 15 ft bgs.
12. Institutional controls will be used to address soil remaining in-place.
13. Approximately 4 truck loads of soil can be excavated each day.
14. Construction duration is approximately 6 weeks, including 5 days of site preparation, 21 days of excavation and backfill, and 5 days of reconstruction. Construction weeks are assumed to be 6 10-hour days (60 hrs per week).
15. It will take 2 weeks to relocate operations to prior to excavation.
16. As part of relocation time, the building space will be unusable for 4 weeks.
17. Time, labor, and equipment for relocating operations is estimated separately from construction.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$1,520,100	1	Project Management (4 hrs per week)	12	WK	$616	$7,400
	With Contingency	2	Gen. Coord., meetings, and planning (% of DC)	2	%	$18,665,900	$373,400
	$1,748,100	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design and Report	230	HR	$108	$24,900
		5	Design Plans and Specs	1	LS	$80,000	$80,000
		6	Engineers Estimate	80	HR	$108	$8,700
		7	Permitting	1	LS	$2,820	$2,900
		8	Bid and RFI support	60	HR	$108	$6,500
		9	Work Plan (CMP/SAP)	160	HR	$108	$17,300
		10	Construction oversight and QA (% of DC)	5	%	$18,665,900	$933,300
		11	Reporting (Implementation)	440	HR	$108	$47,600
		12	Sitewide Containment/IC Plan	1	EA	$3,100	$3,100
	Subtotal Costs						**$1,520,100**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$1,520,100	$228,015
	TOTAL INDIRECT COST						**$1,748,100**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$10,885,900	1	Mobilization	1	LS	$15,000	$15,000
	With Contingency	2	Survey	1	LS	$1,600	$1,600
	$13,607,380	3	Utility Locate	16	HR	$80	$1,300
		4	New Silkscreen Shop Construction	48,750	SF	$200	$9,750,000
		5	Silkscreen Shop Relocation to New Building	48,750	SF	$8	$390,000
		6	Predesign Sampling	6	EA	$3,664	$22,000
		7	General Site Preparation	1	LS	$5,000	$5,000
		8	Saw-Cutting Concrete	350	LF	$15	$5,200
		9	Equipment Rental	5	WK	$5,990	$30,000
		10	Venting and Setup	200	LF	$35	$7,000
		11	Construction Labor (4-person crew)	31	DY	$3,162	$98,100
		12	CDF Backfill	1,113	CY	$106	$118,200
		13	Base Course	62	TN	$16	$1,000
		14	Base Course - Truck and Trailer	2	HR	$120	$300
		15	Base Course - Transfer	2	HR	$130	$300
		16	Compactor	5	DY	$467	$2,400
		17	Scrubber/Sweeper	21	DY	$765	$16,100
		18	Concrete Construction	74	CY	$225	$16,700
		19	General Site Cleanup and Misc Restoration	1	LS	$5,000	$5,000
		20	Confirmation Soil Sampling (VOCs)	38	EA	$112	$4,300
		21	PID Rental	3	WK	$616	$1,900
		22	Sampling Supplies	1	LS	$500	$500
		23	AECOM Oversight	15	DY	$820	$12,300
		24	Rental Vehicle for AECOM Oversight	15	DY	$113	$1,700
		25	Contractor Standby for Ongoing Operations	4	WK	$5,000	$20,000
		26	Lost Productivity	1	LS	$360,000	$360,000
		27	Boeing Production Loss	1	LS	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$478,300	1	Transportation and Disposal Coordination	20	HR	$100	$2,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	391	TN	$90	$35,200
	$597,880	3	Hazardous Soil Transportation and Disposal	1,716	TN	$255	$437,600
		4	Concrete Transportation	10	HR	$120	$1,200
		5	Concrete Disposal Fee	74	CY	$30	$2,300
	Subtotal Costs						**$11,364,200**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$11,364,200	$2,841,100
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$14,205,300	$2,841,100
	Washington State Sales Tax (%)			**9.5**	%	$17,046,400	$1,619,500
	TOTAL DIRECT COST						**$18,665,900**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$1,748,100
		2	Total Direct Costs (see above)	--	--	--	$18,665,900
		3	Site Inspection and Overhead Costs	8	%	$20,414,000	$1,633,200
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$22,047,200**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$21,146,600**

ALTERNATIVE 3 (Continued) **Near-Term Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Escalated Monitoring Cost		Presumed Inflation Rate	***2.00***	%		**$136,400**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$0	$0
	TOTAL CLOSURE COST						**$0**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$0**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$0		$0
	TOTAL OMM COSTS				**$100,800**		**$81,900**

	ALTERNATIVE COST SUMMARY			**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$21,146,600	**$21,146,600**
	TOTAL PRESENT-WORTH OMM COST			$81,900	**$21,228,500**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$1,061,500	**$22,290,000**
	TOTAL PRESENT-WORTH COST				**$22,290,000**

Table D-22
Comparison of Alternative Costs
Exposure Pathway Model: EPM I
Esperance Sand Well EGW061

Task	Alternative 1: Institutional Controls
IMPLEMENATION COSTS	
Cleanup Design, Planning, and General (Indirect Costs)	$5,100
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$0
Direct Contingency and Unlisted Items Assumed (%)	25
Site Inspection and Overhead	$500
Total Implementation Costs	**$5,600**
OMM COSTS	
Annualized O&M Costs	$0
O&M Contingency and Unlisted Items Assumed (%)	25
O&M Duration (years)	0
Annualized Monitoring & Reporting Costs	$14,400
Monitoring Contingency and Unlisted Items Assumed (%)	20
Monitoring Duration (years)	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$6,500
Non-Routine Contingency and Unlisted Items Assumed (%)	30
Total OMM Costs	**$438,500**
TOTALS	
Total Implementation and OMM Costs	**$444,100**
Estimated Agency Oversight Costs [a]	$18,100
Total Project Present Worth [b]	**$379,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.

[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Institutional Controls**

Client	Boeing	**EPM Group**	I
Location	BCA Everett Plant	**Site Name**	Esperance Sand Well EGW061
Project	Upland Area Feasibility Study	**Building**	NA
Estimator	Demetrio Cabanillas	**Media**	Groundwater
Report Date	10/30/15	**Depth Range**	195-215 FT bgs
Last Updated	10/6/15	**Surface Area**	Not Estimated
QA Reviewer	Debbie Rodenhizer	**Volume**	Not Estimated
QA Review Date	7/30/15		

Site/Problem Description

Groundwater sampling from one monitoring well EGW061 located at the upgradient boundary of Boeing property indicates the consistent presence of total and dissolved arsenic above screening levels as well as total chromium in an initial sampling event but none since. The source of the metals in groundwater is unknown and may be natural background levels. Groundwater within the Esperance Sand is unconfined and occurs at a depth of approximately 195 to 215 feet bgs.

Proposed Cleanup Action

Alternative 1 consists of institutional controls and long-term monitoring. Institutional controls would prohibit EGW061 as a source of drinking water and would include annual inspections. Long-term monitoring would consist of sampling one existing Esperance Sand groundwater well (EGW061) annually. If over time concentrations in groundwater declined below cleanup levels, institutional controls would be removed and monitoring well EGW061 decommissioned. Institutional controls will be implemented until cleanup levels are achieved (30-year assumption for cost). IC inspections will be made annually.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only.
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Institutional Controls for the area will be established under a sitewide plan.
5. Annual inspection of EGW061 to make sure it is not used as a source of drinking water.
6. Annual groundwater monitoring of well EGW061 for arsenic only.
7. Institutional Controls and Monitoring will be implemented for 30 years.
8. Decommissioning of EGW061 when COCs levels decline below cleanup levels

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$4,400	1	Project Management and Coordination	2	WKS	$616	$1,300
	With Contingency	2	Sitewide Containment/IC Plan	1	LS	$3,100	$3,100
	$5,100	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
		6	Not Used	0	EA	$0	$0
	Subtotal Costs						**$4,400**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$4,400	$660
	TOTAL INDIRECT COST						**$5,100**

ALTERNATIVE 1 (Continued) **Institutional Controls**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$0**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$0	$0
	Washington State Sales Tax (%)			**9.5**	%	$0	$0
	TOTAL DIRECT COST						**$0**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$5,100
		2	Total Direct Costs (see above)	--	--	--	$0
		3	Site Inspection and Overhead Costs	8	%	$5,100	$500
	TOTAL IMPLEMENTATION COST		Years until Implementation	**2**	**#**		**$5,600**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$5,400**

ALTERNATIVE 1 (Continued) **Institutional Controls**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$12,000	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	EA	$1,500	$1,500
	$14,400	3	Groundwater Labor (2 people for an 8-hr day)	16	HR	$108	$1,800
		4	Analytical Testing (Arsenic)	3	EA	$35	$200
		5	Groundwater Sampling Equipment	1	DY	$1,051	$1,100
		6	Annual Report	1	LS	$6,092	$6,100
	Total Routine Annual Monitoring Cost						$12,000
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$360,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$360,000	$72,000
	TOTAL MONITORING & REPORTING COST						**$432,000**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$350,800**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$5,000	1	Well Decommissioning (Year 30)	1	LS	$5,000	$5,000
	With Contingency	2	Not Used	0	EA	$0	$0
	$6,500	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$5,000**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$5,000	$1,500
	TOTAL CLOSURE COST						**$6,500**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$4,300**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$432,000		$350,800
		3	Total Non-Routine OMM & Decommissioning		$6,500		$4,300
	TOTAL OMM COSTS				**$438,500**		**$355,100**

TOTAL	**ALTERNATIVE COST SUMMARY**			**Rounded Total**	**Cumulative Total**
	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$5,400	**$5,400**
	TOTAL PRESENT-WORTH OMM COST			$355,100	**$360,500**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$18,100	**$378,600**
	TOTAL PRESENT-WORTH COST				**$379,000**

Table D-23
Comparison of Alternative Costs
Exposure Pathway Model: EPM J
SWMU/AOC No. 100, South Complex, Former Gun Club

Task	Alternative 1: Limited Excavation	Alternative 2: Comprehensive Excavation
IMPLEMENATION COSTS		
Cleanup Design, Planning, and General (Indirect Costs)	$898,000	$842,800
Indirect Contingency and Unlisted Engineering Services Assumed (%)	15	15
Cleanup Action Construction including Sales Tax (Direct Costs)	$3,470,800	$2,938,200
Direct Contingency and Unlisted Items Assumed (%)	25	25
Site Inspection and Overhead	$349,600	$302,500
Total Implementation Costs	**$4,718,400**	**$4,083,500**
OMM COSTS		
Annualized O&M Costs	$0	$0
O&M Contingency and Unlisted Items Assumed (%)	25	25
O&M Duration (years)	0	0
Annualized Monitoring & Reporting Costs	$3,360	$3,360
Monitoring Contingency and Unlisted Items Assumed (%)	20	20
Monitoring Duration (years)	30	30
Non-Routine OMM and/or Decommissioning Costs (Closure)	$124,800	$124,800
Non-Routine Contingency and Unlisted Items Assumed (%)	30	30
Total OMM Costs	**$225,600**	**$225,600**
TOTALS		
Total Implementation and OMM Costs	**$4,944,000**	**$4,309,100**
Estimated Agency Oversight Costs [a]	$236,300	$205,800
Total Project Present Worth [b]	**$4,961,000**	**$4,322,000**

[a] Agency oversight costs assumed to be 5% of the project present worth.
[b] Present worth costs were calculated using a 1.4% discount rate per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.

Notes:
Discount Rate (1.4%) = Interest Rate (3.4%) - Inflation (2.0%)
Cleanup Action Construction Costs includes Washington State Sales Tax at 9.5%
Values shown may not match values within specific cost estimates due to rounding.

OMM - Operation, Maintenance, and Monitoring
O&M - Operation and Maintenance

ALTERNATIVE 1 **Limited Excavation**

Client	Boeing	**EPM Group**	J
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 100, Former Gun Club
Project	Upland Area Feasibility Study	**Building**	South Complex
Estimator	Genevieve Fujimoto	**Media**	Soil and Sediment
Report Date	10/30/15	**Depth Range**	0.5 to 3 FT bgs
Last Updated	10/7/15	**Surface Area**	110,000 SF
QA Reviewer	Cary Brown	**Volume**	2,000 CY
QA Review Date	8/21/15		

Site/Problem Description

Metals and PAH contamination are present within Area B of the Former Gun Club which is outside the fenced Boeing perimeter. Residual contamination is present within the southwestern corner of Area C adjacent to West Frontage Road. Areas of contamination within Area B are approximately 2.8 acres and includes approximately 0.75 acres of wetland. Contamination in Area B is shallow at approximately 6 inches in depth. Area C residual contamination is within an approximately 2-ft by 16-ft area and 2-4 ft deep. Cleanup is complicated by the presence of dense vegetation including large trees and root systems.

Proposed Cleanup Action

Alternative 1 consists of excavation of the upper 6 inches of soil/sediment in Area B. Soil/sediment will be excavated around large, existing trees. The large trees will remain in place and all other vegetation will be removed to access contaminated soil and restored following the work. In Area C, the area of contamination is currently beneath a paved parking lot entrance. The existing asphalt above Area C will remain in place to prevent leaching of PAHs to groundwater and direct contact with soil. Containment and institutional controls will be implemented for as long as contaminant concentration exceed cleanup levels (30-year assumption for cost) and be inspected annually and maintained as needed.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Six predesign samples will be collected in the vicinity of sample location B-SS5 to delineate contamination.
5. The pond in Area B will be dewatered. Water will be treated on-site by a mobile treatment system and discharged to Boeing Lake following confirmation effluent sampling.
6. Prior to water treatment results, water will be disposed at industrial wastewater treatment plant.
7. In Area B, soil and sediment will be left in-place around large, existing trees.
8. In Area B, Wetland A (0.56 acres) will be impacted by the excavation.
9. In Area B, 6,300 SF of Wetland B and 1,000 SF of Wetland C (0.17 acres) will be impacted by the excavation.
10. Average density of both humus and topsoil (existing and import) is approximately 1.3 tons/CY.
11. Project duration is approximately 1 week of site preparation, 10 weeks of hand excavation, 4 weeks of backfill and
12. grading, and 2 weeks of tree planting and restoration (17 weeks total).
13. Area B is assumed to have a 4" surface layer of humus. The upper 50% of this layer will be stockpiled, tested, and reused if clean. The lower 50% is assumed to be contaminated and will be disposed of.
    It is assumed that 90% of topsoil in Area B can be excavated. Soil remaining will be left around trees.
15. Area B wetlands will be restored, with an additional 50% (0.38 acres) will be created as part of mitigation.
16. In Area C, asphalt covering the contaminated soil will be maintained by Boeing Site Services.
17. In Area C, semiannual inspection of the parking lot entrance asphalt and roadway will be conduced.
18. In Area C, containment will be implemented for a period of 30 years.
19. All excavated soil and sediment will be disposed of as hazardous with the exception of displaced humus and soil/sediment excavated for wetland mitigation.
20. Construction crew will work 40 hours per week.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$780,900	1	Project management (4 hrs per week)	20	WK	$616	$12,400
	With Contingency	2	Gen. coord., meetings, planning (% of DC)	3	%	$3,470,800	$104,200
	$898,000	3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	230	HR	$108	$24,900
		5	Design Plans and Specs	1	LS	$80,000	$80,000
		6	Engineers Estimate	80	HR	$108	$8,700
		7	Permitting (Grading)	1	LS	$2,820	$2,900
		8	Bid and RFI support	60	HR	$108	$6,500
		9	Work Plan (CMP/SAP)	160	HR	$108	$17,300
		10	Construction oversight and QA (% of DC)	6	%	$3,470,800	$208,300
		11	Reporting (Implementation)	440	HR	$108	$47,600
		12	Wetlands Permitting and Coordination	1	LS	$250,000	$250,000
		13	Sitewide Containment/IC Plan (Area C)	1	LS	$3,100	$3,100
	Subtotal Costs						**$780,900**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$780,900	$117,135
	TOTAL INDIRECT COST						**$898,000**

ALTERNATIVE 1 (Continued) **Limited Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$1,184,600	1	Contractor Mobilization	1	LS	$30,000	$30,000
	With Contingency	2	Topographic Survey (Pre-excavation)	3	DY	$2,150	$6,500
	$1,480,750	3	Utility Locate	8	HR	$80	$700
		4	Site Preparation/TESC	1	LS	$10,000	$10,000
		5	Clear and Grub (Brush only)	1.4	AC	$35,000	$49,000
		6	Excavation Labor (Humus and Topsoil)	10	WK	$66,150	$661,500
		7	Area B Wastewater Disposal (Week 1 Only)	6	DY	$1,170	$7,100
		8	Area B Wastewater Treatment	1	LS	$30,000	$30,000
		9	Area B Wastewater Analytical Testing (Metals)	57	EA	$70	$4,000
		10	Import Topsoil	2,100	CY	$40	$84,000
		11	Labor to Place Topsoil	2,730	TN	$7	$19,200
		12	Labor to Replace Humus	910	TN	$7	$6,400
		13	Site Grading	1	LS	$24,360	$24,400
		14	Scrubber/Sweeper	50	DY	$765	$38,300
		15	Area B Soil/Sediment Confirmation Samples	127	EA	$300	$38,100
		16	Area B Humus Confirmation Samples	10	EA	$300	$3,000
		17	Sampling Supplies	1	LS	$3,000	$3,000
		18	AECOM Oversight	17	WK	$4,920	$83,700
		19	AECOM Rental Car	17	WK	$165	$2,900
		20	Topographic Survey (Post-excavation)	2	DY	$2,150	$4,300
		21	General Site Cleanup and Restoration	1	LS	$10,000	$10,000
		22	Area B Forest and Shrub Restoration	1.1	AC	$12,500	$13,800
		23	Area B Hydroseeding	2.5	AC	$17,400	$43,500
		24	Wetland A Emergent Zone Restoration	0.3	AC	$20,400	$6,200
		25	Restoration Oversight by Biologist	1	LS	$5,000	$5,000
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$928,400	1	Transportation and Disposal Coordination	40	HR	$100	$4,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	2,504	TN	$90	$225,400
	$1,160,500	3	Hazardous Soil Transportation and Disposal	2,741	TN	$255	$699,000
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Subtotal Costs						**$2,113,000**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$2,113,000	$528,300
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$2,641,300	$528,300
	Washington State Sales Tax (%)			**9.5**	%	$3,169,600	$301,200
	TOTAL DIRECT COST						**$3,470,800**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$898,000
		2	Total Direct Costs (see above)	--	--	--	$3,470,800
		3	Site Inspection and Overhead Costs	8	%	$4,368,800	$349,600
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$4,718,400**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$4,525,600**

ALTERNATIVE 1 (Continued) **Limited Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual Inspection	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$96,000	1	Restoration Monitoring/Reporting (Year 1)	1	LS	$16,000	$16,000
	With Contingency	2	Restoration Monitoring/Reporting (Year 2)	1	LS	$16,000	$16,000
	$124,800	3	Restoration Monitoring/Reporting (Year 3)	1	LS	$16,000	$16,000
		4	Restoration Monitoring/Reporting (Year 5)	1	LS	$16,000	$16,000
		5	Restoration Monitoring/Reporting (Year 7)	1	LS	$16,000	$16,000
		6	Restoration Monitoring/Reporting (Year 10)	1	LS	$16,000	$16,000
	Subtotal Costs						**$96,000**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$96,000	$28,800
	TOTAL CLOSURE COST						**$124,800**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$117,100**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$124,800		$117,100
	TOTAL OMM COSTS				**$225,600**		**$199,000**

	ALTERNATIVE COST SUMMARY			**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$4,525,600	**$4,525,600**
	TOTAL PRESENT-WORTH OMM COST			$199,000	**$4,724,600**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$236,300	**$4,960,900**
	TOTAL PRESENT-WORTH COST				**$4,961,000**

ALTERNATIVE 2 **Comprehensive Excavation**

Client	Boeing	**EPM Group**	J
Location	BCA Everett Plant	**Site Name**	SWMU/AOC No. 100, Former Gun Club
Project	Upland Area Feasibility Study	**Building**	South Complex
Estimator	Genevieve Fujimoto	**Media**	Soil and Sediment
Report Date	10/30/15	**Depth Range**	0.5 to 3 FT bgs
Last Updated	10/7/15	**Surface Area**	110,000 SF
QA Reviewer	Cary Brown	**Volume**	2,000 CY
QA Review Date	8/21/15		

Site/Problem Description

Metals and PAH contamination are present within Area B of the Former Gun Club which is outside the fenced Boeing perimeter. Residual contamination is present within the southwestern corner of Area C adjacent to West Frontage Road. Areas of contamination within Area B are approximately 2.8 acres and includes approximately 0.75 acres of wetland. Contamination in Area B is shallow at approximately 6 inches in depth. Area C residual contamination is within an approximately 2-ft by 16-ft area and 2-4 ft deep. Cleanup is complicated by the presence of dense vegetation including large trees and root systems.

Proposed Cleanup Action

Alternative 2 consists of comprehensive excavation of the upper 6 inches of soil/sediment in Area B and includes removal of all trees and vegetation in all contaminated areas. In Area C, residual soil contamination beneath the parking lot entrance asphalt and roadway will be excavated to a depth of 3 ft bgs. All areas will be fully restored following the work.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec. 2014.
4. Six predesign samples will be collected in the vicinity of sample location B-SS5 to delineate contamination.
5. The pond in Area B will be dewatered. Water will be treated on-site and discharged to Boeing Lake following confirmation effluent sampling. Prior to results, water will be disposed at industrial wastewater treatment plant.
6. In Area B, existing trees and at least the upper 6 inches of soil and sediment will be excavated.
7. In Area B, wetlands will be restored following excavation of soil
8. In Area B, Wetland A (0.56 acres) will be impacted by the excavation.
9. In Area B, 6,300 SF of Wetland B and 1,000 SF of Wetland C (0.17 acres) will be impacted by the excavation.
10. Average density of both humus and topsoil (existing and import) is approximately 1.3 tons/CY.
11. Project duration is approximately 10 weeks total and consists of: 1.5 week of site preparation, 6 weeks of excavation and backfill/grading, and 2 weeks of tree planting and restoration.
12. Area B is assumed to have a 4" surface layer of humus and organic material. All humus will be removed.
13. In Area C, asphalt overlying residual contamination at sample location PEXS-C060 will be demolished.
14. In Area C, soil surrounding sample location PEXS-C060 will be excavated.
15. In Area C, the roadway and parking lot entrance will be reconstructed.
16. All excavated soil and sediment will be disposed of as hazardous with the exception of displaced humus.
17. Samples will be collected from the final excavation limits on Boeing property until samples meet CULs.
18. Construction crew will work 40 hours per week.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION	**CLEANUP DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
	$732,900	1	Project management (4 hrs per week)	20	WK	$616	$12,400
	With Contingency $842,800	2	General coordination, meetings, and planning (% of DC)	3	%	$2,938,200	$88,200
		3	Regulatory coordination and meetings	1	LS	$15,000	$15,000
		4	Engineering Design Report	230	HR	$108	$24,900
		5	Design Plans and Specs	1	LS	$80,000	$80,000
		6	Engineers Estimate	80	HR	$108	$8,700
		7	Permitting (Grading)	1	LS	$2,820	$2,900
		8	Bid and RFI support	60	HR	$108	$6,500
		9	Work Plan (CMP/SAP)	160	HR	$108	$17,300
		10	Construction oversight and QA (% of DC)	6	%	$2,938,200	$176,300
		11	Reporting (Implementation)	440	HR	$108	$47,600
		12	Wetlands Permitting and Coordination	1	LS	$250,000	$250,000
		13	Sitewide Containment/IC Plan (Area C)	1	LS	$3,100	$3,100
	Subtotal Costs						**$732,900**
	Indirect Contingency and Unlisted Engineering Services (%)			**15**	%	$732,900	$109,935
	TOTAL INDIRECT COST						**$842,800**

ALTERNATIVE 2 (Continued) **Comprehensive Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
IMPLEMENTATION (Continued)	**CLEANUP ACTION CONSTRUCTION (Direct Costs)**						
	$665,600	1	Contractor Mobilization	1	LS	$30,000	$30,000
	With Contingency	2	Topographic Survey (Pre-excavation)	3	DY	$2,150	$6,500
	$832,000	3	Utility Locate	8	HR	$80	$700
		4	Site Preparation/TESC	1	LS	$10,000	$10,000
		5	Area B Clear and Grub	2.8	AC	$35,000	$98,000
		6	Area B Excavate and Load	5,000	CY	$24	$120,000
		7	Area B Wastewater Treatment	1	LS	$30,000	$30,000
		8	Area B Wastewater Disposal (Week 1 Only)	6	DY	$1,500	$9,000
		9	Area B Wastewater Analytical Testing (Metals)	57	EA	$70	$4,000
		10	Area B Import Topsoil	2,020	CY	$40	$80,800
		11	Area B Labor to Place Topsoil	2,940	TN	$4	$11,800
		12	Site Grading	1	LS	$24,360	$24,400
		13	Area B General Site Cleanup and Restoration	1	LS	$10,000	$10,000
		14	Area B Forest and Shrub Restoration	2.5	AC	$12,500	$31,300
		15	Area B Hydroseeding	2.5	AC	$17,400	$43,500
		16	Wetland A Emergent Zone Restoration	0.3	AC	$20,400	$6,200
		17	Restoration Oversight by Biologist	1	LS	$5,000	$5,000
		18	Topographic Survey (Post-excavation)	2	DY	$2,150	$4,300
		19	Scrubber/Sweeper	30	DY	$765	$23,000
		20	Area B Confirmation Samples	226	EA	$300	$67,800
		21	Sampling Supplies	1	LS	$3,000	$3,000
		22	AECOM Oversight	10	WK	$3,280	$32,800
		23	AECOM Rental Car	10	WK	$165	$1,700
		24	Area C Saw-Cutting Asphalt	40	LF	$10	$500
		25	Area C Excavation and Backfill	2	DY	$1,616	$3,300
		26	Area C Equipment Rental	2	DY	$425	$900
		27	Area C CDF Backfill	5	CY	$106	$600
		28	Area C Base Course	3	TN	$16	$100
		29	Area C Base Course - Truck	1	HR	$110	$200
		30	Area C Plate Compactor	1	DY	$275	$300
		31	Area C Asphalt Repaving (6 SY)	1	LS	$500	$500
		32	Area C General Site Cleanup and Restoration	1	LS	$5,000	$5,000
		33	Area C Confirmation Samples	1	EA	$340	$400
	CONTAMINATED WASTE DISPOSAL AND TRANSPORTATION (Boeing Direct Costs)						
	$1,123,200	1	Transportation and Disposal Coordination	40	HR	$100	$4,000
	With Contingency	2	Non-hazardous Soil Transportation and Disposal	4,068	TN	$90	$366,200
	$1,404,000	3	Hazardous Soil Transportation and Disposal	2,951	TN	$255	$752,600
		4	Asphalt Transportation	2	HR	$120	$300
		5	Asphalt Disposal Fee	1	CY	$22	$100
	Subtotal Costs						**$1,788,800**
	Direct Cost Contingency and Unlisted Items (%)			**25**	%	$1,788,800	$447,200
	Contractor Bond Fee, Overhead, and Profit (%)			**20**	%	$2,236,000	$447,200
	Washington State Sales Tax (%)			**9.5**	%	$2,683,200	$255,000
	TOTAL DIRECT COST						**$2,938,200**
	TOTAL DIRECT AND INDIRECT IMPLEMENTATION COSTS						
		1	Total Indirect Costs (see above)	--	--	--	$842,800
		2	Total Direct Costs (see above)	--	--	--	$2,938,200
		3	Site Inspection and Overhead Costs	8	%	$3,781,000	$302,500
	TOTAL IMPLEMENTATION COST		Years until Implementation	**3**	**#**		**$4,083,500**
	Present-Worth Implementation Cost		Presumed Discount Rate	***1.40***	%		**$3,916,700**

ALTERNATIVE 2 (Continued) **Comprehensive Excavation**

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Qty.	Unit	Unit Costs	Costs
OMM	**ANNUAL OPERATION & MAINTENANCE**						
	$0	1	Not Used	0	EA	$0	$0
	With Contingency	2	Not Used	0	EA	$0	$0
	$0	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual O&M Cost						$0
	Subtotal Costs		***Years of Annual O&M***	***0***			**$0**
	O&M Cost Contingency and Unlisted Items (%)			**25**	%	$0	$0
	TOTAL O&M COST						**$0**
	Present-Worth O&M Cost		Presumed Discount Rate	***1.40***	%		**$0**
	ANNUAL MONITORING & REPORTING						
	$2,800	1	Project Management and Coordination	8	HR	$154	$1,300
	With Contingency	2	Annual IC Inspection and Reporting	1	LS	$1,500	$1,500
	$3,360	3	Not Used	0	EA	$0	$0
		4	Not Used	0	EA	$0	$0
		5	Not Used	0	EA	$0	$0
	Total Routine Annual Monitoring Cost						$2,800
	Subtotal Costs		***Years of Annual Monitoring***	***30***			**$84,000**
	Monitoring Cost Contingency and Unlisted Items (%)			**20**	%	$84,000	$16,800
	TOTAL MONITORING & REPORTING COST						**$100,800**
	Present-Worth Monitoring Cost		Presumed Discount Rate	***1.40***	%		**$81,900**
	NON-ROUTINE OMM & DECOMMISSIONING (CLOSURE)						
	$96,000	1	Restoration Monitoring/Reporting (Year 1)	1	LS	$16,000	$16,000
	With Contingency	2	Restoration Monitoring/Reporting (Year 2)	1	LS	$16,000	$16,000
	$124,800	3	Restoration Monitoring/Reporting (Year 3)	1	LS	$16,000	$16,000
		4	Restoration Monitoring/Reporting (Year 5)	1	LS	$16,000	$16,000
		5	Restoration Monitoring/Reporting (Year 7)	1	LS	$16,000	$16,000
		6	Restoration Monitoring/Reporting (Year 10)	1	LS	$16,000	$16,000
	Subtotal Costs						**$96,000**
	Closure Cost Contingency and Unlisted Items (%)			**30**	%	$96,000	$28,800
	TOTAL CLOSURE COST						**$124,800**
	Present-Worth Closure Cost		Presumed Discount Rate	***1.40***	%		**$117,100**
	OMM COSTS				**TOTAL**		**PRESENT WORTH**
		1	Total O&M Costs (see above)		$0		$0
		2	Total Monitoring Costs (see above)		$100,800		$81,900
		3	Total Non-Routine OMM & Decommissioning		$124,800		$117,100
	TOTAL OMM COSTS				**$225,600**		**$199,000**

	ALTERNATIVE COST SUMMARY			**Rounded Total**	**Cumulative Total**
TOTAL	TOTAL PRESENT-WORTH IMPLEMENTATION COST (DIRECT & INDIRECT)			$3,916,700	**$3,916,700**
	TOTAL PRESENT-WORTH OMM COST			$199,000	**$4,115,700**
	AGENCY OVERSIGHT (ECOLOGY)	**5**	%	$205,800	**$4,321,500**
	TOTAL PRESENT-WORTH COST				**$4,322,000**

TABLE D-24
Comparison of Alternative Costs
Exposure pathway Model: EPM K
Esperance Sand, North Complex, PMG SWMU

ALTERNATIVE 1 **CONTINUED OPERATION OF EXISTING GET SYSTEM AND INSTITUTIONAL CONTROLS**

Client	Boeing	**EPM Group**	K	
Location	BCA Everett Plant	**Site Name**	Esperance Sand/Powder Mill Gulch	
Project	Upland Area Feasibility Study	**Building**	N/A	
Estimator	Piper Roelen	**Media**	Groundwater	
Report Date	10/30/15	**Plume Length**	2,800	FT
Last Updated	9/30/15	**Max Plume Width**	700	FT
QA Reviewer	Jerry Ninteman	**Saturated Thickness**	10 to 60	FT
QA Review Date	8/14/15			

Site/Problem Description Chlorinated solvents in groundwater within the Esperance Sand Aquifer beneath Powder Mill Gulch and and chlorinated solvents in surface surface water in Powder Mill Creek at concentrations exceeding MTCA cleanup standards.

Proposed Remedial Action Continued operation of GET system for hydraulic control of chlorinated solvents in groundwater, minimizing migration of cholinated solvents in groundwater to surface water, groundwater flushing and restoration, and protection of human and ecological receptors.

Alternative Specific Assumptions

1 Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2 Washington State Sales Tax is applied to Direct Costs only
3 Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014
4 Operation of existing GET system with 12 extraction wells.
5 Assumes GET system operation for 38 years.
6 Assumes major equipment replacement at 20 year intervals.
7 Annual groundwater and surface water monitoring
8 Six quarters of confirmation groundwater and surface water sampling.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
IMPLEMENTATION	**REMEDIAL DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
		1	Engineering/Proj Mgmt/Const Mgmt/Reporting				
		2	Cleanup action plan	1	LS	$ 30,000	$ 30,000
		3	Permits	1	LS	$ 10,000	$ 10,000
		4	Negotiate and implement institutional controls	1	LS	$ 10,000	$ 10,000
		5	Cleanup action construction report	0	LS	$ 20,000	$ -
		6	Engineering/Remedial Design	8%	pct	$ 50,000	$ 4,000
		7	Construction Management/Oversight	6%	pct	$ 50,000	$ 3,000
		8	Project Management	5%	pct	$ 9,603,000	$ 480,150
		9	Ecology oversight	5%	pct	$ 9,603,000	$ 480,150
	Subtotal Remedial Design, Planning, and General Costs						*$ 1,017,300*
	Indirect Contingency and Unlisted Engineering Services (%)			**15%**	pct	$1,017,300	$ 152,600
	TOTAL INDIRECT COST						**$1,170,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
	REMEDIAL ACTION CONSTRUCTION - NOT APPLICABLE (Direct Costs)						
		1	No New Construction Required				
		2	Construction	0	LS	$ -	$ -
	Subtotal Remedial Action Construction Costs						*$ -*
	Direct Cost Contingency and Unlisted Engineering Services (%)			**25%**	pct	$0	$ -
	Contractor Bond Fee, Overhead, and Profit (%)			**20%**	pct	$0	$ -
	Washington State Sales Tax (%)			**9.2%**	pct	$0	$0
	TOTAL DIRECT COST						**$0**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
OM&M	**ANNUAL OPERATION, MAINTENANCE, MONITORING, AND REPORTING**						
		1	Electrical Usage	1	yr	$ 36,500	$ 36,500
		2	Cell phone/GET system remote access charges	12	mo	$ 150	$ 1,800
		3	Carbon Usage	1	ea	$ 12,500	$ 12,500
		4	System monitoring/NPDES reporting	1	yr	$ 20,000	$ 20,000
		5	O&M Labor and Cost	1	yr	$ 72,000	$ 72,000
		6	NPDES annual renewal fee	1	yr	$ 17,140	$ 17,140
		7	Groundwater sampling	1	yrs	$ 65,000	$ 65,000
		8	Groundwater elevation monitoring	1	yrs	$ 8,000	$ 8,000
		9	Surface water sampling	1	yrs	$ 8,000	$ 8,000
		10	Reporting	1	yr	$ 15,000	$ 15,000
	Subtotal Annual OM&M and Reporting Cost						$ 255,900
	Annual Monitoring Cost Contingency and Unlisted Items (%)			**20%**	pct	$255,900	$ 51,200
			Years of Annual Monitoring	***38***	yrs	$307,100	$ 11,669,800
	TOTAL ANNUAL OM&M AND REPORTING COST						***$11,670,000***
	Present-Worth Annual OM&M and Reporting Cost		Presumed Discount Rate	***1.4%***	pct		**$9,002,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
	NON-ROUTINE OPERATION, MAINTENANCE, MONITORING, AND REPORTING						
		1	Baseline groundwater/surface water sampling	1	event	$ 73,000	$ 73,000
		2	GET System Replacement Cost	1	event	$ 150,000	$ 150,000
		3	1.5 years qtly confirmation sampling	6	event	$ 73,000	$ 438,000
		4	Cleanup completion report	1	LS	$ 20,000	$ 20,000
	Subtotal Non-Routine OM&M and Reporting Cost						$ 681,000
	Annual Monitoring Cost Contingency and Unlisted Items (%)			**20%**	pct	$681,000	$ 136,200
	TOTAL NON-ROUTINE OM&M AND REPORTING COST						***$817,000***
	Present-Worth Non-Routine OM&M and Reporting Cost		Presumed Discount Rate	***1.4%***	pct		**$544,000**

TOTAL	**ALTERNATIVE COST SUMMARY**	
	TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT)	**$1,170,000**
	TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT)	**$0**
	TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)	**$9,546,000**
	TOTAL PRESENT-WORTH COST	**$10,720,000**

Appropriate Cost Range (-30% - +50%)	**TOTAL**	**$ 7,500,000** **$ 16,080,000**

TABLE D-24
Comparison of Alternative Costs
Exposure pathway Model: EPM K
Esperance Sand, North Complex, PMG SWMU

ALTERNATIVE 2 **SOURCE AREA BIOREMEDIATION, CONTINUED OPERATION OF EXISTING GET SYSTEM, AND INS**

Client	Boeing	**EPM Group**	K
Location	BCA Everett Plant	**Site Name**	Esperance Sand/Powder Mill Gulch
Project	Upland Area Feasibility Study	**Building**	N/A
Estimator	Piper Roelen	**Media**	Groundwater
Report Date	10/30/15	**Plume Length**	2,800 FT
Last Updated	9/30/15	**Max Plume Width**	700 FT
QA Reviewer	Jerry Ninteman	**Saturated Thickness**	10 to 60 FT
QA Review Date	8/14/15		

Site/Problem Description Chlorinated solvents in groundwater within the Esperance Sand Aquifer beneath Powder Mill Gulch and and chlorinated solvents in surface surface water in Powder Mill Creek at concentrations exceeding MTCA cleanup standards.

Proposed Remedial Action Injection of electron donor for enhanced bioremediation of groundwater in detention basin source area (TCE > 500 ug/L) in combination with Continued operation of GET system for hydraulic control of chlorinated solvents in groundwater, minimizing migration of cholinated solvents in groundwater to surface water, groundwater flushing and restoration, and protection of human and ecological receptors.

Alternative Specific Assumptions

1 Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2 Washington State Sales Tax is applied to Direct Costs only
3 Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014
4 Installation of injection wells at 8 locations (3 depth interval wells each location)
5 Assume all wells installed to a depths of 30, 50, and 70 ft bgs (20 ft screen each)
6 Well spacing at 15 ft OC crossgradient and 100 ft downgradient
7 Assume 3 injection events of electron donor over 3 year period
8 Operation of existing GET system with 12 extraction wells.
9 Assumes GET system operation for 34 years after completion of injection events (2-3 years).
10 Assumes major equipment replacement at 20 year intervals.
11 Annual groundwater and surface water monitoring
12 Six quarters of confirmation groundwater and surface water sampling.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
IMPLEMENTATION	**REMEDIAL DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
		1	Engineering/Proj Mgmt/Const Mgmt/Reporting				
		2	Cleanup action plan	1	LS	$ 30,000	$ 30,000
		3	Permits	1	LS	$ 15,000	$ 15,000
		4	Negotiate and implement institutional controls	1	LS	$ 10,000	$ 10,000
		5	Contract documents and contractor bidding/procurement	1	LS	$ 20,000	$ 20,000
		6	Cleanup action construction report	1	LS	$ 20,000	$ 20,000
		7	Engineering/Remedial Design	8%	pct	$ 814,000	$ 65,120
		8	Construction Management/Oversight	6%	pct	$ 814,000	$ 48,840
		9	Project Management	5%	pct	$ 11,143,960	$ 557,198
		10	Ecology oversight	5%	pct	$ 11,143,960	$ 557,198
	Subtotal Remedial Design, Planning, and General Costs						*$ 1,323,400*
	Indirect Contingency and Unlisted Engineering Services (%)			**15%**	pct	$1,323,400	$ 198,500
	TOTAL INDIRECT COST						**$1,522,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
	REMEDIAL ACTION CONSTRUCTION - ELECTRON DONOR INJECTIONS (Direct Costs)						
		1	Install injection wells wells/distribution				
		2	Utility locate/clearing	1	LS	$ 2,500	$ 2,500
		3	Driller mobilization/demobilization	1	LS	$ 20,000	$ 20,000
		6	Drilling - injection wells (detention basin hotspot)	24	wells	$ 4,000	$ 96,000
		7	Well development	24	wells	$ 500	$ 12,000
		8	IDW Disposal	70	Drums	$ 200	$ 14,000
		9	Injection of Electron Donor				
		10	Injection crew/labor	75	days	$ 3,000	$ 225,000
		11	Purchase equipment/supplies for injection system setup	1	LS	$ 25,000	$ 25,000
		12	Materials and rentals for injection events	3	event	$ 20,000	$ 60,000
		13	Water for injection events	285,000	gal	$ 0.03	$ 8,550
		14	Donor for injection events	36,000	lbs	$ 1.50	$ 54,000
	Subtotal Remedial Action Construction Costs						*$ 517,100*
	Direct Cost Contingency and Unlisted Engineering Services (%)			**25%**	pct	$ 517,100	$ 129,300
	Contractor Bond Fee, Overhead, and Profit (%)			**20%**	pct	$ 180,625	$ 36,100
	Washington State Sales Tax (%)			**9.2%**	pct	$ 397,350	$ 36,600
	TOTAL DIRECT COST						**$719,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
OM&M	**ANNUAL OPERATION, MAINTENANCE, MONITORING, AND REPORTING**						
		1	Electrical Usage	1	yr	$ 36,500	$ 36,500
		2	Cell phone/GET system remote access charges	12	mo	$ 150	$ 1,800
		3	Carbon Usage	1	ea	$ 12,500	$ 12,500
		4	System monitoring/NPDES reporting	1	yr	$ 20,000	$ 20,000
		5	O&M Labor and Cost	1	yr	$ 72,000	$ 72,000
		6	NPDES annual renewal fee	1	yr	$ 17,140	$ 17,140
		7	Groundwater sampling	1	yrs	$ 65,000	$ 65,000
		8	Groundwater elevation monitoring	1	yrs	$ 8,000	$ 8,000
		9	Surface water sampling	1	yrs	$ 8,000	$ 8,000
		10	Reporting	1	yr	$ 15,000	$ 15,000
	Subtotal Annual OM&M and Reporting Cost						$ 255,900
	Annual Monitoring Cost Contingency and Unlisted Items (%)			**20%**	pct	$255,900	$ 51,200
			Years of Annual Monitoring	***37***	yrs	$307,100	$ 11,362,700
	TOTAL ANNUAL OM&M AND REPORTING COST						***$11,363,000***
	Present-Worth Annual OM&M and Reporting Cost		Presumed Discount Rate	***1.4%***	pct		**$8,821,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
	NON-ROUTINE OPERATION, MAINTENANCE, MONITORING, AND REPORTING						
		1	Baseline groundwater/surface water sampling	1	event	$ 73,000	$ 73,000
		2	Quarterly groundwater sampling	9	event	$ 65,000	$ 585,000
		3	Quarterly groundwater elevation monitoring	9	event	$ 8,000	$ 72,000
		4	Quarterly surface water sampling	9	event	$ 8,000	$ 72,000
		5	GET System Replacement Cost	1	event	$ 150,000	$ 150,000
		6	1.5 years qtly confirmation sampling	6	event	$ 73,000	$ 438,000
		7	Cleanup completion report	1	LS	$ 20,000	$ 20,000
	Subtotal Non-Routine OM&M and Reporting Cost						$ 1,410,000
	Annual Monitoring Cost Contingency and Unlisted Items (%)			**20%**	pct	$1,410,000	$ 282,000
	TOTAL NON-ROUTINE OM&M AND REPORTING COST						***$1,692,000***
	Present-Worth Non-Routine OM&M and Reporting Cost		Presumed Discount Rate	***1.4%***	pct		**$1,395,000**
TOTAL	**ALTERNATIVE COST SUMMARY**						
	TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT						**$1,522,000**
	TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT)						**$719,000**
	TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)						**$10,216,000**
	TOTAL PRESENT-WORTH COST						**$12,460,000**
			Appropriate Cost Range (-30% - +50%)		**TOTAL**	**$ 8,720,000**	**$ 18,690,000**

TABLE D-24
Comparison of Alternative Costs
Exposure pathway Model: EPM K
Esperance Sand, North Complex, PMG SWMU

ALTERNATIVE 3 — **FOCUSED ISCO, CONTINUED OPERATION OF EXISTING GET SYSTEM, AND INSTITUTIONAL CONT**

Client	Boeing	**EPM Group**	K	
Location	BCA Everett Plant	**Site Name**	Esperance Sand/Powder Mill Gulch	
Project	Upland Area Feasibility Study	**Building**	N/A	
Estimator	Piper Roelen	**Media**	Groundwater	
Report Date	10/30/15	**Plume Length**	2,800	FT
Last Updated	9/30/15	**Max Plume Width**	700	FT
QA Reviewer	Jerry Ninteman	**Saturated Thickness**	10 to 60	FT
QA Review Date	8/14/15			

Site/Problem Description Chlorinated solvents in groundwater within the Esperance Sand Aquifer beneath Powder Mill Gulch and and chlorinated solvents in surface surface water in Powder Mill Creek at concentrations exceeding MTCA cleanup standards.

Proposed Remedial Action Injection of chemical oxidant (sodium persulfate) for contaminant oxidation in groundwater in TCE focus areas (TCE > 250 ug/L) in in combination with Continued operation of GET system for hydraulic control of chlorinated solvents in groundwater, minimizing migration of cholinated solvents in groundwater to surface water, groundwater flushing and restoration, and protection of human and ecological receptors.

Alternative Specific Assumptions

1. Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2. Washington State Sales Tax is applied to Direct Costs only
3. Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014
4. Installation of injection wells at 27 locations in detention basin (3 depth interval wells each location)
5. Installation of injection wells at 53 locations in S. of Seaway (2 depth interval wells each location)
6. Installation of injection wells at 70 locations in N. of Seaway (2 depth interval wells each location)
7. Assume wells installed to a depths of 30, 50, and 70 ft bgs in detention basin (20 ft screen each)
8. Assume wells installed to a depths of 40 and 60 ft bgs S. of Seaway (20 ft screen each)
9. Assume wells installed to a depths of 45 and 60 ft bgs N. of Seaway (15 ft screen each)
10. Well spacing at 15 ft OC crossgradient and 30 ft downgradient
11. Assume 6 injection events of sodium persulfate and activating agent over 3 - 5 year period
12. Quarterly groundwater and surface water monitoring during injection period
13. Operation of existing GET system with 12 extraction wells.
14. Assumes GET system operation for 22 years after completion of injection events (3 - 5 years).
15. Annual groundwater and surface water monitoring
16. Six quarters of confirmation groundwater and surface water sampling.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
IMPLEMENTATION	**REMEDIAL DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
		1	Engineering/Proj Mgmt/Const Mgmt/Reporting				
		2	Cleanup action plan	1	LS	$ 30,000	$ 30,000
		3	Permits	1	LS	$ 15,000	$ 15,000
		4	Negotiate and implement institutional controls	1	LS	$ 10,000	$ 10,000
		5	Contract documents and contractor bidding/procurement	1	LS	$ 20,000	$ 20,000
		6	Cleanup action construction report	1	LS	$ 20,000	$ 20,000
		7	Engineering/Remedial Design	6%	pct	$ 6,484,000	$ 389,040
		8	Construction Management/Oversight	6%	pct	$ 6,484,000	$ 389,040
		9	Project Management	5%	pct	$ 15,019,080	$ 750,954
		10	Ecology oversight	5%	pct	$ 15,019,080	$ 750,954
	Subtotal Remedial Design, Planning, and General Costs						*$ 2,375,000*
	Indirect Contingency and Unlisted Engineering Services (%)			**15%**	pct	$2,375,000	$ 356,300
	TOTAL INDIRECT COST						**$2,731,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
	REMEDIAL ACTION CONSTRUCTION - ELECTRON DONOR INJECTIONS (Direct Costs)						
		1	ISCO treatability study/pilot test	1	LS	$ 150,000	$ 150,000
		2	Install injection wells wells/distribution				
		3	Utility locates	1	LS	$ 7,500	$ 7,500
		4	Site prep/clearing/grubbing	1	LS	$ 350,000	$ 350,000
		5	Driller mobilization/demobilization	1	LS	$ 20,000	$ 20,000
		6	Drilling - injection wells (Lot 9 TCE focus area)	140	wells	$ 3,500	$ 490,000
		7	Drilling - injection wells (Boeing Seaway TCE focus area)	106	wells	$ 3,750	$ 397,500
		8	Drilling - injection wells (detention basin TCE focus area)	81	wells	$ 4,000	$ 324,000
		9	Well development	327	wells	$ 500	$ 163,500
		10	IDW Disposal	660	Drums	$ 200	$ 132,000
		11	ISCO materials/Injection of oxidants				
		12	Injection crew/labor	480	days	$ 3,000	$ 1,440,000
		13	Purchase equipment/supplies for injection system setup	1	LS	$ 25,000	$ 25,000
		14	Materials and rentals for injection events	6	event	$ 20,000	$ 120,000
		15	Water for injection events	3120000	gal	$ 0.03	$ 93,600
		16	Oxidant for injection events	312000	lbs	$ 2.05	$ 639,600
	Subtotal Remedial Action Construction Costs						*$ 4,352,700*
	Direct Cost Contingency and Unlisted Engineering Services (%)			**25%**	pct	$4,352,700	$ 1,088,200
	Contractor Bond Fee, Overhead, and Profit (%)			**20%**	pct	$2,355,625	$ 471,100
	Washington State Sales Tax (%)			**9.2%**	pct	$ 5,182,350	$476,800
	TOTAL DIRECT COST						**$6,389,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
OM&M	**ANNUAL OPERATION, MAINTENANCE, MONITORING, AND REPORTING**						
		1	Electrical Usage	1	yr	$ 36,500	$ 36,500
		2	Cell phone/GET system remote access charges	12	mo	$ 150	$ 1,800
		3	Carbon Usage	1	ea	$ 12,500	$ 12,500
		4	System monitoring/NPDES reporting	1	yr	$ 20,000	$ 20,000
		5	O&M Labor and Cost	1	yr	$ 72,000	$ 72,000
		6	NPDES annual renewal fee	1	yr	$ 17,140	$ 17,140
		7	Groundwater sampling	1	yrs	$ 65,000	$ 65,000
		8	Groundwater elevation monitoring	1	yrs	$ 8,000	$ 8,000
		9	Surface water sampling	1	yrs	$ 8,000	$ 8,000
		10	Reporting	1	yr	$ 15,000	$ 15,000
	Subtotal Annual OM&M and Reporting Cost						$ 255,900
	Annual Monitoring Cost Contingency and Unlisted Items (%)			**20%**	pct	$255,900	$ 51,200
			Years of Annual Monitoring	***25***	yrs	$307,100	$ 7,677,500
	TOTAL ANNUAL OM&M AND REPORTING COST						***$7,678,000***
	Present-Worth Annual OM&M and Reporting Cost		Presumed Discount Rate	***1.4%***	pct		**$6,440,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
	NON-ROUTINE OPERATION, MAINTENANCE, MONITORING, AND REPORTING						
		1	Baseline groundwater/surface water sampling	1	event	$ 73,000	$ 73,000
		2	Quarterly groundwater sampling	9	event	$ 65,000	$ 585,000
		3	Quarterly groundwater elevation monitoring	9	event	$ 8,000	$ 72,000
		4	Quarterly surface water sampling	9	event	$ 8,000	$ 72,000
		5	1.5 years qtly confirmation sampling	6	event	$ 73,000	$ 438,000
		6	Cleanup completion report	1	LS	$ 20,000	$ 20,000
	Subtotal Non-Routine OM&M and Reporting Cost						$ 1,260,000
	Annual Monitoring Cost Contingency and Unlisted Items (%)			**20%**	pct	$1,260,000	$ 252,000
	TOTAL NON-ROUTINE OM&M AND REPORTING COST						***$1,512,000***
	Present-Worth Non-Routine OM&M and Reporting Cost		Presumed Discount Rate	***1.4%***	pct		**$1,317,000**

TOTAL	**ALTERNATIVE COST SUMMARY**	
	TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT	**$2,731,000**
	TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT	**$6,389,000**
	TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE)	**$7,757,000**
	TOTAL PRESENT-WORTH COST	**$16,880,000**

Appropriate Cost Range (-30% - +50%)	**TOTAL**	**$ 11,820,000**	**$ 25,320,000**

TABLE D-24
Comparison of Alternative Costs
Exposure pathway Model: EPM K
Esperance Sand, North Complex, PMG SWMU

ALTERNATIVE 4 **FOCUSED EISB, CONTINUED OPERATION OF EXISTING GET SYSTEM, AND INSTITUTIONAL CON**

Client	Boeing	**EPM Group**	K	
Location	BCA Everett Plant	**Site Name**	Esperance Sand/Powder Mill Gulch	
Project	Upland Area Feasibility Study	**Building**	N/A	
Estimator	Piper Roelen	**Media**	Groundwater	
Report Date	10/30/15	**Plume Length**	2,800	FT
Last Updated	9/30/15	**Max Plume Width**	700	FT
QA Reviewer	Jerry Ninteman	**Saturated Thickness**	10 to 60	FT
QA Review Date	8/14/15			

Site/Problem Description Chlorinated solvents in groundwater within the Esperance Sand Aquifer beneath Powder Mill Gulch and and chlorinated solvents in surface surface water in Powder Mill Creek at concentrations exceeding MTCA cleanup standards.

Proposed Remedial Action Injection of electron donor for enhanced bioremediation of groundwater in TCE focus areas (TCE > 250 ug/L) in combination with Continued operation of GET system for hydraulic control of chlorinated solvents in groundwater, minimizing migration of cholinated solvents in groundwater to surface water, groundwater flushing and restoration, and protection of human and ecological receptors.

Alternative Specific Assumptions

1 Costs presented have an accuracy of +50% to -30% and are suitable for comparing alternatives
2 Washington State Sales Tax is applied to Direct Costs only
3 Discount Rate is 1.4% per Office of Management and Budget, Circular A-94 Appendix C, Revised Dec 2014
4 Installation of injection wells at 14 locations in detention basin (3 depth interval wells each location)
5 Installation of injection wells at 11 locations in S. of Seaway (2 depth interval wells each location)
6 Installation of injection wells at 22 locations in S. of Seaway (2 depth interval wells each location)
7 Assume wells installed to a depths of 30, 50, and 70 ft bgs in detention basin (20 ft screen each)
8 Assume wells installed to a depths of 40 and 60 ft bgs S. of Seaway (20 ft screen each)
9 Assume wells installed to a depths of 45 and 60 ft bgs N. of Seaway (15 ft screen each)
10 Well spacing at 15 ft OC crossgradient and 100 ft downgradient
11 Assume 3 injection events of electron donor over 3 year period
12 Operation of existing GET system with 12 extraction wells.
13 Assumes GET system operation for 22 years after completion of injection events (2-3 years).
14 Assumes major equipment replacement at 20 year intervals.
15 Annual groundwater and surface water monitoring
16 Six quarters of confirmation groundwater and surface water sampling.

DETAILED COST ESTIMATE

Cost Type	Category	Item #	Description	Quantity	Unit	Unit Cost	Total
IMPLEMENTATION	**REMEDIAL DESIGN, PLANNING, AND GENERAL (Indirect Costs)**						
		1	Engineering/Proj Mgmt/Const Mgmt/Reporting				
		2	Cleanup action plan	1	LS	$ 30,000	$ 30,000
		3	Permits	1	LS	$ 15,000	$ 15,000
		4	Negotiate and implement institutional controls	1	LS	$ 10,000	$ 10,000
		5	Contract documents and contractor bidding/procurement	1	LS	$ 20,000	$ 20,000
		6	Cleanup action construction report	1	LS	$ 20,000	$ 20,000
		7	Engineering/Remedial Design	6%	pct	$ 2,618,000	$ 157,080
		8	Construction Management/Oversight	6%	pct	$ 2,618,000	$ 157,080
		9	Project Management	5%	pct	$ 10,689,160	$ 534,458
		10	Ecology oversight	5%	pct	$ 10,689,160	$ 534,458
	Subtotal Remedial Design, Planning, and General Costs						*$ 1,478,100*
	Indirect Contingency and Unlisted Engineering Services (%)			**15%**	pct	$1,478,100	$ 221,700
	TOTAL INDIRECT COST						**$1,700,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
	REMEDIAL ACTION CONSTRUCTION - ELECTRON DONOR INJECTIONS (Direct Costs)						
		1	Install injection wells wells/distribution				
		2	Utility locate	1	LS	$ 2,500	$ 2,500
		3	Site prep/clearing/grubbing	1	LS	$ 150,000	$ 150,000
		4	Driller mobilization/demobilization	1	LS	$ 20,000	$ 20,000
		5	Drilling - injection wells (Lot 9 TCE focus area)	44	wells	$ 3,500	$ 154,000
		6	Drilling - injection wells (Boeing Seaway TCE focus area	22	wells	$ 3,750	$ 82,500
		7	Drilling - injection wells (detention basin TCE focus area	42	wells	$ 4,000	$ 168,000
		8	Well development	108	wells	$ 500	$ 54,000
		9	IDW Disposal	240	Drums	$ 200	$ 48,000
		10	Injection of Electron Donor				
		11	Injection crew/labor	150	days	$ 3,000	$ 450,000
		12	Purchase equipment/supplies for injection system setup	1	LS	$ 25,000	$ 25,000
		13	Materials and rentals for injection events	3	event	$ 20,000	$ 60,000
		14	Water for injection events	########	gal	$ 0.03	$ 36,000
		15	Donor for injection events	330,000	lbs	$ 1.50	$ 495,000
	Subtotal Remedial Action Construction Costs						*$ 1,745,000*
	Direct Cost Contingency and Unlisted Engineering Services (%)			**25%**	pct	$1,745,000	$ 436,300
	Contractor Bond Fee, Overhead, and Profit (%)			**20%**	pct	$848,750	$ 169,800
	Washington State Sales Tax (%)			**9.2%**	pct	$ 1,867,300	$171,800
	TOTAL DIRECT COST						**$2,523,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
OM&M	**ANNUAL OPERATION, MAINTENANCE, MONITORING, AND REPORTING**						
		1	Electrical Usage	1	yr	$ 36,500	$ 36,500
		2	Cell phone/GET system remote access charges	12	mo	$ 150	$ 1,800
		3	Carbon Usage	1	ea	$ 12,500	$ 12,500
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		5	O&M Labor and Cost	1	yr	$ 72,000	$ 72,000
		6	NPDES annual renewal fee	1	yr	$ 17,140	$ 17,140
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		9	Surface water sampling	1	yrs	$ 8,000	$ 8,000
		10	Reporting	1	yr	$ 15,000	$ 15,000
	Subtotal Annual OM&M and Reporting Cost						$ 255,900
	Annual Monitoring Cost Contingency and Unlisted Items (%)			**20%**	pct	$255,900	$ 51,200
			Years of Annual Monitoring	***25***	yrs	$307,100	$ 7,677,500
	TOTAL ANNUAL OM&M AND REPORTING COST						***$7,678,000***
	Present-Worth Annual OM&M and Reporting Cost		Presumed Discount Rate	***1.4%***	pct		**$6,440,000**
	Category	**Item #**	**Description**	**Quantity**	**Unit**	**Unit Cost**	**Total**
	NON-ROUTINE OPERATION, MAINTENANCE, MONITORING, AND REPORTING						
		1	Baseline groundwater/surface water sampling	1	event	$ 73,000	$ 73,000
		2	Quarterly groundwater sampling	9	event	$ 65,000	$ 585,000
		3	Quarterly groundwater elevation monitoring	9	event	$ 8,000	$ 72,000
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		5	1.5 years qtly confirmation sampling	6	event	$ 73,000	$ 438,000
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	Subtotal Non-Routine OM&M and Reporting Cost						$ 1,260,000
	Annual Monitoring Cost Contingency and Unlisted Items (%)			**20%**	pct	$1,260,000	$ 252,000
	TOTAL NON-ROUTINE OM&M AND REPORTING COST						***$1,512,000***
	Present-Worth Non-Routine OM&M and Reporting Cost		Presumed Discount Rate	***1.4%***	pct		**$1,317,000**
TOTAL	**ALTERNATIVE COST SUMMARY**						
	TOTAL PRESENT-WORTH REMEDIAL DESIGN, PLANNING, AND GENERAL COST (INDIRECT						**$1,700,000**
	TOTAL PRESENT-WORTH REMEDIATION IMPLEMENTATION COST (DIRECT						**$2,523,000**
	TOTAL PRESENT-WORTH OM&M COST (ANNUAL & NON-ROUTINE						**$7,757,000**
	TOTAL PRESENT-WORTH COST						**$11,980,000**
			Appropriate Cost Range (-30% - +50%)		**TOTAL**	**$ 8,390,000**	**$ 17,970,000**

APPENDIX E

Disproportionate Cost Analysis Criteria Descriptions

DISPROPORTIONATE COST ANALYSIS CRITERIA DESCRIPTIONS

PROTECTIVENESS: WEIGHTING FACTOR OF 30 PERCENT

The overall protectiveness of a cleanup action alternative is evaluated based on several factors, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on site and off site risks resulting from implementing the alternative, and improvement of the overall environmental quality. This feasibility study (FS) report uses a weighting factor of 30 percent for the protectiveness criterion. This means that, despite being only one of six factors (17 percent) for which a numeric value is assigned, the numeric factor assigned to protectiveness for each alternative is up-weighted to represent 30 percent of the numeric benefit analysis. This high weighting is warranted because of the overall importance of protection of human health and the environment as a primary goal of cleanup at the site.

PERMANENCE: WEIGHTING FACTOR OF 20 PERCENT

The overall permanence of the cleanup action must be considered in the disproportionate cost analysis. Evaluation criteria include the degree to which the alternative permanently reduces the toxicity, mobility or mass of hazardous substances, including the effectiveness of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment processes, and the characteristics and quantity of treatment residuals generated. A weighing factor of 20 percent was assigned to the numeric values associated with this evaluation criterion. This criterion has the second highest weighting factor.

EFFECTIVENESS OVER THE LONG TERM: WEIGHTING FACTOR OF 20 PERCENT

Long-term effectiveness includes the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, and the effectiveness of controls required to manage treatment residues or remaining wastes. The Model Toxics Control Act (MTCA) regulations specify a guide for ranking cleanup action components in descending order: reuse/recycling, destruction or detoxification, immobilization or solidification, on site or off site disposal in an engineered, lined and monitored facility, on site isolation or containment with attending engineering controls, and institutional controls and monitoring. The MTCA preference ranking must be considered along with other site-specific factors in the evaluation of long-term effectiveness. A weighting factor of 20 percent was assigned to the long-term effectiveness criterion.

MANAGEMENT OF SHORT-TERM RISKS: WEIGHTING FACTOR OF 10 PERCENT

The short-term risks criteria evaluates the risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of the measure that will be taken to manage such risks. Examples of risks include potential exposure to hazardous substances during implementation of the selected remedy or general construction hazards. A weighting factor of 10 percent was assigned to this criterion. This lower rating is based on the limited time frame associated with the risks and the general ability to correct short-term risks during construction without significant effect on human health and the environment.

TECHNICAL AND ADMINISTRATIVE IMPLEMENTABILITY: WEIGHTING FACTOR OF 10 PERCENT

Implementability is an overall metric expressing the relative difficulty and uncertainty of implementing the cleanup action. Evaluation of implementability includes consideration of technical factors such as the availability of mature technologies and experienced contractors to accomplish the cleanup work. It also includes administrative factors associated with permitting and completing the cleanup. The weighting factor that was assigned to the implementability criterion was 10 percent. Implementability is less associated with the primary goal of the cleanup action, protection of human health and the environment, and therefore has a lower weighting factor than criteria with greater environmental benefit. In addition, the issues associated with the implementability of a remedy are often related to the level of effort to perform the cleanup action.

CONSIDERATION OF PUBLIC CONCERNS: WEIGHTING FACTOR OF 10 PERCENT

Public concerns will be evaluated following receipt of comments from the public on the draft FS report. The draft FS report includes rankings based on perceived public concerns, which will be updated following receipt of public comments. The weighting factor that was assigned to the public concern criterion was 10 percent.

COST

No weighting factor is applied to this quantitative category, as costs are compared against the numeric analysis. The analysis of cleanup action alternative costs under MTCA includes all costs associated with implementing an alternative, including design, construction, long-term monitoring, and institutional controls. Costs are intended to be comparable among different alternatives to assist in the overall analysis of relative costs and benefits of the alternatives. The costs to implement an alternative include the cost of construction, the net present worth of any

long-term costs, and agency oversight costs. Long-term costs include operation and maintenance costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls. Cost estimates for treatment technologies describe pretreatment, analytical, labor, and waste management costs. The design life of the cleanup action is estimated, and the costs of replacement or repair of major elements are included in the cost estimate. Costs are compared against benefits to assess cost-effectiveness and practicability of the cleanup action alternatives.