AECOM

Environment

Prepared for
Port of Vancouver USA
3103 NW Lower River Road
Vancouver, Washington 98660

Submitted to
Washington Department of Ecology

Submitted by
AECOM
111 SW Columbia
Suite 1500
Portland, Oregon 97201

60410261
October 2017

Groundwater Monitoring Letter Report - September 2017

Former Fort Vancouver Plywood Site
Port of Vancouver USA
Vancouver, Washington

November 13, 2017

Mr. Matt Graves
Environmental Manager
Port of Vancouver USA
3103 NW Lower River Road
Vancouver, Washington 98660

Re: Groundwater Monitoring Letter Report - September 2017
Former Fort Vancouver Plywood Site
Port of Vancouver USA
Vancouver, Washington
AECOM Job No. 60519969

Dear Mr. Graves:

AECOM has prepared this Groundwater Monitoring Letter Report on behalf of the Port of Vancouver USA (the Port). This letter report summarizes the results of the September 2017 groundwater monitoring event conducted at Cell 1 and Cell 2 of the Former Fort Vancouver Plywood (FVP) Site (herein referred to as the Site). This monitoring event is referenced as the September 2017 monitoring event.

1 Site Location and Background

The Site is located at West Eighth Street and Port Way, in an industrial-zoned area adjacent to the Columbia River, at the Port in Vancouver, Washington (Figure 1). The Site consists of approximately 13 acres of nearly level paved and unpaved land. The unpaved land exists along the shoreline of the Columbia River, and the remainder of the Site is paved. The northern portion of the Site is leased by the Great Western Malting Company, and the rest of the Site is leased by Pacific Coast Shredding, a metal recycling/processing facility (see Figure 2).

Great Western Malting Company is also located on the north adjacent property, and the former Brazier Forest Industries leasehold is located on the northeast adjacent property. The Site is bordered by Port Way to the southeast and the Columbia River to the southwest (see Figure 2).

The Site was occupied by plywood manufacturers and other lumber-related operations from the mid-1920s to the mid-1990s. FVP operated at the Site from 1955 until July 1996, when site operations terminated and the leasehold reverted to the Port. Former facilities at the Site included a wood processing and plywood manufacturing plant, chemical storage, a boiler house, a maintenance shop, fuel storage areas, a log yard, a retail store/warehouse, an oil/water separator, diesel underground storage tanks (USTs), and an office building. In July 1997, the Port demolished all structures associated with the plywood mill and consolidated wood debris from the former log yard. In September 1997, the Port installed a riprap wall along the Site boundary to protect the shoreline from further erosion by the Columbia River (ERM, 2008a and 2008b).

From 2012 to 2014, the Port constructed the West Vancouver Freight Access Project through the Site. The locations of the rail track centerline, retaining walls, and trench structure for the West Vancouver Freight Access Project are indicated on Figure 2.

2 Site Hydrogeology

Two groundwater-bearing zones are present within the upper 65 feet of soils explored beneath the Site. These include a shallow water table unit (Shallow Zone) and a deeper, confined aquifer referred to herein as the Unconsolidated Aquifer (USGS 1993). The two saturated zones are separated by a lower-permeability confining layer that ranges in thickness from approximately 14 to 40 feet. The Unconsolidated Aquifer was encountered below the confining layer at depths ranging from 49 to 55 feet below ground surface (bgs) (Ecology, 1999 and 2000).

The general direction of the hydraulic gradient (and presumed direction of groundwater flow) in the Shallow Zone is to the south, toward the Columbia River. According to the Cleanup Action Plans (CAP), the Shallow Zone horizontal hydraulic gradient at the Site was calculated to range from approximately 0.016 to 0.019 feet per foot (ft/ft) at Cell 1 and 0.01 to 0.02 ft/ft at Cell 2 (Ecology, 1999 and 2000). The direction of the hydraulic gradient and presumed groundwater flow in the Deeper Unconsolidated Aquifer appears to be toward the west in response to groundwater pumping by the Port and the Port's tenants. A net downward vertical gradient exists between the Shallow Zone and the Deeper Unconsolidated Aquifer (Ecology, 1999).

Near-surface (upper 10 feet) soils beneath the Site consist predominantly of sand with varying amounts of silt. Considerable amounts of anthropogenic debris, including rubble (brick and concrete), wood ash, and trash, have been identified in the upper 10 feet of soil (Ecology, 1999).

3 Compliance Monitoring Plan

3.1 Agreed Orders

Presently the Site is separated into two areas designated as Cell 1 (C1) and Cell 2 (C2).Two Agreed Orders between the Port and Washington State Department of Ecology (Ecology) are in place for this Site:

- Agreed Order No. 99TC-S108 applies to Cell 1
- Agreed Order No. 99TCPSR-93 applies to Cell 2

In accordance with Agreed Orders, the Port completed a remedial investigation and feasibility study (RI/FS) in 1998. The RI/FS identified lead, total petroleum hydrocarbons (TPH), and polycyclic aromatic hydrocarbons (PAHs) concentrations above Ecology Model Toxics Control Act (MTCA) Method A or Method C industrial soil cleanup levels. The RI/FS also indicated that the area adjacent to the Columbia River contained buried anthropogenic debris and concentrations of soluble metals that could leach to the Columbia River. Pursuant to the conditions of the Agreed Orders, the Port completed Interim Actions at Cell 1 from November 1998 to February 1999 and at Cell 2 from October 2000 to December 2000 (ERM, 2008a and 2008b).

A total of 26 monitoring wells were originally located in Cells 1 and 2. These monitoring wells (MWs) are listed below and on Table 1 along with multiple replacement wells which are discussed in Section 3.3.

- Deeper Unconsolidated Aquifer
  - C1-MW-6B
  - C2-MW-12B and C2-MW-13B

- Shallow Zone
  - C1-MW-1 through C1-MW-9
  - C2-MW-1 through C2-MW-11 and C2-MW-14 through C2-MW-16

The groundwater cleanup levels and chemicals of concern (COCs) as determined by the Agreed Orders are described in the following subsections.

3.2 Groundwater Cleanup Levels

3.2.1 Deeper Unconsolidated Aquifer

Groundwater in the Deeper Unconsolidated Aquifer is used as a potable and industrial water supply source; consequently, Ecology's MTCA Method A and B groundwater cleanup levels are used to assess potential adverse impacts to the Unconsolidated Aquifer.

In accordance with the Agreed Orders, the conditional point of compliance (POC) for groundwater within the Unconsolidated Aquifer is throughout the Site as represented by the following wells:

- C1-MW-6B
- C2-MW-12B and C2-MW-13B

3.2.2 Shallow Zone

The Shallow Zone groundwater cannot be used for drinking water due to low yield. However, the shallow groundwater discharges to the Columbia River at the Site. Consequently, the Shallow Zone cleanup levels are based on protection of surface water and are derived from the lowest of the following screening criteria for each analyte:

- Ecology's MTCA Method B surface water cleanup levels in accordance with Washington Administrative Code (WAC) 173-340-730
- Ecology's acute freshwater surface water quality criteria in accordance with WAC 173-201A-240
- US Environmental Protection Agency (EPA)'s National Toxics Rule human health criteria for surface water based on 40 Code of Federal Regulations (CFR) 131.36

In addition to shallow groundwater discharges to the Columbia River, there are indications that the Shallow Zone is hydraulically connected with the Deeper Unconsolidated Aquifer. Because the deeper aquifer is a water supply source, groundwater occurring in the Shallow Zone is also compared to Ecology's MTCA Method A and B groundwater cleanup levels.

For the Shallow Zone groundwater, the conditional POC was established as the point where the groundwater discharges to surface water. Therefore, in the Agreed Orders, the Shallow Zone conditional POC wells for the Site included the following seven shoreline wells.

- C1-MW-3, C1-MW-4, C1-MW-5, and C1-MW-8
- C2-MW-9, C2-MW-10, and C2-MW-11

3.3 Past Modifications to the Compliance Monitoring Plan

From September 2001 until March 2011, groundwater monitoring was conducted tri-annually (first, second, and fourth quarters) at each Cell in accordance with the Agreed Orders and the groundwater monitoring schedule proposed in a letter from Kennedy/Jenks Consultants to Mr. Dan Alexanian of Ecology dated September 17, 2001. Mr. Alexanian approved the monitoring schedule in an email to the Port dated October 4, 2001 (ERM, 2008a and 2008b).

Since September 2001, the monitoring plan included the collection of groundwater samples from 14 of the 26 monitoring wells listed in Section 3.1 and depth to groundwater measurements at all 26 wells during each event. The 14 sampled wells included the 10 conditional POC wells and C1-MW-6, C1-MW-7, C2-MW-3, and C2-MW-7. Following approval from Ecology in 2004, conditional POC wells C1-MW-5 and C1-MW-8 were no longer required to be sampled.

The COCs for both Cells 1 and 2 in September 2001 originally included volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. Gasoline-range hydrocarbons (gasoline) and diesel- and oil-range hydrocarbons (diesel and oil) were also included as COCs for Cell 2.

By 2007, following multiple correspondences between Ecology and the Port, monitoring of VOCs and total and dissolved metals was discontinued for both cells, and the VOC suite was reduced for a portion of the wells in Cell 1 to benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert-butyl ether (MTBE) (ERM, 2008a and 2008b).

In April 2011, Ecology approved: a reduction in monitoring frequency from tri-annual to semi-annual (first and third quarters), the discontinuation of VOC analysis for C2-MW-3 and C2-MW-10, and the removal of the following eight monitoring wells from the groundwater monitoring plan (Kennedy/Jenks, 2011; Ecology, 2011).

- C1-MW-6
- C1-MW-6B
- C2-MW-4
- C2-MW-5
- C2-MW-7
- C2-MW-8
- C2-MW-13B
- C2-MW-16

Ecology requested in the April 2011 letter that the monitoring of C1-MW-3 continue to determine if any contaminant migration occurs as a result of the West Vancouver Freight Access Project (Ecology, 2011).

In 2012 and 2013, monitoring wells C1-MW-6, C1-MW-6B, C2-MW-5, C2-MW-8 and C2-MW-13B were decommissioned. An attempt was made to locate and decommission monitoring wells C2-MW-4, C2-MW-7, and C2-MW-16 in September 2012; however, these monitoring wells were inadvertently paved over and not locatable.

The construction of the West Vancouver Freight Access Project required the relocation of monitoring wells C1-MW-3, C1-MW-5, and C1-MW-8. The Port submitted a request to Ecology for the relocation of the three monitoring wells, and in a letter dated April 16, 2012, Ecology approved the relocations. In 2012, the three monitoring wells were decommissioned, and C1-MW-3 and C1-MW-5 were re-installed in the same approximate configuration and depths as the original monitoring wells (with the same designations). C1-MW-8 was reinstalled in July 2014 with the same approximate configuration and depth; however, the replacement is labeled C1-MW-8(R).

In July 2014, monitoring well C2-MW-11 was abandoned due to construction activities at the Site. It was reinstalled with the same approximate configuration and depth; the replacement well is labeled C2-MW-11(R).

Additionally, monitoring well C2-MW-10 may have been inadvertently destroyed during the construction of the West Vancouver Freight Access Project or paved over, as it has not been located since March 2013. It was reinstalled in August 2015 with the same approximate configuration and depth; the replacement well is labeled C2-MW-10(R2).

3.4 Most Recent Modifications to the Compliance Monitoring Plan

In June 2016, Ecology approved the decommissioning of 12 monitoring wells and the reduction of the groundwater monitoring frequency from semi-annual to every 18 months (Ecology, 2016). The selected analytes for the retained monitoring wells did not change. Therefore, in November and December 2016, decommissioning activities were completed as described below and listed on Table 1 (AECOM, 2017).

- The following eight monitoring wells were successfully decommissioned.
    - C1-MW-1
    - C1-MW-2
    - C1-MW-3
    - C1-MW-5
    - C1-MW-8(R)
    - C1-MW-9
    - C2-MW-6
    - C2-MW-15
- The following four monitoring wells had been paved over and cannot be found, despite potholing and re-surveying by the Port's surveyor.
    - C2-MW-1
    - C2-MW-4
    - C2-MW-7
    - C2-MW-16

3.5 Current Compliance Monitoring Plan

Based on the Ecology June 2016 approval letter, the current compliance monitoring plan (Table 1) includes the collection of depth-to-groundwater measurements and groundwater samples from the following seven monitoring wells every 18 months:

- C1-MW-4
- C1-MW-7
- C2-MW-3
- C2-MW-9
- C2-MW-10(R2)
- C2-MW-11(R)
- C2-MW-12B

The analyte list varies between the monitoring wells and is shown on Table 1.

4 Activities Conducted During this Monitoring Event

Groundwater monitoring activities completed during the September 2017 event were conducted in accordance with the following three documents.

- EPA guidance document titled *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* (EPA, 1996)

- Ecology letter titled *Re: Former Fort Vancouver Plywood Proposed Groundwater Sampling Procedures* (Ecology, 2002)

- Kennedy/Jenks *Second Semi-Annual 2013 Groundwater Monitoring Report* (Kennedy/Jenks, 2014)

- Ecology letter titled Re*: Approval for Reducing Groundwater Level and Groundwater Sampling Frequency at the Former Fort Vancouver Plywood Facility* (Ecology, 2017)

The groundwater monitoring activities completed during the September 2017 event are as follows:

- Following the decommissioning activities, the former monitoring well locations were patched to match the existing surrounding ground surface (landscaping, asphalt, gravel, or concrete) as listed on Table 1. At the asphalt or concrete patches for C1-MW-2, C1-MW-3, C1-MW-9, and C2-MW-6, AECOM will apply two treatments of the sealant product, ARMORSEAL A-100, during a dry weather period (spring/summer 2017). AECOM will document the completion of these treatments in the next groundwater monitoring report.

- AECOM collected depth to groundwater measurements from the seven monitoring wells included in the current compliance monitoring plan (see Section 3.5). AECOM measured the depth to groundwater in the monitoring wells using an electronic water level meter. The depth to groundwater was measured from the northern side of top of casing (TOC), and recorded on the Groundwater Level Form (Appendix A). The depth to groundwater measurements and corresponding groundwater elevations are presented on Table 2.

- AECOM collected groundwater samples from the seven monitoring wells included in the current compliance monitoring plan (see Section 3.5). AECOM collected each groundwater sample following purging and stabilization of temperature, pH, conductivity, dissolved oxygen (DO), and oxidation reduction potential (ORP). A peristaltic pump was used for the purging at six of the seven monitoring wells. Monitoring well C2-MW-12B was purged using a decontaminated bladder pump because C2-MW-12B is screened at the Deeper Unconsolidated Aquifer, which is too deep for use of the peristaltic pump (Table 2). AECOM collected the groundwater samples at each monitoring well using a disposable double check valve bailer. The peristaltic pump tubing, bladder pump, and disposable bailers were all lowered and retrieved gently, and set at the center of the screen interval. During this event to limit the re-suspension of

sediment in the short saturated water column of monitoring well C2-MW-11(R), AECOM filled the volatile organic analysis (VOA) containers using the bailer, and the two larger bottles for diesel and oil were filled using the polyethylene tubing. Monitoring Well Sampling Field Logs for this monitoring event are included in Appendix A, and final field parameters are reported in Table 3.

- AECOM delivered the samples to Apex Laboratories of Tigard, Oregon under strict chain-of-custody. The samples were submitted for one or more of the analyses listed below in accordance with Table 1.
    - BTEX and MTBE by EPA Method 5030B/8260B
    - Full list of VOCs by EPA Method 8260B
    - Diesel and oil by NWTPH-Dx
    - Gasoline by NWTPH-Gx
- The sample containers were stored in a cooler with ice from sample collection until delivery to the laboratory. The chain-of-custody form is included in Appendix B with the laboratory analytical report. A field duplicate sample, collected from monitoring well C2-MW-9, and a trip blank were also submitted for analysis.
- AECOM placed the purge and decontamination water into a labeled, aboveground polyethylene tank, which is temporarily staged under the 26th Avenue overpass pending characterization and disposal. Disposable sampling equipment (including tubing and nitrile gloves) was managed as municipal solid waste.

Additional activities completed during the September 2017 event are as follows:

- As required by in the Agreed Orders, AECOM applied two coats of the sealant product, ARMORSEAL A-100, on the concrete patches from the monitoring wells which were decommissioned in November and December 2016 (AECOM, 2017).
- AECOM observed that the monument lid for monitoring well C1-MW-7 was cracked. As a result, Pacific Shredding personnel placed a large metal plate covering the monument for protection. The location of monitoring well C1-MW-7 is in a high traffic area, and the metal plate should prevent any further damage. AECOM will replace the monument lid before the end of the year.

5 Results of the September 2017 Monitoring Event

The results of groundwater level measurements are summarized in Table 2. Field parameters are provided in Table 3. The groundwater analytical results are summarized in Tables 4 through 7. A copy of the laboratory analytical report is included in Appendix B.

5.1 Groundwater Elevation Monitoring

Six of the remaining monitoring wells listed on Table 1 are constructed with screened intervals intercepting the Shallow Zone (shallower than 35 feet bgs), and the one remaining well, C2-MW-12B, is constructed with the screened interval intercepting the Deeper Unconsolidated Aquifer (at 40 to 50 feet bgs).

On September 11, 2017, the groundwater elevation in C2-MW-12B, which is screened in the Deeper Unconsolidated Aquifer, was 5.88 feet above mean sea level (AMSL).

On September 11, 2017, the groundwater elevations in the Shallow Zone ranged from 4.63 feet AMSL (C1-MW-4) to 19.85 feet AMSL (C2-MW-3). The hydraulic gradient was calculated at 0.02 ft/ft to the south-southwest, consistent with previous sampling events. Groundwater elevation contours and the inferred direction of groundwater flow from September 11, 2017 are shown on Figure 3.

5.2 Groundwater Analytical Results

Groundwater analytical results are summarized in the following subsections.

5.2.1 Volatile Organic Compounds

Samples collected during the September 2017 monitoring event were analyzed for the following VOCs:

- Samples from C1-MW-3 and C1-MW-7 were analyzed for BTEX and MTBE.
- Samples from C1-MW-4, C2-MW-9, C2-MW-11(R), and C2-MW-12B were analyzed for full list of VOCs.

The VOC results for the groundwater samples collected from the Deeper Unconsolidated Aquifer wells are presented on Table 4, and the VOC results for Shallow Zone wells are presented on Table 5. Both Tables 4 and 5 include BTEX, MTBE, and any other VOC that has been detected at least once since February 2009. The VOC results from the September 2017 monitoring event are summarized in the next two subsections.

5.2.1.1 Deeper Unconsolidated Aquifer

VOCs were not detected above their respective method detection limits (MDLs) in groundwater collected from C2-MW-12B (Table 4).

5.2.1.2 Shallow Zone

MTBE, 1,1-dichloroethane, cis-1,2-dichloroethene, and vinyl chloride were detected in one or more of the samples collected from the wells screened in the Shallow Zone; these detections were compared to the Shallow Zone screening criteria presented in Section 3.2.2 and on Table 5.

Vinyl chloride was the only VOC detected in the groundwater samples from the Shallow Zone wells at concentrations above the screening criteria. Concentrations of vinyl chloride in the groundwater samples collected from C1-MW-4 (0.300 µg/L), C2-MW-9 (0.860 µg/L) and C2-MW-11(R) (1.13 µg/L) exceeded both the MTCA Method A and B groundwater cleanup levels of 0.20 µg/L and 0.029 µg/L, respectively.

5.2.2 Total Petroleum Hydrocarbons

During the September 2017 monitoring event, groundwater samples from C2-MW-3, C2-MW-9, C2-MW-10(R2), C2-MW-11(R), and C2-MW-12B were submitted for NWTPH-Dx and NWTPH-Gx analysis.

The TPH results for the groundwater samples collected from the Deeper Unconsolidated Aquifer wells are presented on Table 6, and the TPH results for Shallow Zone wells are presented on Table 7. The TPH results from the September 2017 monitoring event are summarized in the next two subsections.

5.2.2.1 Deeper Unconsolidated Aquifer

Diesel, oil, and gasoline were not detected above their respective MDLs in groundwater collected from C2-MW-12B (Table 6).

5.2.2.2 Shallow Zone

Oil was detected in the groundwater samples collected from shallow groundwater wells C2-MW-3 (0.283 mg/L) and C2-MW-10(R2) (0.216 mg/L); however, these detections were less than the Shallow Zone screening criteria presented in Section 3.2.2 and on Table 7.

6 Data Quality and Management

Based on a review of the laboratory report, the analyses and results conformed to quality assurance standards, and the analytical data are of acceptable quality for their intended use. A data quality review is included in Appendix C.

The data from the September 2017 monitoring event will be uploaded into Ecology's Environmental Information Management (EIM) database within the next 30 days. Data from 2009 through the 2016 has been uploaded onto the EIM database. Under WAC 173-340-840(5), environmental sampling data for all cleanup sites must be submitted in both printed and electronic form.

7 Conclusions and Future Sampling Activities

Groundwater monitoring was conducted at Cell 1 and Cell 2 of the Site during the September 2017 event. The analytical results were generally consistent with previous monitoring events. Vinyl chloride in groundwater samples from C1-MW-4, C2-MW-9, and C2-MW-11(R) were the only VOC detections that exceeded the screening criteria. TPH concentrations in were less than the screening criteria in all samples. Groundwater monitoring will continue every 18 months. The next monitoring event is scheduled for March 2019.

8 References

AECOM, 2017. *Well Decommissioning Summary Letter.* Former Fort Vancouver Plywood Site, Port of Vancouver USA, Vancouver, Washington. February 10.

Ecology, 1999. *Cleanup Action Plan.* Former Fort Vancouver Plywood Site – Cell 1. January.

Ecology, 2000. *Cleanup Action Plan.* Former Fort Vancouver Plywood Site – Cell 2. January.

Ecology, 2002. Letter from the Washington State Department of Ecology to Century West Engineering Corporation. *Re: Former Fort Vancouver Plywood Proposed Groundwater Sampling Procedures.* November 4.

Ecology, 2011. Letter from Washington State Department of Ecology to Kennedy/Jenks Consultants. *Ecology Response to Recommendations for Modification of the Groundwater Monitoring Program Former Fort Vancouver Plywood Site.* April 6.

Ecology, 2016. Letter from Washington State Department of Ecology to the Port of Vancouver*. Re: Approval for Reducing Groundwater Level and Groundwater Sampling Frequency at the Former Fort Vancouver Plywood Facility, Port of Vancouver, Vancouver, Washington.* June 28.

ERM, 2008a. *Cell 1 September 2007 Groundwater Monitoring Report and 5-Year Review.* Former Fort Vancouver Plywood, Port of Vancouver USA, Vancouver, Washington. May.

ERM, 2008b. *Cell 2 September 2007 Groundwater Monitoring Report and 5-Year Review.* Former Fort Vancouver Plywood, Port of Vancouver USA, Vancouver, Washington. May.

EPA, 1996. *Ground Water Issue. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures.* By Robert W. Puls and Michael J. Barcelona. EPA/540/S-95/504. April.

Kennedy/Jenks, 2011. Letter from Kennedy/Jenks Consultants to the Washington State Department of Ecology. *Subject: Recommendation for Modification of the Groundwater Monitoring Program, Former Fort Vancouver Plywood Site, Port of Vancouver USA.* March 29.

Kennedy/Jenks, 2014. *Second Semi-Annual 2013 Groundwater Monitoring Report*. Port of Vancouver USA, Fort Vancouver Plywood Site. February 11.

U.S. Geological Survey (USGS), 1993. *A Description of Hydrogeologic Units in the Portland Basin, Oregon and Washington.* U.S. Geological Survey Water-Resources Investigations Report 90-4196. Prepared in cooperation with City of Portland Bureau of Water Works, Intergovernmental Resource Center, and Oregon Water Resources Department.

9 Limitations

AECOM has prepared this report for use by the Port. Within the limitations of scope, schedule, and budget, our services have been executed in accordance with accepted environmental science practices in this area at the time this report was prepared. No other warranty or conditions, expressed or implied, should be understood.

We appreciate the opportunity to be of service to the Port on this project. Please call Nicky Moody at (503) 478-2765 with any questions regarding this or any other referenced submittals.

Sincerely,

AECOM

Nicky Moody
Project Manager

Jonathan Horowitz P.E.
Environmental Engineer

cc: Craig Rankine, RG, LHG, Cleanup Project Manager/Hydrogeologist, Washington Department of Ecology, Toxics Cleanup Program, 2108 Grand Blvd, Vancouver, WA 98661-4662

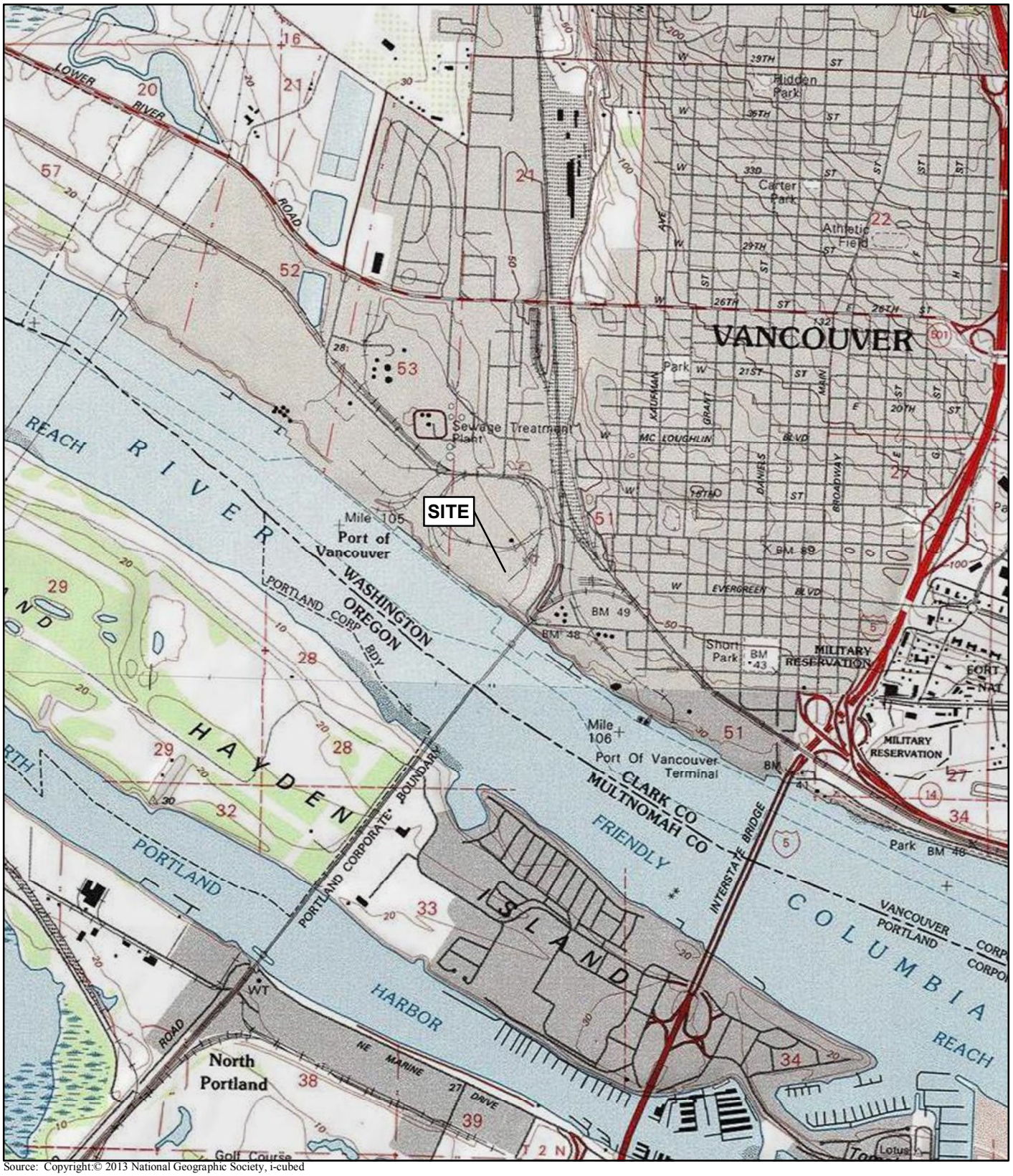
Attachments

List of Figures

List of Tables

List of Appendices

Figures



Source: Copyright:© 2013 National Geographic Society, i-cubed

1,000 0 1,000 2,000

SCALE IN FEET

AECOM

VICINITY MAP

FORMER FORT VANCOUVER PLYWOOD SITE
PORT OF VANCOUVER USA
VANCOUVER, WA

FIGURE 1

K:\25698089_POV\MXD\2Q2017\Figure 1 Vicinity Map.mxd

OCTOBER 2017 60519969

150 0 150 300

SCALE IN FEET

AECOM

SITE MAP

FORMER FORT VANCOUVER PLYWOOD SITE
PORT OF VANCOUVER USA
VANCOUVER, WA

FIGURE 2

K:\25698089_POVMXD\2Q2017\Figure 2 Site Map.mxd

OCTOBER 2017 60519969

150 0 150 300

SCALE IN FEET

AECOM

GROUNDWATER ELEVATION, CONTOURS, AND FLOW DIRECTION – SEPTEMBER 2017

FORMER FORT VANCOUVER PLYWOOD SITE
PORT OF VANCOUVER USA
VANCOUVER, WA

FIGURE 3

K:\25698089_POVMXD\2Q2017\Figure 3 GW Contours.mxd

OCTOBER 2017 60519969

Tables

Table 1. Compliance Monitoring Plan
Former Fort Vancouver Plywood Site

Cell #	Well ID	Aquifer	Screen Interval (feet)	Current Compliance Monitoring Plan							
				Groundwater Monitoring & Sampling				Sampling Plan			
				Sep-17	Mar-19	Sep-20	+18 months	Sampling Method	Analytes	Containers	
Cell 1	C1-MW-4	Shallow	17-32	X	X	X	X	PP/Bailer	VOCs	6 VOAs	-
	C1-MW-7	Shallow	15-30	X	X	X	X	PP/Bailer	BTEX, MTBE	6 VOAs	-
	C1-MW-1	Shallow	18-33	Decommissioned in December 2016 after approval from Ecology in June 2016							
	C1-MW-2	Shallow	11-21	Decommissioned in December 2016 after approval from Ecology in June 2016							
	C1-MW-3	Shallow	15-32	Decommissioned in December 2016 after approval from Ecology in June 2016							
	C1-MW-5	Shallow	16-32	Decommissioned in December 2016 after approval from Ecology in June 2016							
	C1-MW-6	Shallow	15-25	Decommissioned in 2013 after approval from Ecology in 2011							
	C1-MW-6B	Deeper	52.5-62.5	Decommissioned in 2013 after approval from Ecology in 2011							
	C1-MW-8	Shallow	16-31	Decommissioned in 2012 after approval from Ecology in 2011							
	C1-MW-8(R)	Shallow	15-30	Decommissioned in November 2016 after approval from Ecology in June 2016							
	C1-MW-9	Shallow	20-30	Decommissioned in December 2016 after approval from Ecology in June 2016							
Cell 2	C2-MW-3	Shallow	6-16	X	X	X	X	PP/Bailer	Gx, Dx	6 VOAs	2 Ambers
	C2-MW-9**	Shallow	25-35	X	X	X	X	PP/Bailer	VOCs, Gx, Dx	6 VOAs	2 Ambers
	C2-MW-10(R2)	Shallow	20-35	X	X	X	X	PP/Bailer	Gx, Dx	6 VOAs	2 Ambers
	C2-MW-11(R)	Shallow	15-30	X	X	X	X	PP/Bailer	VOCs, Gx, Dx	6 VOAs	2 Ambers
	C2-MW-12B	Deeper	40-50	X	X	X	X	Bladder	VOCs, Gx, Dx	6 VOAs	2 Ambers
	C2-MW-1	Shallow	5-15	Not decommissioned as paved over & not located again in December 2016							
	C2-MW-2	Shallow	6-16	Decommissioned in August 2010							
	C2-MW-4	Shallow	9-19	Not decommissioned as paved over & not located again in December 2016							
	C2-MW-5	Shallow	6-16	Decommissioned in 2012 after approval from Ecology in 2011							
	C2-MW-6	Shallow	15-20	Decommissioned in November 2016 after approval from Ecology in June 2016							
	C2-MW-7	Shallow	15-25	Not decommissioned as paved over & not located again in December 2016							
	C2-MW-8	Shallow	6-16	Decommissioned in 2012 following approval from Ecology in 2011							
	C2-MW-10(R)	Shallow	18-33	Well not locatable (unknown if damaged or paved over); replaced in 2015 with C2-MW-10(R2)							
	C2-MW-11	Shallow	15-30	Decommissioned in 2014 due to construction activities; replaced in 2014 with C2-MW-11(R)							
	C2-MW-13B	Deeper	47-57	Decommissioned in 2012 following approval from Ecology in 2011							
	C2-MW-14	Shallow	Unknown	Decommissioned in 2002 following approval from Ecology							
	C2-MW-15	Shallow	7-22	Decommissioned in December 2016 after approval from Ecology in June 2016							
	C2-MW-16	Shallow	5-20	Not decommissioned as paved over & not located again in December 2016							

Sampling Schedule (18+ months)*
September 2017
March 2019
September 2020
+18 months

Notes:
= Indicates a monitoring well that was either abandoned or unlocatable as paved over.
X = indicates that depth to groundwater measurements will be collected.
Red = indicates active conditional Point of Compliance (POC) well in the Agreed Orders
BTEX = benzene, toluene, ethylbenzene, and total xylenes
Dx = diesel and heavy oil range organics
Gx = gasoline range organics
MTBE = methyl tert-butyl ether
PP/Bailer = purging conducted using peristaltic pump and then sampling conducted using a double check ball disposable bailer
(R) = C1-MW-8 and C2-MW-11 were replaced in July 2014.
VOA = volatile organic analysis
VOC = volatile organic carbon
** = Collect field duplicate on C2-MW-9. If not accessible, collect the field duplicate on C2-MW-11 or C2-MW-12B.

Table 2. Groundwater Elevation Results
Former Fort Vancouver Plywood Site

Well Designation	Date	Top of Casing Elevation [a] (feet)	Depth to Groundwater [b] (feet)	Total Well Depth (feet)	Groundwater Elevation (feet)	Well Screened Interval (feet)
Active Monitoring Wells						
Cell 1 - Shallow Zone						
C1-MW-4	02/26/09	29.07	22.86	29.4	6.21	17-32
	05/11/09	29.07	19.69	29.4	9.38	
	12/17/09	29.07	22.29	29.3	6.78	
	03/29/10	29.07	23.01	29.4	6.06	
	05/25/10	29.07	20.54	29.4	8.53	
	11/29/10	29.07	22.83	29.4	6.24	
	03/24/11	29.07	18.75	29.3	10.32	
	10/11/11	29.07	23.33	29.3	5.74	
	02/29/12	29.07	22.11	NM	6.96	
	09/20/12	29.07	23.47	NM	5.60	
	03/22/13	29.07	23.75	NM	5.32	
	09/23/13	29.07	NM	NM	NA	
	03/20/14	29.07	17.92	NM	11.15	
	09/02/14	29.07	24.36	NM	4.71	
	04/07/15	29.07	20.45	NM	8.62	
	09/28/15	29.07	24.33	NM	4.74	
	03/28/16	29.07	19.65	NM	9.42	
	09/11/17	29.07	24.44	NM	4.63	
C1-MW-7	02/26/09	30.05	17.85	29.1	12.20	15-30
	05/11/09	30.05	17.74	28.5	12.31	
	12/17/09	30.05	17.87	28.5	12.18	
	03/29/10	30.05	17.41	28.5	12.64	
	05/25/10	30.05	17.41	28.5	12.64	
	11/29/10	30.05	17.56	28.5	12.49	
	03/24/11	30.05	16.92	28.5	13.13	
	10/11/11	30.05	17.59	28.5	12.46	
	02/29/12	30.05	17.48	28.5	12.57	
	09/20/12	30.05	17.57	28.5	12.48	
	03/21/13	30.05	17.50	NM	12.55	
	09/23/13	30.05	17.76	NM	12.29	
	03/20/14	30.05	17.02	NM	13.03	
	09/02/14	30.05	17.53	NM	12.52	
	04/07/15	30.05	17.24	NM	12.81	
	09/28/15	29.29	17.54	NM	11.75	
	03/28/16	29.29	16.77	NM	12.52	
	09/11/17	29.29	16.91	NM	12.38	
Cell 2 - Shallow Zone						
C2-MW-3	02/26/09	32.43	12.70	15.4	19.73	6-16
	05/11/09	32.43	13.04	15.0	19.39	
	12/17/09	32.43	13.12	15.3	19.31	
	03/29/10	32.43	12.22	15.1	20.21	
	05/25/10	32.43	12.08	15.1	20.35	
	11/29/10	32.43	12.20	15.1	20.23	
	03/24/11	32.43	11.32	15.0	21.11	
	10/11/11	32.43	12.56	15.0	19.87	
	02/29/12	32.43	11.99	15.0	20.44	
	09/20/12	32.43	12.91	15.0	19.52	
	03/21/13	32.43	11.86	NM	20.57	
	09/20/13	32.43	12.52	NM	19.91	
	03/20/14	32.43	11.86	NM	20.57	
	09/02/14	32.43	12.40	NM	20.03	
	04/07/15	32.43	11.82	NM	20.61	
	09/28/15	32.43	12.81	NM	19.62	
	03/28/16	32.43	11.19	NM	21.24	
	09/11/17	32.43	12.58	NM	19.85	

Table 2. Groundwater Elevation Results
Former Fort Vancouver Plywood Site

Well Designation	Date	Top of Casing Elevation [(a)] (feet)	Depth to Groundwater [(b)] (feet)	Total Well Depth (feet)	Groundwater Elevation (feet)	Well Screened Interval (feet)
C2-MW-9	02/26/09	33.00	NM	NM	NA	
	05/11/09	33.00	21.89	34.5	11.11	
	12/17/09	33.00	24.69	33.8	8.31	
	03/29/10	33.00	NM	NM	NA	
	05/25/10	33.00	NM	NM	NA	
	11/29/10	33.00	NM	NM	NA	
	03/24/11	33.00	NM	NM	NA	
	10/11/11	33.00	24.97	33.8	8.03	
	02/29/12	33.00	18.81	33.8	14.19	25-35
	09/20/12	33.00	24.51	33.8	8.49	
	03/22/13	33.00	24.48	NM	8.52	
	09/23/13	33.00	25.50	NM	7.50	
	03/20/14	33.00	19.54	NM	13.46	
	09/02/14	32.25	24.49	NM	7.76	
	04/07/15	32.25	21.29	NM	10.96	
	09/28/15	32.25	25.68	NM	6.57	
	03/28/16	32.25	21.30	NM	10.95	
	09/11/17	32.25	25.16	NM	7.09	
C2-MW-10(R2)	09/28/15	33.57	28.38	35.45	5.19	
	03/28/16	33.57	24.39	NM	9.18	20-35
	09/11/17	33.57	27.96	NM	5.61	
C2-MW-11(R)	09/02/14	30.80	25.23	NM	5.57	
	04/07/15	30.80	21.90	NM	8.90	
	09/28/15	30.80	25.62	NM	5.18	15-30
	03/28/16	30.80	21.58	NM	9.22	
	09/11/17	30.80	25.27	NM	5.53	
Cell 2 - Deeper Unconsolidated Aquifer						
C2-MW-12B	02/26/09	32.45	25.40	47.6	7.05	
	05/11/09	32.45	21.81	46.7	10.64	
	12/17/09	32.45	24.73	47.4	7.72	
	03/29/10	32.45	25.39	46.8	7.06	
	05/25/10	32.45	22.82	46.7	9.63	
	11/29/10	32.45	25.21	46.8	7.24	
	03/24/11	32.45	21.02	46.8	11.43	
	10/11/11	32.45	26.24	46.8	6.21	
	02/29/12	32.45	24.05	46.8	8.40	40-50
	09/20/12	32.45	26.39	46.8	6.06	
	03/21/13	32.45	25.82	NM	6.63	
	09/20/13	32.45	26.34	NM	6.11	
	03/20/14	32.45	20.12	NM	12.33	
	09/02/14	32.45	27.04	NM	5.41	
	04/07/15	32.45	23.00	NM	9.45	
	09/28/15	32.45	26.87	NM	5.58	
	03/28/16	32.45	21.97	NM	10.48	
	09/11/17	32.45	26.57	NM	5.88	

Table 2. Groundwater Elevation Results
Former Fort Vancouver Plywood Site

Well Designation	Date	Top of Casing Elevation [(a)] (feet)	Depth to Groundwater [(b)] (feet)	Total Well Depth (feet)	Groundwater Elevation (feet)	Well Screened Interval (feet)
Abandoned or Unlocatable Monitoring Wells						
Cell 1 - Shallow Zone						
C1-MW-1	02/26/09	30.23	NM	NM	NA	
	05/11/09	30.23	21.06	33.5	9.17	
	12/17/09	30.23	23.47	33.3	6.76	
	03/29/10	30.23	24.32	33.5	5.91	
	05/25/10	30.23	21.72	33.4	8.51	
	11/29/10	30.23	24.58	33.4	5.65	
	03/24/11	30.23	20.08	33.4	10.15	
	10/11/11	30.23	24.87	33.4	5.36	
	02/29/12	30.23	23.20	33.4	7.03	18-33
	09/20/12	30.23	25.05	33.4	5.18	
	03/21/13	30.23	24.97	NM	5.26	
	09/23/13	30.23	25.62	NM	4.61	
	03/20/14	30.23	19.25	NM	10.98	
	09/02/14	30.23	26.02	NM	4.21	
	04/07/15	30.23	22.05	33.6	8.18	
	09/28/15	30.23	25.80	NM	4.43	
	03/28/16	30.23	21.19	NM	9.04	
C1-MW-2	02/26/09	31.03	14.53	20.8	16.50	
	05/11/09	31.03	14.26	20.3	16.77	
	12/17/09	31.03	13.29	20.4	17.74	
	03/29/10	31.03	14.05	NM	16.98	
	05/25/10	31.03	14.27	20.4	16.76	
	11/29/10	31.03	13.57	NM	17.46	
	03/24/11	31.03	13.02	20.4	18.01	
	10/11/11	31.03	14.83	20.4	16.20	
	02/29/12	31.03	13.91	20.4	17.12	11-21
	09/20/12	31.03	15.15	20.4	15.88	
	03/21/13	31.03	14.38	NM	16.65	
	09/23/13	31.03	NM	NM	NA	
	03/20/14	31.03	14.66	NM	16.37	
	09/02/14	31.03	15.02	NM	16.01	
	04/07/15	31.03	14.26	NM	16.77	
	09/28/15	31.03	15.56	NM	15.47	
	03/28/16	31.03	13.59	NM	17.44	
C1-MW-3	02/26/09	29.89	23.11	32.1	6.78	
	05/11/09	29.89	20.45	31.5	9.44	
	12/17/09	29.89	22.78	31.5	7.11	
	03/29/10	29.89	23.17	31.6	6.72	
	05/25/10	29.89	21.12	31.1	8.77	
	11/29/10	29.89	NM	NM	NA	
	03/24/11	29.89	19.42	31.4	10.47	
	10/11/11	29.89	23.71	31.4	6.18	
	02/29/12	29.89	22.06	31.4	7.83	15-32
	09/20/12	29.89	24.00	31.4	5.89	
	03/22/13	29.10	23.20	NM	5.90	
	09/23/13	29.10	NM	NM	NA	
	03/20/14	29.10	17.55	NM	11.55	
	09/02/14	29.10	23.93	NM	5.17	
	04/07/15	29.10	20.52	NM	8.58	
	09/28/15	29.10	24.02	NM	5.08	
	03/28/16	29.10	19.69	NM	9.41	

Table 2. Groundwater Elevation Results
Former Fort Vancouver Plywood Site

Well Designation	Date	Top of Casing Elevation [(a)] (feet)	Depth to Groundwater [(b)] (feet)	Total Well Depth (feet)	Groundwater Elevation (feet)	Well Screened Interval (feet)
C1-MW-5	02/26/09	30.71	DRY	31.2	NA	16-32
	05/11/09	30.71	21.37	31.2	9.34	
	12/17/09	30.71	23.89	31.2	6.82	
	03/29/10	30.71	24.72	33.2	5.99	
	05/25/10	30.71	22.15	31.2	8.56	
	11/29/10	30.71	24.93	31.2	5.78	
	03/24/11	30.71	20.49	31.2	10.22	
	10/11/11	30.71	25.27	31.2	5.44	
	02/29/12	30.71	23.53	31.2	7.18	
	03/21/13	29.84	24.93	NM	4.91	
	09/23/13	29.84	25.49	NM	4.35	
	03/20/14	29.84	19.16	NM	10.68	
	09/02/14	29.84	NM	NM	NA	
	04/07/15	29.84	21.96	31.0	7.88	
	09/28/15	29.84	25.71	NM	4.13	
	03/28/16	29.84	21.14	NM	8.70	
C1-MW-6	02/26/09	31.66	NM	NM	NA	15-25
	05/11/09	31.66	12.13	27.1	19.53	
	12/18/09	31.66	12.19	26.9	19.47	
	03/29/10	31.66	NM	NM	NA	
	05/25/10	31.66	NM	NM	NA	
	11/29/10	31.66	11.29	26.7	20.37	
	03/24/11	31.66	10.75	26.6	20.91	
	10/11/11	31.66	NM	NM	NA	
C1-MW-8	02/26/09	30.43	23.54	32.7	6.89	16-31
	05/11/09	30.43	20.74	31.9	9.69	
	12/17/09	30.43	22.84	31.9	7.59	
	03/29/10	30.43	25.63	36.2	4.80	
	05/25/10	30.43	21.10	31.9	9.33	
	11/29/10	30.43	23.91	31.9	6.52	
	03/24/11	30.43	19.78	31.2	10.65	
	10/11/11	30.43	23.93	31.2	6.50	
	02/29/12	30.43	22.03	31.2	8.40	
	09/20/12	30.43	24.02	31.2	6.41	
C1-MW-8(R)	09/02/14	27.58	22.72	NM	4.86	15-30
	04/07/15	27.58	18.85	NM	8.73	
	09/28/15	27.58	22.68	NM	4.90	
	03/28/16	27.58	18.49	NM	9.09	
C1-MW-9	02/26/09	30.55	19.78	27.5	10.77	20-30
	05/11/09	30.55	19.83	27.0	10.72	
	12/17/09	30.55	21.10	27.0	9.45	
	03/29/10	30.55	19.47	27.0	11.08	
	05/25/10	30.55	19.61	27.0	10.94	
	11/29/10	30.55	19.88	27.1	10.67	
	03/24/11	30.55	18.96	27.0	11.59	
	10/11/11	30.55	19.75	26.7	10.80	
	02/29/12	30.55	19.76	26.7	10.79	
	09/20/12	30.55	19.86	26.7	10.69	
	03/21/13	30.55	18.95	NM	11.60	
	09/23/13	30.55	19.92	NM	10.63	
	03/20/14	30.55	19.37	NM	11.18	
	09/02/14	30.55	19.75	NM	10.80	
	04/07/15	30.55	19.77	NM	10.78	
	09/28/15	30.55	19.95	NM	10.60	
	03/28/16	30.55	18.80	NM	11.75	

Table 2. Groundwater Elevation Results
Former Fort Vancouver Plywood Site

Well Designation	Date	Top of Casing Elevation [(a)] (feet)	Depth to Groundwater [(b)] (feet)	Total Well Depth (feet)	Groundwater Elevation (feet)	Well Screened Interval (feet)
Cell 1 - Deeper Unconsolidated Aquifer						
C1-MW-6B	02/26/09	30.96	NM	NM	NA	52.5-62.5
	05/11/09	30.96	21.89	65.3	9.07	
	12/17/09	30.96	24.23	64.9	6.73	
	03/29/10	30.96	24.87	64.5	6.09	
	05/25/10	30.96	NM	NM	NA	
	11/29/10	30.96	NM	NM	NA	
	03/24/11	30.96	20.74	64.3	10.22	
	10/11/11	30.96	NM	NM	NA	
Cell 2 - Shallow Zone						
C2-MW-1	02/26/09	34.51	28.57	32.4	5.94	5-15
	05/11/09	34.51	NM	NM	NA	
	12/17/09	34.51	25.40	32.5	9.11	
	03/29/10	34.51	26.37	32.3	8.14	
	05/25/10	34.51	NM	NM	NA	
	11/29/10	34.51	NM	NM	NA	
	03/24/11	34.51	22.11	32.5	12.40	
	10/11/11	34.51	27.50	32.5	7.01	
	02/29/12	34.51	NM	NM	NA	
	09/23/13	34.51	NM	NM	NA	
	03/20/14	34.51	NM	NM	NA	
	09/02/14	34.51	NM	NM	NA	
	04/07/15	34.51	NM	NM	NA	
	09/28/15	NM	NM	NM	NM	
C2-MW-2	02/26/09	33.20	13.04	16.8	20.16	6-16
	05/11/09	33.20	13.45	16.5	19.75	
	12/17/09	33.20	NM	NM	NA	
	03/29/10	33.20	NM	NM	NA	
	05/25/10	33.20	NM	NM	NA	
	11/29/10	33.20	NM	NM	NA	
C2-MW-4	02/26/09	34.20	NM	NM	NA	9-19
	05/11/09	34.20	NM	NM	NA	
	12/17/09	34.20	NM	NM	NA	
	03/29/10	34.20	NM	NM	NA	
	05/25/10	34.20	NM	NM	NA	
	11/29/10	34.20	NM	NM	NA	
	03/24/11	34.20	NM	NM	NA	
	10/11/11	34.20	NM	NM	NA	
C2-MW-5	02/26/09	32.43	12.46	16.4	19.97	6-16
	05/11/09	32.43	12.86	14.9	19.57	
	12/17/09	32.43	13.22	15.2	19.21	
	03/29/10	32.43	12.00	14.8	20.43	
	05/25/10	32.43	11.92	14.9	20.51	
	11/29/10	32.43	11.99	14.9	20.44	
	03/24/11	32.43	11.17	14.9	21.26	
	10/11/11	32.43	NM	NM	NA	

Table 2. Groundwater Elevation Results
Former Fort Vancouver Plywood Site

Well Designation	Date	Top of Casing Elevation [(a)] (feet)	Depth to Groundwater [(b)] (feet)	Total Well Depth (feet)	Groundwater Elevation (feet)	Well Screened Interval (feet)
C2-MW-6	02/26/09	33.46	NM	NM	NA	
	05/11/09	33.46	NM	NM	NA	
	12/17/09	33.46	DRY	19.9	NA	
	03/29/10	33.46	DRY	19.7	NA	
	05/25/10	33.46	DRY	19.9	NA	
	11/29/10	33.46	NM	NM	NA	
	03/24/11	33.46	NM	NM	NA	
	10/11/11	33.46	19.48	19.9	13.98	15-20
	02/29/12	33.46	19.61	19.9	13.85	
	03/21/13	33.46	18.66	NM	14.80	
	09/20/13	33.46	19.35	NM	14.11	
	03/20/14	33.46	18.19	NM	15.27	
	09/02/14	33.46	18.19	NM	15.27	
	04/07/15	33.46	14.81	NM	18.65	
	09/28/15	33.46	19.51	NM	13.95	
	03/28/16	33.46	15.39	NM	18.07	
C2-MW-7	02/26/09	34.55	NM	NM	NA	
	05/11/09	34.55	19.22	28.2	15.33	
	12/17/09	34.55	NM	NM	NA	
	03/29/10	34.55	NM	NM	NA	15-25
	05/25/10	34.55	NM	NM	NA	
	11/29/10	34.55	NM	NM	NA	
	03/24/11	35.55	NM	NM	NA	
	10/11/11	35.55	NM	NM	NA	
C2-MW-8	02/26/09	31.90	NM	NM	NA	
	05/11/09	31.90	NM	NM	NA	
	12/17/09	31.90	DRY	14.9	NA	
	03/29/10	31.90	NM	NM	NA	6-16
	05/25/10	31.90	DRY	NM	NA	
	11/29/10	31.90	NM	NM	NA	
	03/24/11	31.90	DRY	14.6	NA	
	10/11/11	31.90	NM	NM	NA	
C2-MW-10(R)	02/26/09	34.18	25.72	36.2	8.46	
	05/11/09	34.18	22.61	36.1	11.57	
	12/17/09	34.18	25.39	36.4	8.79	
	03/29/10	34.18	25.63	36.2	8.55	
	05/25/10	34.18	23.60	36.1	10.58	
	11/29/10	34.18	25.93	36.2	8.25	
	03/24/11	34.18	21.95	36.1	12.23	
	10/11/11	34.18	25.99	36.1	8.19	15-30
	02/29/12	34.18	24.29	36.1	9.89	
	09/20/12	34.18	26.00	36.1	8.18	
	03/22/13	34.18	26.20	NM	7.98	
	09/23/13	34.18	NM	NM	NA	
	03/20/14	34.18	NM	NM	NA	
	09/02/14	34.18	NM	NM	NA	
	04/07/15	34.18	NM	NM	NA	

Table 2. Groundwater Elevation Results
Former Fort Vancouver Plywood Site

Well Designation	Date	Top of Casing Elevation [(a)] (feet)	Depth to Groundwater [(b)] (feet)	Total Well Depth (feet)	Groundwater Elevation (feet)	Well Screened Interval (feet)
C2-MW-11	02/26/09	34.26	25.60	36.0	8.66	
	05/11/09	34.26	22.63	36.1	11.63	
	12/17/09	34.26	25.33	36.3	8.93	
	03/29/10	34.26	25.67	36.1	8.59	
	05/25/10	34.26	23.45	36.1	10.81	
	11/29/10	34.26	25.81	36.1	8.45	
	03/24/11	34.26	21.94	36.1	12.32	15-30
	10/11/11	34.26	25.91	36.1	8.35	
	02/29/12	34.26	24.17	36.1	10.09	
	09/20/12	34.26	25.85	36.1	8.41	
	03/22/13	34.26	25.95	NM	8.31	
	09/23/13	34.26	26.52	NM	7.74	
	03/20/14	34.26	21.15	NM	13.11	
C2-MW-15	02/26/09	33.06	21.56	24.3	11.50	
	05/11/09	33.06	20.72	23.9	12.34	
	12/17/09	33.06	21.92	23.9	11.14	
	03/29/10	33.06	NM	NM	NA	
	05/25/10	33.06	NM	NM	NA	
	11/29/10	33.06	NM	NM	NA	
	03/24/11	34.06	NM	NM	NA	
	10/11/11	34.06	NM	NM	NA	7-22
	02/29/12	34.06	NM	NM	NA	
	09/20/12	34.06	21.22	NM	12.84	
	03/21/13	34.06	20.21	NM	13.85	
	09/23/13	34.06	21.08	NM	12.98	
	03/20/14	34.06	18.50	NM	15.56	
	09/02/14	34.06	NM	NM	NA	
	04/07/15	34.06	18.70	NM	15.36	
	09/28/15	NM	NM	NM	NM	
C2-MW-16	02/26/09	33.76	NM	NM	NA	
	05/11/09	33.76	19.68	23.5	14.08	
	12/17/09	33.76	NM	NM	NA	
	03/29/10	33.76	NM	NM	NA	5-20
	05/25/10	33.76	NM	NM	NA	
	11/29/10	33.76	NM	NM	NA	
	03/24/11	33.76	NM	NM	NA	
	10/11/11	33.76	NM	NM	NA	
Cell 2 - Deeper Unconsolidated Aquifer						
C2-MW-13B	02/26/09	32.38	NM	NM	NA	
	05/11/09	32.38	NM	NM	NA	
	12/17/09	32.38	NM	NM	NA	
	03/29/10	32.38	NM	NM	NA	47-57
	05/25/10	32.38	NM	NM	NA	
	11/29/10	32.38	NM	NM	NA	
	03/24/11	32.38	21.35	54.98	11.03	
	10/11/11	32.38	NM	NM	NA	

Notes:

= Indicates a monitoring well that was either abandoned or unlocatable as paved over.

NM = Not measured because the well was inaccessible.

NA = Not applicable.

(a) = Elevation in feet relative to mean sea level based on ties to a local W&H Pacific Co. benchmark, vertical datum NGVD29(47).

(b) = Measured in feet below the top of the well casing.

Table 3. Groundwater Field Parameter Measurements
Former Fort Vancouver Plywood Site

Sample Location	Sample Date	Field Parameters				
		Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/l)	pH	ORP (mV)
Active Monitoring Wells						
Cell 1 - Shallow Zone						
C1-MW-4	02/27/09	15.05	1.057	0.45	8.39	-
	05/12/09	15.52	1.217	1.32	6.92	-
	12/18/09	15.32	1.294	0.50	6.35	-
	03/30/10	14.71	0.515	0.88	6.36	-
	05/26/10	15.37	1.109	1.36	6.28	-
	11/30/10	14.2	1.366	1.10	6.54	-
	03/24/11	14.85	1.577	0.63	6.24	-
	10/11/11	15.19	1.149	1.39	7.93	-
	03/01/12	14.77	1.857	0.54	6.66	-
	09/20/12	15.48	1.262	0.97	6.33	-
	03/22/13	15.1	1.798	1.12	7.38	-
	09/23/13	NS	NS	NS	NS	-
	03/21/14	15.48	1.173	1.51	6.34	-54.2
	09/03/14	18.01	1.188	0.75	6.26	-45.1
	04/07/15	15.48	1.193	6.44	6.44	-92.2
	09/29/15	16.94	1.164	0.34	6.31	-53.4
	03/29/16	15.31	1.419	1.82	6.30	-58.1
	09/11/17	20.36	1.41	1.99	6.65	-34
C1-MW-7	02/27/09	15.82	0.501	0.63	7.37	-
	05/12/09	15.63	0.877	1.64	6.78	-
	12/18/09	16.16	1.025	0.54	6.26	-
	03/30/10	15.45	0.383	0.79	6.35	-
	05/26/10	15.70	0.610	3.32	6.00	-
	11/30/10	14.46	0.973	1.18	6.59	-
	03/25/11	15.05	1.048	1.26	6.44	-
	10/12/11	16.01	0.906	1.48	7.43	-
	02/29/12	14.44	0.599	1.66	6.65	-
	09/20/12	16.14	0.772	0.93	6.28	-
	03/22/13	15.17	1.331	0.91	7.80	-
	09/23/13	16.10	1.300	7.00	8.20	-
	03/21/14	15.75	1.056	0.38	6.55	-130.5
	09/04/14	17.29	1.003	4.55	6.35	-80.1
	04/07/15	17.36	1.138	0.70	6.42	-127.0
	09/29/15	19.24	1.078	0.60	6.45	-94.4
	03/29/16	16.33	1.103	2.06	6.36	32.1
	09/11/17	21.32	1.19	1.52	6.62	-91
Cell 2 - Shallow Zone						
C2-MW-3	02/26/09	14.22	0.284	1.64	7.21	-
	05/12/09	14.61	0.316	1.75	6.62	-
	12/17/09	14.92	0.404	0.53	6.39	-
	03/29/10	13.02	0.102	10.60	6.7	-
	05/26/10	14.15	0.216	1.59	6.21	-
	11/30/10	14.8	0.240	12.00	6.72	-
	03/25/11	13.58	0.236	1.04	6.56	-
	10/11/11	16.11	0.173	1.39	7.07	-
	02/29/12	12.84	0.242	2.10	6.55	-
	09/21/12	16.14	0.200	14.90	6.23	-
	03/21/13	14.04	0.257	2.92	7.49	-
	09/20/13	16.90	0.220	3.30	6.90	-
	03/21/14	14.02	0.157	2.28	6.49	80.1
	09/03/14	18.13	0.193	1.28	6.08	25.1
	04/07/15	16.26	0.190	2.33	6.36	4.0
	09/29/15	17.98	0.219	0.61	6.65	99.9
	03/29/16	12.66	0.162	3.09	6.79	67.4
	09/11/17	23.54	0.222	1.47	6.85	111

Table 3. Groundwater Field Parameter Measurements
Former Fort Vancouver Plywood Site

Sample Location	Sample Date	Field Parameters				
		Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/l)	pH	ORP (mV)
C2-MW-9	02/26/09	NS	NS	NS	NS	-
	05/12/09	14.24	0.974	2.18	7.05	-
	12/18/09	14.07	0.903	0.72	6.49	-
	03/30/10	NS	NS	NS	NS	-
	05/26/10	NS	NS	NS	NS	-
	11/30/10	NS	NS	NS	NS	-
	03/25/11	13.71	0.879	0.37	6.61	-
	10/11/11	14.14	0.785	1.48	8.13	-
	05/22/12	12.91	0.870	0.71	8.00	-
	09/20/12	14.76	0.998	0.94	6.70	-
	03/22/13	12.52	1.239	1.41	6.84	-
	09/23/13	14.40	0.790	4.50	8.20	-
	03/21/14	14.41	0.697	1.11	6.49	-66.3
	09/03/14	16.34	0.726	0.82	6.33	-90.3
	04/07/15	14.14	0.720	0.69	6.39	-100.8
	09/28/15	17.08	0.744	0.44	6.49	-89.4
	03/28/16	14.15	0.179	4.27	6.62	-35.1
	09/11/17	18.93	0.725	1.62	6.74	-78
C2-MW-10(R2)	09/28/15	16.89	0.814	0.34	6.57	-91.1
	03/28/16	16.28	0.788	1.06	6.44	-75.1
	09/11/17	19.54	0.842	1.97	6.87	-73
C2-MW-11(R)	09/03/14	20.03	0.760	1.59	6.10	-43.8
	04/07/15	13.87	0.709	0.42	6.70	-131.8
	09/28/15	16.61	0.723	0.43	6.60	-86.8
	3/28/2016	15.26	0.776	1.06	6.49	-126.3
	9/11/2017	18.04	0.774	2.35	6.81	-105
Cell 2 - Deeper Unconsolidated Aquifer						
C2-MW-12B	02/26/09	14.24	0.324	1.73	8.48	-
	05/12/09	15.03	0.325	1.79	7.20	-
	12/17/09	14.46	0.395	0.68	6.97	-
	03/29/10	14.47	0.167	8.57	7.09	-
	05/26/10	15.23	0.350	4.49	6.70	-
	11/30/10	11.05	0.186	8.47	7.08	-
	03/25/11	14.55	0.310	0.86	7.13	-
	10/11/11	14.69	0.281	4.11	7.30	-
	02/29/12	13.01	0.360	1.93	6.83	-
	09/21/12	14.02	0.311	33.60	5.73	-
	03/21/13	13.25	0.380	2.04	7.32	-
	09/20/13	15.10	0.340	3.10	7.60	-
	03/21/14	14.31	0.249	3.06	6.92	150.4
	09/03/14	17.09	0.263	1.61	6.95	43.4
	04/07/15	15.36	0.237	0.62	7.10	104.3
	09/29/15	14.94	0.256	0.70	7.10	37.9
	03/29/16	14.19	0.184	3.67	7.01	39.4
	09/11/17	20.16	0.298	6.23	7.32	105

Table 3. Groundwater Field Parameter Measurements
Former Fort Vancouver Plywood Site

Sample Location	Sample Date	Field Parameters				
		Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/l)	pH	ORP (mV)
Abandoned or Unlocatable Monitoring Wells						
Cell 1 - Shallow Zone						
C1-MW-3	02/27/09	14.38	1.057	0.34	9.12	-
	05/12/09	14.84	1.123	1.43	7.02	-
	12/18/09	14.91	1.198	0.50	6.42	-
	03/30/10	13.5	0.455	0.93	6.45	-
	05/26/10	14.67	0.994	2.32	6.27	-
	11/30/10	NS	NS	NS	NS	-
	03/24/11	13.24	1.211	0.84	6.55	-
	10/12/11	14.5	0.920	1.62	7.56	-
	03/01/12	14.21	1.991	0.49	6.79	-
	09/20/12	15.27	0.944	0.91	6.44	-
	03/22/13	14.39	1.630	2.01	8.23	-
	09/23/13	NS	NS	NS	NS	-
	03/21/14	13.83	0.774	0.28	6.61	15.8
	09/03/14	20.28	1.094	1.16	6.10	-41.1
	04/07/15	14.79	1.103	0.57	6.41	-107.4
	09/29/15	16.96	0.855	0.30	6.19	-73.3
	03/29/16	12.41	0.701	3.31	6.49	59.1
C1-MW-6	02/26/09	NS	NS	NS	NS	-
	05/12/09	11.17	0.402	3.35	6.40	-
	12/18/09	11.80	0.540	0.61	6.65	-
	3/30/2010	NS	NS	NS	NS	-
	05/26/10	NS	NS	NS	NS	-
	11/30/10	NS	NS	NS	NS	-
	03/25/11	10.78	0.302	0.29	6.86	-
Cell 1 - Deeper Unconsolidated Aquifer						
C1-MW-6B	02/26/09	NS	NS	NS	NS	-
	05/12/09	13.33	0.255	2.47	6.84	-
	12/18/09	12.85	0.281	0.71	6.85	-
	03/29/10	12.43	0.116	11.22	7.1	-
	05/26/10	NS	NS	NS	NS	-
	11/30/10	NS	NS	NS	NS	-
	03/25/11	11.90	0.260	7.21	7.00	-
Cell 2 - Shallow Zone						
C2-MW-7	02/26/09	NS	NS	NS	NS	-
	05/12/09	14.47	0.549	1.62	6.81	-
	12/17/09	NS	NS	NS	NS	-
	03/30/10	NS	NS	NS	NS	-
	05/26/10	NS	NS	NS	NS	-
	11/30/10	NS	NS	NS	NS	-
	03/25/11	13.44	0.885	0.30	6.72	-
C2-MW-10(R)	02/27/09	15.1	1.045	0.28	9.10	-
	05/12/09	14.71	1.065	1.71	6.72	-
	12/17/09	14.98	1.298	0.79	6.44	-
	03/29/10	14.98	0.480	8.24	6.75	-
	05/25/10	15.21	1.080	2.29	6.43	-
	11/30/10	14.4	1.253	16.00	6.78	-
	03/25/11	14.12	1.217	0.36	6.63	-
	10/12/11	14.77	0.966	1.37	7.30	-
	03/01/12	13.84	1.371	0.40	7.21	-
	09/20/12	14.30	0.992	0.86	6.47	-
	03/22/13	13.50	1.204	1.59	6.42	-
	09/23/13	NS	NS	NS	NS	-
	03/21/14	NS	NS	NS	NS	-
	09/03/14	NS	NS	NS	NS	-
	04/07/15	NS	NS	NS	NS	-

Table 3. Groundwater Field Parameter Measurements
Former Fort Vancouver Plywood Site

Sample Location	Sample Date	Field Parameters				
		Temperature (°C)	Conductivity (mS/cm)	Dissolved Oxygen (mg/l)	pH	ORP (mV)
C2-MW-11	02/27/09	14.44	0.931	0.41	8.41	-
	05/12/09	14.18	0.401	1.80	6.88	-
	12/18/09	14.28	1.108	0.50	6.5	-
	03/29/10	14.25	0.458	7.15	6.71	-
	05/26/10	14.23	0.893	2.18	6.31	-
	11/30/10	13.83	0.990	2.39	6.79	-
	03/25/11	13.33	1.184	0.45	6.60	-
	10/12/11	14.30	0.909	1.59	7.89	-
	03/01/12	13.36	1.342	0.33	7.07	-
	09/20/12	14.57	0.932	0.77	6.42	-
	03/22/13	13.23	1.073	1.23	6.36	-
	09/23/13	14.10	0.930	8.80	8.60	-
	03/21/14	14.14	0.597	0.52	6.65	-14.8
Cell 2 - Deeper Unconsolidated Aquifer						
C2-MW-13B	02/26/09	NS	NS	NS	NS	-
	05/12/09	NS	NS	NS	NS	-
	12/17/09	NS	NS	NS	NS	-
	03/29/10	NS	NS	NS	NS	-
	05/26/10	NS	NS	NS	NS	-
	11/30/10	NS	NS	NS	NS	-
	03/25/11	14.37	0.256	2.55	6.71	-

Notes:
= Indicates a monitoring well that was either abandoned or unlocatable as paved over.
- = not available to AECOM for this report.
°C = Degrees Celsius.
mS/cm = millisiemens per centimeter.
mg/l = milligrams per liter
mv = millivolts
NS = Not sampled because well was not accessible.
ORP = oxidation reduction potential

Table 4. Volatile Organic Compounds in the Deeper Unconsolidated Aquifer
Former Fort Vancouver Plywood Site

Well Location	Sample ID	Date Sampled	BTEX Compounds and MTBE							Historically Site Detected VOCs (Since 2009)										
			Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	m,p-Xylene µg/l	o-Xylene µg/l	Total Xylenes µg/l	Methyl Tertiary Butyl Ether µg/l	Acetone µg/l	Chloroethane µg/l	Chloromethane µg/l	1,1-Dichloroethane µg/l	1,1-Dichloroethene µg/l	cis-1,2-Dichloroethene µg/l	Isopropylbenzene (Cumene) µg/l	Naphthalene µg/l	1,2,4-Trimethylbenzene µg/l	Trichlorofluoromethane µg/l	Vinyl Chloride µg/l
Ecology's MTCA Method A Groundwater Cleanup Levels			5.0	1,000	700	1,000	1,000	1,000	20	NE	NE	NE	NE	NE	NE	NE	160	NE	NE	0.20
Ecology's MTCA Method B Groundwater Cleanup Levels			0.795	640	800	1,600	1,600	1,600	24	7,200	NE	NE	7.68	400	16	800	160	NE	2,400	0.029
Active Monitoring Wells																				
Cell 2 - Deeper Unconsolidated Aquifer																				
C2-MW-12B	C2-MW-12B	02/26/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	**1.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	12/17/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	03/29/10	1.0 U	**6.8**	1.0 U	1.0 U	2.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B-DUP	03/29/10	1.0 U	**13**	1.0 U	1.0 U	2.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	05/26/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	11/30/10	1.0 U	**1.0**	1.0 U	2.0 U	1.0 U	---	1.0 U	**5.9**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	10/11/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	02/29/12	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-12B	09/20/12	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	---	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
	C2-MW-12B	03/21/13	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	3.0 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
	C2-MW-12B	09/20/13	0.24 U	0.23 U	0.24 U	0.48 U	0.24 U	---	0.50 U	10 U	0.50 U	2.0 U	0.50 U	0.24 U	0.23 U	0.50 U	2.0 U	0.50 U	0.13 U	0.14 U
	C2-MW-12B	03/21/14	0.060 U	0.11 U	0.10 U	0.25 U	0.13 U	---	0.18 U	5.0 U	0.17 U	1.0 U	0.14 U	0.14 U	0.16 U	0.50 U	0.20 U	0.16 U	0.10 U	0.11 U
	C2-MW-12B	09/03/14	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	0.500 U	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.000 U	0.500 U	1.00 U	0.100 U
	C2-MW-12B	04/07/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	0.200 U
	C2-MW-12B	09/29/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	0.100 U
	C2-MW-12B	03/29/16	0.125 U	0.500 U	0.250 U	0.500 U	0.200 U	---	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	0.250 U
	C2-MW-12B	09/11/17	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	20.0 UJ	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	2.00 UJ	0.500 U	1.00 U	0.200 U
Abandoned or Unlocatable Monitoring Wells																				
Cell 1 - Deeper Unconsolidated Aquifer																				
C1-MW-6B	NS	02/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C1-MW-6B	05/12/09	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-6B	12/18/09	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-6B	03/29/10	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	NS	05/26/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	NS	11/30/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C1-MW-6B	03/25/11	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
Cell 2 - Deeper Unconsolidated Aquifer																				
C2-MW-13B	C2-MW-13B	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	0.20 U

Notes:
--- = Sample not analyzed for constituent
BTEX = benzene, toluene, ethylbenzene, and total xylenes
DUP = Duplicate sample.
J = Constituent was not positively identified; the associated value is estimated.
MTBE = methyl tertiary butyl ether
MTCA = Washington State Department of Ecology Model Toxics Control Act
NE = Not established
NS = Not sampled because well was not accessible.
µg/l = micrograms per liter
R = The sample results were rejected based on the data quality review.
U = Constituent not detected at or above noted limit.
UJ = Constituent was not detected above the noted limit; the limit is approximate.
VOCs = volatile organic compounds
Values in **bold** were detected above the laboratory method detection limit.
= Indicates a monitoring well that was either abandoned or unlocatable as paved over.
= Indicates the analyte was not detected; however, the reported method detection limit exceeds a screening criterion.
Ecology's MTCA values were obtained from the Washington State Department of Ecology Cleanup Level and Risk Calculations (CLARC) web site. The lower of the carcinogen and noncarcinogen MTCA Method B value is presented. https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx

Table 5. Volatile Organic Compounds in the Shallow Zone
Former Fort Vancouver Plywood Site

Well Location	Sample ID	Date Sampled	BTEX Compounds and MTBE							Historically Site Detected VOCs (Since 2009)										
			Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	m,p-Xylene µg/l	o-Xylene µg/l	Total Xylenes µg/l	Methyl Tertiary Butyl Ether µg/l	Acetone µg/l	Chloroethane µg/l	Chloromethane µg/l	1,1-Dichloroethane µg/l	1,1-Dichloroethene µg/l	cis-1,2-Dichloroethene µg/l	Isopropylbenzene (Cumene) µg/l	Naphthalene µg/l	1,2,4-Trimethylbenzene µg/l	Trichlorofluoromethane µg/l	Vinyl Chloride µg/l
Ecology's MTCA Method B Surface Water Cleanup Levels			23	18,900	6,820	NE	NE	NE	NE	NE	NE	NE	NE	23,100	NE	NE	4,710	NE	NE	3.7
Ecology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
EPA's National Toxics Rule Human Health Criteria for Surface Water			1.2	6,800	3,100	NE	NE	NE	NE	NE	NE	NE	NE	0.057	NE	NE	NE	NE	NE	2
Ecology's MTCA Method A Groundwater Cleanup Levels			5.0	1,000	700	1,000	1,000	1,000	20	NE	NE	NE	NE	NE	NE	NE	160	NE	NE	0.20
Ecology's MTCA Method B Groundwater Cleanup Levels			0.795	640	800	1,600	1,600	1,600	24	7,200	NE	NE	7.68	400	16	800	160	NE	2,400	0.029
Active Monitoring Wells																				
Cell 1 - Shallow Zone																				
C1-MW-4	C1-MW-4	02/27/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	**1.7**	**1.7**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**0.37**
	C1-MW-4-Dup	02/27/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	**1.9**	**1.9**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**0.35**
	C1-MW-4	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	**2.1**	1.0 U	**1.8**	1.0 U	1.0 U	1.0 U	1.0 U	**0.34**
	C1-MW-4	12/18/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	**1.5**	**1.5**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.46**
	C1-MW-4	03/30/10	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	---	1.0 U	**1.6**	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.44**
	C1-MW-4-DUP	03/30/10	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	---	1.0 U	**1.6**	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.41**
	C1-MW-4	05/26/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	**1.6**	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.37**
	C1-MW-4	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	**1.5**	1.0 U	**1.3**	1.0 U	1.0 U	1.0 U	1.0 U	**0.62**
	C1-MW-4-Dup	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	**6.9**	**1.1**	**1.8**	**1.2**	1.0 U	**1.0**	1.0 U	1.0 U	1.0 U	1.0 U	**0.61**
	C1-MW-4	03/24/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	**2.1**	1.0 U	**2.2**	1.0 U	1.0 U	1.0 U	1.0 U	**1.0**
	C1-MW-4	10/11/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C1-MW-4-Dup	10/11/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	**1.8**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C1-MW-4	03/01/12	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	**1.6**	1.0 U	**1.5**	1.0 U	1.0 U	1.0 U	1.0 U	**0.25**
	C1-MW-4-Dup	03/01/12	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	**1.6**	1.0 U	**1.4**	1.0 U	**3.3**	1.0 U	1.0 U	**0.25**
	C1-MW-4	09/20/12	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	---	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	**1.1**	0.10 U	0.10 U	0.10 U	0.10 U	**0.39**
	C1-MW-4	03/22/13	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	3.0 U	1.0 U	20 U	1.0 U	1.0 U	**1.7**	1.0 U	**2.0**	1.0 U	4.0 U	1.0 U	1.0 U	**0.21**
	C1-MW-4-Dup	03/22/13	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	3.0 U	1.0 U	20 U	1.0 U	1.0 U	**1.9**	1.0 U	**2.1**	1.0 U	4.0 U	1.0 U	1.0 U	**0.23**
	NS	09/23/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C1-MW-4	03/21/14	0.060 U	0.11 U	0.10 U	0.25 U	0.13 U	---	0.18 U	5.0 U	0.17 U	1.0 U	**1.5**	**0.63**	**2.8**	0.50 U	0.20 U	0.16 U	0.10 U	0.11 U
	C1-MW-4	09/03/14	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	0.500 U	0.500 U	10.0 U	5.00 U	2.50 UJ	**1.12**	**0.380 J**	**1.73**	0.500 U	1.00 U	0.500 U	1.00 U	**0.240**
	C1-MW-4	04/08/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 U	**1.67**	**0.540**	**2.73**	0.500 U	1.00 U	0.500 U	1.00 U	**0.450**
	C1-MW-4	09/29/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 UJ	**0.82**	**0.290 J**	**1.53**	0.500 U	1.00 U	0.500 U	1.00 U	0.25 U
	C1-MW-4	03/29/16	0.125 U	**0.810 J**	0.250 U	0.500 U	0.200 U	---	0.500 U	10.0 U	5.00 U	2.50 U	**1.27**	**0.510**	**2.32**	0.500 U	1.00 U	0.500 U	1.00 U	**0.490 J**
	C1-MW-4	09/11/17	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	20.0 UJ	5.00 U	2.50 U	**0.540**	0.250 U	**1.18**	0.500 U	2.00 UJ	0.500 U	1.00 U	**0.300 J**
C1-MW-7	C1-MW-7	02/27/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	**26**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	05/12/09	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**24**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	12/18/09	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**23**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	03/30/10	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**24**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	05/26/10	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**16**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7-DUP	05/26/10	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**14**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	11/30/10	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**28**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	03/25/11	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**24**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	10/12/11	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**25**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	02/29/12	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**3.2**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	09/20/12	0.10 U	0.10 U	0.10 U	---	---	0.30 U	**13**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	03/22/13	1.0 U	1.0 U	1.0 U	---	---	3.0 U	**12**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	09/23/13	0.24 U	0.23 U	0.24 U	---	---		**16**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	03/21/14	0.12 U	0.22 U	0.20 U	---	---	0.66 U	**14**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	09/04/14	0.125 U	0.500 U	0.250 U	---	---	0.750 U	**12.1**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	04/08/15	0.125 U	0.500 U	0.250 U	---	---	0.750 U	**17.2**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	09/29/15	0.125 U	0.500 U	0.250 U	---	---	0.750 U	**18.1**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	03/29/16	0.100 U	0.500 U	0.250 U	---	---	0.750 U	**19.3**	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-7	09/11/17	0.100 U	0.500 U	0.250 U	---	---	0.750 U	**15.3**	---	---	---	---	---	---	---	---	---	---	---

Table 5. Volatile Organic Compounds in the Shallow Zone
Former Fort Vancouver Plywood Site

Well Location	Sample ID	Date Sampled	BTEX Compounds and MTBE							Historically Site Detected VOCs (Since 2009)										
			Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	m,p-Xylene µg/l	o-Xylene µg/l	Total Xylenes µg/l	Methyl Tertiary Butyl Ether µg/l	Acetone µg/l	Chloroethane µg/l	Chloromethane µg/l	1,1-Dichloroethane µg/l	1,1-Dichloroethene µg/l	cis-1,2-Dichloroethene µg/l	Isopropylbenzene (Cumene) µg/l	Naphthalene µg/l	1,2,4-Trimethylbenzene µg/l	Trichlorofluoromethane µg/l	Vinyl Chloride µg/l
Ecology's MTCA Method B Surface Water Cleanup Levels			23	18,900	6,820	NE	NE	NE	NE	NE	NE	NE	NE	23,100	NE	NE	4,710	NE	NE	3.7
Ecology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
EPA's National Toxics Rule Human Health Criteria for Surface Water			1.2	6,800	3,100	NE	NE	NE	NE	NE	NE	NE	NE	0.057	NE	NE	NE	NE	NE	2
Ecology's MTCA Method A Groundwater Cleanup Levels			5.0	1,000	700	1,000	1,000	1,000	20	NE	NE	NE	NE	NE	NE	NE	160	NE	NE	0.20
Ecology's MTCA Method B Groundwater Cleanup Levels			0.795	640	800	1,600	1,600	1,600	24	7,200	NE	NE	7.68	400	16	800	160	NE	2,400	0.029
Cell 2 - Shallow Zone																				
C2-MW-3	C2-MW-3	02/26/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3-DUP	02/26/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	05/11/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3-DUP	05/11/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	12/17/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3-DUP	12/17/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	03/29/10	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	05/26/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3-DUP	05/26/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3-Dup	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-3-Dup	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
C2-MW-9	C2-MW-9	02/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-9	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**3.7**
	C2-MW-9	12/18/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**3.5**	1.0 U	1.0 U	1.0 U	1.0 U	**0.61**
	C2-MW-9	03/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-9	05/26/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-9	11/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-9	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.1**	1.0 U	1.0 U	1.0 U	1.0 U	**1.2**
	C2-MW-9	09/20/12	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	---	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	**1.3**	0.10 U	0.10 U	0.10 U	0.10 U	**1.0**
	C2-MW-9	03/22/13	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	3.0 U	1.0 U	20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	**0.83**
	C2-MW-9	09/23/13	0.24 U	0.23 U	0.24 U	0.48 U	0.24 U	---	0.50 U	10 U	0.50 U	2.0 U	0.50 U	0.24 U	**2.5**	0.50 U	2.0 U	0.50 U	0.13 U	0.14 U
	C2-MW-9-Dup	09/23/13	0.24 U	0.23 U	0.24 U	0.48 U	0.24 U	---	0.50 U	10 U	0.50 U	2.0 U	0.50 U	0.24 U	**2.8**	0.50 U	2.0 U	0.50 U	0.13 U	0.14 U
	C2-MW-9	03/21/14	0.060 U	0.11 U	0.10 U	0.25 UJ	0.13 UJ	---	0.18 UJ	**8.3 J**	0.17 UJ	1.0 UJ	0.14 UJ	0.14 UJ	**0.79 J**	0.50 UJ	0.20 UJ	0.16 UJ	0.10 UJ	**1.3 J**
	C2-MW-9-DUP	03/21/14	0.060 U	0.11 U	0.10 U	0.25 U	0.13 U	---	0.18 U	**33**	0.17 U	1.0 U	0.14 U	0.14 U	**1.1**	0.50 U	0.20 U	0.16 U	0.10 U	**1.1**
	C2-MW-9	09/03/14	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	0.500 U	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	**0.55**
	C2-MW-9-DUP	09/03/14	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	0.500 U	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	**0.60**
	C2-MW-9	04/08/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	**0.93**	0.500 U	1.00 U	0.500 U	1.00 U	**0.41**
	C2-MW-9 DUP	04/08/15	--- R	--- R	--- R	--- R	--- R	---	--- R	--- R	--- R	--- R	--- R	--- R	--- R	--- R	--- R	--- R	--- R	--- R
	C2-MW-9	09/28/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	**1.84**	0.500 U	1.00 U	0.500 U	1.00 U	**0.370**
	C2-MW-9 DUP	09/28/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	**1.81**	0.500 U	1.00 U	0.500 U	1.00 U	**0.380**
	C2-MW-9	03/28/16	0.125 U	0.500 U	0.250 U	0.500 U	0.200 U	---	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	**0.52**	0.500 U	1.00 U	0.500 U	1.00 U	**0.630**
	C2-MW-9 (DUP)	03/28/16	0.125 U	0.500 U	0.250 U	0.500 U	0.200 U	---	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	**1.04**	0.500 U	1.00 U	0.500 U	1.00 U	**0.500**
	C2-MW-9	09/11/17	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	20.0 UJ	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	2.00 UJ	0.500 U	1.00 U	**0.860**
	C2-MW-9(DUP)	09/11/17	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	20.0 UJ	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	2.00 UJ	0.500 U	1.00 U	**0.840**
C2-MW-11(R)	C2-MW-11R	09/03/14	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	0.500 U	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	**1.08**
	C2-MW-11R	04/08/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	**1.25**
	C2-MW-11R	09/28/15	0.125 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	10.0 U	5.00 U	2.50 UJ	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	**1.35**
	C2-MW-11R	03/28/16	0.125 U	0.500 U	0.250 U	0.500 U	0.200 U	---	0.500 U	10.0 U	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	1.00 U	0.500 U	1.00 U	**0.94**
	C2-MW-11(R)	09/11/17	0.100 U	0.500 U	0.250 U	0.500 U	0.250 U	---	0.500 U	20.0 UJ	5.00 U	2.50 U	0.250 U	0.250 U	0.250 U	0.500 U	2.00 UJ	0.500 U	1.00 U	**1.13**

Table 5. Volatile Organic Compounds in the Shallow Zone
Former Fort Vancouver Plywood Site

			BTEX Compounds and MTBE							Historically Site Detected VOCs (Since 2009)										
Well Location	Sample ID	Date Sampled	Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	m,p-Xylene µg/l	o-Xylene µg/l	Total Xylenes µg/l	Methyl Tertiary Butyl Ether µg/l	Acetone µg/l	Chloroethane µg/l	Chloromethane µg/l	1,1-Dichloroethane µg/l	1,1-Dichloroethene µg/l	cis-1,2-Dichloroethene µg/l	Isopropylbenzene (Cumene) µg/l	Naphthalene µg/l	1,2,4-Trimethylbenzene µg/l	Trichlorofluoromethane µg/l	Vinyl Chloride µg/l
Ecology's MTCA Method B Surface Water Cleanup Levels			23	18,900	6,820	NE	NE	NE	NE	NE	NE	NE	NE	23,100	NE	NE	4,710	NE	NE	3.7
Ecology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
EPA's National Toxics Rule Human Health Criteria for Surface Water			1.2	6,800	3,100	NE	NE	NE	NE	NE	NE	NE	NE	0.057	NE	NE	NE	NE	NE	2
Ecology's MTCA Method A Groundwater Cleanup Levels			5.0	1,000	700	1,000	1,000	1,000	20	NE	NE	NE	NE	NE	NE	NE	160	NE	NE	0.20
Ecology's MTCA Method B Groundwater Cleanup Levels			0.795	640	800	1,600	1,600	1,600	24	7,200	NE	NE	7.68	400	16	800	160	NE	2,400	0.029
Abandoned or Unlocatable Monitoring Wells																				
Cell 1 - Shallow Zone																				
C1-MW-3	C1-MW-3	02/27/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	05/12/09	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	12/18/09	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	03/30/10	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	05/26/10	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	11/30/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C1-MW-3	03/24/11	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	10/12/11	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	03/01/12	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	09/20/12	0.10 U	0.10 U	0.10 U	---	---	0.30 U	0.10 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3-Dup	09/20/12	0.10 U	0.10 U	0.10 U	---	---	0.30 U	0.10 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	03/22/13	1.0 U	1.0 U	1.0 U	---	---	3.0 U	1.0 U	---	---	---	---	---	---	---	---	---	---	---
	NS	09/23/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C1-MW-3	03/21/14	0.060 U	0.11 U	0.10 U	---	---	0.33 U	0.18 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	09/03/14	0.125 U	0.500 U	0.250 U	---	---	0.750 U	0.500 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	04/08/15	0.125 U	0.500 U	0.250 U	---	---	0.750 U	0.500 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	09/29/15	0.125 U	0.500 U	0.250 U	---	---	0.750 U	0.500 U	---	---	---	---	---	---	---	---	---	---	---
	C1-MW-3	03/29/16	0.100 U	0.500 U	0.250 U	---	---	0.750 U	0.500 U	---	---	---	---	---	---	---	---	---	---	---
C1-MW-6	C1-MW-6	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	**10**	**1.7**	1.0 U	1.0 U	1.0 U	1.0 U	**4.2**	0.20 U
	C1-MW-6-DUP	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	**10**	**1.8**	1.0 U	1.0 U	1.0 U	1.0 U	**4.3**	0.20 U
	C1-MW-6	12/18/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	**8.8**	**1.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C1-MW-6-DUP	12/18/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	**8.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	NS	05/26/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	NS	11/30/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C1-MW-6	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.3**	0.20 U
	C1-MW-6-DUP	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	**1.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.3**	0.20 U
Cell 2 - Shallow Zone																				
C2-MW-7	NS	02/27/09	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-7	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-7	12/17/09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	NS	03/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	NS	05/26/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	NS	11/29/10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	C2-MW-7	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U

Table 5. Volatile Organic Compounds in the Shallow Zone
Former Fort Vancouver Plywood Site

Well Location	Sample ID	Date Sampled	BTEX Compounds and MTBE							Historically Site Detected VOCs (Since 2009)										
			Benzene µg/l	Toluene µg/l	Ethylbenzene µg/l	m,p-Xylene µg/l	o-Xylene µg/l	Total Xylenes µg/l	Methyl Tertiary Butyl Ether µg/l	Acetone µg/l	Chloroethane µg/l	Chloromethane µg/l	1,1-Dichloroethane µg/l	1,1-Dichloroethene µg/l	cis-1,2-Dichloroethene µg/l	Isopropylbenzene (Cumene) µg/l	Naphthalene µg/l	1,2,4-Trimethylbenzene µg/l	Trichlorofluoromethane µg/l	Vinyl Chloride µg/l
Ecology's MTCA Method B Surface Water Cleanup Levels			23	18,900	6,820	NE	NE	NE	NE	NE	NE	NE	NE	23,100	NE	NE	4,710	NE	NE	3.7
Ecology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
EPA's National Toxics Rule Human Health Criteria for Surface Water			1.2	6,800	3,100	NE	NE	NE	NE	NE	NE	NE	NE	0.057	NE	NE	NE	NE	NE	2
Ecology's MTCA Method A Groundwater Cleanup Levels			5.0	1,000	700	1,000	1,000	1,000	20	NE	NE	NE	NE	NE	NE	NE	160	NE	NE	0.20
Ecology's MTCA Method B Groundwater Cleanup Levels			0.795	640	800	1,600	1,600	1,600	24	7,200	NE	NE	7.68	400	16	800	160	NE	2,400	0.029
C2-MW-10(R)	C2-MW-10	02/27/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	**0.27**
	C2-MW-10	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	12/17/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	03/29/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	05/25/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	C2-MW-10	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.94**
	C2-MW-10	10/12/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.28**
C2-MW-11	C2-MW-11	02/27/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**12**	1.0 U	1.0 U	**1.4**
	C2-MW-11	05/12/09	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.50**
	C2-MW-11	12/18/09	1.0 U	1.0 U	**1.6**	**4.0**	**2.0**	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.0**	**101**	**2.7**	1.0 U	**0.74**
	C2-MW-11	03/29/10	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**51**	**1.3**	1.0 U	**0.73**
	C2-MW-11	05/26/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**64**	**2.3**	1.0 U	**0.57**
	C2-MW-11	11/30/10	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4.9**	1.0 U	1.0 U	**1.5**
	C2-MW-11	03/25/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**16**	1.0 U	1.0 U	**1.4**
	C2-MW-11	10/12/11	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.6**
	C2-MW-11	03/01/12	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	---	1.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.7**	1.0 U	1.0 U	**1.1**
	C2-MW-11	09/20/12	0.10 U	0.10 U	0.10 U	0.20 U	0.10 U	---	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	**1.8**
	C2-MW-11	03/22/13	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	3.0 U	1.0 U	20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	**1.1**
	C2-MW-11	09/23/13	0.24 U	0.23 U	0.24 U	0.48 U	0.24 U	---	0.50 U	10 U	0.50 U	2.0 U	0.50 U	0.24 U	0.23 U	0.50 U	2.0 U	0.50 U	0.13 U	**1.2**
	C2-MW-11	03/21/14	**0.24**	**0.23 J**	**0.61**	**1.5**	**1.2**	---	0.18 U	5.0 U	0.17 U	1.0 U	0.14 U	0.14 U	0.16 U	**0.87 J**	**130**	**4.8**	0.10 U	**0.28 J**

Notes:
--- = Sample not analyzed for constituent
BTEX = benzene, toluene, ethylbenzene, and total xylenes
DUP = Duplicate sample.
J = Constituent was not positively identified; the associated value is estimated.
MTBE = methyl tertiary butyl ether
MTCA = Washington State Department of Ecology Model Toxics Control Act
NE = Not established
NS = Not sampled because well was not accessible.
µg/l = micrograms per liter
R = The sample results were rejected based on the data quality review.
U = Constituent not detected at or above noted limit.
UJ = Constituent was not detected above the noted limit; the limit is approximate.
VOCs = volatile organic compounds
Values in **bold** were detected above the laboratory method detection limit.
= Indicates a monitoring well that was either abandoned or unlocatable as paved over.
= Indicates an exceedance of a screening criterion.
= Indicates the analyte was not detected; however, the reported method detection limit exceeds a screening criterion.
Ecology's MTCA values were obtained from the Washington State Department of Ecology Cleanup Level and Risk Calculations (CLARC) web site. The lower of the carcinogen and noncarcinogen MTCA Method B value is presented. https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx
Ecology's Acute Freshwater Surface Water Quality Criteria were obtained from the Washington State Legislature Washington Administrative Code web site. http://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A-240
EPA's National Toxics Rule Human Health Criteria for Surface Water were obtained through the Washington State Department of Ecology web site for Toxics Standards and Criteria. http://www.ecy.wa.gov/programs/wq/swqs/toxics.html

Table 6. Total Petroleum Hydrocarbons in the Deeper Unconsolidated Aquifer
Former Fort Vancouver Plywood Site

Well ID	Sample ID	Date Sampled	TPH-Dx Diesel-Range mg/l	TPH-Dx Oil-Range mg/l	TPH-Gx Gasoline-Range mg/l
Ecology's MTCA Method A Groundwater Cleanup Levels			0.50	0.50	1.0 [(a)]
Ecology's MTCA Method B Groundwater Cleanup Levels			NE	NE	NE
Active Monitoring Wells					
Cell 2 - Deeper Unconsolidated Aquifer					
C2-MW-12B	C2-MW-12B	02/26/09	0.091 U	0.45 U	0.025 U
	C2-MW-12B	05/12/09	0.082 U	0.41 U	0.050 U
	C2-MW-12B	12/17/09	**0.13**	0.42 U	0.050 U
	C2-MW-12B	03/29/10	**2.3**	**2.6**	0.050 U
	C2-MW-12B	03/29/10	**1.3**	**1.4**	0.050 U
	C2-MW-12B	05/26/10	**0.10**	**0.44**	0.050 U
	C2-MW-12B	11/30/10	**4.0**	**6.6**	0.050 U
	C2-MW-12B	03/25/11	**0.55**	**0.66**	0.050 U
	C2-MW-12B	10/11/11	**1.6**	**2.4**	0.050 U
	C2-MW-12B	02/29/12	0.077 U	0.38 U	0.050 U
	C2-MW-12B	09/20/12	0.16 U	0.80 U	0.025 U
	C2-MW-12B	03/21/13	0.40 U	0.40 U	0.10 U
	C2-MW-12B	09/20/13	0.011 U	0.018 U	0.10 U
	C2-MW-12B	03/21/14	**0.080 J**	**0.18 J**	0.019 U
	C2-MW-12B	09/03/14	0.0943 U	**0.496**	0.0500 U
	C2-MW-12B	04/07/15	0.0952 U	0.190 U	0.0500 U
	C2-MW-12B	09/29/15	0.0943 U	0.189 U	0.0500 U
	C2-MW-12B	03/29/16	0.0980 U	**0.230 J**	0.0500 U
	C2-MW-12B	09/11/17	0.0952 U	0.190 U	0.0500 U
Abandoned or Unlocatable Monitoring Wells					
Cell 2 - Deeper Unconsolidated Aquifer					
C2-MW-13B	C2-MW-13B	03/25/11	**0.41**	**0.47**	0.050 U

Notes:
B = Constituent was detected above the laboratory reporting limit in the method blank.
DUP = Duplicate sample.
J = Constituent was not positively identified; the associated value is estimated.
mg/l = milligrams per liter
MTCA = Washington State Department of Ecology Model Toxics Control Act
NA = Not analyzed
NE = Not established
NS = Not sampled because well was not accessible.
U = Constituent not detected at or above noted limit.
TPH = Total Petroleum Hydrocarbons
TPH-Gx = Total Petroleum Hydrocarbons gasoline-range
TPH-Dx = Total Petroleum Hydrocarbons diesel- and oil-range
Values in **bold** were detected above the laboratory method detection limit.
= Indicates a monitoring well that was either abandoned or unlocatable as paved over.
= Indicates an exceedance of a screening criterion.
Ecology's MTCA values were obtained from the Washington State Department of Ecology Cleanup Level and Risk Calculations (CLARC) web site. The lower of the carcinogen and noncarcinogen MTCA Method B value is presented. https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx
(a) = Value is for gasoline concentration when benzene is not present.

Table 7. Total Petroleum Hydrocarbons in the Shallow Zone
Former Fort Vancouver Plywood Site

Well ID	Sample ID	Date Sampled	TPH-Dx Diesel-Range mg/l	TPH-Dx Oil-Range mg/l	TPH-Gx Gasoline-Range mg/l
Ecology's MTCA Method B Surface Water Cleanup Levels			NE	NE	NE
Ecology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE
EPA's National Toxics Rule Human Health Criteria for Surface Water			NE	NE	NE
Ecology's MTCA Method A Groundwater Cleanup Levels			0.50	0.50	1.0 [(a)]
Ecology's MTCA Method B Groundwater Cleanup Levels			NE	NE	NE
Active Monitoring Wells					
Cell 2 - Deeper Unconsolidated Aquifer					
C2-MW-3	C2-MW-3	02/26/09	0.086 U	0.43 U	0.025 U
	C2-MW-3	02/26/09	**0.089 B**	0.41 U	0.025 U
	C2-MW-3	05/11/09	0.083 U	0.42 U	0.050 U
	C2-MW-3	05/11/09	0.094 U	0.47 U	0.050 U
	C2-MW-3	12/17/09	**0.093**	0.38 U	0.050 U
	C2-MW-3	12/17/09	**0.089**	0.39 U	0.050 U
	C2-MW-3	03/29/10	0.078 U	0.39 U	0.050 U
	C2-MW-3	05/26/10	0.078 U	0.39 U	0.050 U
	C2-MW-3	05/26/10	0.076 U	0.38 U	0.050 U
	C2-MW-3	11/30/10	0.082 U	0.41 U	0.050 U
	C2-MW-3-Dup	11/30/10	0.078 U	0.39 U	0.050 U
	C2-MW-3	03/25/11	0.078 U	0.39 U	0.050 U
	C2-MW-3-Dup	03/25/11	0.078 U	0.39 U	0.050 U
	C2-MW-3	10/11/11	0.076 U	0.38 U	0.050 U
	C2-MW-3-Dup	10/11/11	0.076 U	0.38 U	0.050 U
	C2-MW-3	02/29/12	0.076 U	0.38 U	0.050 U
	C2-MW-3-Dup	02/29/12	0.086 U	0.43 U	0.050 U
	C2-MW-3	09/20/12	0.16 U	0.81 U	0.025 U
	C2-MW-3	03/21/13	0.40 U	0.40 U	NA
	C2-MW-3-Dup	03/21/13	0.40 U	0.40 U	NA
	C2-MW-3	09/20/13	0.011 U	0.018 U	0.10 U
	C2-MW-3-Dup	09/20/13	0.011 U	0.018 U	0.10 U
	C2-MW-3	03/21/14	0.028 U	0.038 U	0.019 U
	C2-MW-3	09/03/14	0.0943 U	**0.714 J**	0.0500 U
	C2-MW-3	04/07/15	0.0943 U	0.189 U	0.0500 U
	C2-MW-3	09/29/15	0.0943 U	**0.269 J**	0.0500 U
	C2-MW-3	03/29/16	0.0952 U	0.190 U	0.0500 U
	C2-MW-3	09/11/17	0.0935 U	**0.283 J**	0.0500 U
C2-MW-9	C2-MW-9	02/26/09	NS	NS	NS
	C2-MW-9	05/12/09	0.088 U	0.44 U	0.050 U
	C2-MW-9	12/18/09	**0.17**	0.40 U	0.050 U
	C2-MW-9	03/29/10	NS	NS	NS
	C2-MW-9	05/26/10	NS	NS	NS
	C2-MW-9	11/30/10	NS	NS	NS
	C2-MW-9	03/25/11	**0.12**	0.40 U	0.050 U
	C2-MW-9	10/11/11	**0.13**	0.38 U	0.050 U
	C2-MW-9	09/20/12	0.16 U	0.80 U	0.025 U
	C2-MW-9	03/22/13	0.41 U	0.41 U	0.10 U
	C2-MW-9	09/23/13	0.011 U	0.018 U	0.10 U
	C2-MW-9-Dup	09/23/13	0.011 U	0.018 U	0.10 U
	C2-MW-9	03/21/14	**0.12**	**0.16 J**	0.019 U
	C2-MW-9-DUP	03/21/14	**0.099**	**0.096 J**	0.019 U
	C2-MW-9	09/03/14	0.0952 U	**0.517 J**	0.050 U
	C2-MW-9-DUP	09/03/14	0.0990 U	0.198 U	0.050 U
	C2-MW-9	04/08/15	0.0943 U	0.189 U	0.050 U
	C2-MW-9-DUP	04/08/15	NA	NA	NA
	C2-MW-9	09/28/15	0.0943 U	0.189 U	0.050 U
	C2-MW-9	03/28/16	0.0952 U	**0.311 J**	0.050 U
	C2-MW-9 (DUP)	03/28/16	0.0952 U	**0.342 J**	0.050 U
	C2-MW-9	09/11/17	0.0935 U	0.187 U	0.050 U
	C2-MW-9(DUP)	09/11/17	0.0943 U	0.189 U	0.050 U

Table 7. Total Petroleum Hydrocarbons in the Shallow Zone
Former Fort Vancouver Plywood Site

Well ID	Sample ID	Date Sampled	TPH-Dx Diesel-Range mg/l	TPH-Dx Oil-Range mg/l	TPH-Gx Gasoline-Range mg/l
Ecology's MTCA Method B Surface Water Cleanup Levels			NE	NE	NE
Ecology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE
EPA's National Toxics Rule Human Health Criteria for Surface Water			NE	NE	NE
Ecology's MTCA Method A Groundwater Cleanup Levels			0.50	0.50	1.0 [(a)]
Ecology's MTCA Method B Groundwater Cleanup Levels			NE	NE	NE
C2-MW-11(R)	C2-MW-11(R)	09/03/14	**0.110 J**	0.198 U	0.050 U
	C2-MW-11(R)	04/08/15	0.0952 U	0.190 U	0.050 U
	C2-MW-11(R)	09/28/15	0.0943 U	**0.286 J**	0.050 U
	C2-MW-11R	03/28/16	0.0962 U	**0.262 J**	0.050 U
	C2-MW-11(R)	09/11/17	0.0952 U	0.190 U	0.050 U
C2-MW-10(R2)	C2-MW-10(R)	09/29/15	0.0943 U	**1.55**	0.050 U
	C2-MW-10R2	03/28/16	0.0962 U	**5.25**	**0.385**
	C2-MW-10(R2)	09/11/17	0.0952 U	**0.216 J**	0.0500 U
Abandoned or Unlocatable Monitoring Wells					
Cell 2 - Deeper Unconsolidated Aquifer					
C2-MW-7	C2-MW-7	02/26/09	NS	NS	NS
	C2-MW-7	05/12/09	0.080 U	0.40 U	0.050 U
	C2-MW-7	12/17/09	NS	NS	NS
	C2-MW-7	03/29/10	NS	NS	NS
	C2-MW-7	05/26/10	NS	NS	NS
	C2-MW-7	11/30/10	NS	NS	NS
	C2-MW-7	03/25/11	**0.19**	**0.84**	0.050 U
C2-MW-10(R)	C2-MW-10	02/27/09	**0.82 B**	**1.6**	0.025 U
	C2-MW-10	05/12/09	**1.1**	**0.85**	0.050 U
	C2-MW-10	12/17/09	**1.5**	**1.8**	0.050 U
	C2-MW-10	03/29/10	**0.82**	**1.0**	0.050 U
	C2-MW-10	05/25/10	**0.77**	**0.99**	0.050 U
	C2-MW-10	11/30/10	**1.7**	**1.9**	0.050 U
	C2-MW-10	03/25/11	**1.4**	**1.1**	0.050 U
	C2-MW-10	10/12/11	**0.70**	**0.90**	0.050 U
	C2-MW-10	03/01/12	**1.2**	**1.1**	0.050 U
	C2-MW-10	09/20/12	**1.2**	**0.92**	0.025 U
	C2-MW-10-Dup	09/20/12	**1.1**	**0.99**	0.025 U
	C2-MW-10	03/21/13	**0.90**	**1.6**	NA
	C2-MW-10	09/23/13	NS	NS	NS
	C2-MW-10	03/21/14	NS	NS	NS
	C2-MW-10	09/03/14	NS	NS	NS
	C2-MW-10	09/03/14	NS	NS	NS

Table 7. Total Petroleum Hydrocarbons in the Shallow Zone
Former Fort Vancouver Plywood Site

Well ID	Sample ID	Date Sampled	TPH-Dx Diesel-Range mg/l	TPH-Dx Oil-Range mg/l	TPH-Gx Gasoline-Range mg/l
Ecology's MTCA Method B Surface Water Cleanup Levels			NE	NE	NE
Ecology's Acute Freshwater Surface Water Quality Criteria			NE	NE	NE
EPA's National Toxics Rule Human Health Criteria for Surface Water			NE	NE	NE
Ecology's MTCA Method A Groundwater Cleanup Levels			0.50	0.50	1.0 [(a)]
Ecology's MTCA Method B Groundwater Cleanup Levels			NE	NE	NE
C2-MW-11	C2-MW-11	02/27/09	**1.2 B**	**0.73**	0.025 U
	C2-MW-11	05/12/09	0.085 U	0.43 U	0.050 U
	C2-MW-11	12/18/09	**0.78**	**0.88**	**0.11**
	C2-MW-11	03/29/10	**0.56**	**0.61**	0.050 U
	C2-MW-11	05/26/10	**0.68**	**0.77**	**0.069**
	C2-MW-11	11/30/10	**0.27**	**0.39**	0.050 U
	C2-MW-11	03/25/11	**0.74**	**0.58**	**0.053**
	C2-MW-11	10/12/11	**0.19**	0.38 U	0.050 U
	C2-MW-11	03/01/12	**0.51**	**0.58**	0.050 U
	C2-MW-11	09/20/12	**0.27**	0.80 U	0.025 U
	C2-MW-11	03/22/13	0.40 U	**0.53**	0.10 U
	C2-MW-11	09/23/13	0.011 U	0.018 U	0.10 U
	C2-MW-11	03/21/14	**0.39**	**0.12 J**	**0.21**

Notes:
B = Constituent was detected above the laboratory reporting limit in the method blank.
DUP = Duplicate sample.
J = Constituent was not positively identified; the associated value is estimated.
mg/l = milligrams per liter
MTCA = Washington State Department of Ecology Model Toxics Control Act
NA = Not analyzed
NE = Not established
NS = Not sampled because well was not accessible.
U = Constituent not detected at or above noted limit.
TPH = Total Petroleum Hydrocarbons
TPH-Gx = Total Petroleum Hydrocarbons gasoline-range
TPH-Dx = Total Petroleum Hydrocarbons diesel- and oil-range
Values in **bold** were detected above the laboratory method detection limit.
= Indicates a monitoring well that was either abandoned or unlocatable as paved over.
= Indicates an exceedance of a screening criterion.
Ecology's MTCA values were obtained from the Washington State Department of Ecology Cleanup Level and Risk Calculations (CLARC) web site. The lower of the carcinogen and noncarcinogen MTCA Method B value is presented. https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx
Ecology's Acute Freshwater Surface Water Quality Criteria were obtained from the Washington State Legislature Washington Administrative Code web site. http://apps.leg.wa.gov/WAC/default.aspx?cite=173-201A-240
EPA's National Toxics Rule Human Health Criteria for Surface Water were obtained through the Washington State Department of Ecology web site for Toxics Standards and Criteria. http://www.ecy.wa.gov/programs/wq/swqs/toxics.html
(a) = Value is for gasoline concentration when benzene is not present.

Appendix A
Field Forms

AECOM

DATE 9/11/17

DAY	S	M	T	W	TH	F	S
		(M)					

WEATHER	BRIGHT SUN	CLEAR	OVERCAST	RAIN	SNOW
TEMP	To 32	32-50	(50-70) →	70-85	85 up
WIND	Still	Moder	High	Report No.	
HUMIDITY	(Dry)	Moder	Humid		

PROJECT MANAGER: Nicky Moody

PROJECT: POV FVP

JOB NO.:

AECOM FIELD REP: MARK TAUSCHER

SUB-CONTRACTORS ON SITE: NONE

EQUIPMENT ON SITE: GW Sampling supplies

WORK PERFORMED:

- Picked up sample bottles from APEX @ 0710
- AECOM ON SITE @ 0815, check in with main security gate.
  - looking to sample CZ series wells first.

0930 - CZ-MW-11(R) sediment built up in bottom of well. only ≈4' of water in well. Bailers are 3' long. sampled Gx and voc's with bailer, but sampled Dx with tubing because the Gear was if I attempted to fill 2 1 Litre bottles with the bailer, I would stir up too much sediment.

NOTE - tried to clear as much water/sediment as possible with bailer after sampling. well ran dry after 1 bailer and did not recharge quickly.

1315 - Sealed area around CZ-MW-6
Also sealed CZ-MW-12B and former CZ-MW-5

1400 - completed CZ series wells.

1600 - begin sampling C1 series wells at PACIFIC SHEEDING

1800 - All locations that need sealant have had 2 coats (and some other well location too)

BY TITLE

SHEET ____ OF ____

Groundwater Level Form

(Page 1)

AECOM

Project Information	
Project Name: POV FVP	Date: 9/11/17
URS Project Number: 25698089	Personnel: MARK TAUSCHER

Measurements

Well Number	Time	Depth to Water	Total Depth	Depth to Product	Comments
C2-MW-3	1517	12.58	16'	–	
C2-MW-6	–	–	–	–	abandoned
C2-MW-9	1140	25.16	35'	–	
C2-MW-10(R2)	1040	27.96	35'	–	
C2-MW-11(R)	0905	25.27	30'	–	
C2-MW-12B	1335	26.57	50'	–	well under pressure
C1-MW-2	–	–	–	–	abandoned
C1-MW-3	–	–	–	–	abandoned
C1-MW-4	1709	24.44	32'	–	
C1-MW-7	1821	16.91	30'	–	NEED TO PLACE METAL PLATE OVER WELL
C1-MW-9	–	–	–	–	abandoned

Monitoring Well Sampling Field Log

Page 1 of ____

Well Number: CI-MW-4

Date: 9/11/17

Project Information	
Project Name:	POV FVP
URS Project Number:	
Sampling Information	
Field Team:	M. TAUSCHER
Purge Method:	P-PUMP
Pump Intake Depth (ft btc):	29
Flow-Through Cell:	HORIBA U52
Sampling Method:	BAILER
Decontamination Method:	NA
Purge Water Disposal:	ON SITE
Field Conditions:	SUNNY 80°
Comments:	
Initial DTW:	24.44

Well Information			Stick-up or (Flush)		(circle one)
Well Diameter (in)	Drilled Well Depth (ft bgs)	(ft btc)	Top of Screen (ft bgs)	(ft btc)	Screen Interval (ft bgs)
2	32		17		17 - 32

CMT Port=0.006 gal/ft 3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft

Sample Containers				Filtered?
Number	Type	Preservative	Analytical Parameters	
6	VOA	HCL	VOC's	N

Well Purge Data

Time	Volume Purged (L)	Purge Rate (mL/m)	DTW (ft btc)	Temp. (°C)	Conductivity (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity / Color / Remarks
1709	Pump On		24.44 (Initial)	-	±3%	±greater of 10% or 0.2mg/L	±0.1	±10mv	±10%	<= Stabilization Criteria
1715	0	100	24.76	21.47	1.36	3.08	6.63	-7	0.0	Clear
1720	.5	100	24.77	20.49	1.37	2.34	6.68	-19	0.0	Clear
1725	1.0	100	24.79	20.58	1.38	2.23	6.69	-25	0.0	Clear
1730	1.5	100	24.79	20.87	1.38	1.99	6.68	-29	0.0	Clear
1735	2.0	100	24.80	20.59	1.40	2.15	6.66	-31	0.0	Clear
1740	2.5	100	24.80	20.51	1.40	1.96	6.65	-33	0.0	Clear
1745	3.0	100	24.81	20.38	1.41	1.98	6.65	-34	0.0	Clear
1750	3.5	100	24.81	20.36	1.41	1.99	6.65	-34	0.0	Clear
1755	SAMPLE									
	Start Sampling	1755								
	End Sampling		Final							

Sample Number: CI-MW-4 **Sample Time:** 1755

Notes: AC = almost clear; bgs = below ground surface; btc = below top of casing; Cl = cloudy; DTW = depth to water; C = clear; VC = very cloudy; SC = slightly cloudy

Monitoring Well Sampling Field Log

Page 1 of ____

Well Number: CZ-MW-3

Date: 9/11/17

Project Information	
Project Name:	POV FVP
URS Project Number:	

Sampling Information	
Field Team:	M. TAUSCHER
Purge Method:	P-PUMP
Pump Intake Depth (ft btc):	15
Flow-Through Cell:	HORIBA-U52
Sampling Method:	BAILER
Decontamination Method:	NA
Purge Water Disposal:	ON SITE
Field Conditions:	SUNNY 85°

Comments:

Initial DTW: 12.58

Well Information			Stick-up or Flush (circle one)		
Well Diameter (in)	Drilled Well Depth (ft bgs)	Drilled Well Depth (ft btc)	Top of Screen (ft bgs)	Top of Screen (ft btc)	Screen Interval (ft bgs)
2	16		6		6 - 16

CMT Port=0.006 gal/ft 3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft

Sample Containers				
Number	Type	Preservative	Analytical Parameters	Filtered?
3	VOA	HCL	624	N
2	1L AMB	HCL	DX	N

Well Purge Data

Time	Volume Purged (L)	Purge Rate (mL/m)	DTW (ft btc)	Temp. (°C)	Conductivity mS/cm	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity / Color / Remarks
1517	Pump On		12.58 Initial	-	±3%	±greater of 10% or 0.2mg/L	±0.1	±10mv	±10%	<= Stabilization Criteria
1520	0	100	12.99	21.11	0.212	5.79	6.89	104	0.0	clear
1525	.5	50	13.42	22.18	0.209	2.86	6.82	118	0.0	clear
1530	.75	50	13.50	24.42	0.221	2.04	6.84	112	0.0	clear
1535	1	50	13.52	24.74	0.224	1.95	6.83	112	0.0	clear
1540	1.25	50	13.53	23.67	0.222	1.63	6.85	111	0.0	clear
1545	1.50	50	13.53	23.63	0.222	1.64	6.85	111	0.0	clear
1550	1.75	50	13.53	23.55	0.222	1.49	6.85	111	0.0	clear
1555	2.0	50	13.54	23.57	0.222	1.49	6.85	110	0.0	clear
1600	2.25	50	13.54	23.54	0.222	1.47	6.85	111	0.0	clear
1600	SAMPLE									

MT

Start Sampling 1600

End Sampling

Final

Sample Number: CZ-MW-3 **Sample Time:** 1600

Notes: AC = almost clear; bgs = below ground surface; btc = below top of casing; Cl = cloudy; DTW = depth to water; C = clear; VC = very cloudy; SC = slightly cloudy

Monitoring Well Sampling Field Log

Page 1 of ____

Well Number: CZ-MW-9

Date: 9/11/17

Project Information	
Project Name:	POV FVP
URS Project Number:	

Sampling Information	
Field Team:	M. TAUSCHER
Purge Method:	P-PUMP
Pump Intake Depth (ft btc):	30
Flow-Through Cell:	HORIBA U52
Sampling Method:	BAILER
Decontamination Method:	NA
Purge Water Disposal:	ON SITE
Field Conditions:	SUNNY 80°

Comments:

Initial DTW: 25.16

Sampled w/ Bailer

Duplicate collected CZ-MW-9(DUP) 1240

Well Information			Stick-up or (Flush)		(circle one)
Well Diameter (in)	Drilled Well Depth (ft bgs)	Drilled Well Depth (ft btc)	Top of Screen (ft bgs)	Top of Screen (ft btc)	Screen Interval (ft bgs)
2	35		25		25 - 35

CMT Port=0.006 gal/ft 3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft

Sample Containers				
Number	Type	Preservative	Analytical Parameters	Filtered?
3	VOA	HCL	GX	N
3	VOA	HCL	VOC	N
2	1L AMB	HCL	DX	N
3	VOA	HCL	GX	N
3	VOA	HCL	VOC	N
2	1L AMB	HCL	DX	N

Well Purge Data

Time	Volume Purged (L)	Purge Rate (mL/m)	DTW (ft btc)	Temp. (°C)	Conductivity (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity / Color / Remarks
1040	Pump On		Initial 25.16	-	±3%	±greater of 10% or 0.2mg/L	±0.1	±10mv	±10%	<= Stabilization Criteria
1045	0	100	25.44	17.52	0.655	2.20	6.77	-70	5.9	
1150	.5	100	25.91	17.55	0.654	2.20	6.78	-72	0.0	clear
1155	1	100	26.05	17.45	0.650	2.15	6.77	-73	0.0	clear
1200	1.5	100	26.14	18.50	0.675	1.93	6.75	-76	0.0	clear
1205	1.75	50	26.15	18.57	0.674	1.91	6.75	-77	0.0	clear
1210	2.0	50	26.19	18.85	0.679	1.83	6.74	-78	0.0	clear
1215	2.25	50	26.22	18.72	0.693	1.86	6.74	-78	0.0	clear
1220	2.5	50	26.23	18.76	0.710	1.71	6.74	-78	0.0	clear
1225	2.75	50	26.28	18.91	0.713	1.68	6.74	-78	0.0	clear
1230	3.0	50	26.31	18.93	0.725	1.62	6.74	-78	0.0	clear
1235	SAMPLE									

MT

Start Sampling 1235

End Sampling

Final

Sample Number: CZ-MW-9 (DUP) 1240

Sample Number: CZ-MW-9 Sample Time: 1235

Notes: AC = almost clear; bgs = below ground surface; btc = below top of casing; Cl = cloudy; DTW = depth to water; C = clear; VC = very cloudy; SC = slightly cloudy

Monitoring Well Sampling Field Log

Page 1 of ___

Well Number: CZ-MW-11 (R)

Date: 9/11/17

Project Information	
Project Name:	POV FVP
URS Project Number:	
Sampling Information	
Field Team:	MARK TAUSCHER
Purge Method:	P-PUMP
Pump Intake Depth (ft btc):	28
Flow-Through Cell:	HORIBA U52
Sampling Method:	LOW FLOW / BAILER
Decontamination Method:	NA
Purge Water Disposal:	ON SITE
Field Conditions:	SUNNY 75°

Comments:

Initial DTW: 25.27

SAMPLED VOAS (VOC's & GRX) with a bailer.

SAMPLED DX (1L AMB) with tubing / Low flow - p-pump method - sediment in bottom of well

Well Information			Stick-up or (Flush) (circle one)		
Well Diameter (in)	Drilled Well Depth (ft bgs)	Drilled Well Depth (ft btc)	Top of Screen (ft bgs)	Top of Screen (ft btc)	Screen Interval (ft bgs)
2	30		15		15 - 30

CMT Port=0.006 gal/ft 3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft

Sample Containers				
Number	Type	Preservative	Analytical Parameters	Filtered?
3	VOA	HCL	VOC's	N
3	VOA	HCL	GRX	N
2	1L AMB	HCL	DX	N

Well Purge Data

Time	Volume Purged (L)	Purge Rate (mL/m)	DTW (ft btc)	Temp. (°C)	Conductivity (µS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity / Color / Remarks
0905	Pump On		Initial 25.27	-	±3%	±greater of 10% or 0.2mg/L	±0.1	±10mv	±10%	<= Stabilization Criteria
0910	0	50	25.32	21.05	1.10	11.06	8.40	66	90.0	TURBID
0920	.5	50	25.30	19.07	0.750	3.43	6.85	-87	704	CLOUDY
0925	.75	50	25.30	18.01	0.737	2.93	6.78	-90	588	CLOUDY
0935	1.25	50	25.29	18.31	0.743	2.57	6.81	-95	292	CLOUDY
0940	1.5	50	25.31	17.93	0.741	2.46	6.81	-98	164	CLOUDY
0945	1.75	50	25.31	17.89	0.742	2.41	6.81	-99	112	CLOUDY
0950	2.0	50	25.31	17.76	0.748	2.37	6.81	-102	109	CLOUDY
0955	2.25	50	25.32	17.83	0.761	2.33	6.80	-104	48.9	AC
1000	2.5	50	25.32	17.85	0.762	2.34	6.81	-104	33.8	AC
1005	2.75	50	25.32	18.04	0.774	2.35	6.81	-105	9.81	CLEAR
1010	SAMPLE									
					NT					
	Start Sampling	1010								
	End Sampling	1030	Final							

Sample Number: CZ-MW-11(R) **Sample Time:** 1010

Notes: AC = almost clear; bgs = below ground surface; btc = below top of casing; CI = cloudy; DTW = depth to water; C = clear; VC = very cloudy; SC = slightly cloudy

Monitoring Well Sampling Field Log

Page 1 of ____

Well Number: C2-MW-12B

Date: 9/11/17

Project Information	
Project Name:	POV EVP
URS Project Number:	
Sampling Information	
Field Team:	MARK TAUSCHER
Purge Method:	Bladder Pump
Pump Intake Depth (ft btc):	45
Flow-Through Cell:	HORIBA U52
Sampling Method:	BAILER
Decontamination Method:	NA
Purge Water Disposal:	ON SITE
Field Conditions:	Sunny 80°
Comments:	
Initial DTW:	26.57

well under pressure upon gauging. left to equilibrate

Well Information			Stick-up or Flush (circle one)		
Well Diameter (in)	Drilled Well Depth (ft bgs)	(ft btc)	Top of Screen (ft bgs)	(ft btc)	Screen Interval (ft bgs)
2	50		40		40 - 50

CMT Port=0.006 gal/ft 3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft

Sample Containers				
Number	Type	Preservative	Analytical Parameters	Filtered?
3	VOA	HCL	Gx	N
3	VOA	HCL	VOC's	N
2	1L AMB	HCL	Dx	N

Well Purge Data

Time	Volume Purged (L)	Purge Rate (mL/m)	DTW (ft btc)	Temp. (°C)	Conductivity (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity / Color / Remarks
1335	Pump On		26.57 (Initial)	-	±3%	±greater of 10% or 0.2mg/L	±0.1	±10mv	±10%	<= Stabilization Criteria
1345	1	100	26.58	17.60	0.282	4.66	7.28	69	error	very turb.d
1350	1.5	100	26.58	16.85	0.280	5.95	7.31	83	448	Brown
1355	2.0	100	26.59	17.96	0.288	6.18	7.29	89	268	Brown
1400	2.5	100	26.60	18.43	0.291	6.16	7.29	91	238	cloudy
1405	3.0	100	26.60	19.08	0.293	6.31	7.29	95	186	Cloudy
1410	3.5	100	26.20	19.51	0.305	6.30	7.31	101	119	AC
1415	4.0	100	26.61	19.59	0.309	6.24	7.30	104	114	AC
1420	4.5	100	26.61	19.21	0.292	6.20	7.31	97	88.4	AC
1425	5.0	100	26.61	19.72	0.293	6.21	7.31	98	83.9	AC
1430	5.5	100	26.62	20.17	0.298	6.22	7.31	102	76.3	AC
1435	6.0	100	26.62	20.15	0.298	6.22	7.32	104	67.5	AC
1438	6.25	100	26.63	20.16	0.298	6.23	7.32	105	65.7	AC
1441	6.50	100	26.63	20.09	0.298	6.23	7.32	105	65.4	AC
1444	6.75	100	26.63	20.16	0.298	6.23	7.32	105	62.9	AC
1445	SAMPLE									
	Start Sampling	1445								
	End Sampling		Final							

Sample Number: C2-MW-12B **Sample Time:** 1445

Notes: AC = almost clear; bgs = below ground surface; btc = below top of casing; Cl = cloudy; DTW = depth to water; C = clear; VC = very cloudy; SC = slightly cloudy

Monitoring Well Sampling Field Log

Page 1 of ____

Well Number: CI-MW-7

Date: 9/11/17

Project Information	
Project Name:	POV EVP
URS Project Number:	
Sampling Information	
Field Team:	M. TAUSCHER
Purge Method:	P-PUMP
Pump Intake Depth (ft btc):	
Flow-Through Cell:	HORIBA - U52
Sampling Method:	
Decontamination Method:	
Purge Water Disposal:	
Field Conditions:	
Comments:	
Initial DTW:	16.91

NEED TO PLACE PLATE OVER THIS WELL

Well Information			Stick-up or Flush (circle one)		
Well Diameter (in)	Drilled Well Depth (ft bgs)	Drilled Well Depth (ft btc)	Top of Screen (ft bgs)	Top of Screen (ft btc)	Screen Interval (ft bgs)
2					-

CMT Port=0.006 gal/ft 3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft

Sample Containers				Filtered?
Number	Type	Preservative	Analytical Parameters	
3	VOA	BTEX	HCL	
3	VOA	MTBE	HCL	

Well Purge Data

Time	Volume Purged (L)	Purge Rate (mL/m)	DTW (ft btc)	Temp. (°C)	Conductivity (µS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity / Color / Remarks
1821	Pump On		16.91 (Initial)	-	±3%	±greater of 10% or 0.2mg/L	±0.1	±10mv	±10%	<= Stabilization Criteria
1825	0	100	17.06	24.00	1.33	9.23	6.65	-45	0.0	clear
1830	.5	100	17.14	18.61	1.16	2.28	6.64	-81	0.0	clear
1835	1	100	17.29	18.73	1.14	2.06	6.64	-86	0.0	clear
1840	1.5	100	17.55	20.82	1.18	1.65	6.63	-91	0.0	clear
1845	2.0	100	17.76	21.01	1.18	1.62	6.63	-91	0.0	clear
1850	2.5	100	17.99	21.09	1.19	1.58	6.63	-91	0.0	clear
1855	3.0	100	18.21	21.32	1.19	1.52	6.62	-91	0.0	clear
1900	SAMPLE									

MT

Start Sampling	1900		
End Sampling			
	Final		

Sample Number: CI-MW-7 **Sample Time:** 1900

Notes: AC = almost clear; bgs = below ground surface; btc = below top of casing; Cl = cloudy; DTW = depth to water; C = clear; VC = very cloudy; SC = slightly cloudy

Monitoring Well Sampling Field Log

Page 1 of ____

Well Number: C2-MW-10(R2)

Date: 9/11/17

Project Information	
Project Name:	POV FVP
URS Project Number:	
Sampling Information	
Field Team:	M TAUSCHER
Purge Method:	P-PUMP
Pump Intake Depth (ft btc):	32
Flow-Through Cell:	HORIBA-U52
Sampling Method:	BAILER
Decontamination Method:	NA
Purge Water Disposal:	ON SITE
Field Conditions:	SUNNY 75°
Comments:	
Initial DTW:	27.96
Sampled w/ Bailer	

Well Information — Stick-up or (Flush) (circle one)

Well Diameter (in)	Drilled Well Depth (ft bgs)	Drilled Well Depth (ft btc)	Top of Screen (ft bgs)	Top of Screen (ft btc)	Screen Interval (ft bgs)
2	35		20		20 - 35

CMT Port=0.006 gal/ft 3/4"=0.023 gal/ft 2"=0.17 gal/ft 4"=0.66 gal/ft 6"=1.5 gal/ft

Sample Containers

Number	Type	Preservative	Analytical Parameters	Filtered?
6	VOA	HCL	GTX	N
2	1 L AMB	HCL	DX	N

Well Purge Data

Time	Volume Purged (L)	Purge Rate (mL/m)	DTW (ft btc)	Temp. (°C)	Conductivity (µS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTUs)	Clarity / Color / Remarks
1040	Pump On		Initial 27.96	-	±3%	±greater of 10% or 0.2mg/L	±0.1	±10mv	±10%	<= Stabilization Criteria
1050	0	50	27.96	24.32	0.917	1.73	6.55	44	10.3	clear
1055	.25	50	27.98	21.14	0.896	1.91	6.83	-61	3.2	clear
1100	1.0	120	28.00	19.84	0.851	2.04	6.86	-70	5.9	clear
1105	1.75	125	28.00	19.85	0.851	2.04	6.86	-70	5.0	clear
1110	2.25	100	28.01	19.67	0.846	2.01	6.87	-72	1.0	clear
1115	2.75	100	28.01	19.57	0.844	2.00	6.87	-72	0.0	clear
1120	3.25	100	28.01	19.54	6.842	1.97	6.87	-73	0.0	clear
1120	SAMPLE									
	Start Sampling	1120								
	End Sampling	1133	Final							

MT

Sample Number: C2-MW-10(R2) **Sample Time:** 1120

Notes: AC = almost clear; bgs = below ground surface; btc = below top of casing; Cl = cloudy; DTW = depth to water; C = clear; VC = very cloudy; SC = slightly cloudy

Appendix B
Laboratory Report and Chain-of-Custody Form

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Thursday, September 28, 2017

Nicky Moody
AECOM
111 SW Columbia St. Ste. 1500
Portland, OR 97201

RE: POV FVP / [none]

Enclosed are the results of analyses for work order A7I0314, which was received by the laboratory on 9/12/2017 at 10:51:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
C1-MW-4	A7I0314-01	Water	09/11/17 17:55	09/12/17 10:51
C1-MW-7	A7I0314-02	Water	09/11/17 19:00	09/12/17 10:51
C2-MW-3	A7I0314-03	Water	09/11/17 16:00	09/12/17 10:51
C2-MW-9	A7I0314-04	Water	09/11/17 12:35	09/12/17 10:51
C2-MW-9(DUP)	A7I0314-05	Water	09/11/17 12:40	09/12/17 10:51
C2-MW-10(R2)	A7I0314-06	Water	09/11/17 11:20	09/12/17 10:51
C2-MW-11(R)	A7I0314-07	Water	09/11/17 10:10	09/12/17 10:51
C2-MW-12B	A7I0314-08	Water	09/11/17 14:45	09/12/17 10:51
Trip Blank	A7I0314-09	Water	09/11/17 00:00	09/12/17 10:51

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-3 (A7I0314-03RE1)			**Matrix: Water**		**Batch: 7090586**			
Diesel	ND	0.0935	0.187	mg/L	1	09/14/17 11:03	NWTPH-Dx	
Oil	**0.283**	0.187	0.374	"	"	"	"	J, F-03
Surrogate: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-9 (A7I0314-04RE1)			**Matrix: Water**		**Batch: 7090586**			
Diesel	ND	0.0935	0.187	mg/L	1	09/14/17 11:24	NWTPH-Dx	
Oil	ND	0.187	0.374	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 77 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-9(DUP) (A7I0314-05)			**Matrix: Water**		**Batch: 7090586**			
Diesel	ND	0.0943	0.189	mg/L	1	09/14/17 00:09	NWTPH-Dx	
Oil	ND	0.189	0.377	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 82 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-10(R2) (A7I0314-06)			**Matrix: Water**		**Batch: 7090586**			
Diesel	ND	0.0952	0.190	mg/L	1	09/14/17 00:31	NWTPH-Dx	
Oil	**0.216**	0.190	0.381	"	"	"	"	J
Surrogate: o-Terphenyl (Surr)			*Recovery: 99 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-11(R) (A7I0314-07RE1)			**Matrix: Water**		**Batch: 7090586**			
Diesel	ND	0.0952	0.190	mg/L	1	09/14/17 11:45	NWTPH-Dx	
Oil	ND	0.190	0.381	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 93 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-12B (A7I0314-08)			**Matrix: Water**		**Batch: 7090586**			
Diesel	ND	0.0952	0.190	mg/L	1	09/14/17 01:39	NWTPH-Dx	
Oil	ND	0.190	0.381	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 101 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-3 (A7I0314-03)			**Matrix: Water**		**Batch: 7090560**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	09/13/17 18:07	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 89 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*96 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-9 (A7I0314-04)			**Matrix: Water**		**Batch: 7090560**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	09/13/17 18:35	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 90 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*95 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-9(DUP) (A7I0314-05)			**Matrix: Water**		**Batch: 7090560**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	09/13/17 19:03	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 92 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*97 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-10(R2) (A7I0314-06)			**Matrix: Water**		**Batch: 7090560**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	09/13/17 19:32	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 94 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*98 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-11(R) (A7I0314-07)			**Matrix: Water**		**Batch: 7090560**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	09/13/17 20:00	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 91 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*97 %*	*Limits: 50-150 %*	"	"	"	
C2-MW-12B (A7I0314-08)			**Matrix: Water**		**Batch: 7090560**			
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	09/13/17 20:28	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 93 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*97 %*	*Limits: 50-150 %*	"	"	"	

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
Trip Blank (A7I0314-09)			**Matrix: Water**		**Batch: 7090560**			
Benzene	ND	0.100	0.200	ug/L	1	09/13/17 15:18	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
Xylenes, total	ND	0.750	1.50	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 107 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*101 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C1-MW-7 (A7I0314-02)			**Matrix: Water**		**Batch: 7090560**			
Benzene	ND	0.100	0.200	ug/L	1	09/13/17 17:39	EPA 8260C	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Methyl tert-butyl ether (MTBE)	**15.3**	0.500	1.00	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
Xylenes, total	ND	0.750	1.50	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 106 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*101 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*97 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C1-MW-4 (A7I0314-01)			**Matrix: Water**		**Batch: 7090560**			
Acetone	ND	20.0	20.0	ug/L	1	09/13/17 16:42	EPA 8260C	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	5.00	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	**0.540**	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	**1.18**	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	
2,2-Dichloropropane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C1-MW-4 (A7I0314-01)			**Matrix: Water**		**Batch: 7090560**			
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	10.0	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	10.0	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	2.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	**0.300**	0.200	0.400	"	"	"	"	J
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 104 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*100 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-9 (A7I0314-04)			**Matrix: Water**		**Batch: 7090560**			
Acetone	ND	20.0	20.0	ug/L	1	09/13/17 18:35	EPA 8260C	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	5.00	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	
2,2-Dichloropropane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-9 (A7I0314-04)			**Matrix: Water**		**Batch: 7090560**			
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	10.0	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	10.0	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	2.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	**0.860**	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 105 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*101 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-9(DUP) (A7I0314-05)			**Matrix: Water**		**Batch: 7090560**			
Acetone	ND	20.0	20.0	ug/L	1	09/13/17 19:03	EPA 8260C	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	5.00	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	
2,2-Dichloropropane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-9(DUP) (A7I0314-05)			**Matrix: Water**		**Batch: 7090560**			
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	10.0	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	10.0	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	2.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	**0.840**	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 108 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*101 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-11(R) (A7I0314-07)			**Matrix: Water**		**Batch: 7090560**			
Acetone	ND	20.0	20.0	ug/L	1	09/13/17 20:00	EPA 8260C	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	5.00	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	
2,2-Dichloropropane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-11(R) (A7I0314-07)			**Matrix: Water**		**Batch: 7090560**			
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	10.0	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	10.0	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	2.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	**1.13**	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 107 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*101 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*96 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-12B (A7I0314-08)			**Matrix: Water**		**Batch: 7090560**			
Acetone	ND	20.0	20.0	ug/L	1	09/13/17 20:28	EPA 8260C	
Benzene	ND	0.100	0.200	"	"	"	"	
Bromobenzene	ND	0.250	0.500	"	"	"	"	
Bromochloromethane	ND	0.500	1.00	"	"	"	"	
Bromodichloromethane	ND	0.500	1.00	"	"	"	"	
Bromoform	ND	0.500	1.00	"	"	"	"	
Bromomethane	ND	5.00	5.00	"	"	"	"	
2-Butanone (MEK)	ND	5.00	10.0	"	"	"	"	
n-Butylbenzene	ND	0.500	1.00	"	"	"	"	
sec-Butylbenzene	ND	0.500	1.00	"	"	"	"	
tert-Butylbenzene	ND	0.500	1.00	"	"	"	"	
Carbon tetrachloride	ND	0.500	1.00	"	"	"	"	
Chlorobenzene	ND	0.250	0.500	"	"	"	"	
Chloroethane	ND	5.00	5.00	"	"	"	"	
Chloroform	ND	0.500	1.00	"	"	"	"	
Chloromethane	ND	2.50	5.00	"	"	"	"	
2-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
4-Chlorotoluene	ND	0.500	1.00	"	"	"	"	
Dibromochloromethane	ND	0.500	1.00	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	"	"	
Dibromomethane	ND	0.500	1.00	"	"	"	"	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	"	"	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloroethane	ND	0.250	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	"	"	
1,1-Dichloroethene	ND	0.250	0.500	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	"	"	
1,2-Dichloropropane	ND	0.250	0.500	"	"	"	"	
1,3-Dichloropropane	ND	0.500	1.00	"	"	"	"	
2,2-Dichloropropane	ND	0.500	1.00	"	"	"	"	
1,1-Dichloropropene	ND	0.500	1.00	"	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
C2-MW-12B (A7I0314-08)			**Matrix: Water**		**Batch: 7090560**			
cis-1,3-Dichloropropene	ND	0.500	1.00	ug/L	1	"	EPA 8260C	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	"	"	
Ethylbenzene	ND	0.250	0.500	"	"	"	"	
Hexachlorobutadiene	ND	2.50	5.00	"	"	"	"	
2-Hexanone	ND	10.0	10.0	"	"	"	"	
Isopropylbenzene	ND	0.500	1.00	"	"	"	"	
4-Isopropyltoluene	ND	0.500	1.00	"	"	"	"	
Methylene chloride	ND	1.50	3.00	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	10.0	10.0	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	"	"	
Naphthalene	ND	2.00	2.00	"	"	"	"	
n-Propylbenzene	ND	0.250	0.500	"	"	"	"	
Styrene	ND	0.500	1.00	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	"	"	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	"	"	
Toluene	ND	0.500	1.00	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	"	"	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	"	"	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	"	"	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	"	"	
Trichlorofluoromethane	ND	1.00	2.00	"	"	"	"	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	"	"	
Vinyl chloride	ND	0.200	0.400	"	"	"	"	
m,p-Xylene	ND	0.500	1.00	"	"	"	"	
o-Xylene	ND	0.250	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 108 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*101 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*94 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090586 - EPA 3510C (Fuels/Acid Ext.)									**Water**			
Blank (7090586-BLK1)					Prepared: 09/13/17 13:47 Analyzed: 09/13/17 21:53							
NWTPH-Dx												
Diesel	ND	0.0909	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	0.182	0.364	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS (7090586-BS1)					Prepared: 09/13/17 13:47 Analyzed: 09/13/17 22:15							
NWTPH-Dx												
Diesel	1.28	0.100	0.200	mg/L	1	1.25	---	103	58-115%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 104 %*	*Limits: 50-150 %*		*Dilution: 1x*						
LCS Dup (7090586-BSD1)					Prepared: 09/13/17 13:47 Analyzed: 09/13/17 22:38							Q-19
NWTPH-Dx												
Diesel	1.29	0.100	0.200	mg/L	1	1.25	---	103	58-115%	0.2	20%	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*	*Limits: 50-150 %*		*Dilution: 1x*						

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B									**Water**			
Blank (7090560-BLK1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 11:32							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 92 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*96 %*		*50-150 %*				*"*			
LCS (7090560-BS2)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 11:04							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.444	0.0500	0.100	mg/L	1	0.500	---	89	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 91 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*97 %*		*50-150 %*				*"*			
Duplicate (7090560-DUP1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 17:11							
QC Source Sample: C1-MW-4 (A7I0314-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 90 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*95 %*		*50-150 %*				*"*			

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B									**Water**			
Blank (7090560-BLK1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 11:32							
EPA 8260C												
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Xylenes, total	ND	0.750	1.50	"	"	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 106 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*101 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*				*"*			
LCS (7090560-BS1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 10:35							
EPA 8260C												
Benzene	21.6	0.100	0.200	ug/L	1	20.0	---	108	80-120%	---	---	
Ethylbenzene	19.6	0.250	0.500	"	"	"	---	98	"	---	---	
Toluene	19.8	0.500	1.00	"	"	"	---	99	"	---	---	
Xylenes, total	57.2	0.750	1.50	"	"	60.0	---	95	"	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*98 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*94 %*		*80-120 %*				*"*			
Duplicate (7090560-DUP1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 17:11							
QC Source Sample: C1-MW-4 (A7I0314-01)												
EPA 8260C												
Benzene	ND	0.100	0.200	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Xylenes, total	ND	0.750	1.50	"	"	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 105 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*100 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*				*"*			
Matrix Spike (7090560-MS1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 20:56							
QC Source Sample: C2-MW-12B (A7I0314-08)												
EPA 8260C												
Benzene	23.2	0.100	0.200	ug/L	1	20.0	ND	116	79-120%	---	---	
Ethylbenzene	20.7	0.250	0.500	"	"	"	ND	104	79-121%	---	---	
Toluene	21.1	0.500	1.00	"	"	"	ND	105	80-121%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

BTEX Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B							**Water**					
Matrix Spike (7090560-MS1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 20:56							
QC Source Sample: C2-MW-12B (A7I0314-08)												
EPA 8260C												
Xylenes, total	60.6	0.750	1.50	ug/L	"	60.0	ND	101	79-121%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*98 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*92 %*		*80-120 %*		*"*					

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B									**Water**			
Blank (7090560-BLK1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 11:32							
EPA 8260C												
Benzene	ND	0.100	0.200	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Xylenes, total	ND	0.750	1.50	"	"	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 106 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*101 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*			*"*				
LCS (7090560-BS1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 10:35							
EPA 8260C												
Benzene	21.6	0.100	0.200	ug/L	1	20.0	---	108	80-120%	---	---	
Ethylbenzene	19.6	0.250	0.500	"	"	"	---	98	"	---	---	
Methyl tert-butyl ether (MTBE)	18.2	0.500	1.00	"	"	"	---	91	"	---	---	
Toluene	19.8	0.500	1.00	"	"	"	---	99	"	---	---	
Xylenes, total	57.2	0.750	1.50	"	"	60.0	---	95	"	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*94 %*		*80-120 %*			*"*				
Duplicate (7090560-DUP1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 17:11							
QC Source Sample: C1-MW-4 (A7I0314-01)												
EPA 8260C												
Benzene	ND	0.100	0.200	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Xylenes, total	ND	0.750	1.50	"	"	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 105 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*100 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*			*"*				
Matrix Spike (7090560-MS1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 20:56							
QC Source Sample: C2-MW-12B (A7I0314-08)												
EPA 8260C												

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B									**Water**			
Matrix Spike (7090560-MS1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 20:56							
QC Source Sample: C2-MW-12B (A7I0314-08)												
EPA 8260C												
Benzene	23.2	0.100	0.200	ug/L	1	20.0	ND	116	79-120%	---	---	
Ethylbenzene	20.7	0.250	0.500	"	"	"	ND	104	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	18.3	0.500	1.00	"	"	"	ND	92	71-124%	---	---	
Toluene	21.1	0.500	1.00	"	"	"	ND	105	80-121%	---	---	
Xylenes, total	60.6	0.750	1.50	"	"	60.0	ND	101	79-121%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*98 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*92 %*		*80-120 %*				*"*			

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B									**Water**			
Blank (7090560-BLK1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 11:32							
EPA 8260C												
Acetone	ND	20.0	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	1.00	2.00	"	"	---	---	---	---	---	---	
Benzene	ND	0.100	0.200	"	"	---	---	---	---	---	---	
Bromobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Bromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromodichloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromoform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Bromomethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	---	---	---	---	---	
n-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Carbon disulfide	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Chloroethane	ND	5.00	5.00	"	"	---	---	---	---	---	---	
Chloroform	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Chloromethane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Dibromochloromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dibromomethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1-Dichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	---	---	---	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B							**Water**					
Blank (7090560-BLK1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 11:32							
EPA 8260C												
1,3-Dichloropropane	ND	0.500	1.00	ug/L	"	---	---	---	---	---	---	
2,2-Dichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	---	---	---	---	---	
2-Hexanone	ND	10.0	10.0	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Methylene chloride	ND	1.50	3.00	"	"	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	10.0	10.0	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Naphthalene	ND	2.00	2.00	"	"	---	---	---	---	---	---	
n-Propylbenzene	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Styrene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Toluene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Trichlorofluoromethane	ND	1.00	2.00	"	"	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Vinyl chloride	ND	0.200	0.400	"	"	---	---	---	---	---	---	
m,p-Xylene	ND	0.500	1.00	"	"	---	---	---	---	---	---	
o-Xylene	ND	0.250	0.500	"	"	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 106 %* *Limits: 80-120 %* *Dilution: 1x*
Toluene-d8 (Surr) *101 %* *80-120 %* *"*

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B									**Water**			
Blank (7090560-BLK1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 11:32							
EPA 8260C												
Surr: 4-Bromofluorobenzene (Surr)			*Recovery: 98 %*	*Limits: 80-120 %*		*Dilution: 1x*						
LCS (7090560-BS1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 10:35							
EPA 8260C												
Acetone	30.5	20.0	20.0	ug/L	1	40.0	---	76	80-120%	---	---	Q-55
Acrylonitrile	18.3	1.00	2.00	"	"	20.0	---	91	"	---	---	
Benzene	21.6	0.100	0.200	"	"	"	---	108	"	---	---	
Bromobenzene	20.7	0.250	0.500	"	"	"	---	104	"	---	---	
Bromochloromethane	19.8	0.500	1.00	"	"	"	---	99	"	---	---	
Bromodichloromethane	22.3	0.500	1.00	"	"	"	---	111	"	---	---	
Bromoform	24.6	0.500	1.00	"	"	"	---	123	"	---	---	Q-56
Bromomethane	12.0	5.00	5.00	"	"	"	---	60	"	---	---	Q-55
2-Butanone (MEK)	33.8	5.00	10.0	"	"	40.0	---	85	"	---	---	
n-Butylbenzene	18.7	0.500	1.00	"	"	20.0	---	93	"	---	---	
sec-Butylbenzene	20.0	0.500	1.00	"	"	"	---	100	"	---	---	
tert-Butylbenzene	17.9	0.500	1.00	"	"	"	---	90	"	---	---	
Carbon disulfide	22.4	5.00	10.0	"	"	"	---	112	"	---	---	
Carbon tetrachloride	21.5	0.500	1.00	"	"	"	---	107	"	---	---	
Chlorobenzene	20.3	0.250	0.500	"	"	"	---	102	"	---	---	
Chloroethane	20.0	5.00	5.00	"	"	"	---	100	"	---	---	
Chloroform	21.6	0.500	1.00	"	"	"	---	108	"	---	---	
Chloromethane	25.4	2.50	5.00	"	"	"	---	127	"	---	---	Q-56
2-Chlorotoluene	20.8	0.500	1.00	"	"	"	---	104	"	---	---	
4-Chlorotoluene	19.7	0.500	1.00	"	"	"	---	98	"	---	---	
Dibromochloromethane	22.3	0.500	1.00	"	"	"	---	111	"	---	---	
1,2-Dibromo-3-chloropropane	18.4	2.50	5.00	"	"	"	---	92	"	---	---	
1,2-Dibromoethane (EDB)	20.7	0.250	0.500	"	"	"	---	104	"	---	---	
Dibromomethane	23.4	0.500	1.00	"	"	"	---	117	"	---	---	
1,2-Dichlorobenzene	20.8	0.250	0.500	"	"	"	---	104	"	---	---	
1,3-Dichlorobenzene	21.1	0.250	0.500	"	"	"	---	106	"	---	---	
1,4-Dichlorobenzene	20.7	0.250	0.500	"	"	"	---	104	"	---	---	
Dichlorodifluoromethane	19.8	0.500	1.00	"	"	"	---	99	"	---	---	
1,1-Dichloroethane	20.8	0.250	0.500	"	"	"	---	104	"	---	---	
1,2-Dichloroethane (EDC)	19.4	0.250	0.500	"	"	"	---	97	"	---	---	
1,1-Dichloroethene	19.8	0.250	0.500	"	"	"	---	99	"	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B								**Water**				
LCS (7090560-BS1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 10:35							
EPA 8260C												
cis-1,2-Dichloroethene	18.9	0.250	0.500	ug/L	"	"	---	94	"	---	---	
trans-1,2-Dichloroethene	20.3	0.250	0.500	"	"	"	---	102	"	---	---	
1,2-Dichloropropane	21.0	0.250	0.500	"	"	"	---	105	"	---	---	
1,3-Dichloropropane	20.3	0.500	1.00	"	"	"	---	101	"	---	---	
2,2-Dichloropropane	20.1	0.500	1.00	"	"	"	---	100	"	---	---	
1,1-Dichloropropene	19.9	0.500	1.00	"	"	"	---	100	"	---	---	
cis-1,3-Dichloropropene	17.9	0.500	1.00	"	"	"	---	89	"	---	---	
trans-1,3-Dichloropropene	20.5	0.500	1.00	"	"	"	---	103	"	---	---	
Ethylbenzene	19.6	0.250	0.500	"	"	"	---	98	"	---	---	
Hexachlorobutadiene	19.3	2.50	5.00	"	"	"	---	96	"	---	---	
2-Hexanone	26.6	10.0	10.0	"	"	40.0	---	66	"	---	---	Q-55
Isopropylbenzene	19.4	0.500	1.00	"	"	20.0	---	97	"	---	---	
4-Isopropyltoluene	19.9	0.500	1.00	"	"	"	---	100	"	---	---	
Methylene chloride	23.0	1.50	3.00	"	"	"	---	115	"	---	---	
4-Methyl-2-pentanone (MiBK)	28.3	10.0	10.0	"	"	40.0	---	71	"	---	---	Q-55
Methyl tert-butyl ether (MTBE)	18.2	0.500	1.00	"	"	20.0	---	91	"	---	---	
Naphthalene	15.9	2.00	2.00	"	"	"	---	79	"	---	---	Q-55
n-Propylbenzene	19.4	0.250	0.500	"	"	"	---	97	"	---	---	
Styrene	20.0	0.500	1.00	"	"	"	---	100	"	---	---	
1,1,1,2-Tetrachloroethane	22.0	0.250	0.500	"	"	"	---	110	"	---	---	
1,1,2,2-Tetrachloroethane	21.7	0.250	0.500	"	"	"	---	109	"	---	---	
Tetrachloroethene (PCE)	21.6	0.250	0.500	"	"	"	---	108	"	---	---	
Toluene	19.8	0.500	1.00	"	"	"	---	99	"	---	---	
1,2,3-Trichlorobenzene	17.4	1.00	2.00	"	"	"	---	87	"	---	---	
1,2,4-Trichlorobenzene	16.8	1.00	2.00	"	"	"	---	84	"	---	---	
1,1,1-Trichloroethane	20.5	0.250	0.500	"	"	"	---	102	"	---	---	
1,1,2-Trichloroethane	21.3	0.250	0.500	"	"	"	---	107	"	---	---	
Trichloroethene (TCE)	21.1	0.250	0.500	"	"	"	---	106	"	---	---	
Trichlorofluoromethane	19.2	1.00	2.00	"	"	"	---	96	"	---	---	
1,2,3-Trichloropropane	20.4	0.500	1.00	"	"	"	---	102	"	---	---	
1,2,4-Trimethylbenzene	19.9	0.500	1.00	"	"	"	---	99	"	---	---	
1,3,5-Trimethylbenzene	20.0	0.500	1.00	"	"	"	---	100	"	---	---	
Vinyl chloride	18.9	0.200	0.400	"	"	"	---	94	"	---	---	
m,p-Xylene	38.9	0.500	1.00	"	"	40.0	---	97	"	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B									**Water**			
LCS (7090560-BS1)					Prepared: 09/13/17 10:07 Analyzed: 09/13/17 10:35							
EPA 8260C												
o-Xylene	18.2	0.250	0.500	ug/L	"	20.0	---	91	"	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*94 %*		*80-120 %*			*"*				
Duplicate (7090560-DUP1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 17:11							
QC Source Sample: C1-MW-4 (A7I0314-01)												
EPA 8260C												
Acetone	ND	20.0	20.0	ug/L	1	---	ND	---	---	---	30%	
Acrylonitrile	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
Benzene	ND	0.100	0.200	"	"	---	ND	---	---	---	30%	
Bromobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Bromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromodichloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromoform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Bromomethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
n-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Carbon disulfide	ND	5.00	10.0	"	"	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Chloroethane	ND	5.00	5.00	"	"	---	ND	---	---	---	30%	
Chloroform	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Chloromethane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Dibromochloromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Dibromomethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B									**Water**			
Duplicate (7090560-DUP1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 17:11							
QC Source Sample: C1-MW-4 (A7I0314-01)												
EPA 8260C												
1,4-Dichlorobenzene	ND	0.250	0.500	ug/L	"	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethane	**0.540**	0.250	0.500	"	"	---	0.540	---	---	0	30%	
1,2-Dichloroethane (EDC)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	**1.06**	0.250	0.500	"	"	---	1.18	---	---	11	30%	
trans-1,2-Dichloroethene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	2.50	5.00	"	"	---	ND	---	---	---	30%	
2-Hexanone	ND	10.0	10.0	"	"	---	ND	---	---	---	30%	
Isopropylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Methylene chloride	ND	1.50	3.00	"	"	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	10.0	10.0	"	"	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	2.00	2.00	"	"	---	ND	---	---	---	30%	
n-Propylbenzene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Styrene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Toluene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	1.00	2.00	"	"	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B							**Water**					
Duplicate (7090560-DUP1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 17:11							
QC Source Sample: C1-MW-4 (A7I0314-01)												
EPA 8260C												
Trichlorofluoromethane	ND	1.00	2.00	ug/L	"	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
Vinyl chloride	**0.280**	0.200	0.400	"	"	---	0.300	---	---	7	30%	J
m,p-Xylene	ND	0.500	1.00	"	"	---	ND	---	---	---	30%	
o-Xylene	ND	0.250	0.500	"	"	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 105 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*100 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*98 %*		*80-120 %*		*"*					
Matrix Spike (7090560-MS1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 20:56							
QC Source Sample: C2-MW-12B (A7I0314-08)												
EPA 8260C												
Acetone	33.4	20.0	20.0	ug/L	1	40.0	ND	83	39-160%	---	---	Q-54e
Acrylonitrile	21.1	1.00	2.00	"	"	20.0	ND	105	63-135%	---	---	
Benzene	23.2	0.100	0.200	"	"	"	ND	116	79-120%	---	---	
Bromobenzene	20.9	0.250	0.500	"	"	"	ND	104	80-120%	---	---	
Bromochloromethane	20.4	0.500	1.00	"	"	"	ND	102	78-123%	---	---	
Bromodichloromethane	23.1	0.500	1.00	"	"	"	ND	115	79-125%	---	---	
Bromoform	25.2	0.500	1.00	"	"	"	ND	126	66-130%	---	---	Q-54
Bromomethane	13.0	5.00	5.00	"	"	"	ND	65	53-141%	---	---	Q-54d
2-Butanone (MEK)	34.9	5.00	10.0	"	"	40.0	ND	87	56-143%	---	---	
n-Butylbenzene	19.0	0.500	1.00	"	"	20.0	ND	95	75-128%	---	---	
sec-Butylbenzene	20.8	0.500	1.00	"	"	"	ND	104	77-126%	---	---	
tert-Butylbenzene	18.7	0.500	1.00	"	"	"	ND	94	78-124%	---	---	
Carbon disulfide	24.7	5.00	10.0	"	"	"	ND	124	64-133%	---	---	
Carbon tetrachloride	23.6	0.500	1.00	"	"	"	ND	118	72-136%	---	---	
Chlorobenzene	21.5	0.250	0.500	"	"	"	ND	108	80-120%	---	---	
Chloroethane	21.8	5.00	5.00	"	"	"	ND	109	60-138%	---	---	
Chloroform	23.0	0.500	1.00	"	"	"	ND	115	79-124%	---	---	
Chloromethane	25.2	2.50	5.00	"	"	"	ND	126	50-139%	---	---	Q-54a
2-Chlorotoluene	21.2	0.500	1.00	"	"	"	ND	106	79-122%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B							**Water**					
Matrix Spike (7090560-MS1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 20:56							
QC Source Sample: C2-MW-12B (A7I0314-08)												
EPA 8260C												
4-Chlorotoluene	20.4	0.500	1.00	ug/L	"	"	ND	102	78-122%	---	---	
Dibromochloromethane	22.8	0.500	1.00	"	"	"	ND	114	74-126%	---	---	
1,2-Dibromo-3-chloropropane	19.4	2.50	5.00	"	"	"	ND	97	62-128%	---	---	
1,2-Dibromoethane (EDB)	21.0	0.250	0.500	"	"	"	ND	105	77-121%	---	---	
Dibromomethane	24.0	0.500	1.00	"	"	"	ND	120	79-123%	---	---	
1,2-Dichlorobenzene	21.4	0.250	0.500	"	"	"	ND	107	80-120%	---	---	
1,3-Dichlorobenzene	21.7	0.250	0.500	"	"	"	ND	108	"	---	---	
1,4-Dichlorobenzene	20.9	0.250	0.500	"	"	"	ND	104	79-120%	---	---	
Dichlorodifluoromethane	22.0	0.500	1.00	"	"	"	ND	110	32-152%	---	---	
1,1-Dichloroethane	22.4	0.250	0.500	"	"	"	ND	112	77-125%	---	---	
1,2-Dichloroethane (EDC)	20.2	0.250	0.500	"	"	"	ND	101	73-128%	---	---	
1,1-Dichloroethene	21.8	0.250	0.500	"	"	"	ND	109	71-131%	---	---	
cis-1,2-Dichloroethene	19.7	0.250	0.500	"	"	"	ND	99	78-123%	---	---	
trans-1,2-Dichloroethene	22.1	0.250	0.500	"	"	"	ND	110	75-124%	---	---	
1,2-Dichloropropane	22.0	0.250	0.500	"	"	"	ND	110	78-122%	---	---	
1,3-Dichloropropane	20.6	0.500	1.00	"	"	"	ND	103	80-120%	---	---	
2,2-Dichloropropane	18.3	0.500	1.00	"	"	"	ND	92	60-139%	---	---	
1,1-Dichloropropene	21.9	0.500	1.00	"	"	"	ND	110	79-125%	---	---	
cis-1,3-Dichloropropene	17.9	0.500	1.00	"	"	"	ND	90	75-124%	---	---	
trans-1,3-Dichloropropene	20.5	0.500	1.00	"	"	"	ND	103	73-127%	---	---	
Ethylbenzene	20.7	0.250	0.500	"	"	"	ND	104	79-121%	---	---	
Hexachlorobutadiene	19.9	2.50	5.00	"	"	"	ND	99	66-134%	---	---	
2-Hexanone	26.7	10.0	10.0	"	"	40.0	ND	67	57-139%	---	---	Q-54c
Isopropylbenzene	20.6	0.500	1.00	"	"	20.0	ND	103	72-131%	---	---	
4-Isopropyltoluene	20.4	0.500	1.00	"	"	"	ND	102	77-127%	---	---	
Methylene chloride	23.8	1.50	3.00	"	"	"	ND	119	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	28.6	10.0	10.0	"	"	40.0	ND	71	67-130%	---	---	Q-54f
Methyl tert-butyl ether (MTBE)	18.3	0.500	1.00	"	"	20.0	ND	92	71-124%	---	---	
Naphthalene	16.9	2.00	2.00	"	"	"	ND	84	61-128%	---	---	Q-54b
n-Propylbenzene	20.1	0.250	0.500	"	"	"	ND	101	76-126%	---	---	
Styrene	20.3	0.500	1.00	"	"	"	ND	102	78-123%	---	---	
1,1,1,2-Tetrachloroethane	23.3	0.250	0.500	"	"	"	ND	116	78-124%	---	---	
1,1,2,2-Tetrachloroethane	21.6	0.250	0.500	"	"	"	ND	108	71-121%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260C

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7090560 - EPA 5030B												**Water**
Matrix Spike (7090560-MS1)					Prepared: 09/13/17 12:00 Analyzed: 09/13/17 20:56							
QC Source Sample: C2-MW-12B (A7I0314-08)												
EPA 8260C												
Tetrachloroethene (PCE)	23.3	0.250	0.500	ug/L	"	"	ND	116	74-129%	---	---	
Toluene	21.1	0.500	1.00	"	"	"	ND	105	80-121%	---	---	
1,2,3-Trichlorobenzene	18.4	1.00	2.00	"	"	"	ND	92	69-129%	---	---	
1,2,4-Trichlorobenzene	17.6	1.00	2.00	"	"	"	ND	88	69-130%	---	---	
1,1,1-Trichloroethane	22.0	0.250	0.500	"	"	"	ND	110	74-131%	---	---	
1,1,2-Trichloroethane	21.9	0.250	0.500	"	"	"	ND	110	80-120%	---	---	
Trichloroethene (TCE)	22.9	0.250	0.500	"	"	"	ND	114	79-123%	---	---	
Trichlorofluoromethane	21.5	1.00	2.00	"	"	"	ND	108	65-141%	---	---	
1,2,3-Trichloropropane	21.1	0.500	1.00	"	"	"	ND	106	73-122%	---	---	
1,2,4-Trimethylbenzene	20.0	0.500	1.00	"	"	"	ND	100	76-124%	---	---	
1,3,5-Trimethylbenzene	20.3	0.500	1.00	"	"	"	ND	102	75-124%	---	---	
Vinyl chloride	20.7	0.200	0.400	"	"	"	ND	104	58-137%	---	---	
m,p-Xylene	41.7	0.500	1.00	"	"	40.0	ND	104	80-121%	---	---	
o-Xylene	18.9	0.250	0.500	"	"	20.0	ND	94	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 104 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*98 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*92 %*		*80-120 %*			*"*				

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7090586							
A7I0314-03RE1	Water	NWTPH-Dx	09/11/17 16:00	09/13/17 13:47	1070mL/5mL	1000mL/5mL	0.94
A7I0314-04RE1	Water	NWTPH-Dx	09/11/17 12:35	09/13/17 13:47	1070mL/5mL	1000mL/5mL	0.94
A7I0314-05	Water	NWTPH-Dx	09/11/17 12:40	09/13/17 13:47	1060mL/5mL	1000mL/5mL	0.94
A7I0314-06	Water	NWTPH-Dx	09/11/17 11:20	09/13/17 13:47	1050mL/5mL	1000mL/5mL	0.95
A7I0314-07RE1	Water	NWTPH-Dx	09/11/17 10:10	09/13/17 13:47	1050mL/5mL	1000mL/5mL	0.95
A7I0314-08	Water	NWTPH-Dx	09/11/17 14:45	09/13/17 13:47	1050mL/5mL	1000mL/5mL	0.95

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7090560							
A7I0314-03	Water	NWTPH-Gx (MS)	09/11/17 16:00	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-04	Water	NWTPH-Gx (MS)	09/11/17 12:35	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-05	Water	NWTPH-Gx (MS)	09/11/17 12:40	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-06	Water	NWTPH-Gx (MS)	09/11/17 11:20	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-07	Water	NWTPH-Gx (MS)	09/11/17 10:10	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-08	Water	NWTPH-Gx (MS)	09/11/17 14:45	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00

BTEX Compounds by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7090560							
A7I0314-09	Water	EPA 8260C	09/11/17 00:00	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00

RBDM Compounds (BTEX+) by EPA 8260C

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7090560							
A7I0314-02	Water	EPA 8260C	09/11/17 19:00	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00

Volatile Organic Compounds by EPA 8260C

Prep: EPA 5030B

Sample	Default	RL Prep

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

SAMPLE PREPARATION INFORMATION

Volatile Organic Compounds by EPA 8260C

Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
Batch: 7090560							
A7I0314-01	Water	EPA 8260C	09/11/17 17:55	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-04	Water	EPA 8260C	09/11/17 12:35	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-05	Water	EPA 8260C	09/11/17 12:40	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-07	Water	EPA 8260C	09/11/17 10:10	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00
A7I0314-08	Water	EPA 8260C	09/11/17 14:45	09/13/17 12:00	5mL/5mL	5mL/5mL	1.00

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

Notes and Definitions

Qualifiers:

F-03	The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-54	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +3%. The results are reported as Estimated Values.
Q-54a	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by +7%. The results are reported as Estimated Values.
Q-54b	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -1%. The results are reported as Estimated Values.
Q-54c	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -14%. The results are reported as Estimated Values.
Q-54d	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -20%. The results are reported as Estimated Values.
Q-54e	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -4%. The results are reported as Estimated Values.
Q-54f	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260C/8270D by -9%. The results are reported as Estimated Values.
Q-55	Daily CCV/LCS recovery for this analyte was below the +/-20% criteria listed in EPA 8260C, however there is adequate sensitivity to ensure detection at the reporting level.
Q-56	Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260C

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

Blank Policy

Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.

For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

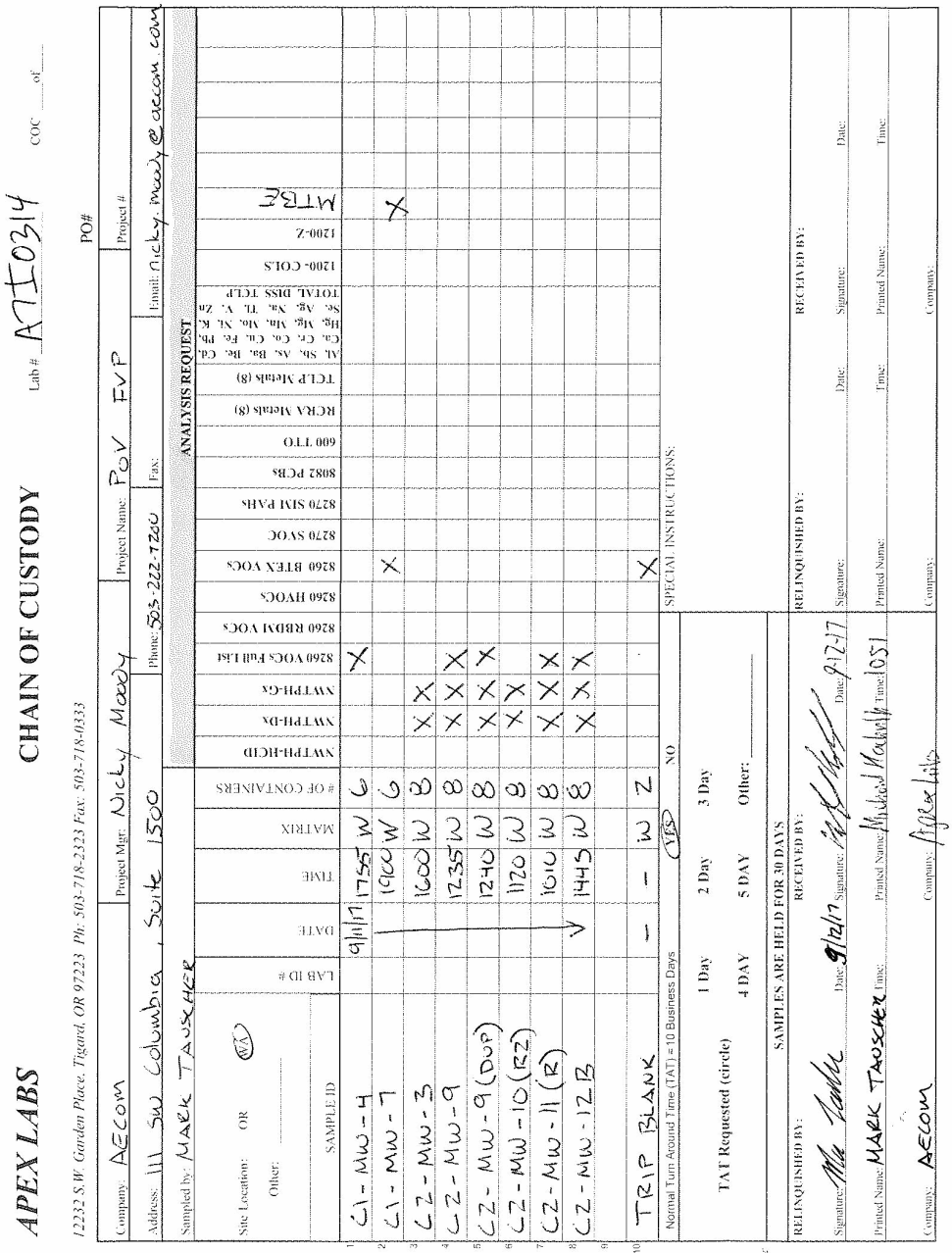
***

Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20



Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

AECOM	Project: **POV FVP**	
111 SW Columbia St. Ste. 1500	Project Number: [none]	**Reported:**
Portland, OR 97201	Project Manager: Nicky Moody	09/28/17 10:20

APEX LABS COOLER RECEIPT FORM

Client: AECOM Element WO#: A7 I0314

Project/Project #: POV FVP

Delivery info:

Date/Time Received: 9-12-17 @ 1051 By: MM

Delivered by: Apex X Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Inspected by: MM : 9-12-17 @ 1320

Chain of Custody Included? Yes X No

Custody Seals? Yes (X) No ~~X~~ MM 9/12

Signed/Dated by Client? Yes X No

Signed/Dated by Apex? Yes X No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	—	—					
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	3.9	4.3					
Ice Type: (Gel/Real/Other)							
Condition:	good	"					

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CM : 9/13/17 @ 1235

All Samples Intact? Yes Y No Comments:

Bottle Labels/COCs agree? Yes Y No Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No Comments:

Do VOA Vials have Visible Headspace? Yes No X NA

Comments C2-MW-11(R) 1/6 HCL vials has visible hed.

Water Samples: pH Checked and Appropriate (except VOAs): Yes X No NA

Comments:

Additional Information: TB # 1612

Labeled by: CM Witness: ALK Cooler Inspected by: CM See Project Contact Form: Y

Appendix C
Data Quality Review Report

AECOM
111 SW Columbia
Suite 1500
Portland, OR 97201
www.aecom.com

503 222 7200 tel
503 222 4292 fax

Data Quality Review Report

The data quality review of the seven primary groundwater samples, one field duplicate groundwater sample, and one trip blank sample collected on September 11, 2017, at the Former Fort Vancouver Plywood Site in Vancouver, Washington has been completed. Samples were submitted to Apex Laboratories (Apex) of Tigard, Oregon and were analyzed for one or more of the following: volatile organic compounds (VOCs) and RBDM compounds (benzene, toluene, ethylbenzene, total xylenes, and methyl tert-butyl ether by US Environmental Protection Agency [EPA] Method 8260C), gasoline-range hydrocarbons (Method NWTPH-Gx), and diesel-range and oil-range hydrocarbons (Method NWTPH-Dx).

The review included the analytical data presented in Apex report A710314. The data was reviewed based on *USEPA National Functional Guidelines for Organic Superfund Methods Data Review, January 2017*, and laboratory quality control criteria. Items reviewed included: chain-of-custody (COC) records and sample condition, hold times, surrogate recoveries, laboratory control and laboratory control duplicate results, laboratory duplicate results, field duplicate results, method blank results, trip blank results, and matrix spike results. Qualifiers assigned as a result of this review are included in Table 1. The following criteria were evaluated during the review:

- COC Records – Acceptable with the following notes:
    - The laboratory noted that sediment was visible in one of the six volatile organic compound (VOC) sample containers associated C2-MW-11(R) (A7I0314-07. Data were not qualified based on the presence of sediment in the sample container.
- Temperature – Acceptable
- Preservation – Acceptable
- Holding Times – Acceptable
- Trip Blanks – Acceptable where applicable
- Method Blanks – Acceptable

  Surrogates – Acceptable
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) – Acceptable with the following exceptions:
    - VOCs by EPA Method 8260C – The percent recoveries for acetone (76%), bromomethane (60%), 2-hexanone (66%), 4-methyl-2-pentanone (71%), and naphthalene (79%) in the LCS associated with analytical batch 7090560 were below the lower laboratory control limit of 80%. All of the associated sample results for these analytes were qualified as estimated and flagged 'UJ' for the potential low bias.
    - The percent recoveries for bromoform (123%) and chloromethane (127%) in the LCS associated with analytical batch 7090560 exceeded the upper laboratory control limit of 120%. Bromoform and chloromethane were not detected in the associated samples; therefore, data were not qualified for these analytes based on these elevated LCS recoveries.

- Laboratory Duplicate – Acceptable
- Field Duplicate – Acceptable where applicable
    - Sample C2-MW-9 (DUP) (A7I0314-05) was submitted as a field duplicate of sample C2-MW-9 (A7I0314-04). Relative percent difference calculations were not performed as all sample results were less than five times the method reporting limits.
- Reporting Limits – Acceptable
- Laboratory Notes and Qualifiers
    - The laboratory noted the oil result for sample C2-MW-3 (A7I0314-03RE1) was primarily due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported. The laboratory flagged the result 'F-03.' The result was qualified as estimated and flagged 'J' to remain consistent with project qualifiers.
    - The results for oil in C2-MW-3 and C2-MW-10 and vinyl chloride in C1-MW-4 were flagged 'J' by the laboratory to indicate that the sample concentrations were less than the laboratory reporting limits but above the method detection limits. As there are greater levels of uncertainty with these concentrations, these results are considered estimated.

Overall Assessment of Data

The completeness of the analytical reports for this groundwater monitoring event is 100%. The usefulness of the data is based on the EPA guidance documents referenced in the introduction of this report. Upon consideration of the information presented above, the data are considered usable. The data qualifiers assigned by the laboratory are shown on the laboratory reports.

Data Qualifier Definitions

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.

DNR Do Not Report. Another result is available that is more reliable.

References

USEPA, 2017. National Functional Guidelines for Organic Superfund Methods Data Review, January 2017.

AECOM
111 SW Columbia
Suite 1500
Portland, OR 97201
www.aecom.com

503 222 7200 tel
503 222 4292 fax

Table 1. Sample Qualification Summary

AECOM Sample ID	Laboratory Sample ID	Analyte	Qualifier	Rationale
C1-MW-4	A7I0314-01	Acetone	UJ	LCS recovery
		Bromomethane		
		2-Hexanone		
		4-Methyl-2-pentanone		
		Naphthalene		
C2-MW-9	A7I0314-04	Acetone	UJ	LCS recovery
		Bromomethane		
		2-Hexanone		
		4-Methyl-2-pentanone		
		Naphthalene		
C2-MW-9(DUP)	A7I0314-05	Acetone	UJ	LCS recovery
		Bromomethane		
		2-Hexanone		
		4-Methyl-2-pentanone		
		Naphthalene		
C2-MW-11(R)	A7I0314-07	Acetone	UJ	LCS recovery
		Bromomethane		
		2-Hexanone		
		4-Methyl-2-pentanone		
		Naphthalene		
C2-MW-12B	A7I0314-08	Acetone	UJ	LCS recovery
		Bromomethane		
		2-Hexanone		
		4-Methyl-2-pentanone		
		Naphthalene		
C2-MW-3	A7I0314-03	Oil	J	Compound identification

About AECOM

AECOM (NYSE: ACM) is a global provider of professional technical and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water and government. With approximately 100,000 employees around the world, AECOM is a leader in all of the key markets that it serves. AECOM provides a blend of global reach, local knowledge, innovation, and collaborative technical excellence in delivering solutions that enhance and sustain the world's built, natural, and social environments. A Fortune 500 company, AECOM serves clients in more than 100 countries and has annual revenue in excess of $6 billion.

More information on AECOM and its services can be found at www.aecom.com.

111 SW Columbia, Suite 1500
Portland, OR 97201-5850
(503) 222-7200